MONITORING and EVALUATION REPORT

for the

FISCAL YEAR 2000

Ashland, Beartooth, and Sioux Ranger Districts

This document was prepared in cooperation with the District Rangers of the Ashland, Beartooth, Sioux Ranger Districts, as well as the Resource Program Managers in the Supervisor's Office of the Custer National Forest.

Approved by: /s/ *Nancy T. Curriden* *April 18, 2001*

NANCY T. CURRIDEN Date

Forest Supervisor

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I. INTRODUCTION

This report documents the major activities that have occurred on the Custer National Forest from Fiscal Year 1990 through fiscal year 2000. The Custer is divided into three administrative units, or districts: the Ashland Ranger District, located in Ashland, Montana; the Beartooth Ranger District, located in Red Lodge, Montana; and the Sioux Ranger District, located in Camp Crook, South Dakota. The Custer National Forest Headquarters, located in Billings, Montana, administers these districts. Midway through Fiscal Year 1998, the Dakota Prairie Grasslands was formed as a new unit to administer the four ranger districts of the Cedar and Grand River, Little Missouri, and Sheyenne National Grasslands. The process of transitioning administrative responsibilities to the new unit is complete, some staff are shared between the two units.

The USDA Forest Service, in consultation with its shareholders, manages the land and resources of the National Forest System under the guidelines described in Forest and Resource Management Plans. Commonly known as Forest Plans, these documents are agreements between the public, or shareholders, and the Forest Service that are arrived at through a lengthy and deliberate process that involves all interested parties. Forest Plans are designed to guide the management of a specific national forest or grassland area for a period of 10 to 15 years. The Custer National Forest and Grasslands Land and Resource Management Plan have guided management of the forest units described above since it went into effect in 1987.

In order to help both the Forest Service and the public determine how well actual day-to-day management meets the stated goals in the Forest Plan, Forest Service managers monitor activities occurring on the ground and evaluate their results. The Forest Plan addresses monitoring in Chapter IV. The specific monitoring elements are described on pages 105-110. Throughout the rest of this report, the items referred to, and the major headings used, are from these pages.

Monitoring looks at management activities in three ways:

Implementation Monitoring determines if plans, prescriptions, projects, and activities are being accomplished in compliance with Forest Plan objectives, standards, and guidelines (Did we do what we said we would?).

Effectiveness Monitoring determines if plans, prescriptions, projects, and activities are producing identifiable results in moving toward a desired future condition as identified in the Forest Plan (Did our actions accomplish what we wanted?).

Validation Monitoring determines if the assumptions, data, and models used to develop the Forest Plan are correct, or if there are better ways, given new information and technology, to address resource management challenges.

Implementation monitoring is generally done as projects are implemented on the ground. Much of the day-to-day activities of district personnel are devoted to assuring that we do what we said we would do. At the end of the year, we can look at broad program areas to see if we have accomplished the level of activities envisioned in the Forest Plan. Monitoring Item C6 of the Forest Plan, "At least 90 percent of planned wildlife habitat targets are met," is an example of implementation monitoring.

This report will focus primarily on effectiveness monitoring. Monitoring Item C1, "Has effective wildlife habitat decreased by more than ten percent over levels estimated in the Forest Plan analysis?" is an example of effectiveness monitoring.

Validation monitoring is often done at levels above the National Forest through the development of better models for simulating the effects of proposed actions. Few, if any of the items in this report address this type of monitoring.

II. CHANGES SINCE THE FOREST PLAN WAS APPROVED

The Forest Plan has been amended thirty-two times since it was approved in 1987. The scope of amendments ranges from relatively minor corrections in the text of the Plan to the availability of National Forest System lands for the leasing of oil and gas resources. A number of these amendments apply to National Forest System lands now administered by the Dakota Prairie Grasslands. Also, the Dakota Prairie Grasslands are between the proposed and final Dakota Prairie Grasslands Land and Resource Management Plan (1999 Revision).

At the time the Forest Plan was signed, F. Dale Robertson was Chief of the Forest Service. Since then, the agency has seen Jack Ward Thomas and Mike Dombeck take the helm. Dale Bosworth was just selected as Chief on April 12, 2001. Each of these men have endorsed management concepts, consistent with the laws and regulations that direct the agency, but which have clearly affected how the agency approaches its mission of conserving our nation's natural resources. For example, F. Dale Robertson introduced "New Perspectives Forestry" and Jack Ward Thomas endorsed "Ecosystem Management". Former Chief Dombeck's Natural Resource Agenda focused on four areas of interest: watershed health and restoration; sustainable forest ecosystem management; forest roads; and recreation. It is too early to determine what Chief Bosworth's direction for the Forest Service might be.

In June 1998, the Dakota Prairie Grasslands was formed as a new unit to administer the four ranger districts of the Cedar and Grand River, Little Missouri, and Sheyenne National Grasslands. This new unit is headquartered in Bismarck, North Dakota, and Larry Dawson is its first Grassland Supervisor

The Forest has experienced a number of large acreage wildfires since the fires of 1988. Most recently (2000) the Stag and Tobin wild fires burned over 80,000 acres on the Ashland Ranger District and the Willie Fire burned 1,500 acres on Beartooth District. In 1996, the Shepard Mountain Fire burned 15,000 acres of national forest and private lands on the Beartooth District. The Blank Fire burned over 7,400 acres on the Ashland District in 1994.

The following is a partial listing of the laws, Executive Orders, and regulations directed by the President and Congress, with which the Forest Service is directed to comply with since the Forest Plan's approval. Also listed are recent developments or activities on the lands adjacent to the Custer National Forest that may influence activities on the Forest.

<u>Laws, Regulations, and Executive Orders</u>

- Best Management Practices
- Changes in the Threatened and Endangered Species lists
- Changes in the Northern Region Forest Service Sensitive species list
- Cooke City Area Mineral Withdrawal
- Deferred maintenance
- Disabled Access Executive Order
- Land acquisitions/trades/State acts
- Native American Grave Protection and Repatriation Act (1990)
- Patenting of SMC lands on the Beartooth

District.

- Changes in regulations for land and resource management planning.
- Proposed changes in regulations for transportation systems.
- Proposed BLM/FS Off-Highway Vehicle management programmatic decision
- Rescission Act (1995)
- Revision of the special uses permit regulations.
- Revised fire policy
- E.O. 13007 Sacred Lands
- Shift in public expectations
- Water Quality Limited Segments (WQLS)
- The Roadless Area Conservation Rule
- Consultation with tribes
- Sacred Lands Executive Order
-
- Roads Policy
- Forest Service National Resource Book on American and Alaska Native Relations
- E.O. 12875 (1993) Enhancing the Intergovernmental Partnership
- 1994 Memorandum on Government-to-Government Relations with Native American Tribal Government
- E.O. 13084 (1998) Consultation and Coordination with Indian Tribal Government
- Revised NRHP Section 106 Regulations

Recent Developments or Activities on Lands Adjacent to the Custer National Forest

- Development of coal-bed methane in the Powder River Basin

The following describes how the rest of this report is organized. Section III describes what progress has been made to date in implementing and monitoring the Custer Forest Plan. Section IV then summarizes how the plan has been modified, or amended, in response to new information or changing conditions. Lastly, Section V describes issues or topics that have been identified that the Forest Supervisor would consider addressing in the revision process. These are issues that cannot be addressed totally through the amendment process.

III. IMPLEMENTATION PROGRESS and MONITORING RESULTS

This section addresses the monitoring items described in Chapter IV of the Custer Forest Plan and discusses the accomplishments made in meeting Forest Plan goals. All other components of the Forest Plan (objectives, standards and guidelines, and monitoring) were developed to move the Forest condition toward the desired goals described in the Forest Plan. Accomplishments are listed below under the headings as they appear in the monitoring section of the Forest Plan. Resource elements are arranged in the order that they appear in Chapter IV of the Forest Plan.

A. RECREATION

RECREATION: ACTUAL USE OF DEVELOPED AND DISPERSED SITES - MONITORING ITEM A1

ACTION OR EFFECT TO BE MEASURED:	Actual use of developed and dispersed recreation by ROS Class. Actual use of sites and facilities compared with projected use levels.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90% of projected used by ROS Class.

Discussions: Recreation use monitoring has been sporadic on all forests during the 1990's. The last year the Custer/Dakota Prairie Grassland (DPG) was requested to report recreation use was in 1996 as a mandatory Management Attainment Report (MAR) item. Use monitoring has never been segregated into ROS classes. In 1996 we reported 534,147 Recreation Visitor Days for the Custer portion of the Custer/DPG (including developed sites, dispersed and wilderness use). Use, which was reported in 1999, was a simple estimate based on anecdotal observations. The Forest is scheduled to participate in the National Recreation Use Study in 2001, where a statistically sound sample of recreation use data will be gathered.

Recreation use on the Ashland and Sioux Ranger Districts continues to grow slowly, but remains very light compared to other ranger districts in the region.

Anecdotal and verifiable observations show that recreation use has been increasing steadily on Beartooth Ranger District. The number and availability of developed recreation sites on the Beartooth District remains essentially unchanged from ten years ago. Use of these sites has increased dramatically with the effects noticed in a higher percentage of occupancy through increased revenues in developed sites and increased maintenance needs. The effect of the high demand for these sites and the lack of available sites during the summer operating season is showing up in the number of new dispersed camping sites located near developed sites.

The Beartooth District began a study two years ago to identify dispersed camping sites and to note those with high impacts and those within 100 feet of streams or other bodies of water. Some baseline data was gathered through mapping sites but no other work has occurred due to a lack of funding and program of work priorities, and no work has been completed to estimate actual use of those sites.

Recommendations: Tier future monitoring of recreation use to the National Recreation Use Study protocols and schedules. Monitoring use on the Custer as portrayed in the Forest Plan is no longer meaningful, as the targeted use levels were for both the Dakota Prairies and the Custer, and cannot be easily disaggregated. Use monitoring should focus on identifying areas of user conflict, resource degradation and site capacity issues that may result as a consequence of over use in some locations. Use monitoring and reporting as identified by the 2001 MAR report does not include RVD's, rather it reports "visits" and may be changing as Government Performance and Results Act (GPRA) annual performance measures are being refined. The measure as currently displayed in MAR is an optional reporting item.

RECREATION: CONDITION AND TREND, DEVELOPED SITES - MONITORING ITEM A2

ACTION OR EFFECT TO BE MEASURED:	Condition and trend in developed sites.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than acceptable standards, public safety hazards not corrected by 1990, poor conditions not corrected by 2000.

Discussion: The Forest has made considerable progress in improving the quality and standard of developed recreation sites since 1990.

Capitol Investment project accomplishments in the last ten years include:

- Twenty-three new accessible sweet smelling toilets (SST's) installed to replace older wooden outhouse structures in Parkside Picnic Ground, Parkside Campground, Greenough Lake Campground, Limberpine Campground, Rattin Campground, Glacier Lake Trailhead, Wild Bill Lake Picnic Ground, Basin Campground, Emerald Lake Campground, Emerald Lake Fishing Access, West Rosebud Fishing Access, Mystic Lake Trailhead, Stillwater Trailhead and Black Pond.
- Ten accessible campsites and accessible pathways to restrooms installed in Basin, Parkside, Greenough Lake and Cascade Campgrounds. Accessible pathways to water hydrants installed in Basin, Parkside, Greenough Lake and Limberpine Campgrounds.
- Complete reconstruction of Woodbine Campground, Woodbine Falls and Stillwater Trailhead with all accessible infrastructure.
- Complete reconstruction of Vista Point Observation Site with accessible parking, restrooms and interpretive trail.
- Addition of an accessible visitor information center at the Beartooth Ranger District office.
- Emerald Lake Campground reconstruction of roads, parking spurs and accessible SST's (noted above).
- Watchable Wildlife Interpretive display near Jimmy Joe Campground in the East Rosebud Drainage.
- Wild Bill Lake Dam and Bridge reconstruction, which rebuilt an accessible portion of Wild Bill Lake National Recreation Trail.

<u>Also of Note:</u>

- Completion of the Red Lodge Mountain (RLM) Alpine Ski Area Master Development plan EIS and expansion of RLM into Cole Creek almost doubling skier capacity.
- Lions Organizational Camp construction of new accessible outdoor amphitheater and restroom facilities.

In 1998 the Forest began comprehensive surveys of all developed recreation sites to assess their condition using the meaningful measures (MM) methodology. Approximately 40% of all developed

recreation sites have been inventoried, and the data entered into the MM spreadsheets. The effort is an attempt to quantify deferred maintenance needs, show annual maintenance costs and identify capital investment needs. For FY 2000 the Forest showed a need to spend $266,000 on deferred maintenance of developed recreation sites, and a need to make $320,000 worth of capital improvements to these sites to bring them into compliance with meaningful measures standards.

Substandard conditions still exist at several Forest developed recreation sites, particularly on the Ashland and Sioux Ranger Districts. Thoughtful analysis needs to occur before investments are made at these sites, as some may be candidates for decommissioning as opposed to repair based on use levels and costs of bringing the sites up to standard.

Recommendation: The Forest should continue to monitor developed site condition and trend using the meaningful measures methodology, and continue to refine existing data. Priority work should be identified, and 5 year capital investment strategy for completing heavy maintenance completed. A forest wide recreation strategy – slated for completion in 2001 should frame developed recreation priorities and focus for the next several years. This document should also be used as the Forest's "need for change" documentation for forest plan revision.

RECREATION: OFF-ROAD VEHICLE USE - MONITORING ITEM A3

ACTION OR EFFECT TO BE MEASURED:	Off-road vehicle use and damage.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Use conflicts with Forest Management Area goals.

Discussion: The Beartooth District's travel plan was approved in 1987, days after the Forest Plan was approved; however, implementation on-the-ground did not begin until 1994 with the ordering of new travel management signs for roads and trails. Signing is currently 95% complete with the south end of the Pryors designated routes remaining. The Pryor Mountain unit has experienced the most resource damage through the creation of primitive two-tracks by off road users. Winter snowmobile use sometimes results in trespass into the Absaroka Beartooth Wilderness, especially on the portion administered by the Gardiner Ranger District immediately north of Cooke City. Progress and enforcement are hindered by lack of funding for dispersed recreation and program of work priorities.

The Ashland Ranger District has an approved travel plan, which has not been implemented. Off-Highway Vehicle (OHV) use on the Ashland and Sioux Ranger Districts has been increasing, though no formal monitoring has occurred. Potential issues and conflicts may occur where OHV use expands into woody draws and riparian zones, though this has not yet been documented.

Recommendations: Off-Highway Vehicle (OHV) use is a significant issue with each passing year. The Forest should revise and/or complete travel management plans for each district that also address OHV issues. The Northern Region's OHV Record of Decision and EIS has been issued and implementation will begin in FY 2001 and directs the Forest to identify high priority areas for travel revision. In addition to updating travel revision, an achievable monitoring strategy should be drafted and a minimum program outlined and accomplished annually in high priority areas.

RECREATION: CULTURAL RESOURCES - MONITORING ITEM A4

ACTION OR EFFECT TO BE MEASURED:	Cultural resource inventory and protection compliance.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 10% accomplishment per year.

Purpose: This monitoring item was established to ensure that cultural resources were inventoried and protected before projects were implemented. The expected precision and reliability of the information are both high.

Background: The Custer Forest Plan outlines the goals, standards and guidelines to be met for the management of cultural resources on the Custer National Forest (CNF). In 1986, a cultural resource management strategy was constructed to implement the Forest Plan. The primary objectives of the strategy are to bring about improvements in the cultural resource program integration, compliance and effectiveness. As of December 1999, 1,877 heritage resources have been recorded on the Custer National Forest. Approximately 88,400 acres of land (8 % of the Forest) have been inventoried for heritage resources, primarily in support of range, oil and gas leasing analysis, and timber activities. There are 48 sites listed on the National Register of Historic Places (NRHP), 212 sites formally evaluated as eligible for listing on the NRHP, 85 sites formally evaluated as not eligible, and 1,532 sites that have not been evaluated. More than half of these sites were recorded in the last ten years.

Results: New programmatic agreements (PAs) with the Montana and South Dakota State Historic Preservation Offices (SHPOs) have been constructed and signed in 1996, which address survey standards and protection compliance. These agreements require annual reports and meetings with the SHPOs to ensure compliance on all undertakings on the Custer National Forest. Specific reporting protocols and site inventory strategies are defined in these documents and have been followed by the Forest. Included in these agreements are requirements to monitor the effects of various types of Federal undertakings on the heritage resources. The Programmatic Agreements were modified in 2000 to address the revised 1999 Section 106 regulations.

Site and project databases have been automated spatially and in tabular form. Approximately 90% of the recorded sites have been entered into ARC/INFO and all site and project information has been entered into a computer database (ACCESS). This ensures proper tracking and reporting for monitoring and National reporting requirements. These systems are backed-up by hard copy files and a cultural resource atlas is maintained at each district office with a master copy at the Supervisor's office.

Archaeological collections from the Forest are located in seven repositories: 1) the Billings Curation Center; 2) Montana State University; 3) University of Montana; 4) Park County Museum; 5) South Dakota Archaeological Research Center (SARC); 6) Oregon State University; and, 7) the Peabody Museum. Efforts are being made to consolidate the collections into the Billings Curation Center for all Montana State Collections and SARC for all collections from the State of South Dakota. Curation agreements meeting the 1990 curation regulations are in place for these two repositories and the collections are annually reviewed for compliance with the 1990 curation regulations.

The 1992 Native American Graves Protection and Repatriation Act requirements and schedule were met. All collections were reviewed for any materials that may fit the definitions set forth in the Act. One collection, from Ludlow Cave, was identified as possibly having sensitive materials but through

further study was found not to meet the specific definitions of the Act.

Four areas of potentially sacred areas and/or areas of traditional cultural concern have been identified through this process: Dryhead Overlook and Commissary Ridge in the Pryor Mountains; Poker Jim plant collection area on the Ashland District; the Chalk Buttes; and the North Cave Hills and Slim Buttes in South Dakota. Further consultation with the traditional members of the Indian Communities is being conducted to determine what protective measures need to be considered.

Further recordation and interpretation of the rock art in the North Cave Hills is being conducted through Passports in Time projects. This area is now being consolidated into a National Register Historic District.

Evaluation: The new programmatic agreements with the South Dakota and Montana SHPOs identify specific site inventory strategies to follow for certain ground disturbing undertakings including timber sales, range permit re-issuance, grazing allotments, seismic surveys, and prescribed fire. As required by the Programmatic Agreements, annual meetings with the South Dakota and Montana SHPOs are held to review the reports and compliance actions.

All districts are meeting compliance requirements. All undertakings that are surveyed by District archaeologists and/or seasonal archaeologists are reviewed by the Forest Archaeologists to assure that they are meeting compliance standards. Undertakings that are surveyed by consultants are done under antiquity permits. The Forest Archaeologist reviews all of their work and reports. In addition, the Forest Service annually field checks at least 10% of their results to see that they are reporting accurately. Over the last ten years an average of 10 antiquity permits have been issued and reviewed annually. All work conducted under these permits has been found adequate. Since 1996, there have been no objections raised during public involvement efforts for any undertakings on the CNF.

Included in the Programmatic Agreements are requirements to monitor the effects of various Federal undertakings on the cultural resources and to validate whether protection measures are adequate. From 1996-1999, 148 sites were monitored for the effects of grazing, seismic, range and timber activities on the heritage resources. Cattle trailing across sites and trampling at stock tank locations were the main grazing activities found to have damaging effects on the heritage resources. These effects will be mitigated at the allotment planning level.

Recommended Action: The Forest continues to make a concerted effort to work with their eight Tribal neighbors to identify and protect areas that are of traditional cultural concern. Annual tribal meetings with the Chairmen and traditional community are held to discuss current and planned undertakings. Comments from the Indian nations are considered in the NEPA and NHPA processes. These face-to-face meetings appear to be one of the best ways to solicit comment and improve communication with the tribes. This information is crucial for the identification of these and other sensitive or sacred areas that may be considered for special management designations during Forest Plan revision.

In order to protect and preserve significant heritage resources on the Forest, a concerted effort should be made to evaluate the significance of new sites and address the backlog of over 1,500 unevaluated sites. As part of this assessment, the Custer Prehistoric Overview needs to be updated and revised to include the last 17 years of data as well as sections on traditional cultural properties, Ethnography and history. This overview would be used to provide a Forest context with which to evaluate heritage sites.

With the increase in prescribed burns and recent increase in catastrophic wildfire, site locational models and large-scale inventories are needed to identify at risk sites and evaluate the effects of burning on sites. This information will be critical for the understanding of the prehistory and history

of the Custer National Forest as well as facilitate compliance for large restoration projects where prescribed fire and other fuel treatments are employed.

As with all the activities mentioned, monitoring of the effects of Forest actions on the heritage resources remains an important activity. With deferred maintenance and increase monitoring, sites that need conservation and protection can be identified and preservation plans budgeted and implemented.

RECREATION: VISUAL RESOURCES - MONITORING ITEM A5

ACTION OR EFFECT TO BE MEASURED:	Monitoring the effects of land management activities and allocations on the visual resource.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Greater than 10% increase above projected acres of Existing Visual Condition (EVC): 4.

Purpose: This element was developed to track the effects of management activities on the visual resources. The expected precision and reliability of this information is moderate.

Background, Results, & Evaluation: All projects that have occurred within these areas have been mitigated to meet the visual quality objectives. Adverse effects to EVC 4 areas has been by wild fires, for which there is no mitigation to meet visual quality objectives.

Recommended Action: Continue to monitor.

B. WILDERNESS

WILDERNESS: EFFECTS TO WILDERNESS CHARACTERISTICS - MONITORING ITEM B1

ACTION OR EFFECT TO BE MEASURED:	Monitor the effects of resource activities on the wilderness resource through the following parameters: Maintenance of existing quality of the ecosystem. Absaroka/Beartooth and Lost Water Canyon Wilderness Direction.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Maintenance of the quality of the ecosystem: Degradation of the environment. A/B and Lost Water Canyon Wilderness direction: Failure to meet direction in Appendix II or direction in Management Area H and Management Area I.

Discussion: Wilderness monitoring in the last 10 years in the Absaroka-Beartooth has focused on recreation impacts, fuels and fire history and tracking noxious weeds. In 1994/1995 a baseline inventory of impacted campsites was completed, and the data stored in the central Absaroka-Beartooth)racle database (along with corresponding GIS coverages and ARC project) housed on the Gallatin NF. The protocol for campsite monitoring states that the sites will be monitored every 5 years, monitoring of the 94/95 site inventory was begun in 2000, but not completed. In 1999/00 approximately 100 miles of trail were surveyed for condition and maintenance needs. Air quality related values are tracked by high lake chemistry surveys by the Regional Air quality specialist. Recreation use has been tracked sporadically by installing trailhead counters, and verifying that data with real time samples. A prescribed fire plan was revised and implemented in 1993. This fire plan does not address management-ignited fire, only natural events. Extensive analysis of this monitoring data has not been completed, but some simple findings are:

1. Wilderness campsites. The 94/95 surveys found 421 sites on the Beartooth RD. Of those sites, 186 had a site impact rating of heavy to extreme and 289 sites were located less than 200' from water (conflicting with recommended set backs). Since the 5-year monitoring of this data is not yet complete, trend of these sites in the last 5 years is unknown. Campsite monitoring was completed for the District in the 80's, but using a different protocol, so the data is difficult to compare. Data collected in the 1980's needs to be compiled into the electronic database before it can be assessed against the 1995 data. However, anecdotal observations indicate that overall, site conditions have improved at some locations since early monitoring in the 80's. Sometimes it is difficult to determine if a campsite inventoried in the 80's is the same campsite inventoried in the 1995 survey; the same will be true for this year's Wilderness campsite survey. For example, campsites around a lake can be particularly

difficult to determine if it was inventoried in the last survey because of the proximity of one site to another and the number of sites around the lake. Use of global positioning systems in this year's Wilderness campsite inventories will provide fairly precise locations that can be revisited with some accuracy over time. Spatial distribution and total number of sites seems to be stable. Campfire scars continue to be a problem at many sites, and wood is being depleted at some locations. This trend may trigger the need for additional restrictions of campfires in heavily used locations.

2. Trail condition surveys were completed on approximately 100 miles of trail in the Absaroka-Beartooth in 1999/2000. General findings of the surveys indicate a need for heavy maintenance and repair on many sections of trail which have been somewhat neglected in recent years due to budget shortfalls. Portions of the District where the 1988 fires burned have been subject to tremendous downfall on trails, and encroaching reproduction of lodgepole pine. Treads need to be reestablished, and water control structures installed in many locations, though some progress has been made in the last two years on those trails. Detailed findings from the trail condition surveys are not yet available, as that data is still being compiled into a database where analysis can be made.

3. Noxious weed inventories have been kept current in the Absaroka-Beartooth. No new additional infestations have been found for several years, and no infestations of the more aggressive weeds are known to exist in the Absaroka-Beartooth. There is Canadian thistle, Hounds Tongue and Mullen in the Absaroka-Beartooth in areas of disturbance. Of those three Canadian Thistle and Hounds Tongue are considered to be noxious weeds, but have not been treated. Canadian Thistle is pervasive throughout the Absaroka-Beartooth in areas of disturbance (especially old sheep allotments and along trails). No consistent treatment plans have been adopted across the wilderness, as it is thought to be a low priority weed for control compared to more tenacious species like dalmation toadflax or spotted knapweed. Spotted knapweed is a known invader at several wilderness trailheads, and has been actively controlled to limit its spread. All new weed infestations that are discovered are mapped/controlled as possible and reported every year.

4. Recreation use data has been gathered at several trailheads in the last 10 years. The numeric findings of that survey work have not been assessed at this time, but anecdotal summary is as follows: overall the Beartooth RD continues to be the most heavily used wilderness District in the Northern Region. All types of uses have increased in the last 10 years, with a shift toward more day use. Also, more overnight packstock use has been noted in certain areas. The result of this increase in use is more chance for resource impacts from recreationists, and fewer opportunities for solitude in popular areas.

5. The Forest Service will be participating in a National Recreation Use Monitoring sample in FY 2002, which will produce statistically valid use data for the Wilderness portion of the Custer.

In 1998 a landscape assessment was begun for the Absaroka Beartooth, to complete assessment work necessary for Forest Plan revision. The emphasis of this assessment focused on compiling resource data such as soil, air, water, wildlife, vegetation, fire history/natural role of fire and recreation information within the Absaroka-Beartooth and identifying need for change in revised wilderness direction. A draft strategy for managing recreation issues has been completed using LAC (Limits of Acceptable Change) methodology, but has never finalized. The completion of the integrated landscape assessment was put on hold due to lack of planning funds and priority work conflicts with team members. The completion of this analysis should provide a strong template for identifying ecosystem

health issues, as well as managing recreation under a revised forest plan.

No monitoring in the Lost Water Canyon recommended addition to Wilderness has occurred in the last several years.

Recommendations: Monitoring of recreation and resource conditions should be a high priority for the Absaroka-Beartooth. Continued monitoring of campsite and trail condition and trend, noxious weeds, recreational livestock impacts, air quality, etc. is crucial to assess whether or not we are achieving "no net loss" of social and resource values of wilderness. Historic monitoring data needs to be compiled and cross-walked to provide better trend indicators when compared to current monitoring efforts. The Absaroka-Beartooth landscape assessment should be completed, and more sensitive standards and indicators developed in the revised forest plan, which will assure non-degradation stewardship of the wilderness resource. Hurdles of limited budgets and personnel need to be cleared to ensure that timely monitoring and analysis occurs.

Schedule a monitoring review of the Lost Water Canyon area for field season 2001 to, at least, visually assess resource conditions.

C. WILDLIFE

WILDLIFE: OIL AND GAS ACTIVITIES - MONITORING ITEM C1

ACTION OR EFFECT TO BE MEASURED:	Wildlife habitat changes from potential associated with road construction and oil and gas activities.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Decreases of 10% or more in effective habitat identified in FORPLAN model.

Purpose: This monitoring item was established to determine decreases of 10% or more in effective wildlife habitat resulting from oil and gas related activities.

Background: Prior to approval of the Forest Plan (USFS, 1986) there were two wells drilled on the Ashland Ranger District and one well drilled in the North Cave Hills on the Sioux Ranger District. Since the approval of the Forest Plan (USFS, 1986) there was one well drilled and capped (Ruby Exploratory Well EIS, February 1990) on the Beartooth Ranger District; no wells were drilled on the Ashland Ranger or Sioux Ranger Districts. The Record of Decision for the Beartooth Mountains Oil and Gas Leasing Final Environmental Impact statement was signed in May 1996. Currently there are no approved oil and gas leasing decision documents for the Pryor Mountains on the Beartooth Ranger District or any portion of the Ashland and Sioux Ranger Districts. One site from a pre-1986 lease in the North Cave Hills Land Unit of the Sioux Ranger District is held in oil and gas production.

The Ashland Ranger District has the potential to be affected by proposed coal bed methane extraction on private minerals adjacent to NFS lands. A draft oil and gas leasing EIS is being prepared for the South Dakota portion of the Sioux Ranger District.

Evaluation: There have been minimal changes in wildlife habitat resulting from oil and gas related activities, including road construction, on the Beartooth, Ashland, and Sioux Ranger Districts. There has been no leasing on the Ashland and Sioux Ranger Districts from 1986-2000, though this could change with the Sioux Oil and Gas Leasing EIS (in draft) and public requests to lease areas of the

Ashland Ranger District for coal bed methane extraction. The greatest potential for change from coal bed methane is associated with lowering the ground water table to facilitate the extraction of methane gas. A reduction in the groundwater table could alter the flow of seeps and spring as well as alter surface vegetation and the habitat of associated wildlife species. The flow of water could increase temporarily is some drainages as a result of the pumping of ground water. Potential additional impacts of oil and gas activities include the construction of new roads, well pads, electrical power lines, and pipelines, and other associated facilities.

Recommended Action: In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan Revision, leasing stipulations designed to protect wildlife resources will be reviewed and updated where needed. Add a definition of "oil and gas related actions" to the Forest Plan Glossary. This item will continue to be monitored.

WILDLIFE: THREATENED, ENDANGERED, AND FOREST SERVICE SENSITIVE - MONITORING ITEM C2

ACTION OR EFFECT TO BE MEASURED:	Acres by habitat by condition for T&E species of: Grizzly bear, bald eagle, black-footed ferret, and peregrine falcon.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Greater than a 5% decrease in essential habitat and/or populations of T&E species.

Purpose: This monitoring item was established to determine greater than a 5% decreases in essential habitat and/or populations of Threatened and Endangered species. Forest Service Northern Region sensitive species are also addressed under this monitoring item.

Background:

Federally listed endangered, threatened, and proposed species

Bald eagle - The habitat for this species has remained relatively constant. There are no known or suspected bald eagle nests on the Beartooth, Ashland, and Sioux Ranger District. There is the potential for bald eagle to use mature forest stands along the Little Missouri River on the Sioux Ranger District and along the Tongue River on the Ashland Ranger District as periodic winter roosts, though no such roosts have been detected to date.

Black-footed ferret – There are no known or suspected black-footed ferrets on the Beartooth, Ashland, or Sioux Ranger District. Black-footed ferrets are most often associated with prairie dog colonies. Research from ferret-occupied prairie dog colonies indicates that the most important attribute of ferret habitat is the distribution and abundance of prairie dogs. To support a viable population of ferrets, a prairie dog colony complex of 2500-3000 ha (6,200-7,400 acres) composed of individual colonies at least 12 ha (30 acres) in size with 50 ha (125 acres) or larger is needed (Forrest et al., 1985, p. 28). There is an inadequate acreage of prairie dogs towns on the Forest to support black-footed ferrets. See Monitoring Item C7 for acreages of prairie dog towns.

Grizzly bear – Grizzly bear habitat is relatively stable. The Cooke City Mineral Withdrawal EIS (July

1997) for locatable minerals was within the only Grizzly Bear Management Situation 1 on the Custer National Forest. The mineral withdrawal included the area of the previously proposed New World Mine.

Gray wolf – Wolf activity occurred on the Beartooth Ranger District from 1986-2000, but there are no known established packs present.

Lynx – The lynx was listed by the USF&WS as federally threatened on March 2000. The Forest developed draft maps of potential habitat and existing winter recreation use as part of the ongoing consultation process with the USF&WS. The existing affects were minimal as of March 2000.

Mountain plover – The mountain plover is believed to be absent from the Forest. There is no suitable habitat for the mountain plover on the Sioux or Ashland Ranger District. According to McMaster (June 28, 1999): "… The mountain plover does not nest in areas with broken and rolling topography, sites with trees, shrubs greater than on food in height, or thick herbaceous understory or groundcover. Positive indicators for mountain plovers usually include areas of little slope, bare ground, short vegetation and/or active prairie dog towns. …" A pair of mountain plover was observed by the USF&WS on private lands approximately five miles south of the Forest Boundary in the Pryor Mountains; the location is on BLM lands in remnant habitat, east of Warren along the Gyp Springs Road (Haneberry, May 4, 2000). The plovers were in an area that was historically white-tailed prairie dog towns. There are no records of mountain plovers using NFS lands on the Custer N. F.

Northern Region sensitive species

As part of the National Environmental Policy Act (NEPA), the Forest Service is directed to review programs and activities to ensure that species do not become threatened or endangered because of federally funded or implemented actions. The Regional Forester has been directed to identify a list of sensitive species occurring within National Forest boundaries and develop management strategies that avoid actions which may cause a species to become threatened or endangered (FSM 2670.22). Sensitive species were not formally recognized in the Forest Plan. The Northern Region sensitive species list was established in 1989 and was updated in 1991 (Mumma, June 5, 1991), 1994 (Risbrudt, June 10, 1994), and 1999 (Bosworth, March 12, 1999). The following discussion highlights some of the USFS sensitive species present on the Custer National Forest. Project effects on these species are addressed in the project biological evaluation. Populations and habitat status are largely unknown for most of the species.

Peregrine falcon – The species has been removed from the federal threatened status and the peregrine falcon is currently on the USFS Northern Region sensitive species list (Bosworth, March 12, 1999; McAllister, March 30, 2000). There are no known active peregrine falcon nest sites on the Beartooth, Ashland, or Sioux Ranger Districts. No peregrine falcons were detected in a survey conducted to locate nesting raptors on the South Dakota portion of the Sioux Ranger District in 1996 and 1997.

Goshawk – There are 14 known nests on the Custer National Forest (Beartooth R.D. = 1; Ashland R.D. = 11; and Sioux R.D. = 2). The nest sites have not been systematically surveyed; some nest sites were monitored incidental to other projects. The development of ladder fuels (understory trees) in mature ponderosa pine forests and resulting mosaic of fuel types makes nest and foraging habitat at risk for stand replacing wildland fires. Past timber harvest and wildland fires may have reduced the quality of some goshawk nest and foraging habitat. The FY 2000 Ft. Howes Wildfires killed ponderosa pine trees in what was considered a potential goshawk nest territory in the Hay Creek drainage on the Ashland Ranger District.

Northern leopard frog – The Forest Service contracted with the Montana Natural Heritage Program to conduct a general survey of amphibians and reptiles on the Ashland and Sioux Ranger Districts. The survey results indicate the northern leopard frog is still abundant and widespread in southeastern

Montana and northwestern South Dakota (Hendricks and Reichel, 1996, pp. 14-15).

Black-tailed and white-tailed prairie dogs – These species are listed as a Northern Region sensitive species (Bosworth, March 12, 1999) and are addressed under Monitoring Item C7.

Black-backed woodpecker - The black-backed woodpecker relies on fire-killed trees for habitat. Several wildfires on the forest have provided potential habitat for black-backed woodpeckers on the Beartooth (Shepard Mountain or East Rosebud, circa 1998; Willy Wildfires 2000), Ashland (Tobin, Stag Wildfires 2000), and Sioux (Brewer and West Short Pines Wildfires, 1988) Ranger Districts. Habitat has also been created as a result of prescribed burning on the Ashland Ranger District (Brewster Gulch 1998-99; Bridge-Turtle 1998-99). The species has been observed on the Ashland Ranger District. There have been no systematic surveys for this species, but there have been incidental observations of the species on the Ashland Ranger District.

Sage grouse – There have been observations of sage grouse at about eight locations on or adjacent to the Ashland R.D., all of which have been recorded in the grouse map theme in GIS. Suitable sagebrush grasslands within a 2-mile radius of leks are generally considered potential nest habitat for sage grouse. Potential nest habitat is present on the Ashland R.D. The numbers of sage grouse in Montana have increased in response to moist weather in 1999; the population of sage grouse on the Ashland Ranger District is believed to have followed a similar trend. Mitigation measures in prescribed burn projects generally avoid big sagebrush/grasslands habitats and maintain habitat for sage grouse on NFS lands. The influence of livestock grazing on sage grouse habitat has not been determined. An effort to map big sagebrush stands with Satellite Imagery Land Classification-3 (SILC-3) are ongoing for the Ashland Ranger District.

Burrowing owl – There have been some observations of burrowing owls on the grasslands outside of the breeding season on the Ashland Ranger District. No burrowing owls were detected during incidental surveys of three prairie dog towns in 1999 by USFS employees, or by surveys of 16 towns in 2000 by researchers from MSU-Bozeman. Burrowing owls are reported to nest on adjacent private lands outside of the Forest Boundary.

Northern loggerhead shrike – Monitoring Item C4 addresses the monitoring of woody draw areas associated with nest habitat for this shrike.

Harlequin duck – Surveys to detect breeding harlequin ducks along swift flowing mountain streams were conducted approximately 10 years ago, but there has been no follow-up survey to determine any changes in the occupied habitat resulting from recreation on the Beartooth Ranger District. The District has kept records of incidental sightings of harlequin ducks by Montana Heritage Program, Forest visitors and Forest Service employees since 1990. Thus, they are seen periodically but no systematic surveys have been done since 1990.

Other sensitive wildlife species – Data would need to be gathered, analyzed, and summarized. The data is contained within files stored in the State Natural Heritage Program, Montana Department of Fish, Wildlife and Parks, and Forest Service offices. The effects to these species are considered in the analysis for any proposed action for which NEPA analysis is conducted and a decision to implement a project is made.

Northern Region sensitive fish species - Testing has been conducted to determine pure strains of Yellowstone Cutthroat Trout from known locations in the Pryor Mountains and Bad Canyon areas of the Beartooth District. Two relocation/transplanting efforts were conducted in the mid 1990s. The Forest Service continues to work with the Montana Department of Fish, Wildlife and Park in our efforts towards restoration of native fisheries and the gathering of data to monitor populations of these species.

Northern Region sensitive plant species – The distribution of known locations of sensitive plants has been mapped for the South Dakota portion of the Sioux Ranger District (FY 1996) and all of the Ashland Ranger District (FY 2000). The general occurrence location obtained from the Montana Natural Heritage Program was mapped as part of the analysis for the Beartooth Oil and Gas Leasing EIS, 1996. Proposed actions on the Forest have been designed to avoid impacts to known sensitive plant sites. Five species of sensitive plants would be protected through the designation of the Line Creek Research Natural Area on the Beartooth Ranger District in FY 2000.

Evaluation: The Northern Region sensitive species list was not considered directly in the Forest Plan; however, compliance with laws, regulations, and policies requires the consideration of effects to Forest Service listed sensitive plant and animal species for site specific, project level decisions that implement the Forest Plan. The expanding list of federally endangered, threatened, and candidate threatened species along with Forest Service Northern Region sensitive has dramatically increased the complexity of wildlife and sensitive plant analysis for projects from 1986 to 2000.

Generally, the Forest Service manages and monitors habitat while the State manages and monitors plant and animal populations. To support site-specific NEPA decisions the Forest Service sometimes needs population data for plant and animal species for which the Montana State Fish, Wildlife and Parks Department or South Dakota Game, Fish and Parks has no such information. In that instance, the Forest Service may collect population data or coordinate/cooperate with the State to collect such information.

Recommended Action: In review of this monitoring item, changes are needed to the Forest Plan to reflect changes in federal listed and Forest Service sensitive species. There is a need to increase the level of surveys to determine the distribution of habitats and participate in an interagency manner to monitor population trends of Forest Service Northern Region sensitive animal and plant species. During Forest Plan Revision, current Federal endangered, threatened, candidate species and the Forest Service Northern Region sensitive species lists will be referenced, and the plan will be reviewed and updated where needed. This item will continue to be monitored.

WILDLIFE: WINTER RANGE AND POPULATION LEVELS - MONITORING ITEM C3

ACTION OR EFFECT TO BE MEASURED:	Winter range capacity and population levels for: - Elk (Line Creek) - Bighorn sheep - Deer winter range.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Decrease of 5% or more in 3-year population average.

Purpose: The purpose of this monitoring item is to determine if winter range capacity and population levels decreased by more than five percent for elk, bighorn sheep, or mule deer in the three year population average for these species.

Background: Elk populations are believed to be stable in the Beartooth Ranger District and increasing slowly in the Ashland and Sioux Ranger Districts to the east. Mule deer numbers are

thought to be stable across the Forest, with some concern expressed relative to age and sex class ratios. White-tailed deer numbers are thought to be stable or increasing in Montana and South Dakota. Qualitative data needs to be assembled from the Montana and South Dakota state agency composition and age class records for the management units encompassing the Ranger Districts.

Elk – A study of elk grazing patterns after fire on the Line Creek Plateau on the Beartooth Ranger District addressed burn patterns and fire frequency in grasslands on winter range (Van Dyke, et. al. 1999, In Press). Sub-divisions on private land continue to expand into winter range habitat adjacent to the Beartooth Ranger District.

The elk populations on the Ashland and Sioux Ranger Districts are expanding. Elk have been detected over broad areas of the Ashland Ranger District. An elk herd of approximately 80 head of elk are present in the Long Pines Land Unit in Montana. Wildland fires removed much of the forest cover in 1988 in the Long Pines. In South Dakota, small groups of elk have been detected in the North and South Cave Hills, Slim Buttes, and East Short Pines. For the MTFW&P, statewide, elk vulnerability during the hunting season is a concern especially in habitat that contains numerous roads open to public motorized vehicle access.

Bighorn Sheep - The data would need to be gathered from MFW&P reports and analyzed to report population numbers for bighorn sheep on the Beartooth Ranger District. On the Ashland Ranger District, five head of bighorn sheep were observed near Ashland, Montana in August 2000 for the first time in recent history. The source of the bighorn sheep is unknown, but biologists speculate the herd may have originated from the established herd to the north near Miles City, Montana. There are no bighorn sheep on the Sioux Ranger District.

Deer Winter Range - The Ashland and Sioux Ranger District provide habitat for non-migratory herds of deer. Winter range maps (1:250,000 and 1:24,000 scale) were obtained from MFW&P in 1999 for the Ashland Ranger District and the Montana portion of Sioux Ranger District and have been placed into the electronic map library. Colonization of winter range by ponderosa pine trees is continuing on the Ashland Ranger District except where wildfires removed pine forest in 2000. The winter range habitat is recovering within the 1988 wildfires areas in the Long Pines and West Short Pines. The State agency reports the information on deer populations.

Deer winter range maps (1:250,000 scale) were obtained from MFW&P for Ashland Ranger District and the Montana portion of Sioux Ranger District and digitized into the GIS system for use in future analysis. Ponderosa pine tree seedling establishment within rangelands and in the under-story of mature forest is reducing the potential of the habitat to produce suitable forage and browse for deer.

Evaluation: The net change in the winter range capacity is unknown. The Beartooth Ranger District contains high and low elevation areas, the later of which includes winter range. The Ashland and Sioux Range Districts are considered year-round habitat for elk, mule deer, and white-tailed deer. Elk populations on the Beartooth Ranger District have been relatively stable, whereas populations have increased on the Ashland and Sioux Ranger Districts. White-tailed deer numbers are thought to be stable in Montana and South Dakota. Bighorn sheep populations on the Beartooth Ranger District appear to be stable to increasing slightly. Qualitative data needs to be assembled from the Montana and South Dakota state agency composition and age class records for management units encompassing the Beartooth, Ashland, and Sioux Ranger Districts.

Generally, the Forest Service manages and monitors habitat while the State manages and monitors plant and animal populations. To support site-specific NEPA decisions the Forest Service sometimes needs population data for plant and animal species for which the Montana State Fish, Wildlife and Parks Department or South Dakota Game, Fish and Parks has no such information. In that instance, the Forest Service may collect population data or coordinate/cooperate with the State to collect such information.

Recommended Action: In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan Revision, the need to monitor acres of habitat rather than population levels will be addressed and updates added where needed. This item will continue to be monitored.

WILDLIFE: KEY WILDLIFE HABITATS - MONITORING ITEM C4

ACTION OR EFFECT TO BE MEASURED:	Condition of key wildlife habitats with special emphasis on riparian and woody draws.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Greater than a 5% reduction in effective acres.

Purpose: The purpose of this monitoring item is to determine if there has been a greater than five percent reduction of key wildlife habitat with special emphasis on riparian and woody draw areas.

Background:

Riparian – Riparian habitat was inventoried (Proper Functioning Condition and/or existing vegetative composition and conditions) on the Beartooth District which included the entire Pryor Mountains, Bad Canyon, and Sheep Creek during the last ten years.

The existing distribution of riparian vegetation has been mapped across the Forest (through Satellite Image Land Cover) Riparian habitat was monitored along with woody draws on the Ashland Ranger District (please refer to Monitoring Item D2, Range Condition and Trend and the discussion on riparian there). Data would need to be gathered from files to further identify monitoring completed as part of other site-specific projects.

Woody Draws - Woody draws are considered important habitats for many wildlife species. Ponderosa pine trees continue to colonize woody draws and overtop and shade broadleaf woody trees and shrubs throughout many woody draws. The trend is leading to a reduced area and density of broadleaf trees and shrubs typically associated with woody draws, which means reduced habitat quality. Trend data suggests that woody draws with a high degree of structure may be declining. Water is considered one of the most important factors influencing livestock distribution on the Ashland and Sioux Ranger Districts. The proximity of woody draws to water developments may make woody broadleaf plants susceptible to heavy utilization and mechanical damage by livestock. Woody draw inventory and monitoring was conducted as part of Range Management on Ashland and Sioux Ranger District (see Monitoring Item D2).

Beaver dams - Beaver were once present, certainly prior to the approval of the Forest Plan, but are now absent from large areas on the Ashland and Sioux Ranger Districts. Past trapping, wildland fires, and conifer overshadowing of woody draws are some factors that may have contributed to the decline in area occupied by beaver. Wetlands associated with beaver dams and flowages are also limited. The Long Pines fire of 1988 resulted in the regeneration of aspen stands and potential beaver habitat. The White Rock Spring area on the Sioux Ranger District (USFS, 1986; P. 77), estimated at approximately 60 acres, was identified as a candidate RNA that may have a representative habitat type of beaver ponds in Montana; beaver are currently absent from the area. The presence of beaver would improve wildlife habitat, augments late season flow of the stream, promotes ecosystem diversity, helps restore natural processes, increases watchable wildlife viewing, and wetlands. Channel treatments that are a part of the selected alternative for the *Ashland Post-Fire Project FEIS* (2000) includes the relocation

of beaver into the Cow Creek and Stocker-Branch drainages. Beaver are present in several streams on the Beartooth Ranger District.

Snags – Specific Forest Plan discussion on the management of snags is limited to Management Areas "G" "M", and "N" (USFS, 1986, pp. 64, 80, and 83, respectively). The Forest Plan does not identify standards for the long-term management of snags for cavity dependent wildlife over time for other Management Areas. The only direction provided for snag recruitment is given in Management Area M, which states, "Adequate trees will be maintained within 30 feet of streams to provide snag recruitment to the fishery streams to create pools for fish habitat." (USFS, 1986, p. 80).

Old Growth – The goshawk was identified as the Management Indicator Species for old-growth habitat in the Forest Plan (p. 18). Old growth timber in the glossary of the Forest Plan Custer (p. 135) states to see overmature timber. Overmature timber is defined in the Forest Plan (p. 136) as individual trees or stands of trees that in general are past their maximum rate in terms of the physiological processes expressed as height, diameter and volume growth.. Most Forests have defined old-growth characteristics for the purposes of habitat maintenance, and monitor these stands over time. A model, based on known goshawk nest stands, is used to identify old growth habitat. Much of the focus on habitat management has been on nest stands with a minor emphasis on foraging areas.

The Forest has classified stands in the Timber Stand Management Record System (TSMRS) database by means of a photo interpreted or ground verified stratum code label signifying various vegetation and non-vegetation cover types. The definitions for the cover types are described in Appendix A, which is attached to this report Forested types are further classified by tentative suitability, size, and crown cover percent. Individual overmature trees and stands of overmature trees are considered to fall within the sawtimber sized (9.0" DBH and larger) stratum classification. Stands in the poletimber sized stratum classification (5.0" to 8.9" DBH) would be expected to grow into overmature timber within the 75 year planning horizon of the Forest Plan.

Appendix B is incorporated by reference in this report. Appendix B is an excel spreadsheet with two worksheets, one for identified overmature stands and, one for identified replacement overmature stands that includes individual stand numbers their acres, stratum classification label and forest plan management area. Appendix B is greater than 500 pages in length and is available upon request, but is not attached to this report.

The spreadsheet contains a current list of overmature and replacement overmature timber acres on the Custer National Forest as compiled in March of 2001. Acres where the overmature or replacement overmature trees were removed through timber harvest, stand replacement wildfire and permanent land clearing from 10/01/1987 to present are not included. Stand replacement events resulting from the 2000 wildfires on the Ashland Ranger District were determined from land satellite imagery. These stands have not had ground verification and could be over estimated.

The spreadsheet indicates 308,874 acres of overmature forest and 105,011 acres of replacement overmature forest. This spreadsheet does not include any identified stand in the non-productive stratum classification on the Forest, such as aspen, cottonwood, green ash, juniper, and white bark pine. There are 77,375 acres identified on the forest in these cover types that could also contribute to overmature and replacement overmature categories.

The Forest Plan FEIS (p. 51) notes that Alternative 10, the preferred alternative (the selected alternative in the Record of Decision), would maintain approximately 84,600 acres or 54 percent of the suitable timber base in old growth by the end of the planning horizon. The figures quoted are incorrectly stated in the FEIS. The Forest Plan only identifies a total of 77,400 acres of suitable forest land (Appendix I, p.149). Eighty four thousand six hundred acres is fifty four percent of 156,731 acres of the tentatively suitable forest land (Appendix I, p.149). The correct statement should read "would maintain approximately 84,600 acres or 54 percent of the tentatively suitable forest land in old

growth by the end of the planning horizon."

From 1988 to 1999 there has been 7,519[1] acres harvested by various silvicultural systems on suitable lands for an average of 627 acres per year. Projecting this as an average yearly harvest out to the end of the 75-year planning horizon 42,636 acres could be harvested. Current tentatively suitable forest land of over-mature plus replacement overmature acreage equals 229,254 acres. Subtracting the 42,636 acre projection leaves 186,618 acres. This is 102,018 acres over the 84,600 acres as stated in the Forest Plan.

Management Area G standard to at least meet the habitat requirments for a minimum viable population of old growth dependent wildlife species.

The proposed average annual harvested acres for Management Area G in the first decade is 314 (Forest Plan p. 65-66); the actual harvested acres for Management Area G was 208[2] acres annually. Current harvested acres for the first two years of decade two for Management Area G averages 107[2] acres annually.

Harvested acres are within the proposed Forest Plan output levels. With this trend over the next six decades of the planning horizon old growth should be maintained to meet Forest Plan requirements for old growth dependent wildlife species**.**

Evaluation: The data for several key habitats needs to be gathered, analyzed, and summarized to complete the evaluation.

Recommended Action: At Forest Plan Revision management area direction should be developed that addresses streamcourses. Forest-wide standards should be developed for the management of snags. Forest Plan direction is already provided for riparian areas and woody draws. This item will continue to be monitored.

WILDLIFE: WILDLIFE AND LIVESTOCK CONFLICTS IN KEY AREAS - MONITORING ITEM C5

ACTION OR EFFECT TO BE MEASURED:	Wildlife and livestock conflicts in key areas.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Greater than a 5% reduction in effective acres.

Purpose: The purpose of this monitoring item is to determine if wildlife and livestock conflicts in key wildlife habitat areas caused more than a five percent decrease in effective wildlife habitat.

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[1] Data source is the TSMRS database and the Draft Forest Plan Monitoring Report. Includes clearcutting, seed tree, shelterwood, selection, improvement, liberation, commercial thinning, special, salvage, and sanitation harvests.

[2] Includes only chargeable volume and harvest on suitable lands. Acreage figures do not include salvage/sanitation harvests or permanent land clearings. Data sources are the Draft Forest Plan Monitoring Report, TSMRS database and Program Sale Statement generated from STARS. ASQ is based from harvest on suitable lands and ASQ can be derived from the Schedule of Management Practices within the individual Management Areas of the Forest Plan.

Background: The incremental development of new water sources has decreased the amount of high structure grassland and increased the acreage of medium to low structure grassland. Several new water sources were added from 1986 through 2000. The area within an approximately 0.5-mile radius of a water source on 0 – 40% slopes is typically in moderate to low grassland structure, though site-specific data is needed for GIS modeling to quantify the changed condition. Data on the locations of water sources was collected as part of Deferred Maintenance assessment in FY 1999 and 2000. Wildlife mortality associated with ineffective or missing wildlife escape ramps in stockwater tanks has been identified at several locations on the Sioux Ranger District. These sites are generally being reconstructed to provide safe access to water for small mammals, songbirds, and other wildlife.

Emerging issues include: the effects of water developments and associated livestock grazing on the heterogeneity of vegetation structure and composition and wildlife species that are potentially affected; residual nesting cover within the vicinity of sharp-tailed and sage grouse leks; maintenance of sagebrush communities for dependent wildlife species (sage grouse, Brewers sparrow); and changes from relatively moist to dry plant communities resulting from livestock grazing contributing to soil erosion, down cutting of drainages and subsequent lowering of water.

One measure of the change in grassland structure resulting from livestock water developments is the three relict grassland sites previously identified for the Sioux Ranger District (USFS, 1976; P. 105). The one site in Montana is in the Chalk Buttes (T1S, R57E, Sec. 29, 30, 31, and 32). The two sites within South Dakota are located in the South Cave Hills (T21N, R4E, Sec. 13) and the Slim Buttes (T16N, R9E, Sec. 33). The two sites in South Dakota correspond with stands delineated in the Timber Stand Management Record System (TSMRS) system (pers. comm., Arden Warm, USFS, to Don Sasse, Sept. 1997). The stands are South Cave Hills Relict Grassland = #317-01-05 (7 A.) and #317-01-011 (26 A.) and Slim Buttes Relict grassland = #323-06-14 (23 A.). New or extended water sources in stock tanks have the potential to alter the pattern of livestock grazing and forage utilization. Based on the location of livestock trails relative to these areas it is likely that the high structured grasslands identified in 1976 are now moderate structured grasslands because of the concentrated cattle use around these facilities and the adjacent rangelands.

Evaluation: The ongoing monitoring of deferred maintenance is expected to show the type, date of construction, and distribution of water sources; subsequent analysis is needed to display the spatial change in water distribution and resultant change in vegetation structure across the landscape (e.g. more stockwater sources distributed across the landscape will affect more rangeland, and may have an effect on vegetation structure). The largest number of post-forest plan water developments is believed to have occurred on the Ashland Ranger District, and to a lesser extent on the Sioux and Beartooth Ranger Districts.

Recommended Action: In review of this monitoring item, no changes are needed to the Forest Plan at this time. It is recommended that the analysis be expanded to address the above-identified emerging issues. During Forest Plan Revision, standards and guidelines will be reviewed and updated where needed. This item will continue to be monitored.

WILDLIFE: WILDLIFE HABITAT - MONITORING ITEM C6

ACTION OR EFFECT TO BE MEASURED:	Wildlife habitat.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90% of planned accomplishment.

Purpose: This monitoring item is designed to detect results that achieve less than 90% of planned wildlife habitat improvement accomplishments.

Background: Over the 1986–2000 planning period, funded habitat improvement projects have been accomplished at or above the 90 percent level. All of the approximately 26 wildlife structures not recorded by other Forest Service functional areas were inventoried and the maintenance needs identified in FY 1999. Almost all structures examined were in need of some level of maintenance or replacement. Funding levels have consistently been below full funding levels as identified in the Forest Plan (USFS, 1986, P. 163).

Aspen Restoration – Aerial photography taken in 1929 indicate that approximately 6,000 acres of aspen existed on the Beartooth face at that time. Aerial photographs taken in 1989 indicated that approximately 3,000 acres of aspen communities were found in the same geographic area, a reduction of 50% or 3,000 acres. Conifer species including Douglas-fir, spruce, and sub-alpine fir trees are replacing aspen. This trend has taken place due to fire suppression efforts. Approximately 80% of the aspen on the Beartooth Mountains is comprised of 80 to 120 year old trees. Historically, aspen communities were regenerated by periodic wildfires, which burned throughout the Beartooth Mountains. If this trend in an absence of fire is allowed to continue, aspen communities could be eliminated within the next 60 to 100 years. Healthy aspen communities provide higher valued wildlife habitat as compared to conifer stands and other vegetation communities found in the Northern Rocky Mountains.

Aspen restoration on the Beartooth Ranger District has been a long-term, on-going effort. Significant contributors to the management and monitoring of aspen communities have included: The Ruffed Grouse Society; Yellowstone Chapter of the Audubon Society; and the Montana Department of Fish, Wildlife, and Parks. The approximately 2 to 12 acre treatment areas focused on regenerating dying or decadent aspen stands. Approximately 500 acres of aspen have been treated since 1989 on the Beartooth face and include the West Fork of Red Lodge Creek, the Palisades, and Benbow areas (Table C6-1). The treatment included mechanical looping and prescribed burning in habitats that contain remnant aspen trees.

Wildfires likely resulted in aspen regeneration within the Shepard Mountain (East Rosebud Creek drainage) in FY 1996 and the Willy Fire in the Wapiti Mountain area in FY 2000 of the Beartooth Ranger District. Wildfires likely had a similar result in the Long Pines and West Short Pines in FY 1988 of the Sioux Ranger District.

The monitoring of the treated and untreated aspen stands includes: a masters thesis on ruffed grouse and aspen was completed in 1999; and a study to determine the relative use of various aged aspen stands by landbirds in FY 1999 and 2000. Additional reports are contained in the District files and would need to be gathered and summarized in the Forest Monitoring Report.

Table C6-1. Acres of aspen regenerated on the Beartooth Ranger District, 1986 -2000.

Year	Acres treated	Locations	Type of treatments
1986	0	None	
1987	0	None	
1988	0	None	

1989	?	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1990	?	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration. One 12 A. unit in Benbow was prescribed burn.
1991	?	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1992	70	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1993	40	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1994	40	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1995	40	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1996	80	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1997	25	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1998	50	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration
1999	70	Beartooth Mountains, MT. Beartooth Ranger District	Mechanical regeneration

2000	40 A. Willie Fire limited the available workforce.	Beartooth Mountains, MT. Beartooth Ranger District (Target = 50 A. appropriated; 20 A. Sikes)	Mechanical treatment and prescribed burning.
Totals:	Approximately 500 A.	Beartooth Mountains, MT. Beartooth Ranger District	

Prescribed fire - Recent information is listed below (Table C6-2), but a review of past Management Attainment Reports (MAR) and District records would be needed to provide a comprehensive description of past accomplishments. Prescribed burning was completed in a variety of conifer forest types on the Beartooth Ranger District and within ponderosa pine forest on the Ashland and Sioux Ranger Districts.

Table C6-2. Prescribed burning for wildlife habitat improvement.

Year	Acres treated	Locations	Type of treatments
1986-1998	Data needs to be summarized.		
1999	370	Beartooth Ranger District	Prescribed burning for: bighorn sheep = 300 A.; ruffed grouse = 70A..
2000	0 (Weather conditions were outside of the requirements for spring burning prescriptions.)	Beartooth Ranger District	Prescribed burning for bighorn sheep and ruffed grouse.
Totals:	370		

Wetlands – Several wetlands have been developed from 1986–2000 on the Sioux and Ashland Ranger Districts. The impoundments average about one acre in area, provide associated riparian habitat, benefit waterfowl, and are generally fenced to exclude livestock. Livestock generally have access to water immediately down slope and outside of the exclosure. The wetlands provide associated riparian habitats. Habitat changes resulting from wetland developments have not been monitored. Brown's pond was acquired in a land purchase in FY2000; the pond is located in T21N, R5E, Section 10 of the North Cave Hills, Harding County, South Dakota on the Sioux Ranger District. Specific data would need to be gathered from paper and electronic files to determine the number and distribution of developed wetlands.

Noxious Weeds – In FY 2000 wildlife habitat was maintained by treating noxious weeds in important wildlife habitats such as on deer winter range and in sharp-tailed grouse nesting cover (Table C6-2).

Table C6-3. Acres of noxious weeds treated with Wildlife funding to maintain wildlife habitat, 1986 -2000.

Year	Acres treated	Locations	Type of treatments
1986-1999	0	None	None
2000	90	D3 – Sioux Ranger District, Long Pines. 40 A. of leafy spurge. Sikes Act funding (MT). D4 -Ashland Ranger District, Paget Creek area. 50 A. of spotted knapweed. Sikes Act funding (MT).	D3 – Chemical treatment accomplished through agreement with Carter County, MT. D4 – Chemical treatment accomplished with USFS force account crew.
Totals:	90		

Evaluation: Data are needed to assess the degree to which wildfires have resulted in aspen regeneration in the East Rosebud River drainage on the Beartooth Ranger District and in Long Pines and West Short Pines of the Sioux Ranger District. Assessment needs include: producing a GIS map that displays past aspen restoration areas from FY 1989 – 2000; utilizing change detection technologies to determine change between pre- and post-fire satellite imagery; and monitoring changes in beaver activity along riparian areas containing aspen.

Recommended Action: In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan Revision, these items will be reviewed and updated where needed. This item will continue to be monitored.

WILDLIFE: PRAIRIE DOG MANAGEMENT - MONITORING ITEM C7

ACTION OR EFFECT TO BE MEASURED:	Prairie Dog Management.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Increase or decrease of 10% in acres of prairie dog towns or 10% increase in prairie dog acres within individual allotments.

Purpose: The intent of this monitoring item is to determine if there has been an increase or decrease of 10% in the acres of active prairie dog towns or 10% increase in prairie dog acres within individual allotments.

Background: The black-tailed and white-tailed prairie dogs are present on the Custer National Forest.

The control or poisoning of prairie dogs from 1986 through 2000 was limited to 80 acres in 1992 on the Ashland Ranger District. There are no records of control or poisoning of white-tailed prairie dog towns. The Forest Plan discusses prairie dog management on pages 20 and 21. The Forest Plan suggested that control efforts be considered when the Forest total exceeded 400 acres on primary suitable range. Since the approval of the Plan, the importance of prairie dogs has begun to be recognized. As noted below, black and white-tailed prairie dogs are on the Forest Service Northern Region sensitive species list. To comply with Forest Service policy for the protection of sensitive species, biological evaluations are prepared for site-specific project level decisions that evaluate the potential for affects to prairie dogs.

Sylvatic plague epizootics are considered one of the major potential limiting factors for prairie dogs on the Custer National Forest. The disease is recent in North America (first documented around 1900), and has had a substantial impact on black-tailed prairie dog communities in Montana within the last decade. It is suspected in prairie dog colonies on the Ashland District. This disease may ultimately prove to be a significant factor in future prairie dog management.

Black-tailed prairie dogs – The federal status of the black-tailed prairie dog is "warranted, but precluded" and currently a USF&WS candidate species as of Feb. 4, 1999. The USFS Northern Region sensitive species list (Bosworth, March 12, 1999) includes the black- and white-tailed prairie dogs. The Forest Plan identifies a goal for the acceptable acreage of primary suitable range occupied by prairie dogs for the Sioux (50 A.), Ashland (300 A.) and Beartooth Ranger (50 A.) Districts (USFS, 1986, p. 20). No limits are established for prairie dog acreage on secondary and unsuitable range. The terms "primary suitable range," "secondary range," and "unsuitable range" are not listed in the Glossary to the Forest Plan (USFS, 1986, P. 121). There were approximately 539 acres within 23 active colonies of black-tailed prairie dog towns on NFS lands on the Ashland Ranger District in 1999 (Table C7-1).

Table C7-1. Acres of active black-tailed prairie dog towns, Ashland Ranger District.

Year	Acres on NFS lands
1977	272 A.
1985 1/	369 A.
1992	479 A.
1999	539 A. **2/**

1/ The prairie dogs present in an approximately 147-acre town were poisoned in 1984; the survey conducted in 1985 assumed the prairie dogs were eliminated in 1984. In 1984 there were approximately 516 (147 plus 369) acres on NFS lands. Prairie dogs occupied the 147-acre town in 1999.

2/ There are 776 acres (539 acres on NFS lands and 237 acres on private) of known active prairie dog towns within the Ashland Ranger District boundary, July 21, 2000.

3/ Method of acre calculation: 1977, dot grid (source: Burgess, 1978); 1985, dot grid (source: Ashland Ranger District Files); 1992, Dot grid (source: Ashland Prairie Dog management plan); 1999, Global Positioning System mapping and Geographic Information System analysis.

At the time of the 1986 Forest Plan, there were an estimated 370 acres of prairie dog towns on the Ashland Ranger District. Data from 1985 and 1992 are not directly comparable with 1999 data because different methods were used to determine the size of a town. The data collected in the 1985 and 1992 inventories were based on visiting prairie dog towns and approximating town sizes on USGS 7.5 minute quadrangle maps. The 1999 data are considered more accurate because the exterior active burrows of the town were physically mapped using a Global Positioning System (GPS) unit.

Prairie dog control actions were implemented on the Ashland Ranger District periodically during the period of 1986 through circa 1992. The control of prairie dog towns was discontinued in 1992. Prairie dog town acres have not increased as expected in the absence of rodenticide control since 1992. This may be due to a sylvatic plague outbreaks suspected to have occurred in some towns. Recreational shooting, which occurs on many colonies, may also be a factor limiting the expansion of prairie dog towns.

In the past, special use permits have been issued on the Ashland Ranger District that authorized grassland haying and periodic plowing. The plowing would have the potential to destroy burrows and eliminate portions of active prairie dog towns. The District is not issuing permits that would authorize these activities. A recent request to permit outfitter guiding to shoot prairie dogs on NFS lands was denied.

Sioux Ranger District, Harding County, SD – No prairie dog towns were present on NFS lands on the Sioux Ranger District in the past (USFS, 1976, P. 160) or currently (pers. Comm., Charlie O'Dell, USFS, to Don Sasse, USFS, 1998). Black-tailed prairie dogs are present on private lands outside of the District boundary. Maps have been prepared that show the distribution of prairie dog towns for 1983 and 1996 in Harding County, South Dakota; there were no known prairie dog towns present on NFS lands. The intent of the mapping, which was completed in June 1998, was to assess the correlation with golden eagle nest site production on NFS lands with proximity to active prairie dog towns. The completion of the analysis was deferred pending sufficient funding and time.

White-tailed prairie dogs – The majority of active white-tailed prairie dog town acres in Montana are on NFS lands, in the Robertson Draw area, Beartooth Mountains, Beartooth Ranger District. Information for the white-tailed prairie dog locations (Flath, 1979) was obtained from the MTNHP and added to the Forest database in FY 2000. While no Forest Service surveys have been conducted for white-tailed prairie dogs from 1986 through 2000. The following summarizes the status of white-tailed prairie dogs:

"The white-tailed prairie dog was apparently common in south-central Montana earlier in this century. The first scientific study of black- and white-tailed prairie dog food habitats was conducted by Kelso (1939), and white-tailed prairie dogs collected for this study came from the Bridger, Montana area. These prairie dogs were collected incidental to a government sponsored poisoning campaign in this area. Flath (1979) mapped the distribution of white-tailed prairie dogs in Montana during the 1970's and found 15 colonies totaling about 773 acres in Carbon County. Flath (pers. commun.) re-examined all 15-colony sites in 1997 and found only 2 colonies remaining. One colony totaled approximately 8 acres and was located primarily along a highway right-of-way, and the other colony totaled approximately 89 acres and was located primarily on Forest Service lands. Flath cited conversion of shrub/grassland to agricultural lands and apparent plague as the cause of the recent decline in white-tailed prairie dogs. The white-tailed prairie dog has declined considerably in Montana during this century. This decline in white-tailed prairie dog numbers and distribution appears to be an ongoing process. In the absence of special conservation efforts, there is a real possibility that the white-tailed prairie dog will be extirpated from Montana during the next century." (Fauna West, Feb. 20, 1999, p. 17)

Evaluation: The acres of black-tailed and white-tailed prairie dog towns on NFS lands have increased by more than 10% from 1986 to 2000; data would need to be compared to allotment boundaries to determine the percent change within individual allotments. The changes in some allotment boundaries between 1986 and 2000 may also complicate this analysis. The acres of active white-tailed prairie dog towns have declined in Montana, but increased on NFS lands on the Beartooth Ranger District. The current direction for Forest Service Sensitive species (FSM 2670.22) conflicts with the past acreage limitations for prairie dog towns identified in the existing Forest Plan standards. Detailed maps of soil

type are needed to determine the areas of potential habitat for black-tailed prairie dogs on all Ranger Districts.

Recommended Action: The existing forest plan allocation of acres of prairie dog town by Ranger District and grazing allotment conflicts with Agency direction to avoid actions which could result in a species becoming threatened or endangered. To comply with Forest Service policy, site-specific NEPA analysis is conducted to evaluate the potential for effects to prairie dog habitat before a decision is made that would approve/authorize projects on the Forest. During Forest Plan Revision, the Federal status, along with the USFS Northern sensitive species status of prairie dogs, and any conservation strategies will be reviewed and standards, guidelines, and oil and gas leasing stipulations modified as needed. It is recommended that a map of potential prairie dog habitat be developed base on factors including suitable soil types and percent slope classes. This item will continue to be monitored.

WILDLIFE: POPULATION TRENDS OF WILDLIFE SPECIES - MONITORING ITEM C8

ACTION OR EFFECT TO BE MEASURED:	Population trends of the following wildlife species: - Mule deer, white-tailed deer, mountain goats, and antelope: population levels. - Furbearers (bobcat, coyote): harvest levels. - Special interest (golden eagle, prairie falcon, merlin): nesting habitat.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Deer, Goats, and Antelope: Decrease of 10% or more from previous 5-year average. Furbearers - Decrease of 10% or more from previous 5-year average. Special Interest - Decrease of 10% or more in occupied /unoccupied habitat.

Purpose: The purpose of this monitoring item is to detect decreases of 10% or more in population trends for selected wildlife species.

Background:

In general, the Federal government manages habitat in concert within established agreements with the States whereas the States monitors the populations of animals. The States actively monitor and provide annual reports as to the status of game populations. The Forest Service cooperates with the respective State fish and game departments to obtain big game population information and with the State natural heritage programs that provide broadscale information on non-game species.

Big game (Mule and White-tailed Deer, Mountain Goats, and Antelope) - To assess population trends data would need to be gathered from State Fish, Wildlife, and Parks Departments to determine the portion of animals on NFS lands within hunting districts, and determine any changes in hunting

district boundaries over time. The States monitor populations by hunting districts and do not segregate the data on populations by land ownerships. Portions of several hunting districts can occur on a given Ranger District. The data has not been aggregated for assessment.

Furbearers (bobcat, coyote) - The bobcat and coyote populations' trends are generally unknown for the Beartooth, Ashland, and Sioux Ranger Districts, though it is believed that their populations are stable. State Wildlife, Fish, and Parks Departments monitor the populations and have continued to permit hunting and trapping of these species. To assess the population trends data would need to be gathered from State Fish, Wildlife, and Parks Departments to determine the portion of animals on NFS lands within harvest units, and determine any changes in harvest unit boundaries over time. The States monitor populations by harvest unit and do not segregate the data on populations by land ownerships. Portions of several harvest units can occur on a given Ranger District. Data has not been aggregated for assessment.

There is no systematic information on the coyote population but it is believed to correlate, somewhat, with pelt prices that currently are low.

Special Interest (golden eagle, prairie falcon, merlin) –No systematic surveys were conducted for known golden eagle, prairie falcon, or merlin on the Beartooth, Ashland and Montana portion of the Sioux Ranger Districts in 1996-2000. However, individual nest sites have been checked for project level work, mostly for presence/absence, not for productivity. In general the monitoring of these raptors across the Forest has been sporadic and data has generally not been collected systematically. The majority of the nest sites for these species are located on the Sioux Ranger District and surveys were conducted in 1996 and 1997 to monitor nesting of this raptor on the South Dakota portion of the District. Harding County is the best-known raptor nesting area in South Dakota. Data are limited to active versus inactive nests and incidental observations on nest production.

Golden eagle nest sites in South Dakota -. A query of the South Dakota Natural Heritage Program (SDNHP) records shows 116 golden eagle (*Aquila chrysaetos*) nests statewide, of which 67 (58%) are in Harding County (Buckland, D, Jan. 12, 1999). The SDNHP database shows only one nest site where there are multiple nests in close proximity, thus, the number of nests from the database is probably understated.

It is estimated that each golden eagle nest territory contains about four alternate nest sites. In adjacent North Dakota there are approximately 80 to 100 territories comprised of 350 to 380 nests. There have been no complete statewide surveys in North Dakota by the USF&WS to identify territories (per. comm., Roger Collins, USF&WS, Bismarck, November 2, 1993).

Recent Surveys for Golden Eagles in the South Dakota portion of the Sioux R.D. - Raptor surveys were conducted in 1996 within the boundary of NFS land units in South Dakota, and in 1997 for the North and South Cave Hills land units. A total of ten active golden eagle nests were identified following a survey of all known nest sites in 1996 in the survey area (Marks and Edwards, 1996). A follow-up survey was conducted in 1997 to sub-sample the nest sites active in 1996. Of the five golden eagle nests active in 1996, none (0%) were active in 1997 in the North and South Cave Hills (Hendricks and Feigley, Dec. 1997). However, three active nests were also located at nests sites other than those used in 1996. The 1996 and 1997 surveys were timed to occur in the middle of the nesting period, and may not have detected breeding pairs whose nests failed early in the season and left the area.

Prairie falcon nest sites in South Dakota - A query of the South Dakota Natural Heritage Program (SDNHP) records shows 32 prairie falcon (*Falco mexicanus*) nests statewide, of which 22 (69%) are in Harding County (Bucklund, D, Jan 22. 1999). In adjacent North Dakota, an estimated 125 prairie falcon pairs are present (Allen and Kohn, 1986, p. 3). The SDNHP database shows only one nest site

where there are multiple nests in close proximity, thus, the number of nests from the database is probably understated.

There are 60 identified prairie falcon nest sites within the boundary of NFS land units in South Dakota; three sites occur on private surface ownership and 57 on NFS. Data are not available to project the number of nest territories represented by the 60 nests. The prairie falcon is known to nest in old golden eagle and red-tailed hawk nests and on cliffs (Allen and Kohn, 1986).

Recent Surveys for Prairie Falcons in the South Dakota Portion of the Sioux R.D. - Raptor surveys were conducted in 1996 within the boundary of NFS land units in South Dakota in 1997 for the North and South Cave Hills land units. A total of 16 active prairie falcon nests were identified following a survey of all known nest sites in 1996 in the survey area (Marks and Edwards, 1996). A follow-up survey was conducted in 1997 to sub-sample the nest sites active in 1996. Of the 10 prairie falcon nests active in 1996, 6 (60%) were active in 1997 in the North and South Cave Hills (Hendricks and Feigley, Dec. 1997). One new occupied prairie falcon nest was located in 1997. The 1996 and 1997 surveys were timed to occur in the middle of the nesting period, and may not have detected breeding pairs whose nests failed early in the season and left the area.

Merlin nest sites in South Dakota - A query of the South Dakota Natural Heritage Program (SDNHP) records shows 20 merlin (*Falco columbarius*) nests statewide of which 18 (90%) are in Harding County (Bucklund, D, Jan 22, 1999). The SDNHP database shows only one nest site if there are multiple nests in close proximity, in other words, thus, the number of nests from the database is probably understated.

Forest Service records indicate that the merlin is present and approximately 36 nests have been identified, 2 on private and 34 on NFS lands within the boundary of NFS land units in South Dakota; the merlin nests on cliffs and in trees in old magpie nests.

Recent Surveys for Merlin in the South Dakota Portion of the Sioux R.D. - Raptor surveys were conducted in 1996 within the boundary of NFS land units in South Dakota, and in 1997 for the North and South Cave Hills land units. A total of 22 active merlin nests were identified following a survey of all known nest sites in 1996 (Marks and Edwards, 1996). A follow-up survey was conducted in 1997 to sub-sample the nest sites active in 1996. Of the nine-merlin nests active in 1996, three (33%) were active in 1997 in the North and South Cave Hills (Hendricks and Feigley, Dec. 1997). One new occupied merlin nest was located in 1997. The 1997 survey included only a portion of the nests active in 1996 in the North and South Cave Hills. The 1996 and 1997 surveys were timed to occur in the middle of the nesting period, and may not have detected breeding pairs whose nests failed early in the season and left the area.

Evaluation: Golden eagle, prairie falcon, and merlin population trends are largely undetermined across the Forest units. While large numbers of nests have been monitored to determine the presence or absence of nesting raptors in some years, there has been no sample design that was followed systematically on which to base population estimates. The available data has not been analyzed; additional data would need to be collected on adult survival and recruitment of young (young fledged) by species to detect if there were a 10% downward trend in the populations. For example, data are not available as to the number of nests that were active, but failed, prior to incubation or fledging. Survey strategies have generally been one time visits by investigators to detect active nests and to respond to project level planning. Productivity is influenced by weather, cycles of prey populations, and other factors. Active nests are most easily detected at the time adult are most visible (pre- and post-fledging of young), but fail to account for adults that established a territory in which nesting failed.

The buttes on the Sioux Ranger District contain high densities of nesting raptors when compared to the adjacent areas of the landscape as well as the rest of the Forest.

Recommended Action: During Forest Plan Revision, consider a change in Management Area designation and the radius of NSO stipulations in oil and gas leasing to recognize the relatively high raptor nest densities on the Sioux Ranger District. The term "Active Nest" was not defined in the Glossary of the Forest Plan, though it was identified for a specific area in April 1996 in Forest Plan Amendment No. 30. It is recommended that the Forest Plan Revision adopt the definition for use Forest-wide. It is also recommended that the Forest consider not monitoring game population numbers, but rather focus on habitat and assist the State in monitoring selected non-game species. The State controls actions related to the populations of animals, whereas on National Forest, the Forest Service can influence the effects to habitat. This item will continue to be monitored.

WILDLIFE: RESIDUAL NEST COVER FOR PRAIRIE GROUSE - MONITORING ITEM C9

ACTION OR EFFECT TO BE MEASURED:	Projected needs for residual nesting cover for prairie grouse.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90% of grouse dancing/booming grounds have an average stubble height of 12 inches remaining within a one-mile radius.

Purpose: This monitoring item was established to determine if at least 90% of grouse strutting/dancing grounds have an average stubble height of 12 inches remaining within a one-mile radius to meet the projected needs for residual nesting cover for prairie grouse (sage and sharp-tailed grouse). The sage grouse is also addressed under this Monitoring Item C2.

Background: Sage and sharp-tailed grouse are present on the Forest. Cover assessments for sage and sharp-tailed grouse have been conducted on a limited basis on the Ashland and Sioux Ranger Districts, though no comprehensive monitoring has been done. The 12-inch stubble height criteria need to be refined to define nesting habitats in terms of vegetation height/density (Visual Obstruction Recording – VOR), per the habitat suitability models for these species. Residual cover availability is considered a primary limiting factor for sage and sharp-tailed grouse. We may not meet the standard for 90 percent residual cover for nesting within one mile of sharp-tailed and two miles of sage grouse leks.

The acreage of high structure grassland is believed to be declining to moderate to low grassland structure as new water sources are installed annually and add incrementally to the area available for livestock grazing. About 6,800 acres of secondary range have been developed into primary range; that is, about 1% of the suitable livestock range on the Forest. Grazing around water sources reduces the stubble height and results in moderate or low grassland structure. The nest habitat is generally associated within a one-mile radius of sharp-tailed grouse (Prose, 1987) and a two-mile radius of sage grouse leks (Wallestad and Pyrah, 1974, P. 632).

Sharp-tailed Grouse – Nest habitat is associated with approximately 50 known leks on the Ashland Ranger District, one known lek on the Sioux Ranger District, and other unidentified lek locations. Nest habitat on NFS lands is also associated with leks located outside of NFS lands. The date of the last survey to determine status of the leks vary from 20 years ago to as recent as 2000. All known leks on NFS lands have been included in the USFS grouse map theme in GIS in FY2000.

Sage Grouse – Nest habitat is associated with two known leks present on the Ashland Ranger District.

All known leks have been included in the USFS GIS database in FY2000. Recent sightings of sage grouse indicate the potential for other as of yet unidentified leks on NFS lands.

Evaluation: Livestock grazing on NFS lands potentially affects nesting and brood rearing habitats for sage grouse. Under-story perennial vegetation in sagebrush stands is considered important for nesting and brood rearing habitat for sage grouse. Nest and brood rearing habitat in grasslands for sharp-tailed grouse is likely less than 12 inches of stubble height. The Robel pole data collected in circa 1997 would need to be gathered from District files, analyzed, and summarized to provide quantitative information for sampled areas for the Sioux and Ashland Ranger Districts.

Recommended Action: In review of this monitoring item, changes are needed to the Forest Plan at this time. During Forest Plan Revision, the status stubble height to grouse species will be reviewed and updated where needed. The recommendations include the following: 1) Modify this monitoring item to reflect a two-mile radius for suitable nest habitat around sage grouse leks; 2) Retain the one-mile radius figure for use around sharp-tailed grouse leks; 3) Add the definition of "active lek" to the Forest Plan Glossary. The term "Active Lek" was not defined in the Glossary of the Forest Plan, though it was identified for a specific area in April 1996 in Forest Plan Amendment No. 30. This item will continue to be monitored.

WILDLIFE: FISHERIES HABITAT AND POPULATION TRENDS - MONITORING ITEM C10

ACTION OR EFFECT TO BE MEASURED:	Fisheries habitat and population trends (non-wilderness, warm-water fisheries).
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90% targets accomplished within a 5-year period.

Purpose: This monitoring item is designed to detect results that achieve less than 90% of planned fisheries habitat improvement accomplishments or population declines to less than 90% in non-wilderness warm-water fisheries.

Background: Funding levels have consistently been below full funding levels as identified in the Forest Plan (USFS, 1986, p. 163, FP amendment #7 (3/29/91)). Over the 1986 – 2000 planning period, funded habitat improvement projects have been accomplished at or above the 90 percent level. Brown's pond was acquired in a land purchase in FY2000 and contains a fishery; the pond is located in T21N, R5E, Section 10 of the North Cave Hills, and Harding County, South Dakota on the Sioux Ranger District. Data would need to be reviewed to evaluate population trend data for non-wilderness warm water fisheries. The evaluation would need to consider stocking of reservoirs by State Fish, Wildlife, and Parks Departments.

Evaluation: The funded projects have been accomplished at over 90% from 1986 – 2000; funding levels would need to be increased to meet the full funding level described in the Forest Plan. The population data would need to be gathered, analyzed, and summarized to detect a 10% decline in fish populations.

Recommended Action: In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan Revision, these items will be reviewed and updated where needed.

This item will continue to be monitored.

OTHER TOPICS: SIGNIFICANT CAVES

ACTION OR EFFECT TO BE MEASURED:	Significant Caves.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Adverse impacts to a "significant cave."

Purpose: The purpose of this monitoring item is to determine any habitat adverse change in significant caves as defined in the Federal Caves Resource Protection Act (FCRPA) of 1988.

Background: Forest Plan Amendment No. 8, March 29, 1991, includes management standards and guides in response to the passage of the FCRPA of 1988. In 1994 a total of 59 caves were nominated and determined to be significant caves under the FCRPA. Since that date several new caves have been identified which are eligible, but which have not been nominated as Significant Caves under the FCRPA. The location of caves is considered proprietary and not subject to the Freedom of Information Act (FOIA).

Evaluation: Minimal monitoring of changes in cave condition has been completed since 1991. The change in recreation use in caves is unknown. Several caves are described to the legal location by section, but their locations in the field are poorly documented. It is difficult to monitor resource activities in the vicinity of caves, which lack site-specific map locations. The locations of significant caves are proprietary under the FOIA.

During the early 1990s, a cave inventory of the Pryor Mountains on the Beartooth District was conducted. One cave was identified where pilfering of artifacts was occurring. Other caves identified as being hazardous with high readings in radon and with artificial openings (adit) have been slated for closure or other safety mitigation.

Recommended Action: This item post-dates the Forest Plan and was therefore not included as an original monitoring item. It is recommended that the monitoring of significant caves as defined by the FCRPA of 1988, be considered as a monitoring item during Forest Plan Revision. This item needs to be monitored to ensure compliance with the FCRPA as well as other laws, regulations, and policies.

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D. RANGE

RANGE: GRAZING USE - MONITORING ITEM D1

ACTION OR EFFECT TO BE MEASURED:	Determine if the grazing use measured On Animal Unit Months (AUMs) meets Forest Plan projections.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90 percent of Forest Plan Projections.

Purpose: This monitoring item was established to track forage availability and grazing use on the Forest. The Forest Plan requires that this item be reported annually. The expected accuracy and reliability of the information is high.

Background: Livestock grazing is a permitted use on National Forest System lands. Managing forage utilization by livestock, while providing for other resource uses and users, remains a challenge for Forest Service managers. Of the 1,185,680 million acres identified in the 1986 Custer National Forest Management Plan on the forest units, 550,423 acres (46%) was listed in the Forest Plan as suitable and open for grazing. Suitability will be revisited during project specific grazing analyses and during Forest Plan revision.

The 1987 Forest Plan Record of Decision (pp. 9 and 14) supported the maintenance of approximately 875,000 AUMs between the National Forest units and the National Grassland units. Of the approximate 875,000 AUMs, 229,315 AUMs were permitted under 176 Permits with Term Status on the National Forest units (Forest Plan FEIS p. 125). In addition, the National Forest administered approximately 6,800 AUMs under private land permits (Forest Service Range Management Information System -FSRAMIS). Forest Plan NFS suitable acreage level covered approximately 550,000 acres on the National Forest units (Forest Plan FEIS p. 125).

Evaluation: The 1999 National Forest unit's permit level was 211,980 AUMs, permitted through 164 Permits with Term Status on the National Forest units. In addition, the National Forest administered approximately 6,000 AUMs under private land permits. The 1999 NFS suitable acreage level covers approximately 557,000 acres on the Forest units (FSRAMIS database).

This displays that current permit levels are 92 percent of the Forest Plan level. Taking the last ten year average, authorized grazing levels for the National Forest units have averaged 85 percent of the Forest Plan level over this period.

Table D-1 compares 1987 Forest Plan figures with 1998 figures for rangeland suitability for livestock. Suitable rangeland, as defined in the 1986 Forest Plan Appendices (Appendix B, p. 14), is land that is accessible or that can be made accessible to livestock, that produces forage or has inherent forage producing capabilities and that can be grazed on a sustained yield basis under reasonable management goals.

Table D-1 shows about a 1% increase (additional 6,827 acres) in lands currently classified as suitable for livestock use from the 1986 Forest Plan figures. This has resulted from re-classifications and refinement through project specific analyses or through land adjustments.

Table D-1: Acreage Suitable for Livestock

Unit	1986 Forest Plan Suitability Acreage*	1986 Unit's Total Federal Acreage **	1986 % of Unit's Acreage classified as Suitable	1999 Suitability Acreage***	1999 Unit's Total Federal Acreage ****	1999 % of Unit's Acreage classified as Suitable
Beartooth	57,442	586,242	10%	53,003	587,490	9%
Sioux	124,987	162,931	77%	133,752	163,107	82%
Ashland	367,994	436,208	84%	370,495	436,546	85%
Total	550,423	1,185,680	46%	557,250	1,187,143	47%

**** 1986 Custer Forest Plan FEIS p. 125**

**** 1986 Custer Forest Plan FEIS Appendix B p. 17-18**

***** 1999 FSRAMIS database**

****** Land Areas of the National Forest System (as of 1998); USDA publication**

Tables D-2 and D-3 outline term permit levels and authorized grazing use levels on the National Forest units.

Table D-2: Term Permit Level

Unit	1987 Permit Level (AUMs)*	Current Permit Level (AUMs)**	% Change in AUMs
Custer National Forest Total (NF Units)	229,315	211,980	8% decrease
Beartooth	16,073	13,723	17% decrease
Sioux	52,016	52,055	<1% increase
Ashland	161,226	146,202	10% decrease

AUMs = Animal Unit Months; AMs are not shown in this table. Animal Months (or Head Months) can consist of cow/calf months (cm), sheep months (sm), horse months (hm), yearling months (ym), etc. and are converted to the standard AUM for purposes of this table comparison.

***Custer Forest Plan EIS p.125**

****FSRAMIS database**

Table D-3: Authorized Grazing Level Compared With Permit Level, (11 year average from 1988-1999 for Permits with Term Status)

District	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	11 Yr Avg.*
Beartooth	89%	90%	83%	73%	87%	73%	78%	73%	82%	85%	88%	82%
Sioux	67%	95%	86%	79%	82%	95%	90%	96%	99%	94%	99%	89%
Ashland	65%	71%	78%	77%	94%	85%	87%	84%	91%	92%	92%	83%

***FSRAMIS database**

Reasons for differing levels include authorizing levels based on drought conditions, some stocking adjustments based on carrying capacity issues, penalties for permit suspensions and/or partial permit cancellations, and permittee convenience non-use status.

Recommended Action: In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan Revision, suitability for livestock grazing will be reviewed and updated where needed. This item will continue to be monitored.

RANGE: RANGE CONDITION AND TREND - MONITORING ITEM D2

ACTION OR EFFECT TO BE MEASURED:	Determine if rangelands have increased in a downward trend over the previous analysis.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	More than a five percent increase in downward trend over the previous analysis.

Purpose: This monitoring item was established to ensure that downward trend levels are not made worse by grazing practices or other activities. The expected accuracy and reliability of the information is moderate.

Background: Rangeland conditions at the time of Forest Plan development were described using attributes relating to livestock forage conditions. These forage conditions, described generally as ratings of excellent, good, fair, poor, and very poor, are not necessarily indicators of rangeland health. Rangeland health can be described in terms of vegetation composition and structure, soil protection, productivity, and disturbance processes. Even though Table V from the 1986 Forest Plan FEIS (p. 126, Table III-14) outlines range condition by district at that point in time (1980 baseline inventory), it still provides us with baseline information about the Poor and Very Poor categories which tend to correlate with poor composition, poor vigor, decreased ground cover, and low resiliency to rebound from disturbance factors. These are red flag indicators of marginal rangeland conditions and trends relative to sustainability. About 10,400 acres (2% of the suitable rangelands) were classified in the low category in 1986 (see Table D-4).

Table D-4: 1986 Rangeland Conditions

Range Condition Class	Beartooth District (Acres)	Sioux District (Acres)	Ashland District (Acres)	Total NFS Suitable Acres	% Total NFS Suitable Acres
Excellent	2,872	1,079	36,799	40,750	7%
Good	20,105	111,728	191,357	323,190	59%
Fair	31,593	11,996	132,478	176,067	32%
Poor	2872	184	7,360	10,416	2%
Very Poor	0	0	0	0	0%
Total	57,442	124,987	367,994	550,423	100%

Evaluation: Various analyses have been conducted since 1987, but not to the extent that we can compare "condition" data with the 1987 data. Trend data, however, gives an idea the direction that vegetation states are going. The following describes various condition and trend analyses done since 1987.

Uplands - The 1986 Forest Plan identified habitat typing for non-forested ecosystems as an additional data requirement. Based on potential vegetation, draft habitat type classification and descriptions are in the process of being prepared for the Pryor Mountain units covering about 70,000 acres. Stewart and Mueggler's *Classification of Grassland and Shrubland Habitat Types of Western Montana* also apply to the some of the Forest. Hansen et. al.'s *Classification and Management of Montana's Wetland and Riparian Sites* apply to much of the Forest.

Based on potential vegetation, these classifications describe general geographic, physiographic, climatic, soil and topographical features of each vegetation type. They also describe various seral communities characteristic of each vegetation type. They present information on successional development, rangeland productivity potential, and other biological observations of importance to rangeland managers. These classifications have been used in various rangeland analyses associated with allotment management plan updates.

Models utilizing satellite imagery, precipitation data, vegetation types, soil types, topography and aspect features, are currently being developed. These models will help us understand the degree of departure from potential vegetation compared to existing vegetation.

In 1996 approximately 213,000 and 76,500 upland acres on the Ashland (21 allotments) and Sioux Districts (25 allotments), respectively, were assessed. Existing upland conditions are near and are moving toward desired conditions. Some lower fan terrace ecosystems on the Ashland District are not meeting desired conditions. In 1990 approximately 16,400 upland acres were inventoried on the Beartooth District (Bad Canyon/Sheep Creek). Upland vegetation on primary range was found to be in high seral ecological stages. In 1995 approximately 15,600 upland acres were analyzed on the Beartooth District (Sage Creek). Approximately 89% of the primary upland range was found to be in good to excellent condition, with 5% of the area in an upward trend and 95% with no apparent trend. In 1997, approximately 1,404 acres were analyzed on the Beartooth District (Dryhead). Approximately 208 acres of the primary upland range was found to be in good condition and 158 acres in fair condition, 212 acres were found to be in an upward trend and 154 acres with no apparent trend.

Hardwood Draws - Most undisturbed wooded draws occur as multi-storied communities with a tree

canopy of green ash, a dense shrub stratum of chokecherry and snowberry, and a ground layer dominated by sedges, grasses and forbs.

On Ashland and Camp Crook Districts, hardwood draw areas were sampled between 1995 and 1999. The results of the inventory are still undergoing analyses associated with NEPA analysis for allotment management plans updates.

Livestock utilize hardwood draws for forage, shading, and sometimes water. Livestock use of wooded draws can impact the shrub and sapling component initially. If use is heavy and long-term, the impacts can affect the tree component. Recovery to a multistoried draw requires rest for longer periods of time, if the tree component is impacted. The wooded draw areas in secondary and unsuitable range currently provide key wildlife habitat for many species. While livestock grazing, rubbing, and trampling has by far the greatest effect in the decline of tree and shrub species in the bottoms, other factors are also interacting such as frost, drought, and insects.

Results of 1996 surveys indicate that at least 75% of the hardwood draws inventoried are multistoried and sustainable on 21 allotments on the Ashland District and 25 allotments on the Sioux District. The remainder of the wooded draws has mixed conditions.

There are about 22,500 acres of hardwood draw habitat. Overall, woody draw habitat represents about 3 percent of the forest units. Management for hardwood draw enhancement may include fencing, cutting decadent trees to induce sprouting and create walkway barriers, prescribed burning, or a combination of these practices.

Riparian - In 1996, the Forest Service adopted the Proper Functioning Condition (PFC) assessment methodology (USDI Bureau of Land Management, and USDA Forest Service and Natural Resource Conservation Service Technical Reference TR-1737-15, 1998) as the minimum inventory for riparian assessments. The PFC riparian (stream or wetland) assessment is a reach-based, qualitative assessment of the physical function of a riparian ecosystem. The assessment addresses hydrology, vegetation, erosion and sediment deposition. The assessment determines if the reach is functioning, functioning at risk, or non-functional. PFC does not address desired resource conditions and associated values, such as wildlife forage or fisheries habitat. However, PFC is considered as the minimum starting requirement from which to work towards desired resource conditions.

To date, the stream reaches, seeps and springs have been inventoried in the Pryor Mountains using this method. Preliminary results of the inventory of the lotic systems (streams) indicate that 16 of the 57 stream reaches are functioning at risk with no apparent trend, 41 of the 57 stream reaches are properly functioning. Preliminary results of the inventory of the lentic systems (seeps, springs, fens) indicate that 2 of the 16 sites inventoried are functioning at risk with no apparent trend, while the remaining 14 seeps and springs are properly functioning.

In 1990 approximately 400 riparian acres were inventoried on the Beartooth District (Bad Canyon/Sheep Creek). Riparian vegetation on primary range was found to be in low seral ecological stages. In 1995 approximately 250 riparian acres were analyzed on the Beartooth District (Sage Creek). Riparian vegetation was generally found to be vigorous and providing protection to stream channel. One water gap was closed to grazing due to poor conditions.

Drought - High levels of plant vigor and rangeland condition are critical for the endurance of and recovery from drought. There have been some annual reductions in stocking levels in recent years that have been in response to drought conditions.

Fire - The area evolved with fire disturbance. The historic pattern of larger-scaled range fires played an important role in rangeland rejuvenation. Over the last 60-70 years there has been substantial fire suppression in these systems. Managed fire is quite often being used to improve livestock forage quality and quantity. However, due to the small acreages burned, managed fires have typically played

a minor role in reintroducing the historic pattern of larger-scaled range fires.

Prescribed burning - All Districts have an active prescribed fire program for ecosystem improvement that has averaged over 2000 acres a year since 1990 and has been a benefit to forage quality and livestock distribution patterns.

Herbivory - The majority of the domestic livestock grazing on the Custer National Forest is done in a deferred management system. Under this system, plants are grazed at a different stage in its growth cycle, year after year. We have a few allotments where livestock graze season long, year after year. We have at least one allotment where a modified short duration - high intensity grazing system is employed. Under this system, plants may be grazed during similar growth stages year after year, but allowing for root recovery. We have very few rest-rotation systems occurring, where at least one area is rested from grazing allowing for more root recovery time.

The Pryor Mountain wild horse herd utilizes management area Q in the southeastern portion of the Pryor Mountains, along with other adjacent areas. The Bureau of Land Management manages the herd. The population ranges in size, on average, from around 120 to 150. The herd has reached population size of 200 when roundups have not been conducted.

Various wildlife species graze and browse various habitat types throughout all seasons. There are no major conflicts for forage between domestic livestock grazing and wildlife.

Grasshoppers and Mormon crickets are always present in any given year, but populations change in terms of relative abundance on the landscape. Outbreaks have been known to occur and seem to occur about every 2-3 years of each decade. There has been no recent insecticide spraying to control and reduce grasshopper or Mormon cricket populations on the Forest.

Conversion of Secondary to Primary Range - Once range is classified as suitable for livestock use, it is further defined as either primary (where livestock naturally graze under current management practices) or secondary (lightly grazed or not grazed at all) range, according to patterns of livestock use under the current management and with existing range improvements.

Livestock management facilities have greatly increased over time. The most influential changes that contribute to changing secondary range to primary range, lie with the number of water distribution pipelines which have doubled (approximately 840 additional miles on both National Grasslands and National Forest units since 1986) and other water developments that have doubled as well, mostly occurring on the Dakota Prairie Grasslands and the Ashland Ranger District.

Although primary range has increased, overall permitted or authorized livestock use has not. Distribution patterns have changed, and in many cases resulted in less grazing pressure overall in a grazing unit.

Soils - Soil conditions vary across the Forest. Areas of compaction and off-site soil loss occur, but in isolated instances with some natural erosion occurring. Some erosion is occurring along some road cuts and roadsides. Preliminary monitoring results indicate that in areas where livestock tend to congregate, such as riparian and hardwood draws, there are areas that have negatively impacted soil conditions such as compaction. The extent of these conditions is unknown.

Trend - Trend has been well defined as a change in ecological status or resource values. We distinguish between apparent and long-term trend when judging vegetation and soil stability. “Apparent trend” is the direction of change in vegetation condition or soil stability and may be inferred from indicators. The term "long-term trend" differs from apparent trend in that they are based from observations and measurements made on permanently established reference points or benchmarks.

Measured Long Term Trend - Generally, permanent reference points that were established in the 1950s and 1960s have not been re-read to establish a measured trend.

Observed Apparent Trend (see Table D-5) - Over the Forest's entire 1.2 million acreage, it is difficult to determine if there has been less than a five percent increase in rangelands in a downward trend over the previous analysis (1986 Forest Plan baseline). The 1986 baseline information outlined in the Forest Plan utilized "livestock forage conditions" (see Table D-4), rather than trend acreage information and/or information on similarity to potential. However, between noxious weed infestations and impacts on portions of hardwood draws and riparian areas, there are up to approximately 1% (approximately 10,000 acres) of the 1.2 million acres which could be considered in an apparent downward trend based on the following summary of the vegetative assessment found in Table D-5. This does not mean to infer that more acreage could not be in downward trend. More detailed study would be required.

Generally, the trend for upland grass, forb, and shrub dominated cover types of all the units are relatively not apparent, except for areas where noxious weeds and other exotics have made significant invasions. Noxious weed infestations are indicators of apparent downward trend.

Noxious weed infestations on the Beartooth District are estimated to have doubled since 1986. This increase is partially due to the fact that better weed mapping has taken place over the last four years. Infestations that were not mapped previously have now been surveyed. Districts have had an aggressive weed treatment program within funding constraints. While known weed infestations are monitored and treated annually, net weed acreage and downward trend is still increasing at a slow rate due to new weed seeds continually being introduced across the District.

Some hardwood draws of the Sioux and Ashland Districts generally continue to trend downward due to aging of the mature component of stands, frost events, lack of regeneration of seedling/sapling components from livestock impacts, and fire suppression. The Forest Service conducted 1996 studies. Although measured trend information was not analyzed, there may be an apparent downward trend on many of the areas sampled due to stand degradation and stand age.

Riparian areas vary in apparent trend. Recent inventories for proper functioning condition have been conducted on some the streams, seeps, and wetland systems. Although not all riparian areas have been sampled, preliminary results of recent inventories indicate no apparent trends and downward trends.

Table D-5: Cover Type and Trend Summary*

Cover Type	Background Description	Assessment	Apparent Trend Relative to Rangeland Health	Risk (Magnitude of Change)
Riparian	Occurs on all units.	Of concern primarily due to susceptibility to impacts from livestock grazing and trampling.	Ranges between No Apparent and Downward Trends.	High Risk due to its high value and susceptibility to degradation from management activities such as livestock use, road crossings, high density recreation use areas, etc.
Bluebunch Wheatgrass-Sandberg Bluegrass	Occurs on the Beartooth; typically associated with lower elevation dry foothill slopes.	Of Concern due to sagebrush, juniper and limber pine colonization.	No Apparent Trend.	Low risk -- rate of colonization is relatively slow.
Idaho Fescue - Bluebunch Wheatgrass	Occurs on the Beartooth; typically associated with mid to higher elevation slopes.	Of Concern due to sagebrush and Doug-fir colonization and some Kentucky bluegrass. Also of concern is the loss of the bluebunch wheatgrass indicator spp. due to historic livestock grazing.	No Apparent Trend.	Low risk -- rate of colonization is higher, but only over a small geographic extent of the type.
Idaho Fescue - Threadleaf Sedge	Occurs on the Beartooth; typically associated with higher elevation slopes.	Of Concern due to low resiliency to soil disturbance (compaction) from to livestock grazing during periods of wet soil.	No Apparent Trend.	Low risk -- rate of colonization is higher, but only over a small geographic extent of the type.
Idaho Fescue - Tufted Hairgrass	Occurs on the Beartooth; typically associated with higher elevation slopes.	Of Concern due to low resiliency to soil disturbance (compaction) from to livestock grazing during periods of wet soil.	No Apparent Trend.	Low risk -- domestic livestock typically do not use these types; some wild horse use occurs and some unauthorized ORV use occurs.
Idaho Fescue - Western Wheatgrass	Occurs on the Beartooth; typically associated with mid to higher elevation slopes.	Of Concern due to sagebrush and Doug-fir colonization and some Kentucky bluegrass. Also of concern is the loss of the bluebunch wheatgrass indicator spp due to historic livestock grazing.	No Apparent Trend.	Low risk -- rate of colonization is higher, but only over a small geographic extent of the type.
Tufted Hairgrass - Sedge	Occurs on the Beartooth; typically associated with higher elevation slopes.	Of Concern due to low resiliency to soil disturbance (compaction) from to livestock grazing during periods of wet soil.	No Apparent Trend.	Low risk -- domestic livestock typically do not use these types; some wild horse use occurs and some unauthorized ORV use occurs.

Cover Type	Background Description	Assessment	Apparent Trend Relative to Rangeland	Risk (Magnitude of Change)
Big Sagebrush - Bluebunch Wheatgrass	Occurs on the Beartooth; typically associated with low to higher elevation dry slopes.	Of Concern due to the absence of fire on all these locations is resulting in over maturity of sagebrush and loss of herbaceous spp. Colonization of juniper, limber pine, and Douglas-fir is occurring.	No Apparent Trend.	Moderate risk -- rate of colonization varies; Of the drier types, this type is more at risk from loss to colonization by trees. Sagebrush provides microsite conditions conducive to Doug-fir colonization and establishment.
Big Sagebrush - Idaho Fescue	Occurs on the Beartooth; typically associated with mid to higher elevation slopes.	Of Concern due to the absence of fire on all these locations is resulting in over maturity of sagebrush and loss of herbaceous spp. Colonization of Douglas-fir is occurring.	No Apparent Trend.	Moderate risk -- rate of colonization varies; Of the drier types, this type is more at risk from loss to colonization by trees. Sagebrush provides microsite conditions conducive to Doug-fir colonization and establishment.
Black Sagebrush-Bluebunch Wheatgrass	Occurs on the Beartooth; typically associated with lower elevation dry foothill slopes.	Of Concern: From past livestock management, it appears that we have lost some of the mid-grass component. However, there doesn't appear to be much effect from current management.	No Apparent Trend.	Low risk -- these types appear to be in a steady state where current management is not impacting these types.
Alpine meadows	Occurs on the Beartooth; associated with alpine.	Of little concern other than unauthorized off road vehicle use. Domestic livestock is typically not authorized in these types.	No Apparent Trend.	Low risk due to low magnitude of change.
Alpine shrubs	Occurs on the Beartooth; associated with alpine.	Of little concern other than unauthorized off road vehicle use. Domestic livestock is typically not authorized in these types.	No Apparent Trend.	Low risk due to low magnitude of change.
Wheatgrass - Grama Grass - Needlegrass	Occurs on the Sioux and Ashland; Typically associated with the rolling mixed grass prairie. Blue grama and Kentucky bluegrass represent the cool season shortgrass species.	Generally not of concern, however there may be loss from pine colonization.	No Apparent Trend.	Low risk due to low magnitude of change.
Sagebrush - Grass	Occurs in the Sioux & Ashland; typically associated with nearly level to rolling upland plains.	Of Concern: The absence of fire on all these locations is resulting in over maturity of sagebrush and loss of herbaceous species.	No Apparent Trend.	Moderate risk due to lack of fire.

Cover Type	Background Description	Assessment	Apparent Trend Relative to Rangeland	Risk (Magnitude of Change)
Ash - Chokecherry	Occurs along drainage ways and draws on the Sioux & Ashland. It is an important component on the landscape for providing a habitat for a variety of species.	Of Concern: Many of the stands are becoming over mature. The lack of fire, onset of disease, and effects of livestock grazing is inhibiting the establishment of younger shrubs & trees.	Downward Trend.	High risk due to the lack of regeneration occurring within the over-mature draws. Once they unravel it becomes very hard to re-establish them. Kentucky bluegrass is replacing much of the understory native graminoids, forbs, and shrubs.
Ash - Snowberry	Occurs along drainage ways and draws on the Sioux & Ashland. It is an important component on the landscape for providing a habitat for a variety of species.	Of Concern: Many of the stands are becoming over mature. The lack of fire, onset of disease, and effects of livestock grazing is inhibiting the establishment of younger shrubs & trees.	Downward Trend.	High risk due to the lack of regeneration occurring within the over-mature draws. Once they unravel it becomes very hard to re-establish them. Much of the under-story native graminoids, forbs, and shrubs are being replaced by Kentucky bluegrass
Ponderosa Pine	Occurs on the Sioux & Ashland.	Of concern: This represents stands with closing canopy with loss of open understory conditions.	No Apparent Trend.	High risk primarily due to the unnatural fuel loadings within these stands which leaves these areas prone to hot, stand replacing fires.
Exotics & Noxious Weeds	Occurs on all units where opportunity exists.	Of concern: ranges from small infestations on all units to larger infestations. Noxious weed species consists of leafy spurge, spotted knapweed; sulphur cinquefoil, dalmation toadflax, Canadian thistle. Other exotics include Kentucky bluegrass, timothy grass, smooth brome, cheat grass.	Downward Trend.	High risk to other native vegetation, species diversity, and fuel structure characteristics. The Custer National Forest has at least 1,800 acres of noxious weed infestation over a 1.2 million acre land base

*** 1998 Custer National Forest Ecologist's report**

Recommended Action: Priorities for restoration would be to focus on degraded riparian areas; wooded draws; control noxious weeds and exotics; and emphasize the role of fire on these landscapes, setting back woody species colonization within rangeland communities. From a broad scale landscape perspective, overall concerns include the following:

Many of the hardwood draws are becoming over-mature. The lack of fire, and livestock impacts are inhibiting the establishment of younger trees and regeneration of the draws. Many riparian systems have degraded due to the effects of past and current livestock use and other management activities on vegetation composition and stream channel characteristics.

Noxious weeds and exotics range from small infestations, on all units, to extensive infestations.

Noxious weed species includes leafy spurge, spotted knapweed, dalmation toadflax, sulphur cinquefoil, houndstongue, and Canadian thistle. Other exotics include yellow sweet clover, Kentucky bluegrass, Timothy grass, smooth brome, and cheat grass.

RANGE: ALLOTMENT PLANNING - MONITORING ITEM D3

ACTION OR EFFECT TO BE MEASURED:	Determine if Allotment Management Plans targeted for updates have been accomplished.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 95 percent of projected target accomplishment.

Purpose: This monitoring item was established to bring allotment management plans up to date, responding to new conditions, issues, laws and regulations. The expected accuracy and reliability of the information is high.

Background: Some level of allotment management planning has been completed on nearly all of the 136 allotments on the National Forest units. However, only about 40% (about 53 allotments) of these have completely incorporated Forest Plan standards and meet the current direction under the National Environmental Policy Act (NEPA). Funding and staffing levels have kept the number of allotment management plan updates low.

Evaluation: Inventory needed for allotment analysis vary depending on the issues. The objective of the Forest is to utilize, at a minimum, the best available data while providing the flexibility necessary to meet the on-the-ground needs and issues. If additional inventory data is needed, an attempt is made to collect information at intensity commensurate with the need and resources available. There is a great need for more current rangeland inventory relative to existing ecological states and potential ecological states in order to help derive desired conditions.

Currently, all of the allotments that have not completely incorporated Forest Plan standards have been scheduled for revision over the next 12 years. At least 53 of Allotment Management Plan decisions targeted for updates have been accomplished.

The most recent allotment plan updates and decisions since the 1995 Rescission Bill Schedule include one with seven in progress on the Beartooth District, 28 with 8 in progress on the Sioux District, and 21 with 5 in progress on the Ashland District. These analyses cover 70 allotments of the 108 (65 percent) of the allotments identified in the Rescission Bill Schedule. Table D-6 reflects the NEPA analysis Rescission Bill schedule for the forest units.

Table D-6: Approved NEPA Schedule to Meet Rescission Bill (# of Allotment Decisions)***

District	1996-98	1999-03	2004-06	2007-09	2010-12	Total
Beartooth	4	4	3	4	3	18
Sioux	28	8	7	4	5	52
Ashland	21	5	5	5	2	38
Total	53	17	15	13	10	108

***All of the above allotment schedules will be reflected in the new range module of INFRA database. This database will be used to track regionally approved strategy.**

Recommended Action: Continue to keep allotment management planning a high priority in the program of work per the Rescission Bill. However, this should not be done at the expense of allotment compliance monitoring on at least 20% of the allotments needing to be administered to standard annually.

RANGE: ALLOTMENT PLANNING - MONITORING ITEM D4

ACTION OR EFFECT TO BE MEASURED:	Determine if 20% of the Allotments are being administered to standard.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 20 percent of allotments being administered to standard annually.

Purpose: This monitoring item was established to ensure that allotments are being monitored for compliance with terms and conditions of grazing permits, which also include monitoring for compliance to Forest Plan standards and guidelines. The expected accuracy and reliability of the information is high.

Background: For allotments identified for annual inspection, a determination of compliance with grazing permit terms and conditions and forest plan standards occurs. This annual determination is generally completed at the end of the grazing season by the allotment administrator and documented. The allotment administrator reviews inspection results, data, and through personal knowledge of the allotment, determines if livestock grazing on the allotment met Forest Plan Standards during the grazing season. The inspector recommends corrective actions to be taken if compliance problems exist and the responsible line officer approves the determination.

The frequency of examination of an allotment varies depending on the complexity of administrative and management concerns. For each allotment that has been examined, a determination was made as to whether or not there was compliance with the grazing permit, allotment management plan, and annual operating instructions; if suitable progress is being made in meeting management objectives as specified in the Allotment Management Plan; and if there was a need for change of direction or emphasis for subsequent annual operation instructions or refinement and update of the Allotment Management Plan.

Compliance problems with the terms and conditions of grazing permits varied across the units and follow-up actions were initiated. Examples of compliance issues include unauthorized livestock use, excess use, and permit holders not following annual instructions or allotment management plans relative to timing and intensity of use in particular pastures or units. Generally, range inspections with permittees are done on those allotments where compliance issues have developed in order to try and jointly resolve the issues where possible.

Compliance with permit terms and conditions relates to whether or not a permit holder ensures that annual instructions or allotment management plans are being followed, including timing, intensity, and location of stock. It also includes such items as maintenance of range improvements per permit terms and conditions.

Evaluation: About 10-20 percent of the allotments are inspected annually. During the last several years, allotment inspections have been documented by various means and to various degrees. Some districts map livestock utilization and distribution patterns by unit within allotments. During 1998 we initiated use of a new format for inspection documentation relative to Forest Plan monitoring elements. Field documentation typically includes the AMP or range project decision date for the allotment (if it exists), whether or not applicable Forest Plan standards for allotment management were being met, permitted and actual livestock numbers and kind, permitted and actual season of use, inspection date(s) (with reference to the field documentation attached), any special information (i.e. unauthorized use, weather conditions, fires, permittee actions, etc.), a reference to appropriate forest plan monitoring elements and applicable standards, determination of whether standards were met during the grazing season, rationale for the above determination, other remarks, recommended actions where standards have not been met, and dated signatures of Rangeland Management Specialist and District Ranger.

The 1998-1999 field inspections were done relative to meeting objectives of allotment decisions and Forest Plan goals and objectives, and to meeting the terms and conditions of the permits. All compliance issues that have required further action have been or are being initiated. In general, District range staff have spent 60-70 percent of the field season (5/1-11/1) on field administration including: allotment management plan compliance, compliance with permit terms and conditions, range inspections, range improvements (existing and proposed), and range inventory. In 1998-1999, districts have inspected and documented findings on at least 10-20 percent of allotments each year.

Allotment management planning and deferred maintenance inventory of rangeland improvements during 1998 and 1999 did not allow districts to accomplish administration on 20% of their allotments.

Table D-7 reflects the enormous workload and complexity of the grazing management and permit administration program on the Custer National Forest.

Table D-7 Allotments and Permittees.

District	Number of Allotments	Number of Permittees	Suitable Acreage to Monitor	AUMs Permitted
Beartooth	24	28	53,003	16,924
Sioux	64	72	133,752	53,745
Ashland	67	67	370,495	158,520
Total	155	167	557,250	229,189

Recommended Action: Continue to keep permit and allotment administration a high priority in

the program of work. Allotments administered to standard, including compliance monitoring and follow-up initiation, should be accomplished on at least 20% of the allotments annually.

RANGE: PRYOR MOUNTAIN WILD HORSE RANGE – MONITORING ITEM D5

ACTION OR EFFECT TO BE MEASURED:	Determine if there is an increase in poor condition range within the horse range (Management Area Q).
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	More than a 10 percent increase in poor condition acres.

Purpose: This monitoring item was established to ensure that wild horse grazing or other activities do not exacerbate downward trend levels. The expected accuracy and reliability of the information is moderate.

Background: The following outlines a chronology of events regarding rangeland conditions resulting from wild horse use in the area:

Pre-1968: Severe overgrazing occurred on the Forest Service Pryor Spur Allotment that consisted of about 3,000 suitable grazing acres. From 1909 to 1928 more than 500 cattle, 100 horses, and 4,000 to 7,300 sheep grazed the Forest Service Pryor Spur Allotment each year where AUMs annually consumed ranged from 4,100 to 6,700 typically over a three-month period. From 1929 to 1939 more than 250 cattle and 2,400 sheep grazed this allotment each year where AUMs annually consumed ranged from 700 to 1,700 typically over a 2-month period. From 1939 to 1962, 1,200 to 2,000 sheep grazed this allotment each year where AUMs annually consumed ranged from 500 to 700 typically over a 2-month period.

Forestlands had been used to such a point that they had deteriorated and were in poor shape. A 1958 range documented that the Pryor Spur Allotment suitable range was all in a downward trend with 1,160 acres being in very poor condition, 1,680 acres being in poor condition, and 770 acres being in fair condition. Mechanical terracing was done to reduce the sheet erosion occurring in the area. This Forest area has not been grazed by domestic stock since 1962.

Wild horse use occurred within Forest Service lands in the Pryors ranging from Big Pryor Mountain to East Pryor Mountain. However, cattlemen and sheep men who had permitted livestock on the mountain did not want the horses competing for forage and thus horse numbers, within established allotments, since the turn of the century were virtually removed. Horse traps were built on the south end of East Pryor Mountain and on Red Pryor Mountain in the 1930s.

1968: Secretary of the Interior Udall designated the Pryor Mountain Wild Horse Range. The legal description did not include any Forest Service lands. On the effective date of this Secretarial Order, the Pryor Mountain horse herd amounted to an estimated 200-220 horses. (1972-1973 Pryor Mountain Complex Land Use Recommendations). Another estimated number of 265 is listed in 1974 Pryor Mountain Complex Land Use Decisions.

1971: Historic notes indicated the proposed construction of a drift fence at the north end of the Lost

Water area.

1972-1973: An inter-agency study between the Forest Service and BLM (Pryor Mountain Complex Land Use Recommendations) identified uncontrolled horse populations were increasing above their available forage supply. At that time, the legal boundary of the horse range had the capability of supporting 80-90 adult (yearlings and older) wild horses, according to the study. The legally established range had been severely abused by horses in the past and range condition had been on a steady downward trend until 1972 due to initial BLM efforts to remove some of the horses in November of 1971. However, wild horses had in fact been using two additional areas (Lost Water Canyon--basically Forest Plan management area Q--on Forest Service lands and the Mystic Allotment on BLM lands) that were outside the legal boundaries.

1974: Among other decisions outlined in Pryor Mountain Complex Land Use Decisions, a joint Forest Service and BLM decision was reached to allow horses to continue to use these areas at an estimated 12-20 head in the Lost Water Canyon "trial area" (Forest Plan management area Q), and 5-10 head in the Mystic Allotment area (BLM). These areas were also to be submitted to the Secretary of Interior for formal additions to the Pryor Mountain Wild Horse Range. The wild horse population was not to exceed 140 animals one year of age and older with the inclusion of the Sorenson Extension, and other low range areas. It was also expressed that wild horse use would not be expanded on to any additional public lands and that the Dryhead Overlook/Tony's Island area was closed to domestic livestock and wild horses.

1980: An analysis of wild horse use on National Forest System lands was conducted. This was specific to lands called the "trial area" which are now classified as management area Q under the 1986 Custer Forest Plan. At this 1980 point in time it was estimated that generally fewer than 15 horses used the entire Forest Service portion of the range. Half of those were typically found outside the "trial area" on adjacent Forest Service lands. Also, much of the use of the lower section of the "trial area" was used during the spring. The decision reached from this analysis was to continue to work with BLM in the development of a Biologic Unit Management Plan and that a Memorandum Of Understanding being developed outlining constraints and considerations.

1980: A Memorandum Of Understanding between Bureau of Land Management, National Park Service, and Forest Service specified a cooperative effort in the analysis and determination of the Wild Horse territory and in the development of a plan of management for the range. It called for continued use of the Sorenson and Lost Water areas during the 1980-1983 period. It was agreed that horses would not be permitted on National Forest System lands outside the area (Dryhead Overlook/Tony's Island area) identified in the 1974 Pryor Mountain Complex Land Use Decision. The numbers of horses permitted on National Forest System lands were eight head yearlong. BLM agreed to construct the buck and pole drift fence on the north end of Lost Water area (north end of management area Q) on location flagged by the Forest Service. Fence was to be constructed during the 1980 field season.

1983-1987 the Custer Forest Plan was developed and outlined management area direction that included proposed Wilderness and research natural area within the Lost Water Canyon area (management areas H and L).

Fall 1992: Bighorn Canyon National Recreation Area (NRA) decided not to renew the Sorensen Extension for use by wild horses.

Existing Situation: For a variety of reasons, in the past ten years wild horses have established use in areas not authorized for use (especially near Dryhead Overlook and Tony's Island). Horse use in this area has grown substantially just in the last few years. This increased pressure corresponds with the 1980's shutting off BLM water sources mid-slope and hazing of horses to move further up elevation due to poor range condition on the lower and mid-slopes. Shifts in horse movement were also noted after the Park's Service 1992 removal of the Sorenson Ranch Extension from use by the herd. Some

horses that once were associated with the yearlong low elevation range of the "Dryhead Unit" (located within the Bighorn Canyon NRA), including the Sorenson Extension, have been moving westward into the bands that use seasonal ranges from lower elevation to higher elevation on National Forest System lands. This has created more horses moving seasonally up to the mountain summer range of the National Forest and BLM and in turn creating more pressure on those rangeland and watershed resources.

Areas north of Forest Service management area Q (north of the buck and pole fence) have been receiving some wild horse use. The lack of maintenance of the buck and pole fence in the late 80s and early 90s allowed the increased horse pressure to move into the adjacent Dryhead Overlook, Tony's Island, and Commissary/Big Ice Cave areas. There are years where there have been up to 40 or more of the summering horse herd found within these areas. This goes well beyond what is considered incidental use.

A change in distribution pattern has occurred where there is high use in portions of the sub-alpine meadows near water (especially Tony's Island Spring) and minimal use throughout the mid-slopes that were at one time receiving the heavier use in the past.

Evaluation: Outside of National Forest System lands north and west of the northern boundary, we support range expansion in other adjacent areas of the horse range (i.e. more winter range to the south and east). We do not support horse range expansion on the National Forest beyond the current area of Management Area Q.

The management of National Forest adjacent to the Wild Horse Range involves several issues: Recommended Wilderness, Research Natural Area, rangeland condition and resiliency, Native American traditional use, and other resource management considerations. These are complex issues and concerns that we are obligated to consider when asked to expand the PMWHR further onto National Forest System lands (the Dryhead Overlook and Tony's Island areas). The considerations are outlined as follows:

1. Conflicts with Forest Plan Management Area Direction: One reason why we do not support range expansion into the Dryhead Overlook and Tony's Island area is due to conflicts with commitments we made in the Custer Forest Plan relative to recommended wilderness and research natural area designation.

"Management areas" outline Custer Forest Plan direction. The following management areas are adjacent lands to the designated horse range (see attached map):

Management area H--Lost Water Canyon Recommended Wilderness: This area (approximately 6,000 acres) is located west of the formal wild horse range within the Lost Water Canyon area. It is recommended for Wilderness classification. The Forest Plan states that "grazing, except for recreation stock, is prohibited" in this area. Approximately 2,840 acres of suitable range found within management area H and L were reclassified as unsuitable range and closed to domestic and wild horse grazing since 1961 due to watershed concerns. These watershed concerns continue to exist today due to the fragile nature of the sub-alpine area and the time it takes to recover in these systems from past grazing abuse.

Currently, wild horse use is predominantly occurring in the upper portions of this management area within the sub-alpine meadows around Tony's Island. When the Forest Plan was developed in 1983-1987, wild horse use in this area was incidental. The Forest Plan states, "if wild horses cause unacceptable soil and/or vegetation damage, corrective action will be taken to eliminate wild horse use and the damaged area will be rehabilitated. (Management Area Q contains the formal wild horse area, but some use will likely spill over into the Lost Water Canyon area.)". BLM hazing of horses to the upper elevations was done in the 1980s. This shifted patterns of use from lower and mid slopes to

higher slopes, pressuring the northern boundary of PMWHR. When Bighorn Canyon NRA withdrew the Sorenson Extension from horse use in 1992, a shift in horse movement also occurred to the west and north, causing more horses moving up elevation. More grazing pressure and "spill over" into Lost Water Canyon recommended Wilderness have increased substantially beyond just incidental use. The current use is outside the intent of management area H direction.

Management area L--Lost Water Research Natural Area: Included within management area H is management area L, recently designated Lost Water Canyon Research Natural Area. Like management area H, Forest Plan direction for this area also prohibits grazing by domestic livestock or wild horses. Currently, wild horse use is predominantly occurring in the upper portions of this management area within the sub-alpine meadows.

Management area D--Dryhead Overlook: This area is found directly north of the horse range boundary buck and pole fence and is not a part of the designated Wild Horse Range. Forest Plan direction for this area is to perpetuate multiple use management with emphasis on perpetuating wildlife.

However, the Dryhead Overlook portion of this management area, consisting of approximately 770 acres of sub-alpine/alpine systems, has been reclassified as unsuitable range and closed to domestic livestock and wild horse grazing since 1961 due to watershed considerations. Historic overgrazing of this area created sheet erosion within these high elevation systems. Mechanical terracing, seeding, and closing the area to livestock grazing was done in 1961, in order to minimize the affects of sheet erosion and encourage perennial vegetative cover to get a stronghold in the area again.

2. Herd Genetic Viability: Many interested individuals and groups would like to expand the horse range further onto Forest Service, most notably on the Dryhead Overlook and Tony's Island areas. Their concern typically lies with herd genetic viability. We are not convinced that formal expansion further onto the Forest Service would significantly affect their viability for the following reasons:

The Dryhead Overlook/Tony's Island area ranges in elevation from approximately 8,400-8,800 feet with the majority of the area being under snow for approximately 8 months out of the year. Thus, high elevation summer range is not the limiting factor when looking at the year round movement and support needed. We believe that the critical factor is the availability of winter range for the herd. We also believe that distribution patterns could improve over the mid-slopes by activating the existing two water guzzlers and looking at other opportunities for water development on the formal horse range.

Coughenour's recent study indicated that "the effects curtailing recent horse trespass onto USFS lands northwest of the PMWHR boundary on forage production and horse energy balance would be negligible." (Manager's Summary-Ecological Studies of the Pryor Mountain Wild Horse Range, 1992-1997, Ecosystem Modeling, Conclusion #17, p. 131).

Although formally closed to grazing by domestic livestock and wild horses, wild horse use is currently occurring in the sub-alpine portions of this management area within the Dryhead Overlook area due to past fence disrepair. It is estimated that the 770 acres, which are closed to grazing, produces approximately 47 horse months or 11 horses for a four-month summer period.[3] Even given these figures, it is virtually impossible to control forage use since wild horses are not actively herded in or out of areas. Selective regrazing occurs due to season long use. It is also virtually impossible to control the effects to shallow sub-alpine soil and vegetation during spring break-up and growing periods since horse use often follows the snowline where "range readiness" has not been reached.

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[3] This is calculated from 1993 production data (graminoids @ 190 #/ac and forbs @ 680 #/a), using 30% allowable use in subalpine seasonlong use, 31 #/day (930 #/month) use by a horse, and using a four month snow-free period of time. Only the graminoid production (190 #/a) will be used as forage for calculation purposes as follows: [(190 #/a graminoids X .30 allowable use) / 930 #/horse month] X 770 acres = 47 horse months / 4 months = 11 horses.

Even if the portion of management area D were allowed to be grazed, approximately two miles of low maintenance fence (i.e. treated buck and pole @ $15,000/mile) would need to be constructed and maintained in order to keep the horses out of the recommended wilderness area and Research Natural Area. Visually, much of the fence would not be seen from the system road, except for about a quarter mile. However, logistical placement of the fence would create more confinement in the pattern of distribution of the horses where it is anticipated to create more intensive use near the upper pond in the headwaters of Cave Creek Canyon and the Dryhead Overlook area since Tony's Island area and associated water sources would not be included. The expense and low benefit of head months gained will not add significantly to viability of the herd.

3. Rangeland Condition and Resiliency: Historically, domestic livestock grazing was done in a continuous or season long manner and with excessive stocking. It resulted in reduced soil and vegetative productivity of the Dryhead Overlook/Tony's Island/Lost Water Canyon area (formerly, the Pryor Spur Allotment) as indicated by historic notes.

Severe overgrazing occurred on the Forest Service Pryor Spur Allotment. From 1909 to 1928 more than 500 cattle, 100 horses, and 4,000 to 7,300 sheep grazed the Forest Service Pryor Spur Allotment each year where AUMs annually consumed ranged from 4,100 to 6,700 typically over a three-month period. From 1929 to 1939 more than 250 cattle and 2,400 sheep grazed this allotment each year where AUMs annually consumed ranged from 700 to 1,700 typically over a 2-month period. From 1939 to 1962, 1,200 to 2,000 sheep grazed this allotment each year where AUMs annually consumed ranged from 500 to 700 typically over a 2-month period.

It is obvious that the Forestlands had been used to such a point that they had deteriorated and were in poor shape. A 1958 range analysis documented that the Pryor Spur Allotment suitable range was all in a downward trend with 1,160 acres being in very poor condition, 1,680 acres being in poor condition, and 770 acres being in fair condition. The allotment was closed to grazing, after 1961, due to the severe sheet erosion and long-term recovery needs of shallow sub-alpine rangeland. Mechanical terracing and seeding was done to impede the sheet erosion.

This is the same area that many interested individuals and groups would like to formally add to the PMWHR. This area ranges in elevation from about 8,400-8,800 feet and is considered sub-alpine in nature. These systems generally have shallow soils; short growing seasons, and low resiliency to disturbance such as grazing. This area continues to be considered not suitable for grazing by either domestic livestock or wild horses due to the fragile nature of the sub-alpine area, recovering rangeland from the past grazing abuse, and mechanical and seeding treatment. The area has been closed to grazing since 1961.

The currently available horse range is near an ecological threshold that should not be pushed any further with increased horse numbers over the average historic level of approximately 138 post-removal total population size (1997 PMWHR Wild Horse Removal Plan, p. 5).

The 1992 revised Herd Management Plan recommended reducing the stocking rate to 95 +/- 10% horses annually, based on recalculated grazing capacity acreage (involving the loss of the Sorenson Extension-NPS lands) for the horse range. This reduction in the appropriate management level (AML) was justified by projections that, on an average, over 25% of the total range area produces no forage; 66% of the producing range is in poor condition; while 33% of the range is in fair to good conditions and produces over 65% of the forage available to grazing populations. Only 6% (1,498 acres) of the PMWHR are in good condition, while 41% (10,325 acres) and 53% (13,621 acres) of the available rangeland are in fair and poor condition, respectively (1997 PMWHR Wild Horse Removal Plan, Appendix 3). About 2,510 acres available within Forest Service management area Q are considered to be in fair condition.

Coughenour also finds that any number of horses affected the range. *"As horse numbers were*

increased, herbaceous ANNP [annual net primary production] on the primary horse range decreased by 10-13% for each additional 50 horses." (Manager's Summary-Ecological Studies of the Pryor Mountain Wild Horse Range, 1992-1997, Ecosystem Modeling, Spatial Distributions, p. 128). In his conclusion #14 he writes, *"...with as few as 50 horses, there was some decrement of plant growth. Given this, the optimum number of horses may be the minimum number needed to safely ensure the population and genetic viabilities of the horses."* (Manager's Summary-Ecological Studies of the Pryor Mountain Wild Horse Range, 1992-1997, Ecosystem Modeling, Conclusion #14, p. 130)

It is recognized that climatic variation is extensive and contributes to fluctuations in annual productivity than any other variable. Recent utilization studies (1997 PMWHR Wild Horse Removal Plan, p.13) confirm the localized and highly variable distribution of actual use patterns on the range. Given the poor and fair condition of the majority of the range, and the yearlong/seasonlong use, 30% off-take may be an appropriate use level in critical use areas as suggested by Tom Hobbs of Colorado State University (1997 PMWHR Wild Horse Removal Plan, p. 13). The risk management approach Hobbs suggested could be tried on a trial basis where 30% off-take should not be exceeded on no more than 10% of the critical use areas of the horse range. 1996 - 1997 BLM use data shows that winter use resulted in 70% of critical use areas exceeding 30% off-take and summer use resulted in 55% of critical use areas exceeding 30% off-take (1997 PMWHR Wild Horse Removal Plan, p. 13 and Appendix 6). This information also suggests caution about placing additional grazing pressures on the range.

Key indicators of long-term trend were measured two to five times between 1981 and 1997 on six permanently established Daubenmire transect sites within the PMWHR. Other photo plot long-term trend studies were done near these Daubenmire locations between 1968 and 1979. Although these BLM trend studies indicate an upward trend on most sites, upon review of the data the upward trend is based on very marginal indicators of very slight percentage changes among key species composition. Generally, species composition and ecological conditions are Poor with some Fair indications. Canopy cover condition varies.

Impacts from livestock in the Pryors, during the turn of the century, have demonstrated that recovery from intense grazing pressure within these semi-desert and sub-alpine environments is slow. BLM studies indicate that overall rangeland conditions suffered markedly under the stress of prolonged high numbers of horses (>200 animals) and deer during the early part of the century (1997 PMWHR Wild Horse Removal Plan, p. 14). It is apparent that these systems are not very resilient to disturbance and have not recovered from their poor to fair status. With about 94% of the PMWHR being in poor and fair condition and considering that semi-desert and sub-alpine environments having low resiliency to disturbance, we believe that no increase in horse numbers over the historic post-removal average should be entertained.

4. Conflicts with Permitted Livestock: In the past, the Dryhead Overlook/Tony's Island area provided a stronger buffer, from what exists today, between the horse herd and permitted cattle allotment (Crooked Creek). The buck and pole fence on the northern boundary of the horse range restricted horses enough to where conflicts with the nearby grazing allotment were minimal. Over the last ten years, horses have found their way through the allotment boundary fence to the west, entering a permitted cattle allotment that just incurred a 20% permanent grazing reduction due to carrying capacity issues. We are not interested in having wild horses within permitted domestic livestock allotments, especially those where carrying capacity has been an issue.

5. Potential Conflicts with Traditional/Religious Use Area: The Dryhead Overlook area is a very important location to the Crow Indian Tribe, as a traditional and contemporary religious area. Some discussions with the Tribe indicate that they have concerns about the wild horses in this area. Many feel that the horses themselves do not conflict with their religious use of the area, but that the people attracted to the area because of the horses have potential to conflict with their religious use of the area.

Recommended Action: Coordinated interagency approaches that will maintain long-term genetic viability of the Pryor Mountain Wild Horse Herd are supported. Forest Plan management area Q was formally set aside for inclusion of the horse range in 1986. As outlined in the Custer Forest Plan, a goal for the Forest Service portion of the PMWHR is to provide for a healthy, viable wild horse population. We also have the goal to provide for improved habitat conditions including range and watershed.

The 1997 PMWHR Wild Horse Removal Plan (p. 5) indicates that the average post-removal population size since 1971 has been 138 +/- 23 horses, or 138 +/- 17 horses since 1984. This Removal Plan also states "Most evidence indicates that this total population size (approximately 138) has resulted in a healthy, genetically sound and productive herd of wild horses, and a thriving and prolonged ecological balance on the range." The 1977 winterkill of approximately 50% of the horses provides evidence that historically the PMWHR herd has been managed at levels that ensured population viability in the face of climatic extremes.

Considering rangeland conditions, the current range available to the horses, and the 1977 winterkill "test" to a genetically sound population recovery, we do not believe that more horse numbers than the average post-removal size should be entertained.

The following monitoring items have been forwarded to BLM for inclusion in the herd plan revision: 1) monitor Shoshonea pulvinata populations relative to horse and horse viewing activity. The Forest Service lists Shoshonea as a sensitive species; 2) monitor rangeland health factors and long-term trend and re-read permanent and photo long-term trend plots in key areas; 3) monitor visitation usage relative to assessing impacts from people and vehicles; and monitor fence-line conditions and follow-up maintenance of the buck and pole northern boundary fence.

Where possible, joint prescribed fire projects should be pursued with BLM and Bighorn Canyon National Recreation Area.

Where possible, additional mid-slope and lower slope water developments should be established or refurbished (Sykes and Burnt Timber Ridge guzzlers).

Commercial activity is an extremely important consideration of the horse range management. Increasing visitation to the PMWHR is anticipated along with increased marketing of the area. Commercial activity requests will increase. It is extremely important that neighboring agencies and BLM concur on consistent direction and guidelines in permitting activities. Until we have a chance to study allocations, we are not in a position to issue any outfitter/guide permits. Other special use permit proposals may include activities such as photography and filming. When these proposals include Forest Service lands, joint concurrence among the three agencies should occur on special use approval on a case-by-case basis.

Currently for the entire Beartooth District, we allow 1000 user days on a "first come, first serve basis," for activities such as tours, educational activities, and institutional activities. These user days are generally filled by the first of June every year. Adding some service days to the pool specifically for the Pryor Mountains could be considered. It is important that approval of these types of activities has joint coordination.

Continued high-level maintenance of the paved highway through Bighorn Canyon National Recreation Area needs to occur to accommodate the majority of wild horse viewing and interpretive opportunities. Improvement is not supported, other than that required to provide safe passage by 4-wheel drive and to reduce active erosion of the Burnt Timber and Syke's Ridge roads. Seasonal closure of the East Pryor, Burnt Timber, and Sykes Ridge roads during spring runoff should be considered.

RANGE: NOXIOUS WEED INFESTATIONS; MONITORING ITEM D6

ACTION OR EFFECT TO BE MEASURED:	Determine if noxious weeds have increased.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	More than a 10 percent increase in noxious weed infestations over the last five years.

Purpose: This monitoring item was established to ensure that noxious weed levels are not made worse by various activities. The expected accuracy and reliability of the information is moderate to high.

Background: Noxious weeds are biological invasive in our native ecosystems, threatening the health and productivity of our rangelands, forestlands, recreation sites, and riparian areas. Noxious weeds, which are aggressive and highly competitive non-native plants, seriously impact native and cultivated plant communities. Invasive weeds can overrun and destroy grazing lands, degrade wildlife habitat and wildlife-associated recreation, decrease rangeland plant diversity, and reduce land values. Collaborative, area wide programs are generally needed to solve weed problems.

Prevention, detection, and education efforts include development of weed management units with county weed supervisors and private landowners, implementing contract clauses addressing prevention techniques and control aspects, implementing weed seed free orders, inspecting gravel sources and topsoil piling practices, and utilizing established guidelines for mapping infestations.

Evaluation:

Inventories - Ranger Districts are at various stages with their inventories. Known locations of noxious weeds are generally mapped, but inventory for potential new invading threats through a structured inventory sampling design has not occurred. Geographical information system (GIS) coverages for weed databases are in progress. All districts are using Global Positioning System (GPS) units for mapping and inventorying infestations.

Current Infestation (see Table D-3) - There is an estimated 1,800 net acres of noxious weed infestation across the 1.2 million acres of the Custer National Forest. Areas that deserve special requirements relative to use of herbicide are the Absaroka-Beartooth (A-B) Wilderness and the West Fork Rock Creek Municipal Watershed, both located on the Beartooth District. The main target species for the entire Forest include leafy spurge, spotted knapweed, dalmation toadflax, sulfur cinquefoil, houndstongue and Canada thistle.

Analysis and Priority Criteria - Generally, the units understand the susceptibility of cover types to invasion based upon proximity to adjacent infestations, individual weeds species' biology, and assessment of integrated weed treatment options. Criteria for priority setting are established in the 1986 Custer Noxious Weed EIS and Record of Decision. An assessment of the risk of noxious weed introduction and rate of spread has not been compiled to date.

Weed Seed Free Requirements - In an effort to prevent new infestations of noxious weeds, certified weed seed free products are now required by order (1998) of the Forest Supervisor on National Forests throughout the state of Montana. Certified weed seed free products means that only feed or mulch which has been certified by an authorized state or county inspector as being noxious weed seed free can be used when on these public lands.

Currently there are several sources for weed free forage available in Montana. This order is also

intended to stimulate the products for use on the National Forests. Certified forage products allowed include alfalfa hay, grass hay, grain, straw, and forage cubes. Hay bales which are certified must each be tagged or marked as certified.

New Forest Plan Protocol Established - The Northern, Intermountain, and Rocky Mountain Regions of the Forest Service have established minimum standards and guidelines. They are to be incorporated into the next Forest Plan revision (to begin within the next couple of years). See "*Recommended Actions*" section for protocol items.

Treatment - An integrated pest management strategy is employed on all units where feasible. This could include a mix of treatments from herbicide use, to insect releases, to manual grubbing.

Typically, Tordon and 2,4-D have been used for herbicide treatment of target species. Biological control through distribution of insects on leafy spurge is being used in areas where chemical treatment is difficult. Sioux and Ashland Districts released over 80,000 and 116,00 flea beetles on leafy spurge in recent years.

Table D-8 outlines changes in net acreage of infestation and treatment levels.

Table D-8: Noxious Weed Infestation and Treatment Levels

Unit	1986 Infestation (net acres)*	2000 Infestation (net acres)	2000 Treatment Level (net acres)
Beartooth District	129	350	200
Sioux District	200	250	245
Ashland District	565	1200	300
Totals	894	1800	745

*** Estimates based on 1986 CNF Noxious Weed EIS Record of Decisions.**

The 1986 Forest Plan levels of noxious weed infestation were approximately 900 net acres, with spotted knapweed being the predominant species. About 1/3 of the known noxious weeds acreage were treated with herbicides at that time by the Forest Service, in cooperation with county weed boards and permittees. This was recognized as a "holding action" at best, and was designed to decrease the rate of spread until more effective control methods are developed (Forest Plan, p. 116). Infestation acreage has doubled since 1986. Some of this increase is due to weed spread, while some is due to better mapping and inventory. Presently, only about half of the infestations across the Forest are being treated.

Recommended Action: Monitoring indicates that several noxious weeds have increased more than 10% in the last five years. However, some of this is due to a more intensive survey and mapping of weeds which may have not been identified before. Regardless, the Best Management Practices for Noxious Weeds (currently, the directive is in draft) should be employed. The need for revising the Forest Noxious Weed EIS has been identified. Once completed, it might allow for new chemicals to be used and chemical treatment to be considered, and possibly utilized, in the Absaroka Beartooth Wilderness portion of the Custer.

Continued integrated pest management practices and priority protocol needs to be done aggressively. New Forest Plan protocol should be employed. This includes the following: For all proposed projects or activities the risk of noxious weed introduction and spread is to be determined, and appropriate

mitigation measures to be implemented. Only certified "noxious weed free" products used for feed or revegetation projects shall be used on National Forest System Lands. Contracts and permits, for use of National Forest System lands and resources, shall include provisions that are necessary to prevent the spread of noxious weeds. Priorities for controlling noxious weeds are as follows: 1) Prevent the introduction of new invaders; 2) Conduct early treatment of new infestations; and, 3) Contain and control established infestations. All personnel involved in the management of noxious weeds are to be properly trained. Administrative sites and areas such as campgrounds, offices, workstations, gravel pits, pastures, are to be weed free. Continue to work closely with our partners. Partners generally include county weed agents, neighbors, permittees, the National Park Service, and other landowners. Travel plans and enforcement are needed to help address noxious weed spread.

E. TIMBER

TIMBER: SUITABILITY FOR TIMBER PRODUCTION – MONITORING ITEM E1

ACTION OR EFFECT TO BE MEASURED:	Availability of lands classified as suitable/unsuitable.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Greater than a 10 percent change in acreage classification.

Purpose: This monitoring item was established to track changes in which lands were classified as suitable or unsuitable for timber production. The Forest Plan requires that this item be measured and reported every 5 years. The expected accuracy and reliability of the information is moderate.

Background: During the Forest Plan's development, lands that were suitable and capable for timber production were identified in terms of ecosystems. Lands in the non-forest ecosystems were deemed incapable or non-productive by definition and were subtracted from the gross acres for each District. The remaining acres included all forested lands and in some cases the unavailable reserved lands that may be non-forest. From this was subtracted the non-commercial forestlands, which were defined by ecosystems in the unit plans that existed at that time. From the resulting subtotal any reserved lands (wilderness and proposed wilderness) not already removed were subtracted, leaving a total that was used as the tentative suitable acres of productive forestland.

Beartooth District:

The lands suitable, capable and available for timber production were identified in terms of ecosystems and reserved status. The tentatively suitable lands on the Beartooth District are made up of the High Timbered Plateau, Sub-alpine Forest, Douglas-fir, and Dry Timbered Benches and Slope ecosystems on the Beartooth Face Unit (Ecosystems 2, 4, 5 and 6); the Lodgepole Pine, Douglas-fir, and Mountain Meadow ecosystems of the Beartooth Plateau Unit (Ecosystems 7, 8 and 9); and the Douglas-fir and Rock Outcrop-Forest ecosystems of the Pryor Unit (Ecosystems 3 and 4).

The Forest Plan suitable base for the Beartooth District was defined as all tentatively suitable lands in

Management Areas D, G and R, and a portion of the tentatively suitable lands in Management Area B.

Sioux District:

On the Sioux District lands suitable, capable and available for timber production were identified in terms of the ecosystems described in the Sioux Land Use Plan. They were not refined using habitat capability or productivity. The ecosystems included were Ponderosa Bench, Ponderosa Slope and Ponderosa Steep (3A, 3B and 3C respectively).

The Forest Plan suitable base for the Sioux District was defined as all tentatively suitable lands in Montana which are in Pfister's habitat types 170, 171, 172, 180 and 181, as determined by site specific examination and future mapping.

Ashland District:

As with the other Districts, the lands suitable, capable and available for timber production were identified in terms of ecosystems. Ecosystems deemed incapable or non-productive were separated out, as were the lands in the Tongue River Breaks inventoried roadless area, which were considered unavailable.

The Dry Slope Ponderosa Pine ecosystem (PP/Andropogon, PP/Agropyron and PP/Festuca habitat types) was considered non-commercial because Forest Plan analysis showed that it could not produce at least 20 cubic feet/acre/year. According to Pfister's "Forest Habitat Types of Montana", these are the driest forested sites in the Region and they have a yield capability of 10 to 30 cubic feet/acre/year with a stockability factor of 0.6.

The tentatively suitable lands on the Ashland District were therefore, essentially made up of the Moist Slope Ponderosa Pine ecosystem. The Forest Plan suitable base for the Ashland District is those tentatively suitable lands (Moist Slope Ponderosa Pine ecosystems) that do not lie within Management Area J.

Table E-1 displays the distribution of forested land classified as either suitable or tentatively suitable for timber production as identified in the Forest Plan.

Table E-1: Lands Suitable for Timber Production[4]

District	National Forest Land		Forested Land		Tentatively Suitable Lands		Suitable Lands	
	Acres	%	Acres	%	Acres	%	Acres	%
Beartooth	586,543	49.5					30,860	42.6
Sioux	162,929	13.7					22,000	30.4
Ashland	436,209	36.8					19,500	27.0
Total	1,185,681	100.0	679,878	100.0	156,731	100.0	72,360	100.0

Evaluation: The main problem that the Forest has encountered regarding timberland suitability, while implementing projects under the Forest Plan, is the spatial location of the lands classified as

[4] 1986 Custer Forest Plan and supporting documents.

suitable for timber production under the Forest Plan. Data collected during site-specific examinations, conducted for project level planning efforts, indicates that the Forest Plan may have under-estimated the number of suitable acres, when compared to the description of allocated suitable acres in the Forest Plan suitability analysis. The amount of difference is unknown, because the Forest has only field evaluated a small portion of the total forestland base through project implementation, and because there was no spatial display for comparison purposes as to where the suitable timberlands were located as allocated under the Forest Plan.

Another Forest issue relative to timberland suitability is the classification of the Dry Slope Ponderosa Pine ecosystem as non-commercial forest (PP/Andropogon, PP/Agropyron and PP/Festuca habitat types; Pfister habitat types 110, 130 and 140 respectively). All three of these habitat types occur on both the Sioux and Ashland districts. On the Ashland District, these "dry pine" habitats were delineated and classified as non-commercial forest during the Forest Plan analysis of the tentatively suitable timberlands on that District.

On the Sioux District the "dry pine" habitats were not delineated as a separate ecosystem, but were considered inclusions within other ecosystems, and therefore, could not be pulled out as non-commercial forest during the analysis of the tentatively suitable timber lands on that District. They were however, excluded from the suitable timber base on the Sioux District during the final phase of suitability determination for the Forest Plan. Of the three bunchgrass habitat type, the blue stem (110) and bluebunch wheatgrass (130) associations or series are more prevalent on the Sioux District, whereas, the Idaho fescue (140) series is more common on the Ashland District.

Data collected during site specific field examinations, suggests that for stands located on east, northeast, north and northwest aspects on the Agropyron (130) and Festuca (140) series, that the annual growth rate equals or exceeds 20 cubic feet/acre/year and that stand regeneration is not a problem when overstory shelter and a seed source is retained. The same cannot be said of the Andropogon series as this is a transition zone between grassland and forest, and we have very little field data on stands in this habitat type.

In 1988 the Forest experienced a major windstorm and several large wildfires, as a result, it was estimated that approximately 24 percent of the Forest's suitable timber base was affected by these events. The impact of these catastrophic events on the Forest's ASQ was analyzed in 1992 (FY92 TSPIRS Catastrophic Loss Analysis), and it was determined that the Forest could continue with an average annual timber sale program of 3.0 MMBF without amending the Forest Plan.

Table E-2: Acres Affected by the 1988 Catastrophic Events

District	Total Acres of Suitable Land	Suitable Acres Impacted	Suitable Acres Not Affected	Percent of Suitable Acres Affected
Beartooth	30,860	800	30,060	2.6
Sioux	22,000	13,719	8,281	62.4
Ashland	19,500	2,590	16,910	13.3
Total	72,360	17,109	55,251	23.6

During the 12 years that the Forest has been operating under the Forest Plan, there have been three Amendments to the Forest Plan regarding classification of land suitability for timber production. All

three amendments were the result of site-specific project level analysis. The three amendments combined resulted in a net decrease of 180 acres (0.25 percent) to the suitable timber base.

Amendment #14 removed 459 acres from the suitable timber base on the Sioux Ranger District (1992 Sioux Ranger District Fuels Management Plan).

Amendment #33 reclassified 170 acres from unsuitable, to suitable for timber production on the Ashland Ranger District (Lyon Creek Vegetation Management Analysis, 1996).

Amendment #35 reclassified 109 acres from unsuitable, to suitable for timber production on the Ashland Ranger District (Fly Wilbur Vegetation Management Analysis, 1998).

Table E-3 compares by District the amount of suitable land with the number of suitable acres harvested and the amount of volume harvested by component off of the suitable timber base for the 12-year period of FY88 – FY99.

Table E-3: Suitable Lands Harvested & Chargeable Volume Sold by District[5]

District	Suitable Lands		Suitable Lands Harvested		Chargeable Sawtimber Sold		Chargeable Other Products Sold	
	Acres	%	Acres	%	MMBF	%	MMBF	%
Beartooth	30,860	42.6	726	9.6	1,575	5.5	895	97.6
Sioux	22,000	30.4	3,736	49.7	12,950	45.2	13	1.4
Ashland	19,500	27.0	3,057	40.7	14,119	49.3	9	1.0
Total	72,360	100.0	7,519	100.0	28,644	100.0	917	100.0

Recommended Action: Continue monitoring.

TIMBER: REFORESTATION - MONITORING ITEM E2

ACTION OR EFFECT TO BE MEASURED:	Suitable lands are restocked within 5 years.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	All acres regenerated within 5 years.

Purpose: This monitoring item was established to track compliance with the 1976 National Forest Management Act (NFMA) requirement that all suitable lands managed for timber production are to be adequately restocked within 5 years following a final (regeneration) harvest. The Forest Plan requires that this item be measured every 1, 3 and 5 years, and reported every 5 years following a final harvest.

[5] For the 12 year period of FY88 – FY99 inclusive. Data source for acres harvested is the TSMRS database; data source for volume sold is the Program Sale Statement generated from STARS.

The expected accuracy and reliability of the information is high.

Background: Natural regeneration has been the strategy on the ponderosa pine ecosystems after harvesting on the Sioux and Ashland ranger districts. The predominant silvicultural system on these districts has been by seed tree or shelterwood seed tree with smaller acreages by clearcut. Artificial regeneration has been the strategy where stand replacement wildfires have occurred or where prescribed fire has eliminated the seed source.

Harvesting in the lodgepole pine ecosystems on Beartooth ranger district is generally on a small scale for post and pole products and small clearcuts with natural regeneration the silvicultural system of choice. In the Douglas-fir ecosystems seed tree, shelterwood seed tree and clearcuts have been implemented with natural regeneration as the strategy. Artificial regeneration has been prescribed on the Beartooth district where planned natural regeneration has failed due to lack of cone production, health of seed trees, loss of site preparation or mortality on seedlings due to frost prone areas.

Evaluation: Since 1987 all harvested areas on the Sioux and Ashland districts with natural regeneration prescribed have met satisfactory stocking (progressing or certified) within the 5 year time period as determined by the 1st, 3rd, and 5th year monitoring exams. Planting on the stand replacement wildfires on these two districts has been very successful with 1st year survival generally between 90 and 100%, 3rd year survival generally between 80 and 100% and 5th year survival generally between 60 and 90%. Only a small percentage of these plantings have been replanted due to improper stock, drought conditions and/or tip moth damage. To date all planted areas on these two districts are progressing towards satisfactory stocking or have been certified within 5 years from the planting activity.

Since 1987 74 percent of the 212 acres harvested on suitable lands on the Beartooth Ranger District have been satisfactorily stocked (progressing or certified) within 5 years of harvest activity. Of the other 26%, 19% was monitored late but would have met satisfactory stocking within 5 years due to existing tree numbers, age and size. The remaining 7% occurred on seed tree harvest areas on Douglas-fir sites where the seed trees succumbed to insect attack, and/or no cones were produced, and/or drought conditions occurred. These areas have been planted and replanted but have failed due to drought conditions, and/or frost damage, and too young of stock planted for the site conditions. These areas have been replanted with a hardier 3-0 Douglas-fir stock and have since been certified or are progressing to meet satisfactory stocking.

Recommended Action: Past monitoring has resulted in taking actions to reforest tough site conditions that have not met satisfactory stocking within 5 years from final harvest. Continued monitoring for successful reforestation will continue the 1st, 3rd and 5th year after final harvest.

TIMBER: OPENING SIZE - MONITORING ITEM E3

ACTION OR EFFECT TO BE MEASURED:	Determine if created openings comply with size limits and if they are periodically evaluated for appropriateness.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Project reviews indicate unacceptable results.

Purpose: This monitoring item was established to track compliance with the 1976 National Forest

Management Act (NFMA) requirement that created openings be limited to a maximum size of 40 acres, and that any variances follow established approval procedures. The Forest Plan requires that this item be measured and reported on annually for one sale. The expected accuracy and reliability of the information is moderate.

Background: Since 1992 the Custer National Forest has completed harvest on five sales (OG Breaks, Ozona Breaks, EKA Breaks, Smokey Breaks, and Lyon Creek) that have created openings larger than 40 acres, within the ponderosa pine ecosystems on the Sioux and Ashland ranger districts. These five vegetation management projects were designed to meet resource objectives as defined by the Forest Plan and NEPA analysis. These objectives included: reduction of fuels through timber harvesting that changes the spatial and vertical arrangement of the fuels in order to meet the forest plan wildfire management control objectives and thus reduce the risk for large stand replacement wildfires that could effect wildlife habitat, and long term soil productivity, implementation of strategically placed fuel-breaks on the landscape to assist in suppression responses to contain, control and confine wildfires, creation of ponderosa pine stands that resemble historic composition and structure where fire processes result in fewer non lethal fires, and reduction in canopy coverage's to enhance transitory range for domestic grazing.

Evaluation: All five of the sale areas have had NEPA analysis that supports large openings and Regional Forester approval for exceeding the 40-acres. Silvicultural systems on these openings have been either seed tree seed cuts or shelterwood seed tree cuts. Preliminary monitoring of regeneration has shown that adequate regeneration has occurred or is on the trajectory to meet the desired stocking goals as defined by the silvicultural prescriptions.

Recommended Action: No reviews or monitoring to date have indicated unacceptable results. Continued monitoring for regeneration to meet stocking goals and other desired conditions.

TIMBER: SILVICULTURAL PRESCRIPTIONS

MONITORING ITEM E4

ACTION OR EFFECT TO BE MEASURED:	Determine if silvicultural management prescriptions being used are the ones best suited to the management areas goals and that all impacts are being considered.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Departure from management prescription or FORPLAN allocation.

Purpose: This monitoring item was established to determine if the silvicultural prescriptions envisioned in the Forest Plan, would be effective in meeting the goals of the respective management areas and in moving the forest towards the desired future condition. The Forest Plan requires that this item be measured and reported on one sale annually. The expected accuracy and reliability of the information is high.

Background: The Forest Plan states that the full range of silvicultural systems (individual tree selection to clearcut) is available for use on the Forest, with even-aged management being the preferred silvicultural system. Silvicultural systems that favor natural regeneration are to be emphasized. The Plan also states that all vegetative management practices on forested lands will

require the preparation of a site-specific silvicultural prescription, and sets out the process and guidelines for determining the optimum silvicultural system to meet Forest Plan and project objectives within resource constraints.

Regeneration cuts on the Forest are generally accomplished through use of either the seed tree or shelterwood systems. Use of the clearcutting method is very limited and is generally used only when an adequate seed source does not exist, where needed to meet some non-timber resource objective, or during salvage operations following a catastrophic event. On occasion the group selection method is prescribed in order to meet wildlife habitat objectives.

The Forest Plan states that all cutover sites will be planned for regeneration. Natural regeneration is the predominate and preferred method of reforesting harvest units following a regeneration cut. Historically, use of the natural regeneration method has been very successful on the Forest. Planting is utilized when an adequate seed source does not exist and when natural regeneration is expected to be inadequate to meet required stocking levels or is unlikely in the foreseeable future (e.g. following a clearcut harvest or catastrophic event). Such was the case following the 1988 Brewer Fire, after which a large tree planting program was initiated on the Sioux Ranger District, in an attempt to speed up reforestation of burned over suitable forest lands.

The Forest Plan provides for timber stand improvement treatments (TSI) and states that these treatments will be used in a cost effective manner, on areas with a high site index and on sapling-sized stands where the stocking level exceeds that necessary to meet future stand objectives. Thinnings are to be designed to promote stand diversity, while maintaining stand growth and yield projects as prescribed in the management prescriptions. Since implementation of the Forest Plan in June of 1987, the Forest has averaged approximately 170 acres of pre-commercial thinning per year. The Forest has the opportunity, as well as, a growing need to do more pre-commercial thinning, but has been limited by available funding.

Evaluation: Since implementation of the Forest Plan, timber sales on the Forest have largely been viewed and used as a tool to achieve multiple resource objectives. Although the Forest has sold several timber sales where the primary objective was timber commodity production, the majority have had a an objective of forest stewardship, in which improving wildlife habitat, reducing fuel loading, improving forage condition for livestock grazing, and moving the forest towards the desired future condition was the primary emphasis.

Table E-4 shows silvicultural accomplishments by District for the twelve-year period of FY88 - FY99.

Table E-4: Silvicultural Accomplishments[6]

District	Acres of Regeneration Harvest[7]	Acres of Intermediate Harvest[8]	Acres of Salvage Harvest[9]	Acres of Natural Regeneration	Acres of Planting	Acres of TSI
Beartooth	238	149	348	461	524	50
Sioux	1,786	1,291	1,206	19,405	4,145	184
Ashland	1,071	985	1,928	2,262	365	1,808
Total	3,095	2,425	3,482	22,128	5,034	2,042

Table E-5 displays acres of suitable and unsuitable timberlands harvested by silvicultural system for the twelve-year period of FY88 - FY99.

[6] For the 12 year period of FY88 – FY99 inclusive. Data source is the TSMRS database.

[7] Includes clearcutting, seed tree, shelterwood and selection harvests on both suitable and unsuitable forest lands.

[8] Includes improvement, liberation, commercial thinning and special cut harvests on both suitable and unsuitable forest lands.

[9] Includes salvage and sanitation harvests on both suitable and unsuitable forest lands.

Table E-5: Acres Harvested by Silvicultural System[10]

Fiscal Year	Selection		Clearcut		Seed Tree		Shelter - wood		Inter - mediate		Special		Salvage / Sanitation		Total	
	S	U	S	U	S	U	S	U	S	U	S	U	S	U	S	U
1988	0	0	56	0	10	0	144	0	383	0	5	0	711	52	1309	52
1989	0	0	48	0	5	0	59	0	193	4	16	0	1420	766	1741	770
1990	168	0	71	0	10	0	0	0	42	0	6	13	45	14	342	27
1991	23	0	45	5	0	0	46	0	233	65	5	198	0	0	352	268
1992	247	23	46	0	0	0	152	0	254	60	52	156	0	0	751	239
1993	0	0	33	0	0	0	0	0	0	0	0	0	72	46	105	46
1994	18	0	4	0	0	0	42	0	357	0	5	0	19	0	445	0
1995	0	0	39	0	785	0	0	0	0	0	149	0	50	0	1023	0
1996	0	0	0	0	377	0	0	0	28	0	15	0	0	0	420	0
1997	0	0	0	0	0	0	0	0	10	0	0	0	274	0	284	0
1998	7	0	32	0	0	0	0	0	18	0	1	0	10	0	68	0
1999	0	0	19	0	563	0	0	18	27	0	67	63	3	0	679	81
Total	463	23	393	5	1750	0	443	18	1545	129	321	430	2604	878	7519	1483
Ave	39	2	33	0	146	0	37	2	129	11	27	36	217	73	627	124

Tables E-6 and E-7 compare the Forest Plan proposed with the actual acres harvested by silvicultural system and management area for the twelve-year period of FY88 - FY99.

During the first decade of the Forest Plan, the Forest harvested on average 20 acres more per year (418 acres vs. 398 acres) than was envisioned under the Forest Plan. The Forest completed more acres of intermediate harvests and less acres of final harvests and overstory removal than was originally projected. In addition, more harvesting was done in Management Areas D and B (Other), while less harvesting was done in Management Areas G and R.

In the second decade (based only on two years of data, FY98 and FY99) the Forest has done on an average annual basis, more acres of final harvest cuts and less acres of intermediate cuts, overstory removal cuts and harvesting in total, than was originally projected under the Forest Plan. On a Management Area basis, more harvesting has occurred in Management Area B (Other), while less harvesting has occurred in Management Areas D, G and R.

In both decades, the data is reflective of the fact that the Forest's timber sale program has placed greater emphasis on using timber sales as a tool to achieve multiple resource goals and objectives (forest stewardship purpose), while placing less emphasis on timber growth and yield (timber commodity purpose).

[10] S – lands classified as suitable, U – lands classified as unsuitable. Data source is the TSMRS database.

Table E-6: Comparison of Proposed & Actual Harvest Volume & Acres by Management Area[11]

	Decade 1 Proposed Average Annual				Decade 1 Actual Average Annual				
Management Area	D	G	R	Total	D	G	R	Other	Total
Final Harvest									
MBF	40	2700	400	3140					
Acres	8	299	76	383	76	124	4	39	243
Intermediate Harvest									
MBF	0	20	0	20					
Acres	0	6	0	6	55	84	5	31	175
Overstory Removal									
MBF	0	40	0	40					
Acres	0	9	0	9	0	0	0	0	0
Total									
MBF	40	2760	400	3200					2500
Acres	8	314	76	398	131	208	9	70	418

[11] For the 10 year period of FY88 – FY97 inclusive. Includes only chargeable volume and harvest on suitable lands. Acreage figures do not include salvage/sanitation harvests or permanent land clearings. Volume figures include all chargeable volume sold, including that from salvage/sanitation harvests and permanent land clearings. The Forest has not kept records on volume sold by Management Area. Data sources are the TSMRS database and Program Sale Statement gernerated from STARS.

Table E-7: Comparison of Proposed & Actual Harvest Volume & Acres by Management Area[12]

	Decade 2 Proposed Average Annual				Decade 2 Actual Average Annual				
Management Area	D	G	R	Total	D	G	R	Other	Total
Final Harvest									
MBF	0	2000	200	2200					
Acres	0	188	37	225	7	105	1	198	311
Intermediate Harvest									
MBF	0	150	0	150					
Acres	0	78	0	78	36	2	1	18	57
Overstory Removal									
MBF	400	300	0	700					
Acres	76	53	0	129	0	0	0	0	0
Total									
MBF	400	2450	200	3050					2283
Acres	76	319	37	432	43	107	2	216	368

Recommended Action: Continue monitoring.

[12] For the 2 year period of FY98 – FY99 inclusive. Includes only chargeable volume and harvest on suitable lands. Acreage figures do not include salvage/sanitation harvests or permanent land clearings. Volume figures include all chargeable volume sold, including that from salvage/sanitation harvests and permanent land clearings. The Forest has not kept records on volume sold by Management Area. Data sources are the TSMRS database and Program Sale Statement gernerated from STARS.

TIMBER: TIMBER YIELD - MONITORING ITEM E6

ACTION OR EFFECT TO BE MEASURED:	Determine if timber yields, in terms or volume cut and acres harvested meet Forest Plan projections.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Greater than a 20 percent increase in acres or volume cut.

Purpose: This monitoring item was established to determine if the actual outputs produced (volume cut and acres harvested), as a result of implementing the Forest Plan, met or exceeded those outputs that were expected in the Plan. The Forest Plan requires that this item be measured and reported annually on 100 percent of the sales. The expected accuracy and reliability of the information is high.

Background: The Forest's timber sale program is made up of three primary components 1) personal use fuelwood permits, 2) personal use post and pole sales, and 3) commercial sawlog sales. Since implementation of the Forest Plan in June of 1987, the vast majority of the personal use fuelwood and post/pole sales have been sold on the Beartooth Ranger District, whereas, the sawlog sales have largely been sold on the Ashland and Sioux Ranger Districts. The Forest Plan set an annual Allowable Sale Quantity (ASQ) of 3.5 MMBF (3.0 MMBF of sawtimber and 0.5 MMBF of other products).

Evaluation: Table E-8 shows the amount of chargeable volume by product and District that has been sold in the twelve years (FY 1988-1999) since the Forest Plan was approved. During this period, the average annual sold quantity of all chargeable products including pulpwood was 2,463 MBF or 70.4 percent of the annual ASQ. The average annual sold quantity for the sawtimber component was 2,387 MBF or 79.6 percent of the annual ASQ and 76 MBF or 15.2 percent of the annual ASQ for the other product component.

Table E-8: Harvest Accomplishments[13]

	Suitable Lands		Chargeable Volume Sold (MBF)[14]							
District	**Acres**	**%**	**Sawlog**	**%**	**Posts/Poles**	**%**	**Fuelwood**	**%**	**Total**	**%**
Beartooth	30,860	42.6	1,575	5.5	403	94.8	198	100.0	2,176	7.4
Sioux	22,000	30.4	12,950	45.2	13	3.1	0	0.0	12,963	44.3
Ashland	19,500	27.0	14,119	49.3	9	2.1	0	0.0	14,128	48.3
Total	72,360	100.0	28,644	100.0	425	100.0	198	100.0	29,267	100.0

[13] For the 12 year period of FY88 - FY99 inclusive.

[14] Does not include 294 MBF of chargeable pulpwood that was sold on the Beartooth RD in FY99.

Table E-9 compares the amount of chargeable and non-chargeable volume sold by product and District in the twelve years (FY 1988-1999) since the Forest Plan was approved. During this period, the average annual sold quantity of all chargeable and non-chargeable products combined was 3,788 MBF. The average annual sold quantity of sawtimber was 2,823 MBF and the average annual sold quantity of other products was 965 MBF.

Table E-9: Total Convertible Volume Sold By Product[15]

District	Total Volume Sold (MBF)										
	Sawlog		Post/Poles		Fuelwood		Pulpwood		Total		Total
	C	NC	C	NC	C	NC	C	NC	C	NC	All
Beartooth	1,575	0	403	2	198	9,596	294	0	2,470	9,598	12,068
Sioux	12,950	748	13	1	0	719	0	0	12,963	1,468	14,431
Ashland	14,119	4,486	9	1	0	346	0	0	14,128	4,833	18,961
Total	28,644	5,234	425	4	198	10,661	294	0	29,561	15,899	45,460

Table E-10 compares the Forest Plan projection of average annual suitable acres harvested by harvest type and decade with the actual results. In the first decade, five percent more acres were harvested than was projected in the Forest Plan. The Decade 2 figures are based on only two years of data, and at present shows the Forest is harvesting 15 percent less than what was projected in total.

In both decades there is a greater difference between projected acres and actual acres harvested by harvest type. This is largely a function of two things; 1) the condition of stands in the areas where harvesting was scheduled, and 2) the purpose and need of the sale (i.e. fuels reduction verses growth and yield).

[15] For the 12 year period of FY88 - FY99 inclusive. Data source for volume sold is the Program Sale Statement generated from STARS. C - Chargeable, NC - Nonchargeable

Table E-10: Average Annual Suitable Acres Harvested[16]

	Decade 1			Decade 2		
	Proposed Acres	**Actual Acres**	**Difference Acres**	**Proposed Acres**	**Actual Acres**	**Difference Acres**
Final Harvests	383	243	-140	225	311	+86
Intermediate Harvests	6	175	+169	78	57	-21
Overstory Removal	9	0	-9	129	0	-129
Total	398	418	+20	432	368	-64

Recommended Action: Continue monitoring.

REFERENCES

Custer SOIL, AIR, WATER National Forest Management Plan, Final Environmental Impact Statement and Appendices. 1986.

Custer National Forest Management Plan, Record of Decision, 1987.

STARS (Sale Tracking and Reporting System).

TSMRS database, (Timber Stand Management Record System).

White, Leroy, est. 1988-1989, Informal Forest Service Notes.

[16] Includes only harvest on suitable lands. Does not include salvage/sanitation harvests or permanent land clearings. Data source is the TSMRS database.

F. SOIL, AIR, WATER

SOIL, AIR, WATER: SURFACE WATER QUALITY – MONITORING ITEM F1

ACTION OR EFFECT TO BE MEASURED:	Evaluate changes in surface water quality of selected streams.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Exceeds standards for Municipal Water source.

Purpose: This monitoring item was established to track changes in water quality for a specific stream: West Fork Rock Creek. The Forest Plan requires that this item be sampled daily for 3 years and reported annually. The expected accuracy and reliability of the information is high.

Background: The West Fork of Rock Creek is the source of municipal water for Red Lodge. Maintaining water that meets state and federal criteria is important.

Results and Evaluation: The City of Red Lodge currently monitors daily as part of their municipal water treatment program. These results are reported to the state on a monthly basis. No concerns have been identified. (Personal communication. Wayne Tomacich, City of Red Lodge, 11/2000).

Recommended Action: In review of this monitoring item, the following changes to the Forest Plan are recommended. Remove this monitoring item from Forest Service plan requirements. The three-year time frame for monitoring has been fulfilled. The City of Red Lodge currently monitors and will continue to do so to maintain drinking water standards.

SOIL, AIR, WATER: SURFACE WATER QUALITY - MONITORING ITEM F2

ACTION OR EFFECT TO BE MEASURED:	Evaluate changes in surface water quality of selected streams.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Significant deterioration – rise in heavy metal or drop in pH.

Purpose: This monitoring item was established to track changes in water quality for a specific stream: West Fork Rock Creek. The Forest Plan requires that this item be sampled annually, in July or August, and the results reported annually. The expected accuracy and reliability of the information is

high.

Background: The West Fork of Rock Creek is the source of municipal water for Red Lodge. Maintaining water that meets state and federal criteria is important.

Results and Evaluation: The Forest Service currently monitors for residual picloram during the weed treatment season, once in June prior to weed treatment and once in July or August after herbicide application. The City of Red Lodge currently monitors daily as part of their municipal water treatment program. These results are reported to the state on a monthly basis. No concerns have been identified. . (Personal communication. Wayne Tomacich, City of Red Lodge.)

Recommended Action: In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan Revision, water quality will be reviewed and updated if needed.

SOIL, AIR, WATER: SURFACE WATER QUALITY - MONITORING ITEM F3

ACTION OR EFFECT TO BE MEASURED:	Evaluate changes in surface water quality of selected streams.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Exceeds State or Federal quality standards. Varies from previous background data.

Purpose: This monitoring item was established to track changes in surface water quality for the Stillwater River and Mountain View Creek. The Forest Plan requires this item be sampled monthly, or as required by the State and the Stillwater Mine EIS, and the results reported annually. The expected accuracy and reliability of the information is high.

Background: As a condition of their permit the Stillwater Mining Company must conduct sampling of water quality in the Stillwater River and in Mountain View Creek. Maintaining water quality is important for downstream users.

Results and Evaluation: The Stillwater Mining Company conducts sampling in the Stillwater River quarterly and seasonally (three times per year). Sampling is conducted above and below the permitted mine area to determine the effect of the Stillwater Mine on water quality in the Stillwater River. Sampling for Mountain View Creek is conducted seasonally. Results of the sampling are reported to the state of Montana quarterly for two sites on the Stillwater River and annually for other sampling. (Personal Communication. Tom Kircher, Stillwater Mining Company.) Major concerns have not been identified.

Recommended Action: In review of this monitoring item the following changes are recommended. Remove this monitoring item from the Forest Plan. Monitoring is required by the *Stillwater Mining Company, Stillwater Project, Final Environmental Impact Statement* (Chapter 11, p. 16) during the life of the project and continues after project shut down. Monitoring this item for the selected streams should not be required of the Custer National Forest. During Forest Plan Revision other water quality monitoring will be reviewed and updated if needed.

SOIL, AIR, AND WATER:
EFFECTS OF TIMBER SALE ROAD CONSTRUCTION -
MONITORING ITEM F4

ACTION OR EFFECT TO BE MEASURED:	Effects of timber sale related road construction.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Poor rehabilitation & unacceptable erosion.

Purpose: This monitoring item was established to ensure that timber sale related road construction is being monitored for compliance with terms and conditions of the timber sale contract and best management practices, and compliance to Forest Plan standards and guidelines. The expected precision of the data is moderate and expected reliability of the information is high.

Background: Road building and other activities associated with timber sale activities can often lead to detrimental soil and water quality conditions. Implementing BMP's, Forest Plan standard and guidelines, and Handbook standards and guidelines can reduce or mitigate the potential impacts to soil and water quality.

Results and Evaluation: A Regional Office field review was conducted in 1999. The results of this review identified areas that the Forest needs to address to better implement BMP's associated with timber sale related road building. Some concerns with timber sale related road building and other activities were identified. The Forest is addressing these concerns to limit degradation to soil and water quality and maintain watershed health. The Forest will be entering a Forest Transportation Management effort. This effort will help identify those roads that are not desired as part of the transportation system or for management purposes, as well as identify those roads that are contributing to increased sedimentation and runoff. A comprehensive travel management plan in place will address some of the issues associated with historic timber related roads.

Recommended Action: The Forest should continue efforts to implement Best Management Practices and Forest Service soil quality guidelines at the project level. At Forest Plan Revision we should consider combining monitoring elements F4, F5, and F6 into one monitoring element that tracks the effects of roads, timber sale and other vegetation management, and grazing activities as they relate to soil and water quality at the watershed scale. Monitoring element F4 is limited to timber sale road construction and doesn't address road reconstruction and maintenance, neither does it address log landings, skid trails etc. Monitoring item F5 assigns a 25% surface damage figure to wells sites and roads; maybe this figure should be adjusted. Monitoring item F6 measures soil condition tied to range conditions that is not applicable.

SOIL, AIR, WATER: EFFECTS OF MINERAL DEVELOPMENT - MONITORING ITEM F5

ACTION OR EFFECT TO BE MEASURED:	Effects of mineral development and related surface disturbances.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Signs of excessive erosion, loss of vegetation, surface damage on 25% of well sites or roads.

Purpose: This monitoring item was established to ensure that mineral development and related surface disturbances are being monitored for compliance with terms and conditions of the plan of operation (hard rock mining not pertain to oil n gas) and compliance to Forest Plan standards and guidelines. The expected accuracy of the data is moderate and reliability of the information is high.

Background: This monitoring element was primarily established for the National Grasslands and oil and gas development, when they were managed by the Forest and are not a large component of Forest operations. There are five wells on four developed sites and one pad currently being reclaimed on the Sioux Ranger District. Excessive erosion and loss of native vegetation can seriously affect the ability of the area to be reclaimed to a productive condition. The Forest also has locatables mineral development. These sites are also monitored for excessive erosion.

Results: Field visits have documented no excessive erosion, loss of vegetation, or surface damage to any of the sites. Vegetative cover is continuing to improve on the pad currently being reclaimed.

Evaluation: Soil quality and vegetative cover need to be maintained to provide for short term and long-term site stability. Results of monitoring indicate that at this time excessive erosion, loss of vegetation, accelerated surface damage is not widespread.

Recommended Action: The recommendation action for monitoring element F4 applies to this monitoring element.

SOIL, AIR, WATER: EFFECTS OF GRAZING MONITORING ITEM F6

ACTION OR EFFECT TO BE MEASURED:	Grazing effects on watershed condition – including riparian and woody draw, soil compaction and trend.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Soil condition is lower than fair with upward trend or range condition less than good.

Purpose: This monitoring item was established to ensure that allotments are being monitored for compliance with terms and conditions of grazing permits, best management practices, and compliance

to Forest Plan standards and guidelines. The expected accuracy and reliability of the information is moderate.

Please see the discussion in the Range Section Monitoring Item D2.

Recommended Action: The recommendation action for monitoring element F4 applies to this monitoring element.

SOIL, AIR, WATER: VALIDATE SEDIMENT ASSUMPTIONS MONITORING ITEM F7

ACTION OR EFFECT TO BE MEASURED:	Validation of sediment yields assumptions used in Forest Planning.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	+/- 20% of Beartooth Mtns. Prediction, +/- 50% of rangeland prediction.

Purpose: This monitoring item was established to ensure that assumptions used for Forest Plan modeling of sediment yield for the Stillwater and West Fork Rock Creek are still valid. The expected accuracy and reliability of the information is moderate.

Background: Collection of data to support sediment yield assumptions is costly. Due to the terrain, management of the Wilderness portion of the area, and cost of collecting data, modeling sediment yield is desirable.

Results: Data on sedimentation have been collected by the Stillwater Mining Company for the Stillwater River. Pebble count monitoring has been collected below the mine at 3 and 5-year intervals, no changes have been identified over this time. Large volumes of data have not been collected by the Forest to validate these assumptions. Over the years new models have been developed and existing models have been modified, computing power and ability have increased allowing greater possibilities in the applicability and accuracy of models.

Evaluation: Data needs to be gathered for review and comparison of different sediment yield models used on the Forest. Collaboration with other agencies, state and universities should be involved to share data and modeling strategies.

Recommended Action: In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan Revision, the sediment yield model and the assumptions used in sediment yield modeling will be reviewed and updated or replaced if needed.

SOIL, AIR, WATER: REHABILITATION BACKLOG - MONITORING ITEM F8

ACTION OR EFFECT TO BE MEASURED:	Rehabilitation Backlog.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	< 20% of planned work done if funds are available.

Purpose: This monitoring item was established to ensure that rehabilitation projects were identified and completed in a timely manner.

Background: During the past few years numerous initiatives have been proposed that include aspects of watershed inventories, assessments, and watershed improvement projects that address specific items and have specific goals. These need to be combined with new information and applied to new and developing initiatives, as well as with Regional and National Direction.

Results and Evaluation: A Watershed Improvement Needs Inventory (WINI) needs to be modified and updated for the Forest. A broadscale Watershed Assessment is to be completed this current fiscal year. The results of this Assessment will be used to identify and prioritize potential watershed rehabilitation projects.

Recommended Action: Complete the identified Watershed Assessment and update WINI. In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan Revision, assessment of rehabilitation opportunities and rehabilitation backlog will be reviewed and updated if needed.

SOIL, AIR, WATER: AIR QUALITY MANAGEMENT H_2S AND SO_2 EMISSIONS & SMOKE MANAGEMENT - MONITORING ITEM F9

ACTION OR EFFECT TO BE MEASURED:	Air Quality Management H2S and SO2 Emissions & Smoke Management
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Exceed requirements, State Implementation Plan, Smoke Management Plan, and Federal Air Quality Standards

Purpose: This monitoring item was established to ensure that air quality from oil and gas well development as well as smoke management is being met. The expected accuracy and reliability of the information is moderate.

Background: The Forest Service is not responsible for enforcing all other Federal and State laws and regulations. The appropriate State or Federal agency is responsible for enforcement of, and the operator is responsible for compliance with, other applicable statutory or regulatory permit

requirements. Air quality issues are addressed in each project proposal involving fuel treatment. Oil and gas companies are required to meet state and federal air quality standards for hydrogen sulfide and sulfur dioxide as part of their lease permits.

Results and Evaluation: To date there have not been any known negative impacts to local air quality standards. Ignition of prescribed burns only occurs on days with good or better ventilation forecasts and requirements of the Montana Smoke Monitoring Unit are checked daily when active burning is planned or on going.

Recommended Action: Continue coordination with each respective state air quality control boards and assess/analyze the potential for effects at the project level.

G. MINERALS

Forest Minerals Background:

The lands, which currently make up the Custer National Forest are varied in both geology and program emphasis. Precambrian granites, gneiss, and schist characterize the Beartooth Mountains while Paleozoic sedimentary rocks comprise the primary geologic units in the Pryor Mountain portion of the Beartooth District. The minerals program is primarily a hardrock or locatables program. Approximately three to five mineral exploration proposals are evaluated and processed annually. The Stillwater Mining Company permit administration provides the bulk of the ongoing mineral program emphasis on the Beartooth District. Two oil and gas wildcat attempts have been drilled either on the Forest, or immediately adjacent to the Forest boundary during the monitoring period. No commercial production ensued from these attempts. During the reporting time, the District has received and processed two geophysical permits.

The Ashland Ranger District is largely composed of the Cretaceous Period's Fort Union Formation. The Fort Union contains significant coal deposits that in some locations have burnt in the past forming scoria deposits throughout the area. These areas have provided mineral materials during the monitoring period for Government, personal, and administrative uses. No active locatable mineral claims are found on the Ashland District. Leasable (oil and gas) mineral development has not taken place on the District during the monitoring period. Additionally, no geophysical permits have been processed.

A similar geologic environment as previously described for the Ashland District characterizes the Sioux District, located in both Montana and South Dakota. The area also contains exposures of Arikaree and White River formations (Tertiary). These geologic units form sandstone ledges that represent topographic highs above the surrounding prairies. Additionally, exposures of the Hell Creek formation can be found on the Sioux District. The Hell Creek formation has contained significant paleontological resources in other areas where it is exposed.

The minerals program on the Sioux District has focused on leasable and mineral materials management. During the monitoring period, no oil and gas drilling programs have been attempted. Commercial production has not taken place during the monitoring period. However, the District has processed and administered two geophysical programs. Mineral materials, such as gravel, have been used for local Governmental, personal, and administrative purposes. Other mineral and geology program emphasis items have included the assessment, planning, and remediation design for abandoned mines in the area that pose an environmental and human safety concern. These projects focus on containment and management of radioactive materials (uranium) previously mined on the Sioux District.

MINERALS: GEOPHYSICAL OPERATIONS - MONITORING ITEM G1

ACTION OR EFFECT TO BE MEASURED:	Geophysical Operations. - Permits Processed. Applications for Special Use-Seismic. - Plans Administered. Area Plans, EA's
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Permits Processed: Less than 95% of permit applications processed within 15 working days or 20 days if area is not covered by programmatic EA. Plans administered: Less than 95% compliance with critical conditions of permits terms.

Purpose: This monitoring item was established to ensure that geophysical projects are monitored for compliance to Forest Plan standards and guidelines, as well as with the terms and conditions of the permit, and are processed in a timely manner. The expected accuracy and reliability of the information is high.

Background: Geophysical programs are typically implemented by the oil and gas industry prior to development and implementation of oil and gas drilling plans. Geophysical data is gathered in order to develop an idea of regional geologic structures that may represent areas of high occurrence potential.

Results: This monitoring element indicates that seismic permit applications will be processed within 15 working days if covered by programmatic agreement or within 20 days if the subject area in not covered by a programmatic agreement. The lands that currently make up the Custer National Forest are not covered by any programmatic agreement.

Based on public interest and concerns related to the lands currently administered by the Custer National Forest, it would seem unreasonable for any geophysical permit applications to be processed within the timeframes contained in the existing Custer National Forest Plan. Adherence to NEPA implementation guidelines requires public involvement, analysis, comment, and possible appeal procedures that easily exceed the timeframes discussed in the Forest Plan.

Beartooth - Since the last Forest Plan monitoring report was released, the Beartooth District has processed two geophysical permits (Exxon/CGG, 1987 and Savanna/Veritas, 1998). These projects were administered in accordance with all permit terms, conditions, and clauses. Reclamation bonds have been released.

Ashland - The Ashland Ranger District has not processed any geophysical permits during the monitoring period.

Sioux - The Sioux Ranger District has processed two geophysical permits. Both projects were administered in accordance with all permit terms, conditions, and clauses.

Evaluation: With the exception of meeting a 20-day permit processing timeframe, the direction

provided in the Forest Plan has been accomplished.

Recommended Actions: Many of the monitoring elements contained in the 1987 Custer National Forest Plan Chapter IV were focused on the predominate mineral management activity at the time the Forest Plan was developed. Most of the Management Area specific management standards are primarily focused on oil and gas development. At the time of Forest Plan revision, establish a "Leaseables" monitoring element with sub-elements that address geophysical permits processed, plans administered, lease applications and offers reviewed, applications for permit to drill and sundry notices, and compliance to the terms and conditions of drilling permits. Any discussion of predetermined timeframes for processing of permits should be eliminated from all monitoring sub-elements.

MINERALS: OIL AND GAS LEASING, EXPLORATION, & DEVELOPMENT -

MONITORING ITEM G2

ACTION OR EFFECT TO BE MEASURED:	Oil and Gas Leasing, Exploration and Development. - Lease application and offers reviewed. - Applications for permits to drill and sundry notices received and processed. - Compliance to conditions and terms of drilling permits.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Lease applications and offers: Less than 95% of lease applications/offers reviewed within specified time frames. Applications for permits to drill: Less than 95% compliance with critical conditions of permits terms. Compliance to permit terms: Less than 95% compliance with FS recommended critical conditions and terms of permits.

Purpose: This monitoring item was established to ensure that oil and gas leasing, exploration, and development projects are monitored for compliance to Forest Plan standards and guidelines, as well as the leasing and project level NEPA decisions, and are processed within specified timeframes. The expected accuracy and reliability of the information is high.

Background: Prior to the leasing of lands administered by the Custer National Forest, a leasing analysis (EIS) is first required to determine the availability of the subject lands. Additionally, once the availability of these areas has been determined, the appropriate surface stipulations must be evaluated and approved in a Record of Decision for the lands analyzed.

The Beartooth District completed the required analyses in 1992 and the Record of Decision was released to the public during 1996. To date, neither the Ashland nor Sioux Ranger Districts have completed leasing analyses, although the required analysis for the Sioux District is ongoing.

Forest Plan Amendment Number 5 (3/29/91) eliminated the monitoring sub-element to verify oil and gas production estimates, therefore, this sub-element will not be addressed in this monitoring report.

Results:

Beartooth: Since release of the Record of Decision for oil and gas leasing, the Beartooth District has reviewed lease packages covering approximately 10,000 non-wilderness acres of the Beartooth Mountain Unit. No lease package review or processing has taken place within the Pryor Mountain Unit. No Application for Permits to Drill have been received or processed on the Beartooth District since release of the 1996 Record of Decision.

During the monitoring period, one wildcat-drilling attempt took place within the overthrust belt on the eastern portions of the Beartooth Mountain Unit. No commercial production has taken place.

Ashland: No oil and gas leasing or development has taken place on the Ashland Ranger District during the monitoring period. Additionally, as directed by Federal statue, coal leasing and development is prohibited on minerals rights owned by the US Government within the administrative boundaries of the Custer National Forest.

Sioux: No oil and gas leasing or development has taken place on the Sioux Ranger District during the monitoring period. However, two Sundry Notices for an existing well were processed within the specified time frames.

Evaluation: All oil and gas leasing, exploration, and development projects which have been undertaken on the Beartooth District are in compliance to Forest Plan standards and guidelines, as well as the leasing and project level NEPA decisions. No activities on the Ashland or Sioux District have taken place pending completion of the required leasing analyses.

Recommended Action: Forest Plan Amendment Number 5 (3/29/91) eliminated the monitoring sub-element to verify oil and gas production estimates. However, we should continue to monitor the timeliness of processing leasing applications, APD's, and operator compliance to the terms and conditions of their permit.

MINERALS: MINERAL RIGHTS RESERVED OR OUTSTANDING - MONITORING ITEM G3

ACTION OR EFFECT TO BE MEASURED:	Mineral Rights reserved or outstanding.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 95% compliance with critical conditions and terms of operating plans.

Purpose: This monitoring item was established to ensure that projects are being monitored for compliance to Forest Plan standards and guidelines and terms and conditions of operating plans. The expected accuracy and reliability of the information is moderate.

Background: Typically, a parcel of land consists of both a surface estate (surface resources) and the mineral estate (sub-surface resources). In many instances, lands are often sold or traded to adjacent interest in order to "block up" the land and simplify management considerations. Often, the trading or selling of these lands results in split estates, in which different owners control the surface and mineral estates. If this instance takes place, the courts have ruled that the sub-surface or mineral estate is the controlling interest. In other words, if the owner of the mineral estate wishes to develop the sub-surface mineral resource, the surface landholder cannot prevent this from taking place. However, the Forest Service must approve a surface use plan prior to implementation of the plan to develop the mineral estate.

Results:

Beartooth: There were 400.17 acres of lands either traded or sold within the boundaries of the Beartooth District during the reporting period. This resulted in 1.07 acres of split estates. However, no surface use plans have been proposed or processed for the purposes of mineral development.

Ashland: During the reporting period, 833 acres of land were traded or purchased within the boundaries of the Ashland Ranger District. This resulted in 833 acres of split estate lands. However, no surface use plans have been proposed or processed for the purposes of mineral development.

Sioux: During the reporting period, 480 acres of land was purchased by the Forest Service and incorporated into the Sioux Ranger District. No surface use plans have been proposed or processed for the purposes of mineral development.

Evaluation: All projects have been monitored for compliance to Forest Plan standards and guidelines and terms and conditions of operating plans.

Recommended Action: Continue to monitor for any land exchanges, leasing projects, and site-specific minerals projects where mineral rights might be outstanding or reserved.

MINERALS: SPILL PREVENTION - MONITORING ITEM G4

ACTION OR EFFECT TO BE MEASURED:	Prevention of salt-water spills and resource damage due to toxic drilling.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	When one of the following occurs: 1. Three unreported spills and the responsible party can be identified. 2. Two intentional spills on a drill pad. 3. Three unintentional reported spills. 4. Five spills from saltwater flowlines damaged due to human error.

Purpose: This monitoring item was established to ensure that salt-water spills are reported so that resource damage is minimized and rehabilitated/reclaimed (Monitoring Element G5). The expected accuracy and reliability of the information is moderate.

Background: This monitoring element was primarily designed to address salt-water spill potential due to oil and gas development on lands now managed by the Dakota Prairie National Grassland. The regional geology of what is now the Custer Forest does not have as great of potential for these effects. However, recent data collected in areas surrounding the Ashland and Sioux Districts suggest that high sodium production water is possible in some locations.

Results:

Beartooth: The wildcat drilling attempt along the eastern overthrust on the Beartooth Mountains did not produce any saltwater, and no long-term resource damaged took place as a result of the drilling process. All surface resource effects were in conformance with those effects predicted in the project's Final Environmental Impact Statement (FEIS) and Record of Decision (ROD).

Ashland: No oil and gas attempts have taken place during the monitoring and reporting period. Therefore, no saltwater spills or resource damage due to toxic saltwater spills took place on the Ashland Ranger District during the monitoring period.

Sioux: No saltwater spills or resource damage due to toxic saltwater spills took place on the Sioux Ranger District during the monitoring period. However, there was a small (< one barrel) oil spill that took place during work-over of an existing well on the Forest during 1997.

Evaluation: Compliance with this monitoring sub-element has been achieved.

Recommended Action: With the recent development of information concerning coal bed methane exploration and development adjacent to the Ashland District, it seems wise to retain this monitoring sub-element. The Ashland District may or may not be available for coal bed methane development pending outcome of a leasing analysis in the future. However, observations and experience with coal bed methane exploration and development in the Powder River Basin clearly indicate that salt water can be associated with this activity.

MINERALS: RESOURCE RECLAMATION AS A RESULT OF SPILLS - MONITORING ITEM G5

ACTION OR EFFECT TO BE MEASURED:	Reclamation of resource damage due to salt-water spills or toxic drilling fluids.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90% plant density as compared to adjacent areas after 3 growing seasons.

Purpose: This monitoring item was established to ensure that resources damaged as a result of salt water spills or toxic-drilling fluids are reclaimed and rehabilitated. The expected accuracy and reliability of the information is moderate.

Background: This monitoring element was primarily designed to address salt water spills as a result oil and gas development that was associated with the lands now managed by the Dakota Prairie National Grassland. The regional geology of what is now the Custer National Forest does not have as great a potential for these effects. However, recent data collected in areas surrounding the Ashland and Sioux Districts suggest that high sodium production water is possible in some locations.

Results:

Beartooth: No saltwater production has taken place on the Beartooth District. Therefore resource reclamation has not been necessary.

Ashland: No saltwater production has taken place on the Ashland District. Therefore resource reclamation has not been necessary.

Sioux: No saltwater production has taken place on the Sioux District. Therefore resource reclamation has not been necessary.

Evaluation: Compliance with this monitoring item has been achieved.

Recommended Action: Retain this monitoring sub-element and continue monitoring.

MINERALS: COAL LEASING - MONITORING ITEM G6

ACTION OR EFFECT TO BE MEASURED:	Coal leasing.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	When coal bypassed would represent at least $1/80^{th}$ of the total reserves in a Logical Mining Unit.

The Forest Plan incorrectly identified two G6 monitoring items, one for coal leasing and another monitoring item for common variety minerals. The original order of Forest Plan monitoring sub-elements has been retained in this monitoring report.

Purpose: This monitoring sub-element was intended to protect federal minerals from utilization without appropriate federal lease royalties being paid.

Background: This monitoring sub-element was intended to address coal leasing on lands now administered by the Dakota Prairie National Grasslands.

The lands which are now included within the Custer National Forest either do not have large volumes of mineable coal, or are exclusively prohibited from coal leasing and mining, notably the Ashland Ranger District, pursuant to the Surface Mining Control and Reclamation Act of 1977 (P.L. 95-87).

Results:

Beartooth: The lands of the Beartooth District do not contain significant coal deposits. No leasing or mining of coal have been proposed or permitted within the administrative boundaries of the Beartooth District.

Ashland: The lands which comprise the Ashland District have been withdrawn from coal leasing and mining consideration. No activities have been proposed or approved.

Sioux: The Sioux District contains deposits of lignite coal. This mineral resource is not contained in sufficient grade or volume to warrant industrial interest. However, these lignite coal deposits have in the past been developed for the uranium mineral resources that they house.

Evaluation: Compliance with this Forest Plan monitoring sub-element has been achieved.

Recommended Action: It is recommended that this sub-element be deleted from future Forest Plan monitoring report requirements. The leasing and development of coal resources within the lands that currently comprise the Custer National Forest is not reasonably foreseeable.

MINERALS: COMMON VARIETY MINERALS - MONITORING ITEM G6

ACTION OR EFFECT TO BE MEASURED:	Common Variety Minerals.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90% compliance with critical conditions in terms of the permits or operating plans.

The Forest Plan incorrectly identified a monitoring item G6 for coal leasing and another monitoring item G6 for common variety minerals. The original order of these monitoring sub-elements has been retained in this monitoring report.

Purpose: The purpose of this monitoring item is to ensure that surface resources are protected from any approved extraction of mineral material resources within the Forest.

Background: The disposal of mineral materials (common variety) for personal free use, administrative use, or sale is a discretionary action on the part of the federal government. Historically, the majority of these permitted actions have been to members of the public for use in landscaping activities.

Results:

Beartooth: During the monitoring period, the Beartooth District has provided personal use mineral materials permits to approximately seven to ten individuals annually. No mineral material permits have been received or processed for commercial, administrative, or local governmental uses. All permitting terms and conditions have been achieved.

Ashland: The Ashland District has processed administrative, personal use, and local government mineral materials permits. The District is in the process of pit reclamation planning for some of the existing sources. Approximately 2-3 mineral material permits are annually processed. All permitting terms and conditions have been achieved.

Sioux: The Sioux District has processed administrative, personal use, and local government mineral materials permits. Approximately 1-2 mineral material permits are annually processed. All permitting terms and conditions have been achieved.

Evaluation: Compliance has been achieved in all critical provisions contained in either the mineral material permit, the Forest Plan, or the project specific NEPA analyses.

Recommended Action: Non-significantly amend the Forest Plan to correct the repeated monitoring element designation.

MINERALS: LOCATABLE MINERALS - MONITORING ITEM G7

ACTION OR EFFECT TO BE MEASURED:	Locatable Minerals - Response to notice of intent, plans of operation, or patent application. - Compliance to conditions and terms of permits, Plans of Operations or Notice of Intent.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Response to notice of intent, etc.: Less than 50% of permits/plans/applications processed within specified timeframes. Compliance to conditions and terms, etc.: Less than 90% compliance with FS critical conditions and terms of permits.

Purpose: This monitoring item was established to ensure that locatable minerals exploration, and development projects are monitored for compliance to Forest Plan standards and guidelines, as well as the plan of operations and project level NEPA decisions, and are processed within specified timeframes. The expected accuracy and reliability of the information is high.

Background: The Beartooth District has the only locatables program on the Forest. As previously stated, the District typically processes and administers between three to five Plans of Operations annually.

Due to the highly sensitive nature of lands on the Beartooth District, public interest in locatable mineral projects is very high. As stipulated in 36 CFR 228 Subpart A, a District Ranger has 30 days to approve the originally submitted Plan of Operations or an alternative Plan. However, it is rare that Plans of Operation are approved within this timeframe. Additionally, as specified in 36 CFR 228 Subpart A, the District Ranger may send a potential operator a letter after the original Plan has been submitted, which explains that the Plan can not be approved within the stipulated 30 day period. Typically, this is what happens with Plans of Operation submitted to the Beartooth District Ranger. Adherence to NEPA implementation guidelines requires public involvement, analysis, comment, and possible appeal procedures that easily exceed the timeframes discussed in the 36 CFR 228 Subpart A.

Thus far, this method of operation has worked well for the mineral operators, the public and the Forest Service.

Results:

Beartooth: The Beartooth District has typically processed between three and five Notice of Intents or Plans of Operations annually. The majority of these exploration proposals have required in excess of thirty days approval time as specified at 36 CFR 228 Subpart A. Compliance with federal laws such as the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and the Historic Preservation Act preclude a thirty-day approval. However, letters of notification were sent to proponents as required, which indicated that additional time would be required to process the exploration project.

The portion of the New World mining district, within the southern most portions of the Beartooth District, were withdrawn from mineral entry as a result of an Executive Order issued by President Clinton (Cooke City Mineral Withdrawal). Due to the sensitivity of the area, no new mining claims will be considered in the portion of the withdraw area within the administrative boundaries of the Custer National Forest.

Ashland: No locatable mineral projects were processed on the Ashland Ranger District during the monitoring period.

Sioux: No locatable mineral projects were processed on the Sioux Ranger District during the monitoring period.

Evaluation: All approved locatable mineral projects which have taken place within the timeframe of this monitoring report are in compliance with Forest Plan standards and guidelines, as well as the plan of operations and project level NEPA decisions. Typically, timeframes specified in 36 CFR 228 Subpart A have been exceeded. However, mineral operators have been notified that a time extension will be necessary in order to approve a Plan of Operations.

Recommended Action: Retain this monitoring sub-element for the next Forest Plan monitoring report. A modification of language contained in 36 CFR 228 Subpart A seems appropriate, but would have to occur at the national level.

Further Recommended Actions

Many of the monitoring elements contained in the 1987 Custer National Forest Plan Chapter IV were focused on the predominate mineral management activity at the time the Forest Plan was developed. Most of the Management Area specific management standards are primarily focused on oil and gas development. These monitoring elements and standards are not by themselves sufficient to provide direction to land managers who are faced increasingly with emerging issues and programs such as abandoned mine reclamation, and paleontology. Additionally, Forest Service program emphasis is changing to address the public's desires for recreational and interpretive services. Therefore, the following monitoring elements are suggested in order to address these new mineral and geology program opportunities: Abandoned Mines; and, Geology and Paleontology.

MINERALS: INACTIVE AND ABANDONED MINES

Purpose: Currently there is no monitoring element for abandoned mines.

Background: The Custer National Forest has been coordinating with the Montana Bureau of Mines and Geology in order to provide an inventory and assessment of abandoned mines across the Custer National Forest. This effort is intended to provide a means to identify and reclaim any adverse effects from existing abandoned mines. The Forest anticipates delivery of a Draft Assessment during fall/winter of 2000

Results: Abandoned mine reclamation which has taken place during the monitoring period resulted from identification of sites which presented an immediate threat to human health and safety.

Beartooth: The Beartooth District has planned and implemented adit or shaft closures in three different locations; two were associated with human health and safety concerns resulting from past uranium exploration in the Pryor Mountains; and, the other location was adjacent to a high use recreational hiking trail. The site previously presented a risk to human safety.

Ashland: No abandoned mine remediation projects have been identified to date on the Ashland Ranger District.

Sioux: The Sioux District has been working on the Riley Pass abandoned mine area associated with past uranium production. This project is considered a high priority multi-year project, with CERCLA (Comprehensive Environmental Response Compensation and Liability Act of 1980). Reclamation of this abandoned mine site is focused on remediation of human health and safety concerns in addition to mitigation of adverse effects to heritage resources.

Evaluation: The three abandoned mine reclamation projects carried out on the Beartooth District were very successful in mitigating human health and safety concerns.

The Riley Pass CERCLA project is ongoing. At this point, site characterization has taken place and preliminary remediation designs have been developed.

Recommendation: Consider including a Forest Plan monitoring element for abandoned mines. Monitoring could include remediation assessment design and implementation for CERCLA and non-CERCLA projects.

MINERALS: GEOLOGY AND PALEONTOLOGY

Purpose: Currently there is no monitoring element for geology and paleontology projects or activities.

Background: Interest in fossil collecting, both amateur and professional, has increased on lands administered by the Custer National Forest. Both the Ashland and Sioux Districts have exposures of potentially significant vertebrate bearing formations. The Beartooth District contains many invertebrate fossils consisting of corrals, and shells. Due to the relatively old age of rocks exposed on the Beartooth District, significant paleontological resource occurrence is limited.

Results: Currently, there is not an ongoing geology or paleontology program on any of the Ranger Districts.

Evaluation: None at this time.

Recommended Actions: Consider establishing volunteer agreements with individuals and/or organizations for the collection and curation of geologic and paleontological resources. Consider including a Forest Plan monitoring element for geology and paleontology. Monitoring could include inventory, assessment, and excavation of geological and paleontological resources.

MINERALS: UNAUTHORIZED USE - MONITORING ITEM G8

ACTION OR EFFECT TO BE MEASURED:	Unauthorized Use.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Resolution exceeds 2 years for occupancy trespass.

Purpose: The purpose of this monitoring element is to ensure there are no unauthorized uses taking place on mineral claims. The expected precision and reliability of the information is high.

Background: All development or placement of facilities within mineral claims or leases are by law supposed to be "reasonably incident" to the mineral operation. In many instances throughout the country, mineral claimants have used unpatented mining claims to support hunting, fishing, or recreational facilities. This situation is termed unauthorized use.

Results:

Beartooth: The Beartooth District did not experience any instances of unauthorized uses associated with mineral projects during the reporting period.

Ashland: The Ashland District did not experience any instances of unauthorized uses associated with mineral projects during the reporting period.

Sioux: The Sioux District did not experience any instances of unauthorized uses associated with mineral projects during the reporting period.

Evaluation: Compliance with the Forest Plan monitoring sub-element has been achieved.

Recommended Action: Continue to monitor and track this sub-element in future Forest Plan Monitoring Reports.

H. HUMAN AND COMMUNITY DEVELOPMENT AND BUDGET

HUMAN COMMUNITY AND DEVELOPMENT AND BUDGET: VERIFY EXISTING ISSUES - MONITORING ITEM H1 AND EVALUATE NEW OR EMERGING ISSUES - MONITORING ITEM H2

ACTION OR EFFECT TO BE MEASURED:	Verify resolution of existing issues. And Evaluate new or emerging issues or changing socioeconomic values.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Issues cannot be dealt with through minor shifts in allocations in Forest Plan of through Forest I & I Plan.

Purpose: Monitoring item H1 was developed to track issues used in the development of the Forest Plan and to help determine whether implementation of the Forest Plan would effect some resolution or a trend towards their resolution. Monitoring item H2 was developed to identify new and emerging issues (biological, physical, social, or economic) that might cause or be considered for Forest Plan revision. The expected precision of this information for both elements is high and its reliability moderate

Background, Results & Evaluation: Issues identified during the planning effort that resulted in the 1986 Custer Forest Plan are being addressed by implementation of that Plan. However, many of these same issues continue to be surfaced at the project planning level and remain controversial, particularly among those who are interested in and/or who perceive themselves to be affected by management of the National Forests

Public participation in scoping for the Forest planning process yielded five major areas (issues) that were of specific public interest at that time. Each issue and progress in its resolution is discussed in the following items.

1. At what level of use and management intensity should livestock be managed on the Forest, considering public needs and demands for all resources?

While Forest Plan Management Area allocations and Standards and Guidelines recognize and attempt to deal with perceived conflicts between domestic livestock grazing and other resource values, controversy over this issue continues to surface as the National Forest districts go through the National Environmental Protection Act (NEPA) process to update allotment plans. A review of documentation of public participation in these efforts reveals that there is still disagreement among members of

the public regarding the "appropriate" level of use and the intensity at which livestock grazing should occur on the National Forest and Grasslands and how that use should mesh with management for other resource values, such as wildlife forage, residual nesting cover for upland game birds and other birds, recreation, and oil and gas leasing and development.

During the past several years, concerns about domestic livestock grazing on federal lands, in general, have been elevated to regional and national attention by various individuals and groups who find this use, or management of this use, objectionable.

Over the past several years, the media has given much attention to what has been dubbed "the war over the west," a euphemism for the conflict between those who would have domestic livestock removed from federally managed rangelands and those whose livelihoods depend on use of these rangelands to supplement use on their private lands (and their supporters). There has been much media attention that has focused on the management of National Forest rangelands.

At the far end of opposition to grazing, there are those who believe public lands should be dedicated to other uses. For example, in 1990 Frank and Deborah Popper (Rutgers University, New Jersey), gained national attention by proposing to convert much of America's prairie outback into public domain for its original residents - the buffalo.

On the other end of the controversy are the ranchers, whose livelihoods depend on being able to utilize the National Forests during the summer months when they grow hay for winter use on much of their private land.

Implementation of the Forest Plan has not **resolved** the issue of livestock grazing versus management for other resource values. The Forest Plan does **address** this issue; however, the history of conflict over the past 10 years confirms the best we can hope for is to address rather than to solve this issue.

2) In response to National demands for energy and strategic minerals, how can the Forest provide for mineral exploration and development while also providing for renewable resources?

In April of 1993, the Forest completed the *Final Beartooth Oil and Gas Leasing Environmental Impact Statement.* The attendant Record of Decision for the FEIS was signed in May 1996. Comments received by the Forest during this process confirm that the issue of "providing for mineral exploration and development while also providing for renewable resources" is ongoing. Those who support oil and gas exploration and development pointed out the economic benefits of jobs, personal income and county receipts from mineral activity. Some felt the recommendations and approach described in the environmental impact statement was inconsistent with the stated purpose for the proposal and would actually discourage companies from drilling for oil and gas on National Forest System lands. Those who oppose mineral exploration and development raised concerns about retaining "one of the most beautiful treasures of the world in its primitive state, freshness, and animal habitat", biodiversity, recreation, visual concerns, heritage, and botanical special interest areas.

The Forest Supervisor's decision, as detailed in Record of Decision, acknowledges the importance of the National Forest from an oil and gas resource standpoint, by making 123,010 acres of the Federal mineral estate available and 54,200 acres not administratively available for leasing. Of the 123,910 acres made available, 117,930

acres are authorized for lease and 6,830 acres are not authorized for lease. The Forest Supervisor's decision recognizes the potential and importance of the Bighorn Basin for oil and gas production. Those lands are considered potential sources of oil and gas. At the same time, the decision recognized the importance of maintaining (to the extent possible) the integrity of the inventoried roadless areas, research natural areas, special interest areas, and known traditional cultural properties by either not making them available for lease and/or applying a "No Surface Occupancy" stipulation to these areas. No Surface Occupancy, timing limitations, controlled surface use, and standard lease terms are used to ensure protection of other resource values such as biodiversity (threatened, endangered and sensitive plant and animal species; "watch" plants; Management Indicator Species; and unique occurrences, such as riparian areas and woody draws); visual concerns; recreation sites; heritage resources; and steep slopes.

3) How and where will the resource base, including riparian (stream-bank) zones and woody draws, be managed and protected for wildlife in view of competition from other resources?

The public continues to express concern for protection of wildlife habitat, and Forest decisions recognize this concern. In the decision for the Beartooth Oil and Gas Leasing EIS, the ecosystem integrity issue identified concerns about management of riparian habitats and woody draws (mule deer habitat) and how use of these areas would be protected from oil and gas exploration and development. In the Record of Decision, the Forest Supervisor acknowledges these concerns and has assigned stipulations (No Surface Occupancy, Timing Limitations, and Controlled Surface Use) to protect these areas for continued wildlife use. For example, in the case of riparian areas, "Management Area M, riparian, has not been identified as a separate management area, but has been included in the discussion for the management areas where riparian occurs. Riparian areas have been mapped and have been protected by an NSO stipulation where they occur within areas that are available to lease." The Beartooth leasing decision does not allow the construction of linear facilities across No Surface Occupancy stipulated lands.

A number of rehabilitation and restoration activities are planned for woody draws and riparian areas, as described in the *Ashland Post-Fire Final Environmental Impact Statement.* The project will apply Montana Streamside Management Zone practices, Montana Forestry Best Management Practices (BMPs), and Soil and Water Conservation Practices to protect the riparian areas from degradation by project activities. The selected alternative, Alternative 4, will implement restoration activities across approximately 7,453 acres of the Stag and Tobin fire areas. Treatments are proposed to maintain watershed function by contour felling large burned trees on steeper slopes, applying large and small burned woody debris next to the ground, possibly planting ponderosa pine in some areas, planting willows and hardwoods in specific riparian areas, placing structures in and woody debris near channels, relocating beaver, and harvest of fire-damaged trees. This issue will likely receive much focus as Forest Plan revision progresses.

4) What are the long-term public and resource management access needs and how should they be resolved?

Access to, on, and across National Forest System lands is quickly becoming a significant issue to many people. Recent national initiatives concerning Forest Service transportation policy and roadless areas have brought focus on this issue, and

the issue of travel management. Many comments submitted in response to the *Bureau of Land Management and Forest Service Off-Highway Vehicle Final Environmental Impact Statement for Montana, North Dakota, and Portions of South Dakota* expressed the concern of being shutout from using the national forests. Still others commented that this action, limiting all off-highway vehicle use to designated areas, was long over due. Lack of and/or unclear legal rights-of-way to the Forest exist in a number of instances on all three ranger districts. Access and how travel is managed on the Forest will be issues raised during forest plan revision.

5) What is the long-range need for low development areas and how should they be managed?

In the past three years the Forest Service has been engaged in reviewing its transportation policy, roadless areas, and planning rule. Final decisions have been made on the planning rule and roadless areas; each of these is connected to the other. Please see the discussion in the section on Roadlessness.

The issues to be considered for Forest Plan revision have not been formally identified yet. However, it is most likely these issues will revolve around the stewardship of the national forests and grasslands to maintain or restore ecological sustainability to provide a sustainable flow of uses, values, products, and services from these lands.

Recommended Action: Under the new planning rules, the Forest Supervisor will be the Deciding Officer, and he or she will determine which issues are ripe for consideration during plan revision. These issues will be identified through the very deliberate and public process for Forest Plan revision. In regards to this particular monitoring element, consideration should be given to not including it as a monitoring element. The Forest Plan is only part of a much larger picture, allocating lands to allow certain types of land management activities. It implements laws, regulations, and policies that reflect national direction. It addresses these issues, but will likely never resolve them. Thus, this should not be a monitoring element included in the plan revision.

HUMAN AND COMMUNITY DEVELOPMENT AND BUDGET:

LOCAL ECONOMIC EFFECTS OF FOREST PLAN - MONITORING ITEM H3

ACTION OR EFFECT TO BE MEASURED:	Determine if local economic effects of the Plan are as predicted.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Significant difference in actual compared to predicted.

Purpose: This element was developed to determine if local economic effects of the Plan are as predicted. The expected precision of this information is low and its reliability is low.

Background, Results, & Evaluation:

The Forest Plan acknowledged the existence of the Nation's largest known platinum and chrome deposits and the second largest nickel deposit. However, the Forest Plan did not attempt to project the amount of mineral activities that might occur. A 1986 joint project EIS was completed by the State of Montana and the Forest Service that authorized the development of the Stillwater Mine. Since 1986, three major amendments to the original permit have been approved that have authorized increased production and expansion of the mine (*Stillwater Mining Company Mine Expansion 2000 TPD*, 1992; and the *Stillwater Mine Revised Waste Management Plan and Hertzler Tailings Impoundment*, 1998). The mine is a significant employer in Carbon and Stillwater Counties.

While oil and gas has been made available for leasing on the Beartooth district, only a handful of wells have actually been drilled. Most of the oil and gas development predicted in the Forest Plan was for the North Dakota part of the Custer.

At the time the Forest Plan was approved, about 1,500 skiers per day used the Red Lodge Mountain Ski Area. The approval of the master development plan to expand facilities for the Red Lodge Mountain Ski Area and authorization to use National Forest System lands for a 40-year term (Record of Decision and Final Environmental Impact Statement for the Red Lodge Mountain Ski Area Master Development Plan, 1996) has had a net positive economic effect to the community of Red Lodge.

Over the last 5-8 years, timber harvest activities have been focused on the Ashland and Sioux districts, rather than the Beartooth district as had been predicted. This can most likely be attributed to the harvest of fire-killed trees as a result of fires that have occurred on both of these districts. Economically, the effects of this shift are probably minimal, since most purchasers of national forest timber sale contracts are not located in the communities immediately adjacent to the Forest and the number of people needed for these activities is small.

Grazing continues to be an important contributor to the economy of the Forest's zone of influence.

<u>Rural Community Assistance</u>

The Forest Service in its mission statement has included "helping states and communities to wisely use the forests to promote rural economic development and a quality rural environment". No longer is rural development considered a derivative of land management activities and programs; rather the approach is proactive and aimed at helping communities based on their own identification of goals and strategies. In *The Forest Service Ethics and Course to the Future*, a clear statement is made, "The three primary outcomes of Forest Service actions will be healthy ecosystems, vital communities and an effective, multidisciplinary, multicultural organization. Vitality of communities will have social, economic and environmental dimensions." The Forest Service has also included communities in the Government Performance Results Act (GPRA) Strategic Plan.

The primary unit of analysis for Rural Community Assistance (RCA) is the community. The RCA approach focuses on the needs of the overall community as well as its business sector. Help is given by building relationships and other aspects of community capacity, as well as directing technical and financial assistance to local communities, organizations and businesses directly or through technical and financial assistance directly or through partner organizations.

Some examples of the types of community projects for which grants were issued are listed below. Table H3-1 summarizes the grants issued by the Forest since 1990.

> **Grantee:** Montana Committee for the Humanities. **Desired Outcome:** To provide public programs for rural communities on the arts, culture and heritage through organizations such as museums, libraries, schools and service organizations; to contribute to cultural or heritage tourism in rural Montana communities; to

increase awareness of grants, programs and services among rural community leaders and officials; and to contribute to improving the social fabric of communities with programs that are cultural and educational and that promote explorations and understanding of public issues of concern to Montanans.

Accomplishments: Programs were successfully completed as follows:

7/13/99 - Victoria Hammond of Schoolhouse History and Art , Colstrip, MT

12/7/99 – Absaarokee Fine Arts, Fishtail, MT

2/14/00 – Mission Ridge Senior Living, Billings, MT

Grantee: Town of Joliet. **Desired Outcomes:** To complete an Action Plan for Joliet.

Accomplishments: The Town of Joliet successfully completed their Action Plan for the Town of Joliet. The plan displays a high degree of creative thinking and community spirit.

Grantee: Beartooth RC&D Area, Inc. **Desired Outcomes:** To provide environmental education opportunities for particular groups of underserved youths (natural resource education field).

Accomplishments: Rise & Shine programs were developed which provides opportunities to children with special needs. The programs provide supplies and equipment that include "Reference Packs" containing natural resource education materials. The Rise & Shine program includes environmental lessons and activities focused around the importance of caring and sharing with other people, creatures and the environment.

Under a new Club that was introduced for these children, approximately 100 tree seedlings were planted by them. The Club offers outdoor fun and education.

Table H3-1. Summary of Grants Issued by the Custer National Forest.

Fiscal Year	Grantee	Amount	Purpose
92	Town of Joliet	$5,000	Community Action Plan
93	Broadus/Powder River County	$8,700	Project Implementation, Community Design Action Plan
93	Rosebud County	$8,000	Community/County Action Plan
93	Beartooth Rural Community and Development Area, Inc.	$9,630	Environmental Education Curriculum
94	Broadus/Powder River County	$27,000	Project Implementation Information Center/Visitor Center
95	Carter County	$13,870	Community Action Plan, Ekalaka, MT
96	Rosebud County, Ashland, MT	$10,000	Development Plan for Medical Clinic
96	Rosebud County, Colstrip, MT	$11,000	Colstrip Action Plan

Fiscal	Grantee	Amount	Purpose
97	Northern Cheyenne Tribe	$8,000	Northern Cheyenne Plan
97	Custer County	$35,000	Infrastructure Improvement Bldg.
97	Beartooth Nature Center	$10,000	Improve Infrastructure
97	Northern Cheyenne Forestry Program	$8,000	Complete Forestry Plan
98	Northern Cheyenne Tribe	$25,310	Develop Tourism/Build Campground
98	Red Lodge, MT	$17,000	Storage Facility
99	Powder River County	$13,000	Fairground Improvement
99	YMCA, Billings, MT	$4,125	Poets on the Prairie/Tumblewords
99	Western Heritage Center, Billings, MT	$6,825	Cultural Heritage Tourism
99	Fishtail Community Council	$2,000	Cultural Heritage Tourism
00	Billings Family YMCA	$6,570	The Writer's Voice

Native American Youth Practicum

The Forest was a primary sponsor of the Native American Youth Practicum from 1993 to 1998. The purpose of the Youth Practicum was to create an interest in natural resource management careers while maintaining traditional cultural awareness. Students experienced various hands-on natural resource management practices. Along with the Custer and Gallatin National Forests, partners in this effort included the Bureau of Land Management, The National Park Service (Little Bighorn Battlefield and Bighorn Canyon Recreation Area), National Guard, the Crow Tribe, and Little Bighorn College.

The target audience for the Practicums was Native American High School Youths. The anticipated 25 to 35 participants, who represented numerous tribes, were combined into working groups. These working groups were "given" a part of the Forest and charged with the development of a Resource Management Plan for the area. During the last day of each Practicum, the working groups would make presentations to a panel representing Federal, State, and Tribal resource management agencies.

Recommended Action: Continue to monitor.

HUMAN COMMUNITY AND DEVELOPMENT AND BUDGET:

EFFECTS OF ANNUAL BUDGET FLUCTUATIONS - MONITORING ITEM H4

ACTION OR EFFECT TO BE MEASURED:	Monitor cumulative effects of annual budget fluctuations.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	When 1 of the following occur: 1. Loss of more than 10% in outputs or, 2. Significant changes in Forest Plan allocations must be made.

Purpose: The element was developed to monitor the effects of annual budget fluctuations using current/out year programming, and annual output accomplishment reports. The expected precision and reliability of this information is high.

Background, Results & Evaluation: The Forest has always been managed and operated with a relatively small staff (compared to other national forests) and minimal budget. Budget fluctuations and management priorities can cause and have caused tremendous impacts on Forest outputs. From 1996 through 1998 Forest and Grassland resources were directed to the accomplishment of the Northern Great Plains Management Plans Revision effort. Since 1999, personnel have been collecting physical inventory of all the facilities and improvements across the Forest. Over 90% of personnel in the Northern Region were assigned to fire suppression activities this past fire season and the fires on the Forest have resulted in the setting of different priorities. Shrinking budgets have resulted in the sharing of resource specialists between the Gallatin, the Custer, and the Dakota Prairie Grasslands. The Gallatin shares their fisheries biologist and recreation specialist with the Custer; the Custer shares their lands and special uses position, several budget and finance positions (four positions), one information management services position, and three contracting positions with the Dakota Prairie Grasslands; the two contracting positions are also shared with the Lewis and Clark National Forest; and, the Dakota Prairie Grasslands shares cadastral engineering services with the Custer.

Nationally, the Forest Service has shrunk in size. There is an anticipated influx of funds over the next five years to address the needs for rehabilitation and restoration activities within burned areas on the Forest, as well as across the Region. The Forest leadership has already been considering how to organize effectively to accomplish rehabilitation and restoration activities on the ground without over-committing to additional permanent personnel when the funding situation changes. It should be noted that this type funding is not long-term and not likely to be a part of the budget scheme for FY02 or FY03.

Ultimately what does all this mean? In reviewing the funding of the last ten years, the Forest (prior to the establishment of the two separate administrative units) was funded at approximately the levels identified in the Plan (about $8.5 to $9.0 million, annually) to produce the products and outputs identified in the Plan. The Forest has accomplished those outputs, but at this funding level, the monitoring work necessary to step back and assess management activities is not accomplished. Allotment management plans have not been updated; wildlife habitat is not actively managed, with available dollars going to assure activities are in compliance with the Endangered Species Act and other pertinent laws; cultural

resources are not fully evaluated, rather cultural resource dollars go to assure legal compliance, as well.

Many of the communities surrounding the Forest are dependent, in part, on goods and services that originate on the National Forest for some of their economic stability.

Recommended Action: Continue to monitor.

HUMAN COMMUNITY AND DEVELOPMENT AND BUDGET: RETURNS TO THE TREASURY - MONITORING ITEM H5

ACTION OR EFFECT TO BE MEASURED:	Validate returns to the Treasury.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Projected returns are less than 80% of projected returns.

Purpose: This monitoring element was established to track returns to the Treasury compared to those projected by the Forest Plan.

Background: The Forest Plan was formulated with estimates of costs for the management practices needed to accomplish the outputs and services described in management prescriptions to be applied to various portions of the forest. The sum of all costs necessary to implement the Forest Plan and average annual schedule of resource and service outputs was estimated to be $10,518,000 per year. That estimate was based on a seven-district Forest and Grasslands unit. Using historical funding as an indicator, when the Forest and Grasslands were one administrative unit, costs approximated $8.5 to $9.0 million, annually. Using fiscal year 2000 as a baseline since this is the first fiscal year the Custer operated as a separate administrative unit from the Dakota Prairie Grasslands, the Forest's costs are approximately $3.8 million.

In FY 2000, the Forest Service began implementing an integrated **accounting** system called Foundation Financial Information System (FFIS), of which the Primary Purpose Principle is an integral part. Also, beginning in FY 2001 with full implementation targeted for FY 2003 the Forest Service will use the Budget Formulation and Execution System (BFES). This new **budget planning** process is expected to: improve performance accountability; increase credibility in Congress and the American people; improve accountability for performance in the field; strengthen linkages between our budget requests and the Natural Resource Agenda, annual performance measures, and national priorities; and, improve performance through the use of innovative technologies (Chief Mike Dombeck, 11/1/2000).

The Forest Plan estimates are used as the objective in the annual programming for out-year budgets. The Custer National Forest is not and never has been financed by allotting an annual amount to be spent in the various resource program areas according to the Forest Plan. Instead, the annual operating budget has been a result of an allocation of the Forests share of various resource programs as appropriated by Congress. The Forest Plan budget is the vehicle for telling the public and Congress what balance of functional resource program funding is needed to produce the outputs and services identified in the Forest Plan. Annual budget monitoring and the analysis and interpretation of budget allocation, expenditure, and accomplishment data will be used to report to the public and Congress through the budgeting process on revisions and changes that may be need and the reasons why.

In the Forest Planning process the Forest examined the dollar return from activities on the Forest.

Revenues are returned to the U.S. Treasury, States and Counties. Collections made in the different resource classes are displayed in Table H5-1. The portion of these funds that are returned to States and Counties are displayed in Table H5-2. How these funds are distributed is dependent on the land status and there are a number of different laws that affect distribution.

Results & Evaluation: Returns to the Treasury have varied with the price of grazing fees (which have been cut in half), oil, minerals, and timber.

TABLE H5-1: Collections by Resource Class by Fiscal Year (in thousands of dollars).

Fiscal Year / Resource Class	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Timber	-1	3	15	6	12	123	-93	17	9	194
Grazing National Grasslands 1/	0	0	0	0	0	0	0	0	0	0
Land Use	11	10	21	6	6	14	8	5	8	15
Recreation, Undesignated Areas	78	90	99	115	105	126	128	116	95	85
Power	1	3	3	3	3	3	3	1	1	1
Minerals	0	0	0	0	0	0	1	0	1	1
Admission & User Fees (Designated Areas)	45	20	48	46	16	13	20	30	26	20
Grazing in National Forests	257	277	280	289	315	259	214	213	220	212
Total All Resource Classes	391	403	466	465	457	538	281	382	360	528
Knudsen-Vandenburg Current Year Collections	-24	36	103	16	3	119		1	1	127

1/ No reporting for the national grasslands that once were part of the Custer is done here. Please refer to the Fiscal Year 1998 Monitoring and Evaluation Report for the Little Missouri, Cedar River, Grand River, & Sheyenne National Grasslands of the Dakota Prairie Grasslands.

Table H5-2: Summary of Payments to States From National Forest Receipts by Law by Fiscal Year.

Payments to Counties	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Forest Service 25% Law	110	109	146	126	150	196	131	101	92	231
Total to States and Counties	110	109	146	126	150	196	131	101	92	231

Recommended Action: Continue to monitor the costs to implement the projected outputs of the Forest Plan.

HUMAN COMMUNITY AND DEVELOPMENT AND BUDGET: EFFECTS ON OTHER LAND MANAGERS OBJECTIVES- MONITORING ITEM H6

ACTION OR EFFECT TO BE MEASURED:	Impacts of Forest Plan implementation on other land managers objectives.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Adverse responses/impacts to other land managing agencies.

Purpose: This monitoring element was established to evaluate the effects of implementing the Forest Plan on the management objectives of other land managing agencies.

Results & Evaluation: The Forest notifies other land managing agencies of project activities being planned or occurring through the quarterly Schedule of Proposed actions and project level scoping efforts. In turn, the Forest receives notification of project activities occurring on other agency lands. These efforts have provided necessary coordination between Federal, State, and local agencies and offered opportunity to provide comment and influence the outcome of decisions to be made. To date the Forest has received few adverse responses from other land managing agencies. The most notable conflict appears to be the Forest Plan and management area direction on National Forest System lands around the Pryor Mountain Wild Horse Range. Direction for Management Area Q, located in the Pryor Mountains, allows for cooperative management with the Bureau of Land Management's direction in the Pryor Mountain Wild Horse Range. However, Forest Plan direction in management areas adjoining management area Q is not necessarily compatible with wild horse management. Please see Monitoring Item D5 for a thorough discussion of this particular issue.

Recommended Action: Continue to notify other agencies and Tribes of our proposed actions and consider their input in making decisions applying Forest Plan direction, but consider dropping this as a monitoring element.

J. LANDS

LANDS: RIGHT-OF-WAY/EASEMENT - MONITORING ITEM J1

ACTION OR EFFECT TO BE MEASURED:	Right-of-Way/Easement Acquisition.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90% accomplishment of 5-year program.

Purpose: This monitoring element was established to ensure that Rights-of-Way and easements are tracked with the 5-year program of work and are consistent with the Forest Plan.

Background: The Forest Service may acquire rights of way by 1) purchase/donation of an easement; 2) by invoking the ditches and canals reservations in patents; 3) as part of a land exchange or purchase; or 4) in a cooperative effort with other governmental entities such as a county, state or other federal agencies. Easements, exchanges and purchases must have a Final Title Opinion from the Office of General Council before they are considered accomplished and federal money spent on management and capital improvements.

Rights of way are acquired in support of other resources such as trails for recreation, road access for timber sale or oil and gas lease, for wildlife purposes such as Ducks Unlimited projects, for range stockwater purposes and capital investment projects as well as general access for the public

Results: The Forest's Five Year Right of Way Acquisition Plan projected roughly 1 right of way per year per district for a total of 30 rights of way acquisitions.

TABLE J-1: Actual Rights-of-Way Acquired

FY Acquired	Number Acquired	Type	By
90	4	1 trail and 3 roads	Easement.
91	0		
92	0		
93	0		
94	2	2 roads	1 easement, 1 county assertion.
95	2	2 roads	1 exchange, 1 county assertion.
96	0		
97	2	2 roads	1 exchange, 1 easement.
98	11*	1 road	County assertion over 11* ownerships.
99	2	2 roads	Easements.
TOTAL	**23**	12 roads, 1 trail	

*Note that in 1998, by cooperation with Powder River County and 11 landowners, the Forest saved the cost of acquiring 11 separate easements for an approximate savings of $150,000.

Evaluation: The Forest has acquired 76% of planned rights of way. By cooperating with Powder River County and 11 landowners, the Forest saved the cost of acquiring 11 separate easements for an approximate savings of $150,000.

In addition, the Forest declared its intention to use the rights of way for ditches and canals reserved in patents for stockwater pipelines crossing 12 different land ownerships. If the ditches and canals reservations had been absent from patents, 12 rights of way easements with Final Title Opinions (with a cost of approximately $150,000) would have had to been acquired.

Recommended Action: The Forest should review its projection of roughly one right-of-way per district per year acquisition to determine: 1) whether it is appropriate; and, 2) if appropriate, how the process should be changed to make the projection of 90% accomplishment. Two roadblocks seem to be limiting the current project of accomplishments: survey and plats completed in a timely manner; and, willing landowners.

Since the forest is still lacking in needed public access, a projection of three rights-of-way acquired per year does not seem out of line. For timely completion of surveys and plats, the Forest either must direct a higher priority for the work or additional money/personnel in the form of a surveyor to accomplish the survey/plat work. Plats for needed access should be completed at least one year prior to right of way acquisition work and two years prior to any capital investment contract or sale/project advertisement. There will continue to be landowners unwilling to grant right-of-way; however, as long as we have willing landowners, we should move forward. Landowners do reconsider and ownership does change over time.

LANDS: LAND OWNERSHIP ADJUSTMENT - MONITORING ITEM J2

ACTION OR EFFECT TO BE MEASURED:	Land Ownership Adjustment Accomplishment.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 80% accomplishment of 5-year program.

Purpose: This monitoring element was established to ensure that land ownership adjustments are tracked with the 5-year program of work and are consistent with the Forest Plan.

Background: The Forest Service may accomplish land adjustments by purchase, exchange, partial interest acquisition (minerals only estate, 1 part of multiple ownership), or through sale of land to resolve an encroachment under the Small Tracts Act Sale authority.

Criteria for Land Adjustment proposals includes:

- in public's best interest;
- acquisition of a critical right of way;
- protection/improvement by acquisition a significant resource;
- reduction of cadastral costs;
- resolution of an encroachment or trespass;
- achievement of a more effective, efficient public ownership pattern;
- result in landline and corner reduction for cadastral cost savings.

Land exchanges/purchases/partial interest acquisitions must have a Final Title Opinion from the Office of General Council before they are considered accomplished. A Small Tracts Act Sale is considered complete when an executed Quitclaim Deed is conveyed to the landowner.

Results: The Forest's Five Year Plan projected a three-year average of 615 acres per year accomplishment.

Table J-2: Summary of Forest's 5-Year Plan Accomplishments.

FY	ACRES	BY:
90	6.6	5 Small Tracts Act Sales
91	0	
92	0	
93	79	
94	0	
95	1,037	Exchange.
96	0	
97	1.5	1 Small Tracts Act Sale
98	187.5	LWCF Purchase
99	0	
TOTAL	1,311	

Total 1,311 acres of land adjustments for a ten-year average of 131 acres.

The Forest acquired 21% of the planned acres in the Five Year Land Adjustment Plan.

Evaluation: Until 1998 when four of Custer National Forest's Districts were split off to create the Dakota Prairie Grasslands, the seven district Custer was accomplishing the 80% goal. However, the major portion of exchange work was being completed on the four Dakota Prairie districts. As a result, when the new, three district Custer is considered in light of the 80% accomplishment goal, the goal is not being met.

Recommended Action: 1) The Forest should review its projection of an approximate average of 615 acres per year over any three year period to determine whether it is appropriate on the new, three District Forest. Using district/forest five-year plans, the Forest should consider whether the old 80% goal is appropriate.

Since the Forest has an intermingled private and federal ownership pattern and continues to get/solicit exchange and purchase proposals, it is clear land ownership adjustment needs to continue. Land Ownership Adjustment is a means to accomplishment management objectives such as right of way acquisition, reduced cadastral and landline costs, acquisition of lands with desired resources, resolution of encroachments and improved ownership configurations for efficiency of management. The Forest should refine its requirements and criteria for adjustment and purchase proposals, with commensurate agency funding, (including request for significant funding from proponents). The 80% of a three-year average of 615 acres is not an unreasonable goal.

2) In addition, a separate monitoring element should be created for identification and resolution of encroachments on NFS lands. Resolution ranges from removal of encroachments, (haystacks, junk piles, machinery) to termination of encroaching action (farming, haying,) to Small Tract Sales (innocent trespass involving a permanent structure). Currently there is no Forest Plan monitoring element to track encroachments of National Forest System lands. It is estimated that there is one encroachment for every

mile of Forest boundary (the Forest has 1,396 miles of boundary). Encroachments are unauthorized use of public lands and resources and should not be allowed to continue; this is why we should have a monitoring element that tracks encroachments and their resolution.

This workload is enormous and should be prioritized accordingly at the Forest and Regional levels. It will require concerted and diligent efforts at both levels to accomplish this program.

L. FACILITIES

FACILITIES: ROADS AND TRAILS- MONITORING ITEM L1

ACTION OR EFFECT TO BE MEASURED:	Road and Trail Construction/Reconstruction.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 80% accomplishment of 5-year program.

Purpose: This element was established to track road and trail construction relative to the projected 5-year program of work. The expected accuracy and reliability of the information is high.

Background, Results & Evaluation: The management plan estimates approximately 3 miles of road per year will be constructed for timber management. An average of 2.4 miles of road per year (80%) were actually constructed (as based on contract award date) within the last 5 years. Following is a summary of the roads constructed/reconstructed for timber management within the last 5 years:

Fiscal Year AWARDED	Timber Sale Contract	Miles of Road CONSTRUCTED	Miles of Road RECONSTRUCTED
FY96	Smokey Breaks	0.0	7.8
FY98	Lyon Creek*	4.4	19.4
FY99	Goodspeed	4.6	5.3
FY00	Fly Wilber	3.1	14.3

*25.5 miles of road were in the timber sale at time of award. 1.7 miles were not constructed.

The management plan does not address reconstruction of roads in terms of how much will be accomplished in any given time frame. However, the Forest continues to reconstruct roads through timber sales, capital investment funding, and project work agreements with counties.

The management plan estimated 3 miles of road per year would be constructed during the first decade and 2 miles of road per year during the second decade. The focus of trail construction to 1998 had been on what is now the Dakota Prairie Grasslands. No new trails have been constructed on the Custer National

Forest within the last 5 years.

The management plan does not address reconstruction of roads or trails in terms of how much will be accomplished in any given time frame. However, the Forest continues to reconstruct roads and trails through capital investment funding and partnerships.

Recommended Action: Continue to monitor; however, the emphasis of monitoring should shift from accomplishment of the 5-year program to tracking classified, unclassified, and temporary roads and trails consistent with the January 12, 2001 Roads Policy.

FACILITIES: PUBLIC ACCESS - MONITORING ITEM L2

ACTION OR EFFECT TO BE MEASURED:	Public Access.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	+/- 20% of target miles and public access open to public.

Purpose: This element was established to monitor the development of public access to the Forest. The expected accuracy and reliability of the information is high.

Background, Results & Evaluation: The Sioux Ranger District does not have a travel management plan. The Ashland and Beartooth Districts have some form of travel management plans, though maps are not available and signing on the Beartooth District only began about 18 months ago. Some signs are posted on the Ashland District. The recently signed joint BLM/Forest Service Off-Highway Vehicle ROD and attendant Final Environmental Impact Statement[17] (1/5/01) and attendant FEIS amends the nine forest plans listed in Table 1.1 of the ROD (p. 1). The decision establishes a new standard that restricts yearlong, wheeled motorized cross-country travel, where it is not already restricted. (ROD, p. 4). The Beartooth Ranger District developed a district travel management plan in 1987 that the Forest is proposing to update within the next few years. Roads within Management Area C (Forest Plan, p. 51) are closed from December 1 to April 15. Additional closures/seasonal closures are noted in the district travel management plan.

The Forest is in the process of completing a physical inventory of all classified roads and updating the INFRA database and base transportation maps. Additionally the forest has begun inventorying all unclassified roads.

Since 1990 the forest has acquired 23 rights of way on 12 roads and 1 trail by easement, county assertion, and land exchange. Significant portions of the Forest still have no legal public access. Landowners are becoming increasingly unwilling to grant easements

Recommended Action: Continue to monitor.

[17] The Forest Service Northern Regional Forester, Dale Bosworth, signed the ROD on January 5, 2001. The Forest Service appeal period ended on 3/20/01. The BLM decision will not be issued until the resolution of protests filed under the BLM protest procedures, which is not expected until this fall.

FACILITIES: ROAD CLOSURES & REHABILITATION – MONITORING ITEM L3

ACTION OR EFFECT TO BE MEASURED:	Road Closures and Rehabilitation.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 95% of roads identified as no longer needed closed within 2 years.

Purpose: This element was established to monitor road closures and the need to restore/rehabilitate roads no longer needed. The expected accuracy and reliability of the information is high.

Background, Results & Evaluation: Roads decommissioned to date have been on what is now the Dakota Prairie Grasslands.

On the Custer National Forest, roads no longer needed are identified during project level NEPA analysis. The Decision Notice/FONSI for the 1996 Lyon Creek Vegetation Management Analysis Area identified approximately 12 miles of road to be decommissioned. No specific time frames were specified in the analysis to accomplish the decommissioning. A contract is anticipated to be awarded in FY01 to decommission these roads.

Recommended Action: Continue to monitor.

P. PROTECTION

PROTECTION: FUEL TREATMENT OUTPUTS - MONITORING ITEM P1

ACTION OR EFFECT TO BE MEASURED:	Fuel Treatment Outputs.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 80% of programmed targets.

Purpose: This element was established to monitor fuel treatment outputs relative to the projected program of work. The expected accuracy and reliability of the information is high.

Background: Fuel treatment levels established in the Forest Plan equate to an annual program of 400-500 acres per year of fuel treatment includes activity fuel and 500-1500 acres per year for range forage improvement.

Results & Evaluation: The forest is on an upward trend for the preceding four years in total prescribed fire accomplishment, averaging 100-300 acres per year of activity fuel treatment and 5000-7500 acres per

year of natural fuel treatment and range forage improvement. The role of fire in ecosystem restoration as well a changing federal fire policy will no doubt lead to development of a larger fuel treatment program outside of designated Wilderness. Several landscape analysis proposals are in the current and near term program of work, fuels treatment using a combination of mechanical as well a prescribed fire are in the planned for large acreages in the Ponderosa pine zone.

For the year 2000 the Custer did not achieve 80 % of its program level. The year was characterized by an open, dry and warm winter with below average moisture and above average temperatures; however, the total acres treated with prescribed fire in this planning cycle still exceed Forest Plan levels due to the over-accomplishment in preceding years. The Forest began having large fires in June and continued into September, involving 80M + acres. Additionally, the Tobin and Stag fires on the Ashland District burned portions of several planned fuel treatment projects for FY 2001.

Table P1-1. Summary of Acres Burned by Fuel Activity Type and District by Year.

Year	Activity Fuels 1/				Natural Fuels 2/			
	Beartooth	Sioux	Ashland	Subtotal	Beartooth	Sioux	Ashland	Subtotal
1990	83	2	270	355	200	74	250	524
1991					500			500
1992		40	100	140	150			150
1993			114	114	250	103	350	703
1994	10	50	7	67		550		550
1995	50			50	1386	372	346	2807
1996					460	277	1164	1901
1997		159		159	279	496	2944	3719
1998					350	1840	2040	4230
1999		29		29	300	2618	2997	5915
2000		592		592	43			43

1/ Activity fuels are those generated by project activities such as timber sales, road construction, commercial or pre-commercial thinning,etc.

2/ Natural fuel activities can be prescribed burns and/or mechanical treatment of fuels.

Recommended Action: Continue to monitor.

PROTECTION: WILDERNESS FIRE MANAGEMENT – MONITORING ITEM P2

ACTION OR EFFECT TO BE MEASURED:	Fire management practices in Wilderness areas.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Significant adverse public criticism.

Purpose: This element was established to monitor the management of fire in the Absaroka-Beartooth Wilderness. The expected accuracy and reliability of the information is moderate.

Background: The Absaroka-Beartooth Wilderness Fire Plan is set up to allow natural ignitions to burn under preset conditions. Fire planning has included extensive coordination with all surrounding Federal Agencies, Gallatin National Forest, Shoshone National Forest, and Yellowstone National Park.

Results and Evaluation: Opportunities to manage fire in the Custer portion of the Wilderness are very infrequent: ignitions have occurred but all have been human caused and suppressed. By mid-summer potential candidate fires are suppressed due to the high level of fire locally, regionally and nationally.

Recommended Action: Continue to monitor.

PROTECTION: MEETING AIR QUALITY STANDARDS - MONITORING ITEM P3

ACTION OR EFFECT TO BE MEASURED:	To assure that treatment of active and natural fuels can be treated within air quality standards.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Less than 90% of outputs accomplished.

Purpose: This element was established to ensure that fuels treatment projects are accomplished in compliance with State air quality standards and if in trying to meet those standards whether fuels treatment projects would be affected. The expected accuracy and reliability of the information is moderate.

Background: The Forest Service is not responsible for enforcing all other Federal and State laws and regulations. The appropriate State or Federal agency is responsible for enforcement of, and the operator is responsible for compliance with, other applicable statutory or regulatory permit requirements. Air quality issues are addressed in each project proposal involving fuel treatment.

Results and Evaluation: To date there have not been any known negative impacts to local air quality

standards. Ignition of prescribed burns only occurs on days with good or better ventilation forecasts and requirements of the Montana Smoke Monitoring Unit are checked daily when active burning is planned or on going.

Recommended Action: Continue coordination with each respective state air quality control boards and assess/analyze the potential for effects at the project level.

PROTECTION: INSECT AND DISEASE - MONITORING ITEM P4

ACTION OR EFFECT TO BE MEASURED:	Insect and Disease Infestation.
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	More than 20% increase in acres infested or volume lost.

Purpose: This monitoring element was developed to track insect and disease infestations within the forested stands on the Forest. The expected precision and reliability for this element is moderate.

Background, Results, & Evaluation: Entomologist evaluation of areas burned on the Ashland and Beartooth Districts indicates there is high potential for woodborer activity in fire killed and fire weakened trees. Actual losses to insects will be in terms of the loss of salvable volume. Drought and fire-weakened trees are also considered high risk for increased insect activity. Aerial surveys are planned for the three Districts in the next two to three years to monitor for significant increases in infestations. Entomologist visits will also be planned. Present information does not suggest any significant increase in losses to insects or disease over those experienced in recent years.

Recommended Action: Continue to monitor.

__ ROADLESSNESS

ROADLESSNESS: ROADLESS CONDITION

ACTION OR EFFECT TO BE MEASURED:	Acres in a roadless condition (includes Low Development Areas).
VARIABILITY THAT WOULD INITIATE FURTHER EVALUATION:	Roadless acres 10% less than anticipated.

Purpose: This element was established to track the effects of implementing the Forest Plan through site-specific projects on the number acres in a roadless condition. The expected accuracy and reliability of the information is high.

Background: Inventoried roadless areas were identified in the Roadless Area Review and Evaluation (RARE, 1972) and RARE II (1979) processes. In 1983, the Forest conducted a review of these areas and

other areas that met roadless criteria, the results of which are documented in the Forest Plan Record of Decision, the FEIS, and Appendix C. At the time of the Forest Plan decision, roadless areas were allocated to Management Area H (Recommended for wilderness classification), Management Area J (Low Development areas), and management areas other than Wilderness. There are no inventoried roadless areas identified on the Sioux Range District. In 1998, responding to concerns regarding the protection of unroaded portions of the National Forest System and the agency's ability to maintain its current transportation system, Forest Service Chief Mike Dombeck, proposed to temporarily suspend road construction and reconstruction in inventoried roadless and other unroaded areas for 18 months beginning in March 1999 while a long-term policy was developed. In 1999, the Forest Service published a Notice of Intent to develop new regulations for the proposed Roadless Area Conservation Rule. The final EIS was made available on November 17, 2000, and on January 5, 2001 Agriculture Secretary Dan Glickman signed the final rule. The rule was published in the Federal Register on January 12, 2001 and is effective on March 13, 2001.

While there is no specific monitoring element for research natural areas, the Forest Plan identified Lost Water Canyon as a proposed RNA and the Red Lodge Plateau and Upper Hellroaring as candidate RNA areas.

Results & Evaluation: Of the 145,000 acres of inventoried roadless and other roadless areas reviewed in the Forest Plan, 14,000 acres were recommended for wilderness classification, 42,000 acres were allocated to management areas that did not allow road construction or reconstruction, and 89,000 acres were allocated to management areas that did allow road construction/reconstruction. Essentially the roadless area conservation decision affects the 89,000 acres of lands allocated to other management areas where road construction/reconstruction was allowed.

The total effect to the Forest will not be clear until we can sort through the changers in rule; however, it does not technically amend the Forest Plan. The rule and any regulations promulgated as a result of it, the transportation policy rule, and the new planning rule will be incorporated in the revision of the Forest Plan. The rule makes permanent the interim direction prohibiting new road construction/reconstruction in inventoried roadless and other unroaded areas. The boundaries of the roadless areas will be set and no changes can be made to those boundaries except by the rule making process. Thus, in essence, there is a net gain of 89,000 roadless acres to the Forest. The following table summarizes the changes from the proposed to the final rule.

Table: Roadlessness 1. Changes From Proposed to Final Roadless Area Conservation Rule.

	Proposed Rule & DEIS Preferred Alternative	**FEIS Preferred Alternative**	**Final Rule & Record of Decision**
	May 9, 2000	November 13, 2000	
Road Construction Prohibitions	• Prohibits new road construction or reconstruction in the unroaded portions of inventoried roadless areas on National Forest System lands, except: 1. To protect health and safety threatened by a catastrophic event. 2. To conduct environmental clean up. 3. For valid existing rights. 4. To prevent irreparable resource damage by an existing road.	• Prohibits new road construction and reconstruction within inventoried roadless areas on National Forest System lands, except: 5. To protect health and safety threatened by a catastrophic event. 6. To conduct environmental clean up. 7. To allow for reserved or outstanding rights provided for by statute or treaty. 8. To prevent irreparable resource damage by an existing road. 9. To rectify existing hazardous road conditions. 10. When a road is part of a Federal Aid Highway project.	• Same as the Preferred Alternative, plus 11. Road construction may be allowed in conjunction with the continuation, extension, or renewal of a mineral lease on lands that are under lease or for new leases issued immediately upon expiration of an existing lease.
Timber Harvest Prohibitions		• Prohibits timber harvest, except for purposes to maintain or improve roadless characteristics and: 12. To improve threatened, endangered, proposed or sensitive species habitat. 13. To reduce the risk of uncharacteristic wildfire effects. 14. To restore ecological structure, function, processes, or composition.	• Prohibits cutting, sale, and removal of timber in inventoried roadless areas, except: 15. For the cutting, sale, or removal of generally small diameter trees which maintains or improves roadless characteristics and: 1. To improve threatened, endangered, proposed or sensitive species habitat. 2. To maintain or restore ecosystem composition and

	Proposed Rule & DEIS Preferred Alternative	FEIS Preferred Alternative	Final Rule & Record of Decision
Timber Harvest Prohibitions (continued)			structure, such as reducing the risk of uncharacteristic wildfire effects. 16. When incidental to the accomplishment of a management activity not otherwise prohibited by this rule. 17. For personal or administrative use. 18. Where roadless characteristics have been substantially altered in a portion of an inventoried roadless area due to the construction of a classified road and subsequent timber harvest occurring after the area was designated an inventoried roadless area and prior to the rule. The cutting, sale, or removal of timber under these exceptions is expected to be infrequent.
Procedures	• Establishes procedures to evaluate, as a part of the local planning process, the quality and importance of roadless characteristics and determine whether and how to protect roadless characteristics in the context of multiple-use objectives.	• Procedures addressed through new Planning Regulation.	• Procedures addressed through new Planning Regulation.
Tongass National Forest	• A decision on whether to prohibit new road construction in inventoried roadless areas on the Tongass National Forest would be postponed until the 5-year forest plan review scheduled for April 2004. If it were determined that	• Implementation of the prohibitions on road construction and timber harvest for the Tongass National Forest would go into effect in April 2004.	• Applies immediately to the Tongass National Forest. Includes a transition provision that allows projects that have published a Notice of Availability for a draft environmental impact statement by the date of publication of the Final Rule to continue.

	Proposed Rule & DEIS Preferred Alternative	FEIS Preferred Alternative	Final Rule & Record of Decision
	inventoried roadless areas on the Tongass merit protection by applying the road building prohibition, a forest plan amendment or revision would be initiated with full public involvement.		

Two Research Natural Areas have been designated:

- Lost Water Canyon was established on July 20, 1994 (Forest Plan amendment #28).
- Line Creek Plateau was established on July 2000 (Forest Plan amendment #34. This decision is currently under appeal, the resolution of which is not expected soon because of a backlog of appeals at the Washington Office. However, no request for stay of the decision has been filed, thus the decision stands at this point in time.

Recommended Action: Implement direction in the Roadless Area Conservation rule and account for the roadless area conservation rule in revision of the Forest Plan.

IV. COMPLETED FOREST PLAN AMENDMENTS

Table IV-1. Summary of Approved Forest Plan Amendments.

Amendment Number	DESCRIPTION	Date Approved
1	Includes "Uniform Format for Oil and Gas Lease Stipulations" in the Forest Plan	03/29/91
2	Adds Wild/Scenic/Recreational River Forest-wide Management Standards to the Forest Plan	12/15/89
3	Corrects table on page 49 that identifies key wildlife habitat by Ranger District and species of concern	03/29/91
5	Eliminates oil and gas production as a monitoring item	03/29/91
6	Changes the wording that allows camping in the administrative site at Meyers Creek Station on the Beartooth District	03/29/91
7	Changes the budget as displayed on page 163	03/29/91
8	Includes management standards and guides in response to the passage of the Federal Cave Resource Protection Act of 1988	03/29/91

Amendment Number	DESCRIPTION	Date Approved
9	Makes Dutchman's Barn, Long X Divide, Twin Buttes, and Blue Buttes not administratively available for oil and gas leasing	10/24/91
10	Changes the visual classification from partial retention to retention for certain areas surrounding Theodore Roosevelt National Park	10/24/91
11	Includes the Ferruginous Hawk as a sensitive species in North Dakota	10/24/91
12	Changes the dates for protection of prairie grouse dancing grounds from 3/1-4/15 annually to 3/1-4/30 annually	10/24/91
13	Management standards changed for Woody Draws (Mgt Area N) to require a "No Surface Occupancy" (NSO) stipulations	10/24/91
14	Removes 459 acres from the suitable timber base on the Sioux Ranger District	05/21/93
16	Adds definitions of "Existing Visual Condition" to the Forest Plan	05/21/93
17	Adds the name of Whitetail Area to the list of Management Area Cs	05/21/93
18	Revises table on pages 77 and 78 of the Forest Plan to reflect the current status of RNAs and SIAs	05/21/93
19	Changes the Oil and Gas Administratively Available decision for portions of the Beartooth District	05/23/96
20	Updates the key species/critical timing periods found on page 19 of the Forest Plan	05/23/96
21	Removes the area-wide NSO requirement for MA C Line Creek and replaces it with the stipulations identified in Alternative 4A of the Beartooth Mountain Oil and Gas Leasing FEIS and related Record of Decision	05/23/96
23	Corrects the list of Ranger Districts at the top of page 80 of the Forest Plan showing where MA M occurs	06/93
26	Incorporates a list of Recreation Residence Tracts into the Forest Plan	Correction 01/94
27	Adds a list of plants, animals and fish that are sensitive in Montana.	06/93
28	Changes the status, acreage and wording of Forest Plan Amendment Number 18 for Lost Water Canyon.	07/20/94
29	Modifies/adds stipulations to be applied to new oil and gas leases as identified in Amendment Number 1.	04/27/96
30	Changes the dates and disturbance zones shown for key species on pages 19 and 172, as amended by Amendment Number 12.	04/27/96
31	Adds the name of Round Top Butte to the table on pages 77 and 78, as replaced by Amendment Number 18.	04/27/96
32	Includes the Ashland Ranger District on the list of areas where Management Area N occurs	03/09/96

Amendment Number	DESCRIPTION	Date Approved
	Area N occurs.	
33	Re-classifies 170 acres (in portions of seven stands) on the Ashland Ranger District from unsuitable to suitable for timber production.	05/17/96
34	Changes status of Line Creek Plateau Research Natural Area from "Candidate RNA" to "Established RNA." Acreage is changed from undetermined to 19,369 acres.	7/2000; pending outcome of appeal.
35	Re-classifies 109 acres (in portions of seven stands) on the Ashland Ranger District from unsuitable to suitable for timber production.	6/19/1998
36	Permits the continued use of 16 acres within Management Area H for the Timberline Snow Survey Course on the Beartooth Ranger District.	10/3/00
38	Permits a one-time site specific prescribed burn in Reva Gap Campground that is located in Management Area O on the Sioux Ranger District.	3/12/01

Table IV-2. Summary of Withdrawn Forest Plan Amendments

Amendment Number	Remarks
4	Not implemented 4/5/91. The Forest did not have a Forest Biologist at the time to do the necessary consultation with the US Fish and Wildlife Service to finalize the amendment.
15	Allowed a site-specific exception to create openings in excess of 40 acres to facilitate development of fuel breaks on the Sioux Ranger District. Withdrawn 7/28/93.
22	Identified specific communication sites in response to changing requirements. Withdrawn pending further analysis.
24	Applied the Wild/Scenic/Recreation River Forest-Wide Management Standards that were developed in Forest Plan Amendment Number 2 to the Little Missouri River, Rock Creek, the West Fork of Rock Creek and the Stillwater River. Withdrawn in 1994. Covered under Forest Plan Amendment Number 2.
25	Added timing restrictions and dates for the protection of the ferruginous hawk. Withdrawn in 1994. Incorporated into Forest Plan Amendment Number 20.
37	Re-classified 7,963 acres of lands tentatively suitable for timber production to unsuitable.

V. FOREST PLAN REVISION ISSUES

The issues to be considered for Forest Plan revision have not been formally identified yet. However, it is most likely these issues will revolve around the stewardship of the national forests and grasslands to maintain or restore ecological sustainability to provide a sustainable flow of uses, values, products, and services from these lands.

VI. APPENDICES

A. **Definitions Used for Timber Stand Management Reporting System**. This appendix is attached.

B. **TSMRS Spreadsheet (500+ pages).** Excel spreadsheet with two worksheets one for identified over-mature stands and one for identified replacement over-mature stands that includes individual stand numbers their acreage, stratum classification label and forest plan management. This spreadsheet is not attached but is available on a compact disc upon request.

APPENDIX A

Definitions Used for Timber Stand Management Reporting System.

I. STRATA CODES FOR THE ASHLAND AND SIOUX RANGER DISTRICTS

Non-forested		**Non-productive Species**	
Code		**Code**	
900	water	300	aspen
910	scoria/sandstone	310	juniper
920	dry grasslands	320	cottonwood
930	wet grasslands	330	mixed/other
940	sagebrush/sumac		
950	special use		
960	baresoil		

Tentatively Suitable **>10% Crown Cover**	**Tentatively Unsuitable** **>10% Crown Cover 1/**
Seedling/Sapling	Seedling/Sapling
Code Crown Cover	Code Crown Cover
111 <10%	211 <10%
112 10 - 39%	212 10 - 39%
113 40 - 69%	213 40 - 69%
114 70%+	214 70%+

Tentatively Suitable **>10% Crown Cover**	**Tentatively Unsuitable** **>10% Crown Cover 1/**
Poletimber	Poletimber
121 <10%	221 <10%
122 10 - 39%	222 10 - 39%
123 40 - 69%	223 40 - 69%
124 70%+	224 70%+

Sawtimber	Sawtimber
131 <10%	231 <10%
132 10 - 39%	232 10 - 39%
133 40 - 69%	233 40 - 69%
134 70%+	234 70%+

2/Two-storied	2/Two-Storied
141 <10%	241 <10%
142 10 - 39%	242 10 - 39%
143 40 - 69%	243 40 - 69%
144 70%+	244 70%+

1/Tentatively unsuitable - sites that are usually slower to regenerate, not capable of producing forest products and they take longer than 5 years to restock.

2/Two-storied - 10% to 30% sawtimber overstory, code for crown cover on understory.

II. Strata Codes for the BEARTOOTH RANGER DISTRICT

FOREST LANDS CAPABLE OF PRODUCING INDUSTRIAL PRODUCTS

1. Species are defined by Forest Survey Type definitions (with plurality of stocking by species <5" DBH = plurality of number of trees and >5" DBH = plurality of BA).

Species Alpha Identifier Code	**Species Common name**
DF	Douglas-fir
LP	Lodgepole pine
SAF	Subalpine fir and spruce
PP	Ponderosa pine
LPDF	Lodgepole pine and Douglas-fir 1/

1/This type is to recognize stands where lodgepole pine and Douglas-fir occur in approximately equal stocking and there is no clear plurality, i.e. approximately 50% - 50% stocking.

2.Size classes.

a. Sawtimber stands - Stands at least 10 percent stocked with growing stock trees 5 inches d.b.h. and larger, in which the stocking of trees 9 inches d.b.h. and larger is at least equal to the stocking of trees 5 to 8.9 inches d.b.h. CODE = 1

b. Poletimber stands - Stands at least 10 percent stocked with growing stock trees 5 inches d.b.h. and larger, in which the stocking of trees 5 to 8.9 inches d.b.h. exceeds the stocking of trees 9 inches d.b.h. and larger. CODE = 2 (All species except lodgepole pine 7.0 to 8.9 inches d.b.h.)

c. Seedling - Sapling stands - Stands at least 10 percent stocked with growing stock trees of all sizes, in which the stand size is not poletimber or sawtimber. CODE = 3

d. Nonstocked - Forest land at least 10 percent stocked with growing stock trees. CODE = 4

3.Crown cover is from photo interpretation.

a. Non-stocked (<10%) 1

b. 10% - 39% 2

c. 40% - 69% 3

d. 70% - 100% 4

FOREST LANDS NOT CAPABLE OF PRODUCING INDUSTRIAL PRODUCTS

1. Species are defined by Forest Survey Type definitions (with plurality of stocking by species <5" DBH = plurality of number of trees and >5" DBH = plurality of BA).

Species Alpha Identifier Code	**Species Common name**
DF	Douglas-fir
LP	Lodgepole pine
SAF	Subalpine fir and spruce
PP	Ponderosa pine
LPDF	Lodgepole pine and Douglas-fir 1/

1/This type is to recognize stands where lodgepole pine and Douglas-fir occur in approximately equal stocking and there is no clear plurality, i.e. approximately 50% - 50% stocking.

2. Size classes.

a. Sawtimber stands - Stands at least 10 percent stocked with growing stock trees 5 inches d.b.h. and larger, in which the stocking of trees 9 inches d.b.h.and larger is at least equal to the stocking of trees 5 to 8.9 inches d.b.h.. CODE = 5

b. Poletimber stands - Stands at least 10 percent stocked with growing stock trees 5 inches d.b.h. and larger, in which the stocking of trees 5 to 8.9 inches d.b.h. exceeds the stocking of trees 9 inches d.b.h. and larger. CODE = 6 (All species except lodgepole pine 7.0 to 8.9 inches d.b.h.)

c. Seedling - Sapling stands - Stands at least 10 percent stocked with growing stock trees of all sizes, in which the stand size is not poletimber or sawtimber. CODE = 7

3. White bark pine types and Quaking Aspen types.

Species = WB or QA

a. Size and Age class

1. Mature Code = 1
2. Immature Code = 2

b. Cover classes

1. Poor stocking(10% - 39%) Code = 1
2. Medium to well stocked.(40% - 100%) Code = 2

4. Other misc. types (all stocking levels and all stands)

J	Juniper
CW	Cottonwood
PF	Limber Pine
KR	Krumholtz

NONFOREST (<10% forest crown closure)

SPECIES	CODE
SHRUBBY CINQUEFOIL	00069
CHOKECHERRY AND/OR MT. MAHOGANY	00070
WILLOW AND ALDER	00071
SAGEBRUSH SHRUBLAND	00072
MARSH AND FEN	00073
DRY GRASSLAND AND MEADOW	00074
WET GRASSLAND AND MEADOW	00075
HIGH ELEVATION ROCKY GRASSLAND	00076
HIGH ELEVATION MEADOWS	00077
TUNDRA	00078
EXPOSED BEDROCK (SLAB ROCK)	00079
CLIFFS	00080
EXPOSED SOIL	00081
TALUS	00082
SNOWFIELD	00083
STREAMCOURSE	00084
OPEN WATER (LAKES, PONDS, ETC.)	00085
AVALANCHE CHUTE	00086
AGRICULTURAL LANDS	00087
CIVILIZED AREAS	00088
SPECIAL USE	00089
BURN AREA (WILDFIRE)	00090

CODING CONVENTION

The stratification code is at maximum a six digit field. Following are some examples for coding various types of strata:

1. Lodgepole pine, sawtimber, well stocked: LP13

2. Whitebark pine, immature, well stocked: WB22

3. Cottonwood seedling or sawtimber or etc: CW

4. Willow and Alder: 00070

DEFINITIONS

1. Mature- Individual trees or stands of trees that have attained their maximum rates of growth in terms of height, diameter, and volume growth.

2. Immature- Trees that have not attained their maximum rates of growth.

3. Krumholtz- An ecosystem that represents the upper limit of the subalpine forest as it grades into the alpine ecosystem. Trees are usually stunted and deformed. Typical species consist of Subalpine fir, Engelmann spruce, and Whitebark pine.