

# White Mountain National Forest



United States  
Department of  
Agriculture

Forest  
Service

**Eastern  
Region**



## Monitoring and Evaluation Guide



# Monitoring and Evaluation Guide

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## Introduction

Monitoring and evaluation are required by the National Forest Management Act to determine how well the Land and Resource Management Plan (*Forest Plan*) is working. Monitoring and evaluation are divided into three broad categories and are designed to answer the following basic questions:

1. **IMPLEMENTATION MONITORING - Did we do what we said we were going to do?**  
This question answers how well the direction in the *Forest Plan* is being implemented. Collected information is compared to Objectives, Standards, Guidelines and Management Area direction.
2. **EFFECTIVENESS MONITORING - Are the standards and guidelines working?**  
This question answers whether the application of standards and guidelines is achieving the results envisioned in the *Forest Plan*.
3. **VALIDATION MONITORING - Is our understanding of the situation and information available correct?** This question answers whether the assumptions and predicted effects used to formulate the goals and objectives are accurate.

Depending on the answers to the above questions, the *2005 Forest Plan* may be amended or revised to adapt to new information and changed conditions. Through this adaptive management approach, the plan is kept current,

While Chapter 4 (Monitoring and Evaluation Chapter) of the *Forest Plan* provides programmatic direction for monitoring and evaluating *Forest Plan* implementation, this Guide provides more specific direction to implement the monitoring strategy outlined in the *Forest Plan*. See Chapter 4 of the *Forest Plan* for more details on the linkage between these documents.

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## Monitoring Approach

Monitoring and evaluation are separate activities. Monitoring is the process of collecting data and information. Evaluation is the analysis and interpretation of the information and collected data. A key requirement of a monitoring strategy is that the public be given timely, accurate information about *Forest Plan* implementation. This is done through the release of an annual monitoring evaluation report. The monitoring program must be efficient, practical and affordable, and may make use of data that has been or will be collected for other purposes.

Monitoring tasks are scaled to the *Forest Plan*, program or project to be monitored. Each of these entails different objectives and requirements. Monitoring is not performed on every single activity, nor must it meet the statistical rigor of formal research.

As the *Forest Plan* points out, budgetary constraints affect the level of monitoring that can be done in a fiscal year. If budget levels limit the Forest's ability to perform all monitoring tasks, then the highest priority tasks are funded first. The *Monitoring and Evaluation Guide* establishes priority

categories for the monitoring items, and the annual monitoring schedule identifies which items will be measured given the current year's funding levels. The monitoring evaluation report provides the analysis and summary of the monitoring results.

It must be emphasized that this document is a guide – it is not a decision document. It is intended to provide guidance for the execution of Forest monitoring and evaluation activities required by NFMA. The *Guide* itself is dynamic, and may be subject to periodic revision to meet current needs during the life of the Forest Plan. The annual monitoring schedules will be subject to budgetary considerations, emerging research, and issue-driven factors that will influence monitoring priorities from year to year. Priorities will be revisited each year, based on a review of the criteria described in the *Priority* definition below (under “Purpose of the Monitoring and Evaluation Guide”).

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## Monitoring Needs

Chapter 4 of the *Forest Plan* describes monitoring needs in tables 4-03 through 4-06. This *Monitoring and Evaluation Guide* elaborates upon methods to be used to answer the monitoring questions asked in those tables.

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## Monitoring Methods, Tools, and Sources

The *Guide* contains specific monitoring items along with methods, protocols, and analytical procedures for monitoring them. In seeking to assess the effectiveness of our efforts to implement the Forest Plan and accomplish high quality on-the-ground results, the Forest will use a wide variety of tools, methods, and information sources. Although this *Guide* provides details for specific focused monitoring efforts aimed at answering specific questions, many other information sources may be used. Not all monitoring information will require focused site-specific sampling efforts. Information sources and monitoring methods to be used in evaluating our effectiveness may include any or all of the following:

- Accomplishment reports
- Annual project field reviews and NEPA compliance reviews
- General management reviews (GMRs)
- Functional Assistance Trips and Activity Reviews
- Project Administration (Permit/Contract Administrator reports and inspection reports)
- Data or information provided by contractors, permittees, partners, cooperators, researchers, conservation organizations, and other State and Federal agencies.

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## Purpose of the Monitoring and Evaluation Guide

The purpose of the *Monitoring and Evaluation Guide* is to identify specific items that respond to the items described in tables 4-03 through 4-06 of the Forest Plan. The Monitoring Guide outlines the methods to be used to collect and analyze the data. In addition, it describes the purpose, methods, locations, responsible persons, and estimated costs. The document also identifies the relative importance of the monitoring items. Each year, an interdisciplinary team will review the monitoring items and the monitoring questions and will work with the Forest leadership team in developing a monitoring schedule for the upcoming year that takes into account available budgets.

Specific components of each item in the *Monitoring and Evaluation Guide* include:

**Monitoring Item Name:** Descriptive name for the monitoring item.

**Monitoring Item ID:** Unique alpha-numeric identifier for each monitoring item. (Numbers are not indicators of any kind of priority or ranking.)

**Priority:** Indicates the priority of the monitoring item. Priority **R** (required) monitoring must be done before or in conjunction with activities that may be associated with it. Priority **H** (high) items should generally be funded after required items are funded. It is expected that annual budgets would normally allow most of these high priority items to be funded along with the required items. Priority **M** (moderate) items are important to the implementation of the 2005 Forest Plan but are contingent upon funding. Priority **L** (low) items are desirable to complete but may not be funded. A protocol for these items is usually not developed unless funding is available. In the priority setting, the following criteria are considered:

- If the item is required by law, regulation, or policy.
- The ecological significance of having the results for the issue. This is a measure of the potential risk to natural resources if the monitoring is not completed. This includes the potential for long-term or irreversible damage and the geographic extent of the potential effects.
- The level of scientific controversy surrounding the issue.
- The level of public controversy or concern surrounding the issue.
- The degree of link to achieving Plan desired future conditions?
- Additional data needs identified from previous monitoring activities
- Assessment of benefits versus the cost of collecting data
- Emerging issues and concerns that may be addressed through monitoring

**Forest Plan Reference Table Number:** The table reference(s) in Chapter 4 of the Forest Plan that this monitoring item addresses.

**Evaluation Questions:** Provides the purpose of monitoring (most are either legal requirements or provide information for better land management decisions).

**Data Collection Methods:** The specific techniques are described. The sampling technique descriptions may include the unit of measure for each data element, reference values (thresholds or trigger points), spatial scale, and a description of the evaluation process.

**Variable or Parameters:** Specific data needed, usually expressed in the form of measurable or quantifiable units (i.e.: miles of trail, acres of harvest, etc.)

**Frequency of Monitoring:** Describes how often information is gathered or measured. For example, may be annually, every three-five years, or every ten years. Some resources need to be monitored annually to produce trend data.

**Reporting Frequency:** Defines how often the information is analyzed and reported. Depending upon the question being answered, analysis of the information may occur at longer time intervals than the frequency of monitoring.

**Year Scheduled:** Describes the next Fiscal year the data will be collected.

**Year Last Accomplished:** Describes the Fiscal year the data collection was last collected.

**Cost for decade:** Dollar value cost to complete the monitoring during the decade. These estimates are for direct costs of retrieval or collection of data. Estimates do not include administrative overhead, supervision, contract preparation, or other similar indirect costs (unless otherwise noted).

**Cost for year scheduled:** Dollar value cost to complete the monitoring during the next year scheduled. These estimates are for direct costs of retrieval or collection of data. Estimates do not include administrative overhead, supervision, contract preparation, or other similar indirect costs (unless otherwise noted).

**Cost Explanation:** Explanation of the expenses associated with the monitoring item. This may also include dialogue about funding sources and any other comments related to financing the monitoring item. .

**Data Storage Method and Location:** Includes metadata on where the associated data is stored.

**Responsibility:** Lists who on the Forest has the primary lead for monitoring each item. This is often the program leader who works with District counterparts and other program leaders to ensure the item is completed if funded.

**Who (Cooperators):** Who is involved in the data collection, processing and analysis? These may include Forest Service and non-FS personnel.

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## Using the Monitoring and Evaluation Guide

Aside from serving as a bank of monitoring items that are subsampled to generate the Annual Monitoring Plan, the Guide will also aid in planning monitoring budgets by allowing for out-year scheduling (which is particularly useful for items with data collection intervals of 2, 3 or 5 years)

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## Annual Monitoring and Evaluation Report

Developed by an interdisciplinary team working with the Forest Supervisor, the *Annual Monitoring and Evaluation Report* summarizes the results of completed monitoring from the previous year(s), and evaluates the data. The evaluation process determines whether the observed changes are consistent with *Forest Plan* desired future conditions, goals, objectives and what adjustments may

be needed. The Forest Supervisor uses this information either to certify the *Forest Plan* as sufficient for management in the coming year, or to decide that the Plan needs to be amended.

This report may provide summaries of data collected, but is primarily written to display evaluation of the data, conclusions and recommendations. Comparison of subsequent monitoring and evaluation reports provide a means to track management effectiveness over time and to show the changes that have been made or are still needed.

Key questions to be addressed through monitoring and evaluation are:

- Are management direction and standards being followed?
- How well are objectives of the Plan being achieved?
- Do management prescriptions respond to issues, concerns, and opportunities?
- Are effects of Plan implementation occurring as predicted?
- Is the Forest progressing toward its long-term goals?

In summary, the *Annual Monitoring and Evaluation Report*:

- Reviews the results of monitoring activities during the preceding year
- Assesses the effectiveness of management practices in achieving goals, objectives and desired conditions (outcomes) specified in the Plan
- Compares the actual outputs, services and costs with those estimated in the Plan
- Evaluates the data for indicators of trends or effects
- Identifies a need to amend or revise the Plan
- Identifies research needed by the National Forest System

## Monitoring Items Summary Report- DRAFT

| <i>Resource Name</i> | <i>Monitoring Item/<br/>Indicator Name</i>                              | <i>Page #</i> | <i>Priority</i> | <i>Cost Per Decade (\$1,000)</i> | <i>Fiscal Year Scheduled</i> | <i>Cost for Year Scheduled (\$1,000)</i> |
|----------------------|---|---------------|-----------------|----------------------------------|------------------------------|--|
| Air                  | Air Quality Indicators - Lichen and Vegetation                          | 11            | Medium          | 60                               | 2007                         | 30                                       |
| Air                  | Air Quality Related Values  | 12            | High            | 285                              | 2006                         | 29                                       |
| Air                  | Effects of Prescribed Fire Management Practices on Air Quality          | 13            | Medium          | 40                               | 2007                         | 4  |
| Aquatics             | Fishing Opportunies   | 14            | Low             | 4                                | 2006                         | 2  |
| Aquatics             | Habitat Restoration/Improvement - Fish productivity                     | 15            | High            | 60                               | 2006                         | 6  |
| Aquatics             | Habitat Restoration/Improvement - Habitat Complexity                    | 16            | High            | 50                               | 2006                         | 5  |
| Aquatics             | R9 Sensitive Mayflies   | 17            | High            | 33                               | 2006                         | 10                                       |
| Aquatics             | Stream Temperatures   | 18            | High            | 20                               | 2006                         | 2  |
| Aquatics             | Wild Fish Inventories   | 19            | High            | 150                              | 2006                         | 15                                       |
| Fire                 | Prescribed Fire   | 20            | Medium          | 20                               | 2006                         | 2  |
| Fire                 | Wildland Fire Use   | 21            | Medium          | 20                               | 2006                         | 2  |
| Forestry             | Regeneration Harvest Opening Size                                       | 22            | Required        | 8                                | 2010                         | 4  |
| Forestry             | Stocking Level  | 23            | Required        | 20                               | 2006                         | 2  |
| Forestry             | Suited Land   | 24            | Required        | 10                               | 2015                         | 10                                       |
| Forestry             | Increase of Destructive Insects and Diseases                            | 25            | Required        | 20                               | 2006                         | 2  |
| Heritage             | Impacts on cultural and historic sites                                  | 26            | Medium          | 30                               | 2006                         | 3  |
| Minerals             | Rock and Mineral Collecting   | 27            | Low             | 10                               | 2006                         | 1  |
| Outputs              | Outputs Accomplished - Fisheries, Rec., Roads, Watershed, Wildland Fire | 28            | High            | 10                               | 2006                         | 1  |
| Outputs              | Outputs Accomplished - Volume and Acres of Timber Offered and Sold.     | 29            | Required        | 5                                | 2006                         | 1  |

## Monitoring Items Summary Report- DRAFT

| <i>Resource Name</i> | <i>Monitoring Item/ Indicator Name</i>   | <i>Page #</i> | <i>Priority</i> | <i>Cost Per Decade (\$1,000)</i> | <i>Fiscal Year Scheduled</i> | <i>Cost for Year Scheduled (\$1,000)</i> |
|----------------------|--|---------------|-----------------|----------------------------------|------------------------------|--|
| Plants               | Invasive Species Eradication Effectiveness                                       | 30            | Medium          | 50                               | 2006                         | 5  |
| Plants               | Invasive Species Prevention  | 31            | Low             | 125                              | 2006                         | 10                                       |
| Plants               | TES Plant Population Trends  | 32            | High            | 200                              | 2006                         | 20                                       |
| Plants               | Alpine Ecological Indicators   | 33            | Medium          | 33                               | 2007                         | 10                                       |
| Plants               | Cliff Plant Ecological Indicator   | 34            | High            | 33                               | 2006                         | 10                                       |
| Recreation           | Off Road Vehicles - Effects  | 35            | Required        | 31                               | 2008                         | 10                                       |
| Recreation           | Perceived quality of experience and perception of crowding among Forest visitors | 36            | Low             | 125                              | 2010                         | 125                                      |
| Recreation           | Use at Developed Campgrounds, Day Use Areas and Ski areas                        | 37            | Medium          | 20                               | 2006                         | 2  |
| Recreation           | Use at Special Use Permitted Backcountry Facilities                              | 38            | Medium          | 20                               | 2006                         | 2  |
| Recreation           | Use on Forest trails   | 39            | High            | 300                              | 2008                         | 30                                       |
| Recreation           | Rock Climbing Use  | 40            | High            | 33                               | 2007                         | 10                                       |
| Recreation           | Permitted Outfitter/Guide use on the Forest                                      | 41            | High            | 20                               | 2006                         | 2  |
| Scenery              | Scenic Integrity Objectives  | 42            | Medium          | 5                                | 2015                         | 5  |
| Socioeconomic        | Socioeconomic Outputs  | 43            | Required        | 6                                | 2006                         | 1  |
| Soils                | Long-term Soil Productivity  | 44            | High            | 55                               | 2015                         | 55                                       |
| Soils                | Soil Productivity  | 45            | High            | 30                               | 2006                         | 2  |
| Water                | Effects of Management Practices on Water Quality                                 | 46            | High            | 300                              | 2006                         | 30                                       |
| Water                | Watershed Condition  | 47            | Low             | 100                              | 2006                         | 10                                       |
| Water                | Implementation of BMPs   | 48            | Low             | 50                               | 2006                         | 5  |



## Monitoring Items Summary Report- DRAFT

| <i>Resource Name</i> | <i>Monitoring Item/ Indicator Name</i>   | <i>Page #</i> | <i>Priority</i> | <i>Cost Per Decade (\$1,000)</i> | <i>Fiscal Year Scheduled</i> | <i>Cost for Year Scheduled (\$1,000)</i> |
|----------------------|--|---------------|-----------------|----------------------------------|------------------------------|--|
| Wildcat WSR          | Wildcat WSR/Compliance of Developments or Activities within River Corridor                     | 49            | High            | 3                                | 2008                         | 1  |
| Wilderness           | Destination Use Trends in Wilderness   | 50            | High            | 100                              | 2006                         | 10                                       |
| Wilderness           | Dispersed Campsite Density and Size in Wilderness and Wild and Scenic River corridor           | 51            | High            | 113                              | 2007                         | 12                                       |
| Wilderness           | Satisfaction of Wilderness Visitors (quality of experience and perception of crowding).        | 52            | Medium          | 175                              | 2007                         | 100                                      |
| Wilderness           | Trail Use Trends in Wilderness   | 53            | High            | 80                               | 2006                         | 8  |
| Wilderness           | Control of Human Litter and Waste in Wilderness and the Wildcat Wild and Scenic River corridor | 54            | High            | 6                                | 2007                         | 2  |
| Wildlife             | Bald Eagle Monitoring  | 55            | Low             | 10                               | 2006                         | 1  |
| Wildlife             | Bicknell's Thrush Monitoring   | 56            | High            | 100                              | 2007                         | 20                                       |
| Wildlife             | Early Successional MIS Population Trends   | 57            | Required        | 35                               | 2007                         | 7  |
| Wildlife             | Loon Monitoring  | 58            | Low             | 20                               | 2006                         | 2  |
| Wildlife             | Mature MIS Population trends   | 59            | Required        | 150                              | 2006                         | 30                                       |
| Wildlife             | MIS Habitat Trends   | 60            | Required        | 2                                | 2010                         | 1  |
| Wildlife             | RFSS Butterflies   | 61            | Medium          | 40                               | 2008                         | 20                                       |
| Wildlife             | RFSS invertebrates (non-butterfly)   | 62            | Medium          | 66                               | 2008                         | 20                                       |
| Wildlife             | TES Bat Monitoring   | 63            | Medium          | 66                               | 2007                         | 20                                       |
| Wildlife             | TES Large Mammals  | 64            | High            | 150                              | 2006                         | 15                                       |
| Wildlife             | Wood turtle monitoring   | 65            | High            | 50                               | 2006                         | 10                                       |
| Wildlife             | High Elevation Bird Ecological Indicators  | 66            | High            | 40                               | 2006                         | 28                                       |

## Monitoring Items Summary Report- DRAFT

| <i>Resource Name</i>         | <i>Monitoring Item/ Indicator Name</i> | <i>Page #</i> | <i>Priority</i> | <i>Cost Per Decade (\$1,000)</i> | <i>Fiscal Year Scheduled</i> | <i>Cost for Year Scheduled (\$1,000)</i> |
|------------------------------|--|---------------|-----------------|----------------------------------|------------------------------|--|
| Wildlife                     | Peregrine Falcon Ecological Indicator  | 67            | Low             | 33                               | 2008                         | 10                                       |
| <i>Total Cost (\$1,000):</i> |  |               |                 |                                  |                              | 792                                      |

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## Air

**Monitoring Item Name:**

**Priority:** Medium

Air Quality Indicators - Lichen and Vegetation

**Monitoring Item Number:** 19

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

To what extent is air quality impacting forest resources especially Class I wilderness areas? Are AQRVs (air quality related values) being maintained and protected.

Ozone and other air pollutants can affect vegetation. This monitoring helps determine the extent of that impact. Monitoring this is a Forest plan goal. The information is used to guide Regional actions to improve air quality in the NE.

**Data Collection Method:**

Lichen protocol

Ozone vegetation damage protocol

Two surveys of each completed during planning cycle.

**Variables or Parameters:**

Lichen species, condition, and changes.

Ozone vegetation damage.

**Sample Design:**

Using compatible current protocols.

|   |                                     |  |
|---|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> 5 years | <b>Fiscal Year Scheduled:</b> 2007  | <b>Cost for Year Scheduled (\$1,000):</b> 30 |
| <b>Reporting Frequency:</b> Decade      | <b>Last Year Accomplished:</b> 1995 | <b>Cost Per Decade (\$1,000):</b> 60         |

**Estimated Cost - Explanation:**

\$15000. per individual survey. Ozone and lichen surveys completed twice per decade.

**Data Storage:**

NRIS-Air

**Responsibility:**

Air resource team leader

**Cooperators:**

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## Air

**Monitoring Item Name:**

**Priority:** High

Air Quality Related Values

**Monitoring Item Number:** 20

**Forest Management Plan Reference Table Number:**

|                          |                          |                          |                          |                                     |
|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General          | 4-06<br>Specific                    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Evaluation Question:**

Are air emissions affecting Air Quality Related Values (AQRVs) ? Are the IMPROVE protocols or similar technology being implemented?

This monitoring measures the level of of air emmissions and their impact on AQRV's such as water quality, scenic values, and human health. Collection of air quality data is required monitoring under the Forest Plan. Use of the IMPROVE site is an objective in the Forest Plan.

**Data Collection Method:**

Air chemistry is measured at Camp Dodge using IMPROVE protocol. Water quality is collected through an agreement with AMC.

**Variables or Parameters:**

Ozone measurements  
Water quality - ph, cations, anions, conductivity  
Visibility

**Sample Design:**

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 29 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 285        |

**Estimated Cost - Explanation:**

\$28,500/year

**Data Storage:**

**Responsibility:**

Air resource specialist.

**Cooperators:**

State of New Hampshire, Air Quality  
AMC

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## Air

**Monitoring Item Name:**

**Priority:** Medium

Effects of Prescribed Fire Management Practices on Air Quality

**Monitoring Item Number:** 16

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are emissions from forest activities meeting air quality standards?

This monitoring will help determine if our prescribed burning meets air quality standards by measuring particulate matter on site. The results will help determine if burning prescriptions adequately take into account air quality concerns.

**Data Collection Method:**

Use portable data collectors to record particulate matter during the activity.

**Variables or Parameters:**

**Sample Design:**

Selected prescribed fires will be monitored for air quality parameters such as particulate matter.

|  |                                    |   |    |
|--|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> Every 2 year | <b>Fiscal Year Scheduled:</b> 2007 | <b>Cost for Year Scheduled (\$1,000):</b> | 4  |
| <b>Reporting Frequency:</b> Annually         | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 40 |

**Estimated Cost - Explanation:**

\$2000/event. Anticipate measuring one or two fires per year initially. Accomplishment is dependent upon availability of equipment. Purchase of portable PM monitoring equipment - approx. \$15,000.

**Data Storage:**

NRIS

**Responsibility:**

Air specialist

**Cooperators:**

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## Aquatics

**Monitoring Item Name:**

**Priority:** Low

Fishing Opportunities

**Monitoring Item Number:** 5

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Is the Forest providing a range of fishing opportunities that meets demand and protects wild stocks?

This helps determine if we are meeting one of the Fisheries goals in the Forest Plan to provide a balance between wild and stocked indigenous fish species.

**Data Collection Method:**

Uses stocking reports compared to miles of perennial streams to determine balance.

**Variables or Parameters:**

miles of fishable streams stocked with trout

miles of fishable streams with wild trout, unstocked

**Sample Design:**

|                                     |                                    |   |   |
|-------------------------------------|------------------------------------|---|---|
| <b>Frequency of Monitoring:</b>     | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> | 2 |
| <b>Reporting Frequency:</b> 5 years | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 4 |

**Estimated Cost - Explanation:**

\$500 per year. Will calculate every year and report every 5 years. NFWF

**Data Storage:**

**Responsibility:**

Forest Fisheries Biologist

**Cooperators:**

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## Aquatics

**Monitoring Item Name:**

**Priority:** High

Habitat Restoration/Improvement - Fish productivity

**Monitoring Item Number:** 8

**Forest Management Plan Reference Table Number:**

|                          |                          |                          |                                     |                                     |
|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General                     | 4-06<br>Specific                    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**Evaluation Question:**

Are stream habitat restoration/improvement projects increasing wild trout productivity?

This monitoring compares measurements before and after aquatic improvement work. It helps determine if habitat improvements are effectively improving fish productivity.

**Data Collection Method:**

Fish abundance will be estimated using multiple-pass depletion methods. Backpack electrofishers will be used to collect fish from specific stream reaches. Block nets are used to isolate fish from other portions of the stream and fish are temporarily held after each pass through the station. Standard statistical software (Microfish) will be used to provide estimates of both juvenile and adult fish population abundance and biomass. Estimates with 95% confidence will be provided for all stations sampled.

**Variables or Parameters:**

Biomass and density of fish populations

**Sample Design:**

This sampling would be done at selected stream restoration projects.

|  |                                     |   |
|--|-------------------------------------|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 6 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 60        |

**Estimated Cost - Explanation:**

\$4000 per year NFWF

**Data Storage:**

Excel Spreadsheet designed specifically for fish population data  
ENRIS water if compatible.

**Responsibility:**

Forest Fisheries Biologist

**Cooperators:**

NHF&G

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## Aquatics

**Monitoring Item Name:**

**Priority:** High

Habitat Restoration/Improvement - Habitat Complexity

**Monitoring Item Number:** 7

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are stream habitat restoration/improvement projects resulting in increased habitat complexity?

This monitoring compares measurements before and after aquatic improvement work. It helps determine if habitat improvements are effectively restoring/improving habitat conditions.

**Data Collection Method:**

Uses draft National aquatic monitoring protocols.

**Variables or Parameters:**

Habitat Complexity (%pool, riffle, glide); Substrate size distribution; Large woody debris size and abundance; Bankfull Dimensions;

**Sample Design:**

|  |                                     |   |
|--|-------------------------------------|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 5 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 50        |

**Estimated Cost - Explanation:**

\$3000 per year NFWF.

**Data Storage:**

NRIS water (when ready)

**Responsibility:**

Forest Fisheries Biologist

**Cooperators:**

None



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## Aquatics

**Monitoring Item Name:**

R9 Sensitive Mayflies

**Priority:** High

**Monitoring Item Number:** 3

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are management activities influencing the distribution of aquatic stages of sensitive mayflies and their related communities? Little information exists on these species recently added to the RF's sensitive species list. The monitoring will help us determine if Forest S&G's along with State BMP provide adequate protection for these sensitive species.

**Data Collection Method:**

Aquatic invertebrate sampling methods.

**Variables or Parameters:**

**Sample Design:**

Weekly sampling from June through August in 1st-3rd order streams. Treatment sites would include watersheds where stream restoration projects and timber harvesting occur. Control sites outside of general forest areas would also be sampled.

Meet with UNH this winter to establish protocols.

|   |                                    |  |
|---|------------------------------------|--|
| <b>Frequency of Monitoring:</b> Triannually | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> Every 3 years   | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 33         |

**Estimated Cost - Explanation:**

\$10,000 per time  
Cost based on partnership with university to fund graduate student.  
Planned NFIM funding.

**Data Storage:**

Excel spreadsheet or some info in NRIS water

**Responsibility:**

Forest Fisheries Biologist

**Cooperators:**

Potential cooperators are UNH; Plymouth State University, or FS research.

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## Aquatics

**Monitoring Item Name:**

**Priority:** High

Stream Temperatures

**Monitoring Item Number:** 4

**Forest Management Plan  
Reference Table Number:**

4-02

Regulatory

4-03

Outputs

4-04

MIS

4-05

General

4-06

Specific

**Evaluation Question:**

Is the proportion of coldwater, coolwater, and warmwater streams changing during the planning period?

Monitoring will help determine if we are meeting one of the primary Forest Plan riparian goals. Stream temperature affects not only specie population but also community composition. One aspect of this is to help determine where to and not to stock fish.

**Data Collection Method:**

Continue with current inventory using HOBO thermographs. Repeat sites for monitoring.

**Variables or Parameters:**

Average weekly maximum temperature from last week in June thru last week in August

**Sample Design:**

Will sample 20 streams in FY 2006 using past years sampling to refine exact locations for thermographs.

|   |                                     |   |
|---|-------------------------------------|---|
| <b>Frequency of Monitoring:</b> 5 years | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 2 |
| <b>Reporting Frequency:</b> 5 yr.       | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 20        |

**Estimated Cost - Explanation:**

\$2000 per year. Conduct sampling every year but report every 5 years.  
NFIM or NFWF

**Data Storage:**

**Responsibility:**

Forest Fisheries Biologist

**Cooperators:**

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## Aquatics

**Monitoring Item Name:**

Wild Fish Inventories

**Priority:** High

**Monitoring Item Number:** 6

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

How are fish populations changing over time?

This monitoring inventories fish populations and habitat in selected reaches by 6th level watershed to track population trends over long term. The information may be used to answer questions of climate change and acid deposition effects after a baseline inventory is complete.

**Data Collection Method:**

Fish abundance will be estimated using multiple-pass depletion methods. Backpack electrofishers will be used to collect fish from specific stream reaches. Block nets are used to isolate fish from other portions of the stream and fish are temporarily held after each pass through the station. Standard statistical software (Microfish) will be used to provide estimates of both juvenile and adult fish population abundance and biomass. Estimates with 95% confidence will be provided for all stations sampled.

**Variables or Parameters:**

Fish biomass

**Sample Design:**

Samples will be randomly taken from within select reaches. Reaches will be determined using GIS data layers (contours, streams, roads, dams).

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 15 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 150        |

**Estimated Cost - Explanation:**

15,000 per year NFIM

**Data Storage:**

**Responsibility:**

Forest Fisheries Biologist

**Cooperators:**

NH Fish and Game

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## Fire

**Monitoring Item Name:**

**Priority:** Medium

Prescribed Fire

**Monitoring Item Number:** 71

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Is Prescribed Fire being effectively used as a tool to meet management objectives set forth in the Forest Plan (Chapter 1)? Are prescribed burns meeting the fire effect objectives set forth in each burn plan?

This monitoring will help managers determine if prescribed burns are providing the results expected.

**Data Collection Method:**

Priority is for monitoring understory burns.

Use FIREMON ([www.fire.org](http://www.fire.org))

FIREMON (Fire Effects Monitoring and Inventory System) is a comprehensive monitoring system designed to satisfy fire management agency monitoring requirements. FIREMON includes components and instructions enabling field personnel to design a monitoring project, conduct field sampling and, store and analyze their fire effects and other monitoring data.

**Variables or Parameters:**

Various -- can include vegetation, soil, fuels characteristics and human factors

**Sample Design:**

|                                      |                                     |   |
|--------------------------------------|-------------------------------------|---|
| <b>Frequency of Monitoring:</b>      | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 2 |
| <b>Reporting Frequency:</b> Annually | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 20        |

**Estimated Cost - Explanation:**

2 days/ burn (of forestry tech time) GS-6 level, dependant on size of burn and ecological objectives; possibly completed through cooperation with TNC cooperator.

**Data Storage:**

**Responsibility:**

Fire Planner/ Ecologist

**Cooperators:**

The Nature Conservancy

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## Fire

**Monitoring Item Name:**

Wildland Fire Use

**Priority:** Medium

**Monitoring Item Number:** 72

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Do wildland fires managed using Wildland Fire Use successfully meet objectives set forth in the Forest Plan and Fire Management Plan? Did the fire stay within the allowed management areas and fire behavior parameters presenting low risk to firefighter and public safety? Did the fire function as a natural ecosystem process to restore or maintain natural plant communities? Were hazardous fuels reduced? Monitoring the effects of a wildland fire is critical for documentation and assessment of ecosystem changes and rehabilitation needs.

**Data Collection Method:**

Use FIREMON sampling methods ([www.fire.org](http://www.fire.org))

FIREMON (Fire Effects Monitoring and Inventory System) is a comprehensive monitoring system designed to satisfy fire management agency monitoring requirements. FIREMON includes components and instructions enabling field personnel to design a monitoring project, conduct field sampling and, store and analyze their fire effects and other monitoring data.

**Variables or Parameters:**

Various -- can include vegetation, soil, fuels, and human components.

**Sample Design:**

|                                      |                                    |   |    |
|--------------------------------------|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b>      | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> | 2  |
| <b>Reporting Frequency:</b> Annually | <b>Last Year Accomplished:</b>     | <b>Cost Per Decade (\$1,000):</b>         | 20 |

**Estimated Cost - Explanation:**

Dependant on the frequency of occurrence and size of wildland fire use events.

**Data Storage:**

**Responsibility:**

Fire Planner/ Ecologist

**Cooperators:**

The Nature Conservancy

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## Forestry - Wildlife

**Monitoring Item Name:**

**Priority:** Required

Regeneration Harvest Opening Size

**Monitoring Item Number:** 70

**Forest Management Plan  
Reference Table Number:**

4-02      4-03      4-04      4-05      4-06  
Regulatory      Outputs      MIS      General      Specific  
                       

**Evaluation Question:**

Is the maximum opening size for even-age regeneration harvest being met and are we accomplishing resources needs?  
Are we meeting wildlife habitat regeneration objectives in both size and quantity of openings by habitat types.  
This is a required Forest plan monitoring item. It helps determine whether we have met standards for maximum opening size and scenic integrity.

**Data Collection Method:**

Quantitative comparisons of the on-the-ground condition and Forest plan standards. Query the FSVeg database (or FACTS and CDS if FS Veg not available) to get stand information. Individual stand prescriptions will also be monitored through annual timber sale reviews.

**Variables or Parameters:**

**Sample Design:**

|   |                                     |   |   |
|---|-------------------------------------|---|---|
| <b>Frequency of Monitoring:</b> 5 years | <b>Fiscal Year Scheduled:</b> 2010  | <b>Cost for Year Scheduled (\$1,000):</b> | 4 |
| <b>Reporting Frequency:</b> 5 years     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b>         | 8 |

**Estimated Cost - Explanation:**

Data base comparison against standards. Evaluated on a 5 year basis.

**Data Storage:**

CDS data base

**Responsibility:**

Forestry Program Leader/Forest Planner

**Cooperators:**

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## Forestry

**Monitoring Item Name:**

**Priority:** Required

Stocking Level

**Monitoring Item Number:** 67

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are lands adequately restocked?

There is a legal requirement to ensure adequate restocking following harvest. This monitoring item helps determine if we are meeting the requirement.

**Data Collection Method:**

Stocking Surveys ( 3rd or 5th)

The R9 FSH 2409.26b is currently being updated. This document will provide the protocol for stocking surveys.

**Variables or Parameters:**

Stocking levels of suitable species in regeneration harvest areas.

**Sample Design:**

|  |                                     |   |
|--|-------------------------------------|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 2 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 20        |

**Estimated Cost - Explanation:**

Costs are only for reporting the summary results. Actual survey costs are part of the program of work for our Forest Management program. CWKV or NFTM will fund.

**Data Storage:**

Summary data will be stored in FACTS

**Responsibility:**

Forest Silviculturist or Forestry Program Leader if Silviculturist is not available.

**Cooperators:**

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## Forestry

**Monitoring Item Name:**

**Priority:** Required

Suited Land

**Monitoring Item Number:** 68

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

**Reference Table Number:**

Are lands termed unsuited for timber production adequately described and mapped?

This is a legally required item. This monitoring helps identify where timber harvest can take place.

**Data Collection Method:**

Record the acres of unsuitable and suitable lands inventoried.  
Use Common Stand Exam

**Variables or Parameters:**

**Sample Design:**

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2015  | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> 10 years     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 10         |

**Estimated Cost - Explanation:**

Data will be used from stand inventories. Costs only include the anticipated analysis costs associated with using existing information. It does NOT include stand examination and inventory costs associated with field data collection. While stand exam will occur annually, this analysis will occur on a 10 year basis.

**Data Storage:**

FSVeg (NRIS) and CDS

**Responsibility:**

Forest Planner

**Cooperators:**



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## Forestry - Ecology

**Monitoring Item Name:**

**Priority:** Required

Increase of Destructive Insects and Diseases

**Monitoring Item Number:** 69

**Forest Management Plan  
Reference Table Number:**

|                                     |                          |                          |                          |                          |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 4-02<br>Regulatory                  | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General          | 4-06<br>Specific         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Evaluation Question:**

To what extent have destructive insects and disease organisms increased?

This monitoring helps track trends in insect and disease activity. It can be used to determine when management action should take place.

**Data Collection Method:**

Record the number of outbreaks (and acres affected) for each insect or disease organism (quantitative). Unless "damaging levels" has been concretely defined, a qualitative assessment of suppression will be made. State & Private Forestry does an annual aerial detection survey. Hotspots are mapped while in the air and later followed up with ground-truthing and identification of the organisms causing the damage. They also summarize these efforts in an annual report that can be used as a source for our monitoring report.

**Variables or Parameters:**

Number of outbreaks  
Acres affected  
Species of insects and diseases

**Sample Design:**

|  |                                     |   |
|--|-------------------------------------|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 2 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 20        |

**Estimated Cost - Explanation:**

Forest Service State and Private Forestry funds the cost of the aerial detection. Costs shown are for routine reporting. If a problem occurs, protocols will have to be developed for the specific situation and costs identified for more intensive surveys.

**Data Storage:**

NRIS

**Responsibility:**

Forest Silviculturist, Forest Ecologist, Forest Botanist

**Cooperators:**

State and Private Forestry

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## Heritage

**Monitoring Item Name:**

**Priority:** Medium

Impacts on cultural and historic sites

**Monitoring Item Number:** 33

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

What are the human impacts to cultural and historic sites?

This monitoring will help determine if there is unacceptable damage by projects or by vandalism.

**Data Collection Method:**

Field inspection during scheduled NEPA compliance reviews, activity reviews, general management reviews, and other focused field reviews of National Register sites. A portion of the sites examined will include those within the Wildcat Wild and Scenic River boundaries.

**Variables or Parameters:**

Unacceptable damage by projects or vandalism of known sites (number, description).

**Sample Design:**

None - field inspection of known sites

|   |                                    |   |    |
|---|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> Annually  | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> | 3  |
| <b>Reporting Frequency:</b> Every 3 years | <b>Last Year Accomplished:</b>     | <b>Cost Per Decade (\$1,000):</b>         | 30 |

**Estimated Cost - Explanation:**

Annual field checks. The 3 yr. Evaluation is estimated to cost \$2,000 per time.

**Data Storage:**

Heritage database and atlas. INFRA-Heritage.

**Responsibility:**

Forest Heritage program manager  
District Rangers and NEPA coordinators

**Cooperators:**

New Hampshire SHPO

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## Minerals

**Monitoring Item Name:**

**Priority:** Low

Rock and Mineral Collecting

**Monitoring Item Number:** 17

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are recreational mineral collecting areas being maintained? Do they meet standards and guidelines?

Measures whether sites are being maintained to safety and resource protection standards with a focus on fee sites. It specifically evaluates whether the Deer Hill fee site is being maintained. It evaluates whether the collecting activity itself meets Forest Plan standards and guidelines. This monitoring helps managers determine if additional actions are needed to protect the sites.

**Data Collection Method:**

Involves site visits to evaluate effectiveness of management actions. Annual report of geology/mineral activities on the forest. Includes number of permits sold at Deer Hill, other permit information as available, inventory reports, GISdata, site reports, pictures, and other items.

**Variables or Parameters:**

**Sample Design:**

|  |                                     |   |    |
|--|-------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> | 1  |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b>         | 10 |

**Estimated Cost - Explanation:**

\$1000. This is part of the NFMG program of work and is funded through that fund code.

**Data Storage:**

GIS, Excel

**Responsibility:**

Geology/mineral program team leader

**Cooperators:**

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## Outputs

**Monitoring Item Name:**

**Priority:** High

Outputs Accomplished - Fisheries, Rec., Roads, Watershed, Wildland Fire

**Monitoring Item Number:** 1

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

**Reference Table Number:**

How do actual outputs compare with estimates in Appendix B?

This monitoring uses existing reporting systems to determine if expected Forest Plan outputs are occurring.

**Data Collection Method:**

Utilize annual reports such as MAR and existing data bases for trails and roads to assemble the information.

**Variables or Parameters:**

Miles of stream habitat restored. Number of road crossings where fish passage was restored. Acres of Wildlife opening maintained. Net increase in miles of non-motorized trails. Net increase in miles of snowmobile trails. Net increase in developed campground sites. Net increase in the PAOT's for backcountry facility capacity. Miles of roads constructed, reconstructed, decommissioned. Acres of improved watershed or soil conditions. # of fires where WFU was employed.

**Sample Design:**

None needed. Data will come directly from data bases.

|  |                                    |   |    |
|--|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> | 1  |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 10 |

**Estimated Cost - Explanation:**

**Data Storage:**

**Responsibility:**

Fisheries program manager, Recreation program manager, Fire management officer, Water/Air program manager, Wildlife program manager, and Forest Engineer

**Cooperators:**

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## Outputs

**Monitoring Item Name:**

**Priority:** Required

Outputs Accomplished - Volume and Acres of Timber Offered and Sold.

**Monitoring Item Number:** 2

**Forest Management Plan Reference Table Number:**

|                          |                                     |                          |                          |                          |
|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs                     | 4-04<br>MIS              | 4-05<br>General          | 4-06<br>Specific         |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Evaluation Question:**

How do actual outputs compare with estimates in Appendix B?

This monitoring uses existing reporting systems to determine if expected Forest Plan outputs are occurring. This will help validate some of the socioeconomic impacts of the Forest Plan.

**Data Collection Method:**

Utilize timber sale accounting reports to identify: the amount of volume offered and sold each fiscal year; acres of even-aged regeneration harvest and intermediate harvest; acres of uneven-aged harvest; and acres of total harvest.

**Variables or Parameters:**

Acres of even-aged regeneration harvest annually and total for the decade.  
 Acres of even-aged intermediate harvest annually and total for the decade.  
 Acres of uneven aged harvest annually and total for the decade.  
 MMBF Volume of Sawtimber and Pulp offered and sold in FY and decade.

**Sample Design:**

None needed. Data will come directly from timber data bases.

|  |                                     |   |   |
|--|-------------------------------------|---|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> | 1 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b>         | 5 |

**Estimated Cost - Explanation:**

\$500/year

**Data Storage:**

**Responsibility:**

Forest Forest management program leader

**Cooperators:**

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## Plants

**Monitoring Item Name:**

**Priority:** Medium

Invasive Species Eradication Effectiveness

**Monitoring Item Number:** 62

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

**Reference Table Number:**

To what extent have been objectives been attained?

Monitoring helps determine how effective NNIS eradication treatments are and guides future actions.

**Data Collection Method:**

Visit treatment sites and monitor effectiveness

**Variables or Parameters:**

Area of infestation post-treatment

**Sample Design:**

Measure occurrences (area of coverage, number of stems, etc. depending on species). Revisit populations of NNIS after eradication treatment to determine if size/condition of population has declined. Frequency depends on species, treatment, etc.

|  |                                     |   |
|--|-------------------------------------|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 5 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 50        |

**Estimated Cost - Explanation:**

\$5,000/yr. NFVW covers cost.

**Data Storage:**

TERRA?

**Responsibility:**

Forest Botanist will direct project; implementation may be by all units

**Cooperators:**

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## Plants

**Monitoring Item Name:**

Invasive Species Prevention

**Priority:** Low

**Monitoring Item Number:** 61

**Forest Management Plan**

4-02

4-03

4-04

4-05

4-06

**Evaluation Question:**

What portion of the Forest is infested with non-native, invasive species?

This monitoring helps indicate if infestation are occurring and where treatment should occur.

**Reference Table Number:**

Regulatory

Outputs

MIS

General

Specific

**Data Collection Method:**

Identification of new invasive site locations and monitoring of known occurrences.

**Variables or Parameters:**

Number of new occurrences of NNIS plants

**Sample Design:**

Most likely, some portion of the Forest will be surveyed each year depending on budget, but the same locations will not be revisited annually.

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 125        |

**Estimated Cost - Explanation:**

\$5,000-\$30,000 is range for each survey depending on the intensity desired. A portion of the Forest is monitored each year. NFVW funding.

**Data Storage:**

TERRA

**Responsibility:**

Forest Botanist will direct project; implementation by all units

**Cooperators:**

New England Wild Flower Society?

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## Plants

**Monitoring Item Name:**

TES Plant Population Trends

**Priority:** High

**Monitoring Item Number:** 53

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are individual known occurrences on the Forest increasing, stable, or decreasing?

The monitoring helps establish population trends in order to insure these sensitive species persist on the Forest.

**Data Collection Method:**

Subset of RFSS plant species will be visited each year  
some occurrences of a given species will be visited every 5 years

**Variables or Parameters:**

Number of individuals / size of population

**Sample Design:**

Visit site during appropriate identification season (usually summer), count plants and report according to NHNHB protocols (see their survey form)

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 20 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 200        |

**Estimated Cost - Explanation:**

Will need to establish some protocol in 2006 to determine which occurrences of TES plant populations to monitor in a given year.

**Data Storage:**

New Hampshire Natural Heritage Bureau database

**Responsibility:**

Forest Botanist will coordinate monitoring; implementation by all units

**Cooperators:**

New Hampshire Task Force



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## Plants - Recreation

**Monitoring Item Name:**

**Priority:** Medium

Alpine Ecological Indicators

**Monitoring Item Number:** 50

**Forest Management Plan  
Reference Table Number:**

|                          |                          |                          |                                     |                          |
|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General                     | 4-06<br>Specific         |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**Evaluation Question:**

What are the effects of various recreation use levels on alpine plant communities?

Similar to the cliff rock climbing study this monitoring helps determine the amount of impact of recreation use in the alpine zone on sensitive plants.

**Data Collection Method:**

Monitor subsamples of alpine ecological indicators based on proximity to trails to determine if hiking use is negatively affecting communities.

**Variables or Parameters:**

Recreation use levels  
Amount (area and condition) of trampling of plants or community patches

**Sample Design:**

Identify subsamples of dry-mesic heath and snowbank/wet ravine alpine communities near high-use trails, low-use trails, and away from trails or other activity. Measure size of patches and changes over time, as well as condition of vegetation within patches (e.g. smashed stems, other signs of damage, etc.). Think about soil chemistry changes (e.g., increased nitrogen near trails?) Will also need to be able to correlate recreation activity on each trail near sample sites.

This is more about community integrity than individual species, but may need to also be aware of changes in individual species as grids are evaluated in case some species are more sensitive to recreation use changes.

|   |                                    |  |
|---|------------------------------------|--|
| <b>Frequency of Monitoring:</b> Triannually | <b>Fiscal Year Scheduled:</b> 2007 | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> Every 3 years   | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 33         |

**Estimated Cost - Explanation:**

average \$10,000 per year of monitoring. Completed every 3 years. Need to do this or the cliff monitoring in 2006 and the other one the following year.

**Data Storage:**

Data kept with Forest Botanist  
Rare plant occurrence reported to NHHNB

**Responsibility:**

Forest botanist / Recreation Program Manager will coordinate monitoring; implementation possibly by units, through contract, partners, or some combination

**Cooperators:**

AMC Research (Ken Kimball)?

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## Plants - Recreation

**Monitoring Item Name:**

Cliff Plant Ecological Indicator

**Priority:** High

**Monitoring Item Number:** 52

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

What are the effects of cliff-related recreation use on cliff plant abundance and rare plant persistence?  
We know we have rare species on the cliffs and at the base of cliffs. Rock climbing can affect these species. The monitoring will help determine the extent of these impacts.

**Data Collection Method:**

Ocular survey of cliff face/base and along specific climbing routes

**Variables or Parameters:**

Rock-climbing / access hiking route use levels  
Vegetative cover (percent cover) on and at base of cliffs

**Sample Design:**

Probably 2 phases to monitoring: 1) a broad effort across large areas of cliff face and base (grid-based, binoculars to measure percent cover, etc.), and 2) a more specific effort along specified cliff routes evaluating rare plant occurrences and condition. Will also need to evaluate potential routes not yet being climbed. Will need to also measure climbing use at sample locations. Could be done in conjunction with peregrine monitoring.

|   |                                    |  |
|---|------------------------------------|--|
| <b>Frequency of Monitoring:</b> 3-5 years | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> 3-5 years     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 33         |

**Estimated Cost - Explanation:**

\$10,000/survey with surveys every 3 years. Reporting is done following each survey but evaluation cannot occur until at least two surveys are completed. Protocols need to be developed in 2006. These may start with photo points for 2006 and expand to monitoring individual species in following surveys.

**Data Storage:**

With Forest Botanist

**Responsibility:**

Forest Botanist / Recreation Program Manager will coordinate monitoring; implementation likely through contract and force account from all units

**Cooperators:**

Likely contract for climbing route surveys of rare plants, but could use other staff to inventory plants at base.

# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Recreation

**Monitoring Item Name:** Off Road Vehicles - Effects **Priority:** Required

**Monitoring Item Number:** 36 **Forest Management Plan Reference Table Number:**

|  |                          |                          |                          |                                     |                          |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
|  | 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General                     | 4-06<br>Specific         |
|  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**Evaluation Question:**  
 What is the effect of off-road vehicles when using snowmobile trails early or late in the winter use season on soil, water, vegetation, fish and wildlife, forest visitors and cultural and historic resources?  
 Monitoring of ORV impacts is required by law. The results will help identify if there are problems in the "shoulder" seasons when there is higher risk of damage. The results will help determine if management action is needed.

**Data Collection Method:**  
 Individual district meetings to identify, discuss and document problem, on-the-ground monitoring of identified areas and follow-up meetings with appropriate groups to address those locations where monitoring proves a problem exists.

**Variables or Parameters:**  
 Varies depending on the location of any trail and the resources potentially affected as well as by previous monitoring results.

**Sample Design:**  
 Individual district meetings to identify, discuss and document problem, on-the-ground monitoring of identified areas and follow-up meetings with appropriate groups to address those locations where monitoring proves a problem exists.

|   |                                    |   |    |
|---|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> as needed - f | <b>Fiscal Year Scheduled:</b> 2008 | <b>Cost for Year Scheduled (\$1,000):</b> | 10 |
| <b>Reporting Frequency:</b> Every 3 years     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 31 |

**Estimated Cost - Explanation:**  
 \$10,200/survey completed every three years.

**Data Storage:**  
 Individual report on review done to be made part of applicable annual monitoring report, but building on previous reports.

**Responsibility:**  
 Recreation Staff/applicable specialists

**Cooperators:**  
 State OHRV Offices and local clubs.

Recreation

**Monitoring Item Name:**

**Priority:** Low

Perceived quality of experience and perception of crowding among Forest visitors

**Monitoring Item Number:** 40

**Forest Management Plan Reference Table Number:**

|                          |                          |                          |                          |                                     |
|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General          | 4-06<br>Specific                    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Evaluation Question:**

What is the level of visitor satisfaction on the Forest (as measured by quality of experience and perception fo crowding) at developed sites as well as in the backcountry?  
 This monitoring provides trend information to help managers determine if they are meeting visitor expectations. This gives managers an indication of management actions that may need to be taken to meet visitor needs and to judge their reaction to the implementation of the recreation strategy.

**Data Collection Method:**

Attitude Survey on visitor satisfaction (quality of experience and perception of crowding). Methods will at least include an on-site exit survey of Forest visitors.

**Variables or Parameters:**

The "indicators" will be determined during development of the protocol for this survey. It will be developed in partnership with recreation researchers and carried out through contract or partnership agreements with recreation research universities. The Wilderness visitor satisfaction survey implemented as part of the plan will serve to help in defining this for recreation in the backcountry areas of the Forest.

**Sample Design:**

Survey, every 3-5 years  
 Survey will focus on visitor perceptions of crowding at selected dveloped sites and selected sites in the backcountry.  
 Survey will also focus on visitor satisfaction as a measure of whether information delivery and education messages are helping visitors find the appropriate recreation opportunity they desire.  
 Sample design (number of samples, location and timing of sampling, etc) of survey to be determined during development of protocol.

|  |                                    |   |
|--|------------------------------------|---|
| <b>Frequency of Monitoring:</b> 10 Years | <b>Fiscal Year Scheduled:</b> 2010 | <b>Cost for Year Scheduled (\$1,000):</b> 125 |
| <b>Reporting Frequency:</b> 10 Years     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 125         |

**Estimated Cost - Explanation:**

\$125,000 at least once during the life of the Plan for a single stand alone contract.

**Data Storage:**

Recreation Files Central office files

**Responsibility:**

Recreation management staff

**Cooperators:**

Potential:  
 Trail cooperator clubs  
 New England universities with recreation research programs  
 Wilderness Society  
 Concession operators

# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Recreation

**Monitoring Item Name:**

**Priority:** Medium

Use at Developed Campgrounds, Day Use Areas and Ski areas

**Monitoring Item Number:** 37

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

How is the amount of use at Forest developed campgrounds, day use areas, developed facility permits and ski areas changing over time?

Monitoring helps Forest personnel understand who is using the facilities. In addition, use is an indicator of impacts at day use sites. This combined with occupancy rates in developed campgrounds and ski area use can help show a need for additional or less facilities. Use figures will help determine where management approaches need to be changed or where capacity needs to be adjusted. The developed campground information can help in discussing changes with concessionaires.

**Data Collection Method:**

Input reports of use by campground concession operations, permitted ski areas (downhill and cross-country), and other use information (e.g. counts at PNVC, counts at visitor centers, fee tube counts at day use sites, etc.) in a Forest recreation use database.

**Variables or Parameters:**

Visits and visitor days - use standard Length of Stay Factors (LOS) to translate between visits and visitor days.  
Site occupancy rates at developed campgrounds  
Use at ski areas.  
Use at day use areas.

**Sample Design:**

Developed campgrounds, permitted ski areas, and some day use areas (PNVC, Saco RD VIS center, Gateway Center, etc.) would require no sampling.  
Other day use areas would have to be estimated use (e.g. analysis of fee tube collections or sampling protocol, if necessary TBD).

|   |                                     |   |
|---|-------------------------------------|---|
| <b>Frequency of Monitoring:</b> Annually  | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 2 |
| <b>Reporting Frequency:</b> Every 3 years | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 20        |

**Estimated Cost - Explanation:**

Database will need to be maintained annually. Every 3 years the information will be reported and evaluated for changes.

**Data Storage:**

Forest database for recreation use pending national implementation of use module for INFRA.

**Responsibility:**

Developed Recreation staff

**Cooperators:**

Concession operators and permit holders

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## Recreation

**Monitoring Item Name:**

**Priority:** Medium

Use at Special Use Permitted Backcountry Facilities

**Monitoring Item Number:** 38

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Over time is there a change in use at permitted Forest backcountry facilities?

This monitoring provides an idea of use trends in the backcountry. When combined with other backcountry trail monitoring, it can help inform managers about the type of use occurring and if changes in the amount of use indicate a need to change management in order to meet the recreation strategy of protecting recreational opportunities in low use areas.

**Data Collection Method:**

Input reports of use at permitted backcountry facilities. May have to sample use at nonpermitted backcountry facilities.

**Variables or Parameters:**

Visits and visitor days - use standard Length of Stay Factors (LOS) to translate between visits and visitor days.

**Sample Design:**

No sampling for permitted backcountry facilities (these represent about 60% of the backcountry facility capacity of the Forest) - these are reported use

Sampling protocol of unpermitted backcountry facilities, if necessary TBD

|  |                                    |   |
|--|------------------------------------|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> 2 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 20        |

**Estimated Cost - Explanation:**

Use information from permittees. Data will be entered into the recreation use database annually. Reports will be developed at least every three years.

**Data Storage:**

Forest database for recreation use pending national implementation of use module for INFRA.

**Responsibility:**

Dispersed Recreation management staff

**Cooperators:**

permit holders

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## Recreation

**Monitoring Item Name:**

**Priority:** High

Use on Forest trails

**Monitoring Item Number:** 39

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Over time is there a change in use on Forest motorized and non-motorized trails?

This monitoring information is needed to implement the Forest plan recreation approach of maintaining a balance of recreation opportunities across the high, moderate, and low use areas on the Forest. The information will indicate if there is a need to take management action to insure a balance is maintained.

**Data Collection Method:**

National Visitor Use Monitoring for overview.

Trailhead registers or trailhead counts or backcountry ranger counts as well as past use counts compiled in a Forest recreation use database to be developed.

**Variables or Parameters:**

Visits and visitor days - use standard Length of Stay Factors (LOS) to translate between visits and visitor days.

**Sample Design:**

TBD, evaluate process used by Forest for trailhead monitoring in 1999 for potential application.

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2008  | <b>Cost for Year Scheduled (\$1,000):</b> 30 |
| <b>Reporting Frequency:</b> Triannually  | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 300        |

**Estimated Cost - Explanation:**

**Data Storage:**

Forest database for recreation use pending national implementation of use module for INFRA.

**Responsibility:**

Dispersed Recreation management staff

**Cooperators:**

Trail clubs, AMC, RMC, DOC ATC etc.

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## Recreation - Wildlife/Plants

**Monitoring Item Name:**

**Priority:** High

Rock Climbing Use

**Monitoring Item Number:** 11

**Forest Management Plan Reference Table Number:**

|                          |                          |                          |                                     |                                     |
|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General                     | 4-06<br>Specific                    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**Evaluation Question:**

What is the rock climbing use on the Forest?

When combined with other monitoring efforts related to cliff plant species and peregrines, these use numbers will provide trends in rock climbing use. This can then be used to project potential impacts.

**Data Collection Method:**

Consider parking lot vehicle counts, climbing site registration process (especially at a subsample of peregrine or sensitive plant sites), counts by climbers who would voluntarily complete use questionnaire each time they used a climbing site, etc. Combine the protocol with that for the Wildlife monitoring of peregrine and cliff plants.

**Variables or Parameters:**

Rock-climbing / access hiking route use levels in visits

**Sample Design:**

Use of climbing sites in general but also a subsample of active peregrine eyeries and proximity of routes to nests as well as a subsample of specified cliff routes evaluating rare plant occurrences and condition. Will also need to evaluate potential routes not yet being climbed.

|   |                                    |  |
|---|------------------------------------|--|
| <b>Frequency of Monitoring:</b> 3-5 years | <b>Fiscal Year Scheduled:</b> 2007 | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> 3-5 years     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 33         |

**Estimated Cost - Explanation:**

TBD based on process eventually determined. Determine protocol in 2006.

**Data Storage:**

use stored as part of Forest database for recreation use pending national implementation of use module for INFRA.

**Responsibility:**

Recreation staff in conjunction with wildlife staff

**Cooperators:**

Rock climbing community  
Peregrine falcon volunteers



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## Recreation, Outfitter/Guides, Special Uses

**Monitoring Item Name:**

**Priority:** High

Permitted Outfitter/Guide use on the Forest

**Monitoring Item Number:** 35

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

**Reference Table Number:**

Where and how much backcountry use is attributed to permitted outfitter/guides?

This monitoring will help identify trends and locations of use by outfitter and guides. The information will be helpful should the need arise to control use and protect areas of currently low use.

**Data Collection Method:**

Inputting O/G data from "end of year" reports into Outfitter/Guide database.

**Variables or Parameters:**

The indicator is number of O/G permits, number of people using O/Gs, organization making use of O/G permits, activities being accomplished with O/Gs, where is O/G activity occurring on the Forest?

**Sample Design:**

No sampling - counts of all O/G permit use via "end of season" reports.

|   |                                     |   |    |
|---|-------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> As reports ar | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> | 2  |
| <b>Reporting Frequency:</b> Every 3 years     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b>         | 20 |

**Estimated Cost - Explanation:**

Outfitter and Guide database will need to be maintained annually. Every 3 years the information will be reported and evaluated for changes. Database maintenance funded out of NFRW program of work as permits are generated.

**Data Storage:**

Forest Outfitter/Guide use database

**Responsibility:**

Outfitter/Guide administrator

**Cooperators:**

Outfitter/Guide permit holders

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## Scenery

**Monitoring Item Name:**

Scenic Integrity Objectives

**Priority:** Medium

**Monitoring Item Number:** 12

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are assigned Scenic Integrity Objectives being met?

This monitoring will help validate if Forest Plan expected scenic integrity objectives are actually being met.

**Data Collection Method:**

Project reviews

**Variables or Parameters:**

Design and distribution of individual projects of all types  
Cumulative combination of vegetation management projects

**Sample Design:**

Landscape architect reviews individual projects and combinations of projects in geographic proximity to each other with project leaders to determine whether Scenic Integrity Objectives are being met.

|   |                                    |   |
|---|------------------------------------|---|
| <b>Frequency of Monitoring:</b> 3-5 years | <b>Fiscal Year Scheduled:</b> 2015 | <b>Cost for Year Scheduled (\$1,000):</b> 5 |
| <b>Reporting Frequency:</b> 10 years      | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 5         |

**Estimated Cost - Explanation:**

**Data Storage:**

LA files and monitoring reports

**Responsibility:**

Landscape Architect

**Cooperators:**

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## Socioeconomic

**Monitoring Item Name:** Socioeconomic Outputs **Priority:** Required

**Monitoring Item Number:** 13      **Forest Management Plan Reference Table Number:**

|  |                          |                                     |                          |                          |                          |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
|  | 4-02<br>Regulatory       | 4-03<br>Outputs                     | 4-04<br>MIS              | 4-05<br>General          | 4-06<br>Specific         |
|  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Evaluation Question:**  
 To what extent is the Forest providing a mix of products, services and amenities?  
 This monitoring compares the level of expected socioeconomic outputs with actual levels. It also compares actual and estimated costs by program area. These comparisons are required by the Forest plan.

**Data Collection Method:**  
 Data will be collected from multiple sources, mostly from recurring budget and finance reports available from the Forerst, Region and Washington Office. Some of the recreation use figures will have to come from surveys conducted on an annual basis (TBD), special use permittees and concessionaires.

**Variables or Parameters:**  
 Payments to States (PTS); Payments in Lieu of Taxes (PILT); WMNF Annual Budget and Expenditures by Program; Number of Full and Part-time employees; Stumpage Value and Volume of Timber Sold and Harvested broken out by sawtimber and pulp; Special Use Permit Receipts; Recreation Pass (Fee Demo) Receipts; Annual Visitors by Recreation Program; Annual Town Operating Budgets; Number of Developed Campsites

**Sample Design:**  
 This monitoring task reaches across several resources to arrive at a comprehensive evaluation of the quantity of products, services and amenities provided by the Forest. Accordingly, the design for the collection is dependent on each item collected. Most items are available in recurring reports, and will not require sampling, rather they will be reported in actual amounts for the year.  
 A sample design is required to measure visitor use levels by recreation activity. {Need discussion of specific visitor use levels to be measured and sampling protocols developed}

|  |                                     |   |   |
|--|-------------------------------------|---|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> | 1 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b>         | 6 |

**Estimated Cost - Explanation:**  
 3-5 person days to collect and tabulate data - est \$600/yr  
 {additional costs to conduct recreation use level surveys unless can use NVRUM  
 Comparison of actual versus estimated costs will be reported and evaluated on a 5 year basis.

**Data Storage:**  
 Electronic copies stored on the corporate network and backed up accordingly. Paper copies stored in project record for the monitoring summary report.

**Responsibility:**  
 Person charged with compiling the annual monitoring report or designated staff person as appropriate.

**Cooperators:**

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## Soils

**Monitoring Item Name:** Long-term Soil Productivity **Priority:** High

**Monitoring Item Number:** 14 **Forest Management Plan Reference Table Number:**

|  |                          |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
|  | 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General          | 4-06<br>Specific                    |
|  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Evaluation Question:** Is soil base cation depletion occurring? If so, are there indirect effects on forest productivity and/or forest health (or, aquatic species)?  
 This is a long term monitoring effort to measure soil and ultimately forest productivity. It responds to concerns about acid deposition effects on forest productivity and potentially aquatic ecosystems.

**Data Collection Method:**  
 Data collection methods appear in Forest Service GTR (In preparation with NRS). In brief, soil descriptions are standard soil taxonomy. Collection is soil layer by layer. Health data is collected for all trees within a 30m diameter plot centered around the soil pit as plot center. Biomass data is the same 30m diameter plot.

Note: Between 1998 and 2004 baseline data on soil chemistry, foliar chemistry, forest health and forest productivity was collected systematically across the range of soil calcium concentrations at 40 sites on the WMNF. All 40 till source plots

**Variables or Parameters:**  
 Calcium Depletion: Total and Exchangeable Calcium concentration  
 Forest Health: Vigor and Dieback Ratings  
 Forest Productivity: Biomass Accumulation

**Sample Design:**  
 Soil data is for 40 sites selected to represent the range of soil calcium concentration on the WMNF. This was derived by using the till source model (Bailey et al 2004) as the initial representation. All sites were similar in forest type (northern hardwood), slope position (ridge, mid, toe), and soil (moderately well-drained basal till). Forest health was measured for all trees within a 30 meter circular plot at the all 40 soil data sites. Forest productivity was measured within 30 meter circular plot at all 40 soil data sites. Plot size was determined for similarity with other productivity plots in New England, and to sample enough trees (50-70 per plot) for statistically useful data.

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> 10 years | <b>Fiscal Year Scheduled:</b> 2015  | <b>Cost for Year Scheduled (\$1,000):</b> 55 |
| <b>Reporting Frequency:</b> 10 years     | <b>Last Year Accomplished:</b> 2004 | <b>Cost Per Decade (\$1,000):</b> 55         |

**Estimated Cost - Explanation:**  
 Depletion-\$30-40,000/sample year  
 Health/Productivity-\$20,000/sample year

**Data Storage:**  
 Soil samples are archived at Hubbard Brook Experimental Forest. Increment Cores are stored at HBEF. Foliar samples are stored at HBEF.

**Responsibility:**  
 WMNF Forest Soil Scientist/Ecologist and NRS Ecologists (A Memorandum of Understanding is being developed)

**Cooperators:**  
 Northeast Research Station (Dr's Scott Bailey, HBEF; Rich Hallett, NRS-Durham and Marie-Louise Smith, NRS-Durham).

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## Soils

**Monitoring Item Name:**

**Priority:** High

Soil Productivity

**Monitoring Item Number:** 0

**Forest Management Plan  
Reference Table Number:**

4-02

Regulatory

4-03

Outputs

4-04

MIS

4-05

General

4-06

Specific

**Evaluation Question:**

Is soil compaction occurring? If so, are there indirect effects on forest productivity and/or forest health.

**Data Collection Method:**

**Variables or Parameters:**

Soil Compaction

**Sample Design:**

|                                      |                                    |   |    |
|--------------------------------------|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b>      | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> | 2  |
| <b>Reporting Frequency:</b> Annually | <b>Last Year Accomplished:</b>     | <b>Cost Per Decade (\$1,000):</b>         | 30 |

**Estimated Cost - Explanation:**

The protocol is currently in development and will be finished later in FY06

**Data Storage:**

Soil data will be stored at WMNF.

**Responsibility:**

WMNF Forest Soil Scientists/Ecologist

**Cooperators:**

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## Water

**Monitoring Item Name:**

**Priority:** High

Effects of Management Practices on Water Quality

**Monitoring Item Number:** 22

**Forest Management Plan Reference Table Number:**

|                          |                          |                          |                                     |                          |
|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General                     | 4-06<br>Specific         |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**Evaluation Question:**

What are the effects of management practices on water quality? In addition, is the Wildcat Wild and Scenic River water quality being maintained?

This monitoring assesses the effectiveness of standards and guidelines in protecting water quality. The Wildcat River monitoring helps indicate whether management actions are sufficiently protecting the quality of that river.

**Data Collection Method:**

Current concerns are:  
Effectiveness of S&Gs during timber harvest activities in maintaining water quality.  
The impact of concentrated recreational activities on water resources.

**Variables or Parameters:**

Water quality analysis and study design depend on concern and parameter(s) of interest. These include aluminum in several forms, basic cations, basic anions, metals. Can also include bacteria levels and similar parameters. Type of assessment depends on effect/activity being studied. Focus will be on vegetation management activities such as timber harvest and recreational activities such as developed sites and other areas of concentrated use.

**Sample Design:**

Projects will be selected forest wide. Water chemistry samples are collected on reference stream with pre and post harvest measurements in treatment stream for up to five years afterwards.

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 30 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 300        |

**Estimated Cost - Explanation:**

\$30,000/year

**Data Storage:**

NRIS will eventually be able to store this data.  
Data is stored cooperatively with NHDES in STORET.

**Responsibility:**

Forest hydrologist.  
Wild and Scenic River Corridor Leader.

**Cooperators:**

Forest Service Research NE  
PSU - Plymouth State University

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## Water

**Monitoring Item Name:**

**Priority:** Low

Watershed Condition

**Monitoring Item Number:** 23

**Forest Management Plan**

4-02

4-03

4-04

4-05

4-06

**Evaluation Question:**

**Reference Table Number:**

Regulatory

Outputs

MIS

General

Specific

Are watersheds and associated features being maintained or restored?

This monitoring helps determine what watersheds are fully functioning according to FS definition. This will help prioritize management actions such as improving stream crossings and road/trail locations. The monitoring will also help meet Forest Plan Water Resource goals.

**Data Collection Method:**

WO and RO are developing method to assess watershed condition.

**Variables or Parameters:**

number (and percent) of watersheds in fully functioning condition

Miles of stream at PFC

Acres of waterbodies at PFC

Acres of wetland at PFC

**Sample Design:**

|  |                                    |  |
|--|------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 100        |

**Estimated Cost - Explanation:**

Estimate \$10,000 annually. Part of program to be defined by RO and likely a target and funded from NFVW.

**Data Storage:**

NRIS/GIS

**Responsibility:**

Forest hydrologist

**Cooperators:**

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## Water - Air

**Monitoring Item Name:**

**Priority:** Low

Implementation of BMPs

**Monitoring Item Number:** 21

**Forest Management Plan Reference Table Number:**

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General          | 4-06<br>Specific         |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Evaluation Question:**

Are Best management practices prescribed and implemented for activities ?

This monitoring assesses if mitigation has been incorporated into project plans. This includes evaluating if such things as dust abatement, reduction in vehicle use, and prescribed fire timing considerations were made. For water quality it includes evaluating if protection measures for riparian zones, limits on harvest acreages in watersheds, and erosion control measures were used.

**Data Collection Method:**

Use BMPEP or similar protocol to assess forest projects  
Additional protocols may be developed by the Region in the future.

**Variables or Parameters:**

Many Standards and Guidelines are also Best Management Practices. Additional BMPs are prescribed on a site specific basis during project planning. Best Management Practices including S&Gs and other mitigation will be assessed for implementation

**Sample Design:**

Random samples are selected by program. Forms are used to record information.

|  |                                    |   |    |
|--|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> | 5  |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 50 |

**Estimated Cost - Explanation:**

Accomplish through program monitoring. NFWW

**Data Storage:**

ORACLE/GIS

**Responsibility:**

Forest hydrologist

**Cooperators:**



# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Wild & Scenic Rivers

**Monitoring Item Name:**

**Priority:** High

Wildcat WSR/Compliance of Developments or Activities within River Corridor

**Monitoring Item Number:** 30

**Forest Management Plan**

4-02

4-03

4-04

4-05

4-06

**Evaluation Question:**

**Reference Table Number:**

Regulatory

Outputs

MIS

General

Specific

Are developments and projects within the Wild & Scenic River corridor consistent with the Wild and Scenic Rivers Act.?

The Forest has a legal responsibility as the lead agency to insure both federal and private land use in the corridor is consistent with the Comprehensive River management plan and Section 7 requirements of the Clean Water Act. This monitoring evaluates recent and past Section 7 consultation reports to insure that we are meeting this goal.

**Data Collection Method:**

Field review of completed projects where permit issued by state or town every three to five years.  
Approval of NHDES Wetland permit or 404 Clean Water Act permits prior to Section 7 determination, if applicable - ongoing

**Variables or Parameters:**

Number of wetland permit applications received and consultations provided.  
Check for consistency of private and agency activities, and town zoning ordinances, with the Comprehensive River Management Plan (CRMP), and the Wild and Scenic Rivers Act.

**Sample Design:**

None

|   |                                    |   |   |
|---|------------------------------------|---|---|
| <b>Frequency of Monitoring:</b> every three to five years | <b>Fiscal Year Scheduled:</b> 2008 | <b>Cost for Year Scheduled (\$1,000):</b> | 1 |
| <b>Reporting Frequency:</b> every three to five years     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 3 |

**Estimated Cost - Explanation:**

Est \$1,000 every three to five years

**Data Storage:**

Forest records for Wildcat WSR

**Responsibility:**

Saco RD

**Cooperators:**

Town of Jackson  
US CoE

# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Wilderness

**Monitoring Item Name:**

**Priority:** High

Destination Use Trends in Wilderness

**Monitoring Item Number:** 44

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

**Reference Table Number:**

Over time is there a change in visitor use at Wilderness destinations?

The Forest Plan lists a variety of sites and desired conditions for the sites. This monitoring will help determine if desired future conditions for these sites is being met and if management action is needed.

**Data Collection Method:**

Use counts in all zones of Wilderness

**Variables or Parameters:**

The indicator is "use at Wilderness destinations"

**Sample Design:**

Select 4 destination sampling areas per zone. Measure total number of users encountered during sampling period. Measure group sizes encountered during sampling period. Measure maximum and minimum total users at any time during sample period. Monitor use annually. Analyze data on 3-year intervals. Utilize same destinations and sampling dates and times for duration of this plan.

|   |                                    |  |
|---|------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually  | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> Every 3 years | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 100        |

**Estimated Cost - Explanation:**

\$10,000 annually for data collection. Results will be reported every 3 years.

**Data Storage:**

As part of Forest database for recreation use pending national implementation of use module for INFRA.

**Responsibility:**

Wilderness staff

**Cooperators:**

Potential:

Trail cooperator clubs

New England universities with recreation research programs

Wilderness Society

# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Wilderness

**Monitoring Item Name:**

**Priority:** High

Dispersed Campsite Density and Size in Wilderness and Wild and Scenic River corridor

**Monitoring Item Number:** 46

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Does the density and size of dispersed campsites in Wilderness meet set criteria? Are campsites in the Wildcat Wild and Scenic River corridor changing?

This monitoring helps define the impacts higher use may have in the Wilderness. Increases in campsite density or size as well as the number of users can affect the visitors experience and especially the visitor's sense of solitude. The information gathered will help identify if trigger points in the Wilderness stewardship plan have been reached and if management action is needed.

**Data Collection Method:**

Field survey of selected drainages/untrailed peaks/Wilderness

**Variables or Parameters:**

The indicators are "number of dispersed campsites within set distance of each other." and "area of dispersed campsites without vegetative cover."

**Sample Design:**

Density: Zone A: Survey dispersed campsites along 1 selected stream drainage as appropriate in each Wilderness each year. Survey dispersed campsites on 1 trailless peaks above 2,999 feet as appropriate in each Wilderness each year. Zones B, C, and D: Complete update of dispersed campsite inventory during the life of the Plan. Size: Zone A: Survey along 1 selected stream drainage as appropriate in each Wilderness each year. Survey of 1 trailless peaks above 2999 feet each year as appropriate in each Wilderness each year. Zones B: Complete update of dispersed campsite inventory during the life of the Plan. Zone C-D - Select 10 sample sites. Measure campsite area at sample sites on 3-year interval. Monitor remaining campsites for area change. Utilize same sample sites for duration of this plan.

|   |                                    |  |
|---|------------------------------------|--|
| <b>Frequency of Monitoring:</b> Varies from | <b>Fiscal Year Scheduled:</b> 2007 | <b>Cost for Year Scheduled (\$1,000):</b> 12 |
| <b>Reporting Frequency:</b> Every 3 years   | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 113        |

**Estimated Cost - Explanation:**

Annual data collection for some of the items. Once every 3 years for some and once per plan period for others. Report on the results available every 3 years.

**Data Storage:**

As part of Forest dispersed campsite database (is the current database compatible with storing this data?)

**Responsibility:**

Wilderness staff

**Cooperators:**

Potential:  
Trail cooperator clubs  
New England universities with recreation research programs  
Wilderness Society

# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Wilderness

**Monitoring Item Name:**

**Priority:** Medium

Satisfaction of Wilderness Visitors (quality of experience and perception of crowding).

**Monitoring Item Number:** 45

**Forest Management Plan**

4-02

4-03

4-04

4-05

4-06

Regulatory

Outputs

MIS

General

Specific

**Evaluation Question:**

**Reference Table Number:**

What is the level of visitor satisfaction in Wilderness (quality of experience and perception fo crowding)?

One of the goals of Wilderness management is to provide users with an opportunity for solitude and challenge. This monitoring will help determine if we are meeting this goal and visitor expectations.

**Data Collection Method:**

Attitude Survey on visitor statsfaction (quality of experience and perception of crowding) in Wilderness

**Variables or Parameters:**

The "indicators" will be determined during development of the protocol for this survey. It will be developed in partnership with recreation researchers and carried out through contract or partnership agreements with recreation research universities.

**Sample Design:**

Survey, once at Plan implementation to get a baseline and then once during the life of the Plan. Survey will focus on visitor perceptions of crowding at selected sites within Wilderness. Survey will also focus on visitor satisfaction as a measure of whether information delivery and education messages are helping visitors find the appropriate recreation opportunity they desire. Sample design (number of samples, location and timing of sampling, etc) of survey to be determined during development of protocol.

|  |                                    |   |
|--|------------------------------------|---|
| <b>Frequency of Monitoring:</b> 10 Years | <b>Fiscal Year Scheduled:</b> 2007 | <b>Cost for Year Scheduled (\$1,000):</b> 100 |
| <b>Reporting Frequency:</b> 10 Years     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 175         |

**Estimated Cost - Explanation:**

\$75,000 to \$100,000 twice during the life of the Plan. Report out following second survey. Develop protocol in FY 2006-2007.

**Data Storage:**

Individual central office Wilderness Files

**Responsibility:**

Wilderness staff

**Cooperators:**

Potential:

Trail cooperater clubs

New England universities with recretaion research programs

Wilderness Society

# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Wilderness

**Monitoring Item Name:**

**Priority:** High

Trail Use Trends in Wilderness

**Monitoring Item Number:** 43

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Over time is there a change in visitor use on trails in Wilderness?

This monitoring will provide use trend data that can be used to determine if managers are meeting the Forest wide recreation strategy and more specifically the Wilderness plan. Both of these are aimed at maintaining a balance between high, moderate, and low use areas. The Wilderness plan provides more specific and trigger points for when additional action should be taken. The monitoring will determine if some of those trigger points have been reached.

**Data Collection Method:**

Visitor counts on trails in Wilderness zones B, C, and D. No trails in Wilderness Zone A by definition.

**Variables or Parameters:**

The indicator is "use on Wilderness trails"

**Sample Design:**

Select three trail sampling points per Wilderness, one per zone. Sample use at determined dates and time periods (sample two time per season). Measure total number of users encountered during sampling period.

Measure group sizes encountered during sampling period. Monitor use annually. Analyze data on 3-year intervals. Utilize same trail segments and sampling dates and times for duration of this plan.

|   |                                    |   |    |
|---|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> Annually  | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> | 8  |
| <b>Reporting Frequency:</b> Every 3 years | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 80 |

**Estimated Cost - Explanation:**

\$8,000 annually for monitoring. Results will be reported and analyzed every 3 years.

**Data Storage:**

As part of Forest database for recreation use pending national implementation of use module for INFRA.

**Responsibility:**

Wilderness staff

**Cooperators:**

Potential:

Trail cooperator clubs

New England universities with recreation research programs

Wilderness Society

# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Wilderness - Wild and Scenic River

**Monitoring Item Name:**

**Priority:** High

Control of Human Litter and Waste in Wilderness and the Wildcat Wild and Scenic River corridor

**Monitoring Item Number:** 34

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

**Reference Table Number:**

What is the ability to control the presence of human litter and waste in Wilderness and the river corridor?

This monitoring helps define the impacts use may have in the backcountry. This can affect the visitors experience. The information gathered will help identify if trigger points in the stewardship plan have been reached and if management action is needed.

**Data Collection Method:**

Observation

**Variables or Parameters:**

The indicator is "the presence of human litter and waste."

**Sample Design:**

As discovered on regularly scheduled patrols

|  |                                    |   |   |
|--|------------------------------------|---|---|
| <b>Frequency of Monitoring:</b> During regul | <b>Fiscal Year Scheduled:</b> 2007 | <b>Cost for Year Scheduled (\$1,000):</b> | 2 |
| <b>Reporting Frequency:</b> Every 3 years    | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 6 |

**Estimated Cost - Explanation:**

Minimal costs- incorporated as part Wilderness patrols. Conducted every 3 years at \$2000 per time. \$6,000/decade. Develop protocol in FY 2006

**Data Storage:**

LEMARS as part of incident reporting system

**Responsibility:**

Wilderness staff

**Cooperators:**

# White Mountain National Forest Monitoring Guide - DRAFT COPY

## Wildlife

**Monitoring Item Name:**

**Priority:** Low

Bald Eagle Monitoring

**Monitoring Item Number:** 60

**Forest Management Plan Reference Table Number:**

- |                          |                          |                          |                                     |                                     |
|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General                     | 4-06<br>Specific                    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**Evaluation Question:**

What is the population trend of breeding bald eagles on the WMNF?

Monitoring is to determine if breeding is occurring on L. Tarleton. This contributes to recovery efforts and helps point out needs for nest protection.

**Data Collection Method:**

Identification of suitable nesting habitat on the Forest, which may be limited to Lake Tarleton. Ocular survey for and count of eagles

**Variables or Parameters:**

Number of individuals / size of population

**Sample Design:**

NH Audubon Society protocols

|  |                                     |   |    |
|--|-------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> | 1  |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b>         | 10 |

**Estimated Cost - Explanation:**

NFWF funded.

**Data Storage:**

NH Audubon Society; FAUNA

**Responsibility:**

Forest Biologist will coordinate with partners

**Cooperators:**

New Hampshire Audubon Society

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## Wildlife

**Monitoring Item Name:**

Bicknell's Thrush Monitoring

**Priority:** High

**Monitoring Item Number:** 56

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

What is the population trend of Bicknell's thrush on the Forest?

The monitoring helps establish population trends in order to insure these sensitive species persist on the Forest.

**Data Collection Method:**

Auditory/ocular survey along established transects

**Variables or Parameters:**

Number of individuals / size of population

**Sample Design:**

See WMNF High Elevation Breeding Bird Survey protocol (updated from Committee of Scientists in 2005).

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Every 2 year | <b>Fiscal Year Scheduled:</b> 2007  | <b>Cost for Year Scheduled (\$1,000):</b> 20 |
| <b>Reporting Frequency:</b> Every 2 years    | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 100        |

**Estimated Cost - Explanation:**

\$20,000/survey completed every 2 years.

**Data Storage:**

WMNF Birds Access breeding bird database; possible future migration into FAUNA

**Responsibility:**

Forest Biologist will coordinate monitoring; implementation by all units

**Cooperators:**



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## Wildlife

**Monitoring Item Name:**

Early Successional MIS Population Trends

**Priority:** Required

**Monitoring Item Number:** 64

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

**Reference Table Number:**

Are population trends of the MIS consistent with those projected under the Plan?

MIS is required to be monitored under the NFMA. This monitoring helps establish population trends. It is a coarse filter approach that covers a broad suite of species.

**Data Collection Method:**

Breeding Bird Survey point count

**Variables or Parameters:**

Number of breeding birds occupying various sizes and stages of regenerating stands. Will need to look at hardwoods (chestnut-sided warbler) and softwoods (magnolia warbler)

**Sample Design:**

The purpose would be to evaluate the number of breeding chestnut-sided warblers (in hardwoods) and magnolia warblers (in softwoods) occur in a given stand aged 0-9 (or maybe up to 20). Stands meeting vegetative criteria would be randomly sampled. Standard 10-minute breeding bird survey point count should be sufficient for most stands. All birds seen or heard would be recorded. Would probably work best to run this survey in between high elevation bird survey weeks (see Bicknell's thrush)

|  |                                    |   |    |
|--|------------------------------------|---|----|
| <b>Frequency of Monitoring:</b> Every 2 year | <b>Fiscal Year Scheduled:</b> 2007 | <b>Cost for Year Scheduled (\$1,000):</b> | 7  |
| <b>Reporting Frequency:</b> Every 2 years    | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b>         | 35 |

**Estimated Cost - Explanation:**

\$7,000/survey completed every two years. Develop protocol in 2006.

**Data Storage:**

FAUNA

**Responsibility:**

Forest Biologist

**Cooperators:**

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## Wildlife

**Monitoring Item Name:**

Loon Monitoring

**Priority:** Low

**Monitoring Item Number:** 55

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

What is the population trend of loons on the Forest?

The monitoring helps establish population trends in order to insure this sensitive species persists on the Forest.

**Data Collection Method:**

Nest productivity survey

**Variables or Parameters:**

Number of individuals / size of population

**Sample Design:**

Visit lakes or ponds where loon nesting is known or has occurred historically. Count nesting pairs during breeding season (June and July). Follow up to determine number of chicks fledged.

|  |                                     |   |
|--|-------------------------------------|---|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 2 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 20        |

**Estimated Cost - Explanation:**

Is funded from NFWF.

**Data Storage:**

FAUNA; data also sent to Loon Preservation Committee

**Responsibility:**

Forest Biologist will coordinate monitoring; implementation by Ammo-Pemi and Saco districts

**Cooperators:**

Loon Preservation Committee

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## Wildlife

**Monitoring Item Name:**

Mature MIS Population trends

**Priority:** Required

**Monitoring Item Number:** 65

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are population trends of the MIS consistent with those projected under the Plan?

MIS is required to be monitored under the NFMA. This monitoring helps establish population trends. It is a coarse filter approach that covers a broad suite of species.

**Data Collection Method:**

Breeding Bird Survey

**Variables or Parameters:**

Number of birds over time

**Sample Design:**

This is one of two breeding bird survey protocols for MIS; one for mature species that will follow existing permaplot transects and another for regeneration habitats that will randomly select recent clearcuts and track number of birds in them. Both protocols will also require habitat measurements to track associations with habitat, although habitat sampling won't be needed as frequently.

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Every 2 year | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 30 |
| <b>Reporting Frequency:</b> Every 2 years    | <b>Last Year Accomplished:</b> 2004 | <b>Cost Per Decade (\$1,000):</b> 150        |

**Estimated Cost - Explanation:**

\$30,000/year surveyed. Survey every other year and report. Evaluate every 5 years.

**Data Storage:**

WMNF Birds Access database; possible future migration to FAUNA

**Responsibility:**

Forest Biologist will direct project; implementation by all units

**Cooperators:**

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## Wildlife

**Monitoring Item Name:**

MIS Habitat Trends

**Priority:** Required

**Monitoring Item Number:** 48

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

How has the amount and quality of habitat changed relative to the changes projected by the Plan?

This meets NFMA direction to monitor for MIS species. This monitoring tracks habitat trends which the MIS represent.

**Data Collection Method:**

Query acres of habitat type and age classes from vegetation database, which is based on compartment exams

**Variables or Parameters:**

Acres of habitat by forest type and age class

**Sample Design:**

Use the Habitat Guidance document to identify which forest types and age classes are tied to each habitat type (e.g. hardwoods, softwoods, etc.) for each MIS habitat category, then query acres by forest type and age class.

|   |                                     |   |   |
|---|-------------------------------------|---|---|
| <b>Frequency of Monitoring:</b> 5 years   | <b>Fiscal Year Scheduled:</b> 2010  | <b>Cost for Year Scheduled (\$1,000):</b> | 1 |
| <b>Reporting Frequency:</b> Every 5 years | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b>         | 2 |

**Estimated Cost - Explanation:**

Simply a query of data bases.

**Data Storage:**

Stand data stored in CDS or current vegetation database. Queries stored in Forest Biologist's files. Reported in Forest monitoring report.

**Responsibility:**

Forest Biologist

**Cooperators:**

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## Wildlife

**Monitoring Item Name:**

RFSS Butterflies

**Priority:** Medium

**Monitoring Item Number:** 54

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

What is the population trend of sensitive butterfly species on the Forest?

The monitoring helps establish population trends in order to insure these sensitive species persist on the Forest.

**Data Collection Method:**

Similar to Kent McFarland's protocol (White Mountain butterfly/fritillary Conservation Assessment)

**Variables or Parameters:**

Number of individuals / size of population

**Sample Design:**

Ocular count of target species; weekly visits throughout summer in potential alpine habitat

|   |                                     |  |
|---|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> 5 years | <b>Fiscal Year Scheduled:</b> 2008  | <b>Cost for Year Scheduled (\$1,000):</b> 20 |
| <b>Reporting Frequency:</b> 5 years     | <b>Last Year Accomplished:</b> 2001 | <b>Cost Per Decade (\$1,000):</b> 40         |

**Estimated Cost - Explanation:**

\$20,000/survey done every 5 years. Protocols are established.

**Data Storage:**

FAUNA

**Responsibility:**

Forest Biologist will coordinate monitoring; probably implemented through contract

**Cooperators:**

Likely contract to VINS

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## Wildlife

**Monitoring Item Name:**

**Priority:** Medium

RFSS invertebrates (non-butterfly)

**Monitoring Item Number:** 63

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are individual known occurrences on the Forest increasing, stable, or decreasing?

The monitoring helps establish population trends in order to insure these sensitive species persist on the Forest.

**Data Collection Method:**

This project is proposed to cover invertebrates (except for alpine butterflies) that will be added to the RFSS list following revision. There will likely be more than one protocol developed because species occupy different habitats. This protocol will be developed once these species have been listed.

**Variables or Parameters:**

Presence/absence  
Number of individuals  
Number of separate populations

**Sample Design:**

|   |                                    |  |
|---|------------------------------------|--|
| <b>Frequency of Monitoring:</b> 5 years   | <b>Fiscal Year Scheduled:</b> 2008 | <b>Cost for Year Scheduled (\$1,000):</b> 20 |
| <b>Reporting Frequency:</b> Every 3 years | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 66         |

**Estimated Cost - Explanation:**

\$20,000/ contract survey conducted every 3 years. Protocols would be developed in FY 2007.

**Data Storage:**

With Forest biologist

**Responsibility:**

Forest Biologist; may shift to Forest Fisheries Biologist in time

**Cooperators:**

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## Wildlife

**Monitoring Item Name:**

TES Bat Monitoring

**Priority:** Medium

**Monitoring Item Number:** 57

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

What are the population trends of TES bats on the Forest?

The monitoring helps establish population trends in order to insure this sensitive species persists on the Forest.

**Data Collection Method:**

Mist nets and sonogram surveys

**Variables or Parameters:**

Number of individuals / size of population

**Sample Design:**

See U.S. Fish and Wildlife Service Indiana bat protocol

|   |                                     |  |
|---|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> 3 years   | <b>Fiscal Year Scheduled:</b> 2007  | <b>Cost for Year Scheduled (\$1,000):</b> 20 |
| <b>Reporting Frequency:</b> Every 3 years | <b>Last Year Accomplished:</b> 2004 | <b>Cost Per Decade (\$1,000):</b> 66         |

**Estimated Cost - Explanation:**

\$20,000/survey completed every 3 years. Protocols are established.

**Data Storage:**

FAUNA

**Responsibility:**

Forest Biologist will coordinate monitoring; probably implemented through survey.

**Cooperators:**

Likely contract

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## Wildlife

**Monitoring Item Name:**

TES Large Mammals

**Priority:** High

**Monitoring Item Number:** 59

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

Are Canada lynx and gray wolf present on the WMNF?

The monitoring helps determine if the species exist on the Forest. It also tracks the prey base for the species. This information will help inform decisions on protection should the species become present. The information will also play a role in implementing recovery plans.

**Data Collection Method:**

Large mammal winter track counts along established transects

**Variables or Parameters:**

Number of individuals / size of population

**Sample Design:**

See WMNF winter tracking protocol  
This project also includes deeryard monitoring.

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Frequency of Monitoring:</b> Annually | <b>Fiscal Year Scheduled:</b> 2006  | <b>Cost for Year Scheduled (\$1,000):</b> 15 |
| <b>Reporting Frequency:</b> Annually     | <b>Last Year Accomplished:</b> 2005 | <b>Cost Per Decade (\$1,000):</b> 150        |

**Estimated Cost - Explanation:**

**Data Storage:**

FAUNA

**Responsibility:**

Forest Biologist will direct monitoring; implementation by all units

**Cooperators:**



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## Wildlife

**Monitoring Item Name:**

Wood turtle monitoring

**Priority:** High

**Monitoring Item Number:** 58

**Forest Management Plan  
Reference Table Number:**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

What is the population trend of wood turtles on the WMNF?

The monitoring helps establish population trends in order to insure this sensitive species persists on the Forest.

**Data Collection Method:**

Directed searches in suitable habitat

**Variables or Parameters:**

Location/number of individuals

**Sample Design:**

Identify suitable streams for target species; time constrained active search of overwintering pools, root wads, undercut banks, and along shores in identified segments during April and May. To determine population trends, need photodocumentation of individuals captured. Recommend initial survey first to look for evidence of turtles (tracks), then follow-up detailed search as described above.

|  |                                    |  |
|--|------------------------------------|--|
| <b>Frequency of Monitoring:</b> Biannually | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> Every 2 years  | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 50         |

**Estimated Cost - Explanation:**

\$10,000/survey every 2 years. Protocols are established.

**Data Storage:**

FAUNA

**Responsibility:**

Forest Biologist will coordinate monitoring

**Cooperators:**

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## Wildlife - Recreation

**Monitoring Item Name:**

**Priority:** High

High Elevation Bird Ecological Indicators

**Monitoring Item Number:** 49

**Forest Management Plan Reference Table Number:**

- |                          |                          |                          |                                     |                          |
|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4-02<br>Regulatory       | 4-03<br>Outputs          | 4-04<br>MIS              | 4-05<br>General                     | 4-06<br>Specific         |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**Evaluation Question:**

What are the effects of various recreation use levels on high elevation birds?  
 This one time study will help correlate hiking use with impacts on high elevation bird productivity/fitness. The study will help focus future monitoring needs for these species.

**Data Collection Method:**

Occurrence study and productivity study based on proximity to recreation activity (hiking).

**Variables or Parameters:**

- Recreation use levels
- Nest proximity to recreation activity (hiking)
- Nest productivity relative to use levels

**Sample Design:**

Probably 3 sequential steps: 1) Determine if there's a difference in species occurrence based on proximity to trails (high use vs. low use vs. control). Could do through breeding bird survey, but mist-netting would be more accurate. 2) Determine if there's a difference in nest productivity based on proximity to trails similar to above. Identifying nest sites may be too difficult, so may need to consider artificial nests. 3) If there's a difference in nest productivity, we need to determine the causal agent (e.g. dogs off-leash or other predators attracted to humans (e.g. red squirrel, gray jays). This will require more detailed evaluation of recreation activity that optimally would be run concurrent with #2 above. Will need to focus on Bicknell's thrush, but also look at other ecological indicators to confirm conclusions. Will also need to have some

|  |                                    |  |
|--|------------------------------------|--|
| <b>Frequency of Monitoring:</b> 10 Years | <b>Fiscal Year Scheduled:</b> 2006 | <b>Cost for Year Scheduled (\$1,000):</b> 28 |
| <b>Reporting Frequency:</b> 10 Years     | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 40         |

**Estimated Cost - Explanation:**

Occurs over 2 year period 2006-2007.

**Data Storage:**

Wildlife data may be stored in FAUNA  
 Results should be reported in Forest's monitoring report

**Responsibility:**

Forest Biologist / Recreation Program Manager will coordinate monitoring; implementation likely through contract or agreement with Research and/or university partner

**Cooperators:**

NEFES?

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## Wildlife - Recreation

**Monitoring Item Name:**

**Priority:** Low

Peregrine Falcon Ecological Indicator

**Monitoring Item Number:** 51

**Forest Management Plan**

4-02  
Regulatory

4-03  
Outputs

4-04  
MIS

4-05  
General

4-06  
Specific

**Evaluation Question:**

**Reference Table Number:**

What are the effects of cliff-related recreation use on peregrine falcons and their nest success?

This monitoring will display the effects and help determine if current mitigation is effective. See also the broader recreation use monitoring of climbing across the Forest.

**Data Collection Method:**

Peregrine nest activity survey

**Variables or Parameters:**

Rock-climbing use levels

Peregrine nesting success (nest occupancy, percent nestlings successfully fledged)

**Sample Design:**

Determine if there is peregrine activity at known nest sites; monitor sites for reproductive activity; count fledglings and note how many are successfully fledged.

Determine climbing use at a subsample of active peregrine eyeries and proximity of routes to nests.

|   |                                    |  |
|---|------------------------------------|--|
| <b>Frequency of Monitoring:</b> Triannually | <b>Fiscal Year Scheduled:</b> 2008 | <b>Cost for Year Scheduled (\$1,000):</b> 10 |
| <b>Reporting Frequency:</b> Every 3 years   | <b>Last Year Accomplished:</b> NA  | <b>Cost Per Decade (\$1,000):</b> 33         |

**Estimated Cost - Explanation:**

\$10,000/ survey done every 3 years. Some Peregrine counts have been done in the past but we have not correlated this with the amount of climbing occurring.

**Data Storage:**

Peregrine occurrence and productivity data stored in FAUNA; Climbing use data kept with the Forest Biologist and Forest Recreation Program Leader

**Responsibility:**

Forest Biologist / Recreation Program Manager will coordinate monitoring; implementation by all units

**Cooperators:**

New Hampshire Audubon Society