

Land and Resource Management Plan
Monitoring and Evaluation Report
Fiscal Year 2001
Shawnee National Forest

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I. CERTIFICATION

I have reviewed the FY 2001 Monitoring and Evaluation Report prepared by an interdisciplinary team for the Shawnee National Forest. The Monitoring and Evaluation Report meets the intent of both the Forest Plan and regulations contained in 36 CFR 219. Amendments recommended in this report will be evaluated for potential action by the Forest Leadership Team. This report is approved.

/s/ Hurston A. Nicholas

HURSTON A. NICHOLAS
Acting Forest Supervisor

Date: 9/27/02

II. INTRODUCTION

Forest Plan Amendment and Revision

The original Forest Plan for the Shawnee National Forest was approved on November 24, 1986. There were four major appeals of that Plan. In an attempt to resolve the issues in the appeals on a local level, a series of informal meetings were held during the spring and summer of 1988. Participants at the meetings included the appellants, the Forest Service, and those who intervened in support of the 1986 Forest Plan.

A Settlement Agreement, signed on August 15, 1988 by representatives of all participating parties, documented how the disputes arising from the 1986 Plan were to be resolved. One party, the Association of Concerned Environmentalists, later withdrew its support for the agreement. The major agreement was that the Regional Forester would amend the 1986 Forest Plan. On June 30, 1989, the Forest Service published a Notice of Intent, proposing significant amendments to the 1986 Plan.

On May 17, 1991, a Proposed Amended Plan and Draft Supplemental Environmental Impact Statement were issued for public review. These documents contained five alternatives. Based on the analysis in the Draft Supplemental Environmental Impact Statement, Alternative 5 was identified as the preferred alternative. The Forest Service received over 7,500 letters, form letters, and petitions commenting on the draft documents. In response to these comments and to further analysis, several changes were made to both the Amended Plan and Supplemental Environmental Impact Statement.

Two separate Records of Decision (RODs) based on the Final Supplemental Environmental Impact Statement were issued. One was for adoption of the Amended Land and Resource Management Plan (ALRMP), the other was for approval of oil and gas leasing on the Shawnee National Forest. On May 14, 1992, Floyd J. Marita, then Eastern Regional Forester, reissued both RODs with a minor change in the Amended Forest Plan guidelines in order to be consistent with all provisions of the U.S. Fish and Wildlife Service Biological Opinion for the Indiana and gray bats. During the subsequent appeal period, 25 appeals of the Amended Forest Plan decision and 18 appeals of the Oil and Gas Leasing decision were received. On June 25, 1993, the Chief of the Forest Service upheld the Amended Forest Plan ROD on all the appeal issues, and on July 15, 1993, the Chief upheld the Oil and Gas Leasing ROD on all points. Two lawsuits were filed - one on March 28, 1994, the other on April 14, 1994 - claiming nine points of failure in the EIS for the Amended Plan.

On September 25, 1995, Federal District Court for southern Illinois ruled against the Forest Service on four of the points and favorably on five. On February 16, 1996, the court issued an injunction to prevent (1) commercial logging (excluding timber sales that are part of ecological restoration or wildlife improvement projects), (2) development of existing oil & gas leases and issuance of new leases, and (3) development of all-terrain vehicle trails on Shawnee National Forest land, until the failings of the EIS for the Amended Plan are corrected. All other aspects of the Amended Plan were to be implemented as written.

The National Forest Management Act of 1976 requires that every National Forest develop a Forest Management Plan and that those plans be revised at least every 15 years. The 1986 Shawnee National Forest Land and Resource Management Plan, significantly amended in 1992, sets overall guidance for managing the Shawnee National Forest. The plan revision process is presently proceeding under the 1982 planning regulations, pending revision of new regulations that were published in the Federal Register on November 9, 2000. A Notice of Intent to revise the Shawnee National Forest Land and Resource Management Plan was published in the Federal Register on March 20, 2002. Public comments were received on the proposed actions and will be used to develop alternatives for analysis in the Draft Environmental Impact Statement. A Final Environmental Impact Statement and Revised Land and Resource Management Plan is planned for completion in 2004.

Purpose of the Monitoring and Evaluation Report

Monitoring determines how well the Forest Plan is being implemented. If monitoring results indicate there is a significant difference between actual conditions and those estimated in the Plan, this report may recommend changes in performance, changes in funding, or changes in the Plan. Not every one of the resource areas or every facet of a resource area is "monitored" as that word has meaning in this report, but we have focused on what we believe are the major areas of concern and interest. We hope that if some important point has been missed, it will be brought to our attention by readers of this report.

The National Environmental Policy Act (NEPA) requires monitoring of Forest Plan implementation to assure that conditions established in the Environmental Impact Statement are met (40 CFR 1505.2 and 1505.3). Direction to monitor and evaluate Forest Plan implementation is also found in 36 CFR 219. Monitoring and evaluation are performed in order 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.
- if budgets have altered sufficiently the long-term relationships between levels of multiple-use goods and services to create the need for a significant amendment to the Plan.
- how well the objectives stated in the Forest Plan have been met.
- how closely management standards and guidelines have been followed.

All projects that implement the Forest Plan require further site-specific environmental analysis. Many projects require an Environmental Assessment (EA). The Decision Notice that approves a project may include special mitigation measures needed beyond those required by the Forest Plan (40 CFR 1501.3). The EA can support monitoring efforts by documenting the anticipated and potential effects of management activities proposed. The results of analyses documented in an EA also record the necessary compliance with standards and guidelines set forth in the Forest Plan.

Not all questions and issues concerning management of the Forest have been fully answered or resolved. All we can say about some things is that we are still investigating and considering

them, but do not know yet whether they will require a change in the Plan. Future monitoring will help resolve some of these issues.

Issues Addressed by Monitoring

The following seven management issues are a consolidation of related concerns raised both by the public and by Forest Service staff during the 1986-1992 planning period. Each is an important consideration in the management of the Shawnee National Forest for current and future generations, and each is addressed in various parts of Section III of this report.

1. Water Quality and Riparian Ecosystems
2. Biological Diversity and Wildlife Habitat
3. Desirable Forest Settings and Facilities For Recreation
4. Timber Supply
5. Mineral Production
6. Additional Wilderness
7. Contribution to the Growth of the Local Economy

Conclusions and Recommendations

A summary of the Conclusions and Recommendations that were made in the individual resource-area reports follows immediately. The full reports, in Section III of this document, provide the necessary context for these statements.

Recreation

- According to the National Visitor Use Monitoring Report (NVUMR), the amount of total recreation use may be lower than previously thought. However, resource impacts and recreation conflicts are present and need to be addressed.
- Generally visitors are satisfied to very satisfied with their recreation experience on the Forest. Visitors are least satisfied with the amount of information available on recreation (developed sites), cleanliness of restrooms (developed sites), condition of forest trails, roads, and parking lots (general forest area), and adequacy of signing (wilderness, general forest area).
- The primary recreation activities of forest visitors are: 1) relaxing, 2) viewing natural features, 3) viewing wildlife, 4) hiking or walking, and 5) picnicking and family day gatherings in developed sites.
- The primary facilities or areas used on the Forest are: 1) trails, 2) picnic areas, 3) swimming areas, 4) interpretive sites, 5) scenic byway.
- Of the Shawnee National Forest Visitors that indicated they visited other places, 70% said this forest was their primary trip destination. (Kocis, 2002).
- This year's trail maintenance was three times the previous year (160 miles outside of wilderness) due to an emphasis on trail maintenance and exuberant volunteers.
- The annual recreation budgets are not adequate to provide the desired services, resource protection, and facility maintenance.

- Recreation trail management goals in the Forest Plan have been partially met. A range of high quality recreation trails experiences are provided, and most recreation trail users are satisfied with their experience. Public health and safety is protected.
- Standards and guidelines are generally met with a few exceptions which are listed in the Recreation section of this document
- The Forest Plan should be revised to address equestrian use, ATV/OHM and mountain bicycle policies.
- Revise the “ATV Access Permit for People with Disabilities” to eliminate authorization of a second rider with the disabled permittee. Since the purpose of the permit is to provide access to the Forest and not recreation opportunities, the permittee could drive slowly enough for an assistant to walk along with the disabled permittee.
- Inventory actual recreation use and recreation use type within wilderness. (It is estimated that the NVUMR sample size in wilderness was small).
- Revise trail standards to accommodate equestrian use year round.
- Conduct market analysis to learn about current users, the desires for recreation services, learn where other outdoor recreation services are being provided, and how the Shawnee NF can fit into providing compatible services in outdoor recreation in Southern Illinois.
- Identify opportunities for focused and wise investment in recreation areas that serves the public and provides safe and enjoyable experiences at a reasonable and affordable long-term cost. (Campground occupancy has been level for about 4 years. Efforts to increase occupancy by reducing the season have not increased the occupancy significantly.)
- Inventory non-system roads and user-created trails to identify potential for additional system trail miles in areas receiving dispersed equestrian use.
- Continue to upgrade high use facilities to reduce backlogged maintenance and operating costs.
- Look for opportunities for private sector partnerships and management of developed recreation areas.

Wilderness

- Wilderness conditions established in the ALRMP are generally met.
- Use on some of the system trails and additional user-created routes is causing resource damage. Many miles of these trails and routes are not suitable to accommodate equestrian use year round.
- Non-system, or user-created, trails continue to be established.
- Forest Management Standards and Guidelines in the ALRMP are generally being met with several exceptions listed in the Wilderness section of this document.
- A carrying capacity study should be conducted in wilderness to determine if uses are within the limits of acceptable change to maintain a semi-primitive, non-motorized experience ensuring individual’s solitude. Reevaluate the acceptable range of resource and social conditions that exist for all wilderness areas and revise standards and guidelines in the Forest Plan to maintain an acceptable level.

- Conduct an assessment of the need for additional designated system trails in all wilderness areas.
- Restrict equestrian use to designated system trails.
- Update and implement the recommendations in the Wilderness Implementation Schedules.
- Trail maintenance should be commensurate with actual use and miles of forest trails.

Wild and Scenic Rivers:

- Eligibility and suitability studies for our Candidate Wild and Scenic Rivers need to be completed.

Heritage Resources:

- Although the majority of the sites that were inventoried and monitored in 2001 were in an excellent state of preservation with little to no threat of future impact from forest use, a small group of sites are, however, currently being impacted.
- Two historic sites, one a cemetery and the other a farmstead, are currently being impacted from trail use on Trail #186. In the case of the latter, the trail completely bisects the farmstead with erosion and runoff being funneled along the path due to its lower elevation.
- Other heavily impacted sites are the stone forts at Hogg's Bluff and War's Bluff. Due to hiker and horse use, the stone walls at these sites are being destroyed, since the trail runs through the stone wall in each case.
- Recommend moving or closing the trail in each of the four cases noted above. If such action is not taken, the heritage resources associated with these sites will be heavily impacted or completely destroyed.
- Although some potentially important archaeological sites are being impacted from forest use, it appears that current preservation legislation is adequately protecting the majority of the cultural resources in the Shawnee National Forest. Simply closing off or moving small segments of several trails will alleviate most of the immediate impact to those few sites being damaged that were mentioned above.
- Our continued effort to involve the public in archaeological and historical resource protection programs is one approach to reducing future impact on sites in the Shawnee National Forest. This should involve the successful Passport In Time program, which has included hundreds of people over the last few years in the Shawnee Forest alone.
- The addition of anti-vandalism signs along culturally sensitive parts of the trails should also reduce future impacts.

Visual Resources

- No changes to standards or guidelines are needed.
- Regarding pine stands in recreation areas and along visually sensitive travel-ways, it is recommended that the ecological restoration provisions in the 1992 Forest Plan be implemented to begin thinning the pine stands on the east side of the forest. This would allow a gradual transition away from the decadent pine stands that now exist and to provide for the improved public benefits. Since the volume

of pine removal is substantial, it is recommended that these goals be achieved over time with a schedule of removal.

Ecological Restoration

- The proposed acreages of ecological restoration management practices are not being achieved.
- Restore the ecological management program on the Forest.

Timber Management

- There is no recent timber harvest therefore there is no conclusion regarding regeneration success this fiscal year.
- Objectives for forest age-class distribution and species composition are not being met due to lack of timber harvest.
- Other than through natural mortality, there is no movement toward age-class distribution objectives in the 1.3 management area (Oakwood Bottoms) due to the fact that there have been no timber sales or other age-class distribution modifying practices.
- Uneven-aged objectives in hardwood stands across the Forest are not being met due to the lack of timber sales.
- Forest Plan objectives to restore non-native pine stands to native hardwood stands are not being met due to lack of timber sales in those areas.
- It is recommended to restore an active timber sale program in hardwoods, pines and Oakwood Bottoms as a tool to move toward Forest Plan objectives.

Range

- Permits allowing the removal of hay from openlands are effective ways to keep necessary amounts of high quality, early-successional habitat. A demand for these services from the SNF exists, and there are opportunities for new permits.

Insect and Disease

- Defoliation by forest tent caterpillars in the Oakwood area has declined in 2001 when compared to 2000.
- Continue to monitor defoliation in 2002. A substantial decrease in defoliated acres is expected. If this does not happen it may be appropriate to consider treatment options.

Wildlife and Fish

- Census counts to monitor habitat and populations were carried out by the Illinois Department of Natural Resources and the Illinois Natural History Survey.
- The overall long-term downward trend in the population of bobwhite quail is due to declining amounts and quality of habitat.
- There is a need for management of large blocks of openland habitat to help provide appropriate quail habitat.
- For long term habitat needs, active management to maintain the oak-hickory forest type will be important for eastern wild turkey populations.

- Populations of loggerhead shrikes on breeding bird survey routes in or near the Forest boundary have declined. This is similar to declines for the shrike throughout the east. Scientists are not sure of the exact cause for the decline in this species.
- Overall, except for the loggerhead shrike, there were no real declines in any specific populations of birds.
- Streams continue to be under utilized by sport anglers particularly Big Grand Pierre and Lusk Creek. Access is probably the limiting factor even though these streams are located on public property.
- Sampling results indicate that within the Big Creek watershed springs are highly sensitive environments supporting unique and specialized fauna.
- Conclusions and recommendations for specific fish species are listed in the Wildlife and Fish section.
- IDNR does an excellent job of monitoring fish populations within the Shawnee National Forest. In the absence of adequate staffing on the Forest, IDNR plays a vital role in the overall management of the fisheries resources. We should continue to support the efforts of IDNR Fisheries Division to monitor fish populations and recreational fishing pressure.
- The Shawnee and the Hoosier National Forest worked to obtain a shared services aquatic ecologist/fisheries biologist to assist the IDNR Fisheries Division in implementing a strong aquatic and fisheries management program on both national forests.

Threatened, Endangered, Sensitive (TES) Species

- Conclusions and recommendations for specific T&E species are made in the TES section of this document.
- The Forest Plan needs to be revised or amended to bring it up to date with changes in the Regional Forester's Sensitive Species list.
- Our effort to monitor species population changes as affected by project implementation during the past two years did not reveal any significant adverse impacts on any Federal endangered, threatened, regionally sensitive or state listed species.
- Direct population monitoring was done in cooperation with the Illinois Department of Natural Resources, research staff and students with Southern Illinois University and other cooperators.
- We expect that these cooperators will continue working with us in the future to monitor populations of our Management Indicator Species as well as those listed as endangered or threatened.
- We initiated an effort to review and revise if needed the current standards and guidelines for the management of many of our endangered or threatened species. Our work with the U. S. Fish and Wildlife Service resulted in the implementation of site-specific management guidelines being developed for the Indiana bat (*Myotis sodalis*) and the copperbelly water snake (*Nerodia erythrogaster neglecta*). We held discussions with out-service researchers and resource specialists to determine the effects of our proposed management activities on native fauna and utilized the findings of ongoing research to make more informed decisions.

- We will continue to validate our current standards and guidelines and recommend appropriate changes to insure the protection of habitat for those species where such changes are warranted.
- As recommended in the last several yearly reports, continued searches need to be made for Price's Groundnut at its formerly known location as well as at other locations on the Forest with potential habitat. The Small Whorled Pogonia should continue to be on the Shawnee's list of protected species because habitat does exist on the Forest.
- Mead's Milkweed plants and their habitat should continue to be monitored closely. The prescription for burning the plant's habitats should be updated, along with tree and shrub removal as needed. The Shawnee is involved in the national recovery effort of this species and should be making every effort possible to use the latest species discoveries and information to encourage and maintain populations with better health and vigor.

Special Areas

- FY2001 monitoring has shown that physically marking many of the natural areas with signs has protected the sites from continued natural resource damage.
- Monitoring and patrols have indicated that illegal activities are at a minimum except at a couple of locations. Most of the public appears to be respecting the closure order and user-developed trails are "healing" as well as camping and campfire locations.
- Natural areas must continue to be marked (flagged, painted, posted, and GPSed) on the ground as soon as possible to curtail the excessive recreational uses.
- Monitoring and law enforcement should continue to be a priority in the protection of these natural areas during the high use times.
- Education should be the key to helping different user groups understand the scientific, educational, and intrinsic values of natural areas. A brochure on natural areas should be developed to help in these efforts.
- Exotic species and their threats to native plants and communities continue to be a concern to Forest biologists and botanists. IDNR personnel are continuing to work with the Forest Service in understanding specific exotic species, and in particular, Eulalia, Kudzu vine and Chinese Yam. Decision notices were signed for the Eulalia and Chinese Yam species in an effort to control populations of these exotics on the Forest. An Environmental Impact Statement on the Kudzu is in progress at this time.
- An environmental analysis is still needed to determine the best way to eradicate various exotic plant species, which threaten the integrity of native communities and natural areas. Monitoring should continue to be done following all eradication/control methods regardless if they are removed/managed by mechanical, chemical or other means (such as hand-pulling).

Soil, Water, Air

- The current standard and guidelines are successfully protecting watershed resources.
- Soil productivity and water quality will be sustained using current burning prescriptions.
- Continue to monitor prescribed burning practices to assess the long-term effectiveness of prescriptions.

Minerals and Geology

- The Forest must revise the cumulative effects analysis related to oil and gas leasing as directed by the courts.
- The hardrock mineral fluorite remains abundant within the Shawnee National Forest, however the nations needs for this mineral is being met through imports. The demand for domestic supplies of this mineral is expected to remain low.
- The hardrock mineral tripoli remains abundant within the Shawnee National Forest, however sources on private land appear to be adequate for the current and anticipated demand.
- Approximately 30% of the mineral estate beneath the National Forest surface is reserved or outstanding. Private owner interest in developing these mineral estates is expected to be low during the period when the market for mineral is being met by other domestic sources or sources in other nations.
- All development for the hardrock mineral coal is occurring by surface mining on privately owned land parcels. In most cases, surface mining is not compatible with the management of the Shawnee National Forest.
- Analysis of hardrock mineral application submitted through the USDI Bureau of Land Management should consider the potential markets for the identified minerals.
- Reserved and outstanding rights are not adversely affecting the management of National Forest surface, consequently Federal acquisition of these rights should be considered a low priority in all areas except the Ripple Hollow Wilderness Study Area.

Land Ownership

- Forest officers suspect that up to 300 encroachments involving unauthorized use and occupancy of Shawnee National Forest land exist. Many of these cases have their origins in the late 1930's and early 1940's when the United States acquired the land.
- The Forest's present encroachment resolution program continues to be reactive rather than proactive. A high degree of public sensitivity would be required by Forest officials in implementing a proactive encroachment resolution program.
- During FY 2001, the Forest budget for land adjustment activities was relatively low level. The Forest budget did not allow for extended land adjustment activities which would make progress towards the optimum landownership objectives which promote efficient land management and accessibility to National Forest lands.
- Forest managers have made and should continue to make a concerted effort (within legal opportunities offered the agency) to obtain purchase and exchange funding for acquisition of those private and public properties which contribute to optimum land ownership.
- The number of special use permits administered by the Forest remained stable during FY2001. The number of special use applications needing detailed analysis increased. The number of special use permits administered by the Forest does not reflect the number of permits amended each year, particularly those permits dealing with quasi-public utilities (water, telephone and electric). Utility permit

amendments are increasing with upward trends in development of rural lands for private residences, recreation retreats and commercial developments.

- Processing and administration of special use permit amendments should be recognized in Forest planning and funding processes. Include amended special use permits as a required monitoring activity in Table 5-1, Chapter 5-1 of the Amended Land Resource Management Plan during plan revision.
- Land exchanges are very expensive and the Forest requires exchange proponents to incur some of the expense. This decision has reduced the number of land exchange proponents. There have not been opportunities for land transfer or exchange during the past several years.
- The Forest has not received funding for right of way acquisition.
- The following should be included in Forest Management Planning Standards and Guidelines -5400 Landownership, Surface Ownership.
 - Eliminate unauthorized uses and occupancy of National Forest land. Emphasis should be placed on resolving those encroachments involving residences and land uses degrading natural resources.
 - Eliminate the Forest Consolidation Map and revise the prioritization list.
 - Emphasize the acquisition of fee title or all available property rights during land adjustment activities.

Transportation System

- Construction/Reconstruction levels were below the average Plan level because of low funding levels and a reduced timber-sale program.
- We will continue to monitor local road construction and reconstruction accomplishments, as needed for various resource activities. Future update of road needs will be recommended for a Plan amendment if the trend continues.

Fire Management

- The total number of fires for the year was 33 fires totalling 513 acres. The average size of these fires was 15.6 acres.
- Basic firefighter training was provided through Participating Agreements with Southern Illinois University and Southeastern Illinois Collage.
- In 2001, 3 prescribed burns for a total of 363 acres were accomplished
- During 2001, the Shawnee National Forest accepted the responsibility and role as the Illinois Interagency Dispatch Center through the development of an Inter/Intra Agency Agreement between the USDA Forest Service – Shawnee National Forest and the USDA Forest Service – Midewin National Tall Grass Prairie, USDI National Park Service – Lincoln National Historic Site and the USDI Fish & Wildlife Service – Region 3.
- In 2001, a total of 277,645 acres were protected. We do not protect private lands, county lands, state lands or other federal lands within or outside of our protection boundary.

Law Enforcement

- During Fiscal year 2001 the law enforcement officers encountered 484 violations occurring on National Forest System land.
- Of those 484 violations 80 individuals were issued violation notices, 128 individuals were given written warnings.

- The other 276 violations were captured on incident report form to document the violations and to help management assess violations and address areas of concerns in protecting the forest resources and visitor safety.

Rural and Community Development

- This program demonstrates a successful and continuing opportunity for Forest Service staff to help rural communities in and around the Shawnee National Forest to form community action teams, to develop or update existing community plans and to continue implementing projects identified in certified community action plans that will foster sustainable economic development based on natural resources. We should continue this program.

III. MONITORING RESULTS AND EVALUATIONS

RECREATION

by Pat York, Recreation Resource Specialist, and David Johnson, Forest Landscape Architect

Provide desirable forest settings and facilities for recreation:

How recreation use, cost of operations, resource protection, and recreation experiences contribute to the manager's ability to provide desirable forest settings and facilities for recreation is challenging and expensive to track because of large acreage, multiple entry points, variety in recreational uses, proximity to private and other public lands, and many other factors.

In this report we will attempt to answer the following questions:

- How well is the Forest meeting recreation demands?
- What are the Forest's facilities?
- How does FY 01 use compare with previous years?
- What are emerging issues or problems, if any?
- What progress has the Forest made in ATV management (including disability access permits)?
- What progress has the Forest made in hiker/equestrian trail management?

For fiscal year 2001 the Forest participated in the National Visitor Use Monitoring (NVUM) study conducted on all National Forests. This study project was implemented to better understand the amount of use and satisfaction with national forest system recreation opportunities. It was conducted on visitors using exit surveys. It contains valuable information from the recreation visitors on the Shawnee National Forest. It does not provide information about what recreational opportunities visitors would like to have that is not currently provided, nor does it offer any information about recreationists who are not currently visiting the forest. The draft Shawnee National Forest report is the source of many of the table and text in this monitoring report (Kocis, 2002).

The amount of use represented in the study may be lower than actual use due to some of the survey sites in the sampling design having little or no recreation use. Satisfaction, demographics, and other overall factors about users, however, are probably representative of the larger population due to a large sample size. Error factors are in the draft report.

Amount of use:

The total number of Shawnee National Forest visits is reflected in Table 1 below. A national forest visit is the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time. A site visit is the entry of one person onto a national forest site or area to participate in recreation activities for an unspecified period of time. A visitor may visit more than one site during their visit on the Forest, accounting for an increase in the number of site visits (Kocis, 2002).

Table 1: Shawnee National Forest annual recreation use estimate

National Forest Visits		Site Visits		Wilderness Visits	
Visits	Error Rate	Visits	Error Rate	Visits	Error Rate
535,764	17.6 %	763,860	15.5 %	35,829	27.2 %

Draft Shawnee National Forest, National Visitor Use Monitoring Report, June 2002

In years past, the total use was estimated to be about 2 million visits each year. The estimates were based on professional observations, and actual counts at campgrounds and in some day use areas. However, estimating total use on a forest with unlimited entry points was too expensive to conduct in previous years. Number of visits was estimated to be one person entering the national forest to participate in a recreation activity. A single person visiting multiple sites would have represented several visits if they had left and re-entered national forest several times.

The Forest counted total number of campers in FY 01 (14,000¹), and campground occupancy rate (12%¹) (S.Hirsch, 2002). These have remained about stable in relation to previous years.

Description of Visit (Kocis, 2002):

A description of visitor activity during their national forest visit was developed. This basic information includes participation in various recreation activities, length of stay on the national forest and at recreation sites, visitor satisfaction with national forest facilities and services, and economic expenditures.

The average length of stay on this forest for a national forest visit was 15.7 hours. Almost ten (9.7) percent of visitors stayed overnight on the forest.

In addition, visitors reported how much time they spent on the specific recreation site at which they were interviewed. Average time spent varied considerably by site and is displayed in Table 2.

Table 2. Site visit length of stay (in hours) by site/type on Shawnee NF

Site Visit Average	DUDS	OUDS	Wilderness	GFA
11.4	2.8	38.4	10.3	20.6

Site Types -- stratification of a forest recreation site or area into one of six broad categories as defined in the paper: Forest Service National Visitor Use Monitoring Process: Research Method Documentation, May 2002, English et al. The six categories are Day Use Developed sites (DUDS), Overnight Use Developed Sites (OUDS), General

¹ Lake Glendale is omitted from the data due to concession operation. Grapevine Campground is omitted from the data since it is not a fee campground.

Forest Areas (GFA), Wilderness (WILD), View Corridors (VC), and Off-Forest Recreation Activities (OFRA).

The following table represents the recreational activity participation and primary activity for SNF visitors. The percentages do not add up to 100% due to the fact that the survey allowed visitors to check more than one recreation activity. The top five recreation activities of visitors were relaxing, viewing natural features, viewing wildlife, hiking/walking, and picnicking.

Table 3. Shawnee NF activity participation and primary activity

Activity	Percent participation	Percent who said it was their primary activity
Camping in developed sites (family or group)	14.8	6.1
Primitive camping	2.5	0.2
Backpacking, camping in unroaded areas	4.0	0.2
Resorts, cabins and other accommodations on Forest Service managed lands (private or Forest Service run)	1.1	0.0
Picnicking and family day gatherings in developed sites (family or group)	24.2	5.7
Viewing wildlife, birds, fish, etc on national forest system lands	44.4	0.8
Viewing natural features such as scenery, flowers, etc on national forest system lands	54.9	9.4
Visiting historic and prehistoric sites/area	10.9	0.0
Visiting a nature center, nature trail or visitor information services	13.7	0.5
Nature Study	7.5	0.2
General/other- relaxing, hanging out, escaping noise and heat, etc,	61.1	9.3
Fishing- all types	13.1	8.0
Hunting- all types	8.2	7.8
Off-highway vehicle travel (4-wheelers, dirt bikes, etc)	0.3	0.0
Driving for pleasure on roads	17.5	1.2
Snowmobile travel	0.0	0.0
Motorized water travel (boats, ski sleds, etc)	4.2	1.8
Other motorized land/air activities (plane, other)	0.6	0.3
Hiking or walking	42.5	16.6
Horseback riding	8.2	5.8
Bicycling, including mountain bikes	2.2	0.6
Non-motorized water travel (canoe, raft, etc.)	1.0	0.5
Downhill skiing or snowboarding	0.1	0.0
Cross-country skiing, snow shoeing	0.0	0.0
Other non-motorized activities (swimming, games and sports)	15.9	10.7
Gathering mushrooms, berries, firewood, or other natural products	4.4	1.8

Draft Shawnee National Forest, National Visitor Use Monitoring Report, June 2002

Twenty-five percent of the sampled visitors were asked about the types of constructed facilities and special designated areas they used during their visit. The most used facilities and areas were: non-motorized trails, picnic areas, swim areas, interpretive sites, and scenic byways. Table 4 provides a summary of facility and special area use.

Table 4. Percentage use of Shawnee NF facilities and specially designated areas

Facility / Area Type	Percent who said they used (national forest visits)
Developed campground	9.9
Swimming area	26.2
Hiking, biking, or horseback trails	47.9
Scenic byway	17.2
Designated Wilderness	6.1
Visitor center, museum	3.6
Forest Service office or other info site	7.9
Picnic area	29.7
Boat launch	9.1
Designated Off Road Vehicle area	0.0
Other forest roads	13.0
Interpretive site	19.3
Organization camp	4.5
Developed fishing site/ dock	4.1
Designated snowmobile area	0.0
Downhill ski area	0.0
Nordic ski area	0.0
Lodges/Resorts on National Forest System land	0.0
Fire Lookouts/Cabins Forest Service owned	0.0
Designated snow play area	0.0
Motorized developed trails	0.0
Recreation residences	1.7

Draft Shawnee National Forest, National Visitor Use Monitoring Report, June 2002

Visitor Satisfaction Information (Kocis, 2002):

Twenty-five percent of visitors interviewed on the forest rated their satisfaction with the recreation facilities and services provided. Although their satisfaction ratings pertain to conditions at the specific site or area they visited, this information is not valid at the site-specific level. The survey design does not usually have enough responses for every individual site or area on the forest to draw these conclusions. Rather, the information is generalized to overall satisfaction with facilities and services on the forest as a whole.

In addition to how satisfied visitors were with facilities and services they were asked how important that particular facility or service was to the quality of their recreation experience. The importance of these elements to the visitors' recreation experience is then analyzed in relation to their satisfaction.

Tables 5 through 7 summarize visitor satisfaction with the forest facilities and services at Day Use Develop sites, Overnight Developed sites and General Forest areas. Wilderness satisfaction is reported in Table 8. To interpret this information for possible management action, one must look at both the importance and satisfaction ratings.

Table 5. Satisfaction of Shawnee NF recreation visitors at Developed Day Use sites

Item Name	Item by Percent response by *					Mean ** Satisfaction Of visitors (n)		Mean ** Importance To visitors (n)	
	P	F	A	G	VG				
Scenery	0	1.5	0	32.3	66.2	4.6	80	4.7	79
Available parking	1.4	1	3.1	28.7	65.8	4.6	78	4.2	77
Parking lot condition	2.9	1.6	2.3	33.9	59.2	4.4	79	3.9	78
Cleanliness of restrooms	26.8	9.4	12.4	26.7	24.6	3.1	62	4.6	65
Condition of the natural environment	9.4	2.3	4	37.6	46.7	4.1	80	4.8	79
Condition of developed recreation facilities	1.4	1	12.9	51.2	33.4	4.1	75	4.2	74
Condition of forest roads	5.3	17.4	17.3	30.1	29.9	3.6	69	4.3	65
Condition of forest trails	5.1	9.7	12.4	43.6	29.2	3.8	66	4.4	67
Availability of information on recreation	4.5	2.6	11.2	54.9	26.8	4.0	66	4.5	63
Feeling of safety	0	1.6	12.6	18.7	67	4.5	80	4.7	76
Adequacy of signage	13	13.3	6	20.4	47.4	3.8	78	4.6	76
Helpfulness of employees	0	0	0.6	19.8	79.6	4.8	58	4.5	59
Attractiveness of the forest landscape	0	1.4	0	22.2	76.4	4.7	80	4.7	77
Value for fee paid	0	0	3.2	17.4	79.5	4.8	19	4.3	24

* Scale is: 1 = not satisfied 2 = somewhat satisfied 3 = moderately satisfied 4 = satisfied 5 = very satisfied

** Scale is: 1= not important 2= somewhat important 3=moderately important 4= important 5 = very important

n= number of responses on which rating is based.

Table 6. Satisfaction of SNF recreation visitors at Developed Overnight sites

Item Name	Item by Percent response by *					Mean ** Satisfaction Of visitors (n)		Mean ** Importance To Visitors (n)	
	P	F	A	G	VG				
Scenery	0	0	0	17.7	82.3	4.8	20	4.8	21
Available parking	0	3.9	3.9	29.3	62.9	4.5	21	4.1	21
Parking lot condition	0	3.7	0	42.8	53.4	4.5	19	3.7	21
Cleanliness of restrooms	4.9	0	15.4	27.1	52.6	4.2	20	4.5	21
Condition of the natural environment	0	0	9	13.8	77.2	4.7	19	4.6	21
Condition of developed recreation facilities	0	3	4.1	30.1	62.8	4.5	20	4.4	20
Condition of forest roads	0	13	8.3	29.2	49.4	4.2	21	4.2	20
Condition of forest trails	0	0	26.4	40.7	32.9	4.1	16	4.3	18
Availability of information on recreation	3	26.6	31.1	3	36.4	3.4	18	4.2	18
Feeling of safety	0	0	0	15.4	84.6	4.8	21	4.7	21
Adequacy of signage	8.3	10.7	26	28.4	26.5	3.5	10	4.3	10
Helpfulness of employees	0	0	0	31.1	68.9	4.7	19	4.8	19
Attractiveness of the forest landscape	0	0	0	25.4	74.6	4.7	21	4.7	21
Value for fee paid	0	0	16.6	22.6	60.7	4.4	20	4.2	20

* Scale is: 1 = poor 2 = fair 3 = average 4 = good 5 = very good

** Scale is: 1= not important 2= somewhat important 3=moderately important 4= important 5 = very important (n) = number of responses upon which this rating is based

Table 7. Satisfaction of Shawnee NF recreation visitors in General Forest Areas

Item Name	Item by Percent response by *					Mean ** Satisfaction Of visitors (n)		Mean ** Importance To visitors (n)	
	P	F	A	G	VG				
Scenery	4.1	1.1	5.6	46	43.2	4.2	35	4.9	35
Available parking	14	1.2	15.7	19.6	49.4	3.9	28	4.0	30
Parking lot condition	2.8	24.8	4.7	17.1	50.6	3.9	22	3.9	22
Cleanliness of restrooms	8.8	2.6	17.3	61.2	10.1	3.6	15	4.4	18
Condition of the natural environment	0	1.3	1.1	55.9	41.7	4.4	35	4.9	34
Condition of developed recreation facilities	0	3.7	8.1	71	17.2	4.0	20	4.5	22
Condition of forest roads	7	11.2	13.4	57.6	10.8	3.5	31	4.0	28
Condition of forest trails	2.1	2.5	26.9	55.8	12.6	3.7	22	4.5	24
Availability of information on recreation	13.1	10.5	6.1	59.9	10.4	3.4	28	4.0	29
Feeling of safety	0	0	8	14.3	77.7	4.7	32	4.5	31
Adequacy of signage	11.7	1.1	21.1	52.1	14	3.6	32	4.2	31
Helpfulness of employees	0	0	15.8	38.5	45.8	4.3	20	4.4	20
Attractiveness of the forest landscape	0	0	28.1	20.1	51.8	4.2	35	4.6	34
Value for fee paid	0	12.5	0	4.5	83	4.6	11	4.6	12

* Scale is: 1 = poor 2 = fair 3 = average 4 = good 5 = very good

** Scale is: 1= not important 2= somewhat important 3=moderately important 4= important 5 = very important (n) = number of responses upon which this rating is based

Table 8. Satisfaction of Shawnee NF Wilderness visitors

Item Name	Item by Percent response by *					Mean ** Satisfaction Of visitors (n)		Mean ** Importance To visitors (n)	
	P	F	A	G	VG				
Scenery	0.0	0.0	0.0	30.4	69.6	4.7	11	4.5	11
Available parking	-	-	-	-	-	-	8	-	8
Parking lot condition	-	-	-	-	-	-	7	-	7
Cleanliness of restrooms	-	-	-	-	-	-	6	-	7
Condition of the natural environment	0.0	7.5	0.0	18.6	73.9	4.6	11	4.4	11
Condition of developed recreation facilities	-	-	-	-	-	-	6	-	6
Condition of forest roads	0.0	16.4	15.3	68.3	0.0	3.5	10	3.9	10
Condition of forest trails	16.9	0.0	8.8	50.0	24.4	3.7	11	4.5	11
Availability of information on recreation	-	-	-	-	-	-	8	-	9
Feeling of safety	0.0	0.0	6.6	37.3	56.1	4.5	11	4.3	11
Adequacy of signage	0.0	29.2	30.9	31.1	8.8	3.2	11	3.6	10
Helpfulness of employees	-	-	-	-	-	-	8	-	9
Attractiveness of the forest landscape	0.0	0.0	0.0	13.3	86.7	4.9	11	4.6	11
Value for fee paid	-	-	-	-	-	-	0	-	3

* Scale is: 1 = poor 2 = fair 3 = average 4 = good 5 = very good

** Scale is: 1= not important 2= somewhat important 3=moderately important 4= important 5 = very important

n=number of people who responded to this item

Perceptions of crowding

Visitors rated their perception of how crowded the recreation site or area felt to them. This information is useful when looking at the type of site the visitor was using since someone visiting a designated Wilderness may think 5 people is too many while someone visiting a developed campground may think 200 people is about right. Table 9 summaries mean perception of crowding by site type on a scale of 1 to 10 where 1 means hardly anyone was there, and a 10 means the area was perceived as overcrowded.

Table 9. Perception of crowding by recreation visitors by site type (% site visits)

Perception of crowding	Overnight Developed Sites	Day Use Developed Sites	Wilderness	General Forest Areas
10 Over crowded	0.0	1.4	0.0	4.1
9	0.0	1.4	0.0	0.0
8	16.7	2.3	0.0	0.0
7	3.0	1.9	10.2	1.8
6	14.8	8.0	0.0	11.4
5	31.5	16.8	24.3	11.3
4	0.0	4.0	14.2	4.0
3	5.6	20.4	13.3	8.5
2	8.2	4.4	7.5	12.7
1 Hardly anyone there	20.3	39.5	30.5	46.2

Economics (Kocis, 2002)

Twenty-five percent of visitors interviewed were asked about the primary destination of their recreation trip. Since some people may incorporate a visit to the national forests as only part of a larger trip away from home, not all visitors chose the national forest as their primary destination. Of the 20 percent of visitor that went to other sites, 70 percent said this forest was their primary trip destination.

The average total length of time that recreation visitors on the forest were away from home on their trip was 42 hours. In the 12 months prior to the interview the visitors had come to this forest 3.8 times to participate in their identified main activity.

In a typical year, visitors to this forest spent an average of \$2324.50 on all outdoor recreation activities including equipment, recreation trips, memberships, and licenses.

Trails:

Service was provided on approximately 371 miles of system trails and road connections. In this fiscal year, 160 miles outside of wilderness were maintained, totaling 178 miles!!! (Peterein, 2002) This is three times the previous years' accomplishment in trail maintenance! This is primarily due to an agency emphasis on trail maintenance and an extensive volunteer effort! Over 500 hours of volunteer labor (both human and horse) contributed to this public service effort!

Reconstruction: Two miles of trail outside of wilderness were reconstructed, totaling 10 miles.

Cost:

Cost of operating the recreation program on the Shawnee National Forest is estimated from several sources. Meaningful Measures (MM) is a standard Forest Service database that calculates cost of operation, maintenance of a recreation area or trail based on the condition it currently is in. The following table represents the summary cost of just the developed recreation program for the Forest:

Developed Recreation operating and maintenance costs for each district 6/2001, P.Y.

District	\$ Cost to meet standard
Vienna	652,354
Jonesboro	148,877
E'town	1,813,281
M'boro	2,549,699*
Forest Total	5,164,211

This table represents the cost of the salaries of the people who work in the developed recreation program, plus the cost of repair, replacement, etc in the recreation area. It does not represent overhead, fixed cost, planning salary.

FY 00: Forest System Trails/Road Connections and est. costs 8/31/01, PY

Forest System Trail miles (INFRA)	Road Connections (INFRA)	Total # miles system trail/road riding/hiking opportunity	Estimated cost of trail reconstruction/maintenance in current condition (excludes estimated road costs)*
221	150	371	\$1,900,000

Cost estimates based on average trail cost/mile in MM database in FY 00 of \$8,600/mi..

Estimated costs of overhead, fixed costs, managing the general forest areas, special uses, interpretive programs and Wilderness are excluded from these estimates. If we estimate \$1,000,000 for this exclusion, then the entire recreation program operation and maintenance (excluding heritage) cost about \$8,000,000 given the current condition of facilities and trails.

Disability ATV Permit (Johnson, 2002):

Disability ATV permits are issued to people with disabilities. A description of the program (revised 10/1/01) may be found at any of our five offices. In FY 2001, a total of 483 ATV access permits were issued. This is a 14% increase over FY 2000 (422 permits) and a 27% increase from FY 1999 (350 permits).

This program is intended to serve disabled individuals by providing ATV access to some forested areas. For the individuals who need and use the program legitimately, it is successful. The increase in the number of new issuances each year is causing concern regarding resource damage. In addition, there is concern that 25% or more of the permittees obtain a physician’s signature without meeting the disability requirements of the permit. In recent discussions with disability advocacy groups, a similar concern is shared nationally with the issuance of disability parking permits. They estimate that 25-30 % of the parking permits that are issued go to people who are not disabled.

Emerging Issues that need to be addressed:

- Resource damage in Wilderness and the general forest area from horse use, illegal vehicles, and legal and illegal ATV’s.
- Low campground occupancy and revenue.
- High cost and budget shortfalls for delivery of recreation services at most developed recreation sites, trails, and in the general forest areas. Operations costs far exceed annual budget allocation.
- Recreation conflicts between types of uses in the Jackson Falls area and Lusk Creek Wilderness Area.
- Increasing importance of tourism and reliance of the Forest as a primary attraction and provider of quality outdoor recreation for local and regional communities.
- Increasing opportunities with other organizations and individuals for partnerships and volunteer assistance.
- Hundreds of miles of old roads and user-created routes exist in the general forest area and use on many miles of them are causing resource damage.

- Current trail standards are not holding up to the amount of equestrian use received year round.

Conclusions:

- The amount of total recreation use may be lower than previously thought, however, resource impacts and recreation conflicts are present and need to be addressed.
- Generally visitors are satisfied to very satisfied with their recreation experience on Forest. Visitors are least satisfied with the amount of information available on recreation (developed sites), cleanliness of restrooms (developed sites), condition of forest trails, roads, and parking lots (general forest area), adequacy of signing (wilderness, general forest area).
- The primary recreation activities of forest visitors are: 1) relaxing, 2) viewing natural features, 3) viewing wildlife, 4) hiking or walking, and 5) picnicking and family day gatherings in developed sites (Kocis, 2002).
- The primary facilities or areas used on the Forest are: 1) trails, 2) picnic areas, 3) swimming areas, 4) interpretive sites, and 5) scenic byway.
- Of the Shawnee National Forest Visitors that indicated they visited other places, 70% said this forest was their primary trip destination. (Kocis, 2002).
- This year's trail maintenance was three times the previous year (160 miles outside of wilderness) due to an emphasis on trail maintenance and exuberant volunteers (Peterein, 2002).
- The annual recreation budgets are not adequate to provide the desired services, resource protection, and facility maintenance.
- Recreation Trail Management goals in the Forest Plan have been partially met. A range of high quality recreation trails experiences is provided, most recreation trail users are satisfied with their experience. Public health and safety is provided.
 - Standards and guidelines are generally met with the following exceptions (FLRMP, 1991):
 - Multi-purpose, motorized trails will be allowed. *No multiple-purpose trails for motorized use exist due to federal injunction.*
 - System trails will be maintained to experience levels 1, 2, or 3. *These trails are not generally maintained to the standards identified in the Forest Plan due to lack of budget and personnel.*
 - Use of mountain bicycles is permitted only on roads and on designated motorized trails. *Mountain bicycle use occurs on some hiker/equestrian trails.*
 - Trails will be closed or restricted to prevent resource damage. *Trails in Natural Areas were closed this FY. Trails outside of natural areas are not typically closed or restricted when causing resource damage.*

Recommendations for recreation:

- Revise the Forest Plan to address equestrian use, ATV/OHM and mountain bicycle policies.
- Revise the "ATV Access Permit for People with Disabilities" to eliminate authorization of a second rider with the disabled permittee. Since the purpose of

the permit is to provide access to the Forest and not recreation opportunities, the permittee could drive slow enough for an assistant to walk along with the disabled permittee.

- Address the budget and staffing shortage.
- Inventory actual recreation use and recreation use type within wilderness (it is estimated that the sample size in wilderness was small).
- Revise trail standards to accommodate equestrian use year round.
- Continue monitoring actual recreation use and satisfaction.
- Conduct market analysis to learn about current users, the desires for recreation services, learn where other outdoor recreation services are being provided, and how the Shawnee NF can fit into providing compatible services in outdoor recreation in Southern Illinois.
- Identify opportunities for focused and wise investment in recreation areas that serves the public, provides safe and enjoyable experiences at a reasonable and affordable long-term cost. (Campground occupancy has been level for about 4 years. Efforts to increase occupancy by reducing the season have not increased the occupancy significantly).
- Inventory non-system roads and user-created trails to identify potential for additional system trail miles in forest areas receiving high dispersed equestrian use.
- Continue to upgrade high use facilities to reduce backlog maintenance and operating costs.
- Look for opportunities for private sector partnerships and management of developed recreation areas.

References

Kocis, Susan M., et al. June 2002. National Visitor Use Monitoring Results, Draft report, email from Don English, Southern Research Station on 7/3/2002.

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Specialist on July 30, 2002.

WILDERNESS (M.A. 5.1)

by Ken Peterein

Description:

The primary purpose of management is to preserve natural ecosystems, protect the wilderness character for future generations and to provide a wilderness experience in a natural-appearing, unmodified environment within a semi-primitive, non-motorized recreation setting.

Seven Wilderness Areas on the Shawnee National Forest and two Special Management Areas of similar wilderness character were designated on November 28, 1990. No flourspar prospecting permits were applied for in the allotted time so the two areas became wilderness on November 28, 1998. The Ripple Hollow area (M.A. 9.3) is also recommended for wilderness study provided that federal acquisition of outstanding mineral rights occurs.

Monitoring for compliance with the Forest Plan, Illinois Wilderness Act and regulation was conducted to measure the effects of recreational use and management activities. References include 36 CFR 219.18, FSM 2300, Amended Forest Land and Resource Management Plan (AL&RMP)(pages II-2 and IV-109 to IV 130), and Public Law 101-633 of November 28, 1990. Monitoring was conducted through field inspections, personal contacts, letters, phone calls, cooperative research, and reviewing violations for illegal motorized use.

Natural areas within wilderness remain closed to camping, campfires, rock climbing and equestrian use by Forest Supervisor's order as of January 31, 1997 and September 14, 1999. Several horse staging areas were set up in some wilderness areas to restrict the impacts from equestrians tethering their horses to trees.

Approximately 3 miles of wilderness boundary near Lusk Creek was surveyed and posted. Marking is needed to complete this boundary line.

Observations

Law enforcement has responded to violations of wilderness laws and the closed natural areas. Violation notices were issued for motorized equipment and for resource damage. Some search and rescues were made using motorized all terrain vehicles instead of horses as recommended in Wilderness Implementation Schedule.

Recreational demands in some of the wilderness areas have increased. Fifteen to 20 or more equestrian camps have opened on private land, adjacent to National Forest that access many wilderness areas. There are more equestrian users and larger equestrian groups within most wilderness areas. This may have a positive or negative social impact on the wilderness experience depending on the outlook of users.

Numbers of wilderness recreational users were generated from the NVRM report and are included in the Forest Recreation Monitoring section. Use numbers seem to be increasing due to increased equestrians.

The following summarizes acres and trail miles. Miles of system trails and part of other routes used in wilderness were included. (12-21-00, M. Walma)

Total Gross acres = 31,595	Net NF Acres = 28,671
Square Miles = 44.8	System Trail Miles = 48.6
Partial Old Roads and User Created Routes that were GPS'd = 77.9 (Additional exist but not GPS'd)	
Total All GPS'd Routes = 125.9, Density All Miles/Sq. mile = 1.1 (Ave) (Range is 3.4 to 0)	

Conclusions:

- Wilderness conditions established in the AL&RMP are generally met.
- Use on some of the system trails and additional user-created routes is causing resource damage. Many miles of these trails and routes are not suitable to accommodate equestrian use year round.
- Non-system, or user-created, trails continue to be established.
- Forest Management Standards and Guidelines in the AL&RMP are generally being met with the following exceptions:
 - The FS will detect, monitor and evaluate the presence of non-native species within Wilderness. Minimum-tool control measures will be taken. *Many non-native invasive species are not currently inventoried, nor controlled. Wilderness Implementation Schedule (WIS) guidelines stressed the need for a Wilderness Fire Plan and for prescribed fires to control some invasive species.*
 - A range of options, including signing and brochures, closing trails, restoration, or tent pads, regulatory approaches, or a permit system will be considered when unacceptable environmental damage or significant user dissatisfaction occurs. *Neither system trails nor non-system routes are closed when resource damage occurs except that equestrian use in natural area inclusions has been somewhat controlled. It is not beneficial to close trails when new ones are created through unrestricted equestrian use. WIS guidelines stressed need for Outfitter/Guide permits and recommended a study for carrying capacity.*
 - Hitching racks will not be constructed. *Hitching racks were constructed in Lusk Creek Wilderness in 1995. Several equestrian staging areas with highlines were created in Lusk Creek Wilderness in 2001.*
 - Ensure that equestrian use within natural area inclusions is controlled to prevent damage to the significant ecological features of the sites. *Equestrian use in these natural area inclusions has been prohibited by area closure since Sept. 14, 1999.*

- Axe blazing will generally be used where reassurance markers are needed. There should be no painted or plastic blazes. *Axe blazes are not used as reassurance markers. Wooden and/or plastic and/or carsonite or wood signs or reassurance markers exist on some wilderness trails. WIS guidelines allowed for wooden diamond reassurance markers and stressed need for a trail plan.*
- All signs will conform to wilderness standards. *Natural Area boundary signs and some trail signs do not conform to wilderness standards.*
- Signing will be kept to a minimum and primarily used for direction and safety. *Natural area boundaries and some system trail routes are marked at frequent intervals to ensure a secure boundary.*
- Existing buildings and other structures will be obliterated and the site restored to natural conditions. *Some structures still exist in some wilderness areas and may be removed at some future time in compliance with Forest and State Historical Preservation Office guidelines.*
- **Recreation management will emphasize opportunities for solitude.**
Encounters with equestrian groups numbering 20 to 30 individuals are common in some wilderness areas.

Recommendations:

Conduct carrying capacity study in wilderness to determine if uses are within the limits of acceptable change to maintain a semi-primitive, non-motorized experience ensuring individual's solitude. Reevaluate the acceptable range of resource and social conditions that exist for all wilderness areas and revise standards and guidelines in the Forest Plan to maintain an acceptable level.

Continue to gather baseline data on wilderness conditions.

Conduct an assessment of the need for additional designated system trails in all wilderness areas.

Restrict equestrian use to designated system trails.

Update and implement the recommendations in the Wilderness Implementation Schedules.

Trail Maintenance should be commensurate with actual use and miles of forest trails.

WILD AND SCENIC RIVERS

By Pat York, Recreation Resource Specialist

Monitoring Item (II)(q)(1):

The Amended Land and Resource Management Plan for the Shawnee National Forest identified six streams for study and possible inclusion in the National Wild and Scenic River System. These streams are Bay Creek, Big Creek, Big Grand Pierre Creek, Big Muddy River, Hutchins Creek and Lusk Creek. A corridor extending ¼ mile each side of these streams was assigned to the 9.2 Management Prescription, which limits management activities to those necessary for public health and safety and the prevention of significant loss of existing resources or productivity of the area. Until classification of these rivers is determined through the river study, corridors will continue to be managed to retain their potential eligibility as “Scenic” Rivers.

All management proposals within the Wild and Scenic River corridors in FY 01 were evaluated based on compliance with Management Prescription 9.2 standards and guidelines in the Amended Plan. Maintenance activities in recreation areas, on system roads and trails, and in ecosystem management continued within these corridors. No incompatible uses were observed to occur on national forest lands within all 9.2 corridors.

HERITAGE RESOURCES

by Mary McCorvie, Forest Archaeologist

The management of archaeological resources in the Shawnee National Forest involves the implementation of a two-part research program. The first part of the program is the monitoring of previously recorded archaeological sites in the Shawnee National Forest as part of an on-going project designed to assess the effectiveness of present standards and guidelines in the protection of sites within its boundaries. The second part of the program is the recording of new archaeological sites identified during surveys of previously unrecorded tracts of the Shawnee National Forest. Included in the recording and inventorying of new sites is the assessment of potential eligibility of these sites for inclusion on the National Register of Historic Places (NRHP). These procedures are implemented in fulfillment of the Amended Land and Resource Management Plan (36 CFR 219.24), a policy taken from Section 106 of the National Historic Preservation Act of 1966 (NHPA). The primary purpose of the NHPA and the NRHP is the recording and preserving of archaeological sites that have the potential to contribute meaningful data and knowledge about historic and prehistoric lifeways that cannot be ascertained through other means or sources.

Sites which are not considered eligible for the NRHP, include prehistoric isolated artifacts, historic-era isolated wells or cisterns, rock walls or rock piles, and isolated ponds. Also excluded from eligibility are sites that have been severely damaged due to past management activities (prior to the passage of federal heritage preservation legislation), or were damaged or destroyed before acquisition by the Forest Service. Although excluded from eligibility considerations, these sites are, however, recorded, assigned Forest Service inventory numbers, and incorporated into the inventory files. The remainder of the sites, both prehistoric and historic, is considered to be eligible for consideration on the NRHP.

In 2001, approximately 570 acres of previously unsurveyed Forest Service land was inventoried. This total consisted primarily of two large projects, the 9-Day recreation event and the Bostick Tract. The 9-day recreation event, small parts of which had actually been previously surveyed, was inventoried in June and July and consisted of approximately 450 acres of trails. This inventory was conducted as part of a much larger analysis. During the inventory thirteen new sites were recorded, comprising eleven historic and two prehistoric. Eight of the historic and both of the prehistoric sites are eligible for NRHP. The three historic sites that were determined to be not eligible for inclusion on the NRHP was a small cemetery located in the Herod quadrangle, and two rock piles. Historic rock piles are formed a result of historic field clearing. Recording their location exhausts their research potential. As part of the 9-day horse trail survey, 21 existing sites were monitored, including 18 prehistoric and three historic sites. One of the prehistoric sites was the Indian Kitchen Stone Fort, a Late Woodland (AD 400-900) bluff-top site with a low wall comprised of small to medium-sized rocks piled to about a meter in height.

The other approximate 120 acres of previously unsurveyed Forest Service land was inventoried as part of the Bostick Tract in August. The Bostick Settlement was a post Civil War African American community located south Murphysboro, IL. Eight new sites were identified in this area, eight historic sites. The seven of the historic sites are eligible for inclusion on the NRHP. The eighth site was a group of four stone mounds or elongated rock piles, each rising to slightly less than a meter in height. This last site is not considered to be eligible for inclusion on the National Register of Historic Places.

Other much smaller monitoring and inventorying projects were completed during the year, including the recording of a new Late Woodland stone mound. Monitoring activities were also carried out at each of the four National Register sites in the Shawnee National Forest (Millstone Bluff, the Great Salt Springs, Iron Furnace, and Battery Rock). Other areas that were monitored in 2001 included several sites in the Miller's Grove community (including a cemetery, possible school, and four farmsteads), Sand Cave and Crow Knob. Standing structures that are considered to be heritage resources were also monitored, including the CCC-era structures at the FS administrative sites (warehouses, domestic structures, and other miscellaneous facilities), CCC-era structures at developed recreation sites (Goose Bay and Pounds Hollow.) and other CCC-era improvements across the forest (stone steps, fire towers, retaining wall, etc.).

In addition to inventorying new areas for previously unrecorded archaeological sites was an effort to monitor previously recorded sites in various parts of Shawnee National Forest. Two of the larger projects involved War Bluff near Raum, IL and Hogg Bluff near Simpson, IL. Both sites are prehistoric bluff-top sites exhibiting a low-standing rock wall across the only easily accessible part of the bluff. Both sites probably date to the Late Woodland period (AD 400 to 900). In addition to the stone fort at each site, both also had a series of other prehistoric sites ringing the base of the bluff. In total, 10 sites were revisited at War Bluff, including eight prehistoric rockshelters, one historic farmstead, and the stone fort. Additional sites around Hogg Bluff other than the stone fort included 11 rockshelters. A third large monitoring project took place in late August and involved a series of prehistoric and historic sites located on and around Foundation Bluff near Gorham, IL. A total of 17 sites were revisited, including 14 prehistoric and three historic. The prehistoric sites, were mostly on the central to northern part of the bluff

and involved rockshelters and mortuary stone mounds (included with this category is a Mississippian cemetery located on the western side of the bluff top overlooking the Mississippi River. The former range in date from Archaic (10,000 to 1,000 BC) to Mississippian (AD 1000 to 1450) and the latter appear to be Mississippian. In addition, six prehistoric petroglyph sites were also monitored for vandalism. A rockshelter which had been the scene of severe vandalism and police investigation was also monitored several times during the year.

In summary, 22 new archaeological sites were inventoried in the Shawnee National Forest in 2001, including three prehistoric, and 19 historic. Of these, all three prehistoric and fifteen historic sites are considered to be eligible for inclusion on the NRHP. In addition, in terms of monitoring archaeological sites for resource damage or vandalism, 89 sites or other heritage resources were revisited.

Summary and Recommendations

In terms of recommendations for the future protection of archaeological sites in the Shawnee National Forest, several changes are proposed. Although the majority of the sites that were inventoried and monitored in 2001 were in an excellent state of preservation with little to no threat of future impact from forest use, a small group of sites are, however, currently being impacted. Two historic sites, one a cemetery and the other a farmstead, are currently being impacted from trail use on Trail 186. In the case of the latter, the trail completely bisects the farmstead with erosion and runoff being funneled along the path due to its lower elevation. Other heavily impacted sites are the stone forts at Hogg's Bluff and War's Bluff. Due to hiker and horse use, the stone walls at these sites are being destroyed, since the trail runs through the stone wall in each case. Recommend moving or closing the trail in each of the four cases noted above. If such action is not taken, the heritage resources associated with these sites will be heavily impacted or completely destroyed.

Although some potentially important archaeological sites are being impacted from forest use, it appears that current preservation legislation is adequately protecting the majority of the cultural resources in the Shawnee National Forest. Simply closing off or moving small segments of several trails will alleviate most of the immediate impact to those few sites being damaged that were mentioned above. Our continued effort to involve the public in archaeological and historical resource protection programs is one approach to reducing future impact on sites in the Shawnee National Forest. This should involve the successful Passport In Time program, which has included hundreds of people over the last few years in the Shawnee Forest alone. With the addition of anti-vandalism signs along culturally sensitive parts of the trails should also reduce future impact.

VISUAL RESOURCES

by David Johnson, Forest Landscape Architect

Are vegetation management activities meeting visual quality objectives?

Visual Resource Impacts Monitored

The monitoring of the visual resources during FY2001 reviews the visual impacts of the most recent timber management activities on the forest (North End timber sale, 1997), and discusses the existing visual condition and desired future condition of the pine stands in the recreation areas and along visually sensitive travel-ways.

Effectiveness Monitored

- North End Timber Sale -

The following two photographs (A & B) show the log landing along FS RD 471A. Rapid vegetative growth has ameliorated the visual contrast that existed from the original opening and is typical of the high visual absorption capability of the landscape in Southern Illinois.

The timber management activities were halted by a court order and no mitigation measures were taken. However, as can be seen from photo A, vegetative growth was well established two years after the work was stopped. Therefore, the visual quality objectives were easily met within two years after the activity, without any mitigation measures being taken, other than the seeding and mulching to protect the disturbed soil in the log landings.

Photo A First log landing south side of FS RD 471A. This photo was taken in 1999 [Click here](#) to view photo.

Photo B This photo was taken July 23, 2002. The VQO was originally met and as can be seen vegetative growth is prolific. [Click here](#) to view photo.

Log landing Photos A&B along FS Road 471A. Timber activity occurred during summer of 1997

Are recreation activities and resources meeting visual quality objectives?

Last year the visual resource portion of the monitoring report included pictures and a brief discussion of the visual impacts from use of recreational trails on the Shawnee National Forest. Those examples are typical of the condition of the trails, then and now. No appreciable change has occurred since then, other than the routine trail maintenance by Forest Service and volunteer trail crews.

Pine Stands in Recreation Areas and Along Visually Sensitive Travel-ways -

-The existing condition-

This year the emphasis of monitoring is on the existing and desired visual condition of the pine stands in recreation areas and along visually sensitive travel-ways. The pine stands on the east side of the Forest were planted by the Civilian Conservation Corps (CCC) in the late 1930's and early 1940's as a means of stabilizing soil. Through the years, these stands have not been sufficiently thinned to encourage larger trunk size for physical stability or to allow more light into the forest for more variety of plant species and canopy development. Consequently, these overcrowded pine stands have been allowed to develop into tall, lanky specimens with small live crown ratios (see Figure #1) and relatively small to moderate trunk diameters (12"-20"). Deciduous trees that have intermixed within the pine stands have also developed into tall lanky trees. As natural mortality has occurred over time, the remaining trees have become more susceptible to wind-throw, storm damage, and are hazardous to the recreating public (see photo D). The stand density in recreation areas on the east side of the Forest is relatively dense when compared to thinned stands (see photos C, D, E, F,H, I).

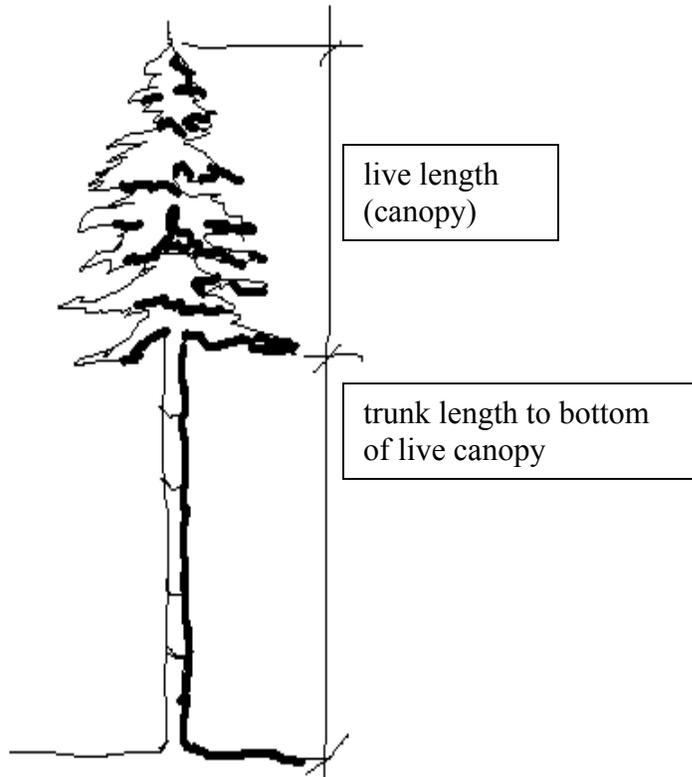
-Established Visual Character-

Since the pine stands on the east side of the forest have not been sufficiently thinned over time, they have developed into thick pine stands and offer a pronounced contrast to the surrounding deciduous hardwood stands of trees. The pine stands are generally darker green than the other trees in the leaf-on season and remain green through leaf-off season. Although these pine stands are not native to this area, the general public does not view this as a negative thing. In fact, the public has become familiar with the planted pine vegetative element and associates this established character as a part of their recreational experience in the forest.

-Visual Resource Management Concern of Non-Native Pine Stands-

The two primary pine species planted by the CCC crews are Loblolly Pine (*pinus taeda*) and Short Leaf Pine (*pinus echinata*). The expected life span of these two species in their native habitat is 150 years for Loblolly and 170 years for Short Leaf, [Textbook of Dendrology” (Covering the important Forest Trees of the United States and Canada), 5th edition, 1969, McGraw Hill, by William M. Harlow, Ph.D., and Elwood S. Harrer, Sc.D.]

The average age of these pine stands is about 60 years \pm . Although the textbook shows a lifespan of 150 years plus for these two species of pine, the physiological condition of these stands will continue to decline because of the circumstances under which they have been allowed to develop. Since these stands are predominantly pine of one age group and condition, it is expected that there will be a narrow window of time when the majority of the pine in these stands will reach mortality. It is also expected that this stage of mortality will cause a dramatic change in the visual character of a canopied forest to an early successional landscape and will negatively affect the desired visual condition, which will in turn negatively affect the recreational experience of the visiting public.



**Figure 1 - Example: Live Crown Ratio = Live Length divided by total height of tree.
Minimum for visual balance = 35-40%**

Photo C Oak Point Campground (tall lanky pine in the center of photo) [Click here](#) to view photo.

Photo D Oak Point Campground (leaning snags, susceptible to wind-throw and ice damage. [Click here](#) to view photo.

Photo E Oak Point Campground (dense pine stand) [Click here](#) to view photo.

Photo F Pine Ridge Campground (dense pine stand) [Click here](#) to view photo.

Photo G Entrance road into Lake Glendale recreation area is predominantly pine. ← This landscape character is typical of Other visually sensitive roads on the East side of the forest (Karbers Ridge Road, etc.) with thick pine stands. [Click here](#) to view photo.

Photo H Lewis Corner timber sale area @ 1/8 mile. Thinning occurred in 1991, this photo taken 2002. This photo shows a sample of thinning that provides a remaining canopied forest. Although it is not a recreation area, it shows the results of thinning and the vigorous vegetative growth that follows. The density of the remaining pine is about one half of the desired stand density for a recreation area. Natural regeneration has occurred with a variety of hardwoods. [Click here](#) to view photo.

Photo I Lewis Corner timber sale area @ 100 feet. (see pine regeneration in center of photo). [Click here](#) to view photo.

Conclusions

-North End Timber Sale Area-

Although this timber sale was stopped immediately after it got started, the visual impacts associated with the clearing of the log landing were short lived and were absorbed by the rapid growth of vegetation.

-Pine Stands in Recreation Areas and along Scenic Travel-ways-

As can be seen in photos C, D, E, F, and G, these stands have been allowed to develop under a crowded condition and will continue to present a hazardous situation for the recreating public. The logical conclusion is that a more diverse landscape will provide a healthy habitat for plant and animal species as well as an attractive landscape for the visiting public.

Recommendations

-North End Timber Sale Area -

Since the former visual concerns associated with this timber sale area have all been ameliorated through time, it is recommended that no further consideration be given to monitor this site, even though it is the most recent timber management activity on the Forest.

-Desired Future Condition of Pine Stands-

The desired future condition is a canopied forest with a mixture of age groupings and species types. It is not necessarily a goal to eliminate all the pine in these recreation areas and along visually sensitive travel-ways but to begin the gradual change in the condition of these stands, from a declining, overcrowded pine stands to a more balanced, vigorous grouping of native hardwood species that provide a long term benefit of shade, physical stability, air movement, and visual variety. Thinning with natural regeneration will provide a mix of pine and hardwoods with a more vigorous stocking (see photos E and F). Repetitive thinning may be required for a period of time until the desired canopy size and stand density is achieved.

The desired stand density would provide for improved air flow, more light for improved canopy growth and good visual penetration, while providing sufficient shade for the recreating public. Slight variations in stand densities are also desirable to provide for visual variety in recreation areas and along visually sensitive travel-ways.

Therefore, it is recommended that the ecological restoration provisions in the 1992 Forest Plan be implemented to begin thinning the pine stands on the east side of the forest. This would allow a gradual transition away from the decadent pine stands that now exist and to provide for the improved public benefits as mentioned above. Since the volume of pine removal is substantial, it is recommended that these goals be achieved over time with a schedule of removal.

ECOLOGICAL RESTORATION

by Richard Johnson, Eco Planning Team Leader

Ecological Restoration is a term used to describe different treatments that restore a particular area to a more diverse, natural state. The restoration of stands occupied by exotic pine is referred to on the Shawnee as ecological restoration. The proposed treatments in Opportunity Area 6 (OA-6) were the first in which we used this terminology. No ecological restoration in pine was completed during fiscal year 2001.

Conclusion: The proposed acreages of ecological restoration management practices are not being achieved.

Recommendation: Restore the ecological management program on the Forest.

TIMBER MANAGEMENT

by Richard Johnson, Ecosystems Team Leader

- The Shawnee National Forest offered no timber sales in FY 2001.
- There was no timber harvest activity during FY 2001.
- There were no harvested areas that were monitored for regeneration survival in FY 2001.

Conclusions

- There is no recent timber harvest therefore there is no conclusion regarding regeneration success this fiscal year.

- Objectives for forest age-class distribution and species composition are not being met due to lack of timber harvest.
- Other than through natural mortality, there is no movement toward age-class distribution objectives in the 1.3 management area (Oakwood Bottoms) due to the fact that there have been no timber sales or other age-class distribution modifying practices.
- Uneven-aged objectives in hardwood stands across the Forest are not being met due to the lack of timber sales.
- Forest Plan objectives to restore exotic pine stands to native hardwood stands are not being met due to lack of timber sales in those areas.

Recommendation: Restore an active timber sale program in hardwoods, pines and Oakwood Bottoms as a tool to move toward Forest Plan objectives.

RANGE

By Steve Hupe, Forest Planner

Grazing on range or pasture is prohibited within filter strips with the exception of Dixon Springs, Management Area (MA) 8.1, where grazing may be permitted where compatible with research objectives. Elsewhere, grazing is permitted in pine and openland components when compatible with the management prescription. Temporary pasture permits or range allotments may be permitted in MA's 2.1, 6.3, 6.6, 8.1 and 9.2, with some restrictions. In MA 9.1, pasture permits are allowed, but range allotments will not be issued.

The Sulfur Springs Allotment was identified in the Range Resource Overview prepared in 1979. This 100-ac allotment was located on the Vienna District Ranger in T12S, R6E, Sections 21 and 22, about 5 miles east of Eddyville. This allotment was discontinued in FY-1996 due to decreases in forage resulting from maturation of the white-pine plantation that covers most of the allotment. No grazing allotments were issued on the Shawnee National Forest during FY 2000.

Over the last several years, new tracts have been acquired for the SNF with much of this land being improved pastureland. No hay permits were issued during FY 2001 due to the amount of environmental analysis needed to authorize the permits.

Conclusion: Preliminary observations indicate that haying can be an effective tool to reduce woody encroachment and keep openlands in high quality, early successional habitat.

Recommendations: Continue to monitor the demand for grazing and hay permits. Utilize hay permits on lands the Plan and annual monitoring have identified as important openland habitats because continued use of this management tool is a viable alternative to more costly treatments. Re-analyze the need for and suitability of grazing allotments in the Forest Plan revision.

INSECTS AND DISEASE

by Richard Johnson, Ecosystems Team Leader

The Gypsy Moth trapping program was once again implemented during the summer of 2001. A total of 108 traps were set out across the Forest in June. Most of these traps were located in recreation areas where most of the out of state traffic was expected. A total of 96 traps were collected in September. Traps containing unidentified moths were sent to our State and Private Forest Service office for identification. No Gypsy Moths were found in any of the traps. A similar program will take place in the summer of 2002.

The spring of 2001 brought another defoliation by forest tent caterpillars (*Malacosoma disstria* Huber) in the Oakwood Bottoms area. The estimated size for the defoliation was approximately 1,500 acres as compared with 5,000 acres in 2000. In most cases these types of defoliations decline rapidly after three or four years. The acreage of defoliation is expected to further decrease in 2002.

Conclusion: Defoliation by forest tent caterpillars in the Oakwood area has declined in 2001 when compared to 2000.

Recommendation: Continue to monitor defoliation in 2002. A substantial decrease in defoliated acres is expected. If this does not happen it may be appropriate to consider treatment options.

WILDLIFE AND FISH

by Mike Spanel and Steve Widowski, Wildlife Biologists

Federal Regulations, 36 CFR 219.19(6), require that populations trends of Management Indicator Species (MIS) be monitored to determine the effects of management activities on wildlife habitat and populations. MIS's represent groups of fauna that depend upon the same habitat, and are used to determine the effects of forest management practices on wildlife.

Seventeen MIS's for the Shawnee National Forest were identified during the forest planning process and are listed in the Amended Land and Resource Management Plan on pages IV-66 and IV-67. Habitat changes are monitored through the use of Habitat Evaluation Procedure (HEP) and direct observations; populations are monitored by Forest Service personnel, through cooperative research studies with university researchers and with assistance of the Illinois Department of Natural Resources staff.

HEP models

Habitat Evaluation Procedure (HEP) models are used to evaluate environmental effects of management activities on five major habitat components (bottomland hardwoods, upland hardwoods, croplands, old fields, and grasslands) for thirteen of the seventeen MIS's. The number of species evaluated depends upon the habitat utilized by the species. The current model does not address the environmental effects on management activities on the American redstart (*Setophaga ruticilla*), the great-crested flycatcher (*Myiarchus crinitus*) and the rainbow darter (*Etheostoma caeruleum*). The environmental effects on these species are generally based on professional observations and collaborative data. They are generally addressed in a narrative manner. The bluebird (*Sialia sialis*), a modeled species, is used to address the effects on the great-crested flycatcher (*Myiarchus crinitus*).

In analyzing the short and long term, direct and indirect effects of management, only lands proposed for timber harvest are evaluated in the HEP analysis. Other Forest Service management activities are either too infrequent or the duration of change takes so long to occur that they do not result in measurable output in the current HEP model. From a sample of stands in the area to be harvested; field personnel measure 50 habitat characteristics that define the structural components or habitat characteristics most strongly correlated with wildlife distribution and abundance.

A more definitive explanation of the use of the HEP model can be found in the 1999 Monitoring Report.

No HEP data were collected in 2001.

Terrestrial and avian census

Population trends of MIS's are also monitored by both direct and indirect population counts. Direct population census involve the use of established field monitoring protocols such as call counts, covey counts and point census counts. Indirect population counts involve the use of harvest data for such species as white-tailed deer (*Odocoileus virginianus*)* and Eastern wild turkey (*Meleagris gallopavo*)*.

Call counts and covey counts are used to monitor bobwhite quail (*Colinus virginianus*) populations; point census counts are used to monitor other avian MIS's. The point census monitoring protocol developed by C. John Ralph is the point census protocol used to monitor MIS's such as the Kentucky warbler (*Oporornis formosus*)* and the wood thrush (*Hylocichla mustelina*)*.

Call counts, covey counts, and point census counts are done when possible in cooperation with the Illinois Department of Natural Resources and/or university research staff. These counts are conducted along established survey routes to determine population trends.

Bobwhite call and covey counts:

Bobwhite quail (*Colinus virginianus*)* call counts are generally done between June 15 and June 30, while covey counts are done between October 30 and 31.

In 1998 the Illinois Natural History Survey reported the most significant increase in bobwhite quail (*Colinus virginianus*) population at the Pennant Bar Ranch since the restoration effort began in 1996. This population level continues to remain high.

Forest Service personnel did not conduct call or covey counts in 2001.

Conclusions:

The continuing long-term downward trend in quail populations as documented in the 1999 Monitoring Report is undoubtedly due to declining amounts and quality of habitat related mainly to intensified agricultural practices.

According to John Roseberry “In the Shawnee counties, we have the additional problem of maturing forest cover becoming too thick for quail. When you stop and think about it, these counties now offer relatively little in the way of quail habitat. The hilly portions are either in mature forest or fescue pasture and the flat portions are intensively row-cropped.”

Recommendations:

The Forest will continue to rely on census data from the Illinois Department of Natural Resources and their management recommendations to determine the effects of our management on bobwhite quail (*Colinus virginianus*) populations. There is a need for management of large blocks of openland habitat to help provide appropriate quail habitat.

Eastern wild turkey populations:

Forest Service personnel did not conduct any direct population monitoring of the wild turkey (*Meleagris gallopavo*)* in 2001.

Conclusions:

Harvest data available from the Illinois Department of Natural Resources indicates that wild turkey (*Meleagris gallopavo*) reproduction was generally poor for several years prior to 1998 but has since rebounded.

Recommendations:

The Forest will continue to rely on census data from the Illinois Department of Natural Resources and their management recommendations to determine the effects of our management on wild turkey (*Meleagris gallopavo*) populations. For long term habitat

needs, active management to maintain the oak-hickory forest type will be important for eastern wild turkey populations.

Gray squirrel ,whitetail deer and wood duck populations:

Forest Service personnel did not conduct any direct population monitoring of gray squirrel (*Sciurus carolinensis*)* whitetail deer (*Odocoileus virginianus*)* and wood duck (*Aix sponsa*)* populations in 2001.

Conclusions:

Harvest data available from the Illinois Department of Natural Resources indicates that populations of these three management indicator species remain stable throughout the Shawnee National Forest.

Recommendations:

The Forest will continue to rely on census data from the Illinois Department of Natural Resources and their management recommendations to determine the effects of our management on populations of these three species.

(*) Management Indicator Species

Point census counts

Point census counts are done during the last week in May and during the entire month of June. In 1992, Forest Service personnel on USGS quadrangle maps identified sixteen permanent census routes. Five and one-half routes were located and permanently marked on the ground. Point census data has been collected from several of these census routes by agency biologists or university research staff since 1993.

A 1998 study conducted by a student from Princeton University was completed to determine the factors important to cowbird reproduction: host density, host quality, nest predation and female brown-headed cowbird (*Molothrus ater*) density. This research project compared cowbird reproduction in a forest and old field habitat. Preliminary results of the first field season suggest that per unit area, forest produce about 150% as many brown-headed cowbirds as old fields. The number of brown-headed cowbirds fledged in the forest appears to be about 1.57 times the number of brown-headed cowbirds produced in old fields. A paper summarizing this study presented at the Society for Conservation Biology in Washington, D.C. concluded: "On balance, this study suggests that forests produce more cowbirds. By increasing cowbird abundance, forest fragmentation may be reducing the reproductive success of all cowbird host species; not only that of forest-breeding species. A final report has not been submitted to the Forest Service.

Point census routes surveyed in 2001 included the following locations:

Point Census Route Location	Data Collection Year							
	94	95	96	97	98	99	00	01
Atwood Ridge*							X	X
Azotus*							X	
Bay Creek*					X			
Beaver Trail-RR Trail*					X		X	
Bean Ridge*				X			X	X
Bell Smith Springs-Hunting Branch						X	X	X
Big Muddy River					X			
Burden Falls*						X	X	X
Burke Branch-Cretaceous Hills*			X	X		X	X	X
Cave Hill RNA*				X		X	X	X
Cave Valley*						X		X
Cedar Lake*				X		X		X
Dutch Creek*	X	X	X			X	X	X
Garden of the Gods Wilderness*			X	X		X		X
Grapevine Trail*				X				
Gullett Ridge*			X					
Hamburg Hill*	X					X	X	X
High Knob*				X				
Horse Creek*				X				
Johnson Creek- Kincaid Lake*				X		X		X
Little Lusk Creek*				X		X	X	X
North and South Ripple Hollow*					X		X	X(so.)
Mill Springs*				X				
Point Census Route Location	Data Collection Year							
	94	95	96	97	98	99	00	01
Oakwood Bottoms-Centerline Rd.				X		X		X
One Horse Gap*		X						
Pennant Bar Ranch*				X	X	X		X
Pine Hills Campground*	X					X	X	X
Pine Hills Ridge*		X	X				X	X
Simmons Creek*				X				
South Ripple Hollow*	X	X	X				X	X
Stonefort-FIMU						X		X
Thacker Hollow-High Knob*				X				X
Williams Hill*				X				
Wolf-Caney Creek*				X		X		X
Pine Hills Ravine East							X	X
Bald knob Ravine							X	X

Lick Creek		X	X
Big Brushy Hollow		X	X
Tansill Site		X	X
Burke Branch West		X	X
Hayes Creek	X	X	X
- Dixon Springs Ag. Ctr.			
Cave Hill South	X		X
- Wiedenmann Hollow			X
Wildcat Hill	X		X
Saline Mines	X		X
Kaskaskia Experimental Forest	X		X
Lusk Creek West	X		X

(*) Dr. Robinson has collected census data from these routes since 1993.

Dr. Robinson's personal observations indicate that the previous decline in wood thrush* populations has stopped and in some areas their populations are now increasing. Cerulean warblers* are stable in most of their traditional areas of use. Northern parula populations are increasing. Black and white warblers remain rare. Red-shouldered hawks are becoming more common and increasing. Blue grosbeaks are increasing in the same habitat occupied by the Henslow's sparrow. Populations of tanagers and vireos remain at typical levels. Populations of loggerhead shrikes on breeding bird survey routes in or near the Forest boundary have declined. This is similar to declines for the shrike throughout the east. Scientists are not sure of the exact cause for the decline in this species. Overall, except for the loggerhead shrike, there were no real declines in any specific populations of birds.

(*) Management Indicator Species

A cooperative project with Dr. Scott Robinson of the University of Illinois resulted in re-surveying the routes conducted in 1999. Dr. Robinson provided the Forest with copies of the field data census forms for all the routes noted above. The Forest Service has entered the census points into the Shawnee GIS program and has entered the census data for 1999, 2000 and 2001 into the FAUNA database.

Conclusions:

Dr. Robinson, his colleagues and several other researchers have published research documents dating back to 1989 that address the effects of cowbirds and forest fragmentation on many of our MIS's. Dr. Robinson continues to compile and analyze the data he has collected to determine long-term population trends.

Recommendations:

The Forest should continue to utilize point census counts as a valuable census tool to monitor avian MIS populations. University research personnel, cooperators and volunteers will continue to play a vital role in the overall monitoring of MIS's.

Other ongoing research

Dr. Robinson began a 1999 National Science Foundation research project that included portions of the Shawnee National Forest to determine the effects of forest fragmentation on avian nesting success as mediated by landscape composition. This study will access directly how landscape composition affects the outcome of forest fragmentation on birds nesting in southern Illinois and conclude in 2004. He is also looking at the songbird populations in non-native pine plantations versus hardwood forest habitats on the Forest to aid in forest planning.

Fisheries Program Summary for 2001 – Fish Census and Habitat Management

The fisheries program for 2001 on the Shawnee National Forest is composed of the following activities: Stream Sampling, Spring Sampling and Inventories, Conservation Assessments and NEPA, Lake and Pond Management, and other duties.

Fisheries biologists with the Illinois Department of Natural Resources (IDNR), using either gill nets, sein nets or electrofishing equipment, collected and sampled fish populations within lakes, ponds and streams of the Forest to determine: (1) condition and age class distribution the condition and age class distribution (2) population composition; and (3) species distribution of our existing fishery. The IDNR has also conducted angler-catch surveys in the past to help determine catch rates and fish populations conditions.

In 1993, the Illinois Department of Natural Resources (IDNR), the U.S. Fish and Wildlife Service and the U.S. Forest Service signed a Memorandum and Understanding (MOU) that identifies the responsibilities of each agency and its respective interests in maintaining a fisheries program on the Forest and adopted *The Fisheries Management Plan for the Waters of the Shawnee National Forest*. The plan states that IDNR has the primary responsibility for developing and maintaining quality angling opportunities in the lakes and ponds on the Forest. It identified more than 210 lakes and ponds that have been inventories and managed for fishing purposes, totaling approximately 2,100 ha (5,200 ac) of water. The plan lists five management practices for lakes and ponds and establishes standard survey techniques, survey frequencies and population measurements to be used to evaluate the conditions of fish populations throughout the Forest.

Plan implementation continues with annual stream, pond and lake inventories, boat access reviews and annual coordination meetings to discuss upcoming work plans. The Illinois Department of Natural resources conducted stream basin surveys within the Cache River and Ohio River basins in southern Illinois during 1986-87, 1992-94, and 1996-2000.

The following table summarizes recent monitoring conducted by the IDNR.

IDNR Sites Surveyed:	Data Collection Year					
	96	97	98	99	00	01
<u>Streams:</u>						
Bay Creek	x				x	
Big Creek – (AO-02)*						x
Big Creek - (AO-03)	x		x			
Big Grand Pierre Creek - (AL-01)	x		x		x	
Bay Creek Ditch - (AJK-01)*						x
Cache River – Post Ck Cutoff - (AD-04)	x		x			
Cache River – Miss. River - (IX-05)	x		x			
Clear Creek - (Site IC-01)					x	
Clear Creek - (Site IC-02)					x	
Clear Creek - (Site IC-03)					x	
Clear Creek – (Site IC-05)					x	
Dutch Creek - (ICD-02)					x	
Hutchins Creek - (ICE-01)	x		x	x		
Lusk Creek - (AK-02)		x			x	
Miller Creek - (IBA-08)					x	
Sexton Creek – (IB-07)					x	

(*) Sampled by the Illinois Natural History Survey using electronic seins.

Lakes and Ponds:

Cedar Lake	x	x	x	x	x	x
Dutchman		x	x		x	x
Kinkaid Lake	x	x	x	x	x	x
Little Cache #1	x	x			x	x
Turkey Bayou	x	x				
Bay Creek #5						
Lake Glendale	x	x	x	x		x
One Horse Gap	x	x	x			
Pounds Hollow	x	x			x	x
Sugar Creek	x	x	x			x
Tecumseh	x	x			x	x
Whoopie Cat	x	x	x			
Little Cedar	x					

Stream Sampling

The fisheries biologist and student assistants of the Shawnee National Forest conducted intensive surveys of the Big Creek and Big Grand Pierre watersheds during the summer of 2001. Objectives were to: (1) inventory and document fish, mussel, amphibian, reptile and crayfish populations. (2) define and measure current physical habitat conditions. (3) identify adjunct or unstable populations.

Big Creek Watershed

Within the Big Creek watershed twenty-five sites were sampled collecting over 40 species of fish including several new fish species for the basin. In June of 2001, Shawnee personnel collected southern redbelly dace (*Phoxinus erythrogaster*) from a stream in the upper portion of the basin representing the first time this species has been seen in southeastern Illinois in over a hundred years. Twelve species of amphibians and reptiles were recorded during the 2001 survey including several species not documented from the basin in over twenty years (*Nerodia erythrogaster*, *Acris crepitans*, *Bufo americanus*). Freshwater mussel populations were encountered at only a few sites within the lower portion of the basin. Crayfish populations seem to be health within the basin and voucher specimens were collected at each site and shipped to Chris Taylor with the Illinois DNR for identification. As of 2001 Big Creek supports health populations of both fish and crayfish populations.

Big Grand Pierre Watershed

Twenty sites were sampled within the Big Grand Pierre basin during the summer of 2001. Over 30 species of fish were collected including numerous species previously unknown from the basin. Fresh water mussel populations were encountered at several sites in varying densities. In September of 2001, Kevin Cummings with the Natural History Survey reported taking the purple lilliput (*Toxolasma lividus*) a small freshwater mussel from the upper portion of Big Grand Pierre Creek. The purple lilliput is listed as a state endangered species in Illinois and is a candidate species for federal listing. Over 15 species of reptiles and amphibians were collected from the Big Grand Pierre. Crayfish populations seem to be health within the basin and voucher specimens were collected at each site and shipped to Chris Taylor with the Illinois DNR for identification.

Conclusions:

Streams continue to be under utilized by sport anglers particularly Big Grand Pierre and Lusk Creek. Access is probably the limiting factor even though these streams are located on public property.

Spring Sampling and Inventories

Three springs were sampled in the Big Creek watershed. Spring cavefish (*Forbesichthys agassizi*) and longtail salamanders (*Eurycea longicauda*), both species commonly associated with springs, were encountered at 2 remote springs. The third spring sampled was near a public road and exhibited heavy use by the public. Sampling results indicate

that within the Big Creek watershed springs are highly sensitive environments supporting unique and specialized fauna.

Non-native Invaders

Zebra Mussels

Zebra mussels (*Dreissena polymorpha*) are native to the Black, Caspian, and Azov seas of southern Europe and Asia. In the past two hundred years the zebra mussel has invaded Great Britain, eastern Europe, and parts of the Soviet Union. Zebra mussels are small, triangular-shaped mussels native to the Black Sea. Zebra mussels were introduced into the United States in the mid- 980's; vectors for their introduction were human shipping activities. Since its introduction the zebra mussel has spread throughout large portions of the Mississippi and Ohio river basins. Rapid growth rate, high fecundity, and capacity for down-stream dispersal make the zebra mussel highly invasive.

In July of 2001, zebra mussel populations were found within the lower portion of Big Creek and Big Grand Pierre Creek within the Shawnee National Forest boundary. The current distribution of the zebra mussel within Big and Big Grand Pierre Creeks is restricted to areas near their confluence with the Ohio River. Reproductive mode and early life stage characteristics precluded zebra mussel from up-stream colonization. Upstream colonization within these watersheds can only occur through an outside transport mechanism (i.e., human intervention).

Daphnia lumholtzi

D. lumholtzi is native to tropical and subtropical lakes in east Africa, Australia, and the Asian subcontinent if India. The relative large size and extended horny projections of *D. lumholtzi* enables it to avoid predation. *D. lumholtzi* was first discovered in the United States in Texas in 1990, since then it has spread to parts of Arkansas, Illinois, Mississippi, Missouri, Florida, Kansas, Kentucky, Louisiana, North Carolina, Oklahoma, South Carolina, Tennessee, and Utah. In the summer of 2000, *D. lumholtzi* was discovered within Crab Orchard Lake by U.S. Fish and Wildlife personnel, further investigations by the U.S. Fish and Wildlife service revealed *D. lumholtzi* populations within the Big Muddy River. Currently, it is unknown what impact this species will have on Shawnee National Forest aquatic systems.

Lakes Surveyed for *Daphnia lumholtzi*

<u>Lake</u>	Year 2001 Presence (yes / no)
Dutchman	No
Little Cach #1	No
Lake of Egypt	No

Conservation Assessments and NEPA

Conservation assessments are currently coordinated with Dr. Kevin Roe, Dr. Chris Taylor and Dr. Brooks Burr. NEPA Projects including Honey School Bridge, Rattlesnake Crossing and Camp Ondessonk have been completed as of 04/10/2002.

Volunteer Program

In 2001, volunteers provided 664 hours of support to the Shawnee Forest fisheries department. Work conducted by volunteers included surveys, data collection, and maintenance. Volunteer labor provided 20 percent of the total work force for the fisheries department on the Shawnee National Forest.

Conclusions:

Conducting annual draw-downs and/or controlling nuisance aquatic vegetation with appropriate herbicide could improve the quality of sunfish in several lakes. Recent correspondence with IDNR Fisheries Biologists indicates that sunfish populations throughout the Shawnee range from poor to excellent. Noticeable improvements in recent years has occurred on several lakes with further improvement likely when a full range of management options, including use of chemicals, are available to appropriate personnel.

Largemouth bass (*Micropterus salmoides*) populations continue to show a wide-ranging size distribution. Smaller bass tend to be in relatively poor condition and are slow growing. A 16-inch size limit with a three fish daily creel limit established on Lake Kinkaid in April 1998 remains in effect. Recent sampling found 23% of all bass being of legal size.

The muskellunge (*Esox masquinongy*) fishery continues to improve at Lake Kinkaid with greater age classes and larger size fish (trophy) fish reaching the 48" creel size. The walleye (*Stizostedion vitreum*) fishery has varied considerably over recent years with increasing numbers of fish being collected during the spring electrofishing period.

Gill net and trap net surveys in 2000 documented improvements in both muskie and walleye populations as compared to previous year probably resulting from the instillation of a fish escape barrier at the Kinkaid spillway.

IDNR does an excellent job of monitoring fish populations within the Shawnee National Forest. In the absence of adequate staffing on the Forest, IDNR plays a vital role in the overall management of the fisheries resources.

Recommendations:

Continue to support the efforts of IDNR Fisheries Division to monitor fish populations and recreational fishing pressure. Continued monitoring by IDNR of the streams, lakes, and ponds will help insure that management plans and required standards and guidelines are implemented.

The Forest recognized that staffing did not adequately meet our overall need to insure a quality aquatic resource management program was implemented. To this extend the Shawnee and the Hoosier National Forest worked to obtain a shared services aquatic ecologist/fisheries biologist to assist the IDNR Fisheries Division in implementing a strong aquatic and fisheries management program on both national forests.

Direct Habitat Improvements

	Acres Accomplished			
	1998	1999	2000	2001
Permanent Opening Establishment (1)(2)	0	0	0	0
Waterhole Construction	0	0	0	0
Fish Pond Construction	0	0	0	0
Greentree Reservoir Construction (3)	0	0	0	0
Regeneration	0	0	0	0
Prescribe burning (3)	259	40	40	40
Snag and Den Tree Retention	0	0	0	0

(1) In 2001 approximately 20 acres were disked and seeded to sunflowers at the Pennant Bar Ranch in Johnson and Pope Counties.

(2) In 2001 approximately 127 acres of openland sites and wildlife opening at 39 sites were maintained in cooperation with the National Wild Turkey Federation under the “Adopt an Opening” program.

(3) In 2001 Oakwood Bottoms Greentree Reservoir, 2,952 acres of bottomland pin oak forest were seasonally flooded to provide waterfowl habitat during the spring and fall migrations; 76 acres of levees were mowed to improve, maintain levee conditions and provide turkey brood habitat. Waterfowl and hunter use declined at Oakwood in 2000 and 2001. This decline in use may be partially attributed to a substantial decline in acorn production caused by 1998 and 1999 tent caterpillar infestations.

Use on opening day was less than 2000 with 100 cars observed along the levees accounting for an estimated 200 hunters.

(4) In 2001, 40 acres were prescribed burned at the Pennant Bar Ranch.

THREATENED, ENDANGERED, and SENSITIVE SPECIES

There are seven species, listed by the U.S. Fish and Wildlife Service (USFWS) as threatened or endangered, known to inhabit the Shawnee National Forest: bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), least tern (*Sterna albifrons*), gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), Price's groundnut (*Apios priceana*) and Mead's milkweed (*Asclepias meadii*). Sixteen Regional Forester's Sensitive animals and sixty-three plants are listed on the Shawnee as of February 2000.

Areas proposed for any management activity are inventoried to determine whether and how habitat for these species as well as any state of Illinois threatened or endangered species could be potentially affected by the proposed activity. In addition, species listed by the USFWS are monitored for occurrences at or near known locations.

FAUNA

by Mike Spanel and Steve Widowski, Wildlife Biologists

Henslow's sparrow

Dr. Scott Robinson and J.H. Herkert conducted breeding-bird surveys at the Pennant Bar Ranch on June 6 and June 13, 1998. They conducted 41 fixed-radius (100m) point census counts during their survey. Henslow's sparrows (*Ammodramus henslowii*) were the second most commonly encountered species, 9.5% of all birds observed; only the Common Grackle, at 10.35% of observations was seen in greater numbers. Their observation of this population of Henslow's sparrows (*Ammodramus henslowii*) is significant because the birds were discovered in the far southern part of the state. Populations of more than 15 pairs of Henslow's sparrows (*Ammodramus henslowii*) are very rare in Illinois.

Both researchers visited the site in 2001 and concluded that good populations of grassland birds as well as Henslow's sparrows continue to use the area. They plan to visit the area on an annual basis.

Ms. Natasha Harroff, a graduate student at the Illinois Natural History Survey was issued a permit to utilize portions of the Shawnee National Forest to determine the density and distribution of the Henslow's sparrow in southern Illinois and evaluate the conservation reserve program (CRP) fields as suitable breeding habitat.

Ms. Harroff has not submitted the results of her research and recommended management for the Henslow's sparrow to the Forest Service.

Siri Ibarguen, a graduate student from Ohio State University conducted research on the Henslow's sparrow to determine linkages between breeding and wintering Henslow's sparrow (*Ammodramus henslowii*) populations. Ms. Ibarguen's research findings have not been submitted to the Forest Service.

To improve habitat for the Henslow's sparrow and other grassland animals, forty acres of prescribed burning was done on the Pennant Bar Ranch site during 2001. In an effort to reduce invasive shrub growth on the Pennant Bar Ranch over 500 Autumn olive shrubs were removed from the site during 2001.

Conclusions:

Preliminary observations indicate that substantial shrub growth including the invasion of Autumn olives could potentially have an adverse effect on populations of the Henslow's sparrow (*Ammodramus henslowii*), a Regional Forester's Sensitive Species and state endangered species.

Recommendations:

The Forest recognizes the need to manage large openland areas to benefit threatened and endangered species as well as many grassland species that are continuing to decline in numbers. Dirk E. Burhans, Department of Fisheries and Wildlife Sciences, Columbia, Missouri completed a Conservation Assessment in 2001 for the Henslow's sparrow (*Ammodramus henslowii*) to assist in future management efforts.

Bald eagle

The bald eagle (*Haliaeetus leucocephalus*) nest at the mouth of Big Grand Pierre Creek remains inactive and has deteriorated to the point where the eagles no longer use the site. Eagles have not returned to the site since 1994. Four other bald eagle (*Haliaeetus leucocephalus*) nests have been identified on the forest during the past two years. Active nests have been reported in Alexander, Jackson (Little Grand Canyon), Hardin, Pope, and in Johnson counties where eagles recently successfully nested at Lake of Egypt.

Nesting success has been monitored over the past several years by the Illinois Department of Natural Resources, Division of Natural Heritage. According to a report from the Illinois Department of Natural Resources, four eagles were fledged on lands administered by the Shawnee National Forest in 2001.

No monitoring was done at the winter roost-site at Atwood Ridge RNA during the winter of 2001. The number of eagles using the area has historically peaked in December and slowly declined through mid-winter; all the birds leave the area by March.

Conclusions:

Nesting bald eagles (*Haliaeetus leucocephalus*) appear to be expanding on the Shawnee and throughout their range in Illinois and neighboring states. With increasing nesting apparent in southern Illinois and adjacent states we anticipate the major rivers and reservoirs on or adjacent to the Shawnee will provide additional nesting habitat in the very near future.

The Amended Land and Resource Management Plan has a stated goal of having two nesting pairs of bald eagles (*Haliaeetus leucocephalus*) on the Shawnee by 2020. This goal has been met.

Recommendations:

Both the U.S. Forest Service and the Illinois Department of Natural Resources should continue their efforts to monitor bald eagle (*Haliaeetus leucocephalus*) populations and nesting sites throughout the Shawnee. The identified goal of two nesting pairs of bald eagle (*Haliaeetus leucocephalus*) by 2020 should be re-evaluated and adjusted in view of the number of recently documented active nests on or near the Forest.

Osprey

During the past decade none of the five osprey (*Pandion haliaetus*) nesting platforms erected on the Elizabethtown Ranger District have been used. Additional nesting platforms were erected in 1994 near Fountain Bluff and at Dutchman, Sugar Creek and Kincaid lakes.

Sites located near Fountain Bluff, Dutchman Lake, Sugar Creek and Kincaid lakes were not monitored during 2001.

Conclusions:

Human disturbance factors may be adversely affecting nesting and hindering recovery of this species in Illinois that appears to be extremely slow.

Recommendations:

Continue monitoring nesting use at established platforms.

Eastern woodrat

Populations of the Eastern woodrat (*Neotoma floridana*) are declining in many parts of its geographic range. In Illinois, the Eastern woodrat (*Neotoma floridana*) is listed as endangered; the only known population remaining in the state occurs on the Shawnee National Forest in LaRue Pine hills Ecological Area and Fountain Bluff. Extensive research and annual monitoring of this population has continued since the early 1970's. Surveys are generally conducted in December in cooperation with researchers at Southern Illinois University.

Surveys conducted since the 1970's indicate two small but slightly expanding populations in upland and bottomland forest occur at LaRue Pine Hills Ecological Area and at Fountain Bluff near the Mississippi River. Populations were not surveyed during 2001.

Conclusions:

Both populations of the Eastern woodrat (*Neotoma floridana*) have moderately fluctuated in numbers during the past two decades. Populations currently appear to be stable. Their small size and relative isolation continue to make them very vulnerable to extirpation due to a catastrophic event.

Recommendations:

The Forest should continue cooperative efforts with Southern Illinois University to monitor current populations. A partnership effort between the Forest Service and the Illinois Department of Natural Resources should be made to explore intervention to establish and restock historic habitat throughout the Shawnee to guard against local extirpation of existing populations.

A contract was awarded to the Department of Zoology, Southern Illinois University at Carbondale, Illinois to prepare a Conservation Assessment for the Eastern Woodrat. The draft assessment was completed in June 2002.

Kentucky crayfish (*Orconectes kentuckiensis*)
Indiana crayfish (*Orconectes indianensis*) and
Orconectes placidus

Contracts were prepared and awarded to the Center for Biodiversity, Illinois Natural History Survey, Christopher A. Taylor for the preparation of Conservation Assessments for the above three crayfish. Drafts of these assessments were completed in June 2002.

Indiana bat

The results of mist netting actions to determine distribution and habitat utilization of forest habitat by endangered and threatened bats including the Indiana bat (*Myotis sodalis*) conducted during the past two years are noted in the 1999 monitoring report.

The results of monitoring activities conducted by graduate students at Southern Illinois University, Carbondale are summarized as follows:

In 2001 a total of 18 netting nights occurred on the Shawnee National Forest during the period beginning in late May thru late July 2001. Graduate students with Southern Illinois University conducted netting in 2 general locations. The first location was at Oakwood Bottoms, Jackson Co. IL. The second location was in Bluff Lake Swamp, Union Co. IL.

Twenty-eight (28) Indiana bats were captured from the two locations. Other bats netted during this monitoring effort included northern long-eared bats (*Myotis septentrionalis*), eastern red bats (*Lasiurus borealis*), eastern pipistrel bats (*Pipistrellus subflavus*), big

brown bats (*Eptesicus fuscus*), little brown bats (*Myotis lucifugus*), and Indiana bats (*Myotis sodalis*).

Seven Indiana bats were captured in Oakwood Bottoms, Jackson Co., and 21 in Bluff Lake Swamp, Union Co.. Twenty Indiana bats were radio-tracked during the summer of 2001. Data collected on the roosts of these bats have not been analyzed. In general, all roosts found were in snags. Most roosts were in close proximity to edge habitat between open and forested areas. Nightly exit counts documented between 1 and 107 bats using a single roost. Both colonies contained multiple roost that housed 30 or more bats.

Forest Service biologists also conducted some bat monitoring activities during 2001. The following are the results of this monitoring effort:

Monitoring was done using the USFWS mist netting protocol at three locations on the Forest. Two locations were adjacent to the openlands northeast of Kinkaid Lake in Jackson County at Little Kinkaid Creek and Spring Creek. These were the best foraging habitats in the Kinkaid openland vicinity. This monitoring was done in middle June, 2001. Only two bats were captured, one was a lactating, female eastern pipistrelle and one was an adult male big brown bat. No Indiana bats were captured in these areas during the survey period. Bats were observed and heard flying overhead in both locations.

Monitoring was also done in early July in the Reddick Hollow area of the Forest in Pope County in the vicinity of numerous wildlife openings. Netting locations were in riparian areas immediately adjacent to some of the openings. In eight different bats were captured during two nights of netting. Three of the captured bats were adult, male northern longear bats, two were adult, female eastern pipistrelles, one of which was lactating, and three were adult red bats, two of which were lactating females, and one was an adult male. No Indiana bats were captured in this netting area. Bats were observed and heard flying overhead in this location during the survey periods.

More bats were captured, seen and/or heard in the Pope county area which was near many wildlife openings than the Jackson County sites that were near larger openland sites.

In partnership with the Illinois Department of Natural Resources, wintering Indiana bat (*Myotis sodalis*) populations were monitored at several caves and abandoned mines. Monitoring of a cave gated two years ago revealed that bat use has continued and may have even increased during late summer and winter.

Volunteers from the Little Egypt Grotto removed litter from a cave that continues to be heavily used by forest visitors. A volunteer has been monitoring temperature and human use occurring in several caves. The results of this project are expected to be completed in 2002.

Conclusions:

After several years of intensive bat netting the Forest is beginning to develop a better understanding of the distribution of many forest bats. Monitoring efforts were increased significantly in 1998 and 1999 with the signing of a challenge cost-share agreement between Southern Illinois University and the U.S. Forest Service. This five-year effort will continue to expand our knowledge of habitat use and distribution of forest bats, all of which are either endangered or threatened.

The use of the ultrasound bat detector continues to be an effective tool for monitoring existing habitat, i.e. determining the presence of bats in trees with exfoliating bark. Observations made during several past seasons indicate that Indiana bats (*Myotis sodalis*) are using live or dead trees as roost sites in many areas of Oakwood Bottoms Greentree Reservoir but not in pine-timber sale areas of Opportunity Area 6.

Additional mist netting will help us validate this assumption. The enigmatic behavior of Indiana bats (*Myotis sodalis*) makes drawing definitive conclusions about habitat needs and preferences difficult. It also appears to be too early to determine whether the number of bats using caves and abandoned mines of the Shawnee is increasing, decreasing or remaining stable.

Mist netting, although very labor intensive, has also added valuable information to our knowledge of the habitats and distribution of Forest bats. The use of mist netting has proven valuable in determining the general presence of foraging and roosting bats in a given area.

The continued use of data loggers to record temperature and monitor human disturbances will provide us with an effective tool to monitor changes in environmental conditions that may help determine causes for population fluctuations and changes in habitat use.

Volunteers have made a significant contribution to bat conservation through their willingness to help maintain a clean and healthy cave environment at several sites that historically have been used by hibernating bat colonies.

Recommendations:

Continue and expand if possible intensive efforts to monitor bat populations and habitat use especially foraging habitat. The use of data loggers to monitor cave temperature and human disturbance factors should be expanded. The ultrasound bat detector has proven to be an effective monitoring tool and its use should be expanded. Cave gating should continue to be evaluated at several sites as one means to protect fragile wintering habitat.

The U.S. Fish and Wildlife Service have recommended changes to the current forestwide standards and guidelines for the management of Indiana bats (*Myotis sodalis*). These changes should be evaluated and revisions to the Amended Land and Resource Management Plan made as appropriate.

Volunteers have expressed a desire to continue their efforts to help maintain a clean and healthy cave environment at several cave sites within the Forest. Their efforts should be encouraged and continued.

Copperbelly water snake

In 1996, in consultation with the U.S. Fish and Wildlife Service we re-evaluated our current guidelines for the management and protection of habitat for the copperbelly water snake (*Nerodia erythrogaster neglecta*). During our consultation we agreed to develop project and site specific guidelines to protect the species and its habitat when management activities are proposed.

We continued to apply these site-specific guidelines in 2001.

Conclusions:

We feel these site-specific guidelines will afford adequate protection to the copperbelly water snake (*Nerodia erythrogaster neglecta*); however, additional monitoring is needed to determine their effectiveness in protecting known populations and occupied habitat.

Recommendations:

The site-specific standards and guidelines for the copperbelly water snake (*Nerodia erythrogaster neglecta*) developed to protect the species and its habitat should be evaluated and appropriate revisions to the Amended Land and Resource Management Plan made if necessary.

LaRue Pine Hills Road Closure

Monitoring was done by five National Forest biologists in the late September at one known snake den and along the LaRue Road. Nine cottonmouths, two western ribbon snakes, one rough green snake, one timber rattlesnake, and four fence lizards were observed at the den location. The average length for the cottonmouths was 27 inches. All individual snakes were adults except for the timber rattlesnake that was a juvenile.

The survey along the LaRue road was done on the same day as the den survey above. Five, Forest Service biologists did thorough surveys of the road and road edges. One western ribbon snake, one redbelly snake, two cottonmouths, one cricket frog, and two fowler's toads were observed along approximately 3 miles of closed road and associated edges.

At this time in September 2001, apparently many individual reptiles were already at the den site location.

Many observations of snakes crossing the LaRue Pine Hills road by both Forest Service and Illinois Department of Natural Resource biologists in both spring and fall of 2001

indicated that the closure is affording adequate protection to the existing snake population. No individual reptiles were observed dead or injured along the closed road area in 2001. Small numbers of dead and injured reptiles were observed on sections of the county road open to traffic in 2001 immediately adjacent to the closed area. None of the observed dead or injured reptiles were State or Federal threatened or endangered species.

Recommendations:

Continue the present road closure policy during the spring and fall snake migrations and monitoring of both public and snake use within the closure area and at an associated den site.

General Conclusions and Recommendations:

Our effort to monitor species population changes as affected by project implementation during the past two years did not reveal any significant adverse impacts on any Federal endangered, threatened, regionally sensitive or state listed species. Direct habitat improvements were made in partnership with the National Wild Turkey Federation, Quail Unlimited and private citizens. U.S. Forest Service personnel monitored the effects of these practices.

Direct population monitoring was done in cooperation with the Illinois Department of Natural Resources, research staff and students with Southern Illinois University and other cooperators.

We expect that these cooperators will continue working with us in the future to monitor populations of our Management Indicator Species as well as those listed as endangered or threatened.

We initiated an effort to review and revise if needed the current standards and guidelines for the management of many of our endangered or threatened species. Our work with the U. S. Fish and Wildlife Service resulted in the implementation of site-specific management guidelines being developed for the Indiana bat (*Myotis sodalis*) and the copperbelly water snake (*Nerodia erythrogaster neglecta*). We held discussions with out-service researchers and resource specialists to determine the effects of our proposed management activities on native fauna and utilized the findings of ongoing research to make more informed decisions.

We will continue to validate our current standards and guidelines and recommend appropriate changes to insure the protection of habitat for those species where such changes are warranted.

FLORA

By Elizabeth Shimp, Botanist

There are two plant species, listed by the U.S. Fish & Wildlife Service (USFWS) as threatened or endangered, known to occur or we have records that they once occurred on the Shawnee National Forest: Price's Groundnut and Mead's Milkweed. There are many plants listed as Regional Forester's Sensitive Species (RFSS) or Forest-listed species in the Amended Forest Plan (see pp. IV-50 to IV-57). Since these lists were compiled, there have been updates and revisions made, which apply to Forest-wide projects. The latest RFSS list is dated February 29, 2000. This list may be found in the 2000 Monitoring and Evaluation Report. Areas of the Forest proposed for any type of active management are first inventoried, either on-the-ground or with maps of known occurrences, to determine whether and how habitat for any TES species could be affected by the activity.

***Asclepias meadii* (Mead's Milkweed)**

A Challenge Cost-share agreement between the Shawnee National Forest and The Morton Arboretum continued during FY2001. Also contributing to the national recovery efforts of Mead's Milkweed are the US Fish and Wildlife Service, Illinois Department of Natural Resources, Illinois Nature Preserves Commission, Indiana Division of Nature Preserves, and the Illinois Endangered Species Protection Board. The Shawnee National Forest Botanist spent 2 working days in management, monitoring, and other field observations. Volunteers John and Martha Schwegman, and Marlin Bowles of The Morton Arboretum assisted on one day of field monitoring.

Sites #1, 2, 3, 4, and 5 were monitored for native plants during FY2001. No plants were found at Site #1 and 5. Site #2 had 3 sterile plants, Site #3 had 1 sterile plant, and Site #4 had 10 sterile plants, 2 flowering plants, and 2 of the seemingly sterile plants that had been browsed but appeared that they may have been capable of flowering. During FY2000, no plants were found at Site #1 and 5 sterile plants were found at Site #4. These were the only two sites monitored in FY2000 due to Forest priorities. The habitat for the Mead's Milkweed is diminishing at these sites due to the lack of periodic fire. The loss of habitat continues to be the greatest threat to this species in Illinois. The lack of active management at these sites could eventually lead to the demise of this species on the Shawnee National Forest.

***Apios priceana* (Price's Groundnut)**

Price's Groundnut has not been seen on the Forest since 1941. The site where it was originally found still exists but the species has not been relocated. The last search for this species at this site was done about 1989. A search for the species on the Forest was not initiated during FY2001 because of Forest priorities.

This species has been delisted by the State-of-Illinois because it has been presumed extirpated. Because no searches have been done within the last several years and because some believe that this species can still be found, it will continue to be on the Shawnee National Forest's list of threatened and endangered species.

***Isotria medeoloides* (Small Whorled Pogonia)**

The Small Whorled Pogonia is known from just outside the Forest's boundaries, and potential habitat does exist within the Forest. It has been not seen for several years and the population is feared extirpated as determined by the Illinois Department of Natural Resources, Heritage Division.

Conclusions

These species and their habitats require long-term monitoring and habitat observations in order to more fully understand the species' requirements. Observations and research of the nation's Mead's Milkweed populations by the leading expert on the species has led to the finding that populations exposed to repeated prescribed fires are more vigorous in morphological growth and are better candidates for sexual reproduction. The 5 sites on the Shawnee National Forest have lacked prescribed fire over the last several years and the areas are becoming more difficult to keep open by only cutting back the resprouting shrubs and trees in the immediate vicinity of the Mead's Milkweeds. A prescribed burn is not only predicted to, but is known to enhance the Mead's Milkweed habitat and hence, population health and vigor.

Recommendations

As recommended in the last several yearly reports, continued searches need to be made for Price's Groundnut at its formerly known location as well as at other locations on the Forest with potential habitat. The Small Whorled Pogonia should continue to be on the Shawnee's list of protected species because habitat does exist on the Forest.

Mead's Milkweed plants and their habitat should continue to be monitored closely. The prescription for burning the plant's habitats should be updated, along with tree and shrub removal as needed. The Shawnee is involved in the national recovery effort of this species and should be making every effort possible to use the latest species discoveries and information to encourage and maintain populations with better health and vigor.

Plant Species Analyzed for Projects

The following information was compiled from computer databases and available literature. The below 165 plant species are known from or have been documented as historically occurring within the 11 counties where the Shawnee National Forest is located with the exception of *Isotria medeoloides*.

Note: Federal (T = Threatened), Regional Forester's Sensitive (S), Forest-listed (FL), and other State of Illinois listed plant species known to occur or have been documented as historically occurring within the 11 counties of southern Illinois.

Note: IL-T = Illinois Threatened, IL-E = Illinois Endangered, A = Alexander, G = Gallatin, H = Hardin, Ja = Jackson, Jo = Johnson, Pu = Pulaski, M = Massac, P = Pope, S = Saline, U = Union, and W = Williamson.

A,H,Ja,Jo,P,S,U,W	<i>Agalinis gattingeri</i> (Roundstem Foxglove) (removed from S 1994) * <i>Agalinis skinneriana</i> (Pale False Foxglove) (IL-T, removed from S 1994)
P	<i>Amorpha nitens</i> (Smooth False Indigo) (IL-E, S)
(U)	<i>Apios priceana</i> (Price's Groundnut)(T)
(A),Jo,M,P,Pu,S,U	<i>Aristolochia serpentaria</i> var. <i>hastata</i> (Virginia Snakeroot) (IL-T, FL)
Ja,Jo,P,U	<i>Armoracia aquatica</i> (Lake Cress) (removed from S 1994)
S	<i>Asclepias meadii</i> (Mead's Milkweed)(T)
Ja,S,U	<i>Asplenium bradleyi</i> (Bradley's Spleenwort) (IL-E, S)
(A),(Ja),U	<i>Asplenium resiliens</i> (Black Spleenwort) (IL-E, S)
G,H,P,S	<i>Aster undulatus</i> (Wavy-leaved Aster) (FL)
H	<i>Aster laevis</i> var. <i>concinus</i> (Smooth Blue Aster) (removed from S 2000)
P	<i>Bartonia paniculata</i> (Screwstem) (IL-E, S)
Ja	<i>Berberis canadensis</i> (American Barberry) (IL-E, S)
P	<i>Berchemia scandens</i> (Supple-jack) (IL-E, FL)
Ja, (Jo),P,S,(U)	<i>Botrychium biternatum</i> (Southern Grape Fern) (IL-T, FL)
Ja	<i>Bromus nottowayanus</i> (Nottoway Brome Grass) (removed from S 2000)
P	<i>Buchnera americana</i> (Bluehearts) (S)
P	<i>Calamagrostis porteri</i> ssp. <i>insperata</i> (Ofer Hollow Reedgrass) (IL-E, S)
P	<i>Carex alata</i> (Winged Sedge) (IL-E)
S	<i>Carex arkansana</i> (Arkansas Sedge) (IL-E)
(G),H,Jo,P,S	<i>Carex communis</i> (Fibrous-rooted Sedge) (IL-T, S)
(G),Jo,(Pu),U	<i>Carex decomposita</i> (Cypress Knee Sedge) (IL-E, S)
(Ja),Jo,M,Pu,U	<i>Carex gigantea</i> (Large Sedge) (IL-E, S)
P,U	<i>Carex granularis</i> var. <i>haleana</i> (Meadow Sedge) (removed from S 2000)
(A),Jo,(M),P,S	<i>Carex intumescens</i> (Swollen Sedge) (IL-T, FL) * <i>Carex lucorum</i> (Sedge) (IL-E)
H,Jo,Ja,P,S,U	<i>Carex lupuliformis</i> (False Hop Sedge) (S)
H,P,(U)	<i>Carex nigromarginata</i> (Black-edged Sedge) (IL-E, FL)
A,H,G,Jo,Pu,S,U	<i>Carex oxylepis</i> (Sharp-scaled Sedge) (IL-T)
H	<i>Carex oxylepis</i> var. <i>pubescens</i> (Sharp-scaled Sedge) (S)
Ja,U,W	<i>Carex physorhyncha</i> (Bellow's Beak Sedge) (IL-E, FL)
(Jo),P	<i>Carex prasina</i> (Drooping Sedge) (IL-T)
M	<i>Carex reniformis</i> (Sedge)(IL-E)
Jo,U	<i>Carex socialis</i> (Social Sedge) (S)
(Ja),Jo,(P),(U)	<i>Carex striatula</i> (Lined Sedge) (IL-E, FL)
Ja	<i>Carex styloflexa</i> (Bent Sedge) (FL)
Jo,P	<i>Carex tonsa</i> (Shaved Sedge) (FL)
G,Jo,P,S,U	<i>Carex willdenowii</i> (Willdenow's Sedge) (IL-T, FL)
A,U	<i>Carya pallida</i> (Pale Hickory) (IL-E, FL)
H,P	<i>Chamaelirium luteum</i> (Blazing-star) (S)

U	<i>Chelone obliqua</i> var. <i>speciosa</i> (Rose Turtlehead) (S)
H,P	<i>Chimaphila maculata</i> (Spotted Wintergreen) (IL-E, FL)
G,H,Jo,P	<i>Cimicifuga rubifolia</i> (Black Cohosh) (IL-T, S)
G,H,Ja,Jo,P,S	<i>Cirsium carolinianum</i> (Carolina Thistle) (FL)
A,(G)	<i>Cladrastis lutea</i> (Yellowwood)(IL-E, S)
A,(Pu)	<i>Clematis crispa</i> (Blue Jasmine)(IL-E)
Jo	<i>Clematis viorna</i> (Leather Flower) (IL-E)
P	<i>Corydalis halei</i> (Hale's Corydalis) (IL-E, S)
	* <i>Crataegus fecunda</i> (Hawthorn)(removed 2000)
Ja	<i>Cynoscium digitatum</i> (Cynoscium) (IL-E, FL)
M,P,(Pu)	<i>Cyperus lancastricensis</i> (Galingale) (IL-E, FL)
Ja,Jo,P,U	<i>Cypripedium pubescens</i> (Large Yellow Lady's Slipper) (S)
Jo,P	<i>Dennstaedtia punctilobula</i> (Hay-scented Fern) (IL-E, FL)
Jo,U	<i>Dichanthelium jorii</i> (Panic Grass) (IL-E, S)
H,P,(U)	<i>Dichanthelium ravenelii</i> (Ravenel's Panic Grass) (IL-E, S)
(Jo),P	<i>Dichanthelium yadkinense</i> (Yadkin's Panic Grass) (IL-E, S)
Ja,Jo,P,S,U	<i>Dodecatheon frenchii</i> (French's Shooting Star) (S)
Jo	<i>Dryopteris celsa</i> (Log Fern) (IL-E)
	<i>Echinacea simulata</i> (Wavy-leaf Purple-coneflower) (S)
S,U	<i>Eleocharis wolfii</i> (Wolf's Spike Rush) (S)
A,M,P,S,W	<i>Eryngium prostratum</i> (Eryngo) (IL-E, FL)
H,(Ja),Jo,(M),P,Pu	<i>Euonymus americanus</i> (American Strawberry Bush) (IL-E, FL)
P	<i>Eupatorium hyssopifolium</i> (Hyssop-leaved Thoroughwort)(IL-E)
A,G,Jo,M,P,(Pu),U	<i>Eupatorium incarnatum</i> (Thoroughwort) (IL-T, FL)
Jo,Ja,P,U	<i>Festuca paradoxa</i> (Cluster Fescue) (S)
M	<i>Galactia mohlenbrockii</i> (Boykin's Dioclea)(IL-E)
Ja,P	<i>Gentiana alba</i> (Yellow Gentian) (S)
Ja,U	<i>Glyceria arkansana</i> (Manna Grass) (IL-E, FL)
P	<i>Gymnopogon ambiguus</i> (Beard Grass) (FL)
M,Pu	<i>Halesia carolina</i> (Silverbell Tree)(IL-E)
M,P,Pu	<i>Helianthus angustifolius</i> (Narrow-leaved Sunflower) (IL-T, FL)
(A)	<i>Helianthus silphoides</i> (Silphium Sunflower)(S)
(A),P,(U)	<i>Heteranthera reniformis</i> (Mud Plantain) (IL-E, S)
H,(Ja),(P)	<i>Hexalectris spicata</i> (Crested Coralroot Orchid) (IL-E, S)
Ja,Jo,U	<i>Hottonia inflata</i> (Featherfoil) (S)
(A)Ja,Jo,(M),(Pu),U	<i>Hydrolea uniflora</i> (One-flowered Hydrolea) (IL-E, FL)
(A),(Ja),(M)	<i>Hypericum densiflorum</i> (St. John's Wort) (FL)
(M),(Pu)	<i>Iresine rhizomatosa</i> (Bloodleaf)(IL-E)
(A)Ja,Jo,(M),(Pu),U	<i>Iris fulva</i> (Copper Iris) (FL)
	* <i>Isoetes butleri</i> (Quillwort) (IL-E)
R**	<i>Isotria medeoloides</i> (Small Whorled Pogonia)(T)
P	<i>Isotria verticillata</i> (Whorled Pogonia) (IL-E, S)
H,Jo,P,S,U	<i>Juglans cinerea</i> (Butternut) (S)
Ja,Jo,P,S	<i>Juncus marginatus</i> (Grass-leaved Rush)(removed from S 2000)
(A),Pu	<i>Justicia ovata</i> (Water Willow)(IL-E)
G,H,Ja,Jo,P	<i>Lactuca hirsuta</i> var. <i>sanguinea</i> (Wild Hairy Lettuce) (IL-T, FL)

H,Ja,Jo,P,W	<i>Lilium superbum</i> (Superb Lily) (S)
H,Ja,Jo,P,U	<i>Lithospermum latifolium</i> (American Gromwell) (removed from S 2000)
Ja	<i>Lonicera dioica</i> var. <i>glaucescens</i> (Red Honeysuckle) (S)
Ja,P	<i>Lonicera flava</i> (Yellow Honeysuckle) (IL-E, S)
P	<i>Lysimachia fraseri</i> (Fraser's Loosestrife) (IL-E, S)
Jo,P	<i>Lysimachia radicans</i> (Creeping loosestrife) (IL-E, FL)
(H),Ja,P	<i>Malus angustifolia</i> (Narrow-leaved Crabapple) (IL-E, FL)
Ja,U,W	<i>Matelea decipiens</i> (Climbing Milkweed) (IL-E)
H,Jo,P,S	<i>Matelea obliqua</i> (Climbing Milkweed) (IL-T, FL)
(M),Pu	<i>Melanthera nivea</i> (White Melanthera)(IL-E)
Ja	<i>Melanthium virginicum</i> (Bunchflower) (IL-T)
M	<i>Melica mutica</i> (Two-flowered Melic Grass)(IL-E)
A,H,(Ja),P,(U)	<i>Melothria pendula</i> (Squirting Cucumber) (IL-T, FL)
Ja,S	<i>Muhlenbergia glabriflorus</i> (Hairgrass) (removed from S 2000)
H,P	<i>Oxalis illinoensis</i> (Large Wood Sorrel) (IL-E, S)
H,Ja,Jo,P,S,U	<i>Panax quinquefolius</i> (American Ginseng) (S)
(Ja),(U)	<i>Paspalum bushii</i> (Hairy Bead Grass) (FL)
Ja,W,(Pu)	<i>Paspalum dissectum</i> (Bead Grass) (FL)
P,U	<i>Penstemon brevisepalus</i> (Short-sepaled Beard Tongue) (IL-E, FL)
G,H,M,P,U	<i>Phaeophyscia leana</i> (Lea's Bog Lichen) (IL-E, S)
	* <i>Phlox bifida</i> ssp. <i>stellaria</i> (Cleft Phlox) (removed from S 2000)
U	<i>Pinus echinata</i> (Shortleaf Pine) (IL-E, FL)
(A),(Ja),Jo,M,P,Pu	<i>Planera aquatica</i> (Water Elm) (IL-T, FL)
Ja,Jo,P,S	<i>Plantago cordata</i> (Heart-leaved Plantain) (IL-E, S)
(U)	<i>Platanthera ciliaris</i> (Orange-fringed Orchid) (IL-E)
P	<i>Platanthera clavellata</i> (Wood Orchid) (IL-E, S)
Jo,M	<i>Platanthera flava</i> var. <i>flava</i> (Tubercled Orchid) (IL-E, S)
Ja,P	<i>Poa alsodes</i> (Grove Bluegrass) (IL-E, S)
(Ja),P	<i>Poa autumnalis</i> (Bluegrass) (FL)
(M),P	<i>Polygala incarnata</i> (Pink Milkwort) (IL-E, S)
(Ja)	<i>Potamogeton pulcher</i> (Spotted Pondweed) (IL-E)
(Jo),(U)	<i>Potentilla millegrana</i> (Cinquefoil) (IL-E)
Ja	<i>Prenanthes crepidinea</i> (Nodding Rattlesnake-root) (removed S 2000)
Ja,Jo,U	<i>Ptilimnium costatum</i> (Mock Bishop's Weed) (FL)
(Ja),(Pu),(U)	<i>Ptilimnium nuttallii</i> (Mock Bishop's Weed) (IL-E)
Ja,U	<i>Puccinellia pallida</i> (Pale alkali Grass) (IL-E, FL)
U	<i>Pycnanthemum albescens</i> (White-leaved Mountain Mint) (IL-E, S)
Ja,P	<i>Pycnanthemum torrei</i> (Torrey's Mountain Mint) (IL-E, S)
A,G,H,S,U	<i>Quercus montana</i> (Rock Chestnut Oak) (IL-E, FL)
A,Jo,(M),Pu	<i>Quercus nuttallii</i> (Nuttall's Oak) (IL-E)
A,M,Jo,Pu,U	<i>Quercus phellos</i> (Willow Oak) (IL-E, FL)
Jo,P	<i>Rhynchospora glomerata</i> (Beak Rush) (IL-E, S)
H,Ja,Jo,P,S,U,W	<i>Rubus enslenii</i> (Arching Dewberry) (FL)
P,H	<i>Rudbeckia fulgida</i> var. <i>sullivantii</i> (Sullivant's Orange Coneflower)

(S)

P,(Pu),(U)	<i>Sagittaria longirostra</i> (Arrowleaf) (IL-E, S)
Jo,P,M	<i>Salvia azurea</i> ssp. <i>pitcheri</i> (Blue Sage) (IL-T, FL)
H	<i>Saxifraga virginiana</i> (Early Saxifrage) (IL-E, FL)
A	<i>Scirpus hallii</i> (Hall's Bulrush)(IL-T)
H,P,M	<i>Scirpus polyphyllus</i> (Bulrush) (IL-T, FL)
(P)	<i>Scirpus purshianus</i> (Weak Bulrush) (IL-E, S)
(A),(U)	<i>Scirpus verecundus</i> (Slender Bulrush) (IL-E, FL)
H	<i>Silene ovata</i> (Ovate Catchfly) (IL-E, S)
H	<i>Silphium pinnatifidum</i> (Prairie Dock) (S)
H	<i>Silphium trifoliatum</i> (Rosinweed) (IL-E, S)
(P),U	<i>Sisyrinchium atlanticum</i> (Blue-eyed Grass) (IL-E)
U	<i>Solidago arguta</i> (Goldenrod) (FL)
U	<i>Sparganium americanum</i> (American Burreed) (IL-E)
U	<i>Sparganium chlorocarpum</i> (Green-fruited Burreed) (IL-E, FL)
Jo,(M),P,(U),W	<i>Spiranthes vernalis</i> (Spring Ladies' Tresses) (IL-E, FL)
H,P	<i>Stellaria pubera</i> (Great Chickweed) (IL-E, FL)
G,Ja,Jo,(M),P,Pu,U	<i>Stenanthium gramineum</i> (Grass-leaved Lily) (IL-E, S)
(A),(Ja),Jo,M,P,Pu	<i>Styrax americana</i> (Storax) (IL-T, FL)
A	<i>Styrax grandifolia</i> (Bigleaf Snowbell)(IL-E, S)
Ja,W	<i>Synandra hispidula</i> (Hairy Synandra) (IL-E, S)
A	<i>Thalia dealbata</i> (Powdery Thalia)(IL-E)
P	<i>Thelypteris noveboracensis</i> (New York Fern) (IL-E, S)
Ja	<i>Thelypteris phegopteris</i> (Long Beech Fern) (IL-E)
H,M,(P),Pu	<i>Tilia heterophylla</i> (White Basswood) (IL-E, FL)
Ja	<i>Tomanthera auriculata</i> (Ear-leafed Foxglove) (IL-T)
H,Jo,P	<i>Trichomanes boschianum</i> (Filmy Fern) (IL-E, S)
(G),Ja,Jo	<i>Trifolium reflexum</i> (Buffalo Clover) (IL-E, S)
U	<i>Trillium cuneatum</i> (Little Sweet Trillium) (FL)
Ja,U,W	<i>Trillium viride</i> (Green Trillium) (IL-E, FL)
A,Ja,U	<i>Urtica chamaedryoides</i> (Nettle) (IL-T, FL)
(S)	<i>Utricularia minor</i> (Small Bladderwort) (IL-E)
(P),H	<i>Vaccinium stamineum</i> (Deerberry) (S)
P,Jo,Ja,U,H	<i>Valeriana pauciflora</i> (Pink Valerian) (removed from S 2000)
Ja,U	<i>Vitis rupestris</i> (Sand Grape) (S)
P	<i>Waldsteinia fragarioides</i> (Barren Strawberry) (IL-E, S)

*determined through annotations and presumed mis-identifications that these species do not actually occur on the Forest but were formally documented as being present.

** known from adjacent Randolph County, potential habitat within Forest boundaries.

() parenthesis around the county indicate that the species has been extirpated or thought to be extirpated from that particular county.

SPECIAL AREAS MANAGEMENT

By Elizabeth Shimp, Botanist.

Names and titles of some of those listed in this report: Bobbi Archdale (Survey Technician), Brad Bailey (Biology Student Intern), Scott Ballard (Heritage Biologist, IDNR), Mark Basinger (contracted Botanist), Marlin Bowles (The Morton Arboretum), Bill Brendecke (Biology Student Intern), Kay Bushno (Seasonal in Recreation), Dave Clark (Law Enforcement from Mark Twain NF), Andy Colter (Biology Student Intern), Bob Edgin (Heritage Biologist, IDNR), Bryan Fitch (Soil Scientist), Chris Germain (Biology Student Intern), Nicholas Giannettino (Ecosystems Management Ranger), Anderson E. Harris (Biologist), Sue Hirsch (Interpretive Specialist in Recreation), Dave Huggins (Supervisory Eco-team Technician), Bob Hughes (Regional Association of Concerned Environmentalists), Steve Hupe (Planner), Dick Johnson (Eco Planning Team Leader), David Jones (Botany student intern), Doug Kosick (Fire/Recreation), Phil Kuntz (Law Enforcement), Steve Lampert (Eco-team Technician), Mindy Lohman (Biology Student Intern), Stan McTaggart (Biology Temporary Employee), Aaron Moore (Biology Student Intern), Rich Penna (Recreation/Trails), Nicole Rankin (HBCUCP student), Ken Peterein (Trails Coordinator), Marlene Rivero (Forester/Recreation), Phil Robertson (SIU Botany Professor), William Roderick (Fire/Recreation), John Schwegman (retired Botany Program Manager for IDNR), Martha Schwegman (retired school teacher), Elizabeth L. Shimp (Botanist), Duane Short (Regional Association of Concerned Environmentalists), Jim Shull (Law Enforcement), Jim Smith (Eco-Team Technician), Michael Spanel (Wildlife Biologist), Skip Starkey (Forest Supervisor), Sam Stearns (Friends of Bell Smith Springs), Allan Stevens (Law Enforcement), Chad Stinson (Fisheries Biologist), Roy Street (Eco-Team Technician), Rebecca Swaney (Law Enforcement), Stephen P. Widowski (Wildlife Biologist), and Pat York (Recreation Program Manager).

Codes used in this section: District 1 = Elizabethtown, District 2 = Jonesboro, District 3 = Murphysboro, District 4 = Vienna. A = Management Prescription and Management Prescription Plan, B = Visits documented.

Note 1: "A" for all of these natural areas represents the Management Prescription 8.2, which is designed to preserve, protect, and enhance the unique scientific, educational or natural values found within Research Natural Areas, sites listed on the National Register of National Natural Landmarks, Geological Areas, Zoological Areas, Ecological Areas, and Botanical Areas. This prescription is described in the Amended and Resource Management Plan (1992) in Chapter IV, pages 177-183. In Chapter IV, other Management Prescriptions provide information on 8.2 inclusions. "A" also includes pages in Appendix E where prescriptions for community types may be found. On January 31, 1997, a closure order was issued prohibiting unauthorized fires, rappelling and rock climbing, motorized and non-motorized vehicles and cycles, horses and other pack animals, and camping within 40 of the natural areas. On September 14, 1999, a new closure order was signed prohibiting the above uses in all 80 natural areas on the Shawnee National Forest except within designated areas.

Note 2: The first name listed, of those in parenthesis following visits to natural areas ("B"), is the person who submitted the information or is the keeper of notes or data collected on that field day. In the case where Botany Temporary Employees are listed, the keeper of the information, with the exception of the SIU Participating Agreement information, is the Forest Botanist.

Note 3: There are currently 80 areas designated for 8.2 management on the Shawnee National Forest. The areas are listed below, numbered 1-80, in alphabetical order. Acreages are approximate. In the text, the "TES" acronym stands for Threatened, Endangered, Regional Forester's Sensitive, State-of-Illinois listed, or Forest-listed species and the acronym "GPS" stands for Global Positioning System (where boundaries are ultimately located on a topographical map).

Monitoring Activities in 8.2 Management Areas:

1. Atwood Ridge RNA/Ecological Area - District 1; 386 hectares (955 acres)

B. Patrols were done on Jun 9, 29 (J.Smith), Jul 4 (M.Rivero), 20, 29 (J.Smith), Aug 5 (S.Widowski & D.Clark), 13 (J.Smith), Sep 11 (M.Rivero), 15 (J.Smith), and 28 (A.Harris). Evidence of illegal ATV use was noted and on one occasion ATVs were seen. Boundaries were flagged, GPSed, and/or posted on one or more of the following dates: Jun 26 (D.Jones, A.Moore, & B.Brendecke), Jun 11 (D.Jones & B.Brendecke), Jul 24 (A.Harris, D.Jones, B.Brendecke, D.Germain, B.Bailey, & A.Moore), Aug 8 (D.Jones, B.Brendecke, & N.Rankin), and 10 (B.Brendecke).

2. Ava Zoological Area - District 3; 36 ha (90 ac)

B. Patrols were done on Jul 21 and 29 (J.Smith). Some ATV use noted around the natural area.

3. Bald Knob Geological Area - District 2; 3 ha (7 ac)

B. No visits were made in FY2001.

4. Barker Bluff RNA/Ecological Area - District 1; 24 ha (60 ac)

B. Patrol on Sep 2 (B.Archdale). ATV evidence.

5. Bear Creek Relict Site Botanical Area - District 3; 3 ha (8 ac)

B. No visits were made in FY2001.

6. Bell Smith Springs Ecological Area - District 4; 510 ha (1,260 ac)

A. Patrols done on Feb 12 (R.Swaney), May 8 (J.Shull), 25 (R.Street), Jun 1 (R.Street), 2 (R.Street & D.Huggins), 3 (R.Street & S.Widowski), 9 (S.Lampert),

23 (S.Hupe), 29 (R.Street & D.Huggins), 30 (S.Hupe), Jul 1 (R.Street), 4 (R.Penna & K.Bushno), 7 (E.Shimp & J.Smith), 8 (E.Shimp, K.Peterein, & S.Lampert), 14 (K.Peterein & R.Penna), 22 (S.Widowski & S.Lampert), 27 (R.Street & D.Huggins), 28 (S.Hupe) (R.Street & D.Huggins), 29 (R.Street), Aug 3 (R.Street), 4 (S.Hupe), 10 (A.Stevens) (R.Street) (R.Penna & K.Bushno), 11 and 12 (A.Stevens), 17 and 18 (R.Street), 20 (K.Bushno), 24 (S.Widowski & S.Lampert), Sep 1 (B.Archdale), 7 (R.Penna) (R.Street & D.Huggins), 8 (S.Hupe), 14 and 15 (R.Street & D.Huggins), 15 (S.Hupe), 22 (R.Street & D.Huggins) (S.Hupe), 23 (S.Widowski), and 29 (A.Harris) (R.Street & D.Huggins). Evidence of ATVs on west side and northwest end. Some evidence of equestrian use also noted on hiking trails. Vandalism of interpretive sign reported. Vegetation is re-establishing itself where user-developed trails were created. Few violations are noted, most are abiding by the restrictions. Segments of the boundary were flagged, GPSed and/or posted on Mar 5 (E.Shimp), 7 (A.Harris & D.Jones), 9 (D.Jones), 14 (A.Harris & D.Jones), May 16, 21 (A.Harris), 24 (A.Harris & S.Lampert), and Jun 5 (A.Harris, N.Rankin, W.Brendecke, & A.Moore).

7. Big Brushy Ridge Ecological Area - District 2; 61 ha (150 ac)

B. No visits were made in FY2001.

8. Big Creek Zoological Area/Candidate Wild & Scenic River - District 1

B. Patrols were done on May 3, 24 (R.Swaney) and Jun 29 (W.Roderick). Evidence of ATV trails into the creek at Iron Furnace and dumping in the creek. Intensive creek surveys and samplings were conducted on Jun 20, 21, 22, 27, 28, and Jul 25 (C.Stinson).

9. Brown's Zoological Area- District 1; 4.4 ha (11 ac)

B. Patrol was done on Sep 2 (B.Archdale). ATV tracks noted.

10. Bulge Hole Ecological Area - District 4; 32 ha (78 ac)

B. Potential trails were reviewed on Oct 11, 2000 (E.Shimp, K.Peterein, B.Fitch, D.Johnson, & P.York), Mar 1 (K.Peterein, B.Fitch, S.Widowski, & D.Kosick) and Mar 16 (E.Shimp & K.Peterein). Boundary work was done on Mar 15 (A.Harris & D.Jones) and paint was scraped off of trees on Mar 19 where an illegal trail led into the natural area (A.Harris & D.Jones). A floristic survey of a potential trail was done on May 10 (E.Shimp, J.Schwegman & M.Schwegman). Patrols were done on May 8 (J.Shull), Jul 1 (S.Widowski), 6 (J.Smith), 22 (E.Shimp & D.Huggins), 28 (R.Street & D.Huggins), 29 (R.Street), Sep 8 (S.Hupe), 15 (E.Shimp & S.Lampert), 22 (R.Street & D.Huggins), 28 (S.Widowski & S.Hupe) (R.Street & D.Huggins), 29 (R.Street & D.Huggins), and 30 (R.Street & D.Huggins). Evidence of infrequent equestrian use, frequent ATV use, and vandalism to posts and gates. Archaeological damage was also reported.

11. Burke Branch RNA/Ecological Area - District 4; 121 ha (300 ac) total, RNA is 83 ha (206 ac)

A. The Management Plan/Prescription Decision Memo was signed on Aug 16, 1996 for continuation of restoration and maintenance activities. A court decision was made on Sep 18, 1996 stating that a Categorical Exclusion could not be used for the active management within the RNA and that an Environmental Assessment or Environmental Impact Statement would be required to continue management activities.

B. Patrols were done on Jan 3, (J.Shull), May 17 (R.Swaney), 20 (R.Street), 27 (R.Street & S.Widowski), Jun 7, 8, Jul 21 (R.Swaney), Aug 4 (R.Street & D.Huggins), 10 (A.Stevens) ,11 (A.Stevens) (R.Street) (S.Hupe & A.Harris),12 (A.Stevens) (R.Penna & K.Bushno), Aug 17 (D.Clark), 25 (S.Hupe), 26 (S.Widowski), Sep 21, 22, 29, and 30 (R.Street & D.Huggins). Evidence of very infrequent equestrian use, frequent use of ATVs, and some vandalism to Carsonite boundary posts. *Microstegium vimineum* (Eulalia), exotic plant species, noted as becoming aggressive within the natural area at the creek. The boundary was GPSed, reposted and/or repainted on Jul 25 (A.Harris, N.Rankin, A.Colter, M.Lohman, A.Moore, & D.Jones), and Aug 14 (A.Harris, A.Moore, B.Brendecke, S.McTaggart, & D.Jones).

12. Cane Creek Botanical Area - District 1; 2 ha (5 ac)

B. Patrol was done on Jun 2 (R.Swaney & W.Roderick) and 29 (W.Roderick).

13. Caney Branch Barrens Ecological Area - District 4; 19 (48 ac)

B. The boundary was reflagged and/or posted on Mar 9 (D.Jones), 12 and 14 (A.Harris & D.Jones).

14. Cave Hill RNA/Ecological Area - District 1; 393 ha (970 ac) total; RNA is 188 ha (465 ac)

A. See Amended Land and Resource Management Plan (1992) appendix E; pages 17, 24, 31, 38, 41, and 48. Management Plan/Prescription signed March 12, 1990, and expired March 12, 1995.

B. TES work was done on May 21 (E.Shimp, J.Schwegman, M.Schwegman, & M.Bowles). Patrols were done on Jun 9 (S.Lampert), Jul 14 (S.Widowski), 15 (S.Widowski), 21 (B.Archdale), 29 (S.Widowski & R.Penna), Aug 5 (S.Widowski & D.Clark), 12 (A.Harris), Sep 9 (S.Widowski & R.Penna), and 29 (J.Smith). Evidence of ATV use within the natural area. Informational conversations with several ATVers in the area occurred. Carsonite posts were replaced on the boundary on Aug 7 (A.Moore, D.Jones & B.Brendecke).

15. Chimaphila Site Botanical Area - District 4; 0.12 ha (0.3 ac)

- B. No visits were made in FY2001.
16. Clear Creek Swamp Botanical Area – District 2; 20 ha (50 ac)
- B. No visits were made in FY2001.
17. Clear Springs Geological Area - District 3; 8 ha (19 ac)
- B. No visits were made in FY2001.
18. Copperous Branch Limestone Barrens Ecological Area - District 4; 11 ha(26 ac)
- B. No visits were made in FY2001.
19. Cretaceous Hills Ecological Area - District 4; 81 ha (200 ac)
- B. No visits were made in FY2001.
20. Crow Knob Ecological Area - District 4; 6 ha (15 ac)
- B. Patrols were done on May 26 (R.Swaney), Jul 1 (R.Street), 8 (E.Shimp & K.Peterein), 22 (S.Lampert), 28 (S.Hupe), Aug 24 (S.Widowski & S.Lampert), Sep 23 (S.Widowski), and 29 (R.Street & D.Huggins). Evidence of infrequent equestrian use and ATV use within the natural area. Fencing at entrance was vandalized.
21. Dean Cemetery East Barrens Ecological Area - District 4; 8 ha (20 ac)
- A. See Amended Land and Resource Management Plan (1992) Appendix E; page 15. Management Plan/Prescription first signed for management actions from 1988-1994. Plan/Prescription signed on Feb 9, 1994 for two years (1994-1995). A Decision Memo for an updated Management Plan/Prescription was signed Jun 13, 1996.
- B. Patrols were done on May 20 (R.Street) and Aug 4 (R.Street & D.Huggins).
22. Dean Cemetery West Barrens Ecological Area - District 4; 53 ha (132 ac) (Note: includes Klondike Spring and Barrens)
- B. Patrols were done on May 20 (R.Street) and Aug 4 (R.Street & D.Huggins).
23. Dennison Hollow RNA/Ecological Area - District 1; 127 ha (315 ac); RNA is 83 ha (205 ac)
- B. TES work and trail review was done on May 16 (E.Shimp, K.Peterein & D.Kosick). TES work was also done on May 21 (E.Shimp, J.Schwegman, M.Schwegman, & M.Bowles) and Jul 8 (M.Basinger). Patrols were done on Jul 15

(S.Widowski), Aug 4 (S.Widowski & D.Clark), 12 (A.Harris), 19 (J.Smith), Sep 28 (A.Harris), and 29 (J.Smith). Evidence of infrequent ATV use within natural area.

24. Dog Barrens Ecological Area - District 4; 30 ha (74 ac)

B. No visits were made in FY2001.

25. Double Branch Hole Ecological Area - District 4; 34 ha (85 ac)

B. Potential trails were reviewed on Jan 9, 2000 (E.Shimp, S.Starkey, M.Spanel, K.Peterein, R.Penna, D.Johnson, W.Widowski, A.Harris, B.Fitch, P.York, & N.Giannettino). Patrols were done on May 2, 20, 26 (R.Swaney), Jun 3 (S.Widowski & R.Street), 16, 17 (R.Penna & K.Bushno), 23 (S.Hupe), 30 (S.Widowski), Jul 1 (S.Widowski), 8 (S.Lampert), 21 (E.Shimp & D.Huggins), 29 (M.Rivero), Aug 19 (D.Clark), 25 (S.Widowski), Sep 15 (S.Hupe) (S.Lampert), 29 (S.Widowski), and 30 (J.Smith). Evidence of equestrian use in the natural area especially on north and southeast ends. Vandalism to Carsonite posts was reported and campers were present. Vandalized posts were replaced on Apr 23 (A.Harris & D.Jones) and a visit with an equestrian to the site to discuss violations was done on Apr 26 (A.Harris).

26. Dutch Creek Chert Woodland Ecological Area - District 2; 54 ha (134 ac)

B. Patrols were done on Jul 15, 20, and Aug 13 (J.Smith). Some ATV trails noted.

27. East Fork Oxalis illinoensis Botanical Area - District 4; 0.3 ha (0.8 ac)

B. No visits were made in FY2001.

28. Fink Sandstone Barrens Ecological Area - District 4; 80 ha (197 ac)

B. Patrols were done on Feb 12 (R.Swaney), May 18, 19, 25 (R.Street), 27 (S.Widowski & R.Street), Jun 1 (R.Street), 22 (K.Peterein), 29 (R.Street & D.Huggins), Jul 4 (R.Penna & K.Bushno), 21 (S.Widowski), 27 (R.Street & D.Huggins), 28 (R.Penna & K.Bushno) (R.Street & D.Huggins), 29 (R.Street), Aug 3 (R.Street), 4 (K.Peterein & S.Lampert), 17, (R.Street), 18 (R.Street) (D.Clark), Sep 1 (R.Street & D.Huggins). Evidence of infrequent equestrian use within the natural area. Two individuals were ticketed for riding horses within the natural area.

29. Fountain Bluff Geological Area - District 3; 1.2 ha (3 ac)

B. Patrols were done on Jul 21 and Sep 21 (J.Smith).

30. Garden of the Gods Ecological Area - District 1; 38 ha (95 ac)

B. The east side was reviewed while doing trail surveys on Oct 4, 2000 (E.Shimp & B.Edgin). Patrols were done on Feb 12 (R.Swaney), Mar 25 (J.Shull), May 8 (J.Shull),

19 (R.Swaney), Jun 1 (R.Swaney & W.Roderick), 8 (J.Shull & W.Roderick), 9 (R.Swaney & W.Roderick), 10 (J.Shull & W.Roderick), 22, 23, 29 (W.Roderick), Jul 20 (R.Swaney), 21 (B.Archdale), 15 (W.Roderick), Aug 17, 24, 25 (W.Roderick), 31 (E.Shimp & J.Shull) (W. Roderick), Sep 1 (B.Archdale) (W.Roderick), Sep 2, 3, 7, 8, 14, 15 (W.Roderick), 23 (S.Hirsch), 28 and 29 (W.Roderick), 2001. Reports of rappelling and open bottle containers. Portions of the boundary were GPSed and/or posted on Apr 3 (A.Harris), 4 (A.Harris & D.Jones), and 9 (D.Jones), 2001. The area was reviewed on Jul 24 (E.Shimp).

31. Gibbons Creek Ecological Area - District 1; 20 ha (49 ac)

B. No visits were made in FY2001.

32. Grantsburg Swamp Ecological Area (Bell Pond) - District 4; 304 ha (751 ac)

B. Patrols were done on Jul 20 (R.Swaney). Boundaries were flagged, GPSed and/or posted on Mar 19 (A.Harris & D.Jones), 21 (A.Harris), 26, 28 (A.Harris & D.Jones), Apr 6 (D.Jones), Jun 18, 19, 20 (A.Moore & B.Brendecke), 21 (A.Moore, B.Brendecke, & N.Rankin), 22 (D.Jones, B.Brendecke, B.Bailey, & C.Germain), 25 (D.Jones, B.Brendecke & A.Moore), Jul 9, 16 (A.Harris & D.Jones), 17, 18 (D.Jones & B.Brendecke), 31 (A.Harris, D.Jones & A.Moore), and Aug 1 (D.Jones, A.Moore & N.Rankin).

33. Greentree Reservoir Botanical Area (Oakwood Bottoms) - District 3; 65 ha (160 ac)

B. No visits were made in FY2001.

34. Gyp Williams Hollow Ecological Area - District 1; 130 ha (320 ac)

B. Patrols were done on May 8 (J.Shull) and Jul 20 (R.Swaney).

35. Hayes Creek/Fox Den Creek Ecological Area - District 4; 22 ha (54 ac)

B. No visits were made in FY2001.

36. Hutchison Zoological Area - District 3; 49 ha (120 ac)

B. The boundary was flagged, GPSed, and/or posted on Apr 13, 18 (D.Jones), Aug 15 (A.Harris, D.Jones, B.Brendecke, & A.Moore), Sep 24 (A.Harris & S.McTaggart), and 26 (A.Harris, S.McTaggart & S.Lampert).

37. Jackson Hole Ecological Area - District 4; 47 ha (116 ac)

B. Patrols were done on May 3 (R.Swaney), 5 (R.Street), 8 (D.Huggins & R.Street) (J.Shull), 11 (R.Street) (J.Smith), 12 (J.Smith & R.Street), 20, 26 (R.Swaney), Jun 3 (S.Widowski & R.Street), 16, 17 (R.Penna & K.Bushno), 23 (S.Hupe), 30 (S.Widowski)

(J.Smith), Jul 1 (S.Widowski), 4 (R.Penna & K.Bushno), 8 (S.Lampert), 21 (E.Shimp) (D.Huggins), Aug 2 (M.Rivero), 19 (D.Clark), 25 (S.Widowski), 31 (E.Shimp), Sep 15 (S.Lampert), and 29 (S.Widowski). Evidence of equestrian use in the natural area and vandalism to Carsonite posts. An illegal trail had trees painted within the natural area. The paint was scraped off of the trees on Apr 16 (A.Harris, D.Jones & volunteer) and vandalized posts were replaced on Apr 20 (A.Harris & D.Jones). A floristic survey of the Hole area was done and vegetations plots were established on Jul 11 (E.Shimp & M.Basinger) (A.Harris, N.Rankin, A.Colter, & M.Lohman). The boundary was GPSed on Jul 19 (A.Harris, D.Jones & B.Brendecke). The exotic plant species, Eulalia, was hand pulled several days including Sep 13 (S.McTaggart & D.Short).

38. Jackson Hollow Ecological Area - District 4; 117 ha (289 ac)

B. Portions of the north and south boundaries were flagged and GPSed on Nov 9, 2000 (A.Harris), Dec 6, 7, (E.Shimp & A.Harris) and 8 (E.Shimp & B.Hughes). Boundaries were flagged and posted on Dec 12 (A.Harris & D.Huggins), 28 (A.Harris), 29 (A.Harris & R.Street), Jan 2, 2001, 3 (A.Harris, R.Street, & D.Huggins), and 8 (A.Harris & S.Lampert). A visit was made with an equestrian on Jan 10 to review potential trails (A.Harris). Landline survey work was done on Jan 11 (A.Harris, D.Hills & B.Archdale) on the east line on the south end of the natural area, and a portion of the south boundary was posted on Jan 16 (E.Shimp & A.Harris). More portions of the boundary were flagged, GPSed and posted on Jan 18, 19 (A.Harris & S.Lampert), and the landline work was completed on Jan 24 (A.Harris, D.Jones, D.Hills, & B.Archdale). Patrols were done on Jun 3 and 10, 2001 (S.Widowski), 22 (K.Peterein), 30 (S.Hupe), Jul 4 (R.Penna & K.Bushno), 7 (S.Hupe & A.Harris), 14 (K.Peterein & R.Penna) (S.Hupe & W.Roderick), 21 (S.Widowski), 22 (K.Bushno), 28 (R.Penna & K.Bushno), Aug 4 (K.Peterein & S.Lampert), 10 (R.Penna & K.Bushno), 11 (S.Hupe & A.Harris), 18 (D.Clark), 20 (K.Bushno), Sep 4 (A.Harris), 7 (R.Penna), 15, 21 (S.Hupe), 22 (S.Hirsch) (S.Hupe), 23 (S.Widowski), 25 (S.Hupe), 29 (S.Hirsch), and 30 (A.Harris). Evidence of considerable equestrian use and some ATV use. Two ATVs were ticketed. Carsonite posts were vandalized. The boundary was GPSed, posted and painted on Feb 10 (A.Harris & D.Jones), May 16 (A.Harris), Jun 27, Jul 2 (D.Jones, A.Moore & B.Brendecke), 5, 9 (A.Moore & B.Brendecke), and Aug 1 (A.Moore, D.Jones & C.Germain).

39. Kaskaskia Woods Ecological Area - District 1; 10 ha (24 ac)

B. Patrols were done on May 24 (R.Swaney), Jun 29 (W.Roderick), Jul 20 (R.Swaney), and Sep 2 (B.Archdale). Evidence of dumping and broken lock on gate.

40. Keeling Hill North Ecological Area - District 1; 9 ha (23 ac)

B. No visits were made in FY2001.

41. Keeling Hill South Ecological Area - District 1; 18 ha (45 ac)

B. No visits were made in FY2001.

42. Kickasola Cemetery Ecological Area - District 4; 15 ha (36 ac)

B. A patrol was done on Jul 6 (E.Shimp & J.Smith). Minor use by ATVs and equestrian.

43. LaRue-Pine Hills/Otter Pond RNA/Ecological Area - District 2; 1,435 ha (3,547 ac); RNA is 1,138 ha (2,811 ac)

B. A review of the area was done for field trips on Oct 10 (E.Shimp, S.Ballard & P.Robertson) and field trips for the Natural Areas Conference took place on Oct 16 and 19, 2000 (E.Shimp & S.Ballard). Patrols were done on Jan 3 (J.Shull), 29 (P.Kuntz), Feb 12 (P.Kuntz), and Mar 1 (P.Kuntz), May 8 (J.Shull), Jul 29 (J.Smith), and Sep 21, 2001 (J.Smith).

44. Leisure City Barrens Ecological Area - District 1; 2 ha (4 ac)

B. Patrols were done on Jun 1 (R.Swaney & W.Roderick), 8 (J.Shull & W.Roderick), 22, 23 (W.Roderick), Jul 15 (W.Roderick), 20 (R.Swaney), Aug 17, 24, 25, 31 (W.Roderick), Sep 1 (B.Archdale) (W.Roderick), 2 (B.Archdale) (W.Roderick), and 3 (W.Roderick), and 23 (S.Hirsch).

45. Little Grand Canyon/Horseshoe Bluff Ecological Area - District 3; 414 ha (1,023 ac)

B. No visits were made in FY2001.

46. Lusk Creek Canyon Ecological Area - District 4; 102 ha (253 ac)

B. The boundary was finished being posted on Nov 29 and 30, 2000 (A.Harris) and vandalized posts were replaced. The north end of the natural area was reviewed during trail survey work on Oct 3, 2000 (E.Shimp & A.Harris). Infrequent equestrian use was noted within the natural area. Boundary work was reviewed on Nov 29 (A.Harris) and partially posted on Nov 30 (A.Harris & C.Stinson). Patrols were done on Jun 23, 2001 (K.Peterin & K.Bushno), Jun 30, (S.Hupe) (W.Roderick), Jul 7 (S.Hupe & A.Harris), 14 (S.Hupe & W.Roderick), Aug 4, 18 (S.Hupe), 20 (K.Bushno), 25 (S.Hupe), Sep 1 (E.Shimp & S.Hupe), 2 (E.Shimp & R.Swaney), 22 (S.Hirsch), 22, (S.Hupe), and 29 (S.Hupe) (S.Hirsch). The exotic Garlic mustard was found near the Indian Kitchen if the natural area. Some infrequent equestrian use was also noted in these additional reports. Trail rehabilitation was done on Jun 12, 13 (A.Harris, B.Fitch, D.Jones, B.Brendecke, N.Rankin, & S.Lampert), and Jun 14 (D.Jones, A.Moore, B.Brendecke, J.Hunter, & B.Bailey). A floristic survey of a trail leading to Owl Bluff was done on Jul 4 (M.Basinger).

47. Lusk Creek North Ecological Area - District 4; 1 ha (2.5 ac)

B. The boundary was painted on Mar 5 (A.Harris & D.Jones). Patrols were done on Jul 14 (S.Hupe & W.Roderick), Sep 1 (E.Shimp & S.Hupe), 2 (E.Shimp & R.Swaney), 22 (S.Hirsch), 23 (K.Peterein & K.Bushno), 29 (S.Hirsch), and 29 (S.Hupe). Infrequent equestrian use noted within the natural area. The RFSS French's Shooting Star was found under the overhang where it had previously been compacted and denuded of vegetation.

48. Lusk Creek Zoological Area/Candidate Wild & Scenic River - District 4

B. The site was visited several times whenever going to the Wilderness or Ecological Areas. It was also visited on Oct 2, 2000 during trail survey work (A.Harris & B.Edgin). Some of the patrol dates included Jun 23 (K.Peterein & K.Bushno), Sep 1 (E.Shimp & S.Hupe), and 2 (E.Shimp & R.Swaney).

49. Martha's Woods Ecological Area - District 4; 2 ha (6 ac)

B. No visits were made in FY2001

50. Massac Tower Springs Ecological Area - District 4; 14 ha (35 ac)

B. No visits were made in FY2001

51. Millstone Bluff Ecological Area/Historic Site - District 4; 115 ha (285 ac)

B. Patrols and general site management occurred throughout the year. Some of the dates included Jun 9 (S.Lampert), Jul 8, (S.Lampert), Aug 11, 17, 18 (R.Street), 19 (S.Lampert), Sep 15, and 29 (R.Street & D.Huggins). Little evidence of ATV use in parking area.

52. Odum Tract Ecological Area - District 4; 20 ha (50 ac)

B. Patrols were done on Jul 1 (R.Street), Sep 15 (E.Shimp & S.Lampert), 22 (R.Street & D.Huggins), 25 (S.Hupe), 28 (S.Widowski & S.Hupe) (R.Street & D.Huggins), 29 and 30 (R.Street & D.Huggins). ATV use extensive outside of the natural area boundaries.

53. Opossum Trot Trail Botanical Area - District 2; 18 ha (45 ac)

B. This area was patrolled on Jan 29, 2001 (P.Kuntz).

54. Ozark Hill Prairie RNA/Ecological Area - District 2; 217 ha (535 ac)

B. Patrols were done on Jun 29, Jul 15, 29, Aug 19, and Sep 15 (J.Smith). ATV use was noted outside of the natural area.

55. Panther Hollow RNA/Ecological Area - District 1; 73 ha (180 ac)

B. A portion of the boundary was painted on Mar 8 (A.Harris, S.Stearns, & D.Short). Patrols were done on Jun 2 (R.Swaney & W.Roderick), Jul 20 (R.Swaney), and Sep 2 (B.Archdale). ATV use noted as going behind the gate.

56. Pine Hills Annex Ecological Area - District 3; 3 ha (7 ac)

B. No visits were made in FY2001

57. Pine Hollow Ecological Area - District 4; 36 ha (90 ac)

B. A patrol was done on May 26 (R.Street).

58. Pleasant Valley Barrens Ecological Area - District 4; 18 ha (4.5 ac)

B. No visits were made in FY2001

59. POCO Cemetery East Ecological Area - District 4; 9 ha (22 ac)

B. A patrol was done on Jul 6 (E.Shimp & J.Smith). Woody vegetation is resprouting heavily in this natural area.

60. POCO Cemetery North Ecological Area - District 4; 14 ha (34 ac)

B. No visits were made in FY2001

61. Pounds Hollow Ecological Area - District 1; 80 ha (197 ac)

B. Patrols were done on Jan 3 (R.Swaney), May 27 (R.Swaney), Jun 1 (R.Swaney & W.Broderick), Jun 8, 10 (J.Shull & W.Broderick), 22, 23 (W.Roderick), Jul 15 (W.Roderick), 20 (R.Swaney), 21 (B.Archdale), 26 (R.Swaney), Aug 17, 24, 25 (W.Roderick), 31 (E.Shimp & J.Shull) (W.Roderick), Sep 1, 2 (W.Roderick) (B.Archdale), 3, 7, 8, 14, 15 (W.Roderick), 23 (S.Hirsch), 28, and 29 (W.Roderick). Evidence of infrequent equestrian use. Reports of rappellers at Rim Rock.

62. Provo Cemetery Ecological Area - District 2; 20 ha (50 ac)

B. No visits were made in FY2001

63. Reddick Hollow Botanical Area - District 4; 2 ha (4 ac)

B. No visits were made in FY2001

64. Reid's Chapel Ecological Area - District 4; 51 ha (126 ac)

B. A patrol was done on Jul 7 (E.Shimp). ATV use was noted outside of the natural area.

65. Rich's Zoological Area - District 2; 69 ha (120 ac)

B. No visits were made in FY2001

66. Robnett Barrens Ecological Area - District 4; 8 ha (21 ac)

B. Patrols were done on Aug 11 (R.Street), Sep 22, 29, and 30 (R.Street & D.Huggins). ATV use noted outside of the natural area.

67. Russell Cemetery Barrens Ecological Area - District 1; 7 ha (18 ac)

B. Patrols were done on Jan 3 and May 27 (R.Swaney).

68. Saltpeter Relict Botanical Area - District 3; 2 ha (6 ac)

B. No visits were made in FY2000.

69. Sand Ecological Area - District 4; 16 ha (40 ac)

B. Patrols were done on May 25 (A.Harris), 27 (S.Widowski & R.Street), Jun 2 (R.Street & D.Huggins), 9 (S.Lampert), 10 (S.Widowski), 30 (S.Hupe) (J.Smith), Jul 1 (S.Widowski), 4 (R.Penna & K.Bushno), 7 (E.Shimp & J.Smith), 8 (E.Shimp & K.Peterein), 20 (S.Widowski), 22 (S.Widowski & S.Lampert), 28 (S.Hupe), Aug 3 (S.Hupe & K.Peterein), 18 (S.Hupe), 24 (S.Widowski & S.Lampert), 31 (S.Hupe), Sep 8 (S.Hupe) (S.Hirsch), 9 (S.Widowski), 14 (S.Hupe), 16 (R.Swaney), 21 (S.Hupe), 23 (Widowski), 28 (S.Widowski & S.Hupe), and 29 (S.Widowski). Evidence of frequent equestrian and ATV violations to closure order. Tickets issued to two ATVers in area. Posts were replaced on Jun 1 (A.Harris) and 3 (A.Harris, D.Jones, A.Moore, B.Brendecke, A.Colter, & M.Lohman). Water control structures were also placed on the trail leading to the overhang.

70. Schwegman Ecological Area - District 4; 13 ha (32 ac)

B. Patrols were done on Jul 6 (J.Smith), 22 (E.Shimp & D.Huggins), 28 (R.Street & D.Huggins), 29 (R.Street), Aug 10 (R.Street), Sep 14 (R.Street & D.Huggins), and 15 (E.Shimp) (S.Lampert) (R.Street & D.Huggins). Very infrequent equestrian and ATV use within natural area. Archaeological damage done beneath overhangs.

71. Silvey Pond Botanical Area - District 3; 0.12 ha (0.3 ac)

B. No visits were made in FY2001.

72. Simpson Township Barrens Ecological Area - District 4; 26 ha (65 ac)

B. A patrol was done on Jul 6 (E.Shimp & J.Smith). A segment of the boundary was posted on Mar 9 (D.Jones).

73. Snow Springs Ecological Area - District 4; 0.2 ha (0.5 ac)

B. No visits were made during FY2001.

74. Split Rock Hollow Ecological Area - District 4; 0.8 ha (2 ac)

B. No visits were made during FY2001.

75. Stoneface RNA/Ecological Area - District 1; 71 (176 ac)

B. TES work and trail review was done on May 16 (E.Shimp, K.Peterein & D.Kosick). TES work was also done on May 21 (E.Shimp, J.Schwegman, M.Schwegman, & M.Bowles). Patrols were done on Apr (R.Swaney), May 8 (J.Shull), Jun 8 (J.Smith), 9 (S.Lampert), Jul 14 (K.Peterein & R.Penna), 15 (S.Widowski), 28 (R.Penna & K.Bushno), 29 (S.Widowski & R.Penna), Aug 5 (S.Widowski & D.Clark), 12 (A.Harris), 17 (W.Roderick), 19 (J.Smith) (S.Lampert), 25 (W.Roderick), Sep 9 (S.Widowski & R.Penna), 14 (W.Roderick), 22 (J.Smith), 28 (A.Harris) (W.Roderick), and 29 (J.Smith). Some evidence of ATV use within the natural area and 2 groups of potential rock climbers were informed of the closure order prohibiting the activity. The boundary was inspected for vandalism on Aug 7 (D.Jones, A.Moore & B.Brendecke).

76. Sulphur Springs Botanical Area - District 4; 0.2 ha (0.5 ac)

B. No visits were made in FY2001.

77. Teal Pond Botanical Area - District 4; 0.12 ha (0.3 ac)

B. Recreational and law enforcement staff visited the site throughout FY2001. Some dates include Jul 4 (R.Penna & K.Bushno) and Sep 1 (B.Archdale).

78. Toothless Zoological Area - District 3; 3 ha (8 ac)

B. No visits were made in FY2001.

79. Whoopie Cat Mountain RNA/Ecological Area - District 1; 19 ha (48 ac); RNA is 7 ha (17 ac)

B. Patrols were done on Jan 3 (J.Shull) (R.Swaney), May 16 (R.Swaney), Jun 2 (R.Swaney & W.Roderick), 22, 29 (W.Roderick), Jul 15 (W.Roderick), 20 (R.Swaney), Aug 17, 24, 25, 31 (W.Roderick), Sep 1 (W.Roderick) (B.Archdale), 2 (W.Roderick) (B.Archdale), 3, 7 (W.Roderick), 8 (W.Roderick) (S.Hupe), 14, and 28 (W.Roderick), 2001.

80. Wolf Creek Botanical Area - District 2; 200 ha (495 ac)

B. A fire was reported to have affected less than 2 acres of this site on Oct 27, 2000. Patrols were done on Jan 29 (P.Kuntz), Feb 12 (P.Kuntz), Jul 21 and 29 (J.Smith)

Conclusions

FY2001 monitoring has shown that physically marking many of the natural areas with signs has protected the sites from continued natural resource damage. A closure order was signed by the Acting Forest Supervisor on September 14, 1999, which superseded the January 31, 1997 closure order prohibiting the following uses in all 80 of the Shawnee National Forest's natural areas: mechanized and motorized vehicle use, equestrian use, camping, open fires, rappelling, and rock climbing. Monitoring and patrols have indicated that illegal activities are at a minimum except at a couple of locations. Most of the public appears to be respecting the closure order and user-developed trails are "healing" as well as camping and campfire locations.

Exotic species and their threats to native plants and communities continue to be a concern to Forest biologists and botanists. IDNR personnel are continuing to work with the Forest Service in understanding specific exotic species, and in particular, Eulalia, Kudzu vine and Chinese Yam. Decision notices were signed for the Eulalia and Chinese Yam species in an effort to control populations of these exotics on the Forest. An Environmental Impact Statement on the Kudzu is in progress at this time.

Recommendations

Natural areas must continue to be marked (flagged, painted, posted, and GPSed) on the ground as soon as possible to curtail the excessive recreational uses. Monitoring and law enforcement should continue to be a priority in the protection of these natural areas during the high use times. Education should be the key to helping different user groups understand the scientific, educational, and intrinsic values of natural areas. A brochure on natural areas should be developed to help in these efforts.

An environmental analysis is still needed to determine the best way to eradicate various exotic plant species, which threaten the integrity of native communities and natural areas. Partnerships with other agencies have been initiated and knowledgeable individuals will be involved in the planning and implementation of accepted, practical methods of exotic species eradication. Monitoring should continue to be done following all eradication/control methods regardless if they are removed/managed by mechanical, chemical or other means (such as hand-pulling).

SOIL, WATER AND AIR

By Bryan Fitch, Soil Scientist

SOILS

North End Sale - June 27, 2001

The landings and cutting units at the north end timber sale were monitored on June 27, 2001. The previous visit was in June of 2000. The 3 landings and the cutting unit were monitored to evaluate FS management prescriptions.

West Landing - A small area of the west landing was reseeded to korean lespedeza in 1999 because of absence of vegetation. This was likely due to compaction. Additional tillage along with liming and fertilizing would have enhanced revegetation on this area. The lespedeza is well established in 2001 and there are only 3 small areas 2' x 7' that bare soil is still exposed. There is no evidence of active erosion occurring except a small area near the entrance into the landing which is adjacent to a trail. A few oaks and hickory seedlings have regenerated in the landing. Bromesedge, locust trees, blackberries and lespedeza comprise most of the vegetation. Mitigation should have included tillage and fertilizing of landing.



Photo J - West Landing

Middle Landing - This small landing which parallels the road has revegetated well with nutsedge and other herbaceous species. No evidence of compaction or erosion. Mitigation prescription was effective.

East Landing - This landing is also in good shape and has revegetated. There is no active erosion occurring. Regeneration of black locust, oaks, ash, bromesedge, honeysuckle and blackberries comprise most of the vegetation on the landing. This landing does not show compaction effects as does the west landing. Mitigation prescription was effective. There is now a user created trail along the east side of the landing.



Photo K - East Landing

Inside the Cutting Unit - The opening up of the canopy has increased blackberries and honeysuckle in the understory of the cutting unit. Soil erosion was not apparent. Erosion would be at or near geologic rates. The soil surface is covered with a duff layer (organic) and a healthy herbaceous understory that protects the soil surface from erosion.



Photo L - Inside Cutting Unit

Measured Effects of Prescriptions

Forest Service management has not affected water quality or soil productivity. Quick revegetation has helped control erosion.

Recommendations

Continue to follow standards and guidelines in the amended land and resource management plan and Illinois Best Management practices. The west landing would benefit from lime and fertilizer to enhance establishment of vegetation. Proper

application rates of lime and fertilizer can be obtained from appendix G in the Shawnee Amended Plan.

Ridgetop Timber Sale - June 27, 2001

The road was opened in August of 1997. The previous monitoring occurred in June 2000. Monitoring has occurred every year since 1997.

Landing - Landing is in great shape. There was no evidence of erosion. The landing has revegetated with blackberries broomsedge, autumn olive. There is some regeneration of hardwoods and pine. Prescriptions were effective at revegetation and erosion control.

Spec Road - The road itself is also in good shape. There is little evidence of erosion. Two rills were noticed just north of the stream on the side slope leading to the stream crossing. The remainder of the road has revegetated well and there is no problem with erosion. Vegetation consist of broomsedge, hysuckle and blackberries. Prescription was effective at erosion control. There was one set of vehicle tracks evident. This must have been Forest Service personnel because gate was closed and locked, and there was no evidence of tracks around the gate.

Ephemeral Stream Crossing - The stream bed was dry. There was no evidence of scour erosion at the crossing. The management prescription was effective at protecting the crossing and water quality.



Photo M - Ephemeral Stream Crossing

Measured Effects of Prescriptions

Forest Service management has not adversely affected water quality.

Conclusion

Current standards and guidelines are protecting watershed resources. Soil and water resources should be protected and sustained using current standards and guidelines and Illinois Best Management Practices.

Recommendation

Continue to follow standards and guidelines in amended land and resource management plan and Illinois Best Management Practices.

Cripps Bend Soils Monitoring Site - September 20, 2001

The Cripps Bend timber Sale was monitored on September 2001. This was 6 years since harvesting was completed in September of 1995. The former sale area is located in sections 26 and 27, T.10 S.- R.3W.

Landing #1 - The North Landing was revegetated with tulip poplar, sycamore, serocia lespedeza, hickories and sweet gum. There was no evidence of erosion. The growth is lush. Trees ranged in height from 5-15 ft. tall. The soil is Menfro on a 14 percent slope (79D). The landing is well vegetated and erosion control is excellent. Regeneration of hardwoods and herbaceous plants will control erosion. Prescription has been effective at controlling erosion.

Cutting unit #1 - There was a heavy regeneration of tulip poplar. Tulip poplar has grown to 8 to 10 feet tall. Excellent regeneration has occurred that will continue to control erosion. Prescription has been effective at controlling erosion.

Landing # 2 - This is the west landing. It is vegetated with mainly herbaceous vegetation. This may have been an old wildlife opening. . Slope of the landing is 5% and it is located on a footslope position along a complex slope. The soil may be most like Drury (75B). Vegetation includes golden rod, brambles, ragweed, partridge pea and tall fescue. There are waterbars along the south side of this landing that go up a nose slope. The waterbars were constructed on a nose slope approximately 250 ft long with 17 percent slope, and were spaced approximately 100 feet apart. They were functioning very well with no evidence of active erosion. Prescriptions were effective at controlling erosion. Successful natural regeneration is effective at controlling accelerated erosion.

Cutting unit #2 - This cutting unit was south of the road just west of the landing. The slope was 23 percent. Regeneration included maple, tulip poplar, sassafras and hickory. Soils are also Menfro (79E). This unit had a lot of regeneration of maple. Regeneration of oak was not evident. Units may not be large enough for successful oak regeneration. This unit is approximately .2 acres in size. Prescription is effective at controlling erosion.

Landing # 3 - The north part of the landing has sycamores 7 to 15 ft. tall. Also noticed where dogwood, sassafras, hickory, tulip poplar. There was good herbaceous cover on the south side of the landing. Several species of oak seedlings were observed. The

landing had been scarified and seeded to cool perennial grasses and legumes following the harvest. The soil is also Menfro silt loam at 5 percent slope (79C). There is no evidence of erosion and vegetation will control future erosion. Oak regeneration was evident in this landing. As a note this was the largest landing monitored which may have something to do with the success of the oak regeneration.

Double Branch Hole Natural Area – December 11, 2000

The trail was monitored just west of the old Wilson place then north and back west around what was the Wilson property. These trails are located in sec 36, T 11 South and Range 5 East. The trails were incised 6 to 10 inches into the soil. Active erosion was apparent near some small drainageways on the trail leading west of the old home site. The trail leading along the west boundary of the former Wilsons property also had eroded near the Jackson Hole Natural Area boundary.

The old upper bluff trail along the west side of the Double Branch Hole Natural Area which is currently closed appeared to be in good shape and a good location for a trail. This trail segment is located in section 1, T 12S., R.5E. It is incised slightly but active erosion was not apparent. The lower trail was also incised with active erosion adjacent to small drainageways which feed directly into Hayes Creek.

Recommendation: Trails open for use should be regularly maintained to reduce erosion. Rehabilitate closed trails inside the natural areas to help control erosion.

Wilson Tract Road Mitigation

Road work was done in Pope County on a road located in section 36, T. 11 South and Range 5 East. Following road work bare soil was left exposed. To vegetate the area and control erosion, the road side was fertilized, seeded with redtop and red clover, and then mulched.

Measured effects of the prescription: The area was successfully revegetated and erosion is controlled (see Photo N).

Conclusion: Seeding and mulching was effective at revegetating the road side and controlling erosion.



Photo N - Wilson Tract Road Mitigation

WATER

The Illinois RiverWatch Program monitored 2 sites on the Shawnee National Forest in 2001. The results of this monitoring can be found on the Illinois Department of Natural Resources web-site via the internet. This biological monitoring collects macroinvertebrates over a period of years and is intended to recognize long term trends which may exist in water quality conditions. The MBI Macroinvertebrate Biotic Index is an aggregate score based on the relative pollution tolerances of macroinvertebrate taxa present in a given stream. The MBI is essentially the average tolerance value for all organisms collected at a site. In general, a lower MBI score indicates better water quality. The calculation of site MBIs is based on Illinois Environmental Protection Agency tolerance values for each macroinvertebrate taxon collected by RiverWatch Citizens Scientist. An index of <6 indicates good water quality. Values between 6.1 and 7.5 indicate fair water quality. Values between 7.6 and 8.9 indicate poor water quality. Values > 9 indicate very poor water quality.

Creek Name	Site Number	Macroinvertebrate Biotic Index
Bay Creek	R1002301	5.67
Cedar Creek	R1002801	6.41

Recommendation

Continue to work with the River Watch volunteer monitoring program.

AIR

Shawnee National Forest management must comply with the federal Clean Air Act and amendments and applicable state laws and regulations. The Illinois Environmental Protection Agency (IEPA) has been designated by the State to administer the clean air laws and regulations. All air pollution emissions from Forest Service projects and activities will meet applicable pollution control requirements.

Prior to each burning season a burning permit is obtained from the Illinois Environmental Protection Agency. All areas that are planned for burning are included in the annual burning permit from the state. In addition to the state permit, burn plans are written to comply with Forest Service regulations. The permit and the burn plan will help ensure that smoke is dispersed in a safe manner with low emissions.

No air quality monitoring was performed in FY2001.

GEOLOGY AND MINERALS

By John Taylor, Carolyn Drue, Diane Neal, and Marlene Rivero

Forest monitoring regarding Geology and Minerals covers four major program areas (1) oil and gas leasing (2) hardrock minerals leasing (3) reserved/outstanding rights and (4) providing geologic services.

Monitoring Information

1. Oil and Gas Leasing

Currently, the Shawnee National Forest has seven oil and gas leases covering an estimated 5,353.42 acres. No prospecting or development occurred within the leased area during FY 2001. The Forest is enjoined from authorizing the issuance of new leases by Court Order.

2. Hardrock Minerals

Currently, the Shawnee National Forest has one hardrock mineral lease for the mineral tripoli covering an estimated 10.01 acres and two hardrock mineral leases for the mineral fluorite covering an estimated 228.08 acres. No prospecting or development occurred during FY 2001. The forest is working on analysis for leases on additional hardrock mineral prospecting applications.

3. Reserved and Outstanding Rights

The Shawnee National Forest did not analyze a proposal to occupy National Forest surface to recover outstanding minerals during FY 2001.

4. Geologic Services

During FY 2001, the Forest worked with the Mark Twain National Forest regarding the recruitment of a shared services geologist. During the interim period, geologic services are being performed by lands personnel or contracted. The primary geologic services provided are related to activities related to revision of the Land and Resource Management Plan.

Results of Monitoring

The Forest minerals program is operating at a low level. The combination of the court injunction related to oil and gas leasing along with other sources for fluorite, coal and tripoli has produced this low level.

The Forest is currently under Court injunction related to authorizing the issuance of oil and gas leases. Forest Plan revision as directed by the courts is preceding. Completion of the revision is expected during FY 2004.

The Forest does not provide adequate access to allow for mineral discovery, especially the discovery of oil and gas. Mineral prospecting for hardrock mineral has been a historic land use within the Shawnee National Forest, consequently discovery of marketable minerals is not expected.

Surface mining for coal and tripoli is occurring within the Shawnee National Forest. There is no evidence that these surface mining activities have encroached on National Forest land. Mine subsidence is a threat to National Forest surface based on historic deep mines for coal and tripoli.

Conclusions

The Forest must revise the cumulative effects analysis related to oil and gas leasing as directed by the courts.

The hardrock mineral fluorite remains abundant within the Shawnee National Forest, however the nations needs for this mineral is being met through imports. The demand for domestic supplies of this mineral is expected to remain low.

The hardrock mineral tripoli remains abundant within the Shawnee National Forest, however sources on private land appear to be adequate for the current and anticipated demand.

Approximately 30% of the mineral estate beneath the National Forest surface is reserved or outstanding. Private owner interest in developing these mineral estates is expected to

be low during the period when the market for mineral is being met by other domestic sources or sources in other nations.

All development for the hardrock mineral coal is occurring by surface mining on privately owned land parcels. In most cases, surface mining is not compatible with the management of the Shawnee National Forest.

Recommendations

Revision of the cumulative effects section of the EIS that is a companion document to the Land and Resource Management Plan related to oil and gas leasing is a very high priority.

Analysis of hardrock mineral application submitted through the USDI Bureau of Land Management should consider the potential markets for the identified minerals.

Reserved and outstanding rights are not adversely affecting the management of National Forest surface, consequently Federal acquisition of these rights should be considered a low priority in all areas except the Ripple Hollow Wilderness Study Area.

LAND OWNERSHIP

by John Taylor, Carolyn Drue, Diane Neal, and Marlene Rivero

Forest monitoring regarding Land Ownership covers four major program areas (1) land adjustment {purchase, exchange, donation, transfer and encroachment resolution – includes title claims}, (2) right-of-way acquisition, (3) special uses and (4) status.

1. Land Adjustment

- a. Purchase - Three properties containing 129 acres was acquired for a consideration of \$189,440.00.
- b. Exchanges - No cases were completed during FY 2001.
- c. Donations - None in FY 2001.
- d. Transfers - None in FY 2001.
- e. Encroachment Resolution No title claims were resolved, however analysis of two potential encroachments continued. A few potential encroachments were analyzed and resolved without formal consultation. No Small Tracts cases were completed.

2. Right-of-Way Acquisition - None in FY 2001.

3. Special Uses - In FY 2001, the Forest administered 182 permits authorizing occupancy and use of National Forest land.

4. Status - During FY 2001, Lands personnel provided research and investigative services to the private sector and Forest personnel related to such topics as historic use and occupancy of National Forest land, road jurisdiction and mineral estates.

Results of Monitoring

The Forest lands program involves land purchase activities, land exchange activities, land donation activities, land transfer activities, resolution of land status questions, administration of the Forest Special Uses Program, right of way acquisition and resolution of trespass/encroachments.

During FY 2001, the Forest acquired three land parcels, The Conservation Fund – Fishencord Tract within the Bald Knob Wilderness (5.1 Management Area) and the Paul Rhine/Kendall Rhine Tracts near Horse Creek (2.1 & 6.3 Management Area) at a cost of \$189,440.

The Forest is progressing toward optimum land ownership as funding for land purchase allows. Land exchange activities remains controversial within some groups interested in Shawnee National Forest management, however some exchange that would provide public benefits are being evaluated.

Land ownership efficiency within the Shawnee National Forest can only be achieved through incremental actions. Actions during FY 2001 provided a minimal enhancement to land ownership efficiency.

The Forest did not acquire rights of way during FY 2001 that would enhance accessibility. Land status analysis assisted in developing a transportation plan that enhances accessibility.

The resource management and protection benefits that resulted from the acquisition of the forty acre parcel were:

- Consolidation of ownership within an area identified for management as Forest Interior Habitat. Several sensitive species are dependent on Forest Interior Habitat, especially neotropical migrant birds.
- Consolidation of ownership within an area identified by some people as a candidate for roadless management and potentially wilderness designation.

Conclusions

Forest Officers suspect that up to 300 encroachments involving unauthorized use and occupancy of Shawnee National Forest land exist. Many of these cases have their origins

in the late 1930's and early 1940's when the United States acquired the land. The Forest's present encroachment resolution program continues to be reactive rather than proactive.

During FY 2001, the Forest budget for land adjustment activities was relatively low level. The forty acre parcel acquired during FY 2001 provides consolidation within a management area identified in the Forest Plan for activities that enhance forest interior habitat. Additionally, the Forest Plan revision is expected to provide analysis of this management area for its roadless/wilderness character. This acquisition promoted progress towards the optimum landownership objective within this management area. The Forest budget did not allow for extended land adjustment activities which would make progress towards the optimum landownership objectives which promote efficient land management and accessibility to National Forest lands.

The number of special use permits administered by the Forest remained stable during FY2001. The number of special use applications needing detailed analysis increased. The number of special use permits administered by the Forest does not reflect the number of permits amended each year, particularly those permits dealing with quasi-public utilities (water, telephone and electric). Utility permit amendments are increasing with upward trends in development of rural lands for private residences, recreation retreats and commercial developments. A permit amendment generally costs as much money to process and administer as a permit.

Land exchanges are very expensive and the Forest requires exchange proponents to incur some of the expense. This decision has reduced the number of land exchange proponents.

The Forest has not received funding for right of way acquisition.

There have not been opportunities for land transfer or exchange during the past several years.

Recommendations

Verification and resolution of encroachments is largely dependent on two types of activities: (a) an active Forest land line program coupled with immediate case work following confirmation of a specific encroachment; and (b) negotiations leading to resolution without survey or case processing between Forest officials and suspected encroachers. A proactive encroachment resolution program is expected to lead to increased public confrontation by the Forest and a heightened negative perception by local landowners. A high degree of public sensitivity will be required by Forest officials in implementing a proactive encroachment resolution program.

Forest managers have made and should continue to make a concerted effort (within legal opportunities offered the agency) to obtain purchase and exchange funding for acquisition of those private and public properties which contribute to optimum land ownership.

The following should be included in Forest Management Planning Standards and Guidelines -5400 Landownership, Surface Ownership. Eliminate unauthorized uses and occupancy of National Forest land. Emphasis should be placed on resolving those encroachments involving residences and land uses degrading natural resources. Eliminate the Forest Consolidation Map and revise the prioritization list. Emphasize the acquisition of fee title or all available property rights during land adjustment activities.

Processing and administration of special use permit amendments should be recognized in Forest planning and funding processes. Included amended special use permits as a required monitoring activity in Table 5-1, Chapter 5-1 of the Amended Land Resource Management Plan or revision of same. The preceding would be entered under Requirement "Determine the success in establishing desired surface and subsurface ownership patterns".

TRANSPORTATION SYSTEM

by Cathy Slover, Support Services Staff Officer

As stated in the Forest Plan, the transportation system provides safe and efficient access for administration and public use and enjoyment of the Forest, plus it allows for safe and efficient transport of forest products.

As in previous years, we managed and maintained existing roads in accordance with the Forest-wide standards and guidelines in FY 2001. Funding constraints reduced the amount of maintenance work that was performed on existing roads to a minimum; however, safe access was provided. A reduced timber-sale program along with these funding constraints has restricted construction and reconstruction of roads.

We will continue to monitor our roads to compare the existing level of management and use to the original designed standard. Roads not being managed as they were originally designed will ultimately be modified or returned to the planned use.

Road Construction/Reconstruction Accomplishments

	FY 01 Accomplished	FLMP 10 Year Proposed
Road Construction	0	65
Reconstruction	0.7	129
Obliteration	4.1	100

Conclusions: Construction/Reconstruction levels were below the average Plan level because of low funding levels and a reduced timber-sale program.

Recommendations: None at this time. We will continue to monitor local road construction and reconstruction accomplishments, as needed for various resource activities. Future update of road needs will be recommended for a Plan amendment if the trend continues.

FOREST FIRE MANAGEMENT

by Charles Murphy, Fire Management Officer

Fire Occurrence

During the spring fire season of 2001, 17 fires totaling 333 acres occurred on or threatened National Forest Land. During the summer 2 fires totaling 1 acre occurred on or threatened National Forest Land. In the fall fire season there were 14 fires for a total of 179 acres occurred on or threatened National Forest land. Forest Service crews suppressed all fires. The total for the year was 33 fires for 513 acres. The average size of these fires was 15.6 acres.

Assistance with suppression, mop up, staffing and initial attack efforts was provided by firefighting resources from the Golconda Job Corp Center, Hiawatha National Forest, Midewin Interagency Hotshot Crew, Southern Illinois University and Southeastern Illinois Collage.

Fire Training Courses

Basic firefighter training was provided through Participating Agreements with Southern Illinois University and Southeastern Illinois Collage.

<u>Course Number or Name</u>	<u>Attendees</u>
S-130	55
S-190	55
Standards for Survival	55
I-100	55

Officer's meeting held in Milwaukee Charles Murphy represented the forest at the Annual Regional Fire Management, Wisconsin.

Prescribed Burning

In 2001, 3 prescribed burns for a total of 363 acres were accomplished.

Five Year Average Fire Occurrence

	Fire Size Class					Total
	A	B	C	D	E	
1997 Fires	3	4	0	0	0	7
Acres	1	11	0	0	0	12
1998 Fires	2	7	4	0	0	13
Acres	1	17	75	0	0	93
1999 Fires	9	10	7	0	0	26
Acres	6	31	159	0	0	196
2000 Fires	3	8	17	1	0	29
Acres	<1	17	450	106	0	573
2001 Fires	7	11	15	0	0	33
Acres	1	45	467	0	0	513

Dispatching

During 2001, the Shawnee National Forest accepted the responsibility and role as the Illinois Interagency Dispatch Center through the development of an Inter/Intra Agency Agreement between the USDA Forest Service – Shawnee National Forest and the USDA Forest Service – Midewin National Tall Grass Prairie, USDI National Park Service – Lincoln National Historic Site and the USDI Fish & Wildlife Service – Region 3.

The following resources were dispatched through the Illinois Interagency Dispatch Center in 2001.

2001 Fire Dispatches

<u>Overhead</u>	<u>Incident/Location</u>
HRSP	Montana
SECM	Montana
ARCH	California
FFT2	Virginia
EDRC-T	Minnesota
SEC2	Montana
SEC2	Montana
SEC2	Montana
SEC2	Nevada

SEC2	Washington
SECM	Montana
SEC2	Washington
EDSD	Minnesota
<u>Overhead</u>	<u>Incident/Location</u>
SEC2	South Dakota
SEC2	South Dakota
COMT	Washington
HECM-T	Utah
HECM-T	Utah
ARCH	Florida
FFT2	Florida
FFT2	Florida
MXMS	Florida
RXB2	Illinois
RXI2	Illinois
SOF2	Illinois
IOF2	Illinois
FFT1	Illinois
FFT2	Illinois
FFT2	Illinois
SEC2	Montana
SEC2	Montana
<u>Crews</u>	<u>Incident/Location</u>
CRW1	New York
CRW1	Washington
CRW2	Washington
<u>Equipment</u>	<u>Incident/Location</u>
ENG6	Michigan
ENG6	Michigan
ENG6	Illinois
<u>Supply</u>	<u>Incident/Location</u>
13 Misc orders	Illinois

Protection Area

The Shawnee National Forest protects only National Forest lands within the forest boundary. We have mutual assistance agreements with Crab Orchard National Wildlife Refuge and Cypress Creek National Wildlife Refuge. In 2001, a total of 277,645 acres

were protected. We do not protect private lands, county lands, state lands or other federal lands within or outside of our protection boundary. No Shawnee National Forest land is protected by other agencies.

Conclusions

- The total number of fires for the year was 33 fires totalling 513 acres. The average size of these fires was 15.6 acres.
- Basic firefighter training was provided through Participating Agreements with Southern Illinois University and Southeastern Illinois Collage.
- In 2001, 3 prescribed burns for a total of 363 acres were accomplished
- During 2001, the Shawnee National Forest accepted the responsibility and role as the Illinois Interagency Dispatch Center through the development of an Inter/Intra Agency Agreement between the USDA Forest Service – Shawnee National Forest and the USDA Forest Service – Midewin National Tall Grass Prairie, USDI National Park Service – Lincoln National Historic Site and the USDI Fish & Wildlife Service – Region 3.
- In 2001, a total of 277,645 acres were protected. We do not protect private lands, county lands, state lands or other federal lands within or outside of our protection boundary.

LAW ENFORCEMENT

By James Shull, Supervisory Law Enforcement Officer

The Law Enforcement Organization on the Shawnee National Forest is comprised of a Patrol Captain and a Supervisory Law Enforcement Officer and two Law Enforcement Officer. The forest is part of the Southwest zone that encompasses both the Shawnee and Mark Twain National Forest and Golconda Job Corps center for Law Enforcement Management. The Programs main goal is to provide for visitor safety along with resource protection to the forest.

During Fiscal year 2001 the law enforcement officers encountered 484 violations occurring on National Forest System land. Of those 484 violations 80 individuals were issued violation notices, 128 individuals were given written warnings. The other 276 violations were captured on incident report form to document the violations and to help management assess violations and address areas of concerns in protecting the forest resources and visitor safety.

RURAL AND COMMUNITY DEVELOPMENT

By Rebecca Banker

This year saw some major accomplishments in the rural development arena with the granting of economic recovery grant funds to several proposed projects and the initiating

of Fish Tales, a conservation education program. Following is a synopsis of accomplishments for this fiscal year.

- We formed a highly successful partnership with U. S. Fish and Wildlife Service Cypress Creek National Wildlife Refuge, Southernmost Illinois Delta Empowerment Zone, Illinois Department of Natural Resources and Shawnee Community College in hosting Fish Tales. This is a conservation education program targeting underserved children in Polaski and Alexander counties. The program has three objectives, (1) to provide a recreational opportunity for underserved children by teaching them how to fish, (2) to use fishing as a springboard for teaching conservation stewardship and ethic, particularly related to aquatic ecosystems and (3) to provide a positive experience with memories to last a lifetime. This program won a Regional Honor Award.
- We worked with Alexander, Galletin, Hardin, Pope, Polaski and Saline counties to develop and submit economic recovery plans.
- We worked with counties to submit three Economic Recovery Program grant proposals, two of which were funded at various levels.
- Participated in Johnson County Chamber of Commerce and supported community events.
- Participated with Johnson County Southern Illinois Delta Empowerment Zone, supporting projects.
- Participated as Advisory Board Member of the Shawnee Hills Empowerment Zone Initiative. Worked with community members in Pope and Hardin Counties to develop empowerment zone application package. This effort involved active participation with a broadly diverse group of folks from two of the most economically depressed areas of the state. Required resolving differences, assessing strengths and weaknesses, setting strategic goals and objectives and developing an application package for this Department of Labor program. Although the area did not receive either of the two empowerment zone designations last year, the effort brought community members together and may still lead to a Champion Community or similar designation in the near future.

Conclusion: This program demonstrates a successful and continuing opportunity for Forest Service staff to help rural communities in and around the Shawnee National Forest to form community action teams, to develop or update existing community plans and to continue implementing projects identified in certified community action plans that will foster sustainable economic development based on natural resources.

Recommendation: Continue this program.