



United States  
Department of  
Agriculture

Forest  
Service

Black Hills  
National  
Forest

May 2002

# BLACK HILLS NATIONAL FOREST



Stream Monitoring Along Spring Creek

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## 2001 MONITORING REPORT

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# **Black Hills Forest Plan Monitoring and Evaluation Report Fiscal Year 2001**

**(October 2000 through September 2001)**

## **What This Document Is**

This is the annual monitoring and evaluation report for the Black Hills Land and Resource Management Plan (Forest Plan.) A revision of the Forest Plan was completed in June 1997. The first amendment to this Forest Plan was completed in May 2001.

The basis for the annual monitoring report is in Chapter Four of the Forest Plan. This report does not discuss the entire inventory and monitoring which occurs in the Black Hills, only that monitoring information related to the Forest Plan. Studies that are more detailed may occur in association with individual projects that implement the Forest Plan. When relevant to Forest-wide trends, information from these site-specific projects is incorporated into Forest-wide monitoring.

There are several different environmental factors monitored each year; however, not every item is scheduled for evaluation and reporting on an annual basis. Chapter Four of the Forest Plan indicates how often each item is reported.

There are three major purposes for Forest Plan monitoring: checking its implementation, assessing its effectiveness and validation of the assumptions used in its development.

The implementation of the Forest Plan is discussed in the appendix of this report. The goals and objectives of the 1997 Revised Forest Plan are listed along with accomplishments in fiscal year 2001 (FY2001).

Supporting documentation for this report is located in the Supervisor's Office, Black Hills National Forest.

## **Major Conclusions:**

This is the fourth reporting year for monitoring information under the newly revised Forest Plan. At this point, no conclusions can be drawn from much of the data.

## **Upcoming Plan Amendments:**

The Forest has undertaken changes to our 1997 Revised Forest Plan. These changes, or amendments, are in response to direction from the Chief of the Forest Service, in his decision of October 1999 on various appeals of the Revised Plan, and to the settlement agreement stemming from the Veteran Salvage Timber Sale lawsuit. These changes are being accomplished in two phases.

The Forest has completed the analysis and documentation of the Phase I amendment to the Revised Forest Plan and a decision from the Regional Forester was signed in May 2001. The primary focus of this amendment is protection for a variety of wildlife and plant species. This amendment will allow the Forest to proceed with some limited project decisions for the next two to five years.

The Phase II amendment process has begun. The focus of this amendment is broader than that of Phase I. It includes review of protections for a variety of plant and animal species; land management allocations and direction for certain areas of the Forest, including evaluating and designating research natural areas as appropriate, and a review of goods and services to be provided over the remaining years of the revised Plan, including timber volumes to be harvested. This amendment is expected to be significant as defined by the National Forest Management Act (NFMA). The current timeline for this amendment is 18 months.

In late August 2000 the Forest Service signed an agreement with several groups settling a lawsuit filed in November 1999. The lawsuit challenged implementation of certain projects on the Forest. Because of the settlement agreement, changes must be made to certain timber sales under contract, and certain sales not yet sold, which are covered in the scope of the agreement. The Forest is continuing to make these changes as required.

Visit the Black Hills National Forest website at [www.fs.fed.us/r2/blackhills](http://www.fs.fed.us/r2/blackhills) for ongoing information.

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JOHN C. TWISS  
Forest Supervisor

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Date

# Monitoring Item 1: Air Quality

## **Objective 101: Maintain air quality standards in accordance with state implementation plans.**

The Black Hills National Forest continued to provide representation at the quarterly Pennington County Air Quality Board meetings during the year 2001.

The Forest experienced no violations of the Clean Air Act on the Black Hills National Forest for the period year 2001; nor was there any air quality complaints from individuals or other entities attributed to National Forest project activities (South Dakota - Administrative Rules - Article 34:10; Wyoming - Environmental Quality - Chapter 9.1).

Prescribed burning on the Black Hills National Forest, which includes burning of forest residue piles, remains the single greatest potential air degradation activity. The Forest saw a decrease in its prescribed burning activities in FY2001 to 900 acres. The reduction in acres from 2000 was due to narrowing of prescription windows from the longer than usual suppression season. In short, it was just too risky for management-ignited fire for a significant portion of the year. The revised Forest Plan establishes an annual objective of 8,000 acres of this type of activity. Increased prescribed burning activity is likely to be offset by a reduction in the amount of other types of burning that occur, including wildfire and forest residue disposal.

The following mitigation actions are implemented on the Black Hills National Forest during prescribed burning activities to minimize air quality degradation:

1. Receptors such as subdivisions, roads, towns and other air-quality sensitive areas are identified during the prescribed burning planning process.
2. Burning prescriptions are identified in the "prescribed burn plan" to ensure that the air quality standards are maintained in receptor areas.
3. Prior to implementation of an approved prescribed burn project, weather conditions (predicted and current), including smoke dispersal predictions, are assessed to insure smoke management criteria can be met.
4. Air quality is monitored on site and at receptor areas, during burn implementation to insure that air quality remains within identified parameters.

The Black Hills region does not have any non-attainment areas identified at this time. Rapid City, South Dakota remains the key area of concern in that it is close to being designated as a non-attainment area for PM-10 which is a pollutant often produced by smoke and dust. The concern for air quality in the Rapid City area has resulted in the Forest working jointly with the Rapid City Air Quality Office on guidelines for all National Forest burning activities. These 1995 guidelines have restrictive measures for any open burning planned on National Forest land in the Rapid City air shed. The Forest continues to work with the Pennington County Air Quality Office in mitigating all potential air-quality-impacting activities.

The State of South Dakota is currently developing a long range Air Quality Monitoring Database that will assimilate air-monitoring data, air quality influencing events and weather data from 1990 to the present. The Forest assists the State by providing information on the occurrence of wildfires and prescribed fire activities on the Forest to keep the database current. In addition to activities on the National Forest, information from other area land management agencies including the Bureau of Land Management, Fish

and Wildlife Service Bureau of Indian Affairs and South Dakota State is entered in the database. Air monitoring data will come from the three area monitoring sites currently established at Rapid City, the Badlands and Pine Ridge. This database once established will represent a comprehensive resource available to land management agencies in monitoring air quality trends and in determining air quality links with various resource management activities and or weather phenomena.

# Monitoring Item 4d: Best Management Practices

## Objective 104. Maintain or enhance watershed conditions to foster favorable soil relationships and water quality.

The State of South Dakota and the State of Wyoming both recently developed and implemented a Best Management Practice (BMP) auditing program, designed to monitor and evaluate if forestry BMPs are being applied, and if so, to quantify the reduction, control, or limitation of non-point source pollution.

Audit sale areas were chosen to include potential water quality problems, non-point pollution, and highly erodable conditions. Sites close to running water or located within wetland or riparian zone drainages were preferentially audited. Three sale areas within the Black Hills National Forest were audited, including Rednose in Wyoming and Crawford and Greenant located in South Dakota.

Compliance with BMP standards is broken into two parts, application and effectiveness. Application of BMPs refers to whether or not a given standard was correctly paired with the water quality concern it was intended to address. Effectiveness evaluates the extent to which an applied BMP was successful in protecting or improving soil and water resources. The rating process begins with establishing whether or not the BMP in questions is applicable to the specific harvest activity. If determined to be applicable, the given activity is classified according to the rating criteria for BMP application and effectiveness as listed in the table below. Each overall category of activities is then tallied and a percent compliance determined.

Rating	Application Description	Effectiveness Description
5	Operation exceeds requirements of the BMP	Improves protection of soil and water resources
4	Operation meets the standard requirement of the BMP	Adequate protection of soil and water resources
3	Minor departure from the intent of the BMP	Minor and temporary impacts to soil and water resources
2	Major departure from the design of the BMP	Major and temporary, or minor and prolonged, impact to soil and water resources
1	Gross Neglect (failure to use or oversight of BMP)	Major and prolonged impacts to soil and water resources

**Effectiveness term definitions:**

**Adequate** – Small amounts of material eroded. Material does not reach draw, channel or floodplain.

**Minor** – Some material erodes and may be delivered into dry draws, but not delivered into annual floodplain or stream.

**Major** – Material erodes and is delivered into stream or annual floodplain.

**Temporary** – Impacts lasting less than one season.

**Prolonged** – impacts lasting more than one year.

Results from the Wyoming and South Dakota 2000/2001 BMP Audits are shown in the tables below. As defined in both States’ Best Management Practices 2000/2001 Field Audit Reports, a perfect score of 1.00 would indicate that practices exceed BMP requirements and improve the resource. Scores of 0.70 and up indicate field practices are meeting the BMP requirements for that specific harvest activity, and scores of 0.60 and up indicate minor departures from the BMP requirements with temporary impacts to soil and water resources. The compliance scores for all three timber sales indicate that BMP objectives are being met.

### Wyoming 2000/2001 BMP Audit Results

Wyoming BMP Criteria	Rednose Timber Sale
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	Application	Effectiveness
Planning	4.1	4.00
% compliance *	0.82	0.80
Harvesting, Thinning, Slash Treatment and Revegetation	4.0	4.00
% compliance *	0.80	0.80
Roads	4.1	4.20
% compliance *	0.82	0.84
Pesticides, Herbicides, Fertilizers and Chemicals	4.0	4.00
% compliance *	0.80	0.80
Fire Management	NA	NA
% compliance *	NA	NA
<b>Overall % compliance *</b>	<b>0.81</b>	<b>0.82</b>

\* A score of 1.00 indicates that practices exceed BMP requirements and improve the resource. Scores of 0.70 and up indicate field practices are meeting the BMP requirements, and scores of 0.60 and up indicate minor departures from the BMP requirements with temporary impacts to soil and water resources.

#### South Dakota 2000/2001 BMP Audit Results

South Dakota BMP Criteria	Crawford Timber Sale		Greenant Timber Sale	
	Application	Effectiveness	Application	Effectiveness
Streamside Management Zones	NA	NA	3.70	3.80
% compliance *	NA	NA	0.74	0.76
Harvesting, Slash Treatment and Site Preparation	3.90	4.30	3.90	4.10
% compliance *	0.79	0.86	0.79	0.83
Roads	3.90	3.80	3.90	4.00
% compliance *	0.78	0.76	0.77	0.80
Hazardous Substances and Pesticides	4.00	4.00	3.70	4.00
% compliance *	0.80	0.80	0.73	0.80
Winter Logging	4.00	4.10	4.00	4.00
% compliance *	0.80	0.82	0.80	0.80
<b>Overall % compliance *</b>	<b>0.79</b>	<b>0.80</b>	<b>0.77</b>	<b>0.80</b>

\* A score of 1.00 indicates that practices exceed BMP requirements and improve the resource. Scores of 0.70 and up indicate field practices are meeting the BMP requirements, and scores of 0.60 and up indicate minor departures from the BMP requirements with temporary impacts to soil and water resources.

## Monitoring Item 9: Vegetative Diversity –Snag Retention

**Objective: 211. In Ponderosa pine forested portions of a watershed, maintain an average of 2 hard snags per acre on south facing slopes and 4 hard snags per acre on north facing slopes, well dispersed across the watershed through the rotation. Calculate as a per acre average for the watershed; some acres may have no snags while others may exceed the average. In other forest types maintain an average of 6 hard snags per acre, well dispersed across the watershed. (Revised Amendment One)**

The Phase I Amendment revised Forest Plan Standard 2301. Snag density standards are now based on the timber type, snag height and diameter, aspect, and historic fire regime. If the desired snag height or diameter does not currently exist to meet the standard, the largest size class of snags will be retained. Snag monitoring is typically done where timber sales are planned.

Snag densities are influenced by two principal factors: proximity to community and vehicle accessibility. Many people prefer to cut standing snags for fuelwood. Unfortunately, the best standing snags are also prime habitat for cavity dependent wildlife, such as woodpeckers. To protect cavity dependent species habitat, the Forest currently has a prohibition on cutting standing dead trees (snags), except in designated areas. Project mitigation is included in areas with low snag numbers. Typically, these consist of leaving sufficient live tree replacements for future snags, road closures that reduce the likelihood of harvest for fuelwood, marking snags with either leave-tree paint or signs to prohibit cutting. All of these mitigation measures will increase snag numbers through time.

The Hell Canyon District monitored snag density in the Fossil Project area. The project is located along the forest/prairie ecotone, which has historically supported a more frequent, low intensity fire regime. Therefore, the lower snag density standard of two snags/acre is appropriate. Prior to the April 2000 storm, the snag density was 1.39 snags/acre. The storm damage substantially increased the number of snags in the project area. Surveys indicate an average of 2.1 snags/acre, which meets the revised standard. Numerous snags were either shorter or smaller in diameter than specified by the new standard. While not optimal for all cavity-nesting species, these snags do provide nesting and foraging habitat for a variety of species. Data indicated that there are an average of 4.6 snags/acre  $\geq 10''$  DBH but 6' to 25' tall. Overall there was a total of 11.0 snags/acre  $\geq 8''$  dbh and at least 6' tall. During field surveys, evidence of foraging activity by woodpeckers was evident on many of these snags regardless of diameter.

No snag density surveys were completed during FY2001 on the Mystic District. Future planning areas (Prairie, Placer, Cabin, and Deerfield) have been surveyed for snag densities prior to FY2001. Those surveys indicated that these areas are well below Forest Plan standards and guidelines with most snags in lower diameter classes and shorter height. However, these areas are showing increases in insect/disease outbreaks, which will increase snag densities for the short term. In addition, due to changes in firewood gathering (restriction on cutting of standing dead), there should be an increase in hard snag densities over time. It is also anticipated that during the analysis of these areas for timber sales, that current Forest Plan standards and guidelines for green tree retention will be met.

## Monitoring Item 10: Vegetative Diversity –Thermal Cover

**Objective 5.4-205: Provide thermal cover for elk, deer and winter turkey habitat on at least 20 percent of the forested portion of this management area.**

This objective applies only to Management Area (M.A.) 5.4 Big Game Winter Range. It encompasses 394,393 acres of the Forest. Thermal cover is defined as stands with crown cover 70 percent or greater, and the tallest 40 trees in the stand must be 40 feet or taller. This equates roughly to structural stages 3C, 4C, and 5. Only 80 percent of structural stage 3C was included as described in the Forest Plan FEIS (Revised Forest Plan FEIS, 1996, Appendix B – 13.). .

The amount of thermal cover in M.A. 5.4 was approximately six percent in 1995 and about ten percent in 2000 and 2001 prior to subtracting the burned acreage. Thermal cover was based upon queries of the structural stages from the RMRIS database.

<b>Management Area 5.4 Big Game Winter Range 394,393 Acres</b>	<b>Thermal Cover Acres</b>	<b>Percentage of Thermal Cover</b>
1995 RMRIS Database	25,738	6.5%
2000 RMRIS Database	40,218	10.2%
2001 RMRIS Database	40,284	10.2%
Less Burned Acres	35,824	9.1%

The Jasper Fire (2000) and the Rogers Shack Fire (2001) affected the quantity of thermal cover in Management Area 5.4. The West Hell Canyon and Elk Mountain II fires (2001) did not affect Management Area 5.4. Insect and disease outbreaks also affect stand condition and the quantity of thermal cover. See Monitoring Item 20 for information on insect and disease conditions.

<b>Fire</b>	<b>M.A. 5.4 Burned Acres/Percent</b>	<b>Thermal Cover (Acres)</b>		<b>Thermal Cover (Percent)</b>	
		<b>Pre-fire</b>	<b>Post-fire</b>	<b>Pre-fire</b>	<b>Post-fire</b>
<b>Jasper</b>	39,959 / 10%	3,703	135	9.3	<0.4
<b>Rogers Shack</b>	8,939 / 2.3%	1,114	222	12.5	2.5

## Monitoring Item 11: Down/Dead Woody Material

**Objective 212:** In conifer forested portions of a planning unit, provide at least once during a rotation (approx. 100 yrs.) an average of 5-10 tons per acre of down, dead woody material at least 3" in diameter, provided there is no conflict with fire or pest management objectives. In the shelterwood silvicultural system, accomplish this through commercial and pre-commercial treatments. Provide this tonnage no later than the removal cut (overstory removal) or a combination of removal cut and pre-commercial thinning of the established stands (thinning to be accomplished within 10 years of the removal cut).

Timber sales planned under the 1983 Forest Plan and ones planned under the 1997 Forest Plan were reviewed to determine the amount of coarse woody debris remaining after harvest. These timber sales were reviewed to meet the 1997 Forest Plan monitoring requirements. Coarse woody debris objectives were not included in the 1983 Plan.

The Jasper Fire (August 2000) significantly affected these timber sale units. Timber sale contracts were modified to include more burned areas, thus leaving some green trees in the unit. Conventional and whole tree harvest methods were used.

In the timber sales Dumbuk, Limestone, Lemming, Crawford and Uncle, the units sampled had been harvested and the area had burned. Ten 100-foot transects were sampled in each unit. Each transect was separated by 100 feet. A random starting point direction was used for each transect.

Sound logs three inches and greater (created by timber activities and resulting from natural drop) were recorded along transects. The information collected was compared to the chart provided by Russ Graham (Rocky Mountain Research Station) to calculate the estimate of down woody material per acre.

District	Sale	Cutting Unit	Ton/Acre
Hell Canyon	Crawford	A	3.6
Hell Canyon	Crawford	B	4.6
Mystic	Uncle	F	2.3
Mystic	Uncle	G	3.8
Hell Canyon	Dumbuk	C	0.4
Hell Canyon	Dumbuk	D	2.9
Mystic	Lemming	E	4.5
Mystic	Lemming	H	6.5
Hell Canyon	Limestone	I	1.3



**Crawford Timber Sale, Cutting Unit B**

**Coarse Woody Debris Sampling, Transect #5, October 2, 2001**

Transect information provided an estimate of 0.8 tons per acre of coarse woody debris that was greater than three inches in diameter.



**Dumbuk Timber Sale, Cutting Unit C**

**Coarse Woody Debris Sampling, Transect # 7, October 3, 2001.**

No coarse woody debris greater than three inches in diameter was found in this transect.





**Lemming Timber Sale, Cutting Unit E**  
**Coarse Woody Debris Sampling, Transect #2, October 11, 2001**

Transect information provided an estimate of 16.6 tons per acre of coarse woody debris greater than three inches in diameter.



**Uncle Timber Sale, Cutting Unit G**  
**Coarse Woody Debris Sampling, Transect #8, October 11, 2001**

Transect information provided an estimate of 3.8 tons per acre of coarse woody debris greater than three inches in diameter.



**Limestone Timber Sale, Cutting Unit I  
Coarse Woody Debris Sampling, Transect #3, October 12, 2001**

Transect information provided an estimate of 4.0 tons per acre of coarse woody debris greater than three inches in diameter.



## Monitoring Item 13: Regeneration

Surveys for natural regeneration were done on 15,641 acres in FY 2001. Out of the total acres surveyed, 13,236 acres were certified for regeneration. The remaining 2,405 acres will be surveyed in FY2003 to determine certification.

Surveys (first-year, third-year and fifth-year) are conducted before certification is established; certification may be established at any point in the three surveys that regeneration is verified.

Source of data is from the FY2001 SILVA99 Report for the Black Hills N.F.



**Regeneration.**



## Monitoring Item 14: Timber Production

**Objectives:**

**303. Offer the following allowable sale quantity (ASQ) of timber on suitable and available timberlands in the next decade:**

ALLOWABLE SALE QUANTITY FROM SUITABLE LANDS: (DECADE TOTAL)	
<b>SAWTIMBER</b>	
Million Cubic Feet	181
(Million) Board Feet	838
<b>ROUNDWOOD</b>	
Million Cubic Feet	21
(Million) Board Feet	N/A
<b>TOTAL</b>	
Million Cubic Feet	202
(Million) Board Feet	838

**304. On lands not identified as suitable and available for timber harvest, timber volume may be offered as a by-product of other vegetation management objectives. This volume would be offered in addition to the ASQ.**

**305. The ASQ in Objective 303 includes the following non-interchangeable component in the Norbeck Wildlife Preserve. This portion of the ASQ is not interchangeable with the volume outside the Preserve.**

ALLOWABLE SALE QUANTITY FROM SUITABLE LANDS IN NORBECK WILDLIFE PRESERVE: (DECADE TOTAL)	
<b>SAWTIMBER</b>	
Million Cubic Feet	5.4
(Million) Board Feet	27.0
<b>ROUNDWOOD</b>	
Million Cubic Feet	1.0
(Million) Board Feet	N/A
<b>TOTAL</b>	
Million Cubic Feet	6.4
(Million) Board Feet	27.0

The Black Hills National Forest timber offer in FY 2001 was 128,404 ccf. This includes sawtimber (regular program and salvage sales), 56,964 ccf of modified contract volume from active timber sales in Jasper fire area, products other than logs (POL), small commercial sales and personal use permits (firewood).

The Black Hills National Forest timber harvest volume in FY 2001 was 157,509 ccf of sawtimber, products other than logs, and 3,848 of personal use firewood for a total of 161,357 ccf.

The allowable sale quantity in the Forest Plan is based on the total during the decade from fiscal year 1997 to fiscal year 2006. (Record of Decision, page ROD-35). The 10-year allowable sale quantity

expressed on an average annual basis is displayed in the following table:

Forest Plan	Million Cubic Feet (MMCF)	Hundred Cubic Feet (ccf)
Sawtimber	18.1	181,000
POL	2.1	21,000
<b>Total ASQ</b>	<b>20.2</b>	<b>202,000</b>

The following table compares the total acres for both 1998 and 1999 project decisions with the estimates for the decade as shown in the 1996 Final Environmental Impact Statement.

	DECADE TOTAL ACRES From Alt.G in the FEIS (page II-36)	PROJECT DECISION HARVEST ACRES			
		FY1998	FY1999	FY2000	FY2001
<b>TOTAL</b>	255,000	47,710	32,773	-0-	4,462

**Note: There were no planned project signed decisions for FY2000 and FY2001. The FY2001 acreage was from the Jasper Fire Area Recovery EIS.**

The October 1999 Chief's decision on appeals of the 1997 Revised Forest Plan determined that changes to forest plan direction for protection of species viability were needed before issuing further project decisions. The Black Hills National Forest Phase I Amendment to the 1997 Forest Plan per Interim Direction was signed May 18, 2001.



On April 6, 2001, the Jasper Fire Area Recovery Environmental Impact Statement was signed covering 4,462 acres for 23.7 million board feet. The Jasper fire area was 83,508 acres. There were 32,087 acres of active timber sales (within sale area boundaries) within the fire area. Within the timber sale boundaries, there were 12,895 acres of harvest units within the fire area. 1,886 acres of harvest units were

added to the timber sale contracts after the fire. Therefore, 14,781 acres were harvested from within the Jasper fire area.

Five active timber sales (Crawford, Crooked Uncle, Dumbuk, Lemming Limestone) were affected by the Jasper fire. Through timber sale contract modifications, included timber to be harvested resulted in some burned timber removal. A total of 76,988 ccf of burned timber was harvested from the five timber sales. A total of 3,873 ccf of burned timber was harvested from hazard sales, primarily along roadsides.



**A low intensity burn area within Jasper fire. This was not a salvage area.**



**Salvage logging within Jasper fire area.**

The Rocky Mountain Research Station and Colorado State University in cooperation with the Black Hills National Forest are conducting resource-monitoring activities on the Jasper Fire Area. Their first monitoring report on the Jasper fire area should be completed in 2002.

## Monitoring Item 17: Forage Utilization

**Objective 301. Produce on a sustained basis and make available up to 233 million pounds of forage for livestock and wildlife use each year (weather permitting). The location and amount of forage produced under the forest canopy will vary with the density of the overstory. This may necessitate changes in where and how both livestock and wildlife grazing takes place on a local basis over the rotation of a stand of timber.**

**a. Livestock use will be up to 127 million pounds of forage per year or approximately 128,000 AUMs.**

**b. Wildlife use will be up to 106 million pounds of forage per year or approximate population levels of 70,000 deer and 4,500 elk or other combinations that use the same amount of forage.**

This objective relates to annual projected livestock forage use. Phase I Amendment to the 1997 Land and Resource Management Plan changed Guidelines 2505 and 2506 to standards. These two standards relate to proper use or residual levels in riparian and upland Forest rangeland settings.

Following direction in Standard 2506, districts are developing new Allotment Management Plans (AMPs) for allotments that have recently approved environmental assessments. The districts issue Annual Operating Instructions (AOIs) on an annual basis for every allotment on the Forest. Site-specific vegetation utilization or residual guidelines are included in the AMPs and AOIs.

In fiscal year 2001, actual grazing use on the Forest was 107,553 animal unit months (AUMs). This is approximately 84% of the annual projected Forest grazing capacity of 128,000 AUMs available for livestock utilization identified in the 1997 Forest Plan. One of the major reasons for not meeting Forest Plan AUMs was the loss of forage in eight allotments because of wildland fires that occurred in 2000 and 2001. Phase I Amendment does not reduce the grazing capacity for livestock use. Districts monitored and evaluated approximately 326,531 acres of suitable rangeland to determine forage utilization. This assessment represents approximately 27.5 percent of the suitable acres available for livestock grazing Forest-wide. Following is a breakdown of acres and grazing allotments monitored by Ranger District:

ITEMS MONITORED	HELL CANYON	MYSTIC	NORTHERN HILLS	BEARLODGE
<b>Acres Monitored and Evaluated for Livestock Forage Utilization</b>	195,274	115,757	10,000	5,500
<b>Grazing Allotments Evaluated</b>	9	20	6	12

Districts collected forage utilization data by ocular estimate on key areas throughout the allotments. Estimations of forage utilized for the allotments were obtained through extrapolation. Both Forest Service range staff and livestock permittees performed monitoring. Rangeland permittees attended monitoring training sessions instructed by district range staffs. The new Black Hills range guide was used in the training sessions. Forage utilization on the allotments surveyed was within forest plan standards.

The use on a few areas of some of the allotments did exceed proper allowable use guidelines, however these areas represent a small percentage of the overall utilization on the forest. Incorporation of AMPs for each allotment that was surveyed helped to inform the permittees of the proper use of the allotment.

**Findings and conclusions relevant to the evaluation:**

1. While forage availability and resultant use may vary annually depending on climatic conditions, wildland fires, non-use and other resource reductions of AUMs, actual livestock forage use in FY2001 fell within projected forage availability documented in the Forest Plan.
2. Measured forage utilization exceeded proper allowable use guidelines on a small amount of areas within allotments surveyed. Forage utilization throughout all the allotments surveyed was within forest plan standards and allotment management objectives.
3. The forest needs to promote more permittee assistance in monitoring grazing allotments with training sessions and using the Black Hills range guide.



## Monitoring Item 18a: Sensitive Species (Plants)

**Objective 221: Conserve or enhance habitat for sensitive species and species of special interest (management indicator species) listed in Chapter Two.**

Sensitive plant monitoring for 2001 followed the monitoring design that can be found in the Phase I Amendment to the Black Hills National Forest Environmental Analysis (Appendix F). Additional background information to the monitoring design is included in that appendix.

Monitoring data was gathered between early spring (late April) and early fall (late October) during optimal plant identification timeframes.

### **Monitoring Design for *Viola selkirkii* (Great Spurred Violet):**

1. On an annual basis, monitor presence/absence of four largest sub-populations at “Violet Valley”. If one or more of the four largest sub-populations at “Violet Valley” are not present, document the reason (i.e. drought, elk, noxious weeds) if can be determined. Select two other population sites in other drainages to monitor presence/absence to determine if other populations are being affected in the same way.

**On May 31 2001, the four largest subpopulations at “Violet Valley” (Hell Canyon Ranger District) were monitored for presence/absence. All sub-populations were present.**

2. If severe drought occurs, need to monitor for presence/absence at known sites.

**FY2001 was not a drought year.**

3. Monitor for presence/absence at known sites a minimum of 1 out of 5 years (all sites need to be monitored in the same year).

**Baseline data was collected on known sites during 2000 and 2001.**



*Viola selkirkii* at “Violet Valley”.

Photo taken by Darcie J. Bacon, June 5, 2001.



*Viola selkirkii* habitat at “Violet Valley”.  
Photo taken by Darcie J. Bacon, June 5, 2001.

### **Monitoring Design for *Adiantum capillus-veneris* (Southern Maidenhair Fern):**

1. Monitor presence/absence of patches along stream transects on an annual basis. If the number of patches decline by 10% or more, consult on a more rigorous design with the Rocky Mountain Research Station.

**On May 5 2001, *Adiantum capillus-veneris* (Maiden hair fern) was monitored at Cascade Springs (Hell Canyon Ranger District). Presence/absence was monitored at 42 patches previously located in 2000. All patches were present. Six additional small patches were found, increasing the number of patches from 42 in 2000 to 48 in 2001.**

**On June 2, 2001, *Adiantum capillus-veneris* was monitored at Cascade Falls (Hell Canyon Ranger District). Presence/absence was monitored at 13 patches previously located in 2000. All patches were present. Five additional patches were found, increasing the number of patches from 13 in 2000 to 18 in 2001.**

Recreation nick points -- Document any “nick points” that actually extend into populations.

**Three recreation “nick points” at Cascade Springs were monitored and were unchanged from 2000. On September 10 2001, a fence was placed along an existing developed trail to discourage use of 2 “nick points”, and to limit access to the plants.**

2. Monitoring of water level is by USGS at the Gauging Station (located at the lower end of Cascade Springs – FS). Use this information to monitor water levels at the site.

**It was discovered (2001) that USGS has discontinued monitoring stream flow at the Cascade Springs gauging station.**

3. Noxious weeds – document any weeds and erosion patches. Take active control and restoration measures.

***Cirsium arvense* (Canada thistle) is present at Cascade Springs. No *Lythrum salicaria* (purple loosestrife) was documented at the site.**

***Cirsium arvense* (Canada thistle) is present at Cascade Falls. No *Lythrum salicaria* (purple loosestrife) was found.**

**One ledge appeared to have recently slumped into the stream, where the bank was undercut. No recreation use is evident in this area.**

**A natural flood event (from an intense thunderstorm occurring in early July 2001) resulted in relocation of a portion (approximately 25-30 feet in length) of the channel above the current falls area. A portion of the old streambed is now exposed and a new channel was created during this event. This disturbance did not directly affect any known *Adiantum capillus-veneris* patches.**



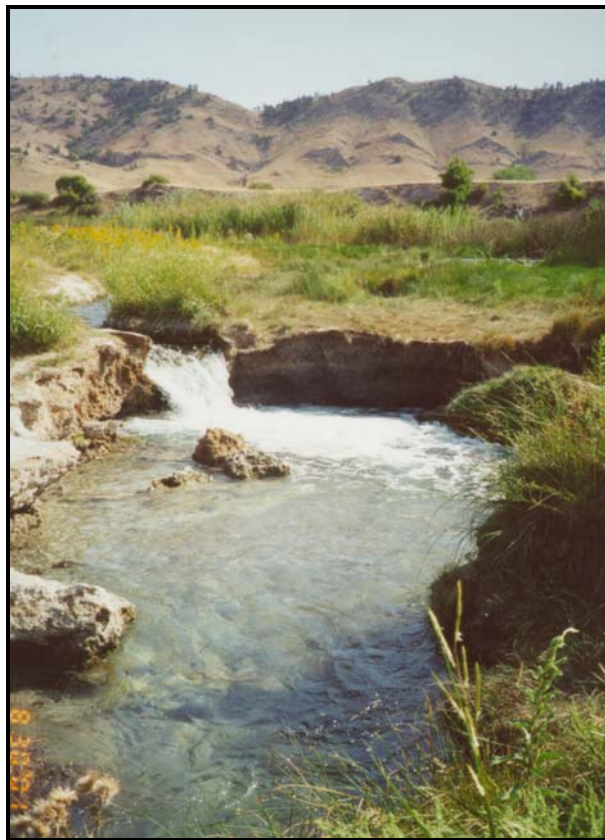
***Adiantum capillus-veneris* at Cascade Springs.  
Photo taken by Darcie J. Bacon, June 4, 2001.**





*Adiantum capillus-veneris* at Cascade Falls.

Photo taken by Darcie J. Bacon, June 4, 2001.



Channel relocation from natural flooding event at Cascade Falls 2001.

Photo taken by Darcie J. Bacon, August 30, 2001.

## Monitoring Design for *Epipactis gigantea* (Giant Helleborine):

1. Monitor presence/absence of patches along stream transects on an annual basis. If the number of patches decline by 10% or more, consult on a more rigorous design with the Rocky Mountain Research Station.

**On May 5 2001, *Epipactis gigantea* (stream orchid) was monitored at Cascade Springs (Hell Canyon Ranger District). Presence/absence was monitored at 38 patches previously located in 2000. Thirty-seven patches were present, and one was absent. Three additional patches of orchid were found, increasing the number of patches from 38 in 2000 to 40 in 2001.**

Recreation nick points -- Document any “nick points” that actually extend into populations.

**Three recreation “nick points” at Cascade Springs were monitored and were unchanged from 2000. On September 10, 2001, a fence was placed along an existing developed trail to discourage use of 2 “nick points”, and to limit access to the plants.**

2. Monitoring of water level is by USGS at the Gauging Station (located at the lower end of Cascade Springs – FS). Use this information to monitor water levels at the site.

**It was discovered (2001) that USGS has discontinued monitoring stream flow at the Cascade Springs gauging station.**

3. Noxious weeds – document any weeds and erosion patches. Take active control and restoration measures.

***Cirsium arvense* (Canada thistle) is present at Cascade Springs. No *Lythrum salicaria* (purple loosestrife) was documented at the site.**

**One ledge appeared to have recently slumped into the stream, where the bank was undercut. No recreation use is evident in this area.**



*Epipactis gigantea* and *Adiantum capillus veneris* at Cascade Springs. Photo taken by Darcie J. Bacon, June 4, 2001.





*Epipactis gigantea* at Cascade Springs.  
Photo taken by Darcie J. Bacon, June 4, 2001.

### **Monitoring Design for Salix serissima (Autumn Willow):**

On an annual basis:

1. GPS ends of two sites within the Botanical Area.

**On June 19, 2001, *Salix serissima* was monitored at McIntosh Fen Botanical Area (Mystic Ranger District). Additional plants were located, increasing the number of known individuals and extending site boundaries. GPS points were taken to delineate the new boundaries. This extension essentially connects Site A and Site B (2000 data) by scattered individuals.**

2. Count individuals during the blooming period. If the number of individuals declines by more than 10%, consult on a more rigorous design with the Rocky Mountain Research Station.

**Site A had 373 individuals in 2001 (332 were recorded in 2000) and Site B had 80 individuals (25 were recorded in 2000).**

Install a minimum of two Piezometer(s) and take measurements annually to note any changes in water level.

**Two piezometers were installed in September 2001. Both were installed at Site A, one at the southern boundary and one at the northern boundary. Water levels were monitored on September 25, 2001.**

3. Noxious weeds – document any weeds. Take active control measures.

***Cirsium arvense* (Canada thistle) was found on immediately adjacent drier sites, but was not located in the wet sites occupied by *Salix serissima*. No *Lythrum salicaria* (purple loosestrife) was documented to occur at the monitored sites.**



*Salix serissima* (male), at McIntosh Fen Botanical Area.  
Photo taken 6/19/01 by Darcie J. Bacon.



*Salix serissima* (female), at McIntosh Fen Botanical Area.  
Photo taken by Darcie J. Bacon, June 19, 2001.



*Salix serissima* habitat at McIntosh Fen Botanical Area.  
Photo taken by Reed Crook, June 19, 2001.



**Monitoring Design for *Lycopodium complanatum* (Trailing Clubmoss):**

Spatial – GPS a line around extent of the Sand Creek population. Return to and document the Strawberry site to determine if on Forest Service administered lands. If on Forest Service, gather additional baseline data and GPS spatial extent. Monitor presence/absence on an annual basis, along with documenting spatial extent. If the extent declines by 10% or more, consult on a more rigorous design with the Rocky Mountain Research Station.

**On July 11, 2001, *Lycopodium complanatum* was monitored at Sand Creek (Bearlodge Ranger District). A GPS system was used to document the perimeter of the population.**

**On October 16, 2001, the population at Strawberry Creek was relocated and GPS data was collected. The data documents that the site is on private property, therefore, no further monitoring will take place by the Forest.**



*Lycopodium complanatum*, at Sand Creek.

Photo taken by Darcie J. Bacon, July 11, 2001.



*Lycopodium complanatum* habitat at Sand Creek.

Photo taken by Darcie J. Bacon, July 11, 2001.

### **Monitoring Design for *Platanthera orbiculata* (Large Roundleaf Orchid):**

1. Annually monitor presence/absence of known site locations in Bearlodge proper (Bearlodge Ranger District): PLOR4-2 and -3 (continue to attempt to relocate PLOR4-1)

**The PLOR4-2 population was monitored June 15, and PLOR4-3 population was monitored June 27, 2001. Presence/absence was monitored at both sites. Both populations were present.**

**The PLOR4-1 population was relocated on June 28 2001. A Black Hills National Forest Rare Plant Survey/Monitoring Form was completed, GPS data was collected and photographs were taken.**

Annually monitor presence/absence Black Elk Wilderness locations (Hell Canyon Ranger District): PLOR4-23, 24 and 25.

**On June 25, 2001, these Black Elk Wilderness sites were monitored for presence/absence. All populations were present.**

2. Annually monitor presence/absence of three key monitoring population sites in the northwestern Black Hills (Northern Hills Ranger District): PLOR-6, -12, -19. If any of the key monitoring-population sites are not present, document reason if it can be determined (i.e. drought, fire, noxious weeds). Additional sites will be assessed for suitability to serve as a key monitoring site, if PLOR-6, -12 or -19 are not present.

**On June 26, 2001, the populations of PLOR4-12 and PLOR4-19 were monitored for presence/absence. On June 28, 2001, PLOR4-6 was monitored for presence/absence. Monitoring revealed that the populations at these key sites were present.**

3. If drought occurs, need to monitor for presence/absence at known sites and count the number of individuals present.

**FY2001 was not a drought year.**



***Platanthera orbiculata* at site PLOR4-1, Bear Lodge.  
Photo taken by Reed Crook June 28, 2001.**



***Platanthera orbiculata* habitat in the Black Elk Wilderness.  
Photo taken by Reed Crook June 25, 2001.**

**Monitoring Design for *Equisetum scirpoides* (Dwarf Scouring Rush):**

A presence/absence and estimate of aerial extent of three key populations will be used to monitor this plant species at key locations a minimum of once every five years. If purple loosestrife is documented to occur at any of the key locations, or the population is absent (i.e. due to flooding, drought, fire), then need to select another of the known populations to serve as a key location for monitoring. Purple loosestrife located at any key location will also serve as a “trigger” to check other known populations for this noxious weed.

Key monitoring locations of *E. scirpoides*:

1. EQSC-2 (Northern Hills Ranger District).

**On June 20 2001, *Equisetum scirpoides* at site EQSC-2 was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur.**

2. EQSC-10 (Castle Creek – Mystic Ranger District)

**On July 23 2001, *Equisetum scirpoides* at site EQSC-10 was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur.**

3. EQSC-26 (Fawn Creek – Bearlodge Ranger District)

**On June 27 2001, *Equisetum scirpoides* at site EQSC-26 was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur.**





*Equisetum scirpoides*, Northern Hills.  
Photo taken by Darcie J. Bacon, June 20, 2001.



*Equisetum scirpoides* habitat at Fawn Creek.  
Photo taken by Reed Crook, June 27, 2001.



## Monitoring Design for *Sanguinaria canadensis* (Bloodroot):

1. Noxious weeds – document any weeds. Take active control measures, such as those identified above.

Key Monitoring Sites for *S. canadensis*:

1. 704 (False Bottom site)/Site # 99004 (Northern Hills Ranger District)

**On May 5 and 7, 2001, *Sanguinaria canadensis* was monitored for presence/absence at False Bottom. GPS points and lines were collected of the entire site, including 12 subpopulations (recording the perimeter of this site was not feasible, due to the size). *Tanacetum vulgare* (tansy) and *Cynoglossum officinale* (hound's tongue) were present in the area.**

2. 803 (Lost Gulch-main population)/Site #'s 99008 & 99007(Northern Hills Ranger District)

**On May 3, 2001, *Sanguinaria canadensis* was monitored for presence/absence at Lost Gulch. This population was present and extensive, a GPS perimeter wasn't feasible, and therefore, line data was collected along the length of the population, with a point taken at each end. No noxious weeds were observed at the time that data was collected at the site in 2001(monitoring completed early in growing season).**

3. 807 (Runkle)/ Site #'s 94018 & 94011(Northern Hills Ranger District)

**On May 2, 2001, *Sanguinaria canadensis* was monitored for presence/absence at the Runkle site. A GPS perimeter was not feasible at this site, as it occurred on both sides of a creek and under heavy *Crataegus chrysoarpa* (northern hawthorn) cover. GPS line and point data was collected along the entire length of the population. *Tanacetum vulgare* (tansy) was extensive in this area.**



*Sanguinaria canadensis* (middle of photo and in flower) at key monitoring Site #1(False Bottom).

Photo taken by Darcie J. Bacon, May 9, 2001





*Sanguinaria canadensis* at key monitoring Site #2 (Lost Gulch).

Photo taken by Reed Crook, May 3, 2001



*Sanguinaria canadensis* habitat at key monitoring Site #3 (Runkle).

Photo taken by Darcie J. Bacon, May 2, 2001



## Monitoring Design for: *Scirpus cyperinus* (Woolgrass, Woolrush)

1. Monitor key monitoring sites for presence/absence a minimum of once every five years.
2. If purple loosestrife is documented to occur in or adjacent to any of the key locations, or if absence of a key location is documented, then need to select another key population for monitoring purposes. Purple loosestrife located at any key location will also serve as a “trigger” to check other known populations for this noxious weed. Take active treatment measures if purple loosestrife is located.

Key monitoring sites for *S. cyperinus*:

1. SCCY-14 East end (area that contains 300+ clumps – Bearlodge Ranger District)

**On August 29, 2001, the *Scirpus cyperinus* site SCCY-14 was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur at the time of monitoring.**

2. SCCY-18 (Cook Lake Site - Bearlodge Ranger District)

**On August 30, 2001, the *Scirpus cyperinus* site SCCY-18 was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur at the time of monitoring.**

3. SCCY- 36 (Lucky Gulch – Bearlodge Ranger District)

**On August 29, 2001, the *Scirpus cyperinus* site SCCY-36 was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur at the time of monitoring.**



*Scirpus cyperinus* at site SCCY-14.

Photo taken by Darcie J. Bacon, August 30, 2001.



*Scirpus cyperinus* at site SCCY-36.

Photo taken by Reed Crook, August 29, 2001.



*Scirpus cyperinus* at site SCCY-18.

Photo taken by Darcie J. Bacon, August 30, 2001.



### **Monitoring Design for *Muhlenbergia glomerata* (Marsh Muhly):**

1. Monitor presence/absence of key populations once every five years. If one of the key populations is absent, document the reason for the absence if it can be determined (i.e. drought, flood, fire). Select another known or newly located site to serve as a key monitoring site.
2. If purple loosestrife is documented to occur at any of the key locations for monitoring, and the persistence of that population is lost, then need to select another key monitoring site. Purple loosestrife located at any key-monitoring site will also serve as a “trigger” to check other known populations for this noxious weed. Take active treatment measures if purple loosestrife is located.

Key monitoring sites for *M. glomerata*:

MUGL-9 (Corral Creek - Northern Hills Ranger District)

**On August 30, 2001, *Muhlenbergia glomerata* at site MUGL-9 was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur at the time of monitoring.**

MUGL-1 (McIntosh Fen - Mystic Ranger District)

**On September 25, 2001, *Muhlenbergia glomerata* at site MUGL-1 was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur at the time of monitoring.**

MUGL-4A (Planting Spring - Bearlodge Ranger District)

**On August 29, 2001, *Muhlenbergia glomerata* at site MUGL-4A was monitored for presence/absence. The population was present. No *Lythrum salicaria* (purple loosestrife) was documented to occur at the time of monitoring.**



***Muhlenbergia glomerata* at site MUGL-4A.**

**Photo taken by Reed Crook- 2000.**

*Carex alopecoidea* (Foxtail Sedge)

Based on confirmation (2000) of the identity of *Carex alopecoidea* and that it does occur on lands administered by the Black Hills National Forest, baseline data will be gathered on this species in 2001. An estimate of aerial extent, numbers of population patches and other additional baseline data will be gathered. Consultation on monitoring design will occur with the Rocky Mountain Research Station in fiscal year 2002, and will use data collected on this species.

**Baseline data were collected at 13 known *Carex alopecoidea* sites during the 2001 field season. Sites ranged from one to 98 individuals. The data were documented on Black Hills National Forest Rare Plant Survey/Monitoring Forms. GPS data were recorded at clusters of individuals at each site using lines and points. Voucher specimens were collected and photographs were taken.**



*Carex alopecoidea*, fruiting culm with leaves at site CAAL-7, Northern Hills District. Photo taken by Reed Crook, August 9, 2001.

## Monitoring Item 18b-i: Sensitive Species- Animals

**Objective: Conserve or enhance habitat for sensitive species and species of special interest (management indicator species) listed in Chapter Two.**

### 18b. Amphibians/Reptiles

Four northern leopard frog-breeding sites were selected for monitoring on the Hell Canyon District in FY2001. One of the four sites was active in FY2001. Tadpoles and young frogs were observed and the presence of tiger salamanders (neotentic) was noted. The lack of frogs at the other three sites may have been due to reduced water levels in the ponds. The district will select additional sites in 2002 to monitor amphibians and reptiles.

The Mystic District monitored seven aquatic sites and set up an additional 13 future monitoring areas. The district documented adult and/or juvenile leopard frogs at two locations, and painted turtles at one site.

Bearlodge District conducted thirty-one surveys for amphibians. They detected northern leopard frogs and/or tree frogs at all survey sites except one.

One leopard frog site was re-surveyed in FY2001 on the Northern Hills District. This sinkhole has contained fair numbers of leopard frogs in the past. However, sinkhole reconfiguration in 2001 destroyed much of the pond and no leopard frogs were observed.

Three Black Hills red-bellied snakes were recorded at the beginning of the fiscal year near the town of Rochford (Mystic District). One of the snakes was dead. One Black Hills red-bellied snake was observed on the Bearlodge District the week prior to the start of FY2001.

### 18c. Bats

The fringed-tailed myotis and the Townsend's big-eared bat are two species known to hibernate in caves and abandoned mines on the Black Hills National Forest. The Black Hills National Forest coordinates winter bat monitoring with Jewel Cave National Park and cave and mine surveys with the South Dakota Game, Fish and Parks. This information is used in current and future planning efforts.

In FY2001, the Hell Canyon District continued hibernation counts at one cave (gated in 1995). The bat numbers were down slightly, perhaps due to the Jasper Fire. FY 2002 surveys are scheduled for January 2002. Future hibernation surveys will likely be done every other year to reduce disturbance potential. This will be coordinated with Jewel Cave National Monument bat hibernation surveys.

Species	Number Surveyed 12/09/1999	Number Surveyed 01/20/2001
Townsend's big-eared bat	300	218
Western small-footed bat	12	9
Big brown bat	5	7

On the Mystic District, three additional caves were located in the Jasper Fire Area. Initial surveys

indicated that one cave might have potential as a maternity/hibernation roost, while the other two may provide night roosting habitat. Townsend's big-eared bats were later found roosting at two of the caves. In addition, one cave that was relocated after the fire indicated that this cave was a hibernation roost. Bat presence was noted during November 2000. This cave was gated to protect the hibernation roost during the winter. In addition, an abandoned mine near Hill City was gated to protect hibernating bats. These hibernation caves and the mine will be monitored in January/February and during maternity/nursery roost season in the summer. In addition, brush was removed from in front of Runkle Cave to facilitate bat flight.

## **18d - Birds**

### **Pygmy Nuthatch**

Three pygmy nuthatches were detected during first-year surveys conducted by the Rocky Mountain Bird Observatory. Two were found in north slope ponderosa pine habitat and one was located in shrublands habitat. Point transects may be insufficient to monitor this species in the Forest due to its scarcity and localized distribution. Only one previous observance of a pygmy nuthatch has been recorded on the Forest as part of the national breeding bird surveys.

### **Lewis's, Black-backed and Three-toed Woodpeckers**

The Forest is working with the Rocky Mountain Research Station and the University of Wyoming on a study of black-backed and three-toed woodpeckers to: (1) determine distribution and abundance; (2) describe the nesting and foraging habitat; (3) evaluate the effects of natural and human caused disturbances; and (4) validate the ARC-HABCAP model. The study was initiated in FY2000. Preliminary data suggested that the habitat capability model might need to be revised specific to the Black Hills. Numbers of individuals per Picidae species appear to be similar in 2000 and 2001. The most noticeable difference was the reduced number of downy and hairy woodpeckers and northern flickers found in the second year. The three redheaded woodpeckers found in 2001 were located in the Jasper Fire area. A final report is expected in early 2002.

Three Lewis's woodpeckers were recorded from only two locations in the Black Hills during the first year of the Rocky Mountain Bird Observatory's (RMBO) monitoring. The Jasper burn area and other recently burned areas may provide suitable habitat that will allow this species to increase. Twenty-four black-backed woodpeckers were found in eight habitats during FY2001. Black-backed woodpeckers were seen foraging in storm-damaged areas in the Fossil Project area (Hell Canyon District) during snag density surveys. During RMBO monitoring, a greater number of three-toed woodpeckers were observed in white spruce habitat than other Forest habitats, but sufficient numbers were not observed to estimate density in any habitat.

In 2001, Mystic and Hell Canyon Districts initiated a cooperative five-year study in the Jasper Fire area to monitor the effects of salvage logging on black-backed and Lewis's woodpeckers. Approximately six nest sites of the black-backed woodpecker were found in suitable nesting habitat to serve as study areas. There was a high incidence of nest site competition, most notably by the redheaded woodpecker. Nest predation and fledgling mortality of unknown causes decreased nesting/fledgling success for this species. There were no Lewis's woodpeckers noted during the year 2001 in the study areas.

### **Osprey**

On the Mystic District, a pair of osprey was attempting to construct a nest on a power pole top assembly for a 69,000-volt transmission line near the Hill City sewer lagoons. This electrical structure was to be replaced by Black Hills Power and Light during the summer. The existing structure was not conducive for nest construction, and could have resulted in electrocution. Black Hills Power and Light donated equipment, materials, and person power and erected two nest platforms in the Hill City area. One



platform was erected in Major Lake Park and the other was erected near the sewer lagoons. Although the osprey showed immediate interest (engaging in nest construction activities) in the nesting platform adjacent to the sewer lagoons, it was not apparent that there was nesting success. The pair utilized the platform during the nesting period, but no fledglings were observed. A mortality associated with the 1880 Train in Hill City was identified as a juvenile osprey, but it is unknown whether the bird was associated with the nesting platform. These platforms will be monitored in the future.

Adults were present at the nest on the Northern Hills District, but reproductive success was not determined.

### **18e. Regal Fritillary Butterfly**

The Black Hills is on the periphery of the regal fritillary butterfly's range. Populations of this species may be difficult to assess and/or monitor. Currently the South Dakota Heritage Database tracks all confirmed sightings of this species within the Black Hills National Forest. The Mystic District surveyed eight sites. They identified sixteen species of butterflies. No regal fritillary butterflies were collected. No regal fritillary butterflies were found on the Northern Hills District either. One potential area was identified, but positive identification of the fritillary was not confirmed.

### **18f. Management Indicator Species, Fish.** See Monitoring Item 26.

### **18g. Marten**

On the Hell Canyon District, track plate box surveys were done in the Castle Creek headwaters and Beaver Creek (near the campground). No tracks were found. Surveys conducted the previous year located marten only in the Northern Hills District. Marten surveys will be conducted on the Northern Hills District in FY2002.

### **18h. Land Snails**

The Bearlodge District conducted surveys for land snails, including Copper's Rocky Mountain snail (*Oreohelix strigosa cooper*) and Cockerell's Striate Disc, at ten reference sites identified by Frest. Snails were detected at all but one site. *Oreohelix striga* were identified at three sites and the populations ranged from 10-20 individuals to hundreds.

As part of the Jasper Fire monitoring, five snail sites were visited to determine snail presence. Two of the sites had undergone only a low intensity burn, with some of the moss and shade provided by vegetation still intact after the fire. Three of the sites had undergone a high intensity burn, with 80% of the ground vegetation and duff layer consumed and the overstory killed by the fire. Since all sites were adjacent to roads and in drainages, adverse effects from roadside clearing of hazard trees and a storm event (flooding) further impacted four of these sites. No live snails were found at any of the sites. All of the snail locations are on steep cliff areas where livestock cannot impact these areas. Plans to fence these five sites were dropped due to potential high water flows that would destroy the fence.

### **18i. Northern Goshawk**

The Bearlodge District monitored 14 northern goshawk territories, including six new territories, in FY2001. Adult goshawks were present at two territories, but their reproductive status was undetermined.

The Hell Canyon District monitored six historic goshawk nests outside of the Jasper Fire burned area in FY2001. None of those nests was active in 2001. Nine historic and/or active nests were lost in 2000 from the fire. One new, presumed active nest (due to female defensive behavior display) was located on

the district. This area will be surveyed again in 2002.

The Mystic District monitored 13 territories in FY2001. Four nests with young were found and two other territories indicated goshawk presence (adults observed).

The Northern Hills District monitored 12 goshawk territories and two nests were active. Follow-up surveys discovered that both nests had been destroyed, possibly by human intervention. There was no sign of storm damage in adjacent areas. Signs of human presence, such as pieces of rope, were found beneath one of these nests. Forty-six territories were monitored and nine were active (20%). Goshawk nesting activity fluctuates annually and may be dependent on weather and other random or variable events.

Additional goshawk sightings of individual or paired birds occurred incidental to the first year of bird monitoring undertaken by the Rocky Mountain Bird Observatory (*Monitoring the Birds of the Black Hills: Year 1; Final Report, December 2001*).

## Monitoring Item 20a: Pine Beetle Susceptibility

### Objectives:

**228. Within planning units (diversity unit, watershed and/or landscape association) where outbreaks of mountain pine beetle could threaten management objectives for ponderosa pine (especially where timber production is desired), maintain or reduce acreage of ponderosa pine stands that are in medium or high risk condition for infestation.**

**229. Using analyses of insect and disease populations, determine where suppression strategies are needed to meet management objectives and minimize value loss of tree vegetation affected by outbreaks of insect and disease pests.**

Forest Health Management staff conducted surveys on the Black Hills National Forest to assess insect and disease problems.

Stands in the Black Hills can be hazard rated for mountain pine beetle. The most current and well-tested system is based on Schmid et al. 1994. In this system, each stand is rated based on average diameter and stand density. Stands that have an average diameter of less than 7.0 inches are rated as low hazard. Stands that have an average diameter of greater than 7.0 inches are then broken down based on density. Low hazard stands have a density of less than 80 square feet of basal area per acre, moderate hazard stands have between 80 and 120 square feet of basal area per acre, and high hazard stands have a density of more than 120 square feet of basal area per acre. Forest-wide stands were rated using data from the RIS database that was available in 2000 for this year's report. This data indicated that there were 1,040,000 acres of susceptible type (ponderosa pine) on the forest. Of this, about 610,340 acres (59%) were rated as low hazard, 333,320 acres (32%) were rated as moderate hazard, and 96,340 acres (9%) were rated as high hazard. This is an increase in the moderate category and a decrease in the high category as compared to the 1995 database numbers. We estimate that this rating is skewed towards the low hazard category, based on the age of the rating and the age of the data available in the RIS system. Most of the stands rated as low risk were caused by low basal areas, a factor that can change significantly in 15-20 years.

The one area where mountain pine beetle risk has obviously gone down is in the area burned by the Jasper fire. This area was not yet accounted for when the 2001 database run was done. In addition, areas where tree killing has been extensive over the last few years, such as Beaver Park, are no longer at risk to mountain pine beetle



Beaver Park area, which is south of Sturgis, South Dakota.

## Monitoring Item 20b: Pine Beetle Levels and Trends

An aerial survey was conducted in September 2001 to estimate damage levels caused by bark beetles, mountain pine beetle and *Ips*, on ponderosa pine. The survey indicated that there were 295,855 trees killed by mountain pine beetle and 157,292 killed by *Ips* on National Forest land. This amounts to an estimate of over 8 million cubic feet of volume lost. An additional 9,227 trees killed by mountain pine beetle and 21,391 killed by *Ips* on lands surrounding the National Forest. This represents an increase of 446,949 trees killed in the Black Hills compared with 2000.

Most of the tree mortality was scattered in small groups or as single trees. However, large areas of concentrated mortality were detected in Beaver Park, Kirk Hill, near Steamboat Rock, areas south and west of Bear Mountain, around the Ditch Creek area, areas west of Deerfield, and the Boles Canyon area. Beaver Park alone accounted for about 100,000 for the total trees killed by mountain pine beetle.

In addition, 2,000 acres of hail damaged pine were detected along Sheridan Lake Road west and south of Rapid City in 2000 and now are susceptible to *Ips* or *Sphaeropsis* blight. In 2001, another hailstorm passed through the Hill City area causing more damage to the Ponderosa Pine and there are some signs of *Ips* attack.



Figure 1. Estimated mortality of ponderosa pine due to mountain pine beetle in the Black Hills of South Dakota and Wyoming from 1994 - 2001 based on aerial surveys (20b)

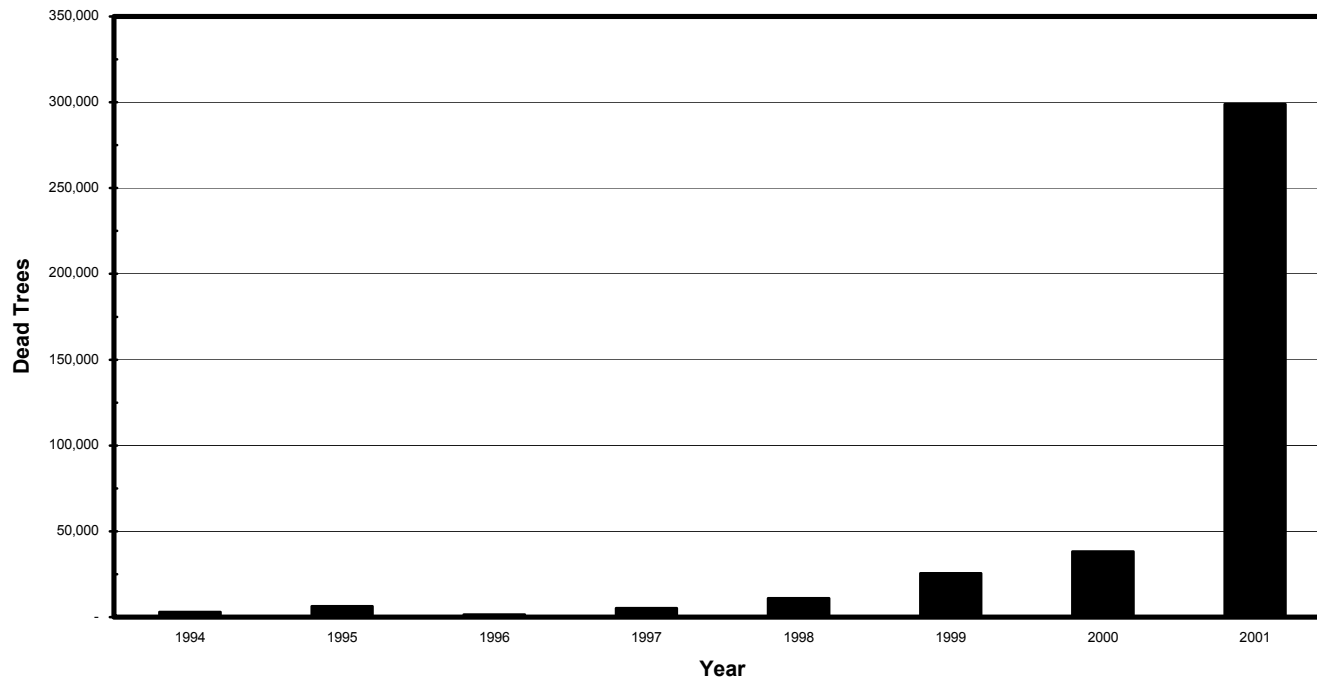


Figure 2. Estimated mortality of ponderosa pine due to mountain pine beetle from 1996 to 2001 in the Beaver Park area of the Black Hills based on aerial surveys (20b)

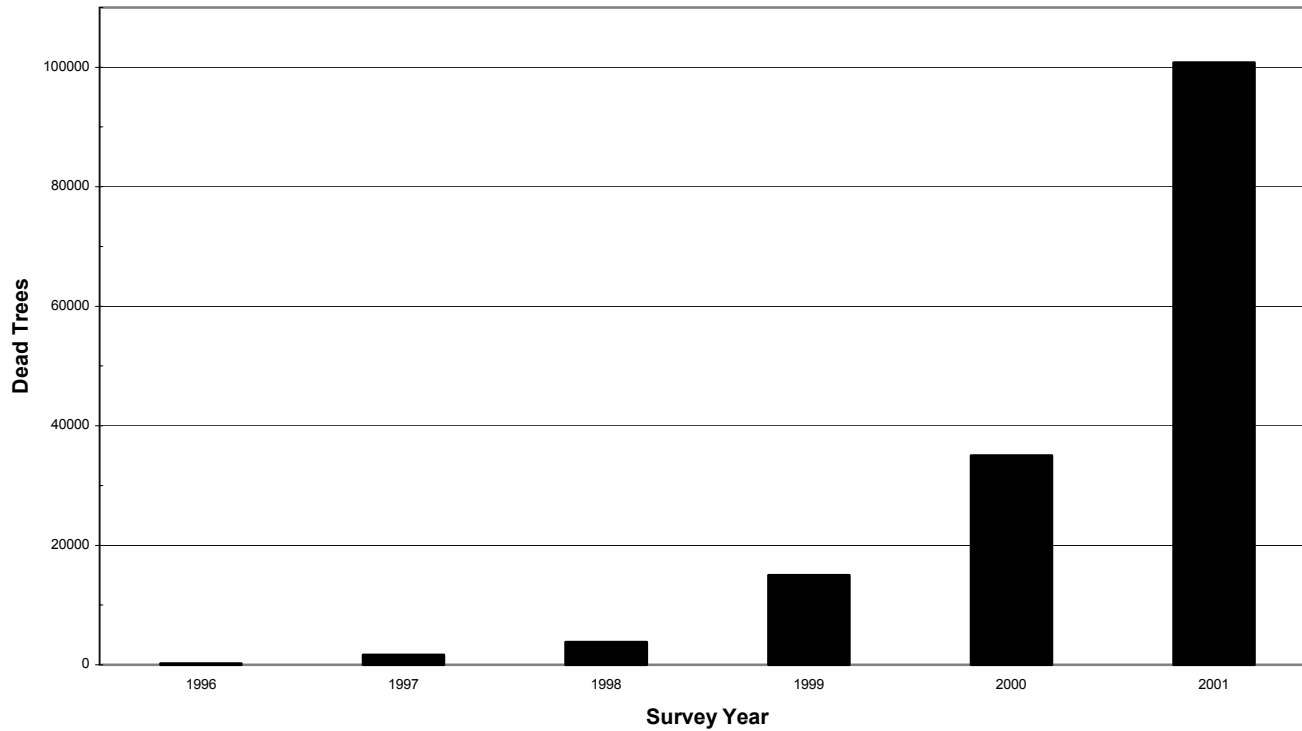
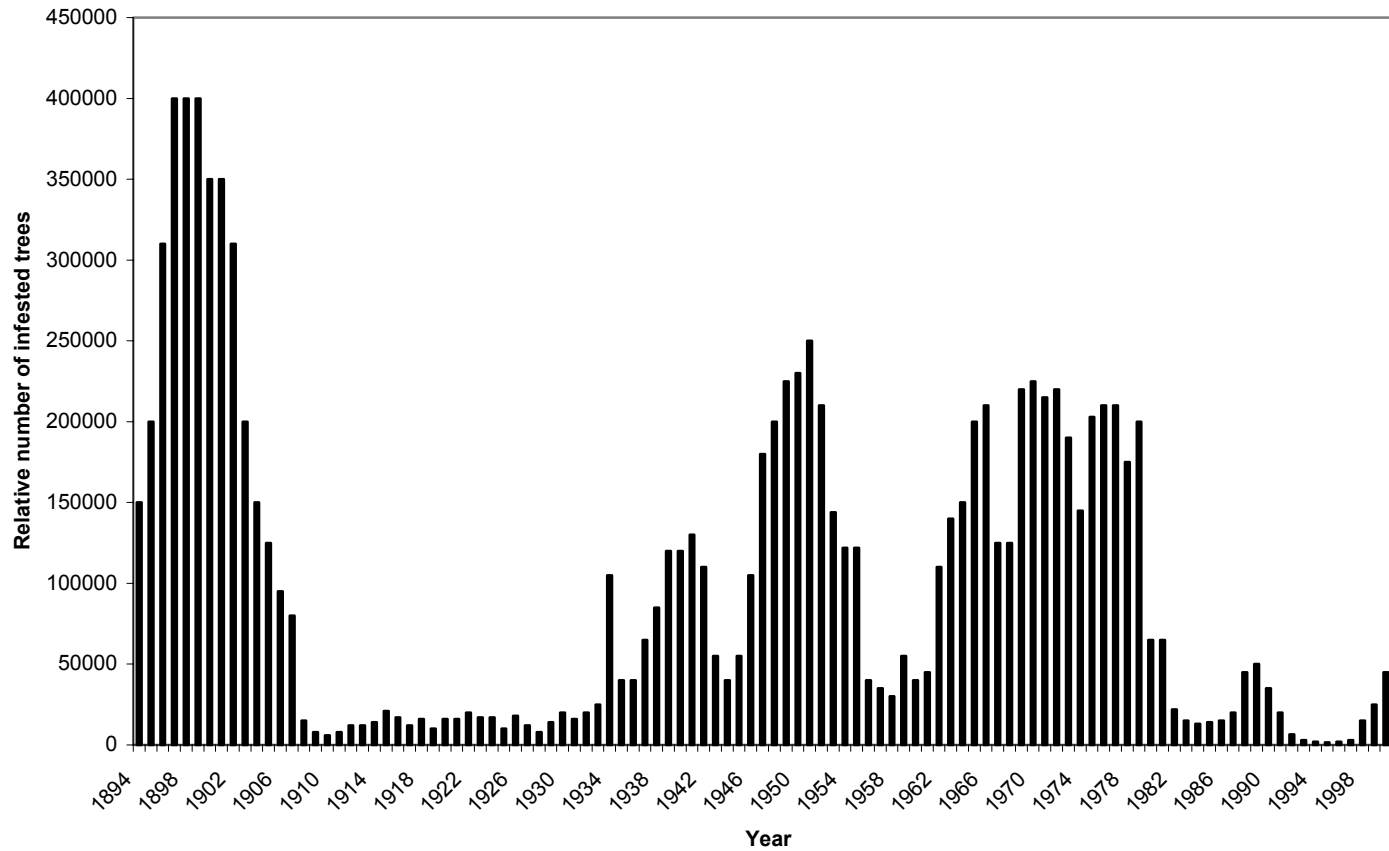


Figure 3. Schematic MPB Infestations: Black Hills 1894-2001 (20b)



## Monitoring Item 20c: Insect and Disease Evaluations

Biological evaluations of mountain pine beetle-caused mortality were conducted in the Beaver Park, Steamboat Rock, and Bear Mountain. These evaluations consisted of on the ground surveys to estimate the level of infestations and how they have changed over the past 4 years. Based on the ground surveys, beetle-caused mortality seems to be increasing in the Beaver Park and surrounding areas, Bear Mountain and Steamboat Rock areas. Beetle populations seem to be increasing at least a 2- to 3-fold rate in these areas. The evaluations have led to suppression projects being underway in the Kirk Hill area along with continued work in the Steamboat Rock and Blackhawk areas, the campgrounds and areas around Beaver Park.

In addition, we have initiated a long-term study to examine the flight periods and most effective lure chemistry of adult mountain pine beetle and pine engraver beetle. Baited funnel traps were checked weekly throughout much of 2001 to determine when the beetles began flying and when they stopped. This study will take several years to account for the year-to-year variation in flight periods caused by environmental factors. Also, studies looking at alternative control measures for mountain pine beetle; one involving the use of mountain pine beetle anti-aggregation pheromones and the other involves looking at effectiveness of different preventative sprays. The use of verbenone as an anti-aggregation pheromone of mountain pine beetle does not look very promising at this time. Two chemicals tested are effective at protecting trees from attack for one season, and one may be effective for two seasons.

In order to monitor the effects of hail damage caused defoliation and potential insect and disease consequences along Sheridan Lake Road in the summer of 2000, monitoring plots were installed in March 2001 and revisited in July and September. Hail damage that occurred in the Kirk Hill area in 1999 and evaluated in 1999 and re-evaluated in 2001. Most of the trees that had been damaged had recovered and appeared to be completely healthy, however, some of the most heavily damaged trees (over 75% defoliation) had died and showed evidence of *Ips* attacks. Due to the increase in the *Ips* population in the Black Hills, the Sheridan Lake Road and Hill City areas may be subject to a higher mortality rate.

## Monitoring Item 21: Exotics

**Objective 230. Eradicate or limit spread (acres) of new introductions of non-native pests (insects, diseases, plants) to minimize ecosystem disruption.**

Detection surveys for the gypsy moth were continued at recreation and administrative sites on the forest in 2001. No moths were caught in recreation sites on the National Forest; however, in 2000, moths were caught in surrounding private campgrounds near the National Forest and at Mt. Rushmore. The need for continued monitoring of this introduced pest is warranted.



## Monitoring Item 22: Fuel Loading Hazard

**Objectives:**

**223. Use management ignited fires and prescribed natural fires to achieve desirable vegetative diversity and fuel profiles on 8,000 acres per year for the next decade. Use natural fire on a limited basis under specifically prescribed conditions.**

**224. Reduce or otherwise treat fuels commensurate with risks (fire occurrence), hazard (fuel flammability), and land and resource values common to the area, using the criteria in Forestwide Standard 4110.**

The combination of all fuels influencing activities accounted for an estimated 171,000 tons of activities' slash that was treated in accordance with Forest Plan required treatment standards.

All activities which generate fuels (reference Monitoring Item 23: Fire - Fuel Treatment) require an assessment to determine appropriate fuel treatment as outlined by Land and Resource Management Plan (LRMP) Guideline 4110 (page II-55, LRMP). Prescribed treatments insure that on-site fuel hazards remain at pre-treatment levels, or are reduced based on risk and/or values present.

Of the 25,598 acres of fuel reduction activities, nearly 60 percent of it occurred in areas identified in the Black Hills National Forest Fire Protection Assessment (FPA) as having a high hazard index. Prescribed treatments in these areas reduced the hazard index to moderate or low levels. Less than five percent of fuel-treatment activities occurred on areas of the Forest where the FPA rated existing fuel "hazards" low. Fuel treatment on the balance of the activity acres occurred on areas identified by the FPA as having a moderate hazard index. Prescribed treatment in these areas either reduced the hazard index or resulted in no change to the hazard index based on the fire "risk" or "values" present. Significant wildland fire activity occurred on the Forest again in 2001. In all, 30,568 acres of the Forest were burned. This acreage accounts for approximately 2.4 percent of the total Forest and significantly reduced fuel-hazard ratings in the burned-over areas. Based on the combined effects of fuel treatment and wildland fire activity an estimated 30,359 acres of the Forest moved from a high hazard index to moderate or lower hazard fuel profile. In addition an estimated, 14,959 acres of the Forest moved from a moderate to low hazard fuel index. In any given year, untreated or unburned areas of the Forest that are currently rated as being in a moderate fuel loading index will move into a high hazard rating due to natural fuel deposition. However, the estimated net decrease of high hazard fuel acres on the Forest in 2001 was approximately 12,500 acres.

**High Hazard Acres:**

LRMP Baseline (Decade 1)	LRMP Baseline (Decade 2)	1998	1999	2000	2001
580,434	519,274	564,561	547,744	489,244	476,744

## Monitoring Item 23: Fuel Treatment

**Objectives:**

**223. Use management ignited fires and prescribed natural fires to achieve desirable vegetative diversity and fuel profiles on 8,000 acres per year for the next decade. Use natural fire on a limited basis under specifically prescribed conditions.**

**224. Reduce or otherwise treat fuels commensurate with risks (fire occurrence), hazard (fuel flammability), and land and resource values common to the area, using the criteria in Forestwide Standard 4110.**

**226. Develop fuel management and protection strategies for intermixed landownerships in partnership with private, state and other federal agencies.**

**227. Manage 28,900 acres of activity fuels and 4,000 acres of natural fuels each year during the next decade, consistent with the need to protect life, property and natural resources from the threat of wildfire. This acreage includes acres specified in Objective 223.**

The Forest accomplished fuel-treatment related activities on a total of 25,598 acres of the National Forest in FY2001. Activities included are listed below.

<b>FUEL TREATMENTS</b>	<b>FY1998 ACRES</b>	<b>FY1999 ACRES</b>	<b>FY2000 ACRES</b>	<b>FY2001 ACRES</b>
<b>Pile Creation: Activity Fuels</b>	1,454	595	1,056	879
<b>Pile Burning:</b>				
<b>Natural Fuels</b>	476	262	855	58
<b>Activity Fuels</b>	2,230	1,430	1,116	1,444
<b>Prescribed Burning</b>	1,633	1,830	2,600	1,073
<b>Slash Removal</b>	201	76	47	1,824
<b>Urban Interface Thinning and Piling</b>	28	111	560	3,718
<b>Lop and Scatter (force account)</b>	1,467	1,687	1,456	25
<b>Pine Encroachment and Disposal</b>	2,208	1,220	431	675
<b>Pre-commercial Thinning and Associated Fuel Treatment</b>	9,247	4,579	7,003	3,095
<b>Aspen Regeneration</b>	470	520	409	131
<b>Purchaser Contribution - Lop and Scatter/Removal</b>	7,041	6,027	12,967	12,515
<b>Fuel Break Construction - associated with and included in the above acres</b>	354	524	384	161

(See 2001 Forest Summary Silva Report as extracted from Rocky Mountain Resource Information System [RMRIS] database).

Much of the above acreage is associated with the Forest's active timber sale program.

Not included in the above figures is salvage removal of commercial value fuels from 5626 acres burned by wildfires in 2000.

## **Monitoring Item 24a: Fire Suppression**

**Objective 225. Manage wildfires using the appropriate suppression response (confine, contain or control) based on management area emphasis, existing values, risk of ignition and fuel hazards within a given area.**

The Black Hills National Forest experienced a significantly above-average fire occurrence year in 2001. There were 132 fires during the year of which 67 were lightning caused. The total number of fires was near the Forest average of 139 and the number of lightning fires was below the normal 100. However, the total acreage burned exceeded the Forest average. Prior year drought conditions continued into 2001 and caused significant control problems with suppression activities. In all, 30,568 acres of the Forest burned in 2001. The wild fire season was highlighted by the 14,990 acre Elk Mountain, the 11,770 acre Rogers Shack and the 10,547 acre West Hell Canyon Fires.

The Forest completed a revision of its National Fire Management Analysis System (NFMAS) data in 1999. The revised analysis and associated fire modeling places projected annual losses at 3,253 acres with a suppression budget funded at the Most Efficient Funding Level (MEL). Recorded losses as identified above were significantly above the norm and well above the NFMAS projections. The suppression program for FY 2001 was funded at approximately 100 percent of the revised MEL budget level. All fire reports have been submitted and entered into the FIRESTAT Database at Kansas City.

## Monitoring Item 24b: Fire Prevention

**Objective 226. Develop fuel management and protection strategies for intermixed landownerships in partnership with private, state and other federal agencies.**

**Indicators: Interagency involvement and or assessment of the following items:**

- **Status of fire management agreements with partner agencies;**

All cooperator agreements and annual operating plans were reviewed and signed as required.

- **Involvement in interagency fire training exercises;**

The Forest continues to play a lead role in interagency fire training by providing qualified instructors, financial support and course coordination for much of the fire training offered in the Black Hills each year. The Forest again provided overall leadership in coordination of the ninth annual Hardy Exercises. Building on the prior years' success exercises were again developed at two proficiency levels (basic and advanced) and included extension of the training exercise to Saturday to accommodate cooperating volunteer fire departments. Incident Commander Type 4 (ICT4) trainees were put through the paces with realistic challenges associated with type 4 incidents in transition to more complex scenarios. The entire training exercise was conducted as a simulated incident involving a complex of fire activity. Managing the exercise as an incident provided an opportunity for individuals key to the Black Hills Initial Management Group (IMG) to train for interim management of a real incident. The Hardy Exercise has evolved over the years to become the primary medium for interagency fire training. All training was again patterned after the Crew Resource Management (CRM) technique as outlined in the Findings from the Wildland Firefighters Human Factors Workshop (5100-F&AM). Instructors for the exercise represented the Forest Service, National Park Service, South Dakota Division of Resource Conservation and Forestry, Custer State Park, Rapid City Fire Department, local Volunteer Fire Departments and the Pennington County Fire Coordinators Office.

Other wildland fire training hosted by the Forest and made available to cooperators at no cost included S-290, S-230, S-270 and S-390. Although some Cooperators elected to host separate Basic Fire School (S-190, 130 etc.) sessions in 2001 the Forest did elect to host one large session at the Ramkota Convention Center located at Rapid City SD. This session was open to all cooperators.

- **Involvement in pre-suppression and prevention activities;**

The Forest played a major role in organizing the joint fire management booth at the Annual Black Hills Stock Show in partnership with the South Dakota Interagency Fire Council (SDIFC). Prevention material and wildland fire information were displayed and made available at all other shows (i.e. Black Hills Sports Show) as well as at all office locations throughout the year.

- **Involvement in South Dakota Interagency Fire Council meetings and activities;**

The Forest is a member of the SDIFC and an ad hoc member of the Black Hills Fire Advisory Board (BHFAB). Both of these organizations provide interagency coordination of prevention, pre-suppression and suppression activities in the Black Hills and surrounding areas. The Forest has representation at all meetings, participates in, and provides representation to various committees and task groups of these two active organizations.



- Effectiveness of the Custer Interagency Dispatch Center as assessed by fire management partners;

Activities at the Center this year included a flurry of filling early season resource orders to meet the National fire emergencies around the country. While not a record year for activity at the Center, this year saw workload at a level significantly above norm. Local geographic area activity represented a significant amount of the workload.

The Center Manager received no complaints or dissatisfaction with activities at the Center in 2000.

- Assessment of suppression support afforded partners through ICS process and as might be identified through post fire reviews, reports or exit conferences; and
- All other information, which might cast light on the Forest's record of performance related to efficiency of operation in the fire management arena through interagency cooperation and prevention activities.

Major fire activity in the Black Hills Region in 2000 prompted reviews of the Centers effectiveness and ultimately increased interest in bringing the Center to a truer Inter-agency operational process. Efforts began in late 2000 to locate a more suitable Center location as well as to bring all cooperators into the dispatching process. This work is ongoing and status/progress has moved along considerably in 2001. At this time, it is proposed that the Center be moved to the old Airport Terminal building at Rapid City Regional Airport. That facility is currently being remodeled to host the Center as well as the South Dakota State Wildland Fire Division. The exact timing associated with moving Center operations will depend on timelines for installing modern dispatch electronic hardware and consideration of hiring and training of staff. Operations will not be transferred during the active fire season. The Center Manager position is being outreached and will be advertised some time in April.

All cooperators are working in concert to bring the Center to a true interagency operation as soon as all funding and lease issues can be addressed. It is anticipated that the Center will be operational in the late Fall of 2002 or by the 2003 active fire season.

## Monitoring Item 25: Wildlife –Threatened and Endangered

**Objective 220. Conserve or enhance habitat for federally listed threatened, endangered and proposed species.**

### Threatened and Endangered Species

The bald eagle is the only federally listed species known to occur on the Forest. This monitoring item is designed to track winter bald eagle trends on the Forest. Bald eagle monitoring is to occur each year to develop a winter population database. Through time, the information will be used to assess changes in numbers and spatial distribution. The Monitoring Implementation Guide calls for district biologists to record bald eagle sightings throughout the winter during normal work activities.

There are no known traditional winter roosts or nests in the Black Hills.

Bald eagle sightings in FY2001 are presented below by District, regardless of landownership. Observations of stationary bald eagles were generally associated with the birds feeding on animal carcasses along roads or perched in close proximity to a lake or stream. Observations of flying bald eagles were more randomly distributed.

District	Number FY 1998	Number FY 1999	Number FY 2000	Number FY 2001
Bearlodge	0	15	0	0
Hell Canyon	13	12	14	5
Mystic	17	51	24	22
Northern Hills	7	4	9	0
<b>Total Forest</b>	37	82	47	27

## Monitoring Item 26: Wildlife –Habitat Capability Relationships, including Management Indicator Species (MIS)

**Objective:**

**Habitat Improvements**

**217. Maintain habitat for game and fish populations at the state objectives in effect in 1996.**

**218. Conserve or enhance habitat for resident and migratory non-game wildlife. Increase habitat capability for species when recommended in project level analysis.**

**219. Maintain or improve instream fisheries habitat. Cooperate with state agencies in aquatic ecosystem improvements to meet mutually agreed-upon objectives.**

**220. Conserve or enhance habitat for federally listed threatened, endangered and proposed species.**

**221. Conserve or enhance habitat for sensitive species and species of special interest (management indicator species) listed in Chapter Two.**

**222. Complete the following habitat projects each year during the plan period:**

	NONSTRUCTURAL	STRUCTURAL
<b>Wildlife</b>	1,000 acres	100 structures
<b>Fish</b>	50 acres	50 structures
<b>Range</b>	600 acres	30 structures

The following is a summary of how the Forest is addressing MIS. Data for game species is compiled from the South Dakota and Wyoming state harvest information summaries.

### **Rocky Mountain Elk**

Population estimates for the Black Hills, excluding Custer State Park, Wind Cave National Park, and private lands are shown in the following table. Estimates are derived from South Dakota Department of Game, Fish and Parks annual harvest summary reports. License sales and harvest of elk during the Black Hills firearm season is increasing. Hunter success remains steady (67-69 percent). Elk appear to be doing well in the Black Hills.

ELK	YEAR				
	1997	1998	1999	2000	2001
<b>Population Estimate</b>	2,685-2,735	2,735-3,000	3,440	3,895	4,155

The Forest is involved in a cooperative elk study being conducted by the Rocky Mountain Research Station. Other partners include the South Dakota Department of Game, Fish and Parks and the Rocky Mountain Elk Foundation. A principal objective of the study is to validate the habitat relationship model, which will yield better predictive information on the effects of habitat change on elk use and numbers. Fieldwork is scheduled through 2002.

## White-tailed and Mule Deer

Population estimates have declined for white-tailed deer and mule deer since 1997. According to South Dakota Department of Game, Fish and Parks harvest reports, resident and nonresident licenses issued for white-tailed and mule deer have declined compared to 1997 levels in the Black Hills. Hunter success has steadily increased from 39 percent in 1997 to 55 percent in 2001. There has been a large reduction in the number of mule and white-tailed does harvested. The harvest of white-tailed bucks remained fairly steady while the harvest of mule deer bucks has increased substantially.

DEER	YEAR				
	1997	1998	1999	2000	2001
<b>White-tailed Deer Population Estimate</b>	40,000	30,000	28,000	29,000	30,000
<b>Mule Deer Population Estimate</b>	14,000	12,000	13,000	12,000	10,000

## Turkey

Wild turkeys were known to occur in South Dakota until about 1920 (SDGF&P Wildlife Survey Manual, 1998-2003). Eight Merriam's turkeys obtained from New Mexico were released in March 1948 west of Spearfish. Two additional plants of Merriam's were made to complete the introduction; 15 birds received from Colorado in 1950 were released in Hells Canyon west of Custer and six birds received from New Mexico in 1951 were released in the Hot Springs area. By the fall of 1952, it was estimated that the Black Hills turkey population had increased to 1,000 birds. The Black Hills turkey flock reached its peak of approximately 10,000 to 15,000 birds in the early 1960's and again in the late 1980's. Until the mid-1990's, populations were reduced substantially (approximately 3,000 birds) due to weather conditions affecting reproduction. Since 1995, populations have been increasing.

TURKEY	YEAR				
	1997	1998	1999	2000	2001
<b>Pop<sup>n</sup> estimate</b>	8,000	9,000	15,000	16,000	17,000

According to South Dakota Department of Game, Fish and Parks harvest information summaries, spring turkey harvest and license sales showed an upward trend from 1997 to 2001. Hunter success rates have remained stable (approximately 35-38%). Black Hills fall turkey season was not held in 2001. License sales had declined based on 3-years of data (1994, 1999, 2000) while the number of turkeys harvested had fluctuated. Hunter success ranged from 54 to 58 percent for 1999 and 2000, respectively. The Wyoming Game and Fish Department reported a total hunter success rate of almost 59 percent in the Wyoming portion of the Black Hills. This included spring and fall seasons and resident/nonresident hunters. The number of permits issued and the number of turkeys harvested increased in 2000. Turkey populations appear to be increasing in the Black Hills.

## Mountain Goats

Mountain goats are not native to the Black Hills. The history of mountain goat introduction in the Black Hills is excerpted from the August 1940 issue of *Wyoming Wildlife*. Six goats, four females (a yearling and three adults) and two males (a yearling and an adult), were introduced in Custer State Park in 1924 from Rocky Mountain Park in Alberta, Canada. The current population on the Forest descends from not more than three individuals that escaped shortly after their arrival at Custer State Park. An estimated 25 goats existed on Harney Peak in 1940.



Mountain goat populations appear to be stable in the Black Hills. Based on a research study conducted from 1983-1987, the goat population was estimated at 150 animals in 1986. Kid production and survivability were the critical factors determining population trend.

MT. GOAT	YEAR				
	1997	1998	1999	2000	2001
Pop <sup>n</sup> estimate	170-190	140-180	140-180	140-180	140-180

Annual aerial census flights are conducted for two weeks in the spring. The South Dakota Department of Game, Fish and Parks continued to issue four licenses to hunt mountain goats in 2001. Hunter success was 100 percent (2 billies and 2 nannies were harvested).

Mountain goats in Spearfish Canyon (Northern Hills) are becoming accustomed to humans. Several reports were received from local residents of goats standing on their decks looking in the windows. One resident took pictures of a goat that had climbed onto his roof.



## Mountain Lion

Mountain lions are currently being studied in a joint research project funded by the South Dakota Game, Fish and Parks and South Dakota State University. This study, which began in 1998 and will continue through 2003, is attempting to analyze the territory size and estimate current population size and structure of mountain lions on the Black Hills National Forest. This information is needed to establish baseline information from which future population estimates can be compared. Mountain lion sightings (adults and kittens) have increased over the past five years. Approximately 40 to 50 breeding adults are estimated to occupy Black Hills habitats.

In addition, the South Dakota Game, Fish and Parks Department is collecting records of mountain lion

sightings on the Forest and those records are made available for use in Forest planning. Two mountain lions were killed in 2001 on the Bearlodge District as part of Wyoming's regulated hunting season.



### **Black-backed and Three-toed Woodpeckers**

Preliminary data from the cooperative study with the Rocky Mountain Research Station and the University of Wyoming suggest that the ARC-HABCAP model should only consider ponderosa pine, aspen, and white spruce. The current model includes Douglas fir and lodgepole pine. Black-backed woodpeckers were usually found in ponderosa pine dominated stands. The current model predicts that black-backed woodpeckers prefer older stands, but it was apparent that they also use younger stands. It is more likely that these species are using stands with greater canopy cover (class B and C).

It appears that three-toed woodpeckers use a variety of habitats ranging from ponderosa pine to aspen. Therefore, it is likely that any model that classifies habitat into a single dominant vegetation type may not be a proper model for determining three-toed woodpecker habitats. More than likely, managing for this species will involve managing areas that contain a mixture of ponderosa pine, white spruce, and a few aspen.

### **Brown Creeper**

The brown creeper occurs in low abundance throughout the Black Hills. First year monitoring conducted by the Rocky Mountain Bird Observatory (RMBO) detected the brown creeper in seven habitat types. A total of 122 brown creepers were observed. Approximately 92 percent of all observations of this species were recorded at sites where the habitat was classified as mature or old growth (seral stage 4 or 5). Population trend data is not available, but this species should be effectively monitored in late-successional pine and white spruce habitats as part of the ongoing monitoring being done by the RMBO.

### **Breeding Bird Surveys**

Each year, qualified volunteers work under partnership with the Forest to complete breeding bird surveys (BBS) as part of a national program administered by the U.S. Geological Survey. Results are available on their web site, but the site has not been updated to include 2001 data as of this writing. The Forest is provided with an annual summary report in even numbered years.

Some major changes in habitat along certain BBS routes were noted during verification surveys in 2001. Habitat changes were primarily from vegetation management, new home construction, natural storm damage, clearing along powerlines, and from recent fires. The last verification occurred five years ago.

The Elk Mountain and Rogers Shack fires will add more recent burn habitat along those survey routes. Woodpeckers increased dramatically on the Elk Mountain and Lightning Creek routes this year. Other species that require foliage on the trees, like Western tanager, plumbeous vireo, and Audubon's warbler, as well as other foliage gleaners, will probably show declines in future years.

## Rocky Mountain Bird Observatory

The Forest is funding the Rocky Mountain Bird Observatory to monitor the long-term trend of bird populations. Ten habitat types throughout the Forest will be monitored. One hundred thirty-two species were observed. Results of the first year of monitoring are contained in the *Monitoring the Birds of the Black Hills: Year 1, Final Report, December 2001*. Because this is only the first year of a long-term monitoring effort, it is too soon to assess, based solely on those results, whether population sizes of birds are changing.

## Aquatic MIS

The need for one or more aquatic Management Indicator Species was identified in the appeals process on the revised 1997 Land and Resource Management Plan. As a result, five aquatic MIS were identified: (1) brook trout, (2) brown trout, (3) finescale dace, (4) lake chub, and (5) mountain sucker. Aquatic MIS may be reevaluated as part of the Phase II Amendment process. Monitoring will rely primarily on South Dakota and Wyoming state protocols and efforts.

A tentative monitoring strategy has been set up. Monitoring will rely primarily on state protocols and efforts. All survey sites are not sampled annually due to a lack of time, equipment failure and/or water conditions. Available population data is summarized in the following table.

SAMPLING SITE	Species/Size	Date	Pop <sup>n</sup> Estimate
Bear Butte Creek Site #14	Mountain Sucker	Sep 97	87
		Nov 97	257
		Sep 99	3
		Sep 00	168
Bear Butte Creek Site #15 (new site)	Mountain Sucker	Sep 00	123
Rapid Creek Site #3	Brown Trout <200mm	Sep 99	114
		Oct 00	51
	Brown Trout >200mm	Sep 99	31
		Oct 00	23
Iron Creek (South) Site #2	Brook Trout <200mm	Aug 98	318
	Brook Trout >200mm	Aug 98	3
East Spearfish Creek Site #1	Brown Trout <200mm	Jun 98	384
	Brown Trout >200mm	Jun 98	87
East Spearfish Creek Site #2	Brown Trout <200mm	Jun 98	115
	Brown Trout >200mm	Jun 98	30

<b>SAMPLING SITE</b>	<b>Species/Size</b>	<b>Date</b>	<b>Pop<sup>n</sup> Estimate</b>
East Spearfish Creek Site #3	Brown Trout <200mm	Jun 98	210
	Brown Trout >200mm	Jun 98	34
Little Spearfish Creek Site #2	Brook Trout <200mm	Jun 98	91
	Brook Trout >200mm	Jun 98	2
	Brown Trout <200mm	Jun 98	28
	Brown Trout >200mm	Jun 98	6
Elk Creek Site #4	Brook Trout	Jul 97	200
	Mountain Sucker	Jul 97	213
Elk Creek Site #5	Brook Trout	Aug 97	110
	Mountain Sucker	Jul 97	250

A draft Conservation Assessment has been prepared for the lake chub, mountain sucker, and finescale dace as part of the Phase II Amendment. The only remaining population of lake chub on the Forest occurs in Deerfield Reservoir, where populations have declined in abundance since 1994. Catch rates from 1997 to 2000 were approximately one-sixth the catch rates from 1994 through 1996. No trends in mountain sucker population densities were observed for four stream sites that were repeatedly sampled in the 1990s, suggesting stability within the core of its range. Survey data suggest the historic distribution of finescale dace was limited to streams and spring-fed lakes and bog holes in the Redwater Creek drainage at the northern extent of the Black Hills. Finescale dace have disappeared from four of the six sites where previous collections have been made in South Dakota. Uncertainty exists regarding the overall population trend in the Wyoming portion of this species' range.

## Monitoring Item 27: Scenic Integrity

### Objectives:

**401. Review all existing projects and areas that do not meet the adopted Scenic Integrity Objective (SIO) specified for each management area, and set priorities for rehabilitation.**

**402. Provide natural appearing landscapes with diverse scenery and enhance opportunities to enjoy attractive settings. Maintain the following:**

SCENIC INTEGRITY OBJECTIVES (Thousands of Acres)	
Very High	11
High	151
Moderate	524
Low	552
Very Low	4

In April 2000, a spring snowstorm descended on the Black Hills of South Dakota. Approximately three feet of snow accumulated in the area, with drifts above that. In this storm, the snow was charged with water and extremely heavy. In addition, we received strong winds. This resulted in trees being broken and most small trees (pre-commercial in size) being bent over and/or broken. The results of the storm created widespread damage to the understory vegetation.

The Peter Norbeck Scenic Byway (Management Area 4.2B) and Sheridan Lake Road (Standard 5603 and Guideline 5609) were part of the area that was heavily damaged.

The Scenic Integrity Objective (SIO) for the management areas along these roads is HIGH. Forest Plan Standard #5603.

*A HIGH scenic integrity refers to landscapes where the valued landscape character “appears” intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident.* Landscape Aesthetics, chapter 2, page 4.

Cleanup activities along Sheridan Lake Road were completed throughout the immediate foreground (within 300 feet) of the roadway. A Categorical Exclusion (CE) with a Decision Memo was prepared.

Cleanup activities proposed along the Peter Norbeck Scenic Byway accomplished under the Public Health and Safety clause of NEPA. As the Black Hills National Forest was involved in an appeal with environmental groups over vegetation management within the Peter Norbeck Wildlife Area, it was felt no undertakings should be attempted that would affect that appeal. A Categorical Exception (CE) with a Decision Memo was prepared. Activities were limited to within 66 ft. of the highway – those areas where there was a direct threat to the public.

Activities included cutting the damaged, bent-over, and down pre-commercial trees. The cut limbs and tree boles were piled. Some piles were chipped (those adjacent to the road), and others were burned. Too date, due to the smallest reported snow pack in 20 years, not all the piles have been burned as there is concern over the possibility of the burning piles escaping into the adjacent dense damaged stands (see attached pictures).



**FINDINGS:** Portions of the Hell Canyon and Mystic Ranger Districts, along the Iron Mountain Road - Peter Norbeck Scenic Byway and Sheridan Lake Road were reviewed. The following photos are indicative of management that occurred throughout these project areas.



The photo above is an example of the current conditions on the Iron Mountain Road (16A) - Peter Norbeck Scenic Byway. The red line shown on the photo is approximately 66 Feet from the road (seen at the right center of the photo). The condition of the vegetation on the right of the photo – damaged and bent over – is indicative of what this area looked like prior to treatment. The center and left portions of the photo are mid-treatment. The piles have not been burned in this portion of the Byway due to unfavorable burning conditions and the lack of snow/moisture. If weather conditions change, these piles will most likely be burned this spring, completing the treatment.



In the photo above along the Iron Mountain Road (16A) – Peter Norbeck Scenic Byway, damaged trees are on the left, the 66-foot mark is in red, and the treated area is on the right. This photo is an example where all the work has been completed. The only evidence of any activity is limited to burned spots where piles were, and low stumps. Spring grasses will aid in hiding these residual effects.

**CONCLUSIONS:** The storm damage clean up on Sheridan Lake Road and the Iron Mountain Road – Peter Norbeck Scenic Byway, meet the Scenic Integrity Objective of HIGH, where work has been completed. When spring rains descend upon the sites, and grasses flourish, the residual effects of the clean up will be hidden. The Scenic Integrity Objective will not be met in areas where the piles cannot be burned, due to unsafe burning conditions (note: this is only occurs along the Iron Mountain Road).

Overall the clean up is highly successful, an exceptional effort, as a natural appearing condition has been maintained within the areas that were treated. However, it is unfortunate that the rest of the storm damage areas were not able to be cleaned up throughout the immediate foreground (within 300 feet) of the Iron Mountain Road, as the storm damage is still highly evident beyond the 66 feet, and appears out of place with what is normally expected, as evident in the example photo below.



When comparing the treatments along the two roads immediate foreground vs. 66 feet – clearly the need for treatment throughout the immediate foreground. However, given the restraints placed along the Iron Mountain Road, it still is an improvement on the previous storm damaged condition. In the future, if similar conditions occur, all of the immediate foreground should be treated.



## Monitoring Item 28: Heritage Resources

### Objectives:

- 403. Improve the management of heritage resources and integrate them with recreation and education while providing for compliance with all applicable laws and regulations.**
- a. Increase numbers and types of heritage resource interpretive sites and opportunities. Provide five projects per year during the plan period.**
  - b. Conduct six heritage resource stabilization and rehabilitation projects per year during the plan period.**
  - c. Nominate eligible sites (approximately five per year in the plan period) to the National Register of Historic places.**
  - d. Inventory 50,000 acres each year in the plan period for heritage resource sites.**
- 404. Conduct three research projects each year to support heritage resource management.**
- 405. Manage all heritage sites listed in the National Register of Historic Places in consultation with the State Historical Preservation Officer (SHPO) and the President's Advisory Council on Historic Preservation (ACHP).**
- 406. Provide opportunities for the public to participate in heritage management activities, including the monitoring, excavation, and protection of archeological sites.**

Monitoring items for heritage resources measure two areas of emphasis for the program. Monitoring items 1 through 4 reflect our responsibility to comply with Federal law and regulation for the protection of heritage resources under Section 106 of the National Historic Preservation Act (NHPA). The relatively large numbers exhibited in monitoring items 1 through 4 are in themselves a reflection of the large number of undertakings conducted on the Black Hills National Forest each year. The relatively large increase in numbers for items 2 and 4 are a direct result of activities associated with the Jasper and Elk Mountain Complex wildfires.

Monitoring items 5 through 7 reflect our responsibility to preserve and interpret heritage resources for public benefit under Section 110 of the NHPA. The relatively low numbers exhibited in monitoring items 5 through 7 indicate a reduction in national forest heritage resource dollars over the past few years and a need to increase efforts in the Section 110 portion of the heritage resource program.

<b>MONITORING ITEMS</b>	<b>FY1998</b>	<b>FY1999</b>	<b>FY2000</b>	<b>FY2001</b>
1. Heritage resources compliance process completed prior to signing of environmental decision document (comply with NEPA, NHPA, and Chiefs Direction).	229 Projects	59 Projects	107 Projects	51 projects
2. Avoidance or mitigation requirements effectively implemented prior to, during, and after project (comply with NHPA/NEPA).	32 mitigation or avoidance projects were monitored.	26 mitigation or avoidance projects were monitored.	41 mitigation or avoidance projects were monitored.	189 mitigation or avoidance projects were monitored.
3. Inventories conducted to comply with the Archaeological Resource Protection Act, as amended 1988.	76 projects covering 93,873 acres were completed.	225 projects covering 78,938 acres were completed.	127 projects covering 28,686 acres were completed.	137 projects covering 41,713 acres were completed.
4. Protection of heritage resources listed in, or eligible for listing on the National Register of Historic Places. May or may not be associated with project specific activities (comply with NHPA).	106 sites were monitored.	97 sites were monitored.	143 sites were monitored.	248 sites were monitored.
5. Number of heritage resource interpretive sites provided (including sites, signs, roadside pullouts, brochures, public participation opportunities, sponsorship of heritage activities, etc.).	2 public outreach projects and 1 interpretive program were provided.	25 interpretive programs were provided.	27 interpretive programs were provided.	34 interpretive programs were provided.
6. Number of heritage resource stabilization and rehabilitation projects conducted (comply with NHPA).	1 project was conducted.	2 projects were conducted.	5 projects were conducted.	2 projects were conducted.
7. Increase in heritage resources listed on the National Register of Historic Places (comply with NHPA).	0 sites were nominated to or listed on the NRHP.	0 sites were nominated to or listed on the NRHP.	0 sites were nominated to or listed on the NRHP.	0 sites were nominated to or listed on the NRHP.



## Monitoring Item 30: Recreation Opportunities

**Objectives:**

**407. Provide the following Recreation Opportunity Spectrum (ROS):**

RECREATION OPPORTUNITY SPECTRUM (ROS) (Thousands of Acres)	
Primitive	11
Semi-Primitive Non-Motorized	18
Semi-Primitive Motorized	12
Roaded Natural	1107
Roaded Natural Non-Motorized	95
Rural	1

**408. Manage recreation use to stay within the capacity for the ROS class:**

ROS CLASS	CAPACITY RANGE RECREATION VISITOR DAYS (RVDs/ACRE)		
	Low	Moderate	High
Primitive	0.25	0.5	0.75
Semi-Primitive Non-Motorized	1.00	2.0	3.00
Semi-Primitive Motorized	1.50	3.0	4.50
Roaded Natural Non-Motorized	1.50	3.0	4.50
Roaded Natural	3.00	6.0	9.00
Rural	<<<< Design Capacity >>>>		

**(See glossary for ROS capacity classes)**

**ROS:**

There were no changes in FY 2001 to the Recreation Opportunity Spectrum (ROS) as mapped in the Revised Forest Plan.

**Recreation Activity**

ACTIVITY OUTPUTS	UNITS	1998	1999	2000	2001
Developed Recreation	Recreation Visitor Days	342,600	339,600	331,600	326,600
Downhill Skiing	Recreation Visitor Days	4,500	4,000	*	*
Dispersed Recreation	Recreation Visitor Days	2,814,200	2,886,800	2,820,200	2,789,200
Off-road Vehicle Use	Recreation Visitor Days	74,400	75,900	77,000	73,400
Wilderness Use	Recreation Visitor Days	28,300	36,500	32,200	30,900

\* Terry Peak Ski area transferred from Forest to private land in an exchange.

**Developed Recreation Discussion:**

The backlog of deferred maintenance needs for our developed sites continues to be a major concern related to meeting Forest Plan standards for maintaining developed recreation sites. Operation and maintenance funding from appropriated dollars has been historically insufficient to meet the needs. The Forest makes use of service partners wherever possible, such as our campground concessionaire. Forest-wide, our fee sites are paying for their day-to-day operation through the concession permit. Special use fees paid to the Forest from the concessionaire are re-invested into our developed sites through the

Granger-Thye fee offset program. In 2001, this fee system enabled the Forest to re-invest approximately \$50,000 in fees back into our developed sites. The Black Hills National Forest Visitor Center overlooking scenic Pactola Lake and satellite visitor information stations at our district offices provided significant developed and dispersed recreation starting points for the visiting public.

**Dispersed Recreation Discussion:**

The Black Hills National Forest continues to be a leader in providing dispersed recreation opportunities. Use of the Mickelson and Centennial Trails for snowmobiling, cross-country skiing, ATV and ORV routes continues. An established network of Forest roads and hiking trails, including the Peter Norbeck Scenic Byway offer other opportunities. Fishing opportunities are available at national forest lakes, and some of the best elk and deer hunting are found in South Dakota and Wyoming,

The Black Hills National Forest is well roaded. There are over 6,000 miles of Federal, State, County and Forest Service roads serving 1.3 million acres of National Forest land. Because of this situation, there are limited opportunities for non-motorized or unroaded kinds of recreation experiences.

There are three official inventoried roadless areas on the Forest as established in the 1997 Revision to the Black Hills National Forest Land and Resource Management Plan. These are the Beaver Park roadless area on the Northern Hills Ranger District in South Dakota, and the Sand Creek and Inyan Kara roadless areas on the Bearlodge Ranger District in Wyoming.

## Monitoring Item 31: Recreation Use, Trends, and Demographics

**Objectives:**

**413. Provide interpretation, information and environmental education as an important part of outdoor recreation. Use "Tread Lightly", "Leave No Trace" and other techniques.**

**417. Coordinate trail development with the State Comprehensive Outdoor Recreation Plan (SCORP). Develop trail facilities in cooperation with other agencies and partners.**

**419. Provide for the annual designation and management of 350 miles of snowmobile trail by the States of Wyoming and South Dakota. Annual changes to the trail system should be limited.**

**422. Provide the following off-road travel opportunities:**

CATEGORY	PERCENTAGE OF FOREST
All Motorized Travel Allowed Yearlong	59.1%
Seasonal Restrictions Apply	22.8%
Seasonal Restrictions - No Off-road Travel	3.2%
Backcountry Motorized Recreation on Designated Trails	1.0%
Only OHV Travel Prohibited	11.4%
Motorized Travel Prohibited Except Snowmobiles	1.2%
All Motorized Travel Prohibited	1.3%

Occupancy rates at our concession-operated campgrounds were around 39 percent, compared to 40% occupancy last year. Non-fee forest service campgrounds, operated by the Forest as donation sites, had estimated occupancy rates of 27 percent. Golden Age passport use at our fee campgrounds averaged 16 percent, similar to the use in 2000. This indicates that at a minimum, at least 16 percent of our campers were over 62 years old.

Total revenues for overnight camping at our fee sites, forest-wide, totaled approximately \$395,000 in 2001. This revenue amount was up approximately thirteen percent from 2000 due to fee increases. Levels of developed and dispersed summer recreation use showed an overall slight amount of decline from 2000. Firewood and Christmas tree permits issued in 2001 were down compared to 2000, confirming that dispersed recreation use was down slightly in 2001.

Auto travel and driving for pleasure, on one of the finest networks of forest roads in the country, continues to be the number one dispersed recreation activity on the Forest.

**CAMPGROUND FEES AND PERCENT OCCUPANCY**  
**1996 – 2000**

	Average											
	Unit Fees		Fee Campgrounds				Non-fee Campgrounds			All Campgrounds		
	Forest	Private	Total Fees	Occupied	Available	Percent	Occupied	Available	Percent	Occupied	Available	Percent
Year	Service	Sector	Collected	Units	Units	Occupancy	Units	Units	Occupancy	Units	Units	Occupancy
1996	\$10.37	\$19.89	\$328,033.00	33,354	78,652	42%	1,985	4,182	47%	35,339	82,834	43%
1997	\$10.63	\$20.88	\$335,280.88	32,395	78,465	41%	1,284	3,366	38%	33,679	81,831	41%
1998	\$11.13	\$21.84	\$355,460.24	33,036	77,486	43%	1,717	3,366	51%	34,753	80,852	43%
1999	\$12.43	\$22.54	\$357,883.50	31,363	78,668	40%	1,738	3,795	46%	33,101	82,463	40%
2000	\$12.49	\$22.75	\$349,280.00	28,046	69,907	40%	679	3,746	18%	28,725	73,653	39%
2001	\$14.40	\$23.00	\$394,938.00	27,426	69,575	39%	1,034	3,795	27%	28,460	73,370	39%

**Summaries of Selected National Forest Activities:**

<b>Black Hills Visitor Center</b>	
Year	Visitors
1996	74,079
1997	56,893
1998	58,018
1999	58,300
2000	70,300
2001	70,044
Annual Trend	>4.7%

<b>Black Elk Wilderness</b>		
Year	Visitors	Visitor-Days
1996	69,227	36,900
1997	64,702	34,500
1998	53,098	28,300
1999	73,000	36,500
2000	64,325	32,163
2001	61,727	30,864
Annual Trend	<1.1%	<2.6%

<b>National Forest Campgrounds (Occupied Camping Units)</b>			
Year	Fee	Non-Fee	All
1997	32,395	1,284	33,679
1998	33,036	1,717	34,753
1999	31,363	1,738	33,101
2000	28,046	879	28,925
2001	27,426	1,034	28,460
Annual Trend	<3.8%		<3.9%

<b>National Forest Golden Age/ Golden Access Permits</b>				
Year	Full Price	Half Price	Total Paid Units	Percent Golden Age
1997	~	~	~	~
1998	28,302	4,734	33,036	14.3%
1999	26,231	5,132	31,363	16.4%
2000	23,548	4,498	28,046	16.0%
2001	22,933	4,493	27,426	16.4%

<b>Firewood and Free Use Permits</b>			
Year	Firewood MBF	Free Use MBF	Total
1996	3278	258	3536
1997	3821	238	4059
1998	3463	266	3729
1999	3400	655	4055
2000	1904	1336	3240
2001	980	2246	3226
Annual Trend	~	~	<4.9%

<b>Christmas Tree Permits</b>			
Year	Individual	Commercial	Total
1996	6,211	348	6,559
1997	5,761	341	6,102
1998	6,079	113	6,192
1999	5,879	313	6,192
2000	5,736	669	6,405
2001	5,198	175	5,373
Annual Trend	~	~	<3.0%



## Monitoring Item 32: Access-Road Mileage

**Objectives:**

309. Provide the following changes to the Forest Development Road system (FDR) in support of long-term sustainable production of commodities.

Road Construction	280 miles/decade
Road Reconstruction	870 miles/decade
Road Obliteration	140 miles/decade
Two-track Obliteration	270 miles/decade

420. Manage travel corridors for federal, state and county roads.

- a. Meet a scenic integrity objective of high.
- b. Provide recreation facilities, trailheads, trail crossings and other road corridor components to meet demand.
- c. Include opportunities for pedestrians and bicycle ways.
- d. Use cooperative opportunities for development of outdoor facilities, such as provided for in the Intermodal Surface Transportation Efficiency Act (ISTEA) as an integral part of corridor planning.

421. Provide the following road system:

ROADS (By End of the First Decade)		
Suitable for Public Use		4700 miles
Passenger Car	1200 miles	
High Clearance Vehicles	3500 miles	
Roads Closed To Vehicles		500 miles
<b>TOTAL</b>		<b>5200 miles</b>

The following is the status of the Forest Development Road (FDR) System:

	1996 FEIS MILES	FY98 MILES	FY99 MILES	FY00 MILES	FY01 MILES
<b>FDR maintenance levels 1,2,3,4,5</b>	5,204 <sup>1</sup>	5,219	5,271.0	5,281.1	5,385.1
<b>FDR miles constructed</b>	NA	13.3	21.2	1.6	2.1
<b>FDR miles reconstructed</b>	NA	102.0	178.1	53.6	21.3
<b>FDR miles under Forest Service jurisdiction</b>	4,651 <sup>2</sup>	4,655.0	4,696.0	4,706.0	4,800.0
<b>FDR miles under local government jurisdiction</b>	553 <sup>2</sup>	564.0	575.0	575.1	585.1
<b>FDR miles obliterated</b>	NA	0.0	27.3	18.3	17.9
<b>FDR miles open year long, seasonally for low clearance vehicles</b>	653 <sup>2</sup>	687.0	687.0	734.0	741.0

	<b>1996 FEIS MILES</b>	<b>FY98 MILES</b>	<b>FY99 MILES</b>	<b>FY00 MILES</b>	<b>FY01 MILES</b>
<b>FDR miles open year long, seasonally which are accessible to high clearance vehicles only</b>	3,510 <sup>2</sup>	3,274.0	3,280.0	3,236.0	3261.0

1 –1996 FEIS, pg II-61.

2 –1996 FEIS pg III-426.

Current Forest Plan direction emphasizes closing temporarily constructed roads; and project decisions continue to close roads that are no longer needed, and to review access needs to private lands.

In January 1998, the Forest Service proposed to revise regulations governing the transportation system. The focus of proposed changes was to shift road management emphasis away from new road construction and development toward the operation and maintenance of existing roads.

On January 12, 2001, the agency issued a final rule revising regulations concerning the management, use and maintenance of the National Forest Transportation System. The rule was made effective January 12. The agency adopted on the same date a final administrative policy governing the transportation system. This policy was also made effective on January 12.

Pursuant to this new policy, each national forest must complete a Forest-wide roads analysis by January 2003. Further, projects with decisions signed after January 12, 2002 must be accompanied by a documented roads analysis to comply with the new rule.

## **Monitoring Item 33: Access-Off-Road Vehicle Access**

**Objective 422. Provide the following off-road travel opportunities:**

<b>CATEGORY</b>	<b>PERCENTAGE OF FOREST</b>
<b>All Motorized Travel Allowed Yearlong</b>	<b>59.1%</b>
<b>Seasonal Restrictions Apply</b>	<b>22.8%</b>
<b>Seasonal Restrictions - No Off-road Travel</b>	<b>3.2%</b>
<b>Backcountry Motorized Recreation on Designated Trails</b>	<b>1.0%</b>
<b>Only OHV Travel Prohibited</b>	<b>11.4%</b>
<b>Motorized Travel Prohibited Except Snowmobiles</b>	<b>1.2%</b>
<b>All Motorized Travel Prohibited</b>	<b>1.3%</b>

In FY2001, a travel order was issued for the 83,500-acre Jasper Fire area closing off-road vehicle access to the public. It also closed all roads not displaying a post with road number and those marked “no motorized vehicle”.

For the remainder of the forest, travel opportunities remained unchanged.

## Monitoring Item 34: Access-Trail Opportunities

**Objectives.**

**416. Maintain and construct trails as displayed in the following table:**

Non-motorized Trails (1996)	293 miles
Motorized Trails (1996)	14 miles
Non-motorized Trail Construction	204 miles
Motorized Trail Construction or Conversion from Road to Motorized Trail	15 miles
Total Forest Trail System	526 miles
Reconstruction	100 miles

**417. Coordinate trail development with the State Comprehensive Outdoor Recreation Plan (SCORP). Develop trail facilities in cooperation with other agencies and partners.**

**418. Enhance the trail system to disperse use away from the Black Elk Wilderness.**

**419. Provide for the annual designation and management of 350 miles of snowmobile trail by the States of Wyoming and South Dakota. Annual changes to the trail system should be limited.**

The following is the status of the Forest Development trail (FDT) system:

	FY1998	FY1999	FY2000	FY2001
<b>FDT miles constructed</b>	-0-	-0-	-0-	-0-
<b>FDT miles reconstructed</b>	70.1	2.7	12.6	18
<b>FDT miles obliterated</b>	-0-	-0-	-0-	-0-

Forest development trail miles by user type:

	FY1998	FY1999	FY2000	FY2001
<b>Hiking, biking, horse, skiing, motorized:</b>	17.7	17.7	14.2	14.2
<b>Hiking, biking, skiing, motorized:</b>	6.9	6.9	-0-	-0-
<b>Hiking, biking, horse, skiing:</b>	345.3	231.1 <sup>1</sup>	243.8	257.4
<b>Hiking, biking skiing:</b>	6.8	7.8	6.8	7.2
<b>Hiking, horse, skiing:</b>	30.8	29.2	32.6	32.6
<b>Hiking, skiing:</b>	22.2	22.2	22.5	19.2
<b>Hiking, horse</b>	3.4	3.4	-0-	-0-
<b>Hiking:</b>	2.6	2.3	2.2	2.2
<b>TOTAL:</b>	435.7	320.6	322.1	332.8

<sup>1</sup> Mickelson Trail operation and maintenance has been transferred to the State of South Dakota.

Trail use being transferred to and from other user types and 1.5 miles of new trail in hiking, biking, horse, skiing caused mileage changes.

Through monitoring, the following trails were identified where user conflicts exist or where user-type constraints are not effective, or where unacceptable resource damage is occurring:

1. Centennial Trail #89
2. Deerfield Lake Loop #40L
3. Deerfield Trail #40
4. Harney #9
5. Flume Trail
6. Bearlodge Trails

## Monitoring Item 35: Access-Right-Of-Way Acquisition

**Objective 503. Acquire approximately 25 rights-of-way each year to improve Forest access.**

TYPE	FY1998			FY1999		
	CASES	MILES	ACRES	CASES	MILES	ACRES
Acquired	6	1.4	11.04	8	1.09	10.55
<b>FLPMA*</b>						
Forest Road Easements Conveyed	2	1.48	11.87	3	.095	4.07
Private Road Easements Conveyed	5	1.21	7.99	7	.8067	6.5
<b>FRTA** Easements<sup>1</sup></b>	2	13.45	244.8	0	0	0

TYPE	FY2000			FY2001		
	CASES	MILES	ACRES	CASES	MILES	ACRES
Acquired	8	1.73	13.15	12	6.2	24.6
<b>FLPMA*</b>						
Forest Road Easements Conveyed	3	1.10	4.7	4	3.5	14.1
Private Road Easements Conveyed	7	.95	4.9	3	6.7	26.7
<b>FRTA** Easements<sup>1</sup></b>	0	0	0	0	0	0

\*FLPMA - Forest Land Policy Management Act

\*\*FRTA - Forest Road and Trail Act

<sup>1</sup>Previously under special use permit that was converted to easements in 1998.



## Monitoring Item 36: Land Adjustment

**Objectives:**

**501. Conduct approximately 500 to 1000 acres of land exchange each year over the decade, such as through purchase, exchange or donation, whenever lands meet land-adjustment criteria in Guidelines 8101 through 8104.**

**502. Provide timely response to landowner requests for access across the National Forest.**

**503. Acquire approximately 25 rights-of-way each year to improve Forest access.**

**504. Actively seek local government and tribal government input and support for those exchanges that substantially change the balance of federal and private lands.**

**505. Work with conservation groups, state agencies and others to develop and implement cost-effective land and resource protection measures such as conservation easements, etc.**

	<b>FY1998</b>	<b>FY1999</b>	<b>FY2000</b>	<b>FY2001</b>
<b>LAND ADJUSTMENT COMPLETED</b>	<b>ACRES</b>			
Land Acquired through Exchange	414	479	526	170
Land Acquired through Donation	105	-0-	0	0
TOTAL ACQUIRED	519	479	526	170
LESS:				
Land Conveyed Out	255	498	575	89
NET CHANGE:	+264	-19	-49	+81

<b>LAND ADJUSTMENT BEING PROCESSED</b>	<b>ACRES</b>	<b>ACRES</b>	<b>ACRES</b>	<b>ACRES</b>
Land Acquiring through Exchange	479	894	683	617
Land Acquiring through Donation	0	-0-	80	80
TOTAL ACQUIRING	479	894	763	697
LESS:				
Land Conveying Out	498	723	606	641
NET CHANGE:	-21	+171	+157	+56

The BHNF has continued to foster communication with several conservation groups and state agencies with the objective of completing land adjustment exchanges and/or conservation easements for everyone's benefit.

## Monitoring Item 37: Economic Efficiency - Cost

**Objectives:**

**601. Strive to reduce net costs of both market and non-market programs.**

**602. Maintain the ability to respond to budget reductions by keeping overhead and fixed costs, including salaries, at less than 70 percent of the Forest budget.**

**Budget:**

		FY98	FY99	FY00	FY2001
FUND CODE	FUND	DOLLARS	DOLLARS	DOLLARS	DOLLARS
	RECREATION, WILDERNESS AND HERITAGE RESOURCES	~	~	~	~
	OPERATIONS	~	~	~	~
NFRM	Recreation Management	835,000	584,000	630,900	See NFRW
NFWM	Wilderness Management	79,000	28,000	23,700	See NFRW
NFHR	Heritage Resources	75,000	67,000	43,400	See NFRW
NFRW	Recreation/Heritage/Wilderness	*	*	*	908,600
	INVESTMENTS	~	~	~	~
CNRF	Recreation Construction	-0-	145,000	See PAFC	See CMFC
CNTR	Trail Construction	222,000	107,000	See PATC	See CMTL
PATC	Trail Construction	*	*	211,700	See CMTL
CMTL	Trail Capital Improvements & Mtce.	*	*	*	308,100
	WILDLIFE AND FISH	~	~	~	~
	OPERATIONS	~	~	~	~
NFWL	Wildlife	197,000	138,000	88,700	See NFWF
NFIF	Inland Fish	62,000	50,000	54,600	See NFWF
NFTE	Threatened, Endangered and Sensitive Species	28,000	48,000	32,700	See NFWF

		<b>FY98</b>	<b>FY99</b>	<b>FY00</b>	<b>FY2001</b>
<b>FUND CODE</b>	<b>FUND</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>
NFWF	Wildlife & Fisheries Habitat Mgmt.	*	*	*	304,800
	RANGE	~	~	~	~
	OPERATIONS	~	~	~	~
NFRG	Livestock Grazing Management	317,000	457,000	307,800	405,400
NFRV	Noxious Weeds	247,000	276,000	441,900	See NFWW
RBRB	Range Betterment	52,000	68,000	48,300	51,400
NFN3	Rehabilitation & Restoration	*	*	*	4,940,300
	TIMBER	~	~	~	~
	OPERATIONS	~	~	~	~
NFTM	Timber Management – Forest Products	4,933,000	5,109,000	3,900,400	4,921,000
NFFV	Forest Land Vegetation Management	467,000	140,000	100,800	See NFWW
	INVESTMENTS	~	~	~	~
CNTM	Timber Road Construction/Reconstruction	655,000	See CNRD	See PARD	See CMRD
	SALVAGE	~	~	~	~
SSSS	Timber Salvage	349,000	950,000	597,400	801,100
	WATER, SOIL, AND AIR	~	~	~	~
	OPERATIONS	~	~	~	~
NFSO	Watersheds	76,000	68,000	34,600	See NFWW
NFSI	Soil Improvement	132,000	154,000	53,600	See NFWW
NFWW	Vegetation & Watershed Mgmt.	*	*	*	1,361,000
TRTR	Ten Percent Road and Trail Fund	458,000	1,010,000	476,800	357,100
	MINERALS	~	~	~	~
	OPERATIONS	~	~	~	~
NFMG	Minerals	206,000	192,000	161,200	432,600
	INFRASTRUCTURE	~	~	~	~
	OPERATIONS	~	~	~	~

		<b>FY98</b>	<b>FY99</b>	<b>FY00</b>	<b>FY2001</b>
<b>FUND CODE</b>	<b>FUND</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>
NFFA	Facilities Maintenance	239,000	189,000	See PAMF	See CMFC
PAMF	Facilities Maintenance	*	*	489,000	See CMFC
QMQM	Quarters Maintenance	32,000	61,000	16,900	4,900
NFRD	Roads Maintenance	843,000	See CNRM	See PAMR	See CMRD
CNRM	Roads Maintenance	*	902,000	See PAMR	See CMRD
PAMR	Roads Maintenance	*	*	896,300	See CMRD
HTER	Flood Repair	66,000	1,000	-0-	-0-
HWHW	Hazardous Waste Management (Nemo)	380,000	-0-	20,000	58,600
NFRN	Facilities Maintenance - REC	*	240,000	See PAMF	See CMFC
DMDM	Deferred Maintenance (Title VIII)	*	*	*	349,900
NFTR	Trail Maintenance	*	63,000	See PAMT	See CMTL
PAMT	Trail Maintenance	*	*	66,100	See CMTL
	<b>INVESTMENTS</b>	~	~	~	~
CNFA	Facility Construction	-0-	10,000	See PAFC	See CMFC
PAFC	Facility Construction	*	*	1,233,700	See CMFC
CNGP	Road Construction	105,000	See CNRD	See PARD	See CMRD
CMFC	Facilities Capital Improvements & Mtce.	*	*	*	1,260,400
CNRN	Road Construction	6,000	See CNRD	See PARD	See CMRD
CNRD	Road Reconstruction/Construction	*	1,068,000	See PARD	See CMRD
PARD	Road Construction	*	*	1,045,700	See CMRD
CMRD	Roads Capital Improvements & Mtce.	*	*	*	2,300,300
	<b>REAL ESTATE, PLANNING, AND LAW ENFORCEMENT</b>	~	~	~	~
	<b>OPERATIONS</b>	~	~	~	~
NFLP	Land Management Planning	240,000	115,000	See NFPN	See NFPN
NFPN	Land Management Planning	*	*	289,200	987,200
NFIM	Inventory and Monitoring	70,000	254,000	1,436,500	1,481,600

		<b>FY98</b>	<b>FY99</b>	<b>FY00</b>	<b>FY2001</b>
<b>FUND CODE</b>	<b>FUND</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>
NFMP	Inventory & Monitoring (Title VIII)	*	*	*	66,600
NFLE	Law Enforcement	95,000	71,000	52,700	91,000
NFLA	Real Estate Management	322,000	312,000	384,600	See NFLM
NFLL	Landline Location	202,000	174,000	283,800	See NFLM
NFLM	Landownership Mgmt.	*	*	*	724,900
LALW	Land Acquisition, Land and Water	32,000	16,000	36,500	15,200
LAAQ	Land Acquisition	*	*	*	5,200
SPEP	Economic Action Program (Community Assistance)	34,000	30,000	See SPEA	See SPEA
SPEA	Economic Action Program (Community Assistance)	*	*	30,000	45,000
SPS6	Economic Action, Tribal YCC	*	*	*	20,100
SPS7	Economic Action, Fire Protection & Pilot	*	*	*	166,000
	GENERAL ADMINISTRATION	~	~	~	~
	OPERATIONS	~	~	~	~
NFGA	General Administration	1,287,000	1,498,000	981,600	*
	TRUST FUNDS	~	~	~	~
CWKV	Knutson-Vandenberg	3,320,000	2,591,000	2,678,400	1,837,400
RTRT	Reforestation	164,000	109,000	-0-	9,600
CWFS	Other Coop Work	603,000	432,000	298,300	131,100
NFNF	NFS-Protection and Management Reimbursements	211,000	408,000	461,800	249,500
HTAE	Federal Highway Administration Expense	7,000	13,000	12,000	10,400
NWBM1	Water System Improvements	*	82,000	*	*
PEPE	Timber Roads Purchaser Elective	*	371,000	37,100	55,700
SPFH	Forest Health Management, Federal Land	26,000	133,000	7,200	240,200
NFSD NFSA	Senior Community Service Employment Program	41,000	136,000	131,800	143,600
~	FIRE MANAGEMENT	~	~	~	~



		<b>FY98</b>	<b>FY99</b>	<b>FY00</b>	<b>FY2001</b>
<b>FUND CODE</b>	<b>FUND</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>
BDBD	Brush Disposal	170,000	228,000	227,200	216,100
WFPR	Fire Pre-suppression	1,676,000	2,174,000	2,738,500	3,769,500
WFHF	Hazardous Fuel Reduction (Title II)	362,000	451,000	810,300	952,800
WFW2	Hazardous Fuels Reduction (Title IV)	*	*	*	2,398,900
WFSU	Emergency Suppression and Rehabilitation	812,000	941,000	6,639,600	6,663,800
~	<b>TOTAL</b>	<b>\$20,735,000</b>	<b>\$22,664,000</b>	<b>\$28,515,300</b>	<b>\$39,046,900</b>

\*New or discontinued fund codes

## Receipts:

Gross receipts before payments to counties:

	<b>FY1998</b>	<b>FY1999</b>	<b>FY2000</b>	<b>FY2001</b>
<b>DESCRIPTION</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>	<b>DOLLARS</b>
Timber	16,680,806	15,064,311	13,893,300	6,516,500
Grazing	117,983	117,186	118,300	106,300
Recreation - Special Uses (recreation residences)	74,499	80,198	133,900	108,200
Recreation - User Fees (admissions, outfitter guide permits)	31,213	15,546	21,500	20,400
Utility Special Use Permits	73,400	39,493	38,800	39,600
Minerals	7,294	6,304	6,800	12,500
Special Uses other than Recreation, Utilities, and Minerals	40,587	55,581	44,700	42,800
<b>TOTAL</b>	<b>\$17,025,782</b>	<b>\$15,378,619</b>	<b>\$14,257,300</b>	<b>\$6,846,300</b>

## **Update of Research Needs**

The following research needs were identified in FY2001:

1. Wildlife habitat relationships model (HABCAP) validation:
  - Brown Creeper
  - Pygmy Nuthatch
2. Wildlife distribution and abundance
  - Regal Fritillary
3. Northern Goshawk
  - population dynamics
  - seasonal movements
  - habitat use
  - home range size
4. Snail genetics for sensitive snail species
5. Expand geographic scope of ongoing marten study in the North Zone

## **Appendix**

- Goal and Objective Implementation
- Standard Compliance

## **Implementation of Goals and Objectives**

This section of the report describes progress in FY2001 towards meeting the goals and objectives in the 1997 Revised Forest Plan. Included objectives are those that correlate with the Monitoring Items in this report.

The following terms are used throughout this section:

***Planned*** - The ***Planned*** designation represents activities planned in FY2001. These activities will not be implemented for several years. They do not relate to ***Accomplished*** below. In FY2001, no activities were planned. Therefore, there is no "Planned" section in this FY2001 report.

***Accomplished*** - The ***Accomplished*** designation represents activities planned under earlier project decisions and actually carried out in FY2001. Many of these projects were planned under the 1983 Forest Plan and the accomplishments may not contribute toward the 1997 Revised Forest Plan Goals and Objectives. We include them for information.

***Current Conditions*** - Acres of habitat reported in the RMRIS Database as of March 13, 2002. Changes and new information are entered into the RMRIS database after the outdoor work season ends each year. The database is frozen when these entries have been added.

## GOALS AND OBJECTIVES

### **GOAL 1: Protect basic soil, air, water and cave resources.**

#### **Objectives:**

101. Maintain air quality standards in accordance with state implementation plans.

*The Forest received no violations of the Clean Air Act on the BHNF in FY2001. See Monitoring Item 1.*

### **GOAL 2: Provide for a variety of life through management of biologically diverse ecosystems.**

#### **Objectives:**

211. In Ponderosa pine forested portions of a watershed, maintain an average of 2 hard snags per acre on south facing slopes and 4 hard snags per acre on north facing slopes, well dispersed across the watershed through the rotation. Calculate as a per acre average for the watershed; some acres may have no snags while others may exceed the average. In other forest types maintain an average of 6 hard snags per acre, well dispersed across the watershed. *(Revised in Amendment One.)*

*Planned - the following table lists snag density at decision signing. Where density is below the standard, mitigation measures should serve to increase the density at project implementation:*

*No projects were signed in 2001.*

*See Monitoring Item 9.*

221. Conserve or enhance habitat for sensitive species and species of special interest (management indicator species) listed in Chapter Two.

*Planned – The Forest is currently involved in a cooperative elk study with the objective to validate the habitat relationship model.*

*A Forest-wide survey of land snails that was done in 1999 assesses a previous survey and adds new areas to determine trends in size and vigor. The final report is expected in 2002.*

*See Monitoring Item 18a-i.*



## **Black Hills National Forest**

223. Use management ignited fires and prescribed natural fires to achieve desirable vegetative diversity and fuel profiles on 8,000 acres per year for the next decade. Use natural fire on a limited basis under specifically prescribed conditions.

*Planned - -0-*

*Accomplished – 900 acres treated through prescribed burning in FY2001.*

*See Monitoring Item 22.*

227. Manage 28,900 acres of activity fuels and 4,000 acres of natural fuels each year during the next decade, consistent with the need to protect life, property and natural resources from the threat of wildfire. This acreage includes acres specified in Objective 223.

*Accomplished: Fuel treatment activities on 25,598 acres in FY2001.*

*See Monitoring Item 23.*

229. Using analyses of insect and disease populations, determine where suppression strategies are needed to meet management objectives and minimize value loss of tree vegetation affected by outbreaks of insect and disease pests.

*See Monitoring Item 20c.*

### **GOAL 3: Provide for sustained commodity uses in an environmentally acceptable manner.**

#### **Objectives:**

301. Produce on a sustained basis and make available up to 233 million pounds of forage for livestock and wildlife use each year (weather permitting). The location and amount of forage produced under the forest canopy will vary with the density of the overstory. This may necessitate changes in where and how both livestock and wildlife grazing takes place on a local basis over the rotation of a stand of timber.

a. Livestock use will be up to 127 million pounds of forage per year or approximately 128,000 AUMs.

*2001 calendar year - permitted AUMs were 116,707.*

*See Monitoring Item 17.*

**Black Hills National Forest**

303. Offer the following allowable sale quantity (ASQ) of timber on suitable and available timberlands in the next decade:

<b>1997 REVISED FOREST PLAN ALLOWABLE SALE QUANTITY</b>		<u><b>ANNUAL AVERAGE</b></u>	
SAWTIMBER		<b>MILLION CUBIC FEET (MMCF)</b>	<b>HUNDRED CUBIC FEET (ccf)</b>
Million Cubic Feet	181	<b>18.1</b>	<b>181,000</b>
(Million) Board Feet	838		
ROUNDWOOD			
Million Cubic Feet	21	<b>2.1</b>	<b>21,000</b>
(Million) Board Feet	N/A		
TOTAL			
Million Cubic Feet	202	<b>20.2</b>	<b>202,000</b>
(Million) Board Feet	838		

<b>DECADE TOTAL AVERAGE TREATMENT ACRES PER YEAR From Alt.G in the FEIS (page II-36)</b>	<b>FY1998 Acres</b>	<b>FY1999 Acres</b>	<b>FY2000 Acres</b>	<b>FY2001 Acres</b>	<b>FY1998- 2001 Acres</b>
25,500	47,710	32,773	-0-	4,462	84,945

Note: There were no planned project signed decisions for FY2000 and FY2001. The FY2001 acreage was from the Jasper Fire Area Recovery EIS.

<b>SAWTIMBER PLANNED VOLUME</b>	<b>FY1998 ccf</b>	<b>FY1999 ccf</b>	<b>FY2000 ccf</b>	<b>FY2001 ccf</b>	<b>FY1998-2001 ccf</b>
	207,000*	22,220*	0*	0*	229,220

<b>SAWTIMBER OFFERED VOLUME</b>	<b>FY1998 ccf</b>	<b>FY1999 ccf</b>	<b>FY2000 ccf</b>	<b>FY2001 ccf</b>	<b>FY1998-2001 ccf</b>
	148,138***	160,756***	0**	128,404***	437,298

<b>SAWTIMBER SOLD VOLUME</b>	<b>FY1998 ccf</b>	<b>FY1999 ccf</b>	<b>FY2000 ccf</b>	<b>FY2001 ccf</b>	<b>FY1998-2001 ccf</b>
	161,880	144,956	76,307***	20,726	403,869

<b>SAWTIMBER HARVESTED VOLUME</b>	<b>FY1998 ccf</b>	<b>FY1999 ccf</b>	<b>FY2000 ccf</b>	<b>FY2001 ccf</b>	<b>FY1998-2001 ccf</b>
	140,759	140,003	131,080	157,509	569,351

\*Planned - estimated volume from signed NEPA project decisions. No projects in FY2001.

\*\*Offered - regular program volume and salvage sale volume.

\*\*\*Part or all of this volume was advertised in FY99.

*See Monitoring Items 13 and 14.*

## Black Hills National Forest

309. Provide the following changes to the Forest Development Road system (FDR) in support of long-term sustainable production of commodities.

	1997 Revised Forest Plan	Planned FY1998	Planned FY1999	Planned FY2000	Planned FY2001
Road Construction	280 miles/decade	35 miles	5.4 miles	0	0
Road Reconstruction	870 miles/decade	301 miles	38.6 miles	0	0
Road Obliteration	140 miles/decade	*	*	*	*
Two-track Obliteration	270 miles/decade	*	*	*	*

	1997 Revised Forest Plan	Accomplished FY1998	Accomplished FY1999	Accomplished FY2000	Accomplished FY2001
Road Construction	280 miles/decade	13.3 miles	21.2 miles	1.6 miles	2.1 miles
Road Reconstruction	870 miles/decade	102.0 miles	178.1 miles	53.6 miles	21.3 miles
Road Obliteration	140 miles/decade	~	27.3 miles	18.3 miles	19.9 miles
Two-track Obliteration	270 miles/decade	24.8 miles	45.9 miles	23.5 miles	32.7 miles

*\*Road and/or two-track obliteration - 84.6 – FY1998; 21.9 – FY1999; -0- - FY2000*

*See Monitoring Item 32.*

### **GOAL 4:**

**Provide for scenic quality, a range of recreational opportunities, and protection of heritage resources in response to the needs of the Black Hills National Forest visitors and local communities.**

### **Objectives:**

403. Improve the management of heritage resources and integrate them with recreation and education while providing for compliance with all applicable laws and regulations.

- a. Increase numbers and types of heritage resource interpretive sites and opportunities. Provide five projects per year during the plan period.

*Accomplished - Heritage Sites Interpreted - 34 sites.*

*See Monitoring Item 28.*

- c. Nominate eligible sites (approximately five per year in the plan period) to the national Register of Historic places.

*No sites were nominated in FY2001.*

- d. Inventory 50,000 acres each year in the plan period for heritage resource sites.

**Black Hills National Forest**

*Accomplished - Heritage Inventory – 41,713 acres.*

407. Provide the following Recreation Opportunity Spectrum (ROS):

RECREATION OPPORTUNITY SPECTRUM (ROS) (Thousands of Acres)	
Primitive	11
Semi-Primitive Non-Motorized	18
Semi-Primitive Motorized	12
Roaded Natural	1107
Roaded Natural Non-Motorized	95
Rural	1

*There were no changes to ROS in FY2001.*

408. Manage recreation use to stay within the capacity for the ROS class:

ROS CLASS	CAPACITY RANGE RECREATION VISITOR DAYS (RVDs/ACRE)		
	Low	Moderate	High
Primitive	0.25	0.5	0.75
Semi-Primitive Non-Motorized	1.00	2.0	3.00
Semi-Primitive Motorized	1.50	3.0	4.50
Roaded Natural Non-Motorized	1.50	3.0	4.50
Roaded Natural	3.00	6.0	9.00
Rural	<<<< Design Capacity >>>>		

(See glossary for ROS capacity classes)

*There were no changes to ROS in FY2001.*

*See Monitoring Item 30.*

411. Correct or minimize potential risks to human lives or property in developed recreation sites. As annual inspections are done, schedule maintenance activities to correct or minimize identified problems.

*Accomplished: An analysis was made of hazardous trees in developed recreation sites and corrections were made.*

416. Maintain and construct trails as displayed in the following table:

1997 REVISED FOREST PLAN		FY1998 ACCOMPLISHED	FY1999 ACCOMPLISHED	FY2000 ACCOMPLISHED	FY2001 ACCOMPLISHED
Non-motorized Trails (1996)	293 miles	24.6 <sup>3</sup>	296.0 <sup>3</sup>	307.9	318.6
Motorized Trails (1996)	14 miles	0.00	24.6 <sup>3</sup>	14.2	14.2
Non-motorized Trail Construction	204 miles <sup>1</sup>	0.00	0.00	0.00	0.00
Motorized Trail Construction or Conversion from Road to Motorized Trail	15 miles <sup>1</sup>	435.7 <sup>3</sup>	0.00	0.00	0.00

**Black Hills National Forest**

Total Forest Trail System	526 miles <sup>2</sup>	70.10	320.6 <sup>3</sup>	322.1	322.8
Reconstruction	100 miles <sup>1</sup>	411.1 <sup>3</sup>	2.70	12.6	18.0

<sup>1</sup>Per decade

<sup>2</sup>Total Miles at End of Decade

<sup>3</sup>Inventoried miles at end of FY1998 and FY1999. FY1999 reflects Mickelson Trail operation and maintenance being transferred to the State of South Dakota.

*See Monitoring Item 34.*

**GOAL 5:**

**In cooperation with other landowners, strive for improved landownership and access that benefit both public and private landowners.**

**Objectives:**

501. Conduct approximately 500 to 1000 acres of land exchange each year over the decade, such as through purchase, exchange or donation, whenever lands meet land-adjustment criteria in Guidelines 8101 through 8104.

	FY1998	FY1999	FY2000	FY2001
<b>LAND ADJUSTMENT COMPLETED</b>	<b>ACRES</b>	<b>ACRES</b>	<b>ACRES</b>	<b>ACRES</b>
<i>Land Acquired through Exchange</i>	414	479	526	170
<i>Land Acquired through Donation</i>	105	-0-	0	0
<b>TOTAL ACQUIRED</b>	<b>519</b>	<b>479</b>	<b>526</b>	<b>170</b>
<b>LESS:</b>				
<i>Land Conveyed Out</i>	255	498	575	89
<b>NET CHANGE:</b>	<b>+264</b>	<b>-19</b>	<b>-49</b>	<b>+81</b>

	ACRES	ACRES	ACRES	ACRES
<b>LAND ADJUSTMENT BEING PROCESSED</b>				
<i>Land Acquiring through Exchange</i>	479	894	683	617
<i>Land Acquiring through Donation</i>	0	-0-	80	80
<b>TOTAL ACQUIRING</b>	<b>479</b>	<b>894</b>	<b>763</b>	<b>697</b>
<b>LESS:</b>				
<i>Land Conveying Out</i>	498	723	606	641
<b>NET CHANGE:</b>	<b>-21</b>	<b>+171</b>	<b>+157</b>	<b>+56</b>

503. Acquire approximately 25 rights-of-way each year to improve Forest access.

RIGHTS OF WAY ACQUIRED	FY1998	FY1999	FY2000	FY2001
	6	8	8	12



**GOAL 6:**

**Improve financial efficiency for all programs and projects.**

**Objectives:**

602. Maintain the ability to respond to budget reductions by keeping overhead and fixed costs, including salaries, at less than 70 percent of the Forest budget.

	<b>FY1998</b>	<b>FY1999</b>	<b>FY2000</b>		<b>FY2001</b>
<b>PERCENTAGE</b>	<b>62%</b>	<b>74%</b>	<b>67%</b>		<b>56%</b>

*See Monitoring Item 37.*

## **Standard Compliance**

Since no project decisions were signed in FY2001, standard compliance in new projects was not an issue.

## **List of Preparers**

<b>Item #</b>	<b>Monitoring Item</b>	<b>Preparers</b>
Introduction	What This Document Is	
1	Air Quality	Dean Berger
4	Best Management Practices	Monte Williams and Jessica Gould
9	Snag Retention	Steve Hirtzel
10	Thermal Cover	Steve Hirtzel
11	Down/Dead Woody Material	Deanna Reyher and Charon Geigle
13	Regeneration	Blaine Cook
14	Timber Production	Blaine Cook
17	Forage Utilization	Dave Slepnikoff
18	Sensitive Species: Animal	Steve Hirtzel
18	Sensitive Species: Plants	Deanna Reyher, Darcie Bacon, and Reed Crook
20a	Pine Beetle Susceptibility	Blaine Cook and Kurt Allen
20b	Pine Beetle Levels and Trends	Blaine Cook and Kurt Allen
20c	Insect and Disease Evaluations	Blaine Cook and Kurt Allen
21	Exotics	Blaine Cook and Kurt Allen
22	Fuel Loading Hazard	Dean Berger
23	Fuel Treatment	Dean Berger
24a	Fire Suppression	Dean Berger
24b	Fire Prevention	Dean Berger
25	Wildlife – Threatened and Endangered	Steve Hirtzel
26	Wildlife – Habitat Capability and MIS	Steve Hirtzel
27	Scenic Integrity	Steve Keegen
28	Heritage Resources	Dave McKee
30	Recreation Opportunities	Rick Hudson
31	Recreation Use, Trends and Demographics	Rick Hudson
32	Access: Road Mileage	Tom Rath
33	Access: Off Road Vehicle Access	Peggy Woodward
34	Access: Trail Opportunities	Paul Bosworth
35	Access: Right-of-Way Acquisition	Glenn Kostelecky
36	Real Estate: Land Adjustment	Glenn Kostelecky
37	Economic Efficiency - Cost	Joyce O'Connor
	Implementation of Goals and Objectives	Peggy Woodward
	Standard Compliance	Peggy Woodward