Forest Plan
Monitoring And Evaluation Report
Fiscal Year 2003
Green Mountain National Forest

United States Department of Agriculture
Forest Service

The mission of the Green Mountain National Forest is to sustain, protect and enhance forest ecosystems. Employees, with the aid of the public, understand that their greatest asset is the land, their greatest strength is the work force, and they will strive to gain public understanding, trust, and confidence in all that they do through demonstration and education.

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ABSTRACT

Implementation and monitoring of the Green Mountain National Forest (GMNF) Land and Resource Management Plan (Forest Plan) began in 1987. This report evaluates the results of the monitoring accomplished during Fiscal Year 2003 (October 1, 2002-September 30, 2003), hereafter referred to as FY03.

The primary objectives of monitoring Forest Plan implementation are a) to evaluate how well Forest Plan Standards and Guidelines have been applied, and b) to determine the effects of carrying out our management direction. This report describes monitoring items by resource category, provides data pertaining to the effects and effectiveness of Forest Plan management direction, and discusses various resource management efforts in which the GMNF engaged in FY03.

The Monitoring and Evaluation Report documents that no significant changes to forest resources occurred in 2003.

A major part of monitoring and evaluation is to determine if the resource outputs, management costs, returns and environmental objectives were achieved as predicted in the Forest Plan. To do this, the report compares the objectives stated in the Forest Plan with what was actually accomplished during 2003, and discusses reasons for any differences.

In FY03, we well exceeded our annual objectives in the areas of heritage resource protection, fish habitat improvement, wildlife habitat improvement, and maintenance of arterial and collector roads. However, the Forest fell short in meeting many of our other annual objectives including trail maintenance, property boundary location and maintenance, vegetation management, fish inventory, and others.

In part, these shortfalls reflect the choices and priorities that were made during FY03 to focus on other aspects of our program of work. More importantly, however, we are in the process of revising our Forest Plan in accordance with the requirements of the National Forest Management Act. For FY03, this area of focus included numerous public meetings in communities around the Forest to explain the revision process and to validate issues, concerns and the role of the Forest. Our staff also spent countless hours preparing material for inclusion in the revised Forest Plan, to the detriment of project-level work.

APPROVAL

Having reviewed the GMNF Monitoring and Evaluation Report, I am satisfied with its findings and intend to implement recommendations made therein, following appropriate public involvement. As always, we encourage public involvement during the process of developing individual project proposals.

/S/ Paul K. Brewster
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Forest Supervisor

Date: September 13, 2004

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INTRODUCTION

Implementation of the Green Mountain National Forest Land and Resource Management Plan (Forest Plan) began in 1987. Since then, we have worked towards meeting the goals and objectives stated in the Forest Plan. Each year we monitor and evaluate how well we are meeting these goals and objectives. This report presents the results of our monitoring and evaluation in Fiscal Year 2003 (October 1, 2002-September 30, 2003), hereafter referred to as FY03.

The Forest Plan described the state of the Green Mountain National Forest (GMNF) in 1987 as well as the ideal state, which the Forest Service and interested publics envisioned for the Forest's "desired future condition". The Forest Plan allocated land to different kinds of management and provided direction in the application of management practices.

Coordination of management projects to bring about the desired future conditions stated in the Forest Plan is a complex task. We want to ensure that the highest priority projects are located in the most suitable areas, and that management of all resources in a particular area is integrated to improve efficiency and reduce impacts on the natural and the social environment.

Forest Plan monitoring is required under the National Environmental Policy Act (NEPA) and the National Forest Management Act (NFMA). Monitoring is done to accomplish the following objectives:

1) To determine how well the stated goals and objectives of the Forest Plan have been met;

2) To determine how closely Management Standards and Guidelines in Chapter IV of the Plan has been followed;

3) To determine if conditions or demands in the area covered by the Forest Plan have changed significantly enough to require a revision to the Plan;

4) To determine if budgets have significantly altered the long-term relationships between levels of multiple-use goals and services enough to create the need for a significant amendment.

A monitoring plan was developed in 1987 as part of the Forest Plan to meet these objectives and is described in a booklet entitled, **Forest Plan Monitoring Program for the Green Mountain and Finger Lakes National Forests.** This program describes what, when and how items will be monitored. The 2003 Forest Plan Monitoring and Evaluation Report implements this monitoring program, documenting the results of 2003 monitoring. It also includes the rationale for any proposed amendments to the Forest Plan as well as the need for future changes in our monitoring efforts.

The monitoring and evaluation report preparation is accomplished through an interdisciplinary process involving Forest Service resource specialists and participation from partners. In addition, private citizens and non-profit organizations have completed some of the monitoring. We are grateful to these people for their efforts and interest in actively participating in the management of the Green Mountain National Forest.

This report is divided into three sections. **Section I** sets forth monitoring items that are required by NFMA. **Section II** presents the results of the monitoring required by our monitoring program, including recommendations for amending that program, as well as a follow-up to last year's Monitoring & Evaluation Report. **Section III** discusses some of the activities in which we were engaged and some of the progress we made in FY03. Also included in this report is a table containing data gleaned from our monitoring program, and appendices demonstrating our FY03 payments to towns and counties and the special status wildlife and plant species found on the GMNF.

All of the activities and outputs we monitor may be traced to one of three sources; those required by NFMA's implementing regulations (36 CFR 219 (1982)), which outline specific activities and outputs to be monitored, those described in the Forest Plan (Chapter V and Appendix C) and selected to facilitate comparison between actual conditions and the desired future condition, and finally, those derived from public comments. These latter are particularly useful for monitoring public satisfaction with the resources and services the GMNF provides.

This monitoring information makes it possible for Forest Service staff to determine how well the Forest Plan is being implemented and whether land management objectives are being met. If monitoring results indicate a significant difference between conditions <u>expected</u> by the Forest Plan and the <u>actual</u> conditions, we may recommend changes in how we perform our work, changes in the funding of activities necessary to meet Plan objectives, or changes to the Plan itself.

Table 1: Outputs from Annual Program of Work

Activity	Unit Of Measure	Forest Plan Average Annual Projected	FY 2003 Actual Output	Percent of Annual Projected Output Achieved	Average Output (1987-2003)
Resource Protection					
Heritage Resource Protection					
Inventory	Acres	2370	3483	147	5480
New Sites Found	Sites	None Set	18	N/A	27
Evaluated	Sites	None Set	2	N/A	3
Protected	% Sites	None Set	100%	N/A	99%
Monitored	Sites	None Set	35	N/A	N/A
Threatened, Endangered and Sensitive Species					
Inventory of Potential Habitat	Acres	2500	Plants: 1655 Animals: 1928	143	N/A (new monitoring categories)
	New Occurrences Per Year	None Set	Plant: 31 Animals: 0	NA	N/A
Protection of Known Occurrences	# Biological Evaluations Prepared	None Set	30	NA	N/A
	# Populations Protected Thru Project Mitigation	None Set	Plants: 2 occurrences Animals: 3 occurrences (loon, peregrine falcon, and Bicknell's thrush)	NA	N/A
	# Conservation Assessments Completed	1 Species of Group per Year	1	100	N/A
	# Conservation Agreements Signed	None Set	0	NA	N/A
Monitoring Known Occurrences	# Regional Forester Sensitive Species (RFSS) Plant Populations Monitored	1/5 of all occurrences, unless species strategy dictates a different schedule	28	100 28 spp monitored out of 144 total spp - (28/144= 1/5)	N/A
Monitoring Known Occurrences	Peregrine Falcon Habitat and Population	Annual	5 sites monitored; 3 sites protected	NA	N/A
	Bicknell's Thrush Habitat and Population	Annual	15 GMNF mountains surveyed for Bicknell's thrush	NA	N/A

Activity	Unit Of Measure	Forest Plan Average Annual Projected	FY 2003 Actual Output	Percent of Annual Projected Output Achieved	Average Output (1987-2003)
	Common Loon Habitat and Population	Annual	652 acres surveyed for loons	NA	N/A
	Woodland Bat Habitat and Population	Annual	713 acres surveyed for woodland bats	NA	N/A
	Animals of Stream and Pond Habitat	Annual	170 acres surveyed for amphibians	NA	N/A
Special Areas: Plant Protection					
Grout Pond: Sensitive Plants	# Plants/ Plant Condition	None Set	7 species monitored: 1 in good health, 2 not verifiable, 2 records doubtful, 2 new records, 1 of which not verifiable	N/A	N/A
The Cape: Vegetative Quality	Amount of Change	None Set	No monitoring	N/A	N/A
Mount Horrid: Rare Plants	# Plants/ Plant Condition	None Set	No monitoring	N/A	N/A
Robert Frost Trail: Vegetation Quality & Age/Type	Amount of Change	None Set	No monitoring	N/A	N/A
Mt. Abraham: Rare Plants	# Plants/ Plant Condition	None Set	No monitoring	N/A	N/A
High Elevation Ponds: Rare Plants	# Plants/ Plant Condition	None Set	11 ponds monitored: 47 populations in various condition, 13 unverifiable or doubtful older records	N/A	N/A
Rattlesnake Point & Falls of Lana: Rare Plants	# Plants/ Plant Condition	None Set	No monitoring	N/A	N/A
Blue Ridge Mountain Cranberry Bog: Vegetation Quality	Amount of Change	None Set	No monitoring	N/A	N/A
Special Areas: Landscape Management					
Appalachian Trail/ Long Trail	# Vistas	None Set	3 vistas maintained	N/A	N/A

Activity	Unit Of Measure	Forest Plan Average Annual Projected	FY 2003 Actual Output	Percent of Annual Projected Output Achieved	Average Output (1987-2003)
White rocks NRA	Visual Condition On Site	None Set	Rehabilitation needed along FR 10	N/A	N/A
Robert Frost Trail	Amount of change to scenic experience	None Set	Rehabilitation needed	N/A	N/A
Texas Falls	Visual Condition On Site	None Set	Tree root trampling prevention and vegetative rehabilitation on 0.2 acres near falls	N/A	N/A
Mount Horrid	Visual Condition On Site	None Set	Preservation	N/A	N/A
Boundaries					
Maintain	Miles	45	9.2	20.4	20.4
Identify New	Miles	60	2.7	4.5	21.1
Law Enforcement					
Maintain Cooperative Agreements	Dollar amounts	None Set	VT State Police - $8K; Addison Co. Sheriff - $10K; Bennington Co. Sheriff - $8.6K; Rutland Co. Sheriff - $4K	N/A	N/A
Public Use and Enjoyment					
Public Information					
Identification	Signs	1	0	0	3
Interpretation	Sites	2	1	50	2
Demonstration	Sites	2	0	0	1
Recreation Use[2/]					
Wilderness	MRVD[3/]	N/A	57	N/A	N/A
Non-Wilderness	MRVD	N/A	1172	N/A	1318
Trails (totals for entire Forest[4/]**)**					
Maintenance	Miles	633	80	13	581
Construction	Miles	1	0	0	1.6
Rehabilitation	Miles	3.8	4.5	118	18.6
Wilderness Recreation					
Site					
construction	PAOT[5/]	1	0	0	0.34
rehabilitation	PAOT[5/]	2	8	400	0.87
Trail (these outputs are also included in the Forest totals listed above)					
construction	Miles	0.1	0	0	0.40

Activity	Unit Of Measure	Forest Plan Average Annual Projected	FY 2003 Actual Output	Percent of Annual Projected Output Achieved	Average Output (1987-2003)
rehabilitation	Miles	0.3	0	0	1.50
Primitive Recreation					
Site					
construction	PAOT[5/]	0.5	Data is not collected in this format. See Section 2, Recommended Modifications to the Forest Plan M&E Program for more information.		
rehabilitation	PAOT[5/]	21			
Trail					
construction	Miles	0.1	Data is not collected by ROS class and is included in Forest totals listed above.		
rehabilitation	Miles	0.3			
Semi-Primitive Recreation					
Site					
construction	PAOT[5/]	2.5	Data is not collected in this format. See Section 2, Recommended Modifications to the Forest Plan M&E Program for more information.		
rehabilitation	PAOT[5/]	22.5			
Trail					
construction	Miles	0.5	Data is not collected by ROS class and is included in Forest totals listed above.		
rehabilitation	Miles	2.5			
Roaded Natural Recreation					
Site					
construction	PAOT[5/]	0	Data is not collected in this format. See Section 2, Recommended Modifications to the Forest Plan M&E Program for more information.		
rehabilitation	PAOT[5/]	25			
Trail					
construction	Miles	0.3	Data is not collected by ROS class and is included in Forest totals listed above.		
rehabilitation	Miles	0.7			
Roadside Camping and Day Use					
Maintenance	Areas	2	Data is not collected in this format. See Section 2, Recommended Modifications to the Forest Plan M&E Program for more information.		
Improvements	Variable	1			
Access					
Rights-of-way	Number	4	0	0	6.0
New Parking Areas					
Summer only	Spaces	6	0	0	10
Winter/All seasons	Spaces	15	0	0	18
Local Roads					
Maintain	Miles	287	123	43%	152
Restore	Miles	1.6	0	0	3.28
Reconstruct	Miles	0.6	0	0	0.37
Construct	Miles	0.5	0	0	0.32
Arterial and Collector Roads					
Maintain	Miles	25	57	228%	57.59
Vegetative Management					
Hardwood Management					
Selection cuts	Acres	470	115	24	324.3
Shelterwood regeneration	Acres	950	0	0	161.5
Shelterwood removal	Acres	320	0	0	137.6
Clearcut	Acres	100	0	0	75
Thin	Acres	885	0	0	327.5

Activity	Unit Of Measure	Forest Plan Average Annual Projected	FY 2003 Actual Output	Percent of Annual Projected Output Achieved	Average Output (1987-2003)
Stand improvement	Acres	265	0	0	71.6
Softwood Management					
Shelterwood	Acres	None Set	0	N/A	N/A
Selection cuts	Acres	260	0	0	72.8
Clearcut	Acres	35	0	0	28
Thin	Acres	100	0	0	17
Stand Improvement	Acres	70	0	0	23.8
Plant	Acres	35	0	0	11.6
Conversion to Softwood					
Release	Acres	170	99	58	134.3
Plant	Acres	50	0	0	39.5
Clearcut Hardwood	Acres	90	0	0	27
Aspen Management					
Clearcut	Acres	110	0	0	14.3
Conversion to Aspen					
Clearcut hardwoods	Acres	60	0	0	14.4
Release	Acres	110	0	0	12.1
Total Vegetative Treatments					
Selection cuts	Acres	730	115	15.8	369.3
Shelterwood regeneration	Acres	950	0	0	157.8
Shelterwood removal	Acres	320	0	0	120.3
Clearcut	Acres	395	0	0	116.7
Thin	Acres	985	0	0	312.5
Stand improvement	Acres	335	0	0	92.2
Release	Acres	280	99	35%	132.6
Plant	Acres	85	0	0	60.7
Total Wood Cut					
Hardwood sawtimber	MMBF[6/]	7.1	0.1	1%	2.6
Hardwood roundwood	MMBF	8.1	0.1	1%	3
Hardwood subtotal	MMBF	15.2	0.2	1%	5.5
Softwood sawtimber	MMBF	0.3	0.1	33%	0.87
Softwood roundwood	MMBF	0.1	0	0%	0.35
Softwood subtotal	MMBF	0.4	0.1	25%	1.26
Combined sawtimber	MMBF	7.4	0.2	3%	3.33
Combined roundwood	MMBF	8.2	0.1	1%	3.03
Combined total	MMBF	15.6	0.3	2%	6.55

Activity	Unit Of Measure	Forest Plan Average Annual Projected	FY 2003 Actual Output	Percent of Annual Projected Output Achieved	Average Output (1987-2003)
Other Objectives					
Land Ownership Adjustment					
Exchange	Acres	None Set	0	N/A	22
Purchase	Acres	None Set	2844	N/A	3644
Donation	Acres	None Set	0	N/A	10
Received	Acres	None Set	0	N/A	93
Wildlife					
Upland Opening Maintenance					
Mow	Acres	200	341	170%	175.9
Burn	Acres	500	350	70%	298.2
Create Upland Openings					
Clearcut hardwoods	Acres	40	0	0	25.1
Habitat Maintenance					
Burn marshes	Acres	25	0	0	54.2
Habitat Improvements					
Improvements not previously listed	Acres	45	117	260%	96.1
Structure Maintenance					
Wood duck boxes	Structures	50	5	10%	38.2
Fisheries					
Atlantic Salmon					
Habitat Monitored	Stream miles	None Set	18	N/A	39
Population Monitored	Fish/mile	None Set	643	N/A	671
Reintroduction	Acres	160	180	125%	175
Anadromous Fish[7/]					
Inventory	Miles	30	2	7%	7.5
Habitat Improvements	Structures	29	30	103%	50.5
Bank Stabilization	Structures	2	3	150%	4.0
Riparian Vegetation Planting	Acres	1	4	400%	1.4
Resident Fish					
Inventory	Miles	30	8	27	29.5
Habitat Improvement	Structures	34	35	103	36.8
Bank Stabilization	Structures	4	5	125	3.4
Spawning Habitat Improvement	Acres	3	2	67	2.4
Management Indicator Species					
Brook Trout	Miles of Habitat	None set	39	N/A	43
	Fish/Mile	None set	915	N/A	1156

Activity	Unit Of Measure	Forest Plan Average Annual Projected	FY 2003 Actual Output	Percent of Annual Projected Output Achieved	Average Output (1987-2003)
Rainbow Trout	Miles of Habitat	None set	21	N/A	19.3
	Fish/Mile	None set	643	N/A	508

1/ See discussion under Rare Plant monitoring and Protection, Section I.B.3.
2/ Based on *National Visitor Use Monitoring Results, GMFL NF, August 2001*
3/ Thousand Recreation Visitor Days (MRVD), a measure of use
4/ The miles of trail construction and rehabilitation is the sum total of trails in Wilderness, primitive, semi-primitive, and roaded natural recreation areas.
5/ People at One Time (PAOT), a measure of capacity
6/ Million Board Feet
7/ Planned outputs for some of these items are not recorded in the Forest Plan. However, our goals and objectives for Brook Trout monitoring are described in the Plan for implementing a 10-year Forest-wide trend monitoring schedule on the GMNF for fisheries and riparian conditions.

National Forest Management Act (NFMA) Requirements:

Compared Planned and Actual Outputs and Services (36 CFR 219.12(k)(1)):

Table I shows the outputs and services mandated by our Forest Plan, the outputs and services that the GMNF provided in FY03, and a six-year average of those outputs and services. Not all items were monitored in FY03; our Forest Plan Monitoring and Evaluation Program does not require annual monitoring of all outputs and services. Some such items are to be monitored "periodically," or "every five years," etc.

Recreation use numbers shown in Table 1 are the same as those reported in Fiscal Year (FY)02. In FY99, the Green Mountain National Forest (GMNF) and the Finger Lakes National Forest (FLNF) became a "sample Forest" in a National Visitor Use Monitoring (NVUM) project that has changed how recreational use is gathered for the U.S. Forest Service (USFS). The new sampling methods were implemented in FY00 and completed in FY01. We have no new information that is more accurate than the statistically valid survey completed for the NVUM. We will continue to use these numbers for Forest-level visitor use until the next sample is completed in FY05.

There were no timber sales awarded in FY03; all harvesting that occurred was on timber sales awarded prior to 1998. Although the markets for GMNF timber are excellent, we are not harvesting the amount of wood called for in the Forest Plan. This is due to a combination of factors such as funding levels, delays in environmental analyses due to some segments of the public opposing commercial timber harvesting in general, and the focus of our resources on revising the Forest Plan. As a result, we are not accomplishing the vegetative composition objectives stated in the Forest Plan.

Determine How Closely Management Standards and Guidelines Have Been Applied (36 CFR 219.12(k)(1)):

Each project undertaken on the GMNF must comply with Forest Plan Standards & Guidelines (S&Gs). On-the-ground monitoring by Forest Service personnel during project implementation ensures compliance. Overall compliance with S&Gs in FY03 was excellent. All Forest Plan S&Gs currently are being reviewed through the Forest Plan revision process. It is expected that some of these S&Gs will be modified, rescinded, or replaced.

Air:

Our Forest Plan air S&Gs require us to assess the effects of proposed large new emission sources on the forest ecosystem in the Lye Brook Wilderness, and to identify present and potential impairment of National Forest resources attributable to air pollution. We met these S&Gs in FY03. Our S&Gs also require us to coordinate with regulatory agencies to seek emissions reductions as needed to protect National Forest resources. This S&G was minimally met; there exists for us the potential to work with regulatory agencies to a much greater degree. We currently are taking actions to help us reach that potential.

Botany:

In keeping with S&Gs for plants on the Regional Forester's Sensitive Species (RFSS) list (Forest Plan, Amendment 9), biological evaluations have been completed for each project in which an RFSS may be affected, and no management activities that potentially would result in loss of species viability on the GMNF or create significant trends toward federal listing under the

Endangered Species Act (ESA) have been implemented. As required by S&Gs, the need for surveys has been identified during opportunity area planning, sites with potential rare plant habitat have been investigated prior to implementing activities, and sites where RFSS are known to occur have been protected by appropriate mitigation measures. During Forest Plan revision, all species of viability concern on the GMNF, including those already on the RFSS list, have undergone species viability evaluations, including literature and expert panel reviews. This process has kept our information on these species current.

Fisheries:

Forest Plan S&Gs regarding fisheries focus on trends in fish populations, and particularly Management Indicator Species (MIS), and the effects of forest management activities and stream restoration projects on fisheries resources. Our FY03 monitoring indicates that the GMNF has complied with the S&Gs regarding fisheries by extensively monitoring fish populations, and by engaging in in-depth environmental analysis of forest management activities and stream restoration projects.

Heritage:

All undertakings on the GMNF included heritage resource review, and significant projects received concurrence from the State Historic Preservation Officer (SHPO). Abenaki tribal representatives were consulted in appropriate cases and kept informed of our plans through the distribution of our Schedule of Proposed Actions, and through personal contacts. All projects were implemented using the GMNF's heritage S&Gs to manage and protect heritage resource sites within or near them.

Land Acquisition:

In FY03, the GMNF grew by 2844 acres. The purchase of this land followed Forest Plan direction and satisfied land acquisition goals.

Recreation:

Forest Plan S&Gs are used extensively when responding to proposals, designing recreation operations and maintenance projects, completing environmental reviews, and during project implementation. These S&Gs have been strictly followed. In some circumstances, we have recognized some confusing language and occasionally conflicting direction in the S&Gs; in these cases we interpreted the S&Gs so as to develop the most complete protection of resources on the ground. This issue will be addressed in the course of Forest Plan revision.

Soils:

Based on our observations, the rate of compliance with soil S&Gs on the GMNF was very high in FY03. Those S&Gs guiding activities in recreation areas, downhill ski areas and on recreation trails were the focus of monitoring for FY03. Typically, we emphasize soil monitoring on timber harvest areas. In FY03, however, very little timber sale monitoring was done because very little timber was harvested.

Special Uses:

All new special uses proposed on the GMNF are subjected to review and implementation of the appropriate S&Gs. All applicable special uses S&GS were followed in FY03.

Vegetation Management:

All vegetation management, including timber harvesting, is subject to the application of Forest Plan S&Gs. Our project planning process ensures that these S&Gs are followed, and our field observations over the course of FY03 indicated that, indeed, S&G compliance was exceptional this fiscal year.

Visual Resources:

We continue to monitor visual quality of the GMNF using visual quality objectives (VQOs) and the S&Gs set forth in the Forest Plan. In FY03, our monitoring emphasized review of the overall appearance of the GMNF and to examine specific visual resource concerns for project planning and implementation.

Water:

Based on field observations, the rate of compliance with S&Gs on the GMNF was moderate to high. Further work on assuring good riparian vegetation continues to be a goal on the GMNF to ensure good water quality on the Forest.

Wild & Scenic, and Recreational Rivers:

The GMNF continues to protect potential and existing wild & scenic and recreational rivers as outlined in the Forest Plan S&Gs. This is done through strict adherence to forest-wide and management area S&Gs during project planning and implementation. Any time a proposed project is undertaken in the relative vicinity of a potential or existing wild & scenic or recreational river, the implementation of the S&Gs is triggered. During FY03, we fully complied with these S&Gs.

Wilderness:

In FY03, we routinely followed Forest Plan S&Gs when planning projects, assessing impacts and analyzing effects on the wilderness resource. As a result of the use of these S&Gs, our projects had no effect on wilderness in FY03.

Wildlife:

Forest Plan S&G design focuses on conservation, and enhancement of habitat and important occurrences of selected species (e.g., heron rookeries, osprey nesting platforms). Efforts to expand citizenry awareness and ownership of these measures and programs has broadened the application of this guidance. For example, our trail and conservation community has taken on greater monitoring and citizen policing of area closures to encourage successful falcon nesting at both Mt. Horrid and Rattlesnake Point cliff sites. In short, with the help of user groups and interested individuals, we achieved compliance with Forest Plan wildlife S&Gs in FY03.

Document Prescriptions and Effects (36 CFR 219.12(k)(2)):

Fisheries:

The GMNF stocked approximately 577,000 salmon fry in 18 streams in May 2003. Population surveys to monitor salmon growth and survival were conducted in August and September. Overall juvenile salmon abundance in GMNF streams decreased slightly from 511 salmon per mile in 2002 to 489 per mile in 2003. Also, our biologists estimate that about 19,200 salmon smolts (versus 16,500 in 2002) emigrated from GMNF streams to the Atlantic Ocean during spring 2003 to begin the adult phase of their life cycle.

In FY2003, we monitored the results of the Mad Tom Brook restoration project. That project, implemented in 2002, entailed the placement of large woody debris (LWD) in the stream channel in order to increase pool habitat, spawning habitat, and in-stream cover. Using the Reference Reach Method, we determined that the project resulted in substantial brook trout habitat improvements. The number of pools within the project area increased from three prior to implementation to seven after the project was implemented. Cover habitat was improved because of the additional amount of LWD in the stream and because of the increased water depth resulting from the formation of new pools. The amount of spawning habitat increased by about 20 percent as a result of the restoration of LWD dynamics and associated stream ecosystem functions.

Vegetation Management:

See Table 1 and subsequent sections.

We expected to accomplish our Forest Plan vegetative composition objectives through commercial timber sales. The majority of changes to the age class distribution of the forest were to occur over time from shelterwood cuts (projected as 950 acres annually during 1987-96). Since we were able to harvest only about 1/5 of the acres of the shelterwood cuts we projected (17-year annual average is 165 acres, or 17%), we have not accomplished vegetative composition objectives. In addition, species composition goals involving forest type conversions to softwood and aspen were not met. Evenaged harvests to this type have become more controversial and have been more difficult to apply on the ground given other resource considerations and standards and guidelines that are restrictive to timber harvests.

For more discussion of projects on the GMNF, see Section III, “We’ve Been Busy!”

Compare Costs Estimated in Plan with Actual Costs (36 CFR 219.12(k)(3)):

Vegetation Management:

In the past, we have monitored the costs and benefits of timber harvest activities through the Timber Sale Program Information Reporting System (TSPIRS). The report was initiated in 1987 and reports were prepared until 1999. In 1998, while national forests submitted data for the National TSPIRS Report, the national report was not released by the Secretary of Agriculture. In FY01, the Secretary of Agriculture gave permission to release the national 1998 TSPIRS data. The GMNF data showed that timber sales program for 1998 was above cost with a net gain of $166,372. In 1999, 2000, and 2001, there was no direction to prepare a TSPIRS Report by the Washington Office. The National TSPIRS Report was developed at a time when the program’s focus was on producing commercially valuable timber to meet the nation’s demand for wood.

Today, the timber program's emphasis is using timber harvest and timber sales as cost-effective tools for improving resource conditions on the land and consequently the primary interest is on outcomes as opposed to outputs. The Forest Service implemented a new accounting system that tracks all resource areas and TSPIRS will be replaced with another report; at that time, comparing estimated and actual costs will be possible.

Determine if Lands are Adequately Restocked (36 CFR 219.12(k)(5)):

The law requires that stands be adequately stocked within five years following regeneration. Stands are surveyed after three growing seasons after regeneration harvests for natural regeneration and after five years for areas planted. In 2003, surveys were not conducted due to budget constraints. Reforestation and other associated funds were re-directed for emergency firefighting in the western United States.

Be Sure Harvest Areas Don't Exceed Maximum in Each Prescription (36 CFR 219.12 (k)(5)):

Our field monitoring and timber harvest oversight ensured that harvest area limitations set forth in project descriptions and associated documents were not exceeded. Placing Forest Service personnel in the field during the course of timber harvests was instrumental in maintaining project acreage limits.

Reevaluate the Suitability of Lands Identified as Unsuitable for Timber Production (36 CFR 219.12(k)(5)):

Under NFMA, we are required to perform this reevaluation every ten years. We did not schedule the reevaluation for FY03. The current Forest Plan revision process is, in part, focused on this reevaluation.

Determine the Extent and Severity of Insect and Disease Occurrence (36 CFR 219.12(k)(5)):

Forest Health Protection personnel conducted an aerial survey last summer. No problems were found. On-the-ground assessments were conducted on an informal basis, and pockets of insect infestation and disease were identified. One particularly severe infestation was found in the Patterson Brook deer wintering area in Granville, resulting in the formulation of the Patterson Brook Sanitation Harvest project, which currently is undergoing National Environmental Policy Act (NEPA) analysis.

In order to maintain our vigilance against insects and disease, we must continue annual monitoring of forest health conditions in cooperation with USFS, Forest Health Protection staff from Durham, NH. We also must coordinate statewide forest health monitoring with the Vermont Department of Forests, Parks and Recreation.

Determine Population Trends of Indicator Species to Estimate Viability (36 CFR 219.19(a)(6)):

We began monitoring indicator species in 1987. Collection of population data has been facilitated through the efforts of the University of Vermont, the Vermont Department of Fish and Wildlife, and numerous volunteers. While we have been unable to consistently collect annual population data as described in the Forest Plan (Appendix C) due to low funding levels, we have collected some information about each of the 14 Management Indicator Species (MIS). In FY2001 we compiled MIS survey data and assessed detectable trends; data collected since then has not changed that assessment. Our assessment reported that blackpoll warblers, peregrine falcons and beaver show a growth trend and that our averaged-sized brook trout is getting bigger; American woodcock and white-tailed deer have shown a decline; all other MIS have no discernable trend. Monitoring of these MIS will continue into the future. See Section II, "Follow-up on FY02 M&E Report" for additional information about our MIS monitoring program.

With regard to plant species, we continued to monitor the presence and condition of rare plants at two Special Areas. Due to limited funding for these monitoring activities, it may be a few years before all Special Areas are monitored for the presence of MIS. A strategy for such monitoring currently is being formulated in the course of Forest Plan revision.

For fish MIS, see Section III, "We've Been Busy!"

Determine Effects of Adjacent Public Land Management on the GMNF, and of GMNF on Adjacent Land for Better Coordination (36 CFR 219.7(f)):

Air:

Landowners adjacent to the NF rarely comment on air quality issues. However, in 2003 a small number of people in Vermont and New England expressed concern about the effects of acid deposition on the forest. We share this concern, and have historically supported several monitoring and research projects to characterize acid deposition effects.

Botany:

Currently, no botanical projects involve adjacent landowners. However, a floodplain restoration project on GMNF land that includes controlling Japanese knotweed, a non-native invasive species (NNIS), is expected to expand onto private land in the near future, where landowners are interested. The Forest Service is working with the White River Partnership and the National Wildlife Federation on this project.

Fisheries:

Several partners and volunteers such as the White River Partnership and the Batten Kill Watershed Alliance contributed to accomplishing our monitoring goals and our project implementation in FY03. Our volunteers assisted with such tasks as stream restoration, MIS population monitoring, riparian planting, and stocking.

Heritage:

Because the lands that now constitute the Green Mountain National Forest are also a core area of the traditional Western Abenaki homeland, we maintain a working relationship with the present Missisquoi Band of the Abenaki Nation. This relationship helps us to better understand the native culture of the GMNF, and to plan and implement our management activities in a way that pays due respect to the region's cultural heritage.

We also benefit from our partnership with the non-profit educational Hayes Foundation which underwrites scholarships for deserving students enrolled in our Relics & Ruins camp.

Volunteers are a boon, especially in identifying and researching interesting Heritage sites on the Forest. Victor Rolando and William Powers were particularly active again in 2003.

Land Acquisition:

The land acquisition policy on this forest is to secure support from town selectboards when a parcel of land within their township is offered for sale to the U.S. These public meetings provide the opportunity for adjacent landowners, as well as other interested parties, to discuss the potential sale. The Trust For Public Land has assisted private landowners in this process and assumes a third party role to expedite the transfer.

Law Enforcement:

Cooperative Law Enforcement agreements were administered between the GMNF and four state and local police forces. These forces, and the value of the agreements, are: Vermont State Police ($8000); Addison County Sheriff ($10,000); Bennington County Sheriff ($8600); and Rutland County Sheriff ($4,000).

Recreation:

A significant portion of our program of work is completed in cooperation with various key partnerships. This is especially true in the area of trail management where a large amount of work is completed by the Green Mountain Club, the Appalachian Trail Conference, the Dartmouth Outing Club, the Vermont Association of Snow Traveler, the Catamount Trail Association and others. With restricted budgets, we could not continue to operate our current trail system without the additional assistance of these partners.

Expanding partnerships with the Moosalamoo Association and the Vermont Youth Conservation Corps were strengthened in FY03. This is providing increased assistance in the area of recreation operations and maintenance, as well as trails. All of these partnerships are expected to expand operations on the forest in future years.

Soils:

Landowners adjacent to the NF rarely comment on the management of the soil resources. However, in 2003 a small number of people in Vermont specifically and New England in general expressed concerns about the effects of acid deposition and/or timber harvesting on level of soil nutrients. We are continuing to address these concerns through research, and through the implementation and monitoring of Forest Plan S&Gs. See "Determine Research Needs and Opportunities," below.

Special Uses:

Special Use Permits authorize use of National Forest System lands for a variety of uses. Recreation Special Use Permits can be for the benefit of neighboring landowners and the surrounding communities, but more commonly they are for the benefit of a larger, more general, public. Non-recreation Permits for such things as roads to private land, water systems, and other utilities are for the benefit of adjoining landowners and their communities. The partnership with the Green Mountain Club extends to the arena of Special Use Permits. They are required to have one to manage the Long Trail shelters.

Vegetation Management:

Significant progress has been made with improving relationships with the Vermont Forest Products Industry. The Forest Silviculturist has been an active member of the Vermont Forest Products Association (VFPA). He has been able to attend many of the monthly meetings and address issues directly with the members. In FY02, Forest Supervisor Paul Brewster attended the VFPA annual meeting and made a special presentation concerning GMNF issues. In addition, he has attended several Associated Industries meetings.

Wilderness:

Key trail partners, such as the Green Mountain Club and the Appalachian Trail Conference assist in dealing with wilderness issues as they relate to the Appalachian and Long Trails. The Student Conservation Association has been a key partner in providing seasonal assistance for field personnel. An example of a key project completed by trail partners in wilderness is the replacement by the Green Mountain Club of the Lost Pond Shelter, which had been destroyed by fire in 2001.

Wildlife:

As managers of approximately 5% of Vermont's land base, we cooperate extensively with Vermont's Department of Fish & Wildlife (the agency responsible for management of animal populations in Vermont). Our management of GMNF's habitats provide homes for Vermont's south-central animal populations. In addition to work in deer wintering areas and protection of rare occurrences, the GMNF also participates in Vermont's annual Working for Wildlife program and see that secure areas for our more reclusive species (e.g., black bear) are maintained.

Other important habitat conservation partners include the Ruffed Grouse Society, Orvis Corporation, Moosalamoo Association and The Federation of Vermont's Sportsmen.

Determine Research Needs and Opportunities (36 CFR 219.28):

Air:

A compelling research need is to better understand the effects of acid deposition on the forest ecosystem. FS Research and several other entities in the northeast are working to address this complex research question. Currently, three studies that address acid deposition are ongoing – one regarding acid deposition in general, one dealing with atmospheric nitrogen deposition, and one addressing mercury deposition. These studies are occurring at the Hubbard Brook Experimental Forest in New Hampshire, and near the Lye Brook Wilderness on the GMNF.

Botany:

Opportunities exist to develop native seed mixes for use in projects that involve erosion control or habitat restoration; currently, native mixes are hard to find. Further, research regarding means of combating non-native invasive species is ongoing. This is of particular importance given the fact that these species are presenting a serious problem to endemic plant and animal species on the GMNF.

Heritage:

An on-going interest in a cluster of (potentially) hundreds of dry-laid stone cairns in the West Hill area of Rochester has resulted in field trips and research initiatives. The Abenaki, New England Antiquities Research Association, staff from the Smithsonian Institution, and professional archaeologists in the state have all taken an interest. Stay tuned!

Recreation:

As we work to revise the forest plan, we are examining research needs and exploring possible means to complete the work. Unfortunately, there are limited funds available for completion of this work, so opportunities for real data gathering are continue to be very restricted.

Soils:

The most compelling soil resource research need is to better understand the effects of acid deposition on soil components and processes. FS Research at Hubbard Brook has been a leader in this area of study for several decades, and the general principles learned often have direct application to management of the GMNF. In 2003, the GMNF supported research and monitoring efforts (in time, funding, or providing research sites) on the effects of acid deposition on soils lead by the following cooperators: The University of Vermont (UVM), Syracuse University, the Vermont Monitoring Cooperative (VMC), the Environmental Protection Agency (EPA), and FS Research.

An emphasis area for monitoring and research in 2002 and 2003 was the effects of atmospheric nitrogen deposition on the soil and water near Lye Brook Wilderness. While limited to the Lye Brook area, this project may have implications for a much larger area of the GMNF. This project was lead by FS Research and UVM, and the cooperators are the US. Geological Service and GMNF. Nitrogen cycling in soil and water is a complex process, but preliminary data from this project shows that movement of excess nitrogen in the ecosystem via stream water may *not* be a concern, as previously suspected. This would be good news. Monitoring and research on this topic in Lye Brook Wilderness began in the mid-1990s by FS Research, and several scientific papers have been published. Data collected in 2003 will become part of a scientific paper within a few years, thus adding to the body of knowledge on the effects of acid deposition on soils. This work continues in 2004.

Another important acid deposition-related issue is mercury deposition. Continued research on mercury deposition and its effect on the forest ecosystem is needed. In 2003 the State of Vermont - Department of Environmental Conservation (DEC) completed a study on the historical deposition of mercury in sediments of four ponds in the vicinity of Lye Brook Wilderness. Two of the lakes (Bourn and Grout Ponds) showed generally linear increases in mercury over time. The other lakes (Branch and Stratton Ponds) showed significant declines in mercury

accumulation in recent time periods. Full study results are available from the DEC. The GMNF was a key sponsor of this study.

Special Uses:

Special Use Permits are issued occasionally to authorize research projects on National Forest system land. This will continue into the future.

Water:

The most compelling water resource research need is to better understand the effects of acid deposition on water quality and aquatic habitat. FS Research and the State of Vermont continue to be leaders in this area of study.

A study to quantify the amount of sediment transported in Stetson Brook in Warren by Norwich University will be implemented in FY05. This study will help in evaluating the impact of sediment on aquatic habitat in Stetson Brook.

Wild & Scenic, and Recreational Rivers:

At this point there are no specific research needs identified for wild and scenic rivers. This should be reassessed when final decisions are made for the forest plan.

Wilderness:

There are a number of needs for wilderness, but limited funding continues to restrict our ability to obtain the necessary research. Specific examples of needs are:

- Better methods for calculating visitor use/impacts
- Simplified methods for monitoring campsite and trail impact changes

Wildlife:

In FY 2002 the GMNF cooperated with the US Fish & Wildlife Service's (FWS's) Cooperative Unit at the University of Vermont to continue a study designed to determine stress levels, in selected wildlife species, that may be associated with differing types, and degrees, of human use and occupancy of our wild lands. Plans are to continue collecting data through our current FY 2003.

GMNF staff continues to participate in woodland bat survey and monitoring; efforts designed to better understand how, and where, all of our woodland bats, and the federally endangered Indiana bat in particular, use the Vermont landscape. This is a cooperative effort involving the FWS, Vermont's Department of Fish & Wildlife, New York's Department of Environmental Conservation, and numerous local volunteers.

Determine Whether Public Demands Have Changed Significantly (36 CFR 219.10(g)):

Air:

We have not identified any changes in public demands, or our ability to meet public demands in regards to air resource management. Public concern is growing over the effects of acid deposition on the forest ecosystem. FS Research and several other entities in the northeast are working to address this research question. A large body of research already exists on these topic, but many more years of work is needed before all the key questions on the effects of acid deposition are answered. We share public concerns regarding acid deposition effect. We also acknowledge that a large amount of uncertainty exists over the magnitude of impacts related to forest health.

Botany:

No changes have been identified.

Fisheries:

No changes have been identified.

Heritage:

No changes have been identified.

Land Acquisition:

There is a concern expressed by the public on the amount of time it takes the forest to designate Management Areas on newly acquired lands. This issue is being addressed with the current plan revision process.

Minerals:

No changes have been identified.

Recreation:

Over the last two years, the forest has conducted extensive public involvement for the revision of the forest plan. While a significant amount of information has been received, there has been little new information that identifies any major changes in demands or trends. Much of the information has only validated previous assumptions. A recreation trends analysis is being completed for the revision that is also examining this issue. Preliminary analysis shows that the trend information is also consistent in that there is no startling new information.

Soils:

We have not identified any changes in public demands, or our ability to meet public demands in regards to soil resource management. Public concern is increasing, however, over the effects of acid deposition and harvesting on soil nutrient levels. There is a large amount body of research

on these topics. These issues have been, and continue to be addressed by FS Research. Many more years of study are needed before all the key questions related to the effects of acid deposition are answered. In general, based on the most current scientific information, we do not share public concerns that harvesting on the GMNF significantly depletes soil nutrients. We do share public concerns regarding the loss of soil nutrients due to acid deposition, but we acknowledge that much uncertainty exists over the actual existence and magnitude of soil nutrient losses. This issue is being addressed in detail in a special report being done to support revision of the Forest Plan. The report will be available to the public by the fall of 2004.

Special Uses:

The public continues to expect much more timely service on their Special Use Permit applications. We are doing and will continue to do our best to expedite these processes within the confines of our documentation and NEPA requirements.

Vegetation Management:

No changes have been identified. The public continues to expect a variety of resources from the GMNF, including firewood and sawtimber.

Visual Resources:

The issue of wind turbines on National Forest lands came up this year with a preliminary proposal for a special use permit for the expansion, onto forest service land, of an existing private land turbine site in the southern part of the Forest. Wind energy development is an emerging issue. Visual effects of wind turbines on the Green Mountain National Forest will be an issue as the project moves forward in FY04 and FY05.

Water:

No changes have been identified.

Wild & Scenic, and Recreational Rivers:

No changes have been identified.

Wilderness:

The most recent issues are related to wilderness planning as it relates to the forest plan revision and the wilderness evaluation.

- Evidence of increased use (“herd paths) of some areas without trails – with the availability of Global Positioning System (GPS) technology and cell phones, more people are leaving trails.
- Increasing popularity of geocaching.
- Wilderness evaluation and the Vermont Wilderness Association (VWA) wilderness recommendation has heightened public awareness and polarity over Wilderness issues and value.

Wildlife:

The GMNF's wildlife program is being asked to address our local, state and regional conservation issues; prioritization of all these concerns is a lengthy and energy consuming process. Efforts to address this demand in FY03 were heavily focused on the Forest Plan revision process. We plan to address management options in a draft Forest Plan revision, due out in late FY04.

Determine Whether Land Conditions or Our Ability to Meet Public Demands Have Changed Significantly (36 CFR 219.10(g)):

No such changes with regard to any resource area have been identified.

Forest Plan Monitoring Program Requirements

In addition to the monitoring and evaluation requirements set forth in NFMA, the GMNF Forest Plan Monitoring and Evaluation Program sets forth additional monitoring items. Some of these were established in order to address issues that our experience has shown to be important on this Forest, while others were established in response to specific concerns of the public.

Recreation:

Describe your monitoring of All Terrain Vehicle (ATV) or Off-road Vehicle (ORV) use on the Forest:

Except for snowmobiles, we continue to provide limited opportunities for ATV or ORV use. We are still receiving concerns from individuals and groups about "illegal" OHV use. Many of these concerns cited specific violations, but a number came as a response to comments for the Forest Plan Revision. Despite funding limitations and the press of other priorities, we did make some progress on the issue, but more needs to be done. We continue to improve internal processes for approval of legitimate ATV use by partners, camp owners and other people with a legitimate need for motorized access. This has helped to differentiate what portion of the overall use is illegal. Despite limited funding and staffing, law enforcement patrols were increased in specific areas, which resulted in a number of violation notices being issued. It is recognized that much more work will be needed. We continue to pursue additional funding and staffing to help address this issue.

In FY03, we also significantly increased emphasis on the monitoring of commercial snowmobile outfitter-guide permits. Concerns have been raised that these operations are impacting the trail resource by affecting maintenance costs and impacting the recreation experience of individual riders. Results to date are still being analyzed, but this monitoring effort will be continued into future years.

Vegetation Management:

Determine Whether Actual harvest Per Acre Matched Projections in Plan:

Due to the fact that very little timber was harvested, this item was not formally monitored in FY03. Average output per acre over the life of the Forest Plan will therefore remain much lower than Plan projections.

Determine Whether Actual Value of Timber Matches Projections in Plan:

The value of the timber harvested on GMNF lands in FY03 varied, but without exception greatly exceeded Forest Plan projections.

Determine the Effects of Delayed Shelterwood Cuts:

Monitoring the effects of delayed shelterwood cuts enables us to determine if the aesthetic benefits can be attained while maintaining a relatively healthy stand. We agreed to monitor this item in the Forest Plan appeal settlement agreement with the Forest Products Industry. Monitoring was to be done every two years beginning in 1990.

Accordingly, an administrative study was established in 1990 on two sites on the Green Mountain NF. The areas established were a Campground on the Rochester Ranger District and French Hollow on the Manchester Ranger District. Measurements of these sites occurred in 1992, 1994 and 1998. The measurements were not conducted in 2000 or 2002 due to the press of other priorities. The measurements were not conducted in 2003, as it is an off year under the monitoring agreement. We anticipate monitoring this issue in 2004.

Determine if Fuelwood Cutting Becomes an Issue Again:

There were 76 fuelwood permits issued on the Forest in 2003. Given the price of home heating fuels, demand for permits has been relatively constant over the last eleven years. In the past, we prepared separate, color-coded fuelwood lots of various sizes for sale. We are now finding that the demand for fuelwood is being met by the private sector. Most homeowners are buying fuelwood from dealers rather than cutting their own from the Forest. Most of the remaining fuelwood cutters are satisfied with permits that direct them to dead and down wood along roadsides or other areas.

There is concern that increased home heating fuels could rise in price tremendously this winter. The public may demand that more fuelwood permits be made available from the Forest. We will continue to monitor the demand for fuelwood.

Assess Benefits and Costs of Land Acquisition:

It is nearly impossible to determine costs/benefits of land acquisition because of subjective values associated with such items as recreation experience, wildlife habitat, and scenery. For recommended modifications to this monitoring item, see Section II, "Recommended Modifications to the Forest Plan Monitoring & Evaluation (M&E) Program."

Assess the Effects of GMNF Land Acquisitions on the Timber Industry:

The concern of the timber industry is that the comparable market system of land valuation has contributed to over-valuation of forested land. The United States is required to follow the Uniform Appraisal Standards for Federal Land Acquisitions. When the forest service acquires land, these standards must be observed. When employed correctly, the direct sales comparison approach results in reasonable estimates of market value. All appraisal reports used to estimate market value are reviewed by a qualified review appraiser to ensure the methods are reasonable and correctly applied. A number of landowners have rejected our appraised values as being too low. The 2,844 acres acquired in 2003 were purchased at an average of $406 per acre. This issue is being looked at during the current revision process for the Forest Plan.

Determine if Maximum Harvest Area Size Should Be Continued:

In management areas where timber harvest is permitted, the Forest Plan states the maximum size harvest cut in Management Area 3.1 is 30 acres, and less than 20 acres in Management Areas 4.2 and 6.2. All harvest areas planned since the Forest Plan was approved have been in compliance. However, the de facto upper size limit currently applied is 50% -60% less than that stated in the Forest Plan. Where regeneration harvest has been applied, harvest unit size rarely reaches the Forest Plan's upper limits.

Determine Effects of Longer (up to 150 years) Timber Sale Rotations:

Longer stand rotations are being prescribed on the Forest. It once was believed that an administrative study could be established quickly to effectively monitor the effects of longer rotations. After consultation with the Northeastern Forest Experimental Station (NEFES), however, it was determined that it is not possible to construct and implement a study to answer these questions in the short term. The Forest Inventory and Analysis (FIA) Unit of the NEFES, is responsible to for conducting periodic inventories in 14 Northeastern states, including Vermont. The last statewide inventory was conducted in 1997 in Vermont. There are about 900 permanent plots in Vermont that are measured every 10-15 years for Forest Survey. There are 113 plots located on the Green Mountain National Forest. The FIA Unit has reviewed the 1997 plot data and did not observe any "general statewide" forest decline problems in Vermont. They had observed forest decline problems on the Allegheny National Forest in Pennsylvania. It is unclear at this time the contributing factors to forest decline on the Allegheny National Forest. They do not feel that the GMNF is at risk for forest decline problems.

Determine the Accuracy of Site Index Records:

Site index information is collected during silvicultural examination. In FY03, approximately 3,000 acres on newly acquired lands were subjected to silvicultural examination by a Forest Service crew. One element of the examination was to verify the existing site index information on the acres that were examined.

Assess the Market for Low Value Hardwood Roundwood:

The markets for hardwood roundwood have not improved significantly since 1986. Southwestern Vermont has very poor markets for small hardwood roundwood and has an abundance of low quality hardwoods. A feasibility study was initiated in 1992 to install a wood-gas turbine in Bennington County to generate electricity. The turbine was installed at the McNeil Generating Plant in Burlington, Vermont in 1994. The turbine has been tested and refinements have been made. If electricity rates rise, the facility in Bennington may become more attractive to investors.

Assess Visual Condition of Harvested Acres:

Monitoring emphasis in FY03 was to review the overall appearance of the Forest and to examine specific visual resource concerns for project planning and implementation. The overall appearance of the Forest met the VQOs. No negative comments were received from the public on the visual quality of the Forest in FY03.

Determine Whether Costs and Values for Unevenaged Management Match the Project:

In general, values, in terms of stumpage prices, have increased tremendously over the past several years with the exception of hardwood roundwood, and have greatly exceeded expected values. Unevenaged management project costs were only slightly greater than expected.

Gauge Public Reaction to Unevenaged Management:

This item has not been formally monitored. Forest Plan revision public meetings have shown the existence of a broad range of public opinion regarding unevenaged management, and, generally, any vegetative management. Some feel that unevenaged management should be the only

vegetative management tool used on the GMNF, others advocate clearcutting so as to produce more early successional habitat, and still others are opposed to all harvesting on National Forests.

Wildlife Habitats:

Determine Acres by Vegetative Age Class:

The purpose of this determination is to facilitate an evaluation of how well the vegetative composition objectives set forth in the Forest Plan are being met. Our monitoring has shown that these objectives are not being met and must be addressed during Forest Plan revision. This indicates a need to engage in more assertive vegetative management so as to achieve the age class and species composition directives set forth in the Forest Plan.

Assess Whether the Openings Maintenance Program is Meeting Objectives:

Our opening maintenance program relies on a combination of "tools" (e.g. prescribed fire, mowing and hand clipping) and adequate funding support. For FY03, this combination resulted in a maintenance level exceeding Forest Plan goals. A quick review of average outputs (shown in Table 1) indicates that our average maintenance accomplishment is approximately 80% of our stated Forest Plan goal. Reflecting on the Forest Plan goal of 3-5% non-forested acreage (on lands where vegetative management is prescribed), we can expect at best to meet the low end of this Forest-wide goal.

With adequate prescribed burning window in the spring of each year, we can usually meet that acreage goal set forth in our Forest Plan; in a year with a short, or poor, burning period we rely on partners, volunteers, and budgetary support to accomplish maintenance through the more expensive methods of mowing and hand clipping.

Wildlife:

Indiana Bat:

Pursuant to a Biological Opinion from the U.S. Fish & Wildlife Service regarding the federally endangered Indiana bat, our Forest Plan now requires that we comply with incidental take requirements by monitoring the number of acres of trees harvested during the Indiana bat non-hibernation season, and the populations in hibernaculum. Because no timber was harvested from the GMNF during the FY03 non-hibernation period, no compliance was necessary.

Under the Forest Plan, we also must assess the number of suitable roost trees and available foraging habitat for the Indiana bat. Accordingly, data collected during the FY03 survey and monitoring effort will be used to describe both roost tree suitability and foraging habitat in Vermont; once suitability and foraging habitat have been described, an assessment of their respective availability can be conducted.

Regional Forester Sensitive Species:

A new monitoring item compels us to determine population trends of Regional Forester Sensitive Species (RFSS) by monitoring populations of peregrine falcon, Bicknell's thrush, common loon, woodland bats, animals of stream and pond habitat, and various plants. In response, we have been working cooperatively with local conservation organizations, and State and Federal

agencies. Together we have gathered population data from the GMNF and vicinity for peregrine falcons, common loons and woodland bats. Distribution data was collected for Bicknell's thrush from the GMNF and northern New England. This data has been integrated with previously collected data, with trend analysis being conducted by our regional partners; these analyses are available through our office, or our respective partners.

We also are directed to determine the status of RFSS and species of viability concern on the GMNF by monitoring the aforementioned species. In response, we completed our species of viability concern analysis in FY03. Monitoring of these species is not high priority, with ongoing efforts being conducted by interested partners.

Special Areas:

Determine if Uncommon and Outstanding Values are Protected:

Our monitoring in FY03 indicated that our adherence to Forest Plan S&Gs and our continued vigilance toward protecting uncommon and outstanding values on the GMNF have been entirely successful. No such values suffered adverse effects in FY03.

Minerals:

Determine How Well Mineral Activities Comply with Stipulations:

Monitoring of the limited minerals activities on the GMNF has shown that all such activities fully complied with stipulations in FY03.

In FY03, the following irreversible commitment was made: approximately 2000 cubic yards of gravel was removed from a pit on the Middlebury District. One Town used the gravel for road maintenance and repair.

Determine if Adequate Exploration Base is Maintained to Assure Most Major Mineral Deposits can be Discovered:

An adequate exploration base currently is not being maintained, possibly because mineral exploration has not been a primary focus on the GMNF.

Recommended Modifications to the Forest Plan Monitoring & Evaluation (M&E) Program:

Air:

The current Forest Plan M&E Program meets regulatory needs and FS Manual direction. We are not prepared at this time to say whether the program needs improvement. This question will be investigated in the summer of 2004, as we revise the Forest Plan.

Botany:

No changes are recommended at this time.

Fisheries:

No changes are recommended at this time.

Heritage:

Changes to the monitoring and evaluation program with regard to Heritage resources will be made through the revised Forest Plan. No specific recommendations are made at this time.

Land Acquisition:

Because it is nearly impossible to determine costs/benefits of land acquisition because of its associated subjective values, it would be useful to modify land acquisition monitoring so as to account only for quantifiable values such as acreage of land acquired and money spent on acquisition.

Minerals:

No changes are recommended at this time.

Recreation:

A number of recommended modifications were mentioned in earlier monitoring reports but are repeated here to provide a comprehensive list that can be used during and after Forest Plan revision. It is recommended these be carried forward until issues are resolved in the plan revision effort.

- **Recreation Use -** Reporting for the Forest Plan and Monitoring Plan should be reviewed and amended in conjunction with the development of revised national systems. The system should be relatively cost effective, easy to use, and consistent with national procedures. More work is needed on this item, but this is still a valid need and should be carried forward.

- **Primitive, Semi-Primitive, and Roaded Natural Recreation; Site Construction and Rehabilitation** – Output tables for recreation facilities in the Forest Plan and Monitoring Plan need to be reviewed and amended. New Forest Service definitions for maintenance and rehabilitation should be used whenever feasible. The practicality of reporting this work by Recreation Opportunity Spectrum (ROS) class needs to be assessed and a different method of reporting partial site rehabilitation needs to be developed**.**

- **Trail Maintenance -**The Forest Service continues to work toward standardization of definitions for maintenance and rehabilitation activities. It would be beneficial and less confusing if outputs in the Forest Plan conformed to those standards. As physical inventory and entry into national databases is completed, outputs for trail maintenance should be updated in the Forest Plan and Monitoring Plan. Outputs that are developed should conform to national standards as they are implemented.

- **Trail Construction, Rehabilitation and Facilities -** As identified in the FY98 M&E report, the projections appear to be very low for a trail system of this size. Current projected outputs were based on historical accomplishments and not the necessary level of activity to maintain the system. Even with perfect maintenance any facility has a

limited life span before it needs to be rehabilitated and brought up to current standards. Failure to complete this work in a timely fashion will lead to eventual temporary closure of the facility. There is also a concern related to terminology and definitions for maintenance, rehabilitation and construction. Outputs and terminology for this item should be updated in conjunction with revision of outputs for trail maintenance.

- **Wilderness Recreation Use -** Develop alternative methods of collecting meaningful use data that can be accomplished with current funding levels. Since collecting precise data on numbers of recreation visitor days (RVDs) is not realistic, data showing trends and changes in use relative to past years may be more practical to collect.

- **Wilderness Site Construction and Rehabilitation -** Output tables need to be reviewed and amended. Changes in emphasis of what Wilderness components are considered important to manage have been made since the Forest Plan was written. The National Strategic Agenda for Wilderness stresses emphasis on Wilderness education, and other critical areas that might be better criteria to monitor as outputs.

- **Public Information - Identification, Interpretation and Demonstration Sites -** Review the unit of measure to ensure it is a realistic goal and accurate form of measurement.

- **Roadside Camping and Day Use -** We need to better define terminology and units of measures to more accurately document our accomplishments. Output tables need to be reviewed and amended.

- **New Parking Areas -** Amend the Forest Plan and Monitoring Plan Table 1 "Expected Annual Output" to a number that accurately addresses the actual need for the current planning period.

- **Arterial & Collector Roads- Maintenance - -** Amend the Forest Plan and Monitoring Plan Table 1 "Expected Annual Output" to a number that accurately addresses the actual need for the current planning period. Consider a goal of maintaining 75 miles (rather than 25 miles) per year.

- **Effects of ATV or ORV Use -** Monitoring of this area needs to be emphasized in FY04 and beyond. Specific documentation of mountain bike study areas needs to be completed. Specific plans should be prepared to address the issue of correcting the Forest Plan and reference documents to improve standards and guidelines.

- **Uncommon Values of Special Areas -** A monitoring strategy and schedule for all Special Areas requiring monitoring of ecological and biological values is needed which recognizes and accommodates realistic limits on staffing and funding. Forest Plan revision at this point will be the likely forum for development of such a strategy.

Soils:

As we revise the Forest Plan, we will revise the monitoring plan for the soil resource. One revision will be that we plan to monitor soil quality in areas where management activities result in soil disturbance. Soil quality is defined as the capacity of a soil to function within ecosystem boundaries to sustain biological productivity, maintain or enhance water and air quality, and support human health and habitation. The FS has established procedures and soil quality

standards by which to monitor soil quality. The standards need to be verified for the GMNF, and we must determine if additional standards are needed.

Special Uses:

In the ongoing Forest Plan revision effort, we are working to strengthen all levels of guidance and oversight for the Special Use Permit program. The current plan requires little in the way of monitoring and evaluation.

Vegetation Management:

No changes are recommended at this time.

Visual Resources:

The monitoring program for the visual resource will be assessed and adjusted as needed during the Forest Plan Revision process in FY04.

Water:

As we revise the Forest Plan, we will revise the monitoring plan for the water resource.

Wild & Scenic, and Recreational Rivers:

Changes to the Forest Plan M&E Program will be addressed during development of the monitoring section of the revised Forest Plan. Actual monitoring needs will be dependant on final decisions made for the plan.

Wilderness:

There needs to be a change of monitoring outputs to reflect more current emphasis items. This item will be addressed as we complete the monitoring section for the revised forest plan.

Wildlife:

It is likely that the revised Forest Plan will have a somewhat different wildlife M&E program, although no glaring weaknesses in the current program have been identified. It appears that most of our citizenry are comfortable with how GMNF approaches wildlife M&E.

FOLLOW-UP ON FY02 M&E REPORT:

Botany:

In FY02, four projects had mitigation measures needed for populations of sensitive plant species, and all four needed monitoring to determine the effectiveness of the mitigation measures; these projects were not fully implemented by the end of FY02, and so monitoring has not yet begun.

Another action needed was the implementation of the plant monitoring protocol. In FY03, this was begun with the monitoring of 12 out of 13 high elevation ponds, all of which had known rare plant occurrences. An extensive report was produced, outlining the condition of each of these sites and their rare plant populations.

Additional actions needed were monitoring rare plant populations at Rattlesnake Point and Appalachian Jacob's ladder populations in the Lincoln-Ripton area. Monitoring funds were used for other species at other sites during FY03, and these actions are still needed.

Actions needed related to non-native invasive species (NNIS) included completing the survey of skid roads from ten representative timber sale areas on the south half of the Forest, developing and implementing a protocol for containing the spread of Japanese knotweed in the White River, and monitoring the effectiveness of a control effort along a small section of the Upper White River. The skid roads surveys have been completed, with almost no NNIS found. The first phase of a floodplain forest restoration project, which includes some measures for controlling Japanese knotweed, is planned and funded for FY04. The Upper White River project has not yet been monitored.

Land Acquisition:

The concern of land acquisition for inclusion in the GMNF has been expressed not only by the timber industry, but other members of the public as well. This issue is being discussed during the current Forest Plan revision. The Forest Plan will set goals for land acquisition but it won't determine whether or not the land will be acquired. Future land acquisition opportunities should continue to be subject to the support of the towns and the Governor's State Board on National Forests. All acquisitions will be dependant on federal funding being available.

Recreation:

Progress made toward accomplishment of action items in the FY02 Forest Plan Monitoring Report is listed below. Many items are in various stages of accomplishment; other items have not been accomplished due to lack of funding or changes in priorities.

With regard to our need to address the problem of unauthorized ATV use with signing and public education, we are doing so on a continuing basis, and we recognize that there is significant work remaining to be done. With regard to our need to monitor recreation visitor use, we completed our part of the national inventory and can now use this information for reporting and analysis. The report not only shows statistically valid use figures but also provides some measure of satisfaction for various recreational components. Also, our monitoring substantiates the fact that we continue to refine the Forest recreation infrastructure system. Finally, we completed deferred maintenance condition surveys and further updates to enhance our management of various trails and facilities.

Soils:

One follow-up item was identified in the FY02 M&E Report (see the Report, p. 28, first paragraph). In 2002, a 0.3-mile section of skid trail on the Lookout III Timber Sale was identified as needing better water bars. To follow up, in 2003 we improved the water bars to assure better erosion control. We noted that the amount of erosion on the skid trail was small, and much of the trail had revegetated naturally.

Visual Resources:

The FY02 M&E Report identified an action item to assess maintenance needs and develop a maintenance schedule and action plan for the Appalachian Trail (AT) and Long Trail (LT) vistas.

Accordingly, three vistas were maintained along the Appalachian Trail by volunteers in the Towns of Pomfret and West Hartford. Development of the maintenance schedule and action plan was deferred due to competing demands.

The FY00 M&E Report indicated that the Robert Frost Trail was in need of rehabilitation from storm damage that occurred in FY98. Although some work was done in FY00 and FY01, additional work is needed to bring the trail up to standards. Funding for the rehabilitation was requested in FY03 but was not provided.

The FY02 M&E Report identified the need to monitor piles of wood resulting from tree harvesting to see how long it takes for the Forest Road (FR) 10 corridor to meet the Retention VQO. In FY03, monitoring results show that the piles are still visible but are less obtrusive. Weathering of the wood combined with newly fallen tree limbs adjacent to or on top of the piles have reduced the visual impact. In some areas, roadside vegetation has grown sufficiently to limit the view beyond the road edge.

The FY02 M&E Report also identified the need to monitor and prevent vandalism that was affecting visual quality at the Devils Den site in the White Rocks National Recreation Area (NRA). In response, a closure order was signed in March 2001. In May 2002, Forest Service employees cleaned up the area, re-erected fences and put down new grass mats. Law enforcement caught and cited offenders in late May 2002. In FY03, some vandalism again has occurred, and continued maintenance is needed for fence repair.

Wild & Scenic, and Recreational Rivers:

As identified in the FY02 M&E Report, we need to "[c]ontinue emphasis on protection as outlined in Standards and Guidelines. Objectives and timeframes should be reviewed for completion of eligibility studies. We'll need to review timeframes for completion of various studies as we develop strategies for completion of Forest Plan Revision. Achieving this objective will require a reassessment of forest priorities." In response, we continue to emphasize protection of important streams using S&Gs. As previously identified, we have completed Eligibility Studies for significant streams as part of the Forest Plan revision process. This will be presented as part of the draft EIS that will be completed in early FY05.

Wilderness:

The FY02 M&E Report identified a number of action items that are still relevant and needed. With regard to wilderness recreation use, we noted a need to develop alternative methods of collecting meaningful use data that can be accomplished with current funding levels. Since collecting precise data on numbers of RVDs is not realistic, data showing trends and changes in use relative to past years may be more practical to collect. Regarding wilderness site construction and rehabilitation, we stated in the FY02 M&E Report that our output tables needed to be reviewed and amended. Changes in emphasis of what Wilderness components need to be managed have been made since the Forest Plan was written. The National Strategic Agenda for Wilderness stresses emphasis on Wilderness education, and other critical areas that might be more useful outputs for monitoring. Finally, with regard to wilderness trail rehabilitation, we stated in the FY02 M&E Report that the "Expected Annual Output" number for trail rehabilitation may be too small. Thus we identified a need to amend the M&E Table 1, "Expected Annual Output," to a number that more accurately addresses the actual need.

All of these items are being considered and addressed in the Forest Plan revision process. These items should be carried forward until addressed in the Forest Plan.

Wildlife:

The FY02 M&E Report set forth several items for consideration during the Forest Plan revision process. These items are being considered as revision proceeds.

The FY02 Report also identified new monitoring items added to Appendix C of the Forest Plan. For example, there is an emerging need to determine the presence or absence of the federally listed (endangered) Indiana bat, its habitat use and movements during the non-hibernation season, the location on any potential maternity colonies, and the major foraging areas used by male Indiana bats near occupied hibernacula during the non-hibernation season. In response, in summer 2003, GMNF staff participated with Vermont Department of Fish & Game, New York Department of Environmental Conservation and US Fish & Wildlife Service in survey and monitoring of Indiana bats using the Champlain basin. Local parties interested in our woodland bat program meet on a regular basis to evaluate and give focus to program efforts for the Forest and region.

Also, in 2002 we completed assessment of our MIS program. This work included in-depth analysis conducted by staff of the University of Vermont's Wildlife Department. Our review identifies suggestions for a program adjustment designed to address program weaknesses. Timing for implementation of the MIS program adjustment will depend on the urgency/significance of the adjustment, and funding availability. Current efforts focus on Forest Plan revision and the MIS adjustments associated with that revision. The draft revised Forest Plan, to be released in early FY05, will include an MIS program that reflects the suggestions offered by UVM (specific to past efforts), in addition to changes associated with management direction adjustments.

WE'VE BEEN BUSY:

Air:

The FY03 air resource program of work (POW) consisted of three main components. First, we assessed the impact of a large new emissions source on the Lye Brook Wilderness, our Class I Air Quality Area designated under the federal Clean Air Act. The Forest Service is responsible for maintaining or improving air quality in such Class I Areas. Only one such assessment was needed in FY03, and it was found that the emissions source would not increase the air pollutant levels in the Wilderness. The second POW component was the completion of an Air Quality Assessment for the GMNF, to be used during the course of the ongoing Forest Plan revision. This assessment discusses existing Forest air quality conditions, air pollution sources and trends, and what are considered to be the most important air quality issues facing the GMNF. The assessment is available at http://www.fs.fed.us/r9/gmfl/nepa_planning/plan_revision/plan_revision_gm.htm. The last POW component was to support monitoring and research on the effects of acid deposition on the forest ecosystem by providing funding, personnel, and/or sites for monitoring or research activities.

Additional examples of the projects we supported in FY03 are as follows:

- Particulate Monitoring – We operated a particulate monitoring site that is part of the nation-wide IMPROVE (Interagency Monitoring of Protected Visual Environments) network of sites. In general, monitoring over the past five years has revealed that sulfur deposition continues to decrease slightly, and nitrogen deposition remains level. Sulfur and nitrogen are the most dominant pollutants affecting air quality in the northeast. More information on air quality trends is presented in the Air Assessment.
- Soil bio-indicators of acid stress – The GMNF provided one of several sites in the northeast for a study by the Department of Civil and Environmental Engineering at Syracuse University, to identify soil bio-indicators of stress due to acid deposition. This study is ongoing, with a scientific paper expected within 2-3 years.
- The GMNF collected vegetation samples at two locations in Lye Brook Wilderness to provide data for a project involving the mapping of forest sensitivity to sulfur and nitrogen deposition in Vermont. The Conference of New England Governors and Eastern Canadian Premiers Forest Mapping Group, which completed this mapping project, produced a pilot phase report for the State of Vermont, available at http://www.ecosystems-research.com/fmi/VT-NF-Forest-Sensitivity-Report.pdf.

Botany:

Twelve of 13 high elevation ponds were surveyed, resulting in 9 new rare plant records, and 3 possible new records (plant material not verifiable). One hundred and twenty six maintained wildlife openings were surveyed, resulting in 10 new records, and 5 possible new records (plant material not verifiable). Two proposed timber management areas were surveyed, resulting in 16 new records, and 1 possible new record (plant material not verifiable). Surveys for non-native invasive species (NNIS) were conducted at each of these sites; none were found in the high elevation ponds, and very few were found in openings and timber management areas. The NNIS management program continues to develop, and the second phase of a study of old skid roads was completed, with almost no NNIS found. Fieldwork was completed for the planning phase of a floodplain forest restoration project, which will include some NNIS control. All plant species of potential viability concern were evaluated by means of literature reviews and expert panel reviews, as a part of Forest Plan Revision.

Fisheries:

In FY03, Forest-wide fisheries monitoring continued in order to determine if we are meeting objectives and complying with S&Gs, to show trends in fish populations, particularly MIS, and to monitor the effects of forest management activities and stream restoration projects on fisheries resources. The most notable fisheries monitoring and evaluation projects were accomplished in the following areas: fish passage at culvert barriers, stream fisheries habitat and channel stability, stream temperature, and streambank erosion. Our overall findings demonstrate that we continue to achieve fisheries goals and objectives that maintain, enhance and restore fish populations and their habitats in GMNF waters.

Green Mountain National Forest Fisheries Technicians conduct surveys on Jones Brook.

One notable project on which we have been working diligently is the management of brook trout, an MIS. In 2003, Brook trout were monitored in 19 streams (26 sites) throughout the Forest. In addition, rainbow trout (surrogate species in absence of MIS Brook trout) were monitored in 9 streams (10 sites). The average number of wild brook trout in GMNF streams was 915 per mile in 2003, down slightly from 1028 per mile in 2002. Despite a drop in Brook trout abundance the past two years, their populations continue to be healthy on the Forest. The ten-year average for Brook trout in GMNF streams has been 1110 per mile (Figure 1). Wild Rainbow trout averaged 643 per mile in 2003, up slightly from 598 per mile observed in 2002.

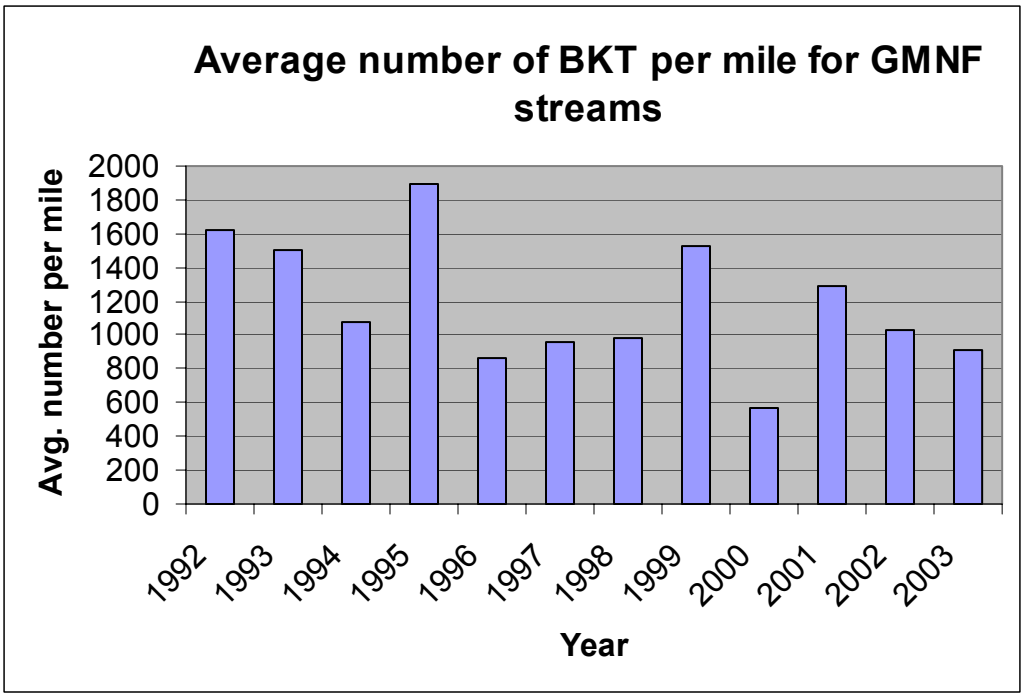

Figure 1. Brook trout trend in GMNF streams during the past 12 years.

Heritage:

Following up on our successes from 1999-2002, the Forest again hosted a *Passport in Time* program for adult volunteers. Called **"Remember Me As You Pass By",** and directed by Forest archaeologist David Lacy and local historic preservation consultant Sheila Charles, the week-long project is devoted to the identification, inventory and maintenance of historic 19th century cemeteries located the GMNF's proclamation boundary. This year we were able to continue the "restoration" component of our work begun in 2002, returning to three cemeteries we had started in the past, and beginning work at a new one. Volunteers came from Maine, Ohio, Wisconsin, Michigan and Vermont. Their labor enhanced the sites, the projects were popular with town officials and residents, and the experience reinforced a positive image of the Forest Service with the volunteers, local towns, and Vermont-based organizations like the VT Old Cemetery Association and the VT Archaeological Society.

We also ran our annual, two-week long "Relics & Ruins" archaeological field school for kids during the summer of 2003. This award-winning GMNF partnership with the private, non-profit educational Hayes Foundation has provided a high quality educational and recreational experience for students (entering grades 5-9) on the National Forest for the last seven years. It promotes stewardship for our natural and cultural resources, and encourages the public (students, parents, local citizens) to get out into the Forest in a meaningful way. We strive to make connections between historic sites and the land-use history, changes to the ecosystem and effects on the local community. After spending 5 years at three different sites in Wallingford, VT, we moved to "New Boston" in 2002 – the original settlement area in the town of Chittenden. We introduced students to methods allowing them to identify wildlife habitat needs through skeletal analysis and habitat inventory, and continued to use history, writing, art, field trips, guest specialist presentations, re-enactments, and daily archaeological investigation at a late 18th-

century tavern site located along the historic (and now-abandoned) Green Road over the mountains to establish a sense of place.

Recreation:

Our trail management program was active again in FY03, but still relatively small due to budget constraints. Trail maintenance was limited, with only a small number of rehabilitation projects being completed. We finalized the NEPA documentation for the Thundering Falls relocation of the Appalachian Trail, but implementation was delayed due to a lack of project funding. This will be scheduled for future implementation as funding becomes available. On the other hand, funding was received for the rehabilitation of the Hapgood Pond Recreation Area on the Manchester District. This rehabilitation mostly likely will be implemented over the course of several years so as not to create undue disruptions to recreational opportunities. In the long term, many of the Hapgood Pond facilities will be significantly improved, and will provide for a much more enjoyable recreation experience.

Soils:

The FY03 Soil Resource program consisted of a balanced program of soil restoration, protection, assessment, and monitoring. We implemented several soil restoration projects to correct erosion problems by installing erosion control measures, and revegetating bare soil areas. Most restoration projects were along roads and trails, or at recreation sites. Our soil specialists helped to protect our soil resources by taking a fundamental role on all projects planned on the GMNF, making recommendations on how to control erosion and sedimentation, and maintaining soil productivity on all such projects. Projects included recreation trails, timber sales, and road improvements. In 2003 we completed a soil assessment, which is now being used in the Forest Plan revision process. This assessment presents information on the current soil conditions, the effects of past land management, and the most important soil management issues, and is available at http://www.fs.fed.us/r9/gmfl/nepa_planning/plan_revision/plan_revision_gm.htm. Finally, we supported soil monitoring projects by providing funding, time, and/or sites for monitoring projects focused on maintaining the long term productivity of the soil. All monitoring projects were done through partnerships.

Soil monitoring projects completed in FY03 include the following:

- Assessment of post-sale compliance with soil S&Gs on the Lookout III Timber Sale. Skid trails on this sale were first monitored in 2002. All skid trails except one were found to be in compliance with soil and water S&Gs. In FY03 we revisited the skid trail (0.3 miles long) not in compliance, and installed water bars to assure erosion would remain minor.
- Assessment of compliance with riparian area S&Gs of timber marking on the Old Joe Sale. Monitoring showed that all riparian S&Gs were met or exceeded. These S&Gs are designed to minimize or eliminate erosion near streams, maintain streamside shading, and (over the long term) increase the amount of large woody debris entering streams.
- Monitoring of the soil conditions at campsites along Bingo Brook. In FY02, several campsites along Bingo Brook were found to have compacted soils and little vegetation. To correct this situation, in FY03 we closed and revegetated these sites.
- Monitoring of the success of two past soil restoration projects. The Texas Falls Curtain Drain, and Stetson Brook Slide projects were monitored. Both projects achieved the objective of revegetating and stabilizing steep, bare soils areas; the only exception being that one of the three slides revegetated along Stetson Brook slid again in 2003. This area is an unstable stream bank that is, we believe, largely unrelated to our management activities in the area.
- Monitoring of soil conditions at downhill ski areas. An inventory of ski hills was conducted

following spring snowmelt, and erosion problems were identified and corrected.

- Monitoring the success of the 10% Fund Roads and Trails Program. This program was found to be successful in correcting erosion and sedimentation problems along roads and trails on the GMNF. Notable program improvements in FY02 and FY03 were better efficiency and utilization of funds.
- Maintaining a monitoring project to track long-term changes in the levels of nutrients and toxic elements in soils at two sites in Lye Brook Wilderness. This is a cooperative project with the Natural Resource Conservation Service (NRCS), Vermont Monitoring Cooperative (VMC), University of Vermont (UVM), State of Vermont – Forests, Parks and Recreation (FP&R), and FS Research. In FY03 we provided funding to begin the processing of initial soil samples. This is a very important, long-term study that is replicated at three other sites in Vermont. Due to the long-term nature of this study, there will be no meaningful results for 5-15 years.
- Monitoring soil climate change at the SCAN (Soil Climate Analysis Network) site. Our SCAN site is part of a national network of sites tracking long-term soil climate change. The GMNF provides a site for the SCAN instruments and personnel do a small amount of maintenance. This is a cooperative project with the NRCS (project leader), VMC, and State of VT- FP&R. The SCAN site has been in operation for two years. Many years of monitoring will be needed to detect whether the soil climate is changing. Soil climate change data, in turn, will be useful to determine if the global climate is changing.

Special Uses:

Three Special Use Permits were prepared for non-commercial group use events during FY03. One was for a charitable organization's picnic at a developed recreation site. The other two were for Rainbow Family of Living Light events that ultimately did not exceed 75 participants and, thus, did not require a permit. GMNF staff carried out compliance work under the permit as part of their routine work, and monitored the Rainbow Family events. Ten Recreation Event Permits were administered and monitored. These ranged from charity fundraisers to a rally for owners of a certain make of automobile. Twenty-four Permits were issued for outfitter/guide activities: four to snowmobile companies, and the others to a mix of universities/colleges, summer camps, and commercial guide services or travel services. Administration of these permits was done by Forest personnel, with additional contacts on the Long Trail made by Green Mountain Club personnel. A permit was issued to the Town of Warren for the use of an abandoned Town Highway as a detour to facilitate the repair of the Blueberry Lake dam. A permit was issued for the study of wind conditions in Searsburg and Readsboro. Another was issued to the Green Mountain Club for their administration of the shelter system on the Long Trail. A vendor was authorized to sell food and provide Forest information at a snowmobile parking lot/trailhead. A variety of permitted uses including utility lines and roads were inspected and found to be in compliance with permit terms and conditions, and properly protecting natural resources.

Visual Resources:

The Hapgood Pond Recreation Area Rehabilitation construction began in FY03 with road and campground spur upgrades. Construction will continue into FY04 and FY05, with the replacement of the bathhouse as well as additional site work. The Hapgood Pond Recreation Area is unique, with Civilian Conservation Corps-era construction dating from the 1930s. Retention and enhancement of the visual character of the area was incorporated into the design and rehabilitation of facilities.

Water:

The FY03 water resource POW consisted of the continuation of water quality monitoring for the second year at 18 sites throughout the Forest (7 sites in the North Half and 11 sites in the South Half of the GMNF). The purpose of this Forest-wide monitoring is to track the effects of dispersed camping, developed campgrounds, past or future timber sales (monitoring only turbidity and flow at 4 sites), and to monitor possible future watershed assessment basins. Stratton Pond and its inlet streams also were monitored for the third year for phosphorus loading, and for the first year for nitrate loading to aid in determining the cause of an annual algae bloom. A U.S. Geological Survey (USGS) automatic sampler was monitored for the second year on a tributary to Roaring Branch along Kelly Stand Road in the town of Sunderland for continued data collection in conjunction with Forest Service Research in Durham, New Hampshire. Receipt of the results from this USGS station are pending.

The Forest-wide water quality monitoring showed that:

- All 14 full monitoring sites have pH values below Vermont State standard – not surprising due to the amount of acid deposition in New England.
- All 14 sites have phosphorus values exceeding the Vermont State standard more than 65% of the times sampled, possibly due to past land-use practices.
- The Middlebury River #2 site in Ripton had conductivity and total dissolved solids values exceeding the Vermont State standard more than 75% of the times sampled, possibly due to a greater degree of urban development in that drainage basin.
- The Moosalamoo Campground #2 site in Goshen had turbidity and conductivity values exceeding the Vermont State standard more than 50% of the times sampled, possibly due to various land-use practices or beaver activity.
- The 4 past or future timber sale monitoring sites had turbidity values <u>below</u> Vermont State standards more than 90% of the times sampled.

Due to the elevated phosphorus values at all the test sites and the elevated turbidity and conductivity values at the Moosalamoo Campground #2 site, further investigation will be conducted to determine the source and significance of these problems.

The Stratton Pond water quality monitoring showed that phosphorus values exceeded the Vermont State standard more than 90% of the times sampled, possibly due to historic land-use practices.

Wild & Scenic, and Recreational Rivers:

In FY03, as a part of the Forest Plan revision process, the GMNF completed Eligibility Studies for the 38 significant streams that were identified in the Forest Plan. Additional streams, located on newly acquired, Management Area 9.2 lands and other acquired lands, also were examined in this process. The results of this work will be presented in early autumn 2004, when the Draft EIS and draft revised Forest Plan are released.

Wilderness:

In FY03, the GMNF wilderness program made good progress in the following areas:

- Extensive treatment of NNIS plants - On some areas adjacent to private lands and rivers, it may be difficult if not impossible to successfully eradicate plants like Japanese

knotweed over the long term, as they are prone to reinfestation from adjacent sources outside of our jurisdiction. Nonetheless, control of these plants is ongoing on the GMNF.

- Maintenance of boundary lines - Global Positioning System (GPS) technology has improved our ability to check poorly marked and unmarked wilderness boundaries for nonconforming uses, and identify areas with illegal use for enforcement action.
- Campsite monitoring - campsites in Lye Brook Wilderness were mapped and GPS located.
- Identification of nonconforming/illegal uses - 2 semi-permanent encampments were removed, and several illegal trail cutting locations were found in Breadloaf, Peru Peak and Big Branch Wilderness areas.
- Monitoring of geocache sites - Known geocache sites were visited and photographed so as to facilitate the monitoring the effects of repeated visits.
- Providing information and education - Several Wilderness awareness courses were presented to the public.

Wildlife:

As in years past, FY03 was a busy one for the GMNF wildlife program. Our total acres of habitat improvement (808 acres) exceeded the goal set forth in our Forest Plan by 98 acres (nearly 14%). Table 1 displays the breakdown of our different habitat improvement efforts. As usual, we can attribute our strong accomplishment level to volunteer efforts (particularly with apple orchard work).

A notable project was the erection of two nest poles and platforms for osprey on the GMNF. We were joined by Central Vermont Public Service and Vermont Department of Fish & Wildlife in this cooperative effort. Also, although peregrine falcons are no longer federally listed under the ESA, we continue to monitor and protect their nesting eyries. In FY03 we located 3 occupied falcon eyries, including 2 that successfully fledged young birds.

LIST OF ACRONYMS

AT	Applachian Trail
ATV	All-terrain vehicle
DEC	Department of Environmental Conservation
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FIA	Forest Inventory and Analysis
FLNF	Finger Lakes National Forest
FR	Forest Road
FS	Forest Service
FP&R	State of Vermont Forests, Parks and Recreation
FWS	Fish & Wildlife Service
FY	Fiscal Year
GMNF	Green Mountain National Forest
GPS	Global Positioning System
IMPROVE	Interagency Monitoring of Protected Visual Environments
LT	Long Trail
LWD	Large woody debris
M&E	Monitoring & Evaluation
MIS	Management Indicator Species
NEFES	Northeastern Forest Experimental Station
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NNIS	Non-native invasive species
NRA	National Recreation Area
NRCS	Natural Resources Conservation Service
NVUM	National Visitor Use Monitoring
ORV	Off-road vehicle
POW	Program of work
RFSS	Regional Forester's Sensitive Species
ROS	Recreation opportunity spectrum
RVD	Recreation visitor day
S&Gs	Standards & Guidelines
SCAN	Soil Climate Analysis Network
SHPO	State Historic Preservation Officer
TSPIRS	Timber Sale Program Reporting System
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
UVM	University of Vermont
VFPA	Vermont Forest Products Association
VMC	Vermont Monitoring Cooperative
VQO	Visual Quality Objective
VWA	Vermont Wilderness Association

APPENDIX A

PAYMENTS TO TOWNS: FISCAL YEAR 2003

GMNF PAYMENTS IN VERMONT

There are three types of federal payments reaching municipalities that have U.S. Forest Service land: 1) Payments in Lieu of Taxes (PILT); and Public Law 106-393 – **Secure Rural Schools and Community Self-Determination Act of 2001**, comprised of the 2) 25-Percent and 3) Full Payment Funds. PILT funds are directed to towns, and the Public Law 106-393 funds (either the 25-Percent or the Full Payment Funds) are directed to school districts.

PAYMENTS IN LIEU OF TAXES (PILT)

The PILT, made in or around October, is based upon the acreage of Forest Service land within the subject town during the preceding fiscal year. The payment, indexed by the inflation rate, is set by federal law at $1.92 per acre, subject to a maximum town population figure, or cap. Congress, however, rarely appropriates the full amount of the PILT. The FY03 payment was $1.36 per acre to towns not subject to the population cap.

SECURE SCHOOLS ACT

The **Secure Rural Schools and Community Self-Determination Act of 2001** (Secure Schools Act) was promulgated by Congress to restore stability and predictability to the annual payments made to states and counties containing National Forest System lands for the benefit of schools, roads, and other purposes. Prior to the passage of the Secure Schools Act, these payments were based upon income generated by the U.S. Forest Service, typically through timber sales. As this timber sale-related income fluctuated and generally waned, communities that relied on the annual payments for the support of their schools suffered from a lack of funding stability and predictability, to the detriment of their educational systems. The Secure Schools Act severs the tie between rural school funding and timber sale income so as to offer rural school systems continual, level funding.

Current law mandates a floor for payment levels of 25 percent of forest product receipts. The law also provides for the distribution of funds above the floor based on the average of the three highest years of 25 percent payments. All counties and localities on the GMNF opted for the latter of these computation methods with the exception of Wardsboro.

Article I. Payments to Towns

County	Town	NF Acres	Secure Schools Act Payment ($)	PILT Payment ($)	Total ($)
Addison	Bristol	5,528	5,717.81	7,492.00	13,209.81
	Goshen	7,562	7,821.66	10,287.00	18,108.66
	Granville	14,894	15,405.42	20,146.00	35,551.42
	Hancock	19,287	19,949.27	26,238.00	46,187.27
	Leicester	2,736	2,829.94	3,722.00	6,551.94
	Lincoln	11,375	11,765.59	14,800.00	26,565.59
	Middlebury	3,366	3,481.58	4,429.00	7,910.58
	Ripton	22,036	22,792.66	29,975.00	52,767.66
	Salisbury	3,830	3,961.51	5,211.00	9,172.51
Bennington	Arlington	3,333	3,248.83	4,534.00	7,782.83
	Bennington	1,140	1,111.21	1,551.00	2,662.21
	Dorset	5,492	5,353.31	7,215.00	12,568.31
	*Glastenbury	26,630	25,957.54	22,824.00	48,781.54
	Landgrove	811	790.52	1,098.00	1,888.52
	Manchester	5,503	5,364.03	7,354.00	12,718.03
	Peru	17,235	16,799.78	23,380.00	40,179.78
	Pownal	410	399.64	558.00	957.64
	Readsboro	8,303	8,093.33	11,295.00	19,388.33
	Rupert	168	163.75	228.00	391.75
	*Searsburg	7,632	7,439.27	8,733.00	16,172.27
	Shaftsbury	1,234	1,202.83	1,679.00	2,881.83
	Stamford	7,583	7,391.51	10,316.00	17,707.51
	Sunderland	21,932	21,378.17	29,771.00	51,149.17
	Winhall	15,850	15,449.76	21,418.00	36,867.76
	*Woodford	26,752	26,076.46	33,916.00	59,992.46
Essex	Granby	1,660	206.67	2,258.00	2,464.67
Rutland	Brandon	89	77.93	121.00	198.93
	Chittenden	29,409	25,753.58	40,008.00	65,761.58
	‡Mendon	3,203	2,804.88	6,790.00	9,594.88
	Mt. Holly	3,360	2,942.36	4,571.00	7,513.36
	*Mt. Tabor	25,064	21,948.65	18,466.00	40,414.65
	Pittsfield	7,698	6,741.17	10,472.00	17,213.17
	‡Sherburne	1,796	1,572.76	5,196.00	6,768.76
	Wallingford	8,561	7,496.90	12,340.00	19,836.90
Washington	Warren	7,292	6,820.15	9,719.00	16,539.15
Windham	Dover	5,248	4,786.05	7,139.00	11,925.05
	Jamaica	720	656.62	1,943.00	2,599.62
	Londonderry	188	171.45	631.00	802.45
	*Somerset	9,423	8,593.55	7,939.00	16,532.55
	*Stratton	18,224	16,619.86	12,372.00	28,991.86
	Wardsboro	2,720	650.08	0	650.08
	Wilmington	1,549	1,412.65	2,107.00	3,519.65
Windsor	Rochester	12,600	13,301.36	17,130.00	30,431.36
	Stockbridge	810	855.08	1,106.00	1,961.08
	Weston	9,104	9,610.76	12,385.00	21,995.76
	TOTAL	**389,340**	**372,967.89**	**480,863.00**	**853,830.89**

* PILT payments for these towns are less per acre due to a federal formula that funds towns with low populations at a lower rate.

‡ PILT payments for these towns is more per acre due to the presence of National Park Service and National Forest System lands.

APPENDIX B: FEDERAL T&E, PROPOSED AND RFSS LIST

Federal endangered, threatened, proposed, and Regional Forester's Sensitive Species for the GMNF, October 2003.

Scientific Name	Common Name	Federal Status 2001
FEDERAL ENDANGERED, THREATENED, AND PROPOSED		
MAMMALS		
Canis lupus	Gray wolf	LT[a]
Felis concolor cougar	Eastern cougar	LE[b]
Lynx canadensis	Canada lynx	LT
Myotis sodalis	Indiana bat	LE
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT
REGIONAL FORESTER'S SENSITIVE SPECIES		
MAMMALS		
Myotis leibii	Eastern small-footed myotis	S[c]
BIRDS		
Catharus bicknellii	Bicknell's thrush	S
Falco peregrinus anatum	American peregrine falcon	S
Gavia immer	Common loon	S
AMPHIBIANS		
Ambystoma jeffersonianum	Jefferson salamander	S
REPTILES		
Clemmys insculpta	Wood turtle	S
MOLLUSKS		
Alasmidonta varicosa	Brook floater	S
Lasmigona compressa	Creek heelsplitter	S
INSECTS		
Cicindela ancocisconensis	Boulder beach tiger beetle	S
Gomphus (=*Phanogomphus*) *descriptus*	Harpoon clubtail	S
Lanthus vernalis	Southern pygmy clubtail	S
Somatochlora forcipata	Forcipate emerald	S
PLANTS		
Agrostis mertensii	Arctic bentgrass	S
Aureolaria pedicularia var. *pedicularia*	Fernleaf yellow false-foxglove	S
Blephilia hirsuta	Hairy woodmint	S
Calamagrostis stricta ssp *inexpansa*	New England northern reed grass	S
Cardamine parviflora	Small-flower bitter-cress	S
Carex aestivalis	Summer sedge	S
Carex aquatilis var. *substricta*	Water sedge	S
Carex argyrantha	Hay sedge	S
Carex atlantica	Prickly bog sedge	S
Carex bigelowii	Bigelow sedge	S
Carex foenea (=*aenea*)	Bronze or dry-spike sedge	S
Carex lenticularis	Shore sedge	S
Carex michauxiana	Michaux sedge	S

Scientific Name	Common Name	Federal Status 2001
Carex schweinitzii	Schweinitz's sedge	S
Carex scirpoidea	Bulrush sedge	S
Clematis occidentalis var *occidentalis*	Purple clematis	S
Collinsonia canadensis	Canada horsebalm	S
Conopholis americana	Squaw-root	S
Cryptogramma stelleri	Steller's cliffbrake	S
Cypripedium parviflorum var *pubescens*	Large yellow ladyslipper	S
Cypripedium reginae	Showy ladyslipper	S
Desmodium paniculatum	Paniculate tick-trefoil	S
Draba arabisans	Rock whitlow-grass	S
Dryopteris filix-mas	Male fern	S
Eleocharis intermedia	Matted spikerush	S
Eupatorium purpureum	Sweet joe-pye-weed	S
Galium kamtschaticum	Boreal bedstraw	S
Geum laciniatum	Rough avens	S
Huperzia appalachiana	Appalachian fir-clubmoss	S
Isoetes tuckermanii	Tuckerman's quillwort	S
Isotria verticillata	Large whorled pogonia	S
Juglans cinerea	Butternut	S
Juncus trifidus	Highland rush	S
Lespedeza hirta	Hairy bush-clover	S
Muhlenbergia uniflora	Fall dropseed muhly	S
Myriophyllum farwellii	Farwell's water-milfoil	S
Myriophyllum humile	Low water-milfoil	S
Panax quinquefolius	American ginseng	S
Peltandra virginica	Green arrow-arum	S
Phegopteris hexagonoptera	Broad beech fern	S
Pinus rigida	Pitch pine	S
Plantago (=Littorella) americana	American shore-grass	S
Platanthera orbiculata	Round-leaved orchis	S
Polemonium vanbruntiae	Eastern jacob's ladder	S
Potamogeton biculpatus	Snail-seed pondweed	S
Potamogeton confervoides	Tuckerman's pondweed	S
Potamogeton hillii	Hill's pondweed	S
Prenanthes trifoliolata	Three-leaved rattlesnake-root	S
Pyrola chlorantha (=virens)	Green pyrola	S
Ribes triste	Swamp red currant	S
Saxifraga paniculata	White mountain saxifrage	S
Scheuchzeria palustris ssp *americana*	Pod-grass	S
Sedum rosea	Roseroot stonecrop	S
Selaginella rupestris	Rock spikemoss	S
Sisyrinchium angustifolium	Narrow blue-eyed grass	S
Sisyrinchium atlanticum	Eastern blue-eyed grass	S
Solidago squarrosa	Stout goldenrod	S
Sorbus decora	Northern mountain-ash	S
Sparganium fluctuans	Floating bur-reed	S
Torreyochloa pallida (= *Glyceria fernaldii*)	Fernald alkali grass	S
Utricularia geminiscapa	Hidden-fruited bladderwort	S
Utricularia resupinata	Northeastern bladderwort	S
Uvularia perfoliata	Perfoliate bellwort	S

Scientific Name	Common Name	Federal Status 2001
Vaccinium uliginosum	Alpine bilberry	S
Woodsia glabella	Smooth woodsia	S

[a]Species is federally listed as threatened under the ESA.
[b]Species is federally listed as endangered under the ESA.
[c]Species is listed on the USDA Forest Service Region 9 RFSS list.

APPENDIX C: NON-NATIVE INVASIVE SPECIES

Non-native Invasive Species tracked on the GMNF

Class B Noxious Weeds.

(1) *Aegopodium podagraria* L.	(goutweed)
(2) *Alliaria petiolata* (*A. officinalis*)	(garlic mustard)
(3) *Butomus umbellatus*	(flowering rush)
(4) *Celastrus orbiculatus* Thunb.	(Oriental bittersweet)
(5) *Fallopia japonica* (Polygonum cuspidatum)	(Japanese knotweed)
(6) *Hydrocharis morsus-ranae* L.	(frogbit)
(7) *Iris pseudoacorus* L.	(yellow flag iris)
(8) *Lonicera x bella*	(Bell honeysuckle)
(9) *Lonicera japonica*	(Japanese honeysuckle)
(10) *Lonicera maackii*	(Amur honeysuckle)
(11) *Lonicera morrowii*	(Morrow honeysuckle)
(12) *Lonicera tatarica*	(Tartarian honeysuckle)
(13) *Lythrum salicaria*	(purple loosestrife)
(14) *Myriophyllum spicatum*	(Eurasian watermilfoil)
(15) *Nymphoides peltata* (Gmel.) Ktze.	(yellow floating heart)
(16) *Phragmites australis*	(common reed)
(17) *Potamogeton crispus* L.	(curly leaf pondweed)
(18) *Rhamnus cathartica*	(common buckthorn)
(19) *Rhamnus frangula*	(glossy buckthorn)
(20) *Trapa natans* L.	(water chestnut)
(21) *Vincetoxicum nigrum* L.	(black swallow-wort)