

Item # 49

Monitoring Item Name: Pond Habitat

Monitoring Question To what extent do Forest Service Management activities contribute toward restoration and maintenance of habitat for native and desirable non-native species?

Detailed Monitoring Question: Is habitat quality and quantity being maintained in FLNF ponds? Is aquatic vegetation encroaching upon more of the surface area of ponds? Are water control structure well maintained and support adequate water levels in ponds?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 4: Maintain or restore aquatic, fisheries, riparian, and wetland habitats.

LRMP Rationale/Driver: to provide suitable fish habitat in FLNF ponds for resource protection and recreational fishing purposes.

Indicator & Measure: Indicator (s) - water depth and aquatic vegetation

Measure - max water depth to hard pan; aquatic vegetation not exceeding more than 50% of surface water area or levels that would constrict fish population monitoring with nets and seines.

Protocol Name: pond survey **Protocol Status:** Approved

Protocol Version/Date: 2005 **Spatial Extent (Scale):** Districts

Protocol Agency: Forest Service **Units of Measure:** # per acre

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: maintain water levels and quality habitat is critical to maintaining the fishery in the ponds

Priority within Program: High

Data Collection Method: measured and photo monitoring

Data Collection Method Hyperlink:

Sample Design: estimates of area occupied by aquatic vegetation as a percent of the total pond area and estimated water level as a % of the pond being at full capacity.

Sample Unit: # or amount per acre

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method: evaluation of habitat conditions compared to desired conditions and indicator measures.

Reference & Desired Values: high quality fish habitat and recreational fishing opportunities in ponds

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$700

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$7,000

Reporting Frequency: Annually

Estimated Cost - Explanation: involves annual inspection of pond outlet structures to ensure they are functioning properly, and develop maintenance if necessary; estimate and record the percentage of aquatic vegetation

cover the ponds surface. Ponds are photographed every 3 years to document changes over time.

Data Collection Logistics: pond survey protocol to be followed

Required in-house Coordination: fisheries activity team and FLNF staff

Data Storage: files

Data Storage Hyperlink:

Responsibility: fisheries biologist

Cooperators:

Item # 48

Monitoring Item Name: Pond Fisheries

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: Are fish populations in ponds being maintained at levels to sufficient to support a recreational fisheries or natural reproduction. If not, is supplemental stocking or habitat improvement required?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.9 - Fisheries

LRMP Rationale/Driver: There are a number of selected ponds throughout the FLNF that are being managed to provide suitable habitat for warm water fisheries and recreational fishing. There are also 3 ponds that are stocked annually to maintain a seasonal trout fishery.

Indicator & Measure: Indicator - presence of LM bass and forage fish

Measure - presence of multiple age classes in the fishery

Protocol Name: pond survey

Protocol Status: Approved

Protocol Version/Date: 2005

Spatial Extent (Scale): Forest

Protocol Agency: Forest Service

Units of Measure: # per acres

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: This monitoring is necessary to maintain viable fish populations in ponds on the forest.

Priority within Program: High

Data Collection Method: Standard gill netting or seining methods

Data Collection Method Hyperlink:

Sample Design: 1-2 gill net sets per ponds for 2 hr minimums

Sample Unit: # per acre

Frequency of Measurement: Annually

Precision and Reliability: Class B

Analysis Method: fish survey and statistical analysis

Reference & Desired Values: multiple age classes of warm water fish species in managed ponds

References (Literature Cited): na

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$2,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$20,000

Reporting Frequency: Annually

Estimated Cost - Explanation: cost for personnel to travel to FLNF, perform work, conduct analysis and prescribe mgt. recommendations.

Category: Aquatic Population - Lakes

Data Collection Logistics: standard fish/pond survey protocol

Required in-house Coordination: fisheries activity team and FLNF staff

Data Storage: files

Data Storage Hyperlink:

Responsibility: Fisheries biologist

Cooperators: NYSDEC

Item # 51

Monitoring Item Name: Prescribed Fire

Monitoring Question What are the effects of management practices prescribed by the 2006 Forest Plan?

Detailed Monitoring Question: Is prescribed fire being effectively used as a tool to meet management objectives set forth in the Forest Plan? Are prescribed burns meeting the fire effect objectives set forth in each burn plan?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 5: Maintain or restore ecological processes and systems on the FLNF within desired ranges of variability, including a variety of native vegetation and stream channel types, and their patterns and structural components.

LRMP Rationale/Driver: Objectives 2 & 3; also Goal 2 maintaining habitat for viable populations of species, particularly with early successional and upland opening habitats, and with oak-pine habitat. This monitoring will help managers determine if prescribed burns are providing the results expected.

Also Fire management S&Gs (all of them)

Indicator & Measure: vegetation, soils, fuels characteristics - TBD

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** tbd

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: the techniques associated with upland openings are not new, but using this technique for underburns in forests is still somewhat experimental; disparity is high; not knowing how well fire is working will mean we won't really know if we can maintain oak with fire in this region and if it's ineffective we won't change our technique and can lose the type; oak management was a key issue; involves setting up plots and sampling.

Priority within Program: High

Data Collection Method: Priority is for monitoring understory burns. Use FIREMON (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.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,000

Category: Fire

Fiscal Year Scheduled:	2007	Cost Per Decade (\$1,000):	\$10,000
Reporting Frequency:	Annually		
Estimated Cost - Explanation:	reporting may also be tied to burning frequency. 1 week/ burn of GS-6 level dependant on size and complexity of burn units and ecological objectives; possibly completed through cooperation with The Nature Conservancy partners		
Data Collection Logistics:			
Required in-house Coordination:	assistance from benefiting resource staff (e.g. Timber, Wildlife, Ecology) so that resource objectives will be accurately assessed		
Data Storage:	FIREMON database stored within New England national Forests Fire Team		
Data Storage Hyperlink:			
Responsibility:	Fire Planner with assistance from benefiting resource staff (i.e. Timber or Wildlife so that resource objectives will be accurately assessed		
Cooperators:	The Nature Conservancy		

Item # 52

Monitoring Item Name: Fire Prevention

Monitoring Question To what extent have Standards and Guidelines been applied?

Detailed Monitoring Question: How many wildfires were suppressed with no reportable accidents/injuries or damage to private property? How many acres of private property burned from fires with ignition on Forest Service land?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.11 - Fire management

LRMP Rationale/Driver: Standard 1, Guideline 4, and generally the need to prevent wildfires on NFS from affecting adjacent private

Indicator & Measure: Number of wildfires suppressed with no reportable accidents/injuries or damage to private property. Number of acres of private property burned from fires with ignition on Forest Service land.

Protocol Name: **Protocol Status:** Approved

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** # fires and acres

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: fire is a safety risk and there is always uncertainty regarding risks to adjacent private property; not knowing if our Rx burns are having effects on private could lead to loss of ability to use fire at all; easy to answer since it is simply counting occurrences

Priority within Program: High

Data Collection Method: data is gathered by fire managers and stored in the National Fire Report Database

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$250

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$2,500

Reporting Frequency: Annually

Estimated Cost - Explanation: cost is anticipated to be \$250/year to compile and report data.

Data Collection Logistics:

Category: Fire

Required in-house Coordination:

Data Storage: National Fire Report Database

Data Storage Hyperlink:

Responsibility: Fire Management Officer

Cooperators:

Item # 53

Monitoring Item Name: Hazardous Fuels

Monitoring Question To what extent have Standards and Guidelines been applied?

Detailed Monitoring Question: To what extent have hazardous fuels been reduced?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.11 - Fire management

LRMP Rationale/Driver: Guidelines 1-4

Indicator & Measure: number of acres treated for hazardous fuels reduction

Protocol Name: **Protocol Status:** Approved

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** acres

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: easy to monitor as it reports information that is already reported in fire program; there is always risk to resources from fuel reduction work, but the work has been going on for a while and tends to be minor on this Forest; potential for risk could increase if Sirex woodwasp kills large acreages of conifer plantations.

Priority within Program: Medium

Data Collection Method: Acres treated are tallied by Fire Program and reported nationally

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$500

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$5,000

Reporting Frequency: Annually

Estimated Cost - Explanation:

Data Collection Logistics:

Required in-house Coordination:

Category: Fire

Data Storage: National Fire Reporting Database, National Fire Plan Operations & Reporting system

Data Storage Hyperlink:

Responsibility: Fire Management Officer

Cooperators:

Item # 54

Monitoring Item Name: Fire Agreements

Monitoring Question To what extent have Standards and Guidelines been applied?

Detailed Monitoring Question: How many agreements have been developed and maintained with outside partners?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.11 - Fire management

LRMP Rationale/Driver: tThis item may need to be deleted for the FL - I don't know if agreements happen or are desired on the FL (dhb)

Indicator & Measure: # of agreements established annually
longevity of agreements with each entity

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** # agreements, # years

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: easy to monitor - simply counting agreements; have some agreements but could do better; it is important to establish and maintain these agreements in order to work with towns when we have fires there - keeps everyone involved; not tracking could lead to losing connections with towns; fire and partnerships are key national and regional issues

Priority within Program: Medium

Data Collection Method: lweb database can be queried for formal agreements; also FMO will tally

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$0

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$0

Reporting Frequency: Annually

Estimated Cost - Explanation: costs are included in Fire Prevention item

Data Collection Logistics:

Category: Fire

Required in-house Coordination:

Data Storage: Fire Management files and lweb

Data Storage Hyperlink:

Responsibility: Fire Management Officer

Cooperators:

Item # 64

Monitoring Item Name: How is tree health changing over time?

Monitoring Question To what extent are air quality and atmospheric deposition affecting sensitive components of the forest ecosystem?

Detailed Monitoring Question: How is tree health changing over time from the influence of acid deposition, climate change, invasive species and other environmental problems, in combination and separate from land management practices.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 8: Provide for a sustainable supply of forest products.

LRMP Rationale/Driver: EO 11991 Protection and Enhancement of Environmental Quality

Indicator & Measure: Indicator: Tree Health
Measures: Biomass productivity; Incremental growth; Tree survival; tree decline (foliage density, dieback, crown density)

Protocol Name: Forest Health Monitoring **Protocol Status:** Approved

Protocol Version/Date: **Spatial Extent (Scale):** National

Protocol Agency: Forest Service **Units of Measure:**

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: We must understand tree health trends over time, so we can adapt our management practices to achieve long term forest management goals.

Priority within Program: Medium

Data Collection Method: To be determined by 2011.

Data Collection Method Hyperlink:

Sample Design: To be determined

Sample Unit: To be determined

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method: To be determined

Reference & Desired Values: To be determined

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$33,000

Fiscal Year Scheduled: 2012 **Cost Per Decade (\$1,000):** \$50,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation: Part of LEMP. The cost to establish 5 plots is built into the LT Soil Quality and Soil Productivity Monitoring & Trends in Veg Community Composition items. Costs for collecting tree health measurements at those plots are as follows: 2007-2012 (\$0); 2012 first year measurements for all 5 plots (\$7,000); 2012-2016 (\$0); 2017 re-sample 5 plots at \$1000 each (\$5,000). This data

Data Collection Logistics: collection will be done by contract with FIA or State Forest Health staff.
To be developed.

Required in-house Coordination:

Data Storage: Data to reside in NRIS databases.

Data Storage Hyperlink:

Responsibility: To be determined

Cooperators:

Item # 43

Monitoring Item Name: Prescribed Burning Effects on Residual Trees

Monitoring Question Are the effects of Forest management, including prescriptions, resulting in significant changes to productivity of the land?

Detailed Monitoring Question: What effects has a prescribed burn conducted in 1991 had on the residual trees and regeneration for a stand along the Interloken Trail? .

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 9: Demonstrate innovative, scientifically, and ecologically sound management practices that can be applied to other lands.

LRMP Rationale/Driver: The Forest Plan encourages using innovative management practices such as prescribed burning as a demonstration applying ecosystem approaches to forest management.

Indicator & Measure: The indicators are dbh growth, mortality and regeneration.

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):** Districts

Protocol Agency: Forest Service **Units of Measure:** inches of oak tree growth

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: The plots were established in 1991 and costs will be minimal to obtain 15-20 year data.

Priority within Program: Medium

Data Collection Method: The plot centers had been marked with a metal fence posts. The trees have been tagged with a driven wire and a numbered aluminium tag. The trees have been measured at DBH and the condition noted. Although annual measurements have been collected, data collection could be taken every 5 years.

Data Collection Method Hyperlink:

Sample Design: Two 1/5 acre plots were established on April 11, 1991 to monitor the long term effects of a prescribed burn conducted in May 1990. The plots were established after a field visit by Neil Lamson (S&PF Area Silviculturist) and Dr. Ralph Nyland (SUNY-ESF). The plots have been re-measured annually and represent 13+years of data.

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:**

Analysis Method: Analysis of the remeasurement data was conducted by the Forest Silviculturist.

Reference & Desired Values: The values are: 1. retention and longevity of residual trees. 2. Effect on the timber resource 3. effect on the acorn mast crop with management activities.

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$600

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$1,200

Reporting Frequency: 5 Years

Estimated Cost - Explanation: The measurements will require 1 person day and 1 person day or less for analysis.

Data Collection Logistics: Maps of the plot locations on Burnt Hill Plots are in the 2470 Permanent Files (Forest Silviculturist)

Required in-house Coordination:

Data Storage: The electronic data is stored on a floppy disc. A hardcopy copy of the data is kept in the 2470 file folder.

Data Storage Hyperlink:

Responsibility: Forest Silviculturist

Cooperators:

Item # 47

Monitoring Item Name: Increase of Destructive Insects and Diseases
Monitoring Question Are insect and disease levels compatible with objectives for maintaining healthy forest conditions?
Detailed Monitoring Question: To what extent have destructive insects and disease organisms increased?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.10 - Forest health and disturbance processes

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

Indicator & Measure:

Protocol Name: **Protocol Status:**
Protocol Version/Date: **Spatial Extent (Scale):** Forest
Protocol Agency: Forest Service **Units of Measure:**

Priority Question 1 (uncertainty associated with management assumptions): Medium
Priority Question 2 (disparity between existing and desired conditions): Medium
Priority Question 3 (management activities likely to affect resources of concern): Medium
Priority Question 4 (serious consequences from not knowing resource conditions): Medium
Priority Question 5 (monitoring responds to a key issue): Medium
Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: This is a NFMA monitoring requirement.

Priority within Program: High

Data Collection Method: Record the number of outbreaks (and acres affected) for each insect and disease organism (quantitative). Unless "damaging levels" have been concretely defined, a quantitative assessment of suppression will be made. S&PF Forest Health Protection conducts an annual aerial detection survey. Hotspots are mapped while in the air and later followed up with a ground survey, truthing the identification of the organism causing the damage. They also summarize these efforts in an annual report that can be used as a source for the Forest monitoring report.

Data Collection Method Hyperlink:

Sample Design: Number of outbreaks
 Acres affected
 Species of insects and diseases
Sample Unit: Forest wide mapping is conducted.

Frequency of Measurement: Annually **Precision and Reliability:**

Analysis Method: The analysis is conducted by S&PF - Forest Health Protection. If warranted, a biological assessment will be conducted to recommend treatment strategies.

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$2,000
Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$20,000
Reporting Frequency: Annually

Estimated Cost - Explanation: S&PF funds the cost of the aerial detection survey. Costs are shown 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 Collection Logistics:

Required in-house Coordination:

Data Storage: FS Veg (NRIS)

Data Storage Hyperlink:

Responsibility: Forest Silviculturist, Forest Ecologist and Forest Botanist

Cooperators: State & Private Forestry - Durham, NH

Item # 14

Monitoring Item Name: Heritage Resource Site Protection

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Have Heritage Resources across the Forest been inventoried and protected?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 10: Provide protection and stewardship for significant heritage resources on the FLNF.

LRMP Rationale/Driver: Legal: National Historic Preservation Act, Archaeological Resources Protection Act, & Native American Graves Protection and Repatriation Act; S&G 2.3.14 - Tribal, and 2.3.15 - Heritage; Goal 16 - Objectives 2, 4 & 5.

Indicator & Measure: Indicator: Changed Condition of Heritage Resource site, such that its information value and/or eligibility to the National Register has been compromised.
Measure: % of monitored sites with significant Changed Condition

Protocol Name: Heritage Changed Condition **Protocol Status:** Proposed

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Site

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: The Forest is charged with inventorying and protecting Heritage Resources across the Forest, yet we persist in doing most of our I&M within project areas. This lack of knowledge about the condition of the majority of our resource base represents a high degree of uncertainty and risk about the effects of natural processes (e.g., erosion and vegetative encroachment) and human actions (e.g., vandalism) which may be undermining our commitment to Stewardship of these sites.

Priority within Program: High

Data Collection Method: Comparison of Condition description in inventoried Heritage Resource site database to the current condition leads to a Changed Condition determination.

Data Collection Method Hyperlink:

Sample Design: Our sample size (e.g., # of compartments and #sites) is entirely budget-driven. The location of our sample is derived through a combination of knowledge gaps (places where we know very little), opportunity, and corporate need (i.e., doing I&M in places where we anticipate future Forest activities). We would desire a target sample of 10% of our inventory per year.

Sample Unit: Historically, we have used Compartments as our sample areas, "sites" as our reporting "unit".

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method: Case-by-case determination of the cause (if any) of Changed Condition for a Heritage site.

Reference & Desired Values: Preference is No Deterioration or Damage to site. In some cases, enhancement/stabilization of a site is proposed and desirable.

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$500

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$5,000

Category: Heritage

Reporting Frequency: 5 Years

Estimated Cost - Explanation: Estimate of \$50 per site monitoring/evaluation; 10% of inventory per year = 10+ sites. Thus \$50x10 = \$500 per year.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: Heritage I-Web/INFRA component

Data Storage Hyperlink:

Responsibility: Forest Archaeologist

Cooperators:

Item # 15

Monitoring Item Name: Heritage Resource Program Objectives

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Have Heritage Resource Program Management Objectives related to backlogged site evaluations, meeting curation guidelines, developing a GIS model for prehistoric site locations, increasing partnerships for Section 110 activities, consulting with SHPO and Tribes, and incorporating Heritage components into historic building management plans been addressed?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 10: Provide protection and stewardship for significant heritage resources on the FLNF.

LRMP Rationale/Driver: Legal: National Historic Preservation Act, Archaeological Resources Protection Act, & Native American Graves Protection and Repatriation Act; S&G 2.3.14 - Tribal, and 2.3.15 - Heritage; Goal 16 - Objectives 1, 3, 4, 5, 6, 7

Indicator & Measure:
 Indicator 1: Previously inventoried sites evaluated against NRHP criteria
 Measure 1: % of previously inventoried sites evaluated this FY, & cumulatively
 Indicator 2: Curation facilities for artifacts & archives meeting CFR 79 standards
 Measure 2: % of collections in condition and facilities meeting CFR 79
 Indicator 3: Successful integration of VT SHPO GIS model for location of prehistoric archaeological sites into the GMNF Heritage toolbox.
 Measure 3: Y/N
 Indicator 4: Increase partnerships to assist with NHPA Section 110 activities
 Measure 4: # and ratio of Partnerships with formal documentation, compared to FY06
 Indicator 5: Consultation with SHPO and Tribes
 Measure 5: # of contacts/consults with SHPO and individual Tribes in FY
 Indicator 6: Heritage Resource values as component of Facilities Mgt Plans
 Measure 6: % of Facility Mgt Plans with a Heritage Resource component completed in FY and cumulatively

Protocol Name: Heritage Resource Program Management

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency: Forest Service

Units of Measure:

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Low

Priority Rationale: These items are all the kinds of "Program Management" activities and accomplishments that are deferred or underfunded year after year to the detriment of the stewardship and management responsibilities of the Forest.

Priority within Program: High

Data Collection Method: Indicator 1: review I-Web Heritage data to track number of sites that were evaluated for NRHP eligibility during the year, and compare to the backlog of unevaluated sites.
 Indicator 2: direct observation of collections and curation facility
 Indicator 3: review HRR reports to see if predictive model has been used.
 Indicator 4: count formal partnerships and compare to previous years
 Indicator 5: develop log of consultations.
 Indicator 6: count number of facility management plans that have Heritage Resource components.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Category: Heritage**Frequency of Measurement:** Annually**Precision and Reliability:** Class B**Analysis Method:****Reference & Desired Values:****References (Literature Cited):****Last Year Accomplished:****Cost for Year Scheduled (\$1,000):** \$350**Fiscal Year Scheduled:** 2007**Cost Per Decade (\$1,000):** \$4,100**Reporting Frequency:** 5 Years**Estimated Cost - Explanation:** requires 1 day of Archaeologist; plus 1 day at year 5 and 10 for reporting.**Data Collection Logistics:****Required in-house Coordination:****Data Storage:** Raw data related to heritage sites is stored in Heritage Module of I-web. Monitoring evaluation information is maintained in a spreadsheet stored on the Forests' server.**Data Storage Hyperlink:****Responsibility:** Forest Archaeologist**Cooperators:**

Item # 13

Monitoring Item Name: Heritage Resource S&Gs

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Have Heritage Resource sites within the Areas of Potential Effect of Forest-sponsored projects (undertakings) been protected and managed according to our Standards and Guidelines?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 10: Provide protection and stewardship for significant heritage resources on the FLNF.

LRMP Rationale/Driver: Legal: National Historic Preservation Act, Archaeological Resources Protection Act, and Native American Graves Protection and Repatriation Act; S&G 2.3.14 - Tribal, and 2.3.15 - Heritage; Goal 16 - Objectives 2 & 5

Indicator & Measure: Indicator 1: Implementation of S&Gs within projects' Areas of Potential Effect.
Indicator 2: Effectiveness of S&G implementation based on Changed Conditions
Measure 1: Mitigation Measures/Design Elements implemented (Y/N or %)
Measure 2: % of sites within APE with significant Changed Condition due to lack of S&G implementation

Protocol Name: Heritage S&G Monitoring **Protocol Status:** Proposed

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Sites

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Heritage Resources are non-renewable. While the Forest has a reasonably good track record of site protection, gaps in inventory and failure to implement S&Gs are known to occur and should therefore be monitored. This can be done in a cost-effective manner and is an obligation to the public under our Plan and as stipulated by Law.

Priority within Program: High

Data Collection Method: Each Forest undertaking/project includes an inventory of Heritage Resource sites, and protective mitigation measures or project design elements which are intended to protect these sites. The inventory records for these historic properties include descriptive condition reports and sketch maps or images. These serve as the control or baseline for evaluating changes in condition. Field observation and investigation indicates the nature, cause and extent of changed conditions (if any).

Data Collection Method Hyperlink:

Sample Design: It would be most useful to conduct project-level S&G monitoring in an integrated manner with other Resource Specialists and project proponents. I propose doing one timber, one rec and one engineering project per year.

Sample Unit: All Heritage sites within the Area of Potential Effect of a project.

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method: Case-by-case determination of (a) whether S&Gs implemented; (b) effective; and (c) the cause (if any) of Changed Condition(s) for Heritage sites (validation).

Reference & Desired Values: Preference is No Deterioration or Damage to site. In some cases, enhancement/stabilization of a site is proposed and desirable.

References (Literature Cited):

Category: Heritage

Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$2,000
Fiscal Year Scheduled:	2007	Cost Per Decade (\$1,000):	\$20,000
Reporting Frequency:	5 Years		

Estimated Cost - Explanation: Based on a sample size of monitoring three Forest-sponsored projects per year (1 each from Timber, Rec, Eng), and an estimate of two days of the Forest Archaeologist's time for each project to do pre-work, field visit and analysis, the total is 6 GS-11 days per year -- or about \$2000

Data Collection Logistics:

Required in-house Coordination:

Data Storage: Site condition information is stored in the Heritage I-Web/INFRA component

Data Storage Hyperlink:

Responsibility: Forest Archaeologist

Cooperators:

Item # 35

Monitoring Item Name: Partnerships Maintenance & Enhancement

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Are partnerships active and effective on the Forest and are Forest Service personnel participating in partnership activities?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 15: Maintain and enhance partnerships.

LRMP Rationale/Driver: Objectives 1 through 4:
 Increase the effective use of partnerships to achieve Forest goals.
 Increase coordination with other federal, State, county, and local agencies and the private sector in the prevention, control, containment, and monitoring of non-native invasive species.
 Establish, maintain, or enhance partnerships with community organizations for resource planning.
 Work with communities in community development to enhance social capital and economic baseline.

Indicator & Measure: Number of formal partnership agreements (inter-agency, Challenge Cost Share, Memorandums of Understanding).
 Number of FS staff participating in outside organizations in official capacity (representing FS interest).
 Evaluation (narrative) of how the partnership has been effective in helping the Forest Service meet Goals and Objectives.
 Number of people hours contributed by partnerships.

Protocol Name:	Protocol Status:	Draft
Protocol Version/Date:	Spatial Extent (Scale):	Forest
Protocol Agency:	Units of Measure:	1) Number of formal partnership agreements; 2) Number of FS Staff; 3) narrative document; 4) number of people hours

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Looking to enhance and/or build partnerships...some programs are doing well and some do not have any. The FS desires to have more partnerships to leverage funds and get more work completed on the ground. There is a desire internally and externally to have effective partnerships.

Priority within Program: High

Data Collection Method: Gather data from formal partnership agreements on lweb.
 Query FS staff on partnership participation and number of people hours contributed by

partnerships, and narrative on effectiveness.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually

Precision and Reliability: Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished:

Cost for Year Scheduled (\$1,000): \$1,000

Fiscal Year Scheduled: 2008

Cost Per Decade (\$1,000): \$5,000

Reporting Frequency: Annually

Estimated Cost - Explanation: Cumulative 3 days of time for all staff members.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: M&E Report, lweb

Data Storage Hyperlink:

Responsibility: EPPA or Partnership Coordinator

Cooperators:

Item # 34

Monitoring Item Name: Teacher professional development in Forest stewardship

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Did teacher professional development in Forest stewardship occur?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 12: Provide a diverse range of information and education opportunities that will enhance the understanding of the FLNF.

LRMP Rationale/Driver: Objective 3: Include teacher development in stewardship of living systems in the educational outreach program.

Indicator & Measure: Number of teachers trained.

Number of programs offered.

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Number of teachers and number of programs offered

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Teacher development in forest stewardship has been an ongoing activity since 1999. Cost of monitoring is minimal.

Priority within Program:

Data Collection Method: A report is filed annually with cooperating government agencies (including the RO). The monitoring data is included in the report.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 3 years **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$100

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$1,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation: Costs = less than one day's time per year.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: M&E Report

Data Storage Hyperlink:

Responsibility: Kathleen (Partnership Education Coordinator)

Cooperators:

Item # 33

Monitoring Item Name: Forestry Education Sites and Products

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Were sites established on the Forest and interpretation/education products produced for forestry education?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 12: Provide a diverse range of information and education opportunities that will enhance the understanding of the FLNF.

LRMP Rationale/Driver: Objective 5: Establish one site on the FLNF for demonstration forests, discovery trails, or plots and other living laboratories for teacher/non-formal educator use.

Objective 3 - Deliver at least one public interpretation and education (I&E) product annually in order to better protect and encourage stewardship of resources through increased public awareness

Objective 1: Expand internal and external public awareness of Forest Service management.

Indicator & Measure: Number of sites established for demonstration forests, discovery trails, or plots and other living laboratories.

Number of visitors at site.

Number of products produced and received (?)

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Sites/products and Number of Visitors

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: The public does not know a lot about what we do. Although we have some potential sites, none have been established with signage and NEPA completed. The consequences of not establishing two sites are an uninformed public. This was an issue raised during plan revision and it has been an internal FS desire for a number of years. Plots would be most cost effective to establish while establishing a demonstration forest would be more cost intensive.

Priority within Program: Medium

Data Collection Method: Every 5 years, report on what sites have been established and what I&E products have been produced.

The number of visitors would be collected through sign-in sheets and number of attendance at Forest Service-led public tours.

How to gather information on how many people have received/viewed the products TBD

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$100

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$200

Reporting Frequency: 5 Years

Estimated Cost - Explanation: cost = less than one day's time per year

Data Collection Logistics:

Required in-house Coordination:

Data Storage: M&E report

Data Storage Hyperlink:

Responsibility: EPPA

Cooperators:

Item # 59

Monitoring Item Name: Payments to towns

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: What was the amount paid to each GMNF town through PILT, 25% fund or Secure Schools. What type of communications have occurred on this topic with each town.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 14: Support regional and local economies through resource production and resource protection.

LRMP Rationale/Driver: Maintain communications with Forest communities with regard to Payment in Lieu of Taxes, 25 Percent Fund, and/or Secure Schools and Community Self-Determination Act.

Indicator & Measure: Amount of payment to each town in each category, contacts made with towns about these programs.

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):**

Protocol Agency: **Units of Measure:** dollars, contacts

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: I think we must track this information.

Priority within Program: High

Data Collection Method: Dollar amounts reported to FLNF annually. Contacts could be part of satisfaction survey with towns or reported by FS staff.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method: tracking of consistency in payment levels to determine effect of NFS ownership on town financial health.

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$100

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$1,000

Reporting Frequency: Annually

Estimated Cost - Explanation: This would take a couple hours of staff time.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: M&E report - B&F.

Data Storage Hyperlink:

Responsibility: Partnership Coordinator, Administrative Officer.

Cooperators:

Item # 62

Monitoring Item Name: Non-native invasive species

Monitoring Question To what extent do Forest Service Management activities contribute toward restoration and maintenance of habitat for native and desirable non-native species?

Detailed Monitoring Question: To what extent are non-native invasive species impacting other Forest resources?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: Non-native invasive species are one of what the FS chief sees as the top four threats to National Forest lands; Goal 2, Objective 6; effectiveness of standards and guidelines for Pests, Diseases, and Non-Native Invasive Species: S1 through S4 and G1 through G-5

Indicator & Measure: Indicator: Extent of infestations
Measures: Acres and/or priority sites surveyed; acres and/or priority sites infested; acres and/or priority sites treated; acres and/or priority sites with infestations reduced in size

Protocol Name: Invasive Plant Inventory **Protocol Status:** Approved

Protocol Version/Date: Terra v. 1.2.0.1 **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Acres and/or Sites

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: NNIS S&Gs and NNIS treatment methods may or may not be effective; NNIS are already affecting riparian habitats and could easily begin to affect tree regeneration; ground-disturbing and light-increasing activities could easily spread NNIS or facilitate their growth; if monitoring does not occur in a timely manner, infestations may become impossible to control; NNIS are one of the chief's 4 main issues; monitoring requires site visits by trained personnel, but does not require unusual equipment

Priority within Program: High

Data Collection Method: During the growing season, trained FS staff and volunteers record GPS coordinates in combination w/ net infestation and canopy cover to estimate NNIS net infestations. Sites surveyed are either those we most want to protect or those that have the greatest potential to be sources of seeds or plant propagules for places we most want to protect. Monitoring of known infestations is in locations where we want to determine invasiveness or where we want to know the results of treatment efforts.

Data Collection Method Hyperlink: <http://www.fs.fed.us/emc/nris/products/invasives/index.shtml>

Sample Design: There is not a statistical component to the sample design. Sites monitored are those fitting the criteria described in "Data Collection Method". Monitoring will occur annually, but not in the same places.

Sample Unit: Either sites or acres - both are included as performance measures

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method: Compare acres or sites infested over time. No statistical measures have been used.

Reference & Desired Values: Net infestation is currently known for many sites, but not all. If a project site has no NNIS infestations at the time of implementation, the goal is to prevent new ones from establishing. If the project site has infestations, the goal is to contain, control, or eradicate them. The desired infestation level is as close to zero as possible.

References (Literature Cited):

Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$5,500
Fiscal Year Scheduled:	2007	Cost Per Decade (\$1,000):	\$55,000
Reporting Frequency:	Annually		

Estimated Cost - Explanation: Approximately 20 days are needed per year to monitor: 1) the impact of NNIS on other resources; 2) the effectiveness of treatments; 3) implementation of standards and guidelines; and 4) to manage data. At a cost of about \$275/day, the yearly cost would be \$5,500.

Data Collection Logistics: Data collection must occur during the field season. An update to the corporate database is expected within the next few months and this will require sending someone to learn it, and having this person teach others. GPS units are required, and getting updated programs loaded onto laptop computers will be required.

Required in-house Coordination: Other staff involved would include persons on the vegetation management team (Rebecca Wright, Brian Keel)

Data Storage: NNIS data is stored in NRIS Terra, but treatments are reported through FACTS.

Data Storage Hyperlink: <http://www.fs.fed.us/emc/nris/terra/>

Responsibility: The Forest Botanist is responsible with the exception of upward reporting through FACTS, which is handled by Rebecca Wright.

Cooperators: Volunteers currently help w/ site inventories

Item # 50

Monitoring Item Name: Land Ownership Adjustment

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: To what extent has the Forest's land base been adjusted through purchase, exchange, transfer, interchange, boundary adjustment and donation?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 13: Meet anticipated future needs and opportunities on public lands and improve management effectiveness of the FLNF through landownership adjustment activities.

LRMP Rationale/Driver:

Indicator & Measure: Indicator: Acres adjusted
Measures: # of acres

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency: Forest Service

Units of Measure: Acres

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Answering the question will not consume a lot of time, money or personnel.

Priority within Program: Low

Data Collection Method: Number of acres adjusted

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually

Precision and Reliability: Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished:

Cost for Year Scheduled (\$1,000): \$0

Fiscal Year Scheduled: 2007

Cost Per Decade (\$1,000): \$0

Reporting Frequency: Annually

Estimated Cost - Explanation: The Forest has to report acres adjusted to the RO on a yearly basis. No additional cost for monitoring.

Data Collection Logistics:

Required in-house Coordination:

Category: Lands

Data Storage: ALPS

Data Storage Hyperlink:

Responsibility: Realty Specialist

Cooperators:

Item # 57

Monitoring Item Name: Special Uses - Lands

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Is the Forest improving its administration of existing authorizations?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 1: Provide for a wide range of uses and activities in an ecologically, socially, and economically sustainable way.

LRMP Rationale/Driver: National direction in the directives system as captured in Plan Standards and Guidelines.

Indicator & Measure: Percentage of authorizations administered to standard annually.

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):**

Protocol Agency: Forest Service **Units of Measure:** Authorizations administered to standard.

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: The degree of uncertainty is low: it must be done. There is a significant disparity between existing and required conditions, but progress is being made. Resource damage can occur on authorizations not administered to standard. Most would not have serious consequences. Monitoring by administering authorizations to standard is required by policy and S & G's. Monitoring can be very cost effective because many Forest associates can contribute to the effort.

Priority within Program: High

Data Collection Method: After a review of the authorization, a field inspection of the authorized use is conducted. Inspections are documented in the case file and the Iweb SUDS database.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit: Authorizations administered to standard.

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$250

Fiscal Year Scheduled: 2012 **Cost Per Decade (\$1,000):** \$500

Reporting Frequency: 5 Years

Estimated Cost - Explanation: less than 1 day for each of resource assistant and program manager

Data Collection Logistics:

Required in-house Coordination:

Data Storage: Case file and SUDS database

Data Storage Hyperlink:

Responsibility: Forest Special Uses Program manager

Cooperators: For certain types of permits, other Federal, State or local agencies may have some responsibilities.

Item # 32

Monitoring Item Name: Innovative, Coordinated Management and Energy Conservation

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How many projects have been completed or undertaken that demonstrate innovative management practice, coordinated vegetation management as a tool to accomplish other resource objectives, and how the Forest is reducing the amount of energy used through conservation and use of renewable energy sources

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 9: Demonstrate innovative, scientifically, and ecologically sound management practices that can be applied to other lands.

LRMP Rationale/Driver: Also Goal 10 and 11, and all associated objectives. This is linked to some extent to monitoring item associated with demonstration forestry under Goal 19.

Indicator & Measure: What projects have been done and how well did they demonstrate innovation, coordination, and energy conservation?

Number of projects completed
 Number of projects underway
 Narrative on how each project demonstrates innovation, coordination, and/or energy conservation

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** numbers and narratives

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Some experience with coordination and innovation, not much with energy conservation; resource coordination (IDTs) are staple of forest management but not as innovative as it could be; we tend to be an innovative forest in some ways but could be better; big disparity between desired and current condition in terms of energy conservation; most everyone will be affected by this work, and some resources may benefit more than they used to; risks are higher for some areas than others; associated with courageous conservation; easy to monitor

Priority within Program: Medium

Data Collection Method: query program coordinators and ask for numbers of projects that meet this item with a narrative for each project describing how it addresses Goals 9, 10, and 11.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Category: Program Management

Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$2,000
Fiscal Year Scheduled:	2012	Cost Per Decade (\$1,000):	\$4,000
Reporting Frequency:	5 Years		
Estimated Cost - Explanation:	Every program area would need to write a narrative and identify what projects address monitoring item. Forest Planner would compile, organize, and assess (1-2 days)		
Data Collection Logistics:			
Required in-house Coordination:			
Data Storage:	M&E Report		
Data Storage Hyperlink:			
Responsibility:	Forest Planner or EPPA		
Cooperators:			

Item # 30

Monitoring Item Name: Standards & Guidelines Compliance

Monitoring Question To what extent have Standards and Guidelines been applied?

Detailed Monitoring Question: Did any project require guideline modification or a Forest Plan amendment to modify a standard? If so, what was the project? Which standard or guideline was changed? And What was the rationale for the change?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 9: Demonstrate innovative, scientifically, and ecologically sound management practices that can be applied to other lands.

LRMP Rationale/Driver: No specific goal related to this but is required in Plan and Goal 9 seemed a good fit. This will help us evaluate the effectiveness of S&Gs

Indicator & Measure: # S&Gs modified or changed annually, tallied by standard or guideline, tallied by project, and tallied by resource area

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** # of S&Gs

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Required by Forest Plan and NFMA; not knowing the extent to which S&Gs are being modified could result in credibility problems with the public and internally, and could lead to inconsistent application which makes it difficult to measure effectiveness of S&Gs

Priority within Program: High

Data Collection Method: The project leaders on every project will need to tally the S&Gs that were modified for that project and the rationale. NEPA coordinators will need to tally any projects where amendments were required to change a standard. Will need to develop a spreadsheet or database to store this information.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$0

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$1,000

Reporting Frequency: Annually

Estimated Cost - Explanation: estimate 2 days in FY07 to develop system to store the information (\$1000). Other years, cost is negligible to query and compile information annually.

Data Collection Logistics:

Required in-house Coordination: need to coordinate with project leaders, NEPA coordinators, and resource folks to identify where in project planning, NEPA, implementation process we will discover when S&Gs are modified

Data Storage: spreadsheet or database developed by GMFL

Data Storage Hyperlink:

Responsibility: Forest Planner

Cooperators:

Item # 61

Monitoring Item Name: Desired Future Condition

Monitoring Question What are the effects of management practices prescribed by the 2006 Forest Plan?

Detailed Monitoring Question: What activities have occurred in management areas. How have these management areas helped to achieve the desired future condition of the management area. Have activities occurred that detract from the desired future condition of the management area.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 1: Provide for a wide range of uses and activities in an ecologically, socially, and economically sustainable way.

LRMP Rationale/Driver: This item provides a comprehensive approach to monitoring activities in management areas and the activities effect on reaching the desired future condition. It will also provide the FS with information needed for Wo information call on roadless, wilderness, HFRA.

Indicator & Measure: number of acres, number of miles, with location of projects and discription of activity

Protocol Name: FACT **Protocol Status:** Approved

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** acres, miles, point

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Tracking this information is crucial for project planning and development, stand data, and monitoprng the implementation of the forest plan.

Priority within Program: High

Data Collection Method: FACTS, NEPA documents, INFRA

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method: This information will bew used to determine if the activites we are doing are consistent with the specified management of an area. Used with other monitoring data this data will provide the information needed to evaluate how well we are doing at meeting desired future conditions and temporally, tabulary and spatially tracking plan implementation activities.

Reference & Desired Values: Forest Plan data layers will provide a baseline for existitng values - desired values are described in the FP objectives and management area descriptions.

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$500

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$5,000

Reporting Frequency: Annually

Category: Program Management

Estimated Cost - Explanation: this assumes 3 staff days to determine and enter all forest projects with description and exact locations.

Data Collection Logistics: GPS locations for projects and descriptions of activities

Required in-house Coordination: All program managers will have to track program projects to report.

Data Storage: FACTS, other corporate data bases monitoring report

Data Storage Hyperlink:

Responsibility: Forest Silviculturist, NEPA, Planning

Cooperators:

Item # 60

Monitoring Item Name: Costs of Plan Implementation

Monitoring Question How close are actual costs to projected costs?

Detailed Monitoring 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.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 1: Provide for a wide range of uses and activities in an ecologically, socially, and economically sustainable way.

LRMP Rationale/Driver: Required by Forest Plan outputs table; will identify trends and draw conclusions about the adequacy of the amount of goods, services, and amenities provided and whether or not the levels have had any adverse socioeconomic impacts within the forest region.

Indicator & Measure: GMNF Annual Budget and Expenditures by Program; GMNF Expenditures to produce items in App D. Proposed and Probable practices.

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency:

Units of Measure: dollars

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Monitoring the cost of producing outputs is important to the WO, RO and our public. Implementation of the plan is key, and the ability to fund the implementation of the plan at reasonable cost is crucial.

Priority within Program:

Data Collection Method: data will be collected through program managers.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually

Precision and Reliability: Class A

Analysis Method: The 2006 forest Plan did not estimate the costs of specific activities with the exception of the cost of producing board feet. The socio-economic section assumed the cost of all programs will remain the same except the need to increase timber program costs to produce more timber. Realistically we need to know the cost of outputs for each program. We need to establish a baseline of costs per output for programs based on current funding levels. We then need to monitor future costs per output to determine trends and inefficiencies.

Reference & Desired Values: current values are existing program funds.

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$0

Fiscal Year Scheduled: 2008 **Cost Per Decade (\$1,000):** \$0

Category: Program Management

Reporting Frequency: Annually

Estimated Cost - Explanation: Costs included in the same Monitoring Item for the GMNF.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: K drive

Data Storage Hyperlink:

Responsibility: program managers, B&F

Cooperators:

Item # 28

Monitoring Item Name: Outputs Accomplished - Other Resources

Monitoring Question How close are actual outputs and services to projected outputs and services?

Detailed Monitoring Question: How do actual outputs compare to those projected in Appendix D, Proposed and Probable Practices, specifically related to heritage, recreation, roads, vegetation, rare, ecological, wildlife, and fisheries resources

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 1: Provide for a wide range of uses and activities in an ecologically, socially, and economically sustainable way.

LRMP Rationale/Driver: This addresses NFMA requirements to report on outputs; this output item has been separated from timber output items as they are separated in Appendix D and the timber items address a specific goal (8)

Indicator & Measure: amounts per Table D-5

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency:

Units of Measure: various

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: NFMA requirement - we have to report this

Priority within Program: High

Data Collection Method: Query program coordinators and specialists to report on amounts associated with each resource area identified in Table D-5

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$500

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$5,000

Reporting Frequency: Annually

Estimated Cost - Explanation: estimate approximately 5 days of GS-11 (\$300/day) to query, report information, and set up in table

Data Collection Logistics: build as part of the M&E report

Required in-house Coordination: need to coordinate with all program managers and specialists who are responsible for resources identified in Table D-5

Data Storage: various

Data Storage Hyperlink:

Responsibility: Forest Planner

Cooperators:

Item # 31

Monitoring Item Name: Standards and Guidelines - Implementation and Effectiveness Monitoring

Monitoring Question To what extent have Standards and Guidelines been applied?

Detailed Monitoring Question: Are standards, guidelines, and mitigation measures being implemented on projects consistent with Forest Plan and project NEPA direction? Are these measures effective at achieving the desired results? Are there other measures that could be more effective?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 9: Demonstrate innovative, scientifically, and ecologically sound management practices that can be applied to other lands.

LRMP Rationale/Driver: All combined S&Gs are part of this, although Goal 9 also seems a good fit; required by Forest Plan and NFMA; also addresses monitoring item 3 in Table 4.1-6.

Indicator & Measure: A tally of S&Gs applicable to the project, those being applied, those not being applied or being mis-applied, and those that are not effective. Ratings or scorings TBD

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** # of S&Gs

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Required by Forest Plan and NFMA; not knowing the extent to which S&Gs are being implemented and effective could result in credibility problems with the public and internally, and could lead to inconsistent application which makes it difficult to measure effectiveness of S&Gs

Priority within Program: High

Data Collection Method: select a set of projects that will be evaluated for this monitoring; IDTs will visit these projects as teams as identify S&Gs and mitigation measures that are being implemented, those that are effective, and those that are not being implemented or are not effective. Recommendations will be made regarding changes needed, including plan amendments to change S&G direction

Data Collection Method Hyperlink:

Sample Design: select at least 1 large and 1 small project during the five year interval. select a variety of types of projects across the years to ensure all S&Gs that have been used are evaluated

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,000

Fiscal Year Scheduled: 2008 **Cost Per Decade (\$1,000):** \$2,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation:

Data Collection Logistics: need to create data collection sheets for teams to use so data is in a consistent format

Required in-house Coordination: need to schedule trips at the appropriate time of year to evaluate for the specialists involved

Data Storage: spreadsheets or database developed by GMNF

Data Storage Hyperlink:

Responsibility: Forest Planner

Cooperators:

Item # 56

Monitoring Item Name: Watering facilities functional

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Goal 7 (Objective 2): Are we providing functioning livestock watering facilities to support approximately 10,000 Animal Unit Months (AUMs) annually?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 7: Provide for the the sustainable use of grasslands for grazing on the FLNF.

LRMP Rationale/Driver: Goal 7 (Objective 1): Provide functioning livestock watering facilities to support approximately 10,000 Animal Unit Months (AUMs) annually. Maintenance & construction accomplishments can be readily quantified, enabling us to monitor accomplishment & costs to provide necessary watering systems.

Indicator & Measure: Number and condition of functioning systems and those in need of maintenance or construction.

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Number, Condition

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Annual monitoring of watering facilities is quickly accomplished and provides high degree of awareness about outyear priority setting to maintain and/or develop new watering systems that meet a critical need for livestock.

Priority within Program: High

Data Collection Method: Field check individual watering systems for condition and functionality. Determine where existing systems require fencing to protect integrity of pond structures from livestock. Determine needs for alternate systems (i.e. troughs) where gravity feed feasible from nearby stored water in pond. Determine costs to modify and enhance existing and new systems.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method: Reference: INFRA-Range Allotment Deferred Maintenance Condition Ratings

Reference & Desired Values: Of existing 57 watering facilities, 11 ponds and 3 troughs require maintenance during LRMP term. 2 new ponds also required. Also, during LRMP term, fencing required on all ponds to maintain integrity long-term of structures, providing access (either hardened ramp entries into water) or access to a trough away from pond water edge, where feasible.

References (Literature Cited): LRMP-p. 3-236; p. 24 (Forest-wide Range Mgt. S&Gs)

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$3,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$30,000

Reporting Frequency: Annually

Estimated Cost - Explanation:	Annual monitoring and data entry into INFRA-Deferred Maintenance Range database.
Data Collection Logistics:	Annual pasture/watering facility inspections; update deferred maintenance condition ratings; estimate outyear construction and maintenance costs; prepare contracts as needed; award as budgets allow annually.
Required in-house Coordination:	Condition reviews & priority setting for POW development with GMFL range, soil & water staff. Coordinate with R9 Range Program coordinator for funding capabilities.
Data Storage:	Range INFRA Facility Condition Ratings
Data Storage Hyperlink:	
Responsibility:	FLNF Range Program Coordinator; GMFL INFRA Coordinator; GMFL Soil & Water Program Manager
Cooperators:	Hector Coop. Grazing Association

Item # 55

Monitoring Item Name: Animal Unit Months

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Goal 7 (objective 1): Are we maintaining forage production sufficient to support approximately 10,000 Animal Unit Months (AUMs) annually?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 7: Provide for the the sustainable use of grasslands for grazing on the FLNF.

LRMP Rationale/Driver: Goal 7 (Objective 1): Maintain forage production sufficient to support approximately 10,000 Animal Unit Months (AUMs) annually. It quantifies the available forage needs for livestock and is an LRMP indicator (p. 3-234 LRMP EIS).

Indicator & Measure: Animal Unit Months (AUMs)

Protocol Name: **Protocol Status:** Draft

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Animal Unit Months (AUMs)

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: NNIS plants pose threat to available forage. Established protocol for NNIS and AUM surveys enable determinations of sustainability and treatment options.

Priority within Program: High

Data Collection Method: Range Mgt. Handbook describes forage survey protocol. NNIS survey protocol available from GMFL NNIS coordinator. Both entail field measures & documentation of presence & abundance. Forage monitoring done annually to establish baseline forage production capability & determine. NNIS monitoring has been recently initiated by GMFL NNIS coordinator.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method: Reference: Eastern Region Forest Service-USDA, June, 1977 (supplement to FSH 2309 handbook, Range Inventory & Analysis)

Reference & Desired Values: Production annually averages 10,000 Animal Unit Months (AUMs). Livestock consumption does not exceed 60% of available vegetation (allows for songbird nesting needs).

References (Literature Cited): LRMP EIS (p. 3-234)

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$6,500

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$65,000

Reporting Frequency: Annually

Estimated Cost - Explanation: Annual forage monitoring contract averages \$2,500 (pgm funded)

	NNIS monitoring estimated annual cost= \$3,000 (NFVW funded) Additional annual data analysis/mgt. estimated=\$1,000 (NFIM funded)
Data Collection Logistics:	Annual contracts prepared & administered. Volunteers recruited, trained to provide NNIS survey protocol. NNIS coordinator staff salary included.
Required in-house Coordination:	GMFL NNIS coordinator and Range Mgt. program coordinator.
Data Storage:	TERRA, FACTS (for NNIS data), In-house data stored (forage availability).
Data Storage Hyperlink:	
Responsibility:	FL Asst. Ranger & NNIS Coordinator
Cooperators:	Contractors, volunteers, Hector Coop. Grazing Assoc.

Item # 10

Monitoring Item Name: RFSS Plant Population Trends

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: What are the population trends for sensitive plants on the GMNF? To what extent is management sustaining or enhancing habitat conditions for populations?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: Required by ESA and NFMA; all objectives under the TES section of Goal 2; monitoring this item will determine the extent to which RFSS populations are changing over time, possibly in response to our management actions

Indicator & Measure: # of individuals; # flowering/in fruit; area of populations; ranked condition of populations

RFSS plants with conservation assessments or plans, and number of conservation actions or site-specific prescriptions implemented

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency: Forest Service

Units of Measure: numbers, area, rank

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Sensitive plants are considered at risk to losing viability on the FL, and so by definition there is a high disparity between existing and desired conditions, potential effects can be significant, not knowing conditions could mean loss of populations, is a key issue due to NFMA and ESA. Population monitoring can be intensive and expensive, although costs can be reduced through use of volunteers

Priority within Program: High

Data Collection Method: Use NHP protocols to gather data - gather data on phenology, reproductivity, areal extent, numbers of genets/ramets, site conditions, and use NHP protocols to rank A-D populations; approximately 17 sites for RFSS plants, monitor every 5 years, meaning 4 sites monitored annually, on average accomplish two sites/day. Record conservation plans and actions completed and implemented

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,100

Category: Rare Plants Population

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$11,000
Reporting Frequency: Annually

Estimated Cost - Explanation: Approximately 20 populations to monitor every 5 years = 4 populations per year. Pre-field work, site visit, & data entry requires about 0.75 days per population (time needed per population is less on the FL than the GM because of shorter distances between populations & more accurate location information); 4 populations per year x 0.75 days/population = 3 days per year, plus 1.5 days of travel between GM & FL, plus an extra 0.5 days to account for annual leave and resolve unexpected monitoring problems (equipment break downs, bad weather, taxonomic issues, etc.), resulting in a total of 5 days/year. Monitoring completed by GS-7 temporary seasonal staff would cost about \$150/day x 5 days per year = \$750/year, plus travel & per diem costs of about \$350 per year = \$1,100/year. Costs may decrease if local partnerships are developed that result in volunteers monitoring some populations. Number of total populations varies as new populations are found and as species are added to and removed from the RFSS list. (Butternut, while on the RFSS list, is represented by numerous populations & is monitored whenever special funds are available, & so is not included in these numbers.)

Data Collection Logistics:**Required in-house Coordination:**

Data Storage: Plants??? Or NHP database

Data Storage Hyperlink:

Responsibility: Ecologist/Botanist

Cooperators:

Item # 41

Monitoring Item Name: Recreation Visitor Satisfaction

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Are we providing high quality recreation services that meet the expectations of the public?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 11: Provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands.

LRMP Rationale/Driver: Goal 11 Various objectives. Determine if the tasks we are completing to bring facilities to standard are meeting expectations of the public.

Indicator & Measure: Visitor satisfaction from NVUM
Measure: Mean Visitor satisfaction compared to Mean importance to visitor.

Protocol Name: NVUM Sampling Procedures **Protocol Status:** Approved

Protocol Version/Date: Varies by sample year. **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Per cent

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Analysis and evaluation will use data gathered from a required national effort.

Priority within Program: High

Data Collection Method: Follow national sampling procedures that are developed for each individual sample year. Samples for each National Forest occur on a five year rotating cycle.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$32,000

Fiscal Year Scheduled: 2010 **Cost Per Decade (\$1,000):** \$66,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation: Costs involve analysis and evaluation of NVUM data for the GMFL. FY 2005 survey costs of about 106,000, with about 70% from the GMNF and 30 % for the FLNF. About \$1000 per year for evaluation of data. (1-2 days each for Rec Program Manager and rec planner.

Data Collection Logistics:

Category: Recreation

Required in-house Coordination:

Data Storage: Hard copy report and national website.

Data Storage Hyperlink:

Responsibility: Recreation Program Manager

Cooperators:

Item # 40

Monitoring Item Name: Recreation Facility Maintenance

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Is the Forest reducing deferred maintenance on developed recreation facilities and sites. Is the Forest increasing the number of recreation facilities that are maintained to standard.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 11: Provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands.

LRMP Rationale/Driver: Goal 11: Objective: Increase the number of developed recreation sites that are operated and maintained to standard.
Goal 11: Objective: Reduce total deferred maintenance on FLNF developed recreation facilities.

Indicator & Measure: Indicator: Facilities/sites managed to standard
Measures: Percent managed to standard and trends

Protocol Name: USFS Facility Condition Inventory/Meaningful Measures **Protocol Status:** Approved

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Facility/site and per cent.

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Required condition surveys for deferred maintenance will complete data gathering. Summary tables developed at the WO will identify the Facility Condition Index. With a small amount of additional work we can identify measures to determine trends in maintenance. This is also going to be used for annual accomplishment reporting.

Priority within Program: High

Data Collection Method: Field condition inventories of recreation sites and facilities and data entered into I-WEB. We will use standard protocols for this type of facility.

Data Collection Method Hyperlink: http://www.fs.fed.us/r3/measures/Cost/MI_RS.htm

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$2,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$22,000

Reporting Frequency: 5 Years

Category: Recreation

Estimated Cost - Explanation: The majority of costs are to complete annual condition inventories that will be used to develop the Facility Condition Index. 5 Days of GS-7 at 200 per day for data collection. 2 days data entry at GS-9 at 240/day = 480. 1 day of analysis annually. An additional \$1000 will be needed at 5 and 10 years for more detailed evaluation.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: I-WEB

Data Storage Hyperlink: <https://iweb.fs.usda.gov/login/welcome.uix>

Responsibility: Recreation Program Manager.

Cooperators:

Item # 39

Monitoring Item Name: Trends in trail partnerships

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How well is the Forest using partnerships to assist in the operations and maintenance of the Forest trail system.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 11: Provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands.

LRMP Rationale/Driver: Goal 11 Objective: Increase the effective use of partnerships in the improvement, maintenance and operation of the Forest Trails System. The Forest has a large trail system with significant deferred maintenance. The annual trails budget covers only about 10% of calculated operations and maintenance for the existing system but the public continues to pressure for more new trails. The justification given for adding new trails to the system is that the partners will provide the maintenance. Though we have strong partners, we don't come close to covering total trail system needs. This item will provide a means to measure how well partner contributions are covering trail system operation and maintenance needs.

Indicator & Measure: Indicators: Partner contributions in trail operations and maintenance
Measure: Percent of contributions (cash and in-kind) when compared to total calculated operations and maintenance needs.

Protocol Name:	Grants and agreements protocol for I-WEB	Protocol Status:	Approved
Protocol Version/Date:		Spatial Extent (Scale):	Forest
Protocol Agency:	Forest Service	Units of Measure:	Dollars and Per cent

Priority Question 1 (uncertainty associated with management assumptions):	Medium
Priority Question 2 (disparity between existing and desired conditions):	High
Priority Question 3 (management activities likely to affect resources of concern):	Medium
Priority Question 4 (serious consequences from not knowing resource conditions):	High
Priority Question 5 (monitoring responds to a key issue):	Medium
Priority Question 6 (question can be cost effectively answered):	High

Priority Rationale: Data can be gathered very quickly from existing reports from INFRA and IWEB. Analysis will be relatively simple with limited time needed from staff.

Priority within Program: High

Data Collection Method: Data is collected through the completion of agreements and regular condition inventory sampling for the trail system.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Biannually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$500
Fiscal Year Scheduled:	2008	Cost Per Decade (\$1,000):	\$2,500

Category: Recreation

Reporting Frequency: Biannually

Estimated Cost - Explanation: Costs for trail condition surveys are covered under a separate monitoring item. Annual costs are to cover retrieval and analysis of information. Half - day each for the Rec program coordinator and Program Facilitator (Operations) \$500. 5 and 10 year evaluations. One day for rec program coordinator 350 taken twice = about \$1000

Data Collection Logistics:

Required in-house Coordination:

Data Storage: I-WEB

Data Storage Hyperlink: <https://iweb.fs.usda.gov/login/welcome.uix>

Responsibility: Recreation Program Manager

Cooperators:

Item # 38

Monitoring Item Name: Effects of vehicle use off roads

Monitoring Question Is the use of vehicles off roads causing considerable adverse effects on resources or other forest visitors; how effective are forest management practices in managing vehicle use off roads?

Detailed Monitoring Question: What are the trends in the illegal use of vehicles off roads?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 11: Provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands.

LRMP Rationale/Driver: Regulatory requirement (36 CFR 295). Focus is primarily on wheeled motorized vehicles.

Indicator & Measure: Indicator: Trend in illegal use of motor vehicles off roads.
Measures: Percent change in law enforcement incidents and violations.

Protocol Name: Field procedures for Law Enforcement and Investigations Management Attainment and Reporting System (LEIMARS) **Protocol Status:** Approved

Protocol Version/Date: Version 2.5.3 **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Number of incidents and per cent
Number of incidents and number of violations.

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: There is a high level of public concerns over this issue, but monitoring is difficult due to remote nature of activity and the number of access points. Proposed monitoring uses existing systems to capture data already gathered by law enforcement personnel.

Priority within Program: Medium

Data Collection Method: Data is collected using established procedures already being used by law enforcement personnel. As incidents and violations are noted, LEI personnel record information, including geographic data which can be retrieved later.

Data Collection Method Hyperlink:

Sample Design: Normally collection will be random and occurs with regular patrols.

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$10,000

Category: Recreation

Reporting Frequency: Annually

Estimated Cost - Explanation: Includes minimal costs to coordinate with LEI personnel and analyze data for annual reporting. About \$1000 per year to coordinate data retrieval and analyze data. Rec Program Manager and rec planner 1-2 days each.

Data Collection Logistics:

Required in-house Coordination: LEIMARS has limited access so coordination with LEI personnel will be needed to obtain data.

Data Storage: USFS corporate database - LEIMARS

Data Storage Hyperlink:

Responsibility: Reporting: Recreation Program Manager. Data collection and storage: Law Enforcement

Cooperators:

Item # 58

Monitoring Item Name: Special Uses - Recreation

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Is the Forest helping to provide a diverse range of high-quality, sustainable recreation opportunities by improving its administration of existing authorizations?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 11: Provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands.

LRMP Rationale/Driver: National direction in the directives system as captured in Plan Standards and Guidelines.

Indicator & Measure: Percentage of authorizations administered to standard annually.

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale):

Protocol Agency: Forest Service

Units of Measure: authorizations administered to standard

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: The degree of uncertainty is low: it must be done. There is a significant disparity between existing and required conditions, but progress is being made. Resource damage can occur on authorizations not administered to standard. Most would not have serious consequences. Monitoring by administering authorizations to standard is required by policy and S & G's. Monitoring can be very cost effective because many Forest associates can contribute to the effort.

Priority within Program: High

Data Collection Method: After a review of the authorization, a field inspection of the authorized use is conducted. Inspections are documented in the case file and the Iweb SUDS database.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit: authorizations administered to standard

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$250

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$500

Reporting Frequency: 5 Years

Category: Recreation

Estimated Cost - Explanation: less than 1 day for each of resource assistant and program manager

Data Collection Logistics:

Required in-house Coordination:

Data Storage: Case files and IWeb - SUDS database.

Data Storage Hyperlink:

Responsibility: Forest Special Uses Program manager

Cooperators:

Item # 37

Monitoring Item Name: Trail maintenance

Monitoring Question Is the quality of the Forest Service trail system and recreation facilities being improved through operation and maintenance?

Detailed Monitoring Question: Is the amount of deferred maintenance on the FLNF trail system being reduced?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 11: Provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands.

LRMP Rationale/Driver: Goal 11, Objective: Reduce total deferred maintenance on the FLNF trail system.
Goal 11, Objective: Increase the number of miles that are operated and maintained to standard.

Indicator & Measure: Indicator: Total deferred maintenance for Forest trail system
Measures: Total deferred maintenance divided by total system trail miles for the Forest

Protocol Name: USFS Trail Condition Inventory/Meaningful Measures **Protocol Status:** Approved

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Dollars

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Deferred maintenance on the GMNF trail system is already very high and growing steadily as budgets decline. Increased pressure from trail partners (existing and proposed) will only increase the size of the trail system and maintenance responsibilities. If deferred maintenance is not addressed there is potential for loss of life or property with serious negative repercussions. By completing trail condition surveys we can maintain data records so measures can be obtained at a reasonable cost level.

Priority within Program: High

Data Collection Method: Data will be gathered using trail condition survey protocols in place at the time of survey. It is assumed that the Forest will do approximately 10% of the trail system per year or about 3-4 miles per year.

Data Collection Method Hyperlink: http://www.fs.fed.us/r3/measures/Cost/TR_instruction.htm

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$2,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$21,240

Reporting Frequency: 5 Years

Category: Recreation

Estimated Cost - Explanation: 2 days for GS-7 at 200/day for data collection = \$400, 1 day for data entry for GS-9 = \$240, 1 days for rec planner for coordination and preparation = \$260 and then 1 day for GS-12 for analysis = \$350. Total needs = \$2000. Evaluation at 5 and 10 years - 1 day for Rec program manager and 1 day for Rec planner at \$270 = \$620 for each evaluation.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: I-WEB

Data Storage Hyperlink: <https://iweb.fs.usda.gov/login/welcome.uix>

Responsibility: Recreation program manager

Cooperators:

Item # 17

Monitoring Item Name: Scenic Integrity Objectives (SIO's)

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Has the Forest transitioned from the current Visual Management System to the Scenery Management System?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 16: Maintain or enhance visual resources such as viewsheds, vistas, overlooks, and special features.

LRMP Rationale/Driver: Objective under Goal 16: Complete a transition from the current Visual Management System to the Scenery Management System.

Indicator & Measure: Percent of Forest with Scenic Integrity Objectives.

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Percentage

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Need to conform to National Standard

Priority within Program: High

Data Collection Method: After Amendment to Forest Plan is complete we can say that this item has been accomplished. We are not monitoring for quality of transition from one system to another, just for accomplishment.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited): USDA Forest Service 2000. Landscape Aesthetics, A Handbook for Scenery Management. Agriculture Handbook Number 701.

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$0

Fiscal Year Scheduled: 2012 **Cost Per Decade (\$1,000):** \$0

Reporting Frequency: 5 Years

Estimated Cost - Explanation: There would be a nominal cost to determine if the Forest actually made the transition from the current Visual Mgt System to the Scenery Mgt System.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: Planning files as Ammendment and Landscape Architect files.

Data Storage Hyperlink:

Responsibility: Landscape Architect

Cooperators:

Item # 16

Monitoring Item Name: Visual Quality Objectives (VQO's)

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: Is the Forest being managed in accordance with the visuals standards and guidelines found in the Forest Plan and are the visuals standards and guidelines and any additional site specific design criteria effective in helping to meet the VQO's (Visual Quality Objectives)?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.14 - Visuals

LRMP Rationale/Driver: Goal 16: Maintain or enhance visual resources such as viewsheds, vistas, overlooks, and special features.

Indicator & Measure: # of projects or sites sampled that do not meet VQO's.
Design criteria, mitigation and standards and guidelines applied on the ground will be looked at in conjunction with the overall project implementation to determine if the VQO's were met or not met. If not met, what could have been done to achieve the VQO and/or what could be done toward meeting the VQO?

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency:

Units of Measure: Quantity of projects or sites sampled

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: If proposed management activities overlooked visual quality, social values of U.S. citizens would not be addressed and tourism for the region could be affected.

Priority within Program: High

Data Collection Method: Project reviews. Visually inspect a sample of implemented projects, identifying applied S&G's, design criteria and general project design for effectiveness in meeting or not meeting the VQO's.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values:

References (Literature Cited): USDA Forest Service. 1974. National Forest Landscape Management, Volume 2, Chapter 1, The Visual Management System. Agriculture Handbook Number 462. USDA, Washington, D.C.

USDA Forest Service. 2000. Landscape Aesthetics, A Handbook for Scenery Management. Agriculture Handbook Number 701.

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$2,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$20,000

Category: Recreation

Reporting Frequency: Annually

Estimated Cost - Explanation: Landscape Architect field/office time -5 Days
Field Technician - 2 days

Data Collection Logistics:

Required in-house Coordination:

Data Storage: Landscape Architect files, hard copy and/or on computer disk

Data Storage Hyperlink:

Responsibility: Landscape Archiect

Cooperators:

Item # 36

Monitoring Item Name: ROS settings

Monitoring Question To what extent are ROS settings being provided?

Detailed Monitoring Question: Is the Forest moving toward the desired future condition for ROS settings? This monitoring compares inventoried ROS settings at the time of Forest Plan revision with the inventory after 5 and 10 years of plan implementation.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 11: Provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands.

LRMP Rationale/Driver:

Indicator & Measure: Indicator: Recreation opportunity settings
Measures: Trends toward desired future condition

Protocol Name: ROS Mapping protocol **Protocol Status:** Approved

Protocol Version/Date: 1986 ROS Book **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Percentage by ROS class

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Using computer aided inventory processes we should be able to develop a revised ROS inventory without laborious mapping techniques.

Priority within Program: Medium

Data Collection Method: This will involve completion of mapping using established protocols.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,200

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$3,400

Reporting Frequency: 5 Years

Estimated Cost - Explanation: Costs are for staff time to complete revised inventory using computer techniques. Two days for GIS coordinator at \$290 per day for \$580. One day of analysis for recreation planner at \$270 per day equals \$270. One day coordination and analysis for Rec program manager at \$350 per day. Total needs about \$1200.00. Additional needs for evaluation equal 1 day each for rec

planner and program manager 270 plus 350 equals about \$500 at 5 and 10 year timeframe.

Data Collection Logistics:

Required in-house Coordination:

Data Storage: Corporate spatial data (ROS coverage)

Data Storage Hyperlink: <J:\sfiles\reflibrary\gis\fl>

Responsibility: Recreation Program Manager.

Cooperators:

Item # 67

Monitoring Item Name: Soil and Water S&G, Mitigation Measure, and Soil Quality Standard Compliance

Monitoring Question To what extent have Standards and Guidelines been applied?

Detailed Monitoring Question: Were S&Gs and mitigation measures implemented on selected projects, and to a lesser extent, were they effective in protecting the soil & water resources? Are soil quality standards met (a FS Manual requirement)?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 3: Maintain or restore the natural, ecological functions of the soil.

LRMP Rationale/Driver: NFMA requires us to monitor compliance with S&Gs. FSM2509.18-91-1 also requires to establish and monitor compliance with soil quality standards. Monitoring also helps us understand the effects of our management practices on soil quality, soil productivity, water quality, and riparian and aquatic characteristics.

Indicator & Measure: Indicator: S&Gs and mitigation measures
Measures: Percent of time implemented
Indicator: Soil Quality Standards (currently being developed for the Forest)
Measures: Percent of time met

Protocol Name: GM&FL Soil & Water S&G Monitoring form provides the protocol; Protocols for Soil Quality Monitoring currently being developed **Protocol Status:** Draft

Protocol Version/Date: 06/14/2005 **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** Percent of time met

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Item 1 & 2 - Low priority because past monitoring has shown a high degree of compliance. Item 3 & 4 - High because non-compliance with S&Gs and mitigation measures can result in serious soil and water resource degradation. Item 5 - Soil and water protection is always a key issue on projects where soil disturbing activities are planned.

Priority within Program: High

Data Collection Method: For S&G and mitigation measure monitoring - Visit selected projects and record observations on a Forest standard form developed using Access. Data is a combination of quantitative and qualitative. Protocols are spelled out on the data forms. Data collection methods for Soil Quality Monitoring are in development, but they will be similar.

Data Collection Method Hyperlink: K:\gmfl\2000\2500_watershed_and_air_management\2520_watershed_protection_and_management\sw_monitoring\2005_swf_timber_sale_monitoring\Draft field forms\TS field_monitoring_questionnaire- draft4.doc

Sample Design: Monitoring focuses on projects with a moderate or high risk of resource damage if S&Gs and mitigation measures are not followed. Moderate or high risks are present when: soil disturbance is anticipated close to streams or wetlands; a large amount of soil disturbance is expected; steep slopes or erosive soils are present; the project is close to a potential wild or scenic river; or other specific risks identified in the EA/EIS.

Sample Unit: Project area, or in the case of timber sales, harvest unit.

Frequency of Measurement: Variable depending on the assessment of risk to the resources **Precision and Reliability:** A & B

Analysis Method:	There are 3 types of analyses: 1. Immediate analysis to determine if corrective actions is needed in t he field, now.. 2. Annual summarization of data to determine the percent of the time S&Gs, mitigation measures, and Soil Quality Standards are met. Summaries are done by: a) individual measure (e.g. the percent of the time G-10 is implemented), and b) cumulatively (e.g. percent of the time all S&Gs and mitigation measures are implemented). Important comments on the data forms are also summarized. Analysis results are included in the annual Forest M&E report.		
Reference & Desired Values:	Current value = Estimated 95% overall compliance with S&Gs, mitigation measures, and soil quality standards. Desired value = 100% compliance		
References (Literature Cited):	FSH R9RO 2509.18-2005-1 FSM2509.18-91-1		
Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$2,000
Fiscal Year Scheduled:	2007	Cost Per Decade (\$1,000):	\$20,000
Reporting Frequency:	Annually		
Estimated Cost - Explanation:	Costs are primarily salaries for soil and water people to collect & analyze data.		
Data Collection Logistics:	Soil/Water Team to determine monitoring sites and frequencies, and set schedule.		
Required in-house Coordination:	Coordinate this monitoring with Fisheries and water quality monitoring, so that data can be integrated.		
Data Storage:	Data to be stored in an Access Database, to be developed in early FY07. If NRIS-TERRA is adapted to accept this data, it will eventually be stored there.		
Data Storage Hyperlink:			
Responsibility:	Soil/Water Team		
Cooperators:	Forest Management Team		

Item # 66

Monitoring Item Name: Long Term Soil Quality and Soil Productivity Monitoring

Monitoring Question Are the effects of Forest management, including prescriptions, resulting in significant changes to productivity of the land?

Detailed Monitoring Question: How are soil/site quality and productivity changing over the long term, in response to factors such as acid deposition, climate change, invasive species, other environmental problems, and forest management? More specifically: A) Are soil nutrient levels changing, and are the changes affecting soil/site productivity? B) What toxins exist in the soil (e.g. from the atmosphere), and how are they changing in quantity and type over time? Is this affecting productivity? C) Are forest management activities affecting soil/site productivity?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 3: Maintain or restore the natural, ecological functions of the soil.

LRMP Rationale/Driver: CFR 219.27a.1, and the Multiple-Use Sustained-Yield Act (June 12, 1960) require that we maintain the long term productivity of the land. "Land productivity" has been defined by the Forest Service to mean site or soil productivity. Soil/site productivity is typically measured by the FS in terms of volume or weight produced/unit/acre/year (see Forest Plan, p.156, definition of Soil Productivity). Potential indicators of change in soil productivity have also been developed by the research community. These indicators will be tracked via tree health and annual increment growth.

Indicator & Measure:
 Indicator: Soil quality
 Measures: Soil nutrient levels and toxins by major horizon.
 Indicator: Soil productivity
 Measures: Forest Health - NOTE that all information (monitoring justification, protocols, methods, and costs) regarding the soil productivity measures resides in the monitoring item with the Resource Keyword: Forest Health, and the Monitoring Item Name: How is tree health changing over time?
 Indicator: Soil climate
 Measures: Soil temperature and moisture, depth of freezing, correlated with selected meteorological parameters

Protocol Name: To be determined (t.b.d.) **Protocol Status:** t.b.d.

Protocol Version/Date: t.b.d. **Spatial Extent (Scale):** t.b.d.

Protocol Agency: t.b.d. **Units of Measure:** t.b.d.

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Climate change and acid deposition may affect land (and tree) productivity over time, either in conjunction with or independent of management activities. Management activities may need to be adjusted to meet the changing productivity. A lack of information about changes in land productivity could result in less than optimum forest management methods being applied. This could result in a decrease inland productivity and health of the Forest. This monitoring may, over the long term, also reveal important management implications for the fisheries and wildlife resources, and NNIS. Last, the public is concerned about the effects of acid deposition on soil quality and productivity. We expect public concerns over the effects of climate change on soils will increase significantly over the next few years.

Priority within Program: Medium

Data Collection Method: To be determined.

Data Collection Method Hyperlink:

Sample Design: To b determined

Category: Soils

Sample Unit:	To be determined.		
Frequency of Measurement:	5 Years	Precision and Reliability:	Class A
Analysis Method:	To be determined		
Reference & Desired Values:	To be determined		
References (Literature Cited):			
Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$10,000
Fiscal Year Scheduled:	2012	Cost Per Decade (\$1,000):	\$10,000
Reporting Frequency:	5 Years		
Estimated Cost - Explanation:	Part of LEMP. The costs for this item includes 55% of the total cost to establishment 5 plots plus data measurement (except tree health info) in the year of establishment: 2007-2011 (\$0); 2012 establish and measure 5 plots (\$33,000); 2013-2016 (\$0); 2017 re-sample 5 plots @ \$3400 each (\$34,000).		
Data Collection Logistics:	To be determined		
Required in-house Coordination:	To be determined.		
Data Storage:	To be determined		
Data Storage Hyperlink:			
Responsibility:	Soil/Water/Ecology Teams		
Cooperators:			

Item # 8

Monitoring Item Name: Ecological Type Mapping and Representation

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: To what extent are ecological types on the Forest represented within the ecological reference area network? To what extent do ecological types recognized on the Forest accurately represent the diversity of ecosystems and potential natural vegetation on the Forest?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 5: Maintain or restore ecological processes and systems on the FLNF within desired ranges of variability, including a variety of native vegetation and stream channel types, and their patterns and structural components.

LRMP Rationale/Driver: In order to accurately measure the objective in the revised Plan to manage at least 5% of each eco-type on the Forest for old growth characteristics, one needs to ensure that classification systems used to identify eco-types accurately represent the diversity of types and potential natural vegetation

As new land is purchased, proportions may change and some uncommon types in the Taconics may become more prevalent on the GM and therefore less well represented in the reference area network.

Indicator & Measure: # acres and proportion of the FLNF with up-to-date ecological maps consistent with the NHFEU, including interpretations for management and potential natural vegetation
acres and proportion of ecological types within the reference area network

Protocol Name: TEUI **Protocol Status:** Approved

Protocol Version/Date: 2005 **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** acres

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Annually updating the proportion of existing eco-types in the reference area network is simply a GIS query and is of likely low priority unless we purchase a bunch of land. However, the current classification of ecological types is either old or speculative and none are consistent with TEUI protocols, so the gap between existing and desired conditions in terms of effectiveness of measuring ecological diversity and PNV is big. Having good maps and interpretations means less field checking during projects; having poor maps means more field checking during projects - one way or another resources of concern will be protected. Not a big revision issue. Can be cost-effective in terms of using GIS and remotely sensed data to premap, but will still require field sampling and data analysis, as well as a lot of geoprocessing, which is costly

Priority within Program: High

Data Collection Method: for representation in the reference area network, overlay maps of eco-types with updated MA maps and identify acres within reference area network (see FEIS). For updating eco-maps, premap the Forest using existing GIS layers, develop eco-type and map unit concepts, then field sample using integrated plots to verify and characterize units. For more information see TEUI protocol (September 2005, GTR WO-68)

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class B

Category: Terrestrial Ecological Units

Analysis Method:	see TEUI Technical Guide (GTR WO-68, September 2005)		
Reference & Desired Values:	current values are all ecotypes defined in the FEIS are represented at least 5%; the desired values identified in the plan objective is that types are represented at least 5% level		
References (Literature Cited):	Winthers, E., D. Fallon, J. Haglund, T. DeMeo, G. Nowacki, D. Tart, M. Ferwerda, G. Robertson, A. Gallegos, A. Rorick, D.T. Cleland, and W. Robbie. 2005. Terrestrial ecological unit inventory technical guide. General Technical Report WO-68. USDA Forest Service, Washington DC. 245 pp.		
Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$300
Fiscal Year Scheduled:	2007	Cost Per Decade (\$1,000):	\$2,000
Reporting Frequency:	5 Years		
Estimated Cost - Explanation:	estimate no more than a day of a person's time to calculate each year, a little more for 5-year comprehensive, cumulatively not more than \$2,000 over 10 years; \$1000 cost in first year scheduled includes organizing the information and getting Terra figured out.		
Data Collection Logistics:	Need to coordinate with soils and Silvexam crew for sampling; coordinate with GIS on running analyses		
Required in-house Coordination:	GIS, FM Team, SWA Team		
Data Storage:	NRIS-Terra		
Data Storage Hyperlink:			
Responsibility:	Ecologist		
Cooperators:	possibly Hobart & William Smith College, Cornell (Steve deGloria)		

Item # 25

Monitoring Item Name: MIS Habitat Trends

Monitoring Question To what extent do Forest Service Management activities contribute toward restoration and maintenance of habitat for native and desirable non-native species?

Detailed Monitoring Question: What are habitat trends for MIS? To what extent is FS management providing suitable habitat for MIS?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (36 CFR 219.19); NFMA requirements for MIS (36 CFR 219.19(a)); Goal 2, pp.10-12; Monitoring & Evaluation for MIS, p.71

Indicator & Measure: Various (species-specific); vegetation database queries

Protocol Name: Various (species-specific) **Protocol Status:**

Protocol Version/Date: Various (species-specific) **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Various (species-specific)

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: MIS mandated by NFMA, high potential for playing role in appeals and litigation

Priority within Program: High

Data Collection Method: Various (species-specific): vegetation database queries, site inspection of deer wintering areas

Data Collection Method Hyperlink:

Sample Design: Various (species-specific)

Sample Unit: Various (species-specific)

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A and B

Analysis Method: Various (species-specific)

Reference & Desired Values: Various (species-specific)

References (Literature Cited): Various (species-specific)

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,000

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$2,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation:

Data Collection Logistics: Various (species-specific)

Category: Terrestrial Wildlife Habitat

Required in-house Coordination:

Data Storage: Various (species-specific), FAUNA

Data Storage Hyperlink:

Responsibility: FLNF Wildlife Program

Cooperators: Cornell University

Item # 27

Monitoring Item Name: Wildlife Reserve Trees

Monitoring Question To what extent do Forest Service Management activities contribute toward restoration and maintenance of habitat for native and desirable non-native species?

Detailed Monitoring Question: Are we retaining the best individual trees & snags? How do they persist/improve/degrade over time? How well did retained future trees & snags develop over time?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (36 CFR 219.19); Goal 2, pp.10-12; Wildlife Reserve Tree S&Gs pp.25-26

Indicator & Measure: Site inspection and long-term observation of reserve trees

Protocol Name: Various **Protocol Status:** Various

Protocol Version/Date: Various **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Various

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Regional and local interest reserve trees and snags; potential issue of concern for appeals and litigation of projects due to endangered Indiana bat

Priority within Program: Medium

Data Collection Method: Various: long-term site inspection of individual reserve trees and snags

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A and B

Analysis Method: Various

Reference & Desired Values: Various

References (Literature Cited): Various

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$2,000

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$4,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation: estimated 8 person days/year at \$250/day in harvested stands; includes travel days.

Data Collection Logistics: Various

Required in-house Coordination:

Data Storage:

Data Storage Hyperlink:

Responsibility: FLNF Wildlife Program

Cooperators: VFWD

Item # 26

Monitoring Item Name: Grassland Habitat

Monitoring Question To what extent do Forest Service Management activities contribute toward restoration and maintenance of habitat for native and desirable non-native species?

Detailed Monitoring Question: What are the conditions of grasslands and pastures on the FLNF? What are the vegetative conditions and wildlife use patterns of grazed and non-grazed grasslands? Do maintenance programs produce desired conditions?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (36 CFR 219.19);

Indicator & Measure: Various: vegetation database queries, long-term site inspection and vegetative measures of grassland and pasture condition, breeding bird surveys

Protocol Name: Various

Protocol Status:

Protocol Version/Date: Various

Spatial Extent (Scale): Forest

Protocol Agency:

Units of Measure: Various

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Regional and local public interest in permanent and temporary openings, need for, size of, and distribution of openings are potential issues of concern for appeals and litigation of projects

Priority within Program: High

Data Collection Method: Various: vegetation database queries, long-term site inspection and vegetative measures of grasslands and pasture conditions, breeding bird surveys

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: Annually

Precision and Reliability: Class A and B

Analysis Method: Various

Reference & Desired Values: Various

References (Literature Cited): Various

Last Year Accomplished:

Cost for Year Scheduled (\$1,000): \$2,500

Fiscal Year Scheduled: 2007

Cost Per Decade (\$1,000): \$5,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation:

Data Collection Logistics: Various

Required in-house Coordination:

Data Storage:

Data Storage Hyperlink:

Responsibility: FLNF Wildlife Program

Cooperators: Cornell University

Item # 24

Monitoring Item Name: MIS Population Trends

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: What are population trends of MIS? To what extent are MIS responding to FS management of suitable habitat?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (36 CFR 219.19); NFMA requirements for MIS (36 CFR 219.19(a)); Goal 2, pp.10-12; Monitoring & Evaluation for MIS, p.71

Indicator & Measure: Various (species-specific)

Protocol Name: Various (species-specific) **Protocol Status:**

Protocol Version/Date: Various (species-specific) **Spatial Extent (Scale):** Region

Protocol Agency: **Units of Measure:** Various (species-specific)

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: MIS mandated by NFMA, high potential for playing role in appeals and litigation

Priority within Program: High

Data Collection Method: Various (species-specific): breeding bird survey, drumming counts, nest counts

Data Collection Method Hyperlink:

Sample Design: Various (species-specific)

Sample Unit: Various (species-specific)

Frequency of Measurement: Annually **Precision and Reliability:** Class A and B

Analysis Method: Various (species-specific)

Reference & Desired Values: Various (species-specific)

References (Literature Cited): Various (species-specific)

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$2,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$20,000

Reporting Frequency: Annually

Estimated Cost - Explanation: combination of FS employees, volunteers and project coordination. Cost includes travel to/from FLNF & hotel.

Data Collection Logistics: Various (species-specific)

Category: Terrestrial Wildlife Population

Required in-house Coordination:

Data Storage: Various (species-specific): FAUNA,

Data Storage Hyperlink:

Responsibility: FLNF Wildlife Program

Cooperators: Cornell University

Item # 23

Monitoring Item Name: West Virginia White (RFSS butterfly)

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: Do West Virginia whites occur on FLNF? Do they need protection or habitat management?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (CFR 219.19)
ESA protect and conserve T&E species
Goal 2, pp.10-12; TES S&Gs, pp.26-27

Indicator & Measure: Presence, location, and number of individuals or reported sightings

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Number of individuals

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: RFSS of local and regional interest and concern, management actions could result in effects, poor baseline knowledge

Priority within Program: Low

Data Collection Method: Contact and information sharing with cooperators: VINS
Dragonfly and butterfly surveys

Data Collection Method Hyperlink:

Sample Design:

Sample Unit: Presence, number of sightings or reported occurrences

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$3,000
Fiscal Year Scheduled:	2007	Cost Per Decade (\$1,000):	\$30,000
Reporting Frequency:	5 Years		

Estimated Cost - Explanation: \$500 of cost is for travel to/from FLNF & hotel.

Data Collection Logistics:

Category: Terrestrial Wildlife Population

Required in-house Coordination:

Data Storage: FAUNA, VINS

Data Storage Hyperlink:

Responsibility: FLNF Wildlife Program

Cooperators: Kestrel Haven, contractors

Item # 22

Monitoring Item Name: TES Herptiles (snakes, turtles, salamanders, bog turtle)

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: What are the population trends of black rat snake; bog and wood turtles; Jefferson, blue-spotted, longtail, and slimy salamanders on the FLNF and adjacent lands? Do they need protection or habitat management?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (CFR 219.19)
ESA protect and conserve T&E species
Goal 2, pp.10-12; TES S&Gs, pp.26-27

Indicator & Measure: Presence, location, and number of individuals or reported sightings

Protocol Name:	Protocol Status:
Protocol Version/Date:	Spatial Extent (Scale): Forest
Protocol Agency:	Units of Measure: Number of individuals

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Reptiles and amphibian RFSS of local and regional interest and concern, management actions with potential to result in adverse or beneficial effects, especially relative to wetlands, seasonal pools

Priority within Program: Medium

Data Collection Method: Contact and information sharing with cooperators: USFWS, NYDEC, Kestrel Haven, contractors

Data Collection Method Hyperlink:

Sample Design:

Sample Unit: Presence, number of sightings or reported occurrences

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$500

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$5,000

Reporting Frequency: Annually

Estimated Cost - Explanation:

Data Collection Logistics:

Required in-house Coordination:

Data Storage: FAUNA, Vermont Reptile and Amphibian Atlas

Data Storage Hyperlink: <http://community.middlebury.edu/~herpatlas/>

Responsibility: FLNF Wildlife Program

Cooperators: USFWS, NYDEC, Kestrel Haven, contractors

Item # 20

Monitoring Item Name: TES Bats

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: Do Indiana and Eastern Small-footed bats roost, forage, hibernate on FLNF? Do they need protection or habitat management?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (CFR 219.19)
ESA protect and conserve T&E species
Goal 2, pp.10-12; Wildlife Reserve Tree S&Gs, pp.25-26; TES S&Gs, pp.26-27

Indicator & Measure: Presence, location, and number of individuals

Protocol Name: Indiana Bat protocols **Protocol Status:** Approved

Protocol Version/Date: **Spatial Extent (Scale):** Region

Protocol Agency: FWS **Units of Measure:** Number of individuals

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Endangered and RFSS species of local and regional interest and concern

Priority within Program: High

Data Collection Method: Mist-net and acoustic sampling surveys

Data Collection Method Hyperlink:

Sample Design: Indiana Bat Recovery Team survey and sampling protocols

Sample Unit: Survey nights, trap (net) nights

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,000

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$10,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation: total cost to monitor this item on both the GM and FL is \$6,000. Some years, the entire \$6,000 will be spend on the GM. When we do collect data on the FL, that portion will cost \$1,000, leaving \$5,000 for the GM.

Data Collection Logistics:

Category: Terrestrial Wildlife Population

Required in-house Coordination:

Data Storage: FAUNA, USFWS, NYDEC, VFWD

Data Storage Hyperlink:

Responsibility: FLNF Wildlife Program

Cooperators: USFWS, NYDEC, VFWD

Item # 19

Monitoring Item Name: Northern Goshawk

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: What is the population trend of northern goshawks on the GMNF and adjacent lands?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (CFR 219.19)
Goal 2, pp.10-12; TES S&Gs, pp.26-27

Indicator & Measure: Number & location of individuals, documented nests

Protocol Name: Contact cooperators **Protocol Status:** Proposed

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** Individual birds and nests

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: RFSS of local and regional interest, likely near but not on Forest, potential management effect

Priority within Program: Low

Data Collection Method: Contact and information sharing with cooperators: NYDEC, Kestrel Haven

Data Collection Method Hyperlink:

Sample Design:

Sample Unit: Individual birds and nests

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$500

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$5,000

Reporting Frequency: Annually

Estimated Cost - Explanation: Monitoring accomplished largely through ongoing and continuing contact and interaction with cooperators, such as NYDEC, Kestrel Haven. Cost is for travel to/fron FLNF & hotel.

Data Collection Logistics:

Required in-house Coordination:

Category: Terrestrial Wildlife Population

Data Storage: FAUNA

Data Storage Hyperlink:

Responsibility: FLNF Wildlife Program

Cooperators: NYDEC, Kestrel Haven

Item # 18

Monitoring Item Name: Bald Eagle

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: Do we have bald eagles on/near the FLNF? Are they nesting? Are they nesting successfully? Do they need site-specific protection or habitat management?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (CFR 219.19)
ESA protect and conserve T&E species
Goal 2, pp.10-12; Den and Nest Tree G-2, p.26; TES S&Gs, pp.26-27

Indicator & Measure: Number & location of individuals, documented nests

Protocol Name: Contact cooperators **Protocol Status:** Proposed

Protocol Version/Date: **Spatial Extent (Scale):** Region

Protocol Agency: **Units of Measure:** Individual birds and nests

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: TE species of local and regional interest, likely near but not on Forest, little potential management effect

Priority within Program: Low

Data Collection Method: Contact and information sharing with cooperators: USFWS, NYDEC, NWF

Data Collection Method Hyperlink:

Sample Design:

Sample Unit: Individual birds and nests

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$0

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$0

Reporting Frequency: Annually

Estimated Cost - Explanation: Monitoring accomplished through ongoing and continuing contact and interaction with cooperators, such as USFWS, NYDEC, NWF

Data Collection Logistics:

Category: Terrestrial Wildlife Population

Required in-house Coordination:

Data Storage: FAUNA
Data Storage Hyperlink:
Responsibility: FLNF Wildlife Program
Cooperators: USFWS, NYDEC, NWF

Item # 21

Monitoring Item Name: TES Mammals (wolf, cougar, lynx)

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: Do gray wolves, eastern cougars, or Canada lynx occur on or near the FLNF?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: NFMA requirement to maintain viability (CFR 219.19)
ESA protect and conserve T&E species
Goal 2, pp.10-12; TES S&Gs, pp.26-27

Indicator & Measure: Presence, location, and number of individuals or reported sightings

Protocol Name: Contact cooperators **Protocol Status:** Proposed

Protocol Version/Date: **Spatial Extent (Scale):** Region

Protocol Agency: **Units of Measure:** Number of individuals

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: TE species of local and regional interest, but not likely on or near Forest, no current potential management effect

Priority within Program: Low

Data Collection Method: Contact and information sharing with cooperators: USFWS, VFWD, NWF, VINS

Data Collection Method Hyperlink:

Sample Design:

Sample Unit: Presence, number of sightings or reported occurrences

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$0

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$0

Reporting Frequency: Annually

Estimated Cost - Explanation: Monitoring accomplished through ongoing and continuing contact and interaction with cooperators, such as USFWS, VFWD, VINS

Data Collection Logistics:

Category: Terrestrial Wildlife Population

Required in-house Coordination:

Data Storage: FAUNA, USFWS, NYDEC

Data Storage Hyperlink:

Responsibility: FLNF Wildlife Program

Cooperators: USFWS, NYDEC

Item # 45

Monitoring Item Name: Stocking Level

Monitoring Question Are harvested lands adequately restocked according to Plan goals?

Detailed Monitoring Question: Are lands adequately restocked? The NFMA requires that suitable timberlands are adequately restocked following harvest. This monitoring item helps to determine if we are meeting this requirement.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.4 - Timber or vegetation management

LRMP Rationale/Driver: Stocking Surveys (1, 3rd or 5th year).

Indicator & Measure:

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale):

Protocol Agency:

Units of Measure:

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Stocking is a legal requirement

Priority within Program: High

Data Collection Method: The R9 FSH 2409.26b (Reforestation Handbook) is being updated. The handbook will provide protocol for stocking surveys.

Data Collection Method Hyperlink:

Sample Design: FSH 2409.26b provides the sample design. The GMNF historically has used 1/750 acre plots through the harvested stand to determine stocking percent.

Sample Unit: The sample unit is the stand, measured in acres.

Frequency of Measurement: Annually **Precision and Reliability:**

Analysis Method: FSH 2409.26b will provide current direction in the analysis of stocking percent. It will establish R9 standards for reforestation (stocking) levels.

Reference & Desired Values: A stand must be 70% stocked to meet FSH 2409.26b standards.

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$10,000

Reporting Frequency: Annually

Estimated Cost - Explanation: Costs are only for the reporting the summary results. Actual survey costs are part of the program of work which is usually funded by CWKV or NFVW/RTRT.

Data Collection Logistics:

Category: Vegetation

Required in-house Coordination:

Data Storage: Summary data will be stored in FACTS.

Data Storage Hyperlink:

Responsibility: Forest Silviculturist

Cooperators:

Item # 29

Monitoring Item Name: Outputs Accomplished - Volume and Acres of Timber Offered and Sold

Monitoring Question How close are actual outputs and services to projected outputs and services?

Detailed Monitoring Question: How do actual outputs compare to those projected in Appendix D, Proposed and Probable Practices, specifically related to timber offered and sold

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 8: Provide for a sustainable supply of forest products.

LRMP Rationale/Driver: To determine if timber sale outputs for the GMNF are being accomplished as outlined in Appendix D of the Forest Plan.

Indicator & Measure: 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.

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** acres, MMBF, MMCF

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: NFMA requirement - have to report on this; impacts of not being aware of this are high for many reasons

Priority within Program: High

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.

Data Collection Method Hyperlink:

Sample Design: None needed. Data will come directly from timber data bases.

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method:

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$500

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$5,000

Reporting Frequency: Annually

Estimated Cost - Explanation: estimate about \$500/year - cost of program manager to gather data and provide to planner for incorporation into M&E report

Category: Vegetation

Data Collection Logistics:

Required in-house Coordination:

Data Storage: timber databases

Data Storage Hyperlink:

Responsibility: Forest management program leader

Cooperators:

Item # 42

Monitoring Item Name: Regeneration Harvest Opening Size

Monitoring Question Are maximum size limits for harvest areas appropriate, and should these limits be retained?

Detailed Monitoring Question: Is the maximum opening size for even-aged harvesting being met and are we accomplishing resource objectives. 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 whether we have met standards for maximum opening size and scenic integrity.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.5 - Openings

LRMP Rationale/Driver:

Indicator & Measure: Quantitative comparisons of on-the-ground condition and Forest Plan standards. The Facts database will be queried to get stand information. Individual stand prescriptions will also be monitored through timber sale reviews

Protocol Name: Harvest Opening Size

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency: Forest Service

Units of Measure: Acres

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: This is a required Forest Plan monitoring item.

Priority within Program: High

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

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years

Precision and Reliability:

Analysis Method: The data base comparison will be made against standards.

Reference & Desired Values:

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$4,000

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$8,000

Reporting Frequency: 5 Years

Estimated Cost - Explanation:

Category: Vegetation

Data Collection Logistics:

Required in-house Coordination:

Data Storage: CDS or FACTS data base

Data Storage Hyperlink:

Responsibility: Forest Silviculturist

Cooperators:

Item # 63

Monitoring Item Name: Trends in Vegetative Community Composition (site-level scale)

Monitoring Question To what extent are Forest Service management activities contributing toward population viability for native and desired non-native species?

Detailed Monitoring Question: How the vegetation composition is changing over time from the influence of acid deposition, climate change, invasive species and other environmental problems, in combination and separate from land management practices.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 5: Maintain or restore ecological processes and systems on the FLNF within desired ranges of variability, including a variety of native vegetation and stream channel types, and their patterns and structural components.

LRMP Rationale/Driver: Under a changing climate it is not going to be able to maintain the present vegetation composition especially when a climate change works in conjunction with acid deposition, invasive species and other environmental problems. This monitoring will be necessary to characterize and quantify changes in the vegetation on FLNF caused by the above listed environmental problems. This monitoring should focus on the shrub and herbaceous layers. The herbaceous layer will include tree seedlings until they grow above the herbaceous layer.

Indicator & Measure: Indicator: Present vegetation composition on FLNF
Measures: Vegetation in the heraceous and schrub layers

Protocol Name: Forest Inventory and Ananalysis (FIA) **Protocol Status:** Approved

Protocol Version/Date: 2002 **Spatial Extent (Scale):** National

Protocol Agency: Forest Service **Units of Measure:** Plant presence/absence

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: If vegetative composition on GMNF changes over time caused by climate change, acid deposition or other environmental problems, management activities will need to be adjusted to meet changed forest environmental conditions to help mitigate the changed condition through adjusted regeneration harvests. A failure to do so from a lack of quantification of the change tree health conditions that will take place could result in failure of regeneration after timber harvests (including plantings) or managing for the wrong species, waisted money trying to protect sensitive species for which the habitat no longer exists on the Forest, and failure to recognize that species that are migrating onto the Forest.

Priority within Program: Medium

Data Collection Method: To be determined

Data Collection Method Hyperlink:

Sample Design: To be determined

Sample Unit: To be determined

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method: To be determined

Reference & Desired Values: To be determined

References (Literature Cited):

Category: Vegetation

Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$27,000
Fiscal Year Scheduled:	2012	Cost Per Decade (\$1,000):	\$41,000
Reporting Frequency:	5 Years		
Estimated Cost - Explanation:	Part of LEMP. The costs for this item includes 45% of the total cost to establishment 5 plots plus data measurement (except tree health info) in the year of establishment: 2007-2011 (\$0); 2012 establish and measure 5 plots (\$27,000); 2013-2016 (\$0); 2017 re-sample 5 plots @ \$2800 each (\$14,000).		
Data Collection Logistics:	To be developed.		
Required in-house Coordination:			
Data Storage:	Data to reside in NRIS data bases.		
Data Storage Hyperlink:			
Responsibility:	To be determined		
Cooperators:			

Item # 44

Monitoring Item Name: Shelterwood with Reserves

Monitoring Question What are the effects of management practices prescribed by the 2006 Forest Plan?

Detailed Monitoring Question: Can the shelterwood w/reserves method be used to: 1. maintain the big tree character in visually sensitive areas or to convert low quality stands to uneven-aged structure, 2. the ability to leave good quality, wind-firm trees of sufficient number, size, and distribution to maintain a pleasing overstory, and 3. the ability to retain the overstory until the regenerated stand is commercially thinned in 40-60 years.

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 9: Demonstrate innovative, scientifically, and ecologically sound management practices that can be applied to other lands.

LRMP Rationale/Driver: The Kelly Sale Plot was established in 1990. The plot was re-measured annually and are providing long term data sets.

Indicator & Measure: 1. survival and growth of overstory trees. 2. Epicormic branching response to overstory trees and 3. Regeneration response to this cutting method overtime.

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Districts

Protocol Agency: Forest Service

Units of Measure:

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: This was a Forest Plan appeal item in 1986 and in 2006.

Priority within Program: Medium

Data Collection Method: 1. Approximately 30 overstory trees have been tagged and have been measured for survival, DBH growth, tree grade, epicormic branching and damage. Trees have been identified with a driven wire and aluminium numbered tag placed below stump height. 2. Approximately 10 regeneration stocking plots have been marked with plastic stakes. 1/700 acre plots have been used to sample seedlings and 1/100 acre plots have been used to sample saplings. The plot centers have been marked with white fiberglass rods with orange tips. Aluminium write-on tags have been used to number the regeneration plots. 3. Four primary corners using fiberglass boundary stakes have been established for permanent photo points

Data Collection Method Hyperlink:

Sample Design:

Sample Unit: Stand

Frequency of Measurement: 5 Years

Precision and Reliability:

Analysis Method: The forest Silviculturist will evaluate the plot data to determine if the results are meeting Forest Plan expectations. Silvicultural guidelines will be developed for its use based on monitoring results.

Reference & Desired Values: 1. tree health, 2. tree value growth, 3. uneven-aged structure objectives, 4. visually quality objectives.

References (Literature Cited):

Category: Vegetation

Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$1,000
Fiscal Year Scheduled:	2011	Cost Per Decade (\$1,000):	\$2,000
Reporting Frequency:	5 Years		
Estimated Cost - Explanation:	The primary cost will be personnel time to actually remeasure the plots (1 person day)		
Data Collection Logistics:	The data is stored on a floppy disc and also a hardcopy is stored in the 2470 permanent files maintained by the Forest Silviculturist.		
Required in-house Coordination:			
Data Storage:	floppy disc and hardcopy. Eventually the data can be stored in the FSveg database.		
Data Storage Hyperlink:			
Responsibility:	Forest Silviculturist		
Cooperators:			

Item # 5

Monitoring Item Name: Late-successional forest

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How many acres are there within the old forest age class, and how many acres are developing late successional forest characteristics?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: Objective: Increase acres of late-successional and old forest habitats through natural successional processes within lands not suitable for timber management, and through use of extended rotations within lands suitable for timber management

Indicator & Measure: # acres within the old age class (not including aspen-birch)
acres inventoried to evaluate late successional characteristics; proportion that contain late successional characteristics
acres treated to enhance late successional characteristics

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** acres

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Generally forests will keep aging and developing late successional characteristics regardless of what we do; but the gap between current and desired is large, and it was a big public issue during revision, and active management to enhance these characteristics is unchartered territory in the NE. Gathering data on the acres in the old age class is easy because it's simply a CDS query - the same is true for acres treated - it's based on reporting; determining the acres on the ground with late successional indicators may be more complicated - could be done with the establishment of long term monitoring plots

Priority within Program: High

Data Collection Method: Query CDS for acres in old age class; Query activity reports for acres treated to enhance late successional characteristics. Acres inventoried can be obtained through either or both regular Silvexam inventory by adapting it to identify the indicator lichen species, or sampling a series of plots in mature or old forest age classes to monitor when late-successional characteristics start to appear

Data Collection Method Hyperlink:

Sample Design: Sampling for late successional characteristic monitoring could be built into a long term monitoring plot project being developed, which would represent the major forest communities across the Forest; could use GM as model for development. Monitoring would occur every 5 years, while inventory if associated with landscape assessments could occur annually. Could set up 4 plots on the FL (two in NH and two in OH)

Sample Unit: plot

Frequency of Measurement: 5 Years **Precision and Reliability:** Class B

Analysis Method: Compare acres of existing (FEIS) old forest habitat based on CDS queries to acres that have been enhanced or that have aged into the old age class.

Develop a model based on inventory and monitoring to determine the likelihood that forests of a

particular type and age are developing late-successional characteristics.

Reference & Desired Values:

we currently suspect, based on forest age, that the occurrence of late successional characteristics are low; we expect that inventory, monitoring, and modeling will help us to test this hypothesis and predict how long it will take via natural succession for these characteristics to develop, and what a "desired value" would be

References (Literature Cited):

Last Year Accomplished:

Cost for Year Scheduled (\$1,000):

\$2,000

Fiscal Year Scheduled:

2011

Cost Per Decade (\$1,000):

\$6,000

Reporting Frequency:

5 Years

Estimated Cost - Explanation:

[Yr 1:\$2000; Yr 6: \$2000; Yr 11: \$2,000] establish 4 plots on FL - 5 days of sampling, data entry, travel; gather data every 5 years so there are 3 occurrences of this data gathering.

Data Collection Logistics:

Need to coordinate with LT Monitoring Plot exercise; also with Silvexam field inventory folks to train in LS indicator ID

Required in-house Coordination:

FM Team, SWA Team

Data Storage:

FSVeg

Data Storage Hyperlink:

Responsibility:

Ecologist

Cooperators:

Item # 46

Monitoring Item Name: Suited Timber Lands

Monitoring Question To what extent is timber management occurring on lands suitable for such production?

Detailed Monitoring Question: Are lands termed unsuitable for timber production adequately described and mapped?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: S&Gs 2.3.4 - Timber or vegetation management

LRMP Rationale/Driver: This is a NFMA legally required item. This monitoring helps identify where timber harvest can take place.

Indicator & Measure:

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency: Forest Service

Units of Measure:

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: This is a NFMA required monitoring item.

Priority within Program: High

Data Collection Method: Record the acres of unsuitable and suitable lands inventoried.

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 10 Years

Precision and Reliability:

Analysis Method: The analysis will be the acres of suitable land and unsuitable lands in 2006 and 2016. A comparison will be made to determine if significant acres have changed in suitability. If significant, an ASQ analysis should be conducted and may require a Forest Plan amendment or change.

Reference & Desired Values: ASQ, suitable acres

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$10,000

Fiscal Year Scheduled: 2016 **Cost Per Decade (\$1,000):** \$10,000

Reporting Frequency: 10 Years

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.

Category: Vegetation

Data Collection Logistics:

Required in-house Coordination:

Data Storage: FS Veg (NRIS) and CDS

Data Storage Hyperlink:

Responsibility: Forest Planner

Cooperators:

Item # 11

Monitoring Item Name: Forest-wide Habitat Composition (landscape scale)

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: To what extent are management actions and natural processes moving Forest composition toward desired objectives in table 2.2-1 of the revised Plan?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: This relates to species viability in that it measures habitat suitability for various species; applicable objectives are those associated with composition under Goal 2

Indicator & Measure: number of acres and proportion in each type

Protocol Name: Silvexam **Protocol Status:** Approved

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: Forest Service **Units of Measure:** acres

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: There are wide gaps between current and DFC for composition; forest composition is one thing that we can most directly affect through management; composition related to aspen and openings were key revision issues; cost effective in that Silvexam is a well-established method, and that counting acres is a simple CDS query; uncertainty and serious consequences related to oak management and our knowledge of how to maintain oak, and aspen management in that not knowing means we may lose what we have.

Priority within Program: High

Data Collection Method: Silvexam - see handbooks
Data gathered annually on project areas; areas may not see more than one inventory in a 15-year span of time; for areas where inventories are not likely to recur within the next 15 years or areas outside the suitable timber base, inventories will be remotely based (satellites, photography, TEUI) with some field sampling, or will use previously gathered data where composition is not likely to change

Data Collection Method Hyperlink:

Sample Design: see Silvexam handbook

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method: Comparison of current (FEIS) composition values with desired values in Table 2.2-1 of Forest Plan

Reference & Desired Values: Current values - see Forest Plan FEIS; desired values - see Table 2.2-1 of Forest Plan

References (Literature Cited): see Forest Plan FEIS

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,000

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$2,000

Category: Vegetation

Reporting Frequency:	5 Years
Estimated Cost - Explanation:	estimate about 2 days at year 5 and 10. The \$1000 per year covers some of the other composition items as well - including conversion of plantations, aspen-birch and early successional.
Data Collection Logistics:	Level of detail of data collection will be reflective of IDT decisions on data collection needs for projects and FMT decisions on other Silvexam efforts
Required in-house Coordination:	NFIM Coordinator, Silviculturist, Ecologist, Forest Management Team, Landscape Assessment IDT
Data Storage:	FS-Veg; Terra
Data Storage Hyperlink:	
Responsibility:	Forest Silviculturist & Forest Ecologist
Cooperators:	

Item # 9

Monitoring Item Name: Rare or Outstanding Natural Areas

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: To what extent are rare and outstanding biological, ecological, or geological features on the GMNF being protected, maintained, or enhanced?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 6: Protect rare or outstanding biological, ecological, or geological areas on the FLNF.

LRMP Rationale/Driver: Related to the single Goal 7 objective, as well as to viability in Table 7 as many of these areas include rare species

Indicator & Measure: # conservation actions taken to protect, maintain, or enhance these areas
Ranked condition of identified areas (A-D)
acres inventoried for rare or outstanding features (includes inventory for TES species)

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** actions, acres, ranks

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Monitoring actions taken is easy as it simply queries existing reporting; management can affect significant features when we either don't know they are there, or don't bother to monitor them over time, so risks are high there; protection of special areas was a concern during revision

Priority within Program: Medium

Data Collection Method: Use TEUI to identify new significant features; use project reviews in other areas to do this inventory. Monitor the condition of known significant sites every 5 years - place all sites on a rotation so that every year 1/5 of sites are monitored. Monitor before and after management actions occur within or adjacent to these sites

Data Collection Method Hyperlink:

Sample Design: 11 sites have a significant feature related to a natural community; this means about 2 sites/year should be monitored. Monitoring will occur via a walk-through using NHP protocols for evaluating site rank (A-D)

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method: Compare # of new sites found per acre inventoried to historical numbers during previous surveys
Compare condition of sites when last assessed by NHP with condition during monitoring
Evaluate monitoring before and after actions within and adjacent to sites to determine if actions contributed to or detracted from composition, structure, and function of the sites in relation to their values

Reference & Desired Values: current values are significant feature ranks recorded in NHP database for each site (NHP only has ranks for one site, so remaining site ranks will have to be developed new, but assumption is that they are all around B-rank due to land use history and invasives (some may be C rank); desired values are preferably A (or B when A is impossible) ranks for these sites. Some very small sites are too small to qualify for A ranks, although appropriate management of adjacent lands could lead to an A rank.
Inventories should ultimately lead to diminishing returns (fewer sites found as we continue to inventory) as well as enhanced search models (better predictions of where significant features

might be found) that limit need for broader inventories.

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$2,000

Fiscal Year Scheduled: 2007 **Cost Per Decade (\$1,000):** \$20,000

Reporting Frequency: Annually

Estimated Cost - Explanation: cost of inventory captured in TEUI costs; no cost for reporting on actions taken; cost of monitoring - 1 field day plus 2 days data & travel = \$2,000

Increased NFIM funding from \$2000 to \$2,200 to reflect increased salary costs.

Data Collection Logistics: need to build a cadre of volunteers who are willing to monitor some sites

Required in-house Coordination: FM Team, Botanist

Data Storage: Plants???

Data Storage Hyperlink:

Responsibility: Ecologist

Cooperators: VNNHP?

Item # 7

Monitoring Item Name: Uneven-aged Management

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How many acres of land suitable for timber management were treated using uneven-aged silvicultural systems to create multi-age conditions, and what proportion of the annual harvest acres do these acres represent? What proportion of the lands suitable for timber management has an uneven-aged prescription?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: Objective: Manage a minimum of 20% of lands suitable for timber management using uneven-age silvicultural systems to create multi-age conditions

Indicator & Measure: # acres and proportion of harvest acres treated with uneven-aged systems
acres with uneven-aged prescriptions

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency:

Units of Measure: acres

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Medium

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): Low

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Generally forests will become more uneven-age over a long time through natural succession; however we made a commitment in the plan in response to a revision issue that we would increase uneven-age management, and there is little of the Forest now that is in this condition - we can make that change more quickly than through natural processes; this is an easy one to monitor because it tracks reporting that already happens and involves queries of existing databases

Priority within Program: Medium

Data Collection Method: Query CDS on the number of acres within the 2 commercial Mas with uneven-aged prescriptions; query harvest acres reported at the end of each year for the number of acres harvested and acres that were harvested using uneven-age systems

Data Collection Method Hyperlink:

Sample Design: N/A

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method: Compare acres with uneven-age Rx and acres harvested with uneven-age mgmt to the 20% threshold identified in the revised Plan

Reference & Desired Values: Desired values are that at least 20% of lands suitable for timber management use uneven-aged systems to create multi-age conditions. Current condition (1987-2001 average) is 12% of harvest acres; unknown what proportion have uneven-age Rx.

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$300

Category: Vegetation

Fiscal Year Scheduled:	2011	Cost Per Decade (\$1,000):	\$600
Reporting Frequency:	5 Years		
Estimated Cost - Explanation:	estimate no more than a day of a person's time to calculate each year.		
Data Collection Logistics:	work with Fm Team during reporting period to ensure that harvest acres are broken out by method and that CDS can be queried for Rx		
Required in-house Coordination:	FM Team		
Data Storage:	FsVeg?		
Data Storage Hyperlink:			
Responsibility:	Ecologist & Silviculturist		
Cooperators:			

Item # 6

Monitoring Item Name: Age Class Distribution within lands where even-aged management is allowed

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: To what extent are management actions and natural processes moving age class structure of lands managed using even-aged silvicultural systems toward desired objectives in Table 2.2-2 in the revised Plan?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: Connected to viability question in Table 7, as well as the following objectives in the Plan: Apply the following age-class objectives (Table 2.2-2) to suitable lands that will be managed using even-aged silvicultural systems to provide a variety of habitat conditions for wildlife and create a balanced distribution of age classes to meet timber objectives.
Also the following objective: Maintain a full range of age classes from young to old, including late successional and multi-age conditions, within management areas where age class can be actively manipulated toward goals, objectives, and desired future conditions

Indicator & Measure: # of acres and proportion of each forest type in each age class

Protocol Name:	Protocol Status:
Protocol Version/Date:	Spatial Extent (Scale): Forest
Protocol Agency:	Units of Measure: acres

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: Age class diversity, and the general low levels of some age classes and high levels of others, was a big revision issue; not knowing how age class diversity is changing could have serious consequences for our meeting viability objectives for species that rely on certain age classes; forest management has the biggest and quickest influence on age class diversity compared to natural processes; this is simple to answer in that it is a query of existing databases that take into account activities that have changed ages of stands

Priority within Program: High

Data Collection Method: query CDS database regarding year of origin for stands which have either had an even-aged treatment or have an even-age prescription; stand prescribers gather the data during silvexam, and silviculturists enter changes in data after activities have been implemented

Data Collection Method Hyperlink:

Sample Design: See Silvexam handbook

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class B

Analysis Method: Comparison of current (FEIS) age class distribution to age class distribution at the time of analysis, and with the desired age class distribution in Table 2.2-2 in the revised Plan

Reference & Desired Values: current values are in FEIS; desired values are in table 2.2-2 of revised Plan

References (Literature Cited): see FEIS

Category: Vegetation

Last Year Accomplished:		Cost for Year Scheduled (\$1,000):	\$300
Fiscal Year Scheduled:	2011	Cost Per Decade (\$1,000):	\$3,000
Reporting Frequency:	5 Years		
Estimated Cost - Explanation:	Cost of Silvexam is built into composition item; otherwise about a days worth of someone's time to run queries and crunch numbers; over 10 years adding up to about \$3000		
Data Collection Logistics:	coordinate with FMT to ensure that activities and Silvexam data are entered promptly, and that rules for changes in year of origin in response to activities is applied consistently		
Required in-house Coordination:	FM Team		
Data Storage:	FS Veg		
Data Storage Hyperlink:			
Responsibility:	Ecologist and Silviculturist		
Cooperators:			

Item # 1

Monitoring Item Name: Conversion of conifer plantations to native hardwoods

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How many acres are being treated with varying management actions that remove non-native conifer plantations and replace with native hardwoods?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: Objective: Maintain northern hardwood forests, native softwood forests, and forests of oak, hickory, and pine, on sites that ecologically support these habitats

Indicator & Measure: # of acres treated to remove non-native conifer plantations

Protocol Name:	Protocol Status:
Protocol Version/Date:	Spatial Extent (Scale): Forest
Protocol Agency:	Units of Measure: acres

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern):

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Medium

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: monitoring is easy because it's associated with reporting on harvesting already reported by other program areas; of moderate to high concern because plantations are at risk to dying from Sirex wood wasp and creating a fire hazard, so conversion as soon as possible is desirable; removing/replacing non-native species is a big issue on the FL

Priority within Program: High

Data Collection Method: Of acres harvested, identify those where the intent was to convert plantations to native hardwoods

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method: Compare acres of existing (FEIS) plantation forest based on CDS queries to new acres created due to conversion

Reference & Desired Values: Current values for plantations are listed in FEIS; desired values 0 acres

References (Literature Cited): see FEIS

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):**

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):**

Reporting Frequency: 5 Years

Estimated Cost - Explanation: COST BUILT IN FORESTWIDE HABITAT COMPOSITION ITEM. estimate no more than a day of a person's time to calculate each year, a little more for the 5-year comprehensive, cumulatively not more than 3,000 over 10 years

Category: Vegetation

Data Collection Logistics:

Required in-house Coordination: Silviculturist and/or whoever does reporting of harvesting for FMT

Data Storage: CDS/FSVeg

Data Storage Hyperlink:

Responsibility: Forest Silviculturist & Ecologist

Cooperators:

Item # 2

Monitoring Item Name: Oak and Oak-Pine Forest Maintenance and Restoration

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How many acres are being treated with varying management actions that will likely result in the maintenance and restoration of oak and oak-pine forests, and oak within oak-northern hardwood forests?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: Objective: Maintain northern hardwood forests, native softwood forests, and forests of oak, hickory, and pine, on sites that ecologically support these habitats

Indicator & Measure: # acres treated to maintain; # acres treated to restore

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency:

Units of Measure: acres

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: the gap between current and DFC, the degree of uncertainty associated with getting oak regeneration, the risks to loss of a valued mast source and habitat for rare plants, the high level of attention associated with the Oak Hickory MA and use of fire there, and the fact that this item simply counts acres of activities reported by various program areas (fire, timber, wildlife, botany) argue for a high level of priority

Priority within Program: High

Data Collection Method: Of acres harvested, treated for WL, and treated with fire, calculate the acres for which the intent was to maintain and restore oak and oak-pine

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method: Compare acres of existing (FEIS) oak, oak-pine, and northern hardwood with oak forest based on CDS queries to new acres created due to restoration, and acres maintained.

Reference & Desired Values: Current values for oak forest types are listed in FEIS; desired values are listed in Table 2.2-1 in revised Plan;

References (Literature Cited): see FEIS

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$300

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):** \$3,000

Reporting Frequency: 5 Years

Category: Vegetation

Estimated Cost - Explanation: estimate no more than a day of a person's time to calculate each year, a little more for the 5-year comprehensive, cumulatively not more than 3,000 over 10 years

Data Collection Logistics:

Required in-house Coordination: Silviculturist and/or whoever does reporting of harvesting for FMT; Fire Team (for reporting), WL Bio (for reporting)

Data Storage: FSVeg?

Data Storage Hyperlink:

Responsibility: Forest Ecologist

Cooperators:

Item # 3

Monitoring Item Name: Oak Regeneration

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How many acres were treated to encourage oak regeneration

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 5: Maintain or restore ecological processes and systems on the FLNF within desired ranges of variability, including a variety of native vegetation and stream channel types, and their patterns and structural components.

LRMP Rationale/Driver: Also goal 2 - see Oak and Oak-Pine Forest Maintenance and Restoration item; Objective: Manage oak-pine natural communities on the FLNF to maintain their presence and continuity on the Forest, using natural as well as human-caused disturbance processes including fire use when necessary

Indicator & Measure: Acres certified as stocked with oak and oak-pine regeneration
Proportion of stands where cultural activities needed to ensure successful oak regeneration have been undertaken within the first 15-20 years of stand regeneration

Protocol Name:	Protocol Status:
Protocol Version/Date:	Spatial Extent (Scale): Forest
Protocol Agency:	Units of Measure: acres

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: the gap between current and DFC, the degree of uncertainty associated with getting oak regeneration, the risks to loss of a valued mast source and habitat for rare plants, the high level of attention associated with the Oak Hickory MA and use of fire there, and the fact that this item simply counts acres of activities reported by various program areas (fire, timber, wildlife, botany) argue for a high level of priority

Priority within Program: High

Data Collection Method: Identify from the acres reported for stocking surveys those where oak regeneration has been certified to have been successful or where oak continues to be an important component of the stand

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class B

Analysis Method: Evaluate the acres treated for oak regeneration against (a) those certified as successful through stocking surveys and (b) those where cultural activities needed have also been implemented. This indicates whether we are doing what we say, and if doing these things work.

Reference & Desired Values: there is a large gap between the acres of oak existing (FEIS) versus desired, and between mature oak stands and those likely to continue as oak.

References (Literature Cited): FEIS

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$300

Category: Vegetation

Fiscal Year Scheduled:	2011	Cost Per Decade (\$1,000):	\$3,000
Reporting Frequency:	5 Years		
Estimated Cost - Explanation:	estimate no more than a day of a person's time to calculate each year, a little more for the 5-year comprehensive, cumulatively not more than 3,000 over 10 years		
Data Collection Logistics:	need to work with those reporting stocking surveys to query for oak regen success, and those identifying cultural needs to report on what activities were done for oak		
Required in-house Coordination:	TSI Coordinator, Silviculturist, Ecologist, Fire		
Data Storage:	FSVeg?		
Data Storage Hyperlink:			
Responsibility:	Ecologist & Silviculturist		
Cooperators:			

Item # 4

Monitoring Item Name: Aspen-Birch & Early Successional Habitat

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How many acres are being treated with varying management actions to maintain and increase aspen-birch and regenerating forest?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals.

LRMP Rationale/Driver: Objective: Maintain, and where desirable increase, the acres of aspen and regenerating forest in order to support species that prefer these habitats

Indicator & Measure: # acres treated to maintain; # acres treated to create

Protocol Name: **Protocol Status:**

Protocol Version/Date: **Spatial Extent (Scale):** Forest

Protocol Agency: **Units of Measure:** acres

Priority Question 1 (uncertainty associated with management assumptions): High

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): High

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: High levels due to lack of historic success in achieving this objective; large difference between current and DFC; regional impacts if lose habitat on FL; risk of loss of habitat if don't monitor (short-lived condition); major WL and veg issue during revision; easy to answer as it gathers data already reported by program areas (timber, WL)

Priority within Program: High

Data Collection Method: of acres harvested (timber) or treated non-commercially (WL or timber), identify the number of acres that are creating or maintaining aspen-birch or early successional habitat

Data Collection Method Hyperlink:

Sample Design:

Sample Unit:

Frequency of Measurement: 5 Years **Precision and Reliability:** Class A

Analysis Method: Compare acres of existing (FEIS) aspen-birch and early successional habitat based on CDS queries to new acres created and acres maintained.

Reference & Desired Values: Current values for aspen-birch and early successional habitat (0-9 age class) are listed in FEIS; desired values are listed in Table 2.2-1 (aspen-birch) and Table 2.2-2 (0-9 age class) in revised Plan

References (Literature Cited): see FEIS

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):**

Fiscal Year Scheduled: 2011 **Cost Per Decade (\$1,000):**

Reporting Frequency: 5 Years

Estimated Cost - Explanation: COST BUILT IN FORESTWIDE HABITAT COMPOSITION ITEM. estimate no more than a day

of a person's time to calculate each year, a little more for the 5-year comprehensive, cumulatively not more than 3,000 over 10 years

Data Collection Logistics: work with FMT and WL team to gather treatment acres data

Required in-house Coordination: WL Bio, Silviculturist

Data Storage: FSVeg

Data Storage Hyperlink:

Responsibility: Ecologist & WL Biologist

Cooperators:

Item # 12

Monitoring Item Name: Sustainability of Special Forest Product Gathering

Monitoring Question To what extent have Objectives been attained?

Detailed Monitoring Question: How many and what special forest products do people gather? How many require permits, and how many permits were issued annually, for which products/species? How many requests for permits were denied? How many SFPs are being evaluated for permit requirement?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 8: Provide for a sustainable supply of forest products.

LRMP Rationale/Driver: Objective: provide sustainable opportunities to harvest special forest products

Indicator & Measure: # & type of SFPs being gathered/requiring permits
permits issued/denied by SFP
& type of SFPs under evaluation

Protocol Name:

Protocol Status:

Protocol Version/Date:

Spatial Extent (Scale): Forest

Protocol Agency:

Units of Measure: numbers of products, permits

Priority Question 1 (uncertainty associated with management assumptions): Medium

Priority Question 2 (disparity between existing and desired conditions): High

Priority Question 3 (management activities likely to affect resources of concern): Low

Priority Question 4 (serious consequences from not knowing resource conditions): Medium

Priority Question 5 (monitoring responds to a key issue): Low

Priority Question 6 (question can be cost effectively answered): High

Priority Rationale: We have little quantitative information on what people are gathering or if any of the products out there are being gathered unsustainably - the DFC is to know what people are gathering and use permits to control use, so the disparity is high; uncertainty may ultimately lead to decline in some species if we have no idea what is being gathered; #'s of permits and products are easy to monitor using FACTS queries

Priority within Program: Medium

Data Collection Method: Run queries in FACTS to determine what permits have been issued for which SFPs, and what SFPs require permits; Eco-bot program to provide information on what SFPs are being evaluated; work with NRS - Marla Emery - on implementing 2002 proposal to assess what products are being gathered on the FL.

Data Collection Method Hyperlink:

Sample Design: see Emery proposal 2002

Sample Unit:

Frequency of Measurement: Annually **Precision and Reliability:** Class B

Analysis Method:

Reference & Desired Values: Currently we only know what SFPs require permits - those that have historically required permits (e.g. maple tapping, walking sticks, etc), and we anecdotally have some ideas about what people gather. Desire is to know what people gather, what they gather a lot of, and what products may have sustainability concerns.

References (Literature Cited):

Last Year Accomplished: **Cost for Year Scheduled (\$1,000):** \$1,000

Category: Vegetation

Fiscal Year Scheduled:	2007	Cost Per Decade (\$1,000):	\$8,500
Reporting Frequency:	Annually		
Estimated Cost - Explanation:	[Yr1: \$500; Yr2: included in GMNF; other yrs \$1000] In 07, simply report on FACTS queries; in FY08, initiate and complete Emery study on what is gathered on FL (cost was built into study for GM & FL, so cost is shown in GM item not here); remaining years involved reporting, which would amount to at most \$2000, and could include some monitoring of products that may be at risk (est \$2000)		
Data Collection Logistics:	need to coordinate with Marla Emery on any changes to 2002 proposal;		
Required in-house Coordination:	Coordinate with FACTS person for queries		
Data Storage:	FACTS		
Data Storage Hyperlink:			
Responsibility:	Ecologist		
Cooperators:	Northern Research Station		

Item # 65

Monitoring Item Name: Forest-wide Water Quality Monitoring (FLNF)

Monitoring Question To what extent is Forest management affecting water quality, quantity, flow timing, and the physical features of aquatic, fisheries, riparian, vernal pool, and wetland habitats?

Detailed Monitoring Question: What is the existing status of water quality on the FLNF, and how are our management activities affecting water quality?

LRMP Tables Addressed: LRMP 4.1-3 LRMP 4.1-4 LRMP 4.1-5 LRMP 4.1-6 LRMP 4.1-7

LRMP Reference: Goal 4: Maintain or restore aquatic, fisheries, riparian, and wetland habitats.

LRMP Rationale/Driver: This monitoring (along with other types of monitoring) address whether we are meeting Goal 4 - Maintain or restore aquatic, fisheries, riparian, vernal pool, and wetland habitats. Water quality is one critical component of these resources.

Indicator & Measure: Indicator: Water Quality
Measures: For water quality - Dissolved Oxygen (DO), pH, Nitrite, Nitrate, Total N., Phosphate, Temperature, E. Coli, Turbidity, Conductivity, Total Dissolved Solids (TDS), stream area, velocity, and flow. Macroinvertebrate monitoring is also sometimes done to characterize water quality.

Protocol Name: VT Dept. of Environmental Conservation Field Methods Protocol **Protocol Status:** Approved

Protocol Version/Date: 1989 **Spatial Extent (Scale):** Developed in VT, but also appropriate for N

Protocol Agency: State of Vermont **Units of Measure:** Multiple units

Priority Question 1 (uncertainty associated with management assumptions): Low

Priority Question 2 (disparity between existing and desired conditions): Low

Priority Question 3 (management activities likely to affect resources of concern): Medium

Priority Question 4 (serious consequences from not knowing resource conditions): High

Priority Question 5 (monitoring responds to a key issue): High

Priority Question 6 (question can be cost effectively answered): Medium

Priority Rationale: Water quality is an extremely important component of forest ecosystems. It is a primary goal of the Forest Service to protect water quality and aquatic communities, while conducting multiple use management. In addition, maintaining water quality is very important to the public, particularly in grazing areas.

Priority within Program: High

Data Collection Method: Methods documented in the draft GMNF Water Quality Monitoring Plan, 2006-2009. This document will reside on the K drive when finalized in late FY06. A similar Plan for the FLNF needs to be developed. Briefly, methods consist of collecting water samples in bottles. Some water tests are completed in the field or in the lab at the Supervisors Office. Other tests, including the macroinvertebrate monitoring, are contracted.

Data Collection Method Hyperlink:

Sample Design: Sampling design not documented, however it focuses on streams and ponds in grazing areas where there is a higher risk of stream or groundwater contamination. In summary, sampling design consists of collecting water samples at 1-3 locations in selected streams and ponds. Streams and ponds are selected for monitoring based on the:
1) Need to characterize the existing water quality condition and status of macroinvertebrate populations to establish baseline conditions; and
2) Need to determine to what extent, and in what ways, does our management activities affect water quality?

Sample Unit: Usually by grazing area.

Frequency of Measurement: Annually **Precision and Reliability:** Class A

Analysis Method: Analysis methods used on the FLNF are similar to those documented in the draft GMNF Water Quality Monitoring Plan, 2006-2009. Analysis consists of annual statistical summaries and

comparison of data to accepted thresholds, such as State Water Quality Standards.

Reference & Desired Values:

It is desired that streams meet appropriate State water quality standards. The current condition in some grazing allotments sometimes does not meet this expectation.

References (Literature Cited):

Last Year Accomplished:

Cost for Year Scheduled (\$1,000):

\$4,500

Fiscal Year Scheduled:

2007

Cost Per Decade (\$1,000):

\$45,000

Reporting Frequency:

Annually

Estimated Cost - Explanation:

Annual costs:
Water sampling via contract - \$ 2,500
Equipment - \$500.
e.coli tests - \$1,000
Data compilation and analysis - \$500.

Data Collection Logistics:

Required in-house Coordination:

Kathy Donna to coordinate all monitoring

Data Storage:

Data is currently stored in an Excel database maintained by Kathy Donna on the K-drive. Data will be permanently moved to the NRIS Water Module when it is operational on the Forest.

Data Storage Hyperlink:

Responsibility:

Kathy Donna to coordinate all monitoring

Cooperators: