



United States  
Department of  
Agriculture

Forest  
Service



# **Land and Resource Management Plan**

## **Monitoring and Evaluation Report Fiscal Years 2002 and 2003**

**Brown, Crawford, Dubois, Jackson, Lawrence,  
Martin, Monroe, Orange, and Perry Counties,  
Indiana**

### **Hoosier National Forest**

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# Introduction

The *Forest Plan*, as amended in 1991, provides guidance to ensure that National Forest System (NFS) lands in Indiana provide diverse and healthy forest ecosystems while providing high quality recreational opportunities. We are committed to forest activities that lie lightly on the landscape. Our mission is to manage forest resources and allow people to enjoy the values and benefits the forest provides.

Projects included here are the on-the-ground application of management practices and guidance to move toward the desired future condition identified in the *Forest Plan*. The final budget for any given year determines the annual program of work. This report lists those projects, the budget to accomplish them, and decisions made based on site-specific environmental analysis. It also includes monitoring activities to help evaluate the quality of *Forest Plan* application.

Project monitoring determines how well we are carrying out the *Forest Plan*. It provides a means to evaluate whether *Forest Plan* guidance is sufficient to achieve management goals and direction in the *Forest Plan*. The National Forest Management Act [36 CFR 219.12(k)] requires monitoring and evaluation on an on-going basis. Attached are, first, a narrative that describes monitoring results for fiscal year 2002 and, second, a narrative describing monitoring results for fiscal year 2003.

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# PROGRAM ACCOMPLISHMENTS FY 2002 and FY 2003

*Outputs [219.12(k)(1)] - Compare goods and services with those projected on pages 2-14 and 2-15 of the FEIS, Management Attainment Report (MAR) and Non-MAR Performance Measures.*

**TABLE 1. FISCAL YEAR 2002 MANAGEMENT ATTAINMENT REPORT - RESOURCE ACCOMPLISHMENTS**

MAR Description	MAR Code	Regional Target	Forest Accomplishment
<b>Watershed Assessment</b>			
<b>Assessments</b>	EM-AS-WA	1	1
<b>Land Management Planning</b>			
LRMP Monitoring and Evaluation Reports, Reports, FN	EM-LRMP-M&E	1	1
Amendments (Forest Plan)	EM-AMEND		2
FN	EM-TF-LPS	200	325
FN	EM-AQBI--R		15
FN	EM-AQBI-L	20	20
FN	EM-SP-COM	1	1
FN	EM-EP-COM	1	1
<b>Inventory and Monitoring</b>			
Heritage Resource Inventories, Acres, FN	EM-HR-I	4,000	4,000
	EM-TEUI-SBRG	82	0
	EM-SRM-M	5	0
	EM-WRM-M	3	3
<b>Recreation, Wilderness and Heritage Resource Management</b>			
Recreation Special Uses Administered, Permits, FN	RM-SU-ADMIN	17	11
	RM-WLD-PSC	23	23
Annual (wilderness) Education Contacts, Contacts, FN	RM-WLD-EC	1,300	2124
Wilderness	RM-WD-STD	1	1
	RM-WLD-RP	30	30
Heritage	RM-HR-STD	12	41
	RM-PROD-STD	112	162
	RM-STD-GA	383	383
Heritage Sites Evaluated, sites, FN	RM-HERT-EVAL		16

MAR Description	MAR Code	Regional Target	Forest Accomplishment
Heritage Sites Interpreted, sites, FN	RM-HERT-INTP		8
	RM-HERT-INV	350	734
Heritage Sites Preserved and Protected, sites, FN	RM-HERT-P&P		17
Project Level Heritage Inventories, FN			289
<b>Grazing and Rangeland Vegetation Management</b>			
Noxious Weed Treatment, acres, FN	RG-NOX-WD-TR	45	0
<b>Wildlife, Fisheries, TES Management</b>			
Terrestrial Wildlife Habitat Restored or Enhanced, acres, FN	WL-THAB-RES	800	907
Terrestrial Wildlife Habitat Restored or Enhanced, acres, C	WL-THAB-RES	0	775
Inland Fish Lakes Restored or Enhanced, acres, FN	WL-IF-LAK-RE	0	30
Total Wildlife Structures, FN	WL-STRUCTURE	0	15
	WL-TES-HAB	20	20
	WL-BIO-A&E	0	35
<b>Soil, Water and Air Resources Management</b>			
Soil and Water Resource Improvements, acres, FN	SW-RES-IMP	50	105
<b>Real Estate Management, Landlines, Land Acquisition</b>			
Special Use Applications Processed, permits, FN	LM-SU-APPL	36	33
	LM-LND-CLASS	0	1
Special Use Permits Administered to Standard, permits, FN	LM-SUP-STD	23	60
	LM-SUP-TOT	0	182
Ownership Adjustment Excluding Exchanges, acres, FN	LA-OWNER-ADJ	0	734
C	LA-LL-MAINT	3	3
	LM-LL-NEW	6	6
Rights-of-Way Acquired, cases, FN	LA-ROW-ACQ		5
FN	LA-LND-PURCH		779
	LA-EXCH-FEE	0	89
<b>Facility Re/Construction</b>			
FN	FC-MF	64	64

MAR Description	MAR Code	Regional Target	Forest Accomplishment
<b>Minerals and Geology</b>			
C	MG-GEO-PER	0	24
FN	MG-N-BNE-OP	1	1
FN	MG-BNE-OP-AD	1	1
C	MG-BNE-OP-AD	1	1
FN	MG-GEO-MA-AD		15
<b>Vegetation and Watershed Management</b>			
FN	VW-EV	0	76
<b>Fire Protection</b>			
Hazardous Fuels Reduction, Appropriated, acres, FN	FP-FUELS-APP	69	351
Firefighting Production Capability, FN	FP-FFPC	22	50
<b>Public Asset Management</b>			
Trails Maintained, miles, FN	TR-MAINTN	95	95
FN	TR-IMP-STD	16	16
Trail Construction and Reconstruction, miles FN	CR-TR-CNST-R	5	5
Seasonal Capacity Available - Total, PAOT days, FN	RM-PAOTS-TOT	1,560,000	1,560,000
<b>Human Resources</b>			
Youth Conservation Corps, enrollee weeks, FN	HR-YCC-PART		54.8
Senior Community Service Employees, enrollee hours, FN	HR-SCSEP		31,937

**TABLE 2. FISCAL YEAR 2003 MANAGEMENT ATTAINMENT REPORT - RESOURCE ACCOMPLISHMENTS**

MAR Description	MAR Code	Regional Target	Forest Accomplishment
<b>Watershed Assessment</b>			
Broadscale Assessments	EM-AS-WA	25	25
<b>Land Management Planning</b>			
Amendments	EM-AMEND	1	1
LRMP Monitoring and Evaluation Reports, Reports, FN	EM-LRMP-M&E	1	1
LRMP Revisions Underway	EM-LRMP-CP	1	1

MAR Description	MAR Code	Regional Target	Forest Accomplishment
<b>Inventory and Monitoring</b>			
Above-Project Integrated Inventory	EM-ABV-PRJ	740	1,282
Heritage Resource Inventories, Acres, FN	EM-HR-I	----	----
Terrestrial Fauna Inventories, Acres, FN	EM-TF-LPS	--	--
<b>Recreation, Wilderness and Heritage Resource Management</b>			
Recreation Special Uses Administered, Permits, FN	RM-SU-ADMIN	7	10
Recreation Wilderness Areas Managed to Standard, FN	RM-WD-STD	1	1
Recreation Products provided to Standard, FN	RM-PROD-STD	160	160
Recreation Days Managed to Standard, FN	RM-GS-STD	891	891
Seasonal Capacity Administered to Standard	RM-PAOTS-STD	988,149	988,149
Heritage Sites Managed to Standard, sites, FN	RM-HERT-P&P	14	27
Project Level Heritage Inventories, FN	RM-HERT-INV	0	0
Sites Managed to Standard	RM-HR-STD	14	30
<b>Grazing and Rangeland Vegetation Management</b>			
Noxious Weed Treatment, acres, FN	RG-NOX-WD-TR	13	13
<b>Wildlife, Fisheries, TES Management</b>			
Terrestrial Wildlife Habitat Restored or Enhanced, acres, FN	WL-THAB-RES	1,117	1,117
Wildlife Interpretation & Education Products Provided, FN C	WL-PROD-PROV	25	25
Inland Fish Lakes Restored or Enhanced, acres, FN	WL-IF-LAK-RE	20	20
<b>Soil, Water and Air Resources Management</b>			
Soil and Water Resource Improvements, acres, FN	SW-RES-IMP	48	48
Acres of Air Quality Managed, FN	SW-AQ	1,190	1,190
<b>Real Estate Management, Landlines, Land Acquisition</b>			
Land Classification Cases Resolved	LM-LND-CLASS	7	7
Land Use Proposals and Applications Processed, FN	LM-SU-APPL	15	15
Land Use Authorizations Administered to Standard, permits, FN	LM-SUP-STD	55	55
Boundary Line Marked or Maintained, FN	LM-BL-TOTAL	15	15
Acres Acquired, FN	LA-LND-PURCH	674	674
Acres Adjusted	LM-OWNER-ADJ	1	0
Geologic Permits and Reports, FN/C	MG-GEO-PER	50	50
M&G Operations Processed	MG-OP-PRO	1	1
M&G Operations Administered to Standard	MG-OP-ADM	8	8

MAR Description	MAR Code	Regional Target	Forest Accomplishment
<b>Fire Protection</b>			
WUI Fuels Treatment, FN	FP-FUELS-WUI	375	1,167
<b>Public Asset Management</b>			
Miles of Trail Maintained, to Standard, FN	TR-MTC-STD	91	91
Miles of Trail Improved to Standard, FN	TL-IMP-STD	12	12
<b>Human Resources</b>			
Youth Conservation Corps, enrollee weeks, FN	HR-YCC-PART		61.8
Senior Community Service Employees, enrollee hours, FN	HR-SCSEP		25,003
<b>Forest Management</b>			
Establish Vegetation	FM-EV-REF	120	130
Improve Vegetation	FM-IV-TSI	355	355
Special Products Permits Administered	FM-SPROD-NC	10	10
Green Timber Volume Offered	FM-VOL-OFF	80	80
<b>Road Construction</b>			
High Clearance Roads as OML 1 or 2	RD-HIGH	7	7
Passenger Car Roads as OML 3,4 & 5	RD-PASS	9	9

The following table includes information on outputs for both fiscal year 2002 and 2003. It includes key indicators identified in the Final Environmental Impact Statement for the *Forest Plan* (p. 2-14 and 2-15).

**TABLE 3. COMPARISON OF KEY INDICATORS (INCLUDES BOTH FY 2002 AND FY 2003)**

The column labeled “Est. 1991-2001” presents the units as identified as potential in the *Forest Plan*; this column might have been labeled something like “Anticipated Outputs for Ten Years.”

Key Indicator	Unit of Measure	Est. 1991-2001	1992 Output	1993 Output	1994 Output	1995 Output	1996 Output	1997 Output	1998 Output	1999 Output	2000 Output	2001 Output	2002 Output	2003 Output
Recreation Visitor Days (RVD)	MRVD	387			896	230	510	510	525	525	525	525	525	525
Trail Construction														
Hiking	Miles	99	0	0	0	0	0	0	0	0	0	0	0	0
Horse	Miles	40	0	0	0	0	0	0	0	0	0	0	0	0
Bike	Miles	0	0	0	0	0	0	0	0	0	0	0	0	0
Multiple-use	Miles	0	0	0	3	8.6	7.5	22	0	6.5	0	0	0	1.1
Trail Reconst. (all)	Miles	0	0	33.4	0	0	0	51.5	28.1	28.0	9	3.3	3.3	12
Vegetation maintained														
Forest Openings	Acres	4,000	459	350	509	322	480	650	439	290	1,373	907	1,040	506
Barrens Maint.	Acres	1,131	40	140	40	60	0	83	0	0	20	0	0	855

Key Indicator	Unit of Measure	Est. 1991-2001	1992 Output	1993 Output	1994 Output	1995 Output	1996 Output	1997 Output	1998 Output	1999 Output	2000 Output	2001 Output	2002 Output	2003 Output
Wetlands Construc														
Lakes/Ponds	Acres	120	5	0	0	0	0	0	0	0	0	0	0	
Marsh/Wetlands	Acres	15	0	0	0	0	0	1	20	0	50	105	6	27
Vegetation Regen.														
Hardwood 0-9	Acres	4,853	0	0	57	0	0	150	44	76	0	0	0	1200
Pine 0-9	Acres	94	0	0	0	0	0	0	0	0	0	0	0	0
Timber Harvested														
Sawmber	MMBF	26	0.042	0.019	0.395	0.159	0.114	0.67	3.839	0.903	0	0	.06	.07
--Roundwood	MMBF	17	0.078	0.040	0.706	0.127	0.066	1.13	1.839	0.373	.0091	.0028	.04	.01
Total	MMBF	43	0.120	0.059	1.101	0.286	0.180	1.89	5.728	1.322	.0091	.0028	.1	.08
Roads Const./Reconst.	Miles	140	3.50	1.00	0.10	0.60	7.90	10.90	1.0	1.0	7.43	6.85	6.85	3.75

## Costs [219.12(k)(3)]

*Quantitatively compares actual cost of applying management practices with Forest Plan estimates.*

As shown on line 16 of each of the following tables entitled *Comparison of Forest Plan Costs with Fiscal Year [2002 or 2003] Expenditures*, expenditures exceeded *Forest Plan* budget estimates. Our staff summarized over 70 budget line items into 15 program areas. *Forest Plan* cost estimates did not include land acquisition funds (\$1,500,000 in FY 2002 and \$1,563,000 in FY 2003) or the Senior Community Service Program (\$199,560 in FY 2002 and \$166,065 in 2003).

In 1990, the estimate of funds necessary to carry out the *Forest Plan* was \$5,385,675 (2003 dollars -- all figures have been adjusted for inflation based on Gross National Product Implicit Price Deflator index<sup>1</sup>).

The mix of expenditures does not correspond to plan estimates. In FY 2003, the Forest spent \$1,132,104 in forest planning, inventory, and monitoring. The interdisciplinary team did not estimate these expenditures in the 1991 *Forest Plan* cost estimates. In 1991, these expenditures were accounted in other program areas. Expenditures were less (in both fiscal years) in recreation, fish and wildlife, timber, and law enforcement than estimated in the 1991 *Forest Plan*. However, expenditures exceeded estimates in soil, water, and air; lands; minerals, engineering; and fire.

Our expenditures for recreation in FY 2003 were about 25 percent of our *Forest Plan* estimate. The expenditures included:

- Replacement of 14 vault toilets with accessible SST design
- Rehabilitation of HRRA flush toilet
- New kiosks with maps at trailheads
- Trail reroute in Charles C. Deam Wilderness
- Dump cleanup in Charles C. Deam Wilderness
- Rehabilitation of Youngs Creek Trail
- Completion of Springs Valley Trail

Timber funding was about 20 percent of the *Forest Plan* estimate in FY 2003, higher than in FY 2002.

Congress funded the land acquisition program. In FY 2002 land acquisition fund paid dollars of \$1,500,000 resulted in acquisition of 779 acres. Land acquisition costs in FY 2003 were \$1,563,000 to acquire 674 acres. The lands staff also completed environmental analyses, including the environmental assessment for the Braun Land Exchange. The *Forest Plan* budget did not estimate land acquisition funds.

Engineering project FY 2002 expenditures included:

- German Ridge Dam valve replacement.
- Hardin Ridge Shelterhouse ceilings

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<sup>1</sup> The Bureau of Economic Analysis, an agency of the United States Department of Commerce, prepared the Gross National Product Implicit Price Deflator index.  
<http://www.bea.doc.gov/bea/dn/nipaweb/Index.htm>.

- Hardin Ridge Bath house renovations
- Celina Lake toe drain
- Saddle Lake beach demolition
- Saddle Lake road removal
- Tipsaw and Indian Lakes shoulders and paving
- Celina and Indian Lakes storm damage
- Tipsaw Beach steps, railing, and sidewalk repair
- Construction of Indiana Interagency Fire Coordination Center at Tell City

In FY 2003 engineering project expenditures included:

- Completion of Houston and Spears Repeater Towers
- Hardin Ridge paving
- Hardin Ridge toilet and shower
- Tell City dam maintenance
- Tipsaw/Celina waterline
- Hickory Ridge Fire Tower steps and landings
- SST construction
- Pioneer Mothers parking lot

**TABLE 4. COMPARISON OF FOREST PLAN COSTS WITH FISCAL YEAR 2002 EXPENDITURES**  
(Shown in 2002 dollars)

Line Number	Summarized budget line item	<i>Forest Plan</i> Budget Estimate (2002 dollars)	Fiscal Year 2002 Expenditure <sup>1</sup>	Difference (Expenditure - Estimate)	Expenditures as Percent of Forest Plan Budget Estimate
2	Recreation	1,976,593	495,763	-1,480,830	25%
3	Wildlife and Fish	606,098	242,855	-363,243	40%
4	Range	0	0	0	
5	Planning and Inventory and Monitoring.	0	637,296	637,296	
6	Timber	864,225	77,522	-786,703	9%
7	Soil, Water & Air	136,906	232,032	95,126	169%
8	Minerals	32,801	49,494	16,693	151%
9	Senior Citizens (SCSEP)	0	199,460	199,460	
10	Lands <sup>2</sup>	221,047	1,611,701	1,390,654	729%
11	Engineering	283,125	1,097,249	814,124	388%
12	Fire	106,958	620,722	513,764	580%
13	Law Enforcement	52,766	20,256	-32,910	38%
14	General-Cost Pools	711,631	1,266,287	Not Comparable Categories	
15	Misc.	0	0	0	
16	Total All Funds	4,992,150	6,550,637	1,558,487	131%

<sup>1</sup> Expenditure/Revenue includes unpaid obligations. .

<sup>2</sup> Lands includes land acquisition funds.

**TABLE 5. COMPARISON OF FOREST PLAN COSTS WITH FISCAL YEAR 2003 EXPENDITURES**  
(Shown in 2003 dollars)

Line Number	Summarized budget line item	Forest Plan Budget Estimate <sup>1</sup> (2003 dollars)	Fiscal Year 2003 Expenditure <sup>2</sup>	Difference (Expenditure - Estimate)	Expenditures as Percent of Forest Plan Budget Estimate
2	Recreation	2,132,728	875,207	-1,257,521	41%
3	Wildlife and Fish	653,975	334,783	-319,192	51%
4	Range	0	0	0	
5	Planning & Inventory & Monitoring	0	1,132,104	1,132,104	
6	Timber	932,491	186,950	-745,541	20%
7	Soil, Water & Air	147,721	274,818	127,097	186%
8	Minerals	35,392	58,200	22,808	164%
9	Senior Citizens (SCSEP)	0	166,065	166,065	
10	Lands <sup>3</sup>	238,598	2,193,030	1,854,432	919%
11	Engineering	304,675	2,312,790	2,008,115	859%
12	Fire	115,407	605,811	490,404	525%
13	Law Enforcement	56,934	14,326	-42,608	25%
14	General Admin	767,844	1,255,613	Not Comparable Categories	
16	Total All Funds	5,385,675	9,030,253	3,644,578	168%

<sup>1</sup> Inflation factor 1.410 based on Gross National Product Implicit Price Deflator Index, see web page: <http://www.bea.doc.gov/bea/dn/nipaweb/Index.htm>

<sup>2</sup> Expenditure includes unpaid obligations.

<sup>3</sup> Lands includes \$1,563,000 in land acquisition funds.

## **Research [36 CFR 219.28(a)]**

***Review and update research activities on the Forest. Find out if the needs in the Forest Plan (pages 3-4 to 3-7) are being addressed, and are still appropriate. Identify additional research needs based on monitoring and evaluation and on changing societal needs.***

Listed below are research needs addressed in FY 2202 and FY 2003 (*Forest Plan*, pp. 3-4 to 3-7). Published research conducted in other years may be found on the Hoosier National Forest webpage at [www.fs.fed.us/r9/hoosier](http://www.fs.fed.us/r9/hoosier). Most research needs recognized in the *Forest Plan* are being addressed, many through partnerships with other entities. Several research studies are still in progress and work continues.

### **Need: Native Plant and Animal Community Research**

Hedge, Cloyce; Homoya, Mike; and Scott, Perry. 2001. Interim Report. Endangered, threatened, and rare plant species on the Hoosier National Forest. 6 pages. FOUO. On file with: Forest Supervisor, Hoosier National Forest, 811 Constitution Avenue, Bedford, IN 47421.

Hedge, Cloyce. 2002. Inventory and control recommendations for invasive plant species on selected areas of the Hoosier National Forest. 13 pages. On file with: Forest Supervisor, Hoosier National Forest, 811 Constitution Avenue, Bedford, IN 47421.

### **Other research publications from work on the Hoosier National Forest**

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# Site-Specific Project Decisions

**TABLE 6. DECISIONS IN FISCAL YEAR 2002**

Decision	Date	County
South Lawrence Utilities (water line)	11/27/01	Lawrence County
McKain Exchange Proposal	3/12/02	Jackson County
Orange County REMC	3/12/02	Orange County
Otter Creek Upland Planting	3/19/02	Crawford County
Southern IN REC (Whitcomb buried utility) ROW	5/10/02	Perry County
Stand Improvement (grapevine control)	9/13/02	Perry County

**TABLE 7. DECISIONS IN FISCAL YEAR 2003**

Decision	Date	County
Houston Tower Site	10/09/2002	Brown, Crawford, Jackson, Lawrence, Martin, Orange, and Perry Counties
Spear Tower Site	10/10/2002	Orange
Indian Lake Dam Road Construction	10/11/2002	Orange
Breedlove Road Access	03/13/2003	Perry, Crawford
Tornado Blowdown Fuel Hazard Reduction	04/18/2003	Crawford
Plan Amendment (7) for T&E Species	07/21/2003	Perry
Braun Land Exchange	09/29/2003	Martin
Springs Valley Special Use Trail	11/14/2002	Jackson
Paoli Exp. Forest Oak Planting/TSI	01/31/2003	Perry
Narrows Marsh Riparian Restoration Project	02/07/2003	Crawford
Boone Creek Special Area Prescribed Burn	02/24/2003	Monroe and Jackson
Parking Area for Pioneer Mothers	02/26/2003	Perry
Bonds Special Use Permit Trail	05/08/2003	Perry
Utilities District of Western Indiana REMC Permit	06/03/2003	Crawford
Ransburgh Boy Scouts of America Special Use Permit	06/18/2003	Crawford

## Adjacent Lands [36 CFR 219.7(f)]

*Consider effects of national forest planned management on land, resources, and communities adjacent or near the Hoosier National Forest and, conversely, the effects on national forest management from activities on nearby lands managed by other public land agencies or under the jurisdiction of local government. To be addressed from a perspective of current and emerging issues.*

There are various interrelationships between national forest management on nearby privately owned lands, including the effects on national forest management from activities on nearby lands. Here in south central Indiana, where National Forest System (NFS) land is interspersed with private or other public lands, national forest management certainly affects private lands as well.

Because of the limited amount of public land in Indiana, there are many demands for its use. According to the Indiana Statewide Comprehensive Outdoor Recreation Plan (SCORP), only three percent of the state is in public ownership and but a fraction of an acre of public land is available for recreation per capita. Of the public land in Indiana, 31 percent is within the Hoosier National Forest. The concentration of visitors on the Hoosier obviously affects adjacent lands, and the NFS lands also provide quality of life benefits and opportunities to our neighbors. In addition, the presence of private land and homes influences the way the scattered blocks of NFS land are managed.

Besides use by Indiana residents, the proximity of the forest to Kentucky results in a high level of use by recreationists living south of the Ohio River. The Hoosier is by far the closest large block of public land for residents of Louisville and Owensboro, Kentucky and Cincinnati, Ohio.

Current demands that affect national forest management on adjacent lands include: trail use, land prices, trespass, small forest products, other special uses, community development, debris burning, and flood control.



**Trail use** –Demand for special use trails and for permits to conduct events on NFS lands remains high. Most trail use requests are for horse-riding events, but we have also received requests for mountain bike events. A recreation fee demonstration program, which went into effect in 1998, requires a trail use permit for all horse and bike riders on forest trails. The permits are available as daily tags or as an annual trail use tag. In 2002, 32 local vendors sold tags, in addition to Forest offices. In 2002, the Forest sold 1,503 annual tags and 7,866 daily tags. The fee demonstration project netted \$55,864.

Trail use has a positive impact on the local economy and the businesses that cater to these users. Horse camps in the northern portion of the Forest are booked to capacity most weekends during the recreation season. There are several trail permits issued to link private horse camps to NFS trails.

We estimate that 22,964 horseback riders and 4,052 mountain bike riders visited the forest in 2002. We also completed construction on the Springs Valley Trail system.



**Land Prices and Real Estate** –When advertising private land for sale, most realtors mention if the land borders NFS land. People usually consider a location adjacent to NFS land desirable.

**Trespass** – Recreational trespass from NFS land to private land occurs both inadvertently and deliberately on a continual basis. Only about 25 percent of the National Forest boundaries are marked and identifiable. As a result, people using the forest often wander onto private lands without realizing that they have trespassed. Local landowners complain about an increasing apathy on the part of these trespassers for attention to boundaries and a wanton disrespect for private landowner rights.

There is also the potential for private landowners to trespass, in person or with their land practices, onto NFS land. As the numbers of neighbors increase through parcel subdivision, the likelihood of trespass also increases. In limited instances, some cases can be resolved using the Small Tracts Act authority. The cases thus resolved vary from someone’s garden or yard to substantial improvements such as homes. Resources permitting, we address these trespasses on a case-by-case basis.

Illegal off-road vehicle use continues to be a problem, as adjacent landowners illegally ride from their property onto NFS land. Efforts to apprehend these trespassers are rarely productive since the trespassers do not access the Forest by public points. Regardless of the entrance point, however, they can do substantial damage to forest resources. Horseback riders also often ride onto the forest from private lands and create their own trails, resulting in further resource impacts.

Dumping of trash, old appliances, and tires is also an ongoing problem on the forest. The forest is actively working with community recycling and solid waste districts to promote responsible waste disposal. The Forest has one site under special use to the Orange County Solid Waste Disposal District. This site provides for recycling containers and household trash collection.

**Small forest products** – Frequent requests for small forest products include plant collection, grapevine collection, house logs, fence posts, and other miscellaneous products. These are normally denied unless the request corresponds with a project which has dutifully been approved through the National Environmental Policy Act (NEPA) process. Requests for other products, though rarely approved, may be allowed under certain circumstances if they fit into *Forest Plan* guidance. Resource specialists determine the best locations and impose restrictions. As appropriate, permittees pay a fee for the small forest products commensurate with their value.

**Other special uses** – Occasionally private enterprises are authorized to use NFS land. One example is the concessionaire permit for Hardin Ridge, Indian and Celina Lakes, and Tipsaw Lake Recreation Areas. These permits provide jobs and income to local people as well as services to NFS visitors in a cost-efficient manner.

Other examples are private driveways to access in-holdings or utility rights-of-way to develop rural areas. Permittees uphold permit requirements and pay a fee to the United States for the use of NFS land. They are granted non-exclusive use of the land.

A third type of special use permit is the type that authorizes utility companies to put their lines across National Forest System land--with restrictions and in some cases the payment of a fee. Changes in the permits and locations of the lines can be beneficial to both the permittee and the national forest. In 2002 Orange County REMC moved one power line from Pine Valley Store to State Road 145. In 2003 Orange County REMC moved a line from a forested location to the roadside of the Hagar Tract west of Orleans.

**Community development** – Community development and private land management also affects the national forest. Development and subdivision of private parcels increases the number of people adjacent to NFS land, thus increasing the potential for direct use by neighbors. Louisville, Kentucky and Bloomington, Indiana are two nearby large cities that continue to expand. Preferring to live in a more rural area and buy land at lower costs, commuters are creating a demand for more home construction in the area of the Forest. Economic development, primarily in the Tell City Ranger District, has the potential to greatly change the demographics of Perry and Crawford Counties.



**Ohio River Scenic Byway** – This 981-mile route, of which only a portion crosses NFS lands in three states, was nominated as a National Scenic Byway in 1996. It continues to grow into an appreciable tourist attraction. Brochures are now available with loop tours off the byway through the Hoosier as well as rural communities. The route now extends through the states of Ohio and Illinois, and the three states are working together on marketing, interpretation, and signs.

Indiana is working in partnership with the states of Ohio and Illinois to extend the route at each end through its neighboring states. Key to the route's attraction are the rolling hills and scenic overlooks on the Hoosier. The Forest has assisted with some funding, designing, and contracting work on reconstruction portions of the route through the Hoosier National Forest.

**Branchville Prison** – The Branchville Training Center is across Highway 37 from the Tipsaw Recreation Area. Visitors to the inmates at the center are likely to use the Tipsaw area.



**Indiana Historic Pathways** – Thirty-seven counties are involved in this effort to designate, develop, and market three historic pathways. The effort pulls three routes together: US Highway 50, US 150, and the Buffalo Trace. The preliminary work has been done, and the route has been nominated and is awaiting approval. U.S. Highway 50 crosses the state as part of one of the earliest coast-to-coast highways. Through

Indiana, the highway route parallels the railroad that also has historic routes in the area. The Buffalo Trace predates all other routes, as the route migrating buffalo used to cross from wintering grounds in the Kentucky Bluegrass Region to the plains of the Midwest, crossing at the falls of the Ohio River (now Louisville, Kentucky and Jeffersonville, Indiana). The route angles across the southern part of the state to Vincennes where the buffalo crossed the Wabash River and spread out onto the Illinois prairies. Later, stagecoaches, travelers, and even the military used the trace as the easiest access across southern Indiana. Part of its route was paved and became Highway 150. Highway 150 and the original buffalo trace both cross the national

forest, and some of the last remnants of the unpaved portions of the trace remain on National Forest System lands. The Hoosier is an active part of the committee working toward recognition of these byways.



**New Ohio River Bridge** – A new bridge has been completed across the Ohio River to Owensboro, Kentucky. This allows additional expansion of industry into southern Indiana and, potentially, additional visitors to the Forest.



**Holiday World and Splashing Safari** – This growing amusement park is the oldest theme park in continuous operation in the nation. In recent years, the park has undergone a major renovation. With the park putting more money into expansion and construction, its popularity has grown. Each year a major new ride had opened, and the number of visitors has continued to rise.

Hotels, restaurants, and other tourist accommodations are being built to accommodate these visitors. Many of these tourists also camp on the Forest or visit other Forest areas during their trip to the amusement park.



**West Baden Hotel Renovation** – The West Baden Springs Hotel has long been of interest to people from around the world. It was an architectural wonder when constructed in 1902. Cook, Inc. funded most of the 30 million dollar renovations for the hotel's current owner, Historic Landmarks Foundation. Historic Landmarks Foundation sponsors tours of the site including the ongoing renovations

and the restoration of the hotel grounds. The restoration effort of the hotel has sparked similar renovations throughout the town of West Baden and French Lick. Other bed and breakfasts, rooming houses, and restaurants have been restored. A “promenade” is being designed to link the two towns and showcase some of the area's history. West Baden and French Lick were once popular resorts known for their hot springs and extravagant accommodations. A major fire and the 1930's depression played roles in the demise of this once famous landmark. With current renovations and the State's approval for gambling development in the area, the West Baden and French Lick area hopes to once again become a prominent destination landmark for tourists.



**Rickenbaugh House** – The Hoosier, in conjunction with local partners, has largely completed renovation of the historic Rickenbaugh House, shown here with its new windows, doors, and porch. Meetings for community organizations are now held in the house, and it is open for interpretive programs on weekends during the recreational season.

**Flood Control** – Other than streams, creeks, and rivers, there are few natural bodies of water within the boundary of the Hoosier National Forest. Most of the existing lakes and ponds were designed primarily for flood control with recreation as a secondary use. Many of the dams are located above private lands. It is critical that these structures are sound and meet standards to ensure safety to those who live below the structures. Considerable work was done in earlier years to ensure that structures are safe. A new access road to Indiana Lake dam has been authorized and final design work is being completed prior to actual construction.

## Demand [36 CFR 219.10(g)]

*The Forest Supervisor shall review the conditions on the land covered by the plan at least every 5 years to determine whether conditions or demands of the public have changed significantly.*

With the *Forest Plan* in 1991, many demands for the National Forest were emphasized. Demand for National Forest System resources was displayed and discussed in depth in the Draft Environmental Impact Statement, Appendix B (p. 4-4 to 4-5), and in the *Forest Plan* (p. 3-3 to 3-4). The interdisciplinary team (ID team) estimated demands for dispersed recreation, developed recreation, timber, young forest, openings and shrubland, natural-appearing forest, and opportunities for solitude and remote recreation. Demand was estimated to address the management challenges of land ownership patterns, recreation use, oil and gas exploration, and biological diversity. The following demand and supply table shows the *Forest Plan* estimates for 1995 (an approximate midpoint of the Plan life), and for the year 2005 to show future demand trends.

**TABLE 8. FOREST PLAN DEMAND AND SUPPLY**

Benefit	Projected Demand For 1995	Projected Demand For 2005	Projected Supply From Forest Plan
Dispersed Recreation (Recreation Visitor Days – RVDs)	272,000	347,502	267,000
Developed Recreation (RVDs)	120,000	168,315	120,000
Timber (Million Board Feet)	19.0	22.4	4.4
Young Forest (Acres of 0-19 hardwood, 0-9 pine, or reverting openings)	23,400	23,400	14,100
Openings and Shrubland (Acres of maintained openings, red cedar, barrens, & utility corridors)	6,300	6,300	5,800
Natural-appearing Forest (Acres)	185,000	185,000	96,000

As reported earlier in this report, recreation visitor days exceeded our expectations in 2003. Demand for other benefits has not changed appreciably since the *Forest Plan* estimates.

During FY 2003, public meetings were held in Jasper and near Bedford to gather input for alternatives in the revision of the Forest Plan. Other activities have also been ongoing for the Forest Plan Revision, including identification of assignments for the revision, contracts for development of certain needed information including vegetation, issue identification, and

alternative formulation. Participation in the public meetings was active and usable. Representatives were present from a variety of user groups, and they displayed a cooperative attitude toward other such groups.

The Forest Plan Revision is now moving forward on a revised schedule. The intent is to have a draft plan and Draft Environmental Impact Statement available for review by mid-summer of 2004.

## **Protect and Manage Ecosystems**

### ***Restocked Lands [36 CFR 219.12(k)(5)(i)]***

**Assure lands are adequately restocked as specified in the Forest Plan (App. B, B-11 to B-13), both FY 2002 and FY 2003**

Reference: Annual National Forest Management Act (NFMA) Stocking Report.

Methodology: Newly planted stands typically receive a first and third year stocking survey to determine seedling survival. The survival rate is determined using two methods. The first method uses survival plots. When a stand is initially planted, survival plots are established which are scattered throughout the stand. Each survival plot consists of 10 representative trees. For stands or plantations of less than 10 acres, two to three survival plots are established. For plantations over ten acres, an additional survival plot is established for each five acres. During first and third year plantation survival checks, the survival plots are monitored and the quality and quantity of the surviving seedlings is recorded.

The second method is the general walk-through of the plantation, which verifies the results of the survival plots. The general walk-through is used to check for blocks where survival may be low and to locate stands where future stand improvement treatments may be needed.

Results: In 2002 stocking surveys were run on five plantations that include a total of 116 acres. One plantation adjacent to a wetland had a survival rate of only 55 percent. This same plantation had a survival rate of 50 percent in 2003. The lower than desired survival was attributed to the flooding that occurred in the plantation. The remaining seedlings were growing well, and many of the seedlings are over five feet in height. Even though the survival rate is lower than desired, the area was certified as being stocked because the distribution of seedlings and the diversity of species meet the objectives of enhancing the species around the wetland.

The remaining four plantations sampled in 2002 had an acceptable average survival rate of 73.5 percent. The four plantations are scheduled for a third year stocking survey in 2004.

Plantations often suffer high mortality rates because of deer predation and from competition with herbaceous plants, fescue in particular. In an effort to offset seedling loss and still have a stocked stand of trees, the number of seedlings planted per acre was increased in 2001. Future plantings in fescue fields will be planted at rates of 800 seedlings per acre to offset seedling losses.

In 2003, 87 acres received a first year stocking survey. Survival rates showed a 71 percent survival rate. These same areas are scheduled for a third year survey in 2005.

### ***Insects and Disease [36 CFR 219.12(k)(5)(iv)]***

#### **2002 and 2003---**

Methodology: Coordinate with State agencies to monitor insect and disease outbreaks.

Results Several insect and disease surveys were accomplished in 2002 and 2003. The annual gypsy moth survey showed the State has been successful in slowing the spread of gypsy moth. No gypsy moths were found in any pheromone traps located on the Forest.

Recommendations: Will continue to work with the State in the effort to slow the spread of gypsy moth.

Introduced sawfly has been visually monitored in white pine stands throughout the Forest since the outbreak in 1996. Stands throughout the forest were inspected, and no recent defoliation has been detected.

Recommendations: Continue to monitor white pine stands. The State representative is to keep the forest appraised of any outbreaks occurring in the rest of the State.

In 2003 the Forest, in cooperation with Indiana Department of Natural Resources, established a Sirex plot north of Bedford, Indiana to determine if there were any Sirex beetles on the Forest. The Bedford plot was established because Sirex beetles were found in pallet factory in the Bloomington Area. As part of the study, six pine trees were weakened with the intent that if there were Sirex beetles in the area the beetles would attack the weakened trees. The results of the study have yet to be determined.

Recommendations Continue to work with the State in identifying insect and disease outbreaks. Animal Plant Health Inspection Service (APHIS) continues to monitor exotic beetles throughout the State. No exotic beetles have been identified on the Forest.

In 2002 there was a gradual buildup of Linden looper and forest tent caterpillar on the Forest. In 2003 the Linden looper reached epidemic proportions, and the forest tent caterpillar declined in numbers. In 2003 the Linden looper defoliated scattered trees on several thousand acres in the southern part of the State from Interstate 64 to the Ohio River. In 2003 the Forest mapped the extent of the defoliation and relayed the information to State and Federal agencies. The State, along with State and Private Forestry (S&PF), also flew the state and mapped the extent of the defoliation. The insect epidemic and defoliation is expected to last for another two years and cause scattered mortality in hardwood stands throughout the Forest.

Recommendations: Continue to work with the State in identifying the extent of the problem. In cooperation with State and S&PF, the Forest will be flown in 2004 to map the extent and intensity of the defoliation.

## **Monitor Storm Damage**

In May 2003, a tornado struck Perry County, Indiana, damaging trees on approximately 80 acres in the Tell City Ranger District of the Hoosier National Forest. The Forest is currently in the process of asking the public for comments concerning the proposal. The project proposal is to remove weakened and severely damaged trees. The purpose of the project is to:

- Reduce the safety hazard to German Ridge trail users, hunters, and general forest users.
- Reduce the fire hazard to National Forest System land and adjacent private lands.
- Improve the visual appearance along the trail system.
- Salvage merchantable wood.

## ***Soil and Water [36 CFR 219.27(a)(1)(2)(4),(b)(5),(e),(f)]***

### **Implementation, effectiveness, and validation monitoring of the Moffatt, Roland, and Otter Creek wetland restoration, structure design, and water flow.**

#### Reference to relevant laws and handbooks:

36 CFR 219.27(a) (1) & (f); Forest Service Handbook (FHS) 2309.18 section 3.12b – Exhibit 02; FSH 2509.18 Soil Management Handbook; R9 Supplement, FSH 2509.22, Soil and Water Conservation Handbook; Draft R9 Supplement, FSH 2509.18, Chapter 2, Soil Quality Monitoring--Logging and Forestry BMP's For Water Quality in Indiana, Field Guide, January 1998; *Forest Plan* Appendix J and K.

**2002---**

Date of observations: December 26, 2001

### **Lake Celina Dam Access Road Project**

Determine effectiveness of road design in controlling soil erosion and sedimentation approximately one year after completion of road construction.

Methodology: Visual observations were made to note evidence of soil erosion occurring in road ditches, on cut-banks, and at inlet and outlet of culverts and to see if sediment coatings occurred on rocks and leaves or in pools in the drainages below the culverts. Observations were also made as to how far the excessive sediment had traveled down the drainage.

Criteria for being acceptable: Small channels and gullies should not occur on cut-banks, in ditches, or in the vicinity at the inlet of culverts. If sediment occurs at the outlet of culverts, there should not be large deposits within 12 feet and evidence should not be apparent beyond 25 feet from the end of the culvert. Sediment coatings on leaves and rocks in the channel of the drainage should not be obvious beyond 25 feet from the end of the culvert.

Results: There are 15 culverts placed along this road. The ditches running into most of the culverts had small gullies where soil had been eroded. There was little vegetative cover in the ditches or on the cut banks. Some of the eroded soil was deposited in a few of the culverts. The area just beyond the outlet of the culverts has sediment and road gravel deposited, this material

having been washed through the culverts. Significant sediment coatings occurred on leaves and rocks in the drainage 330 feet from the outlet of the third culvert. The drainage at the end of the sixth culvert shoots down a 30 percent slope. Sediment coatings were noted approximately 700 feet from the end of the sixth culvert. The cut-bank has slipped into the ditch between the fifth and sixth culverts. The slip begins 30 feet from the inlet of the sixth culvert and extends approximately 80 feet. The drainages below the twelfth and fifteenth culverts carried sediment into Celina Lake.

Forest Plan met: No

Recommendations: The following recommendations are the result of a discussion with the civil engineering technician in the charge of the project. Ditches and cut-banks were planted to seed and the seed germinated. Germination of the seed was followed by a long dry spell, and the planting failed. The cut-bank slump will have to be removed from the ditch. The small gullies in the ditches will be smoothed out and then cut banks and ditches will be covered with a surface-applied erosion control blanket imbedded with seed. This will aid in the establishment of vegetation and also protect the ditches and cut banks from eroding. Once the erosion control blanket is placed, the sediment moving down the drainages should be alleviated.

Date of observations: December 27, 2001

Location:

U-38 Dam Access Road, T.2S. R.3W, section 31 and T.3S, R.3W, section 6, Tell City Ranger District, Hoosier National Forest.

Determine effectiveness of road design in controlling soil erosion and sedimentation approximately one year after completion of road construction.

Methodology: Visual observations were made to note evidence of soil erosion occurring in road ditches, on cut-banks, and at inlets and outlets of culverts and to see if sediment coatings occurred on rocks and leaves or in pools in the drainages below the culverts. Observations were also made as to how far the excessive sediment had traveled down the drainage.

Criteria for being acceptable: Small channels and gullies should not occur on cut-banks, in ditches, or in the vicinity at the inlet of culverts. If sediment occurs at the outlet of culverts, there should not be large deposits within 12 feet and evidence should not be apparent beyond 25 feet from the end of the culvert. Sediment coatings on leaves and rocks in the channel of the drainage should not be obvious beyond 25 feet from the end of the culvert.

Results: There are 10 culverts placed along this road. The ditches running into most of the culverts had small gullies where soil had been eroded. There was good vegetative cover in the ditches and on the cut banks, which has helped to keep ditch and cut bank erosion to a minimum. A few of the culverts had small deposits of eroded soil and road gravel inside them. The soil that had eroded from the inlet side of the culverts was deposited in the area just beyond the outlet of the culverts.

Culvert 1, which is closest to the gated access, had a small amount of ditch erosion at the inlet. Most sediment that flowed through the culvert was deposited within 15 feet of the outlet. The inlet of Culvert 2 is sitting on sandstone bedrock, and little ditch erosion is occurring. Sediment

at the outlet consists mostly of road gravel and occurs within 21 feet from the end of the culvert. Culverts 3, 4 and 5 had little ditch and inlet erosion with sediment deposited within 10 feet of the culvert outlet. Culvert 6 had some ditch and inlet erosion with sediment having settled out within 20 feet of the outlet. Between culvert 6 and 7, water from overland flow was allowed to move across the road with no impact to the road. Culverts 7, 8, 9, and 10 had little inlet erosion with no noticeable sediment beyond 5 feet of their outlets.

Forest Plan met: Yes, soil and water resources are adequately protected.

Recommendations: The soil and water resources are adequately protected; however, there is some ditch erosion occurring at the culvert inlets. Protection at these sites is dependent on having adequate moisture for seed germination. The seedlings act as sediment traps and anchor the soil in place. Use of surface-applied erosion control blankets at the inlets to the culverts would provide immediate protection, keep the soil from being eroded, and provide protection to seedlings during germination and establishment.

It is recommended that future road projects utilize surface applied erosion control blankets at the inlets to culverts to protect soil and water resources.

**2003---**

Date of observations: Throughout the year.

**Determine effectiveness of site selection, restoration techniques, and levee design in restoring the features and functions of a bottomland hardwood forest and associated wetlands.**

Methodology: Site information including existence of bottomland landforms, appropriate soil information, site hydrology, and other information are a consideration in site selection. Levee design and use of grade stakes are used during implementation monitoring. Effectiveness monitoring occurs during the first season following construction. It includes answering questions such as: does levee hold water, does wetland function as wetland, does wetland store flood water, can the levee withstand annual flooding, does the levee attract appropriate wildlife species, and does the wetland hydrology encourage appropriate vegetative species?

Criteria for being acceptable: The wetland stores water for appropriate time to encourage wetland vegetation and attracts wildlife. Levee is well vegetated and is able to withstand flooding.

Results: Moffatt levee and wetland were constructed in the late summer of 1997. In the spring of 1998 one to two feet of water was observed flowing over the levee when the Lost River was flooding. Inspection of the levee later indicated that no damage had occurred to the levee. The shallow water wetland has been functioning as planned. In the spring the wetland is filled to capacity, and by late summer there are just a few pools remaining. This natural water level control encourages plant species that provide a food source to waterfowl during the migration season when water levels in the wetlands again rise. The levee at Moffatt was rebuilt during 2002 because of muskrat damage. To discourage muskrat use, more sloping backslopes have been constructed on the levee. Also, mounds of soil have been constructed in the wetland area

with backslopes that may attract muskrats away from the levee. This is being monitored by Forest Service and IDNR personnel.

Observations and results have been similar at the Roland and Otter Creek sites. However, due to the large watersheds draining into these wetlands, manual draining of the wetlands during the summer months has been scheduled. Two of the wetland areas at Roland and one at Otter Creek were drawn down during the summer of 2003. Because of a scheduled dedication ceremony for the Roland project, a pump was borrowed and used by the IDNR to refill the two wetlands drained. During the course of refilling, two field drainage tiles—missed during construction—were located and will be plugged. This demonstrated a need to be able to refill wetlands manually before the adjacent rivers levels rise so that tile outlets can be located.

Wetland site selection and restoration process, wetland levee design, and water flow regimes are meeting or exceeding all three levels of monitoring.

Forest Plan met: Yes, and the process is working, as evidenced by the success of these projects.

Recommendations: Continued monitoring of the levees for muskrat damage and scheduled repair of them. It is also recommended that the levees of all wetlands be placed on a schedule to be drained on a rotating basis to ensure the growth of vegetation that provides food for waterfowl.

## ***Caves and Karst [36 CFR 219]***

### **Conduct surveys for development of cave management plans**

Legal or Regulation Reference: *Federal Cave Resources Protection Act of 1988 (FCRPA), 36 CFR 290, Forest Plan Appendix I.*

**2002---**

Methodology: A large percentage of this program depends on volunteer cavers. Members of the Indiana Karst Conservancy conduct the actual base level inventories and cave mapping.

Results: The volunteers were involved in a number of activities including:

- Writing cave management plans. Three plans have been drafted.
- Attending HNF/IKC Karst Inventory Committee meetings. Meetings are held every other month to discuss items of interest on the Hoosier National Forest and to discuss cave and karst issues.
- Performing Values Team activities, which include: identifying the archaeological, biological, cultural, educational, geological, hydrological, mineralogical, recreational, and scientific resources within a number of caves.
- Evaluating caves for significance. Information on twenty-four caves has been submitted.
- Biota Inventory. Dr. Julian Lewis continued conducting a biota inventory of the caves on the Hoosier National Forest throughout FY 2002. Several members of the HNF/IKC committee assisted Dr. Lewis in his work. Dr. Lewis has discovered several species that are new to science.

- Surveying land for acquisition and other projects.
- Providing input on HNF projects including the Forest Plan Revision, trails projects, and land acquisitions.
- Surveys evaluating sinkholes prior to prescribed burns.
- Training. Kriste Lindburg hosted a training session on Project Underground.
- Tours. Bob Armstrong and Val Frazee led Forest employees on a tour so they could help teachers integrate karst education into school curriculums.
- Take Pride in America. Ten individuals assisted with a day of walking ridges to locate new cave locations and pick up trash.
- Participated in cost share agreements to fund sinkhole cleanup on newly acquired properties.
- Data Collection. Jerry Lewis and Keith Dunlap gathered information on the karst features and fauna in the Tincher Karst Area for inclusion in the I-69 project file.

In addition, the Hoosier National Forest recently received a karst groundwater model to use in schools and environmental education opportunities. Dr. Virgil Brack from 3D/Environmental Services surveyed eight southern caves located on the Forest. Dr. Julian Lewis completed draft conservation assessments (54 reports total) for all the cave species on the Regional Forester's Sensitive Species list for Region 9.

Forest Plan met: Yes. We continue to work on acquiring locations, mapping interiors, listing resource values, and writing individual management plans (*Forest Plan Appendix I*).

Recommendations: Caves that have been recommended for significance have been nominated and should be approved. Future activities could be expanded to include dye tracing to determine water flow paths in Karst areas.

## **2003---**

Legal or Regulation Reference: *Federal Cave Resources Protection Act of 1988 (FCRPA), 36 CFR 290, Forest Plan Appendix I.*

Methodology: A large percentage of this program depends on caver volunteers. Members of the Indiana Karst Conservancy conduct the actual base level inventories and map the caves.

Results: The volunteers were involved in a number of activities including:

- Writing cave management plans. Four plans have been drafted and one has been approved.
- Attending HNF/IKC Karst Inventory Committee meetings. Meetings are held in alternate months to discuss items of interest on the Hoosier National Forest and to discuss cave and karst issues.
- Performing Values Team activities, which include: identifying the archaeological, biological, cultural, educational, geological, hydrological, mineralogical, recreational, and scientific resources within a number of caves.
- Evaluating caves for significance. Information on twenty-four caves has been submitted.
- Biota Inventory. Dr. Julian Lewis continued conducting a biota inventory of the caves on the Hoosier National Forest throughout FY 2003. Several members of the HNF/IKC

- committee assisted Dr. Lewis in his work. These surveys have resulted in twenty-six cave species being added to the Regional Foresters sensitive species list for Region 9.
- Surveys for land acquisitions and other projects were completed.
  - Providing input on Hoosier projects including the Forest Plan Revision, trails projects, and land acquisitions.
  - Surveys evaluating sinkholes prior to prescribed burns.
  - Take Pride in America. Ten individuals assisted with a day of walking ridges to locate new cave locations and pick up trash. New locations included one new cave and possibly a second, three additional sinkholes, and a karst spring.
  - Participating in cost-share agreements to fund sinkhole cleanup on newly acquired properties.
  - Presentations. Hoosier National Forest Wildlife Biologist Kelle Reynolds, Dr. Julian Lewis, and IKC committee member Kriste Lindberg gave presentations at the National Cave and Karst Management Symposium on October 14 – 17, 2003.

In addition, Dr. John Whitaker from Indiana State University and Dr. Virgil Brack from 3D/Environmental Services, Inc. are publishing a paper summarizing all the bat studies conducted on the Forest over the past years. This paper will include previous work that was never summarized or published.

Forest Plan met: Yes. We continue to work on acquiring locations, mapping interiors, listing resource values, and writing individual management plans (*Forest Plan Appendix I*).

Recommendations: Caves that have been recommended for significance have been nominated and should be approved. In the future, activities should be expanded to include dye tracing to determine water flow paths in Karst areas.

### ***Vegetative Management [36 CFR 219.15 and 219.27(b)]***

#### **Monitor warm season grass restoration at Bird Cemetery**

Methodology: We conducted an ocular observation of the area to observe species composition and effectiveness of restoration activities to convert the opening from tall fescue to warm season grasses.

Results: Forest botanist, soil scientist, wildlife biologists, and technicians reviewed the site on multiple dates during FY 2002 (autumn) and FY 2003 (summer). Burning of the opening last occurred during the spring of 2003. Consensus among participants familiar with the project was that the area showed an improvement towards increased amounts of warm season grasses.

Forest Plan met: Yes

Recommendation: Continue conducting prescribed burning in the opening and performing subsequent ocular monitoring for effectiveness. If feasible, establish permanent transect and plots for species composition.

## **Garlic mustard monitoring in the Charles C. Deam Wilderness**

Methodology: Roads in the Deam Wilderness area were inventoried for the seventh (FY 2002) and eighth (FY 2003) years for populations of garlic mustard.

Results: In FY 2002 and FY2003, the Forest botanist examined the area for garlic mustard and pulled approximately 50 plants each year in the vicinity of Blackwell Horse Camp. There were no other garlic mustard infestations observed along the Tower Ridge Road or other roads in the Charles C. Deam Wilderness.

Forest Plan met: Yes

Recommendations: Forest Service personnel will continue monitoring these sites in FY 2004 to determine if the plant is still present.

## ***Research Natural Areas (RNA's) and Special Areas (SA's) and Potential Candidates [36 CFR 219.25]***

### **Monitor rare and exotic plant populations**

Methodology: The Forest botanist conducted surveys for rare plants within various project areas that included various designated special areas during FY 2002 and FY 2003. Data collected for all new rare plant sites followed the procedures in the Indiana Special Plant Survey Form and was sent to the State Natural Heritage Program. Botanists also found some new rare plant populations within other special areas where no active projects are proposed or occurring. Surveys conducted within portions of designated areas included Boone Creek, Clover Lick, Faucett Chapel, Harding Flats, Hemlock Cliffs, Oil Creek, Pioneer Mothers' Memorial Forest, Plaster Creek, Rockhouse Hollow, and Tincher Special Areas.

These surveys also recorded information on non-native invasive plant species infestations. Forest personnel will revisit these sites to record data using nation-wide invasive plant protocol methods and then enter this information into the TERRA database for invasive plant species.

Results: None of the invasive plants found within special areas were new species for the Forest. At some locations, earlier surveys and data had documented the occurrence of the invasive plants, but botanists had not mapped these infestations.

New populations of Regional Forester sensitive species found within special areas were:

- *Bryoxiphium norvegicum* – one population
- *Ophioglossum engelmannii* – one population
- *Panax quinquefolius* – one population
- *Vittaria appalachiana* – two populations
- *Woodwardia areolata* – one population

New populations of Forest species of concern found within special areas were:

*Prenanthes aspera* – one population  
*Rudbeckia fulgida* var. *fulgida* – two populations

Other rare plant species found within special areas were:  
*Trichomanes intricatum* – two populations

### **Boone Creek Barrens monitoring transects**

Methodology: The Forest has established approximately 100 herbaceous vegetation monitoring plots in the Boone Creek Special Area (T4S, R1W, Sec. 25). Plots follow along transect lines with circular plots at 30 meter intervals. Data collection protocol includes recording species composition at each plot and other vegetation data at other intervals along the transect line. Monitoring also included photo plots at designated locations.

Results: Data collection following this protocol for all of these plots was not possible due to time constraints and other project priorities. However, we did take photographs at one of the photo plot sites and conducted a cursory examination along two of the transect lines following this year's prescribed burn project. Vegetation observed at various plots was robust with equal or increased species numbers and diversity as compared to prior data collection. This monitoring resulted in locating one new rare plant population near one of the transect lines conducted in 2003.

Forest Plan met: Yes

Recommendations: Continue monitoring along these established routes and record data according to the protocol developed by the project. These transects did not have permanently marked beginning and ending points. We recommend placing rebar at predetermined intervals along the transect line to enable us to replicate each plot in the same location each year.

### **Featherbell monitoring in the Faucett Chapel Special Area**

Methodology: The Forest botanist surveyed the population area during the summer of 2002 and 2003. An attempt to relocate a monitoring plot last done in 1994 within the featherbell population was unsuccessful. However, we did count the total number of plants within the population each year.

Results: In FY 2002, approximately 710 plants occurred within the population area in several groups or subpopulations. In FY 2003, monitoring of the site resulted in observation of approximately 3,841 plants. After comparing earlier maps of the population, it was confirmed that one new subpopulation of 766 plants was found in 2003. The population appears to be increasing, but that remains inconclusive because of possible differences in data collection between the different years.

Forest Plan met: Yes

Recommendations: Continue monitoring and establish permanent monitoring transect with rebar at each endpoint.

## **Vegetative monitoring after burning in Harding Flats and Clover Lick Barrens**

Methodology: The Forest has established permanent transects and plots in both the Harding Flats and Clover Lick Barrens (Mogan Ridge area). Data collection last occurred at these sites in 1995.

Results: The most recent prescribed burning in these barrens communities occurred in 2001, but no data collection occurred because of workload associated with other Forest projects.

Recommendations: Continue monitoring along these established routes following the next prescribed burning project.

## ***Management Indicator Species, Federal Threatened and Endangered Species, Regional Forester's Sensitive Species, and Forest Species of Concern [36 CFR 219.9]***

### **Activities accomplished related to endangered and threatened species in general**

Personnel began the process to amend the *Forest Plan* to incorporate information from the USDI Fish and Wildlife Service's Biological Opinion.

Hoosier employees are members of NEBWG (Northwest Eastern Bat Working Group).

The Forest Supervisor participated in Endangered Species Act training.

The Forest prepared an education trunk with information concerning bats for use in school programs.

T&E species viability evaluations were completed in coordination with Purdue (gray bat, bald eagle, Indiana bat) and SIU (fanshell); full viability evaluation continued for Indiana bat—reviewed by biological viability experts throughout the Midwest.

Karst Conservancy is surveying features, including the presence of bat species.

Since 1991, 11,200 acres of land have been acquired with potential as T&E habitat.

Continuing monitoring of caves—so far, few visits and no vandalism.

### **Activities related to fanshell mussel**

Stream surveys were completed, but no fanshell were found (2001 and 2002).

### **Activities related to gray bat**

Four cave management plans were drafted.

Seven new caves were located, and three caves, which had poor location information, were relocated.

At least 28 programs concerning bats were provided to schools and organizations in an ongoing program of public education.

Bat surveys were conducted at South Gardner Kaolinite Mine entrance and two other mine entrances.

Personnel surveyed 17 caves with potential for Indiana bat, but found no gray bats.

Personnel surveyed 80 karst features inside the proclamation boundary; no gray bats were found.

Monitoring of gray bats is continuing in cooperation with IDNR.

A cave fauna inventory was completed, including presence of bats.

### **Activities related to Indiana bat**

Hoosier personnel helped edit Bat Conservation International conservation assessment (2002).

HNF personnel are continuing to communicate with other national forests and disseminate Indiana bat information in order to discuss new research findings, habitat enhancements that work, and ways to deal with new bat issues.

Development of ponds and wetlands and maintenance of forest openings is providing foraging habitat.

John Whittaker is doing bat surveys in the barrens (2002).

Virgil Brack and John Whittaker are putting together a paper summarizing studies of bats on the Hoosier National Forest.

### **Monitor bald eagle activities near Lake Monroe**

Methodology: The Brownstown District initiated informal consultation with the USFWS in 1993 to ensure protection of nesting bald eagles on NFS lands near Lake Monroe. One known nesting site has been located. The Forest issued a closure order to protect the area surrounding the nest and monitored the area to determine the effectiveness of the closure.

Results: IDNR – Division of Fish and Wildlife coordinates monitoring of bald eagle nests. In 2002, bald eagles were observed incubating at the nest on the Hoosier National Forest. The nest was checked three times during the year (March, April, and June) by helicopter to determine how many chicks were produced. Despite the eagle's appearance of incubating eggs, no chicks were fledged.

Programs on raptors, including eagles, was presented to local schools

Forest Plan met: Yes

Recommendations: Continue monitoring work through IDNR.

### **Survey for Regional Forester sensitive species (RFSS) and Forest species of concern (FSOC) plants**

Methodology: The Forest botanist and wildlife biologists conducted site-specific rare plant surveys for all RFSS and FSOC species with appropriate habitat within various project areas in FY 2002 and FY 2003. Biologists conducted these surveys using either cursory or intuitive-control survey methods. The Forest botanist also conducted presence-absence monitoring of selected known rare plant sites where they exist within or near project areas.

Results: Botanists found new populations of both RFSS and FSOC species scattered across the Forest. The following new sightings are for populations located outside of special areas. See above for the species and populations found within special areas.

New populations of Regional Forester sensitive species found were:

*Cyripedium parviflorum* var. *pubescens* – one population

*Panax quinquefolius* – one population – two populations

Forest Plan met: Yes

Recommendations: Continue to monitor selected rare plant sites in future project areas where project activities could potentially affect these populations.

### **Monitor populations of butternut**

Methodology: All live butternut trees (*Juglans cinerea*), a Regional Forester's sensitive species, are to be monitored using the butternut monitoring form: dbh, percent live crown, and fruits produced. In the future, we will GPS the location of known sites.

A stand clearcut in 1979 was identified in 2000 as having numerous healthy butternut trees. Approximately 74 butternut trees were identified in the 19-acre stand. In 2003, Hardwood Tree Improvement and Regeneration Center at Purdue University began DNA testing to determine if there was any genetic difference between healthy trees and those affected by the canker.

Results: Not yet available.

Recommendation: Continue to work with research in identifying healthy butternut trees throughout the Forest. Continue to monitor the health of the remaining trees throughout the Forest. As seeds and seedlings become available, plant seedlings in future regeneration sites.

## ***Fish and Wildlife [36 CFR 219.19]***

### **Monitor fish populations in selected waters**

Methodology: Through a Memorandum of Understanding (MOU), the Indiana Department of Natural Resources (IDNR) manages the fish populations within designated selected waters within the Hoosier National Forest. In FY 2002 the IDNR completed a report for Oriole Pond. The purpose of the survey was to determine if triploid grass carp was a viable option for aquatic vegetation control. Survey methods employed by the IDNR include electrofishing, gill nets, and trap nets. Aquatic vegetation and water chemistry parameters were measured as well (for detailed results see Carnahan 2002). In FY 2002 the IDNR continued stocking selected waters based on previous surveys that were completed.

Relevant laws and regulations: 36 CFR 219.11

Results: Oriole Pond is a 2.8 acre impoundment located in the Hoosier National Forest near the town of Oriole on State Road 66. IDNR has conducted active management on the pond since 1986. Survey results suggested that Oriole Pond had normal water chemistry and could be classified as infertile. A water shield formed a 10 to 30 feet wide band around the pond, which restricted fishing and electrofishing equipment access. In addition, cattails were dense along the pond's entire west shoreline, which further decreased bank fishing opportunities. IDNR were unable to sample enough fish to make valuable assessments about the fish community in Oriole Pond because of a water shield restricting equipment access.

Hoosier National Forest personnel investigated reports of a fish kill at Tipsaw Lake and Indian Lake in July and September 2003. Personnel observed dead largemouth bass and sunfish in Tipsaw Lake close to the boat ramp and swimming beach. Both Tipsaw Lake and Indian Lake

had supersaturated amounts of oxygen and 40-60% aquatic vegetation percent coverage. The target percent coverage for aquatic vegetation in a pond or lake environment is 25%. Shallow areas where dead fish were observed had 100% coverage of aquatic vegetation.

Additionally, Hoosier National Forest personnel inventoried selected and non-selected ponds and lakes for aquatic vegetation percent coverage in FY 2003. Of the 20 selected ponds and lakes, 75% had 50-90% coverage of aquatic vegetation. Of the 11 non-selected waters that were inventoried, 73% of these ponds had 70-90% coverage of aquatic vegetation.

Forest Plan met: Partially, but see recommendations.

Recommendations: Continue to collaborate with and support the IDNR in the monitoring of fish populations. Develop plans and viable methods to contain and control nuisance aquatic vegetation. IDNR recommends a discontinuation of annual channel catfish stockings in Oriole Pond until aquatic vegetation is under control and fishing access is improved.

### **Monitor fisheries in the Deer Creek and Poison Creek watersheds (FY 2002)**

Methodology: The Hoosier National Forest fisheries staff conducted intensive surveys within the Deer Creek and Poison Creek watersheds. The objectives of these surveys were to: (1) inventory and document fish, mussel, amphibian, reptile, and crayfish populations; (2) define and measure current physical habitat conditions; and (3) identify adjunct or unstable populations.

Relevant laws and regulations: 36 CFR 219.11, 36 CFR 219.19

Results: A total of 20 streams were surveyed within the Deer Creek watershed and 10 streams within the Poison Creek watershed. The fisheries staff documented 27 species of fish, 7 species of amphibians and reptiles, 1 species of crayfish, and 1 species of mussel in the Deer Creek watershed. The fisheries staff documented 23 species of fish, 4 species of amphibians and reptiles, and 1 species of mussel within the Poison Creek watershed. In addition to biological data, the fisheries staff collected water chemistry and habitat composition data to characterize stream segment habitat.

Forest Plan met: Yes

Recommendations: The effective management of watersheds depends on the amount and accuracy of available baseline information. This information can be used to identify potential stream habitat enhancement and restoration projects and to further prioritize work in watersheds. Continued support in monitoring and inventorying of aquatic ecosystems on the Hoosier National Forest is necessary to better manage its aquatic resources.

### **Monitor aquatic species populations in Lake Monroe, Lower Salt Creek, and Little Blue River watersheds (FY 2003)**

Methodology: The Hoosier National Forest aquatic ecologist and summer crew conducted extensive stream surveys for each stream within the Lake Monroe and Lower Salt Creek watersheds. The objectives of these surveys were to:

- (1) Classify each stream according to Rosgen (stream profile) analysis
- (2) Collect water chemistry data, flow data, and substrate composition data for each stream
- (3) Inventory fish, aquatic insect, and crayfish populations found in each stream with electro-fishing gear and sampling nets
- (4) Document the presence of reptile and amphibian species
- (5) Complete aquatic habitat assessments and calculate biotic indices based on fish and aquatic insect community data
- (6) Compile data and summarize habitat quality information for each surveyed stream so that stream restoration and watershed improvement projects can be identified and prioritized

Additionally, the Hoosier National Forest aquatic ecologist and summer crew collaborated with the U.S. Fish & Wildlife Service, Bloomington, Indiana Field Office to survey all streams within the Little Blue River watershed. The objectives of these surveys were to:

- (1) Document baseline habitat conditions within all streams of the watershed
- (2) Identify streams within the watershed that will need habitat or physical improvement work
- (3) Inventory fish, aquatic insect, and crayfish populations found in each stream with electro-fishing gear and sampling nets

Relevant laws and regulations: 36 CFR 219.11, 36 CFR 219.19

Results: A total of 11 streams were surveyed within the Lower Salt Creek watershed and 7 streams within the Lake Monroe watershed. Data was collected to classify each stream according to Rosgen analysis. A total of 43 streams were surveyed within the Little Blue River watershed. All chemical, physical, and biological data was collected for each stream channel to meet all proposed objectives.

Forest Plan met: Yes

Recommendations: The effective management of watersheds depends on the amount and accuracy of available baseline information. This information can be used to identify potential stream habitat enhancement and restoration projects and to further prioritize work in watersheds. Continued support in monitoring and inventorying of aquatic ecosystems on the Hoosier National Forest is necessary to better manage its aquatic resources.

### **Monitor frog populations throughout the Hoosier National Forest**

Methodology: Hoosier National Forest personnel conducted frog call surveys for the purpose of gathering baseline data on frog populations throughout the Forest. This data can be used to document population trends over time and as a measure of relative abundance for the documented species of frogs. Call survey protocols were modeled after United States Geological Survey, North American Amphibian Monitoring Program protocols.

Relevant laws and regulations: 36 CFR 219.11

Results: Hoosier National Forest personnel conducted frog call surveys between February and

August at 15 ponds or wetlands within the German Ridge Recreation Area on the Tell City District. No rare species or new species county records were documented.

Forest Plan met: Yes

Recommendation: Continue to support amphibian population monitoring throughout the Forest to document population trends. Further baseline data collection will be valuable to determine if aquatic habitats on the Forest are providing viable amphibian breeding habitat.

## **2002 breeding bird surveys**

### *Bald Eagle nest monitoring*

This survey is conducted annually under the direction of Dr. John Castrale of the Indiana Division of Fish and Wildlife. The single existing eagle nest on the Hoosier National Forest is in the Crooked Creek watershed. This nest still exists but was not active; that is, no eggs were laid during 2002.

### *Winter bald eagle survey*

This survey is conducted annually under the direction of Dr. John Castrale of the Indiana Division of Fish and Wildlife. Midwinter eagle counts are conducted in January of each year. Areas near the Hoosier National Forest where these counts are conducted include Lake Monroe and Patoka Lake. The census from wintering bald eagle (*Haliaeetus leucocephalus*) counts for these lakes are:

2002: Lake Monroe (24)

Patoka Lake (16)

### *Heron rookery survey*

This survey is conducted at approximately five year intervals under the direction of Dr. John Castrale of the Indiana Division of Fish and Wildlife. Hoosier National Forest biologists typically participate in the effort to monitor great blue heron (*Ardea herodias*) rookeries within the Forest boundaries. This survey was not conducted in 2002; the survey will be conducted in 2004.

### *Wild turkey gobbler count*

This State-wide survey is conducted annually under the direction of Steve Backs, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted in the spring of the year when male turkeys gobble in order to attract mates or retain breeding flocks and territories. Hoosier National Forest biologists typically participate in the effort to monitor numbers of eastern wild turkey (*Meleagris gallopavo*) on the Forest.

In general, 10 routes with 15 designated stops are surveyed for the presence of gobbling turkeys. Of the 10 routes surveyed, 5 occur on national forest lands.

## **TABLE 9. WILD TURKEY COUNT 2002**

(Wild turkeys heard per stop on roadside counts on Hoosier National Forest lands in April of 2002, previous five year mean, and the cumulative mean calculated from counts beginning in 1987)

Area / Route	2002	5-year Mean	Cumulative Mean
Hickory Ridge	0.33	0.84	0.76
Oriole – St. Croix	0.53	0.59	0.45
Lost River – East	1.27	0.91	0.81
Lost River – West	0.93	0.55	0.76
Lick Creek	1.13	0.77	0.65
<b>Means</b>	<b>0.84</b>	<b>0.73</b>	<b>0.69</b>

*Wild turkey harvest*

This State-wide survey is conducted annually under the direction of Steve Backs, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted in the spring of the year following the close of turkey hunting seasons. Harvest is derived from mandatory check station reporting of turkey harvest.

**TABLE 10. TURKEY HARVEST 2001 AND 2002**

(Indiana wild turkey harvest within counties containing Hoosier National Forest lands, spring 2001 and 2002. Percent of harvest refers to percent county contribution to State-wide harvest. Statewide, hunters harvested 9,975 wild turkeys in 2001 and 10,575 turkeys in 2002. The nine counties containing National Forest System lands contributed well over 20% of the statewide harvest of wild turkeys in 2001 and 2002.)

County	2001 Harvest	Percent of Harvest	2002 Harvest	Percent of Harvest
Brown	260	2.6	218	2.1
Crawford	353	3.5	325	3.1
Dubois	174	1.7	191	1.8
Jackson	191	1.9	203	1.9
Lawrence	290	2.9	315	3.0
Martin	239	2.4	220	2.1
Monroe	202	2.0	204	1.9
Orange	414	4.2	366	3.5
Perry	379	3.8	409	3.9
<b>Totals</b>	<b>2,502</b>	<b>25.0</b>	<b>2451</b>	<b>23.3</b>

*Ruffed grouse drumming counts*

This State-wide survey is conducted annually under the direction of Steve Backs, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted in the spring of the year when ruffed grouse drum in order to attract mates and establish breeding territories. Hoosier National Forest biologists typically participate in the effort to monitor numbers of ruffed grouse (*Bonasa umbellus*) on the Forest.

In general, 10 routes with 15 designated stops are surveyed for the presence of drumming grouse. Of the 10 routes surveyed, 5 occur on National Forest System lands. Four of these routes have been previously designated as control routes as part of a larger grouse population study.

**TABLE 11. RUFFED GROUSE HEARD 2002**

(Ruffed grouse heard per stop on control routes occurring on Hoosier National Forest lands. Surveys are conducted annually in the spring of the year. Data are presented as the mean number of drumming grouse heard per stop in the survey year, previous five year mean, and the cumulative mean calculated from year of study initiation.)

<b>Area / Route (Year Initiated)</b>	<b>2002</b>	<b>5-year Mean</b>	<b>Cumulative Mean</b>
Hickory Ridge (1979)	0.07	0.15	0.47
Perry County (1980)	0.07	0.04	0.17
Lost River – East (1987)	0.00	0.37	0.33
Lick Creek (1987)	0.20	0.08	0.31
<b>Means</b>	<b>0.07</b>	<b>0.13</b>	<b>0.32</b>

*Woodcock singing ground survey*

The annual woodcock singing ground survey is a State-wide survey administered by the U.S. Fish and Wildlife Service’s Office of Migratory Bird Management. Clark McCreedy, former research biologist for the Indiana Division of Fish and Wildlife, coordinated implementation of this survey in Indiana.

Similar to other surveys which take advantage of unique characters of the breeding biology of birds, this survey takes advantage of the male woodcock’s unique breeding display and flight in order to evaluate annual changes in relative abundance. Because of the limited number of survey routes and, more importantly, because of rapidly declining numbers of woodcock across their range, little inference can be made concerning relative numbers of woodcock in the general region of the Hoosier National Forest.

In 2002, only four male American woodcock were heard on 18 Indiana singing ground survey routes.

It is the intent of Hoosier National Forest biologists to expand coverage of this survey, in cooperation with the U.S. Fish and Wildlife Service, to more thoroughly evaluate the status of woodcock on the Hoosier National Forest, and to do so in particular with respect to management on the Forest.

*Mourning dove call count survey*

The annual mourning dove call count survey is a State-wide survey administered by the U.S. Fish and Wildlife Service’s Office of Migratory Bird Management. Clark McCreedy, former research biologist for the Indiana Division of Fish and Wildlife, coordinated implementation of this survey in Indiana in 2002.

Similar to other surveys which take advantage of unique characters of the breeding biology of birds, this survey takes advantage of the mourning dove's distinctive 'coo' call in order to evaluate annual changes in relative abundance. The number of doves seen on these designated survey routes is also recorded in addition to the number heard.

In 2002, results of those mourning dove call count surveys conducted in the region of the Hoosier National Forest compare reasonably well to results of the State-wide survey.

**TABLE 12. 2001 AND 2002 INDIANA MOURNING DOVE CALL COUNT**

(Results of the 2001 and 2002 Indiana mourning dove call count survey for survey routes within counties that contain National Forest System lands)

County of route	Doves Seen 2001	Doves Seen 2002	Doves Heard 2001	Doves Heard 2002
Dubois / Martin	16	19	3	14
Perry	17	27	22	32
<b>Statewide Means</b>	<b>19.1</b>	<b>18.2</b>	<b>20.7</b>	<b>21.8</b>

*Bobwhite quail whistle count survey*

This State-wide survey is conducted annually; in 2002 this survey was directed by Clark McCreedy, former research biologist for the Indiana Division of Fish and Wildlife. In general, beginning in mid-June and continuing through mid-July, wildlife biologists record the number of whistling male bobwhite quail heard per survey stop along designated survey routes. Survey results are standardized by males heard per survey stop and analysis is stratified by quail management region in the State of Indiana (North, Central, Southwest, Southcentral, and Southeast). The southcentral quail management region corresponds well to the general area of the Hoosier National Forest. This survey tracks population trends of this early successional ground-nesting gamebird. Results are indicative of general land use patterns and a good comparative measure of the availability of early successional habitats upon which numerous passerines (a large order of birds, including sparrows and many others) and neotropical migrant songbirds depend.

**TABLE 13. 2002 BOBWHITE QUAIL WHISTLE COUNT**

(Results of the 2001 and 2002 Indiana bobwhite quail whistle count survey for southern quail management regions in Indiana. The southcentral management region (SC) corresponds well to the general region of the Hoosier National Forest. Survey results are reported as the average number of bobwhite quail heard per stop along designated survey routes. Because of physiographic similarities, southwest and southeast regions are pooled. Numbers bracketed by parentheses indicate the number of survey routes per region.)

2001			2002		
SC	SE / SW	Statewide	SC	SE / SW	Statewide
<b>1.15 (10)</b>	<b>1.30 (15)</b>	<b>0.62 (71)</b>	<b>1.31 (10)</b>	<b>1.16 (15)</b>	<b>0.70 (72)</b>

## 2003 Breeding Bird Survey

### *Raptor Survey*

This survey is conducted annually by the Department of Forestry and Natural Resource under contract with the Hoosier National Forest. Dr. Barney Dunning of the Department of Forestry

and Natural Resource oversees the implementation and analysis of the survey. Data collection completed in 2003; analysis and reporting to be completed.

### *Bald Eagle Nest Monitoring*

This survey is conducted annually under the direction of Dr. John Castrale of the Indiana Division of Fish and Wildlife. The single existing eagle nest on the Hoosier National Forest, in the Crooked Creek watershed, was not active; that is, no eggs were laid during 2003.

### *Winter Bald Eagle Survey*

This survey is conducted annually under the direction of Dr. John Castrale of the Indiana Division of Fish and Wildlife. Midwinter Eagle Counts are conducted each year in January. Areas near the Hoosier where these counts are conducted include Lake Monroe and Patoka Lake. Wintering bald eagle (*Haliaeetus leucocephalus*) counts for these lakes are as follows:

Lake Monroe(33)

Patoka Lake (13)

### *Heron Rookery Survey*

This survey is conducted at approximately five year intervals under the direction of Dr. John Castrale of the Indiana Division of Fish and Wildlife. Hoosier National Forest biologists typically participate in the effort to monitor great blue heron (*Ardea herodias*) rookeries within the forest boundaries. This survey was not conducted in 2002 but will be conducted in 2004.

### *Wild Turkey Gobbler Counts*

This State-wide survey is conducted annually under the direction of Steve Backs, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted in the spring of the year when male turkeys gobble in order to attract mates or retain breeding flocks and territories. Hoosier National Forest biologists typically participate in the effort to monitor numbers of eastern wild turkey (*Meleagris gallopavo*) on the forest. In general, 10 routes with 15 designated stops are surveyed for the presence of gobbling turkeys. Of the 10 routes surveyed, 5 occur on National Forest System lands.

**TABLE 14. WILD TURKEY COUNT 2003**

(Wild Turkeys heard per stop on roadside counts on National Forest System lands within the Hoosier in April of 2003, previous five year mean, and the cumulative mean calculated from counts beginning in 1987)

Area / Route	2003	5-year Mean	Cumulative Mean
Hickory Ridge	0.53	0.84	0.79
Oriole – St. Croix	0.60	0.59	0.44

Lost River – East	1.07	0.91	0.77
Lost River – West	0.67	0.55	0.78
Lick Creek	1.00	0.77	0.61
<b>Mean</b>	<b>0.77</b>	<b>0.73</b>	<b>0.68</b>

### *Wild Turkey Harvest*

This State-wide survey is conducted annually under the direction of Steve Backs, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted in the spring of the year following the close of turkey hunt seasons. Harvest is derived from mandatory check station reporting of turkey harvest by turkey hunters.

**TABLE 15. TURKEY HARVEST 2002 AND 2003**

(Indiana wild turkey harvest within counties containing Hoosier National Forest lands, spring 2002 and 2003. Percent of harvest refers to percent county contribution to statewide harvest. State-wide, hunters harvested 10,575 wild turkeys in 2002 and 10,366 turkeys in 2003. The nine counties containing National Forest System lands contributed over 20% of the State-wide harvest of wild turkeys in 2002 and 2003.)

<b>County</b>	<b>2002 Harvest</b>	<b>Percent of Harvest</b>	<b>2003 Harvest</b>	<b>Percent of Harvest</b>
Brown	218	2.1	194	1.9
Crawford	325	3.1	320	3.1
Dubois	191	1.8	191	1.8
Jackson	203	1.9	209	2.0
Lawrence	315	3.0	284	2.7
Martin	220	2.1	250	2.4
Monroe	204	1.9	187	1.8
Orange	366	3.5	322	3.1
Perry	409	3.9	373	3.6
<b>Totals</b>	<b>2451</b>	<b>23.3</b>	<b>2330</b>	<b>22.4</b>

### *Ruffed Grouse Drumming Counts*

This State-wide survey is conducted annually under the direction of Steve Backs, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted in the spring of the year when ruffed grouse drum in order to attract mates and to establish breeding territories. Hoosier National Forest biologists typically participate in the effort to monitor numbers of ruffed grouse (*Bonasa umbellus*) on the forest.

In general, 10 routes with 15 designated stops are surveyed for the presence of drumming grouse. Of the 10 routes surveyed, 5 occur on National Forest System lands; four of these routes have been previously designated as control routes as part of a larger grouse population study.

**TABLE 16. RUFFED GROUSE HEARD 2003**

(Ruffed Grouse heard per stop on control routes occurring on the Hoosier National Forest. Surveys are conducted annually in the spring of the year. Data are presented as the mean number of drumming grouse heard per stop in the survey year, previous five year mean, and the cumulative mean calculated from year of study initiation.)

Area / Route (Year Initiated)	2003	5-year Mean	Cumulative Mean
Hickory Ridge (1979)	0.00	0.12	0.45
Perry County (1980)	0.00	0.04	0.16
Lost River – East (1987)	0.07	0.27	0.32
Lick Creek (1987)	0.07	0.11	0.29
<b>Means</b>	<b>0.03</b>	<b>0.14</b>	<b>0.31</b>

*Woodcock Singing Ground Survey*

The annual Woodcock Singing Ground Survey is a statewide survey administered by the U.S. Fish and Wildlife Service’s Office of Migratory Bird Management. James Pitman, research biologist for the Indiana Division of Fish and Wildlife, coordinates this survey in Indiana.

Similar to other surveys which take advantage of unique characters of the breeding biology of birds, this survey takes advantage of the male woodcock’s unique breeding display and flight in order to evaluate annual changes in relative abundance. Because of the limited number of survey routes and, more importantly, because of rapidly declining numbers of woodcock across their range, little inference can be made with respect to relative numbers of woodcock in the general region of the Hoosier National Forest.

In 2003, only two male American woodcock were heard on 16 Indiana singing ground survey routes.

It is the intent of Hoosier National Forest to expand coverage of this survey, in cooperation with the U.S. Fish and Wildlife Service, to more thoroughly evaluate the status of woodcock on the Hoosier National Forest and how the bird responds to management on the Forest.

*Mourning dove call count survey*

The annual Mourning Dove Call Count Survey is a State-wide survey administered by the U.S. Fish and Wildlife Service’s Office of Migratory Bird Management. James Pitman, research biologist for the Indiana Division of Fish and Wildlife, coordinated implementation of this survey in Indiana in 2003.

Similar to other surveys which take advantage of unique characters of the breeding biology of birds, this survey takes advantage of the mourning dove’s distinctive ‘coo’ call in order to evaluate annual changes in relative abundance. The number of doves seen on these designated survey routes is also recorded in addition to the number of heard.

Because of the limited number of survey routes and because of declining numbers of doves throughout the dove Eastern Management Unit, little inference can be made with respect to relative numbers of mourning doves in the general region of the Hoosier National Forest.

In 2003, results of those mourning dove call count surveys conducted in the region of the Hoosier National Forest compare reasonably well to results of the State-wide survey.

**TABLE 17. 2002 AND 2003 MOURNING DOVE CALL COUNT**

(Results of the 2002 and 2003 Indiana mourning dove call count survey for survey routes within counties that contain National Forest System lands)

County of route	Doves Seen 2002	Doves Seen 2003	Doves Heard 2002	Doves Heard 2003
Dubois / Martin	19	20	14	20
Perry	27	14	32	29
<b>Statewide Means</b>	<b>18.2</b>	<b>17.7</b>	<b>21.8</b>	<b>20.9</b>

*Bobwhite Quail Whistle Count Survey*

This State-wide survey is conducted annually; in 2003 this survey was directed by James Pitman, research biologist for the Indiana Division of Fish and Wildlife. In general, beginning in mid-June and continuing through mid-July, wildlife biologists record the number of whistling male bobwhite quail heard per survey stop along designated survey routes. Survey results are standardized by males heard per survey stop and analysis is stratified by quail management region in the State of Indiana (North, Central, Southwest, Southcentral, and Southeast). The southcentral quail management region corresponds well to the general area of the Hoosier National Forest. This survey tracks population trends of this early successional ground-nesting gamebird. Results are indicative of general land use patterns and a good comparative measure of the availability of early successional habitats upon which numerous passerines and neotropical migrant songbirds depend.

**TABLE 18. 2002 AND 2003 BOBWHITE QUAIL COUNT**

(Results of the 2002 and 2003 Indiana bobwhite quail whistle count survey for southern quail management regions in Indiana. The southcentral management region (SC) corresponds well to the general region of the Hoosier National Forest. Survey results are reported as the average number of bobwhite quail heard per stop along designated survey routes. Because of physiographic similarity, southwest and southeast regions are pooled. Numbers bracketed by parentheses indicate the number of survey routes per region.)

2002			2003		
SC	SE / SW	Statewide	SC	SE / SW	Statewide
<b>1.30 (10)</b>	<b>1.16 (15)</b>	<b>0.70 (72)</b>	<b>0.99 (9)</b>	<b>1.01 (11)</b>	<b>0.63 (47)</b>

**2002 monitoring of mammals**

*Bobcat survey*

This State-wide survey is conducted annually under the direction of Scott Johnson, research biologist for the Indiana Division of Fish and Wildlife. In contrast to river otter reintroductions,

bobcats in Indiana were not reintroduced, but have probably persisted in the state as remnant populations.

Thirteen bobcats were captured from November 2001 until April 2002 in Lawrence, Martin, and Greene counties. Four individuals that had been previously outfitted with radio transmitters were recaptured. Nine new captures were fitted with radio transmitters. Each bobcat fitted with a radio transmitter was located approximately three times per week through August 2002 to obtain information on survival, home range, and movement patterns.

#### *River otter survey*

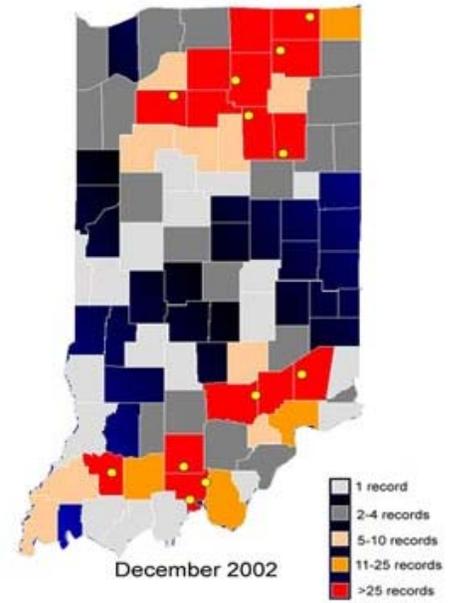
This State-wide survey is conducted annually under the direction of Scott Johnson, research biologist for the Indiana Division of Fish and Wildlife. This survey was initiated in the winter of 2002 and is conducted annually. This survey, in addition to anecdotal records of occurrence, was initiated in order to systematically assess the distribution of otters in Indiana.

The Indiana River Otter Restoration Program released 303 otters into six watersheds in the state from 1995 to 1999. To date, 52 of these animals are known to have died. Twenty-four deaths are a result of incidental trapping, and an additional 17 are a result of road kills. The standardized bridge and stream surveys were initialized during the winter of FY 2002 to collect unbiased data on Indiana River Otter populations throughout the state of Indiana. Although seventeen counties were surveyed, conclusive evidence of otters was only found in three counties. None of these counties (Jennings, Miami, and Wabash) fall within the proclamation boundaries of the Forest.

**Distribution of River Otters in Indiana.**



**Post-Release Records of River Otters in Indiana.**



*Raccoon roadside survey*

This State-wide survey is conducted annually under the direction of Bruce Plowman, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted each year in the months of March, July, and August. Observations for this survey are standardized by miles of roadside surveyed and stratified by furbearer management region in the State of Indiana. The southcentral furbearer management region corresponds well to the general area of the Hoosier National Forest.

**TABLE 19. RACCOON ROAD-KILL INDICES**

(Comparison of statewide and regional raccoon road-kill indices between March, July, and August of 2001 and 2002 in southcentral Indiana)

2001			2002		
Miles Surveyed	Raccoons Observed	Raccoons / 10,000 Miles	Miles Surveyed	Raccoons Observed	Raccoons / 10,000 Miles
169,593	459	27	234,138	1,032	44

*White-tailed deer harvest*

This State-wide survey is conducted annually under the direction of Jim Mitchell, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted in the winter and spring of the year following the close of white-tailed deer hunt seasons. Harvest is derived from mandatory check station reporting of deer harvest by deer hunters.

**TABLE 20. WHITE-TAILED DEER HARVEST 2001 AND 2002**

(Indiana white-tailed deer harvest within counties containing National Forest System lands, 2001 and 2002. Percent of harvest refers to percent county contribution to State-wide harvest. State-wide, hunters harvested a reported 103,163 white-tailed deer in 2001 and 104,426 deer in 2002. The nine counties containing National Forest System lands contributed approximately 14% of the statewide harvest of white-tailed deer in both 2001 and 2002.)

County	2001 Harvest	Percent of Harvest	2002 Harvest	Percent of Harvest
Brown	918	0.89	1017	0.97
Crawford	1474	1.43	1425	1.36
Dubois	1486	1.44	1656	1.59
Jackson	2164	2.10	2362	2.26
Lawrence	1658	1.61	1302	1.25
Martin	1037	1.01	1545	1.48
Monroe	1514	1.47	1514	1.45
Orange	1978	1.92	2061	1.97
Perry	1826	1.77	1950	1.87
<b>Totals</b>	<b>14055</b>	<b>13.64</b>	<b>14832</b>	<b>14.20</b>

*Statewide Archery Hunter's Wildlife Index*

This State-wide survey is conducted annually under the direction of Bruce Plowman, research biologist for the Indiana Division of Fish and Wildlife. In general, beginning October 1, for six weeks archery hunters record observations of wildlife on a standardized log that also requires the tracking of time in the field. Consequently, wildlife observations for this survey are standardized by hours of observation and stratified by furbearer management region in the State of Indiana. The southcentral furbearer management region corresponds well to the general area of the Hoosier National Forest. This survey tracks population trends of wildlife species. Results are indicative of general land use patterns and habitat type within respective regions.

Due to limited personnel, reporting of survey results typically lags behind field collection of data. For example, results reported in 2002 record observations collected during the 2000 field season; that is, results of this survey are typically reported two years following collection of data.

**TABLE 21. WILDLIFE OBSERVATIONS 1999 AND 2000**

(Comparison of State-wide and southern region wildlife observations per 1000 hours of observation by archery hunters between October 1 and mid-November of 2000 and 2001 in southern Indiana. The southcentral management region corresponds well to the general area of the Hoosier National Forest. This survey tracks population trends of wildlife species. Results, by region, are indicative of general land use patterns and habitat type within the respective regions (SW = southwest Indiana; SC = southcentral Indiana; SE = southeast Indiana; State = Statewide).)

Species	1999				2000			
	SW	SC	SE	State	SW	SC	SE	State
Deer	639	548	530	646	604	460	543	607
Coyote	40	26	17	26	25	20	17	20
Red Fox	10	6	4	7	6	2	6	5
Gray Fox	3	5	2	3	1	1	1	2
Bobcat	0.7	1	0.4	0.7	0.0	0.8	0.8	0.5
Raccoon	50	36	44	52	29	25	27	36
Opossum	14	9	12	14	15	5	6	10
Skunk	3	5	4	4	2	5	2	4
Quail	64	9	39	29	56	17	33	31
Grouse	12	13	3	6	3	11	3	4
Turkey	234	272	346	200	205	257	485	224
Fox Squirrel	667	475	629	582	715	447	608	576
Gray Squirrel	208	659	284	248	181	678	328	274
Rabbit	48	33	32	44	32	33	44	43

**2003 monitoring of mammals**

*River Otter Survey*

This State-wide survey is conducted annually under the direction of Scott Johnson, research biologist for the Indiana Division of Fish and Wildlife. This survey was initiated in the winter of 2002 and is conducted annually. This survey, in addition to anecdotal records of occurrence, was initiated in order to systematically assess the distribution of otters in Indiana.

Data collection for the current year is now underway and will be reported in the next monitoring report.

*Bobcat Survey*

This State-wide survey is conducted annually under the direction of Scott Johnson, research biologist for the Indiana Division of Fish and Wildlife. In contrast to river otter reintroductions, bobcats in Indiana were not reintroduced, but have probably persisted in the state as remnant populations.

Data collection for the current year is now underway and will be reported in the following year.

*Raccoon Roadside Survey*

This State-wide survey is conducted annually under the direction of Bruce Plowman, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted each year in the months of March, July, and August. Observations for this survey are standardized by miles of roadside surveyed and stratified by furbearer management region in the State of Indiana. The southcentral furbearer management region corresponds well to the general area of the Hoosier National Forest. As of November 2003, data had been collected; analysis and summarization were in progress.

**TABLE 22. RACCOON ROAD-KILL INDICES 2002 AND 2003**

(Comparison of statewide and regional raccoon road-kill indices between March, July, and August of 2002 and 2003 in southcentral Indiana)

2002			2003		
Miles Surveyed	Raccoons Observed	Raccoons per 10,000 Miles	Miles Surveyed	Raccoons Observed	Raccoons per 10,000 Miles
234,138	1,032	44	Data analysis underway		

*White-tailed Deer Harvest*

This State-wide survey is conducted annually under the direction of Jim Mitchell, research biologist for the Indiana Division of Fish and Wildlife. This survey is conducted in the winter and spring of the year following the close of white-tailed deer hunt seasons. Harvest is derived from mandatory check station reporting of deer harvest by deer hunters.

**TABLE 23. WHITE-TAILED DEER HARVEST 2002 AND 2003**

(Indiana white-tailed deer harvest within counties containing Hoosier National Forest lands, spring 2002 and 2003. Percent of harvest refers to percent county contribution to statewide harvest. State-wide, hunters harvested 104,428 white-tailed deer in 2002; data collection for 2003 will commence following the close of deer hunt seasons. The nine counties containing

National Forest System lands contributed over 14% of the State-wide harvest of white-tailed deer in 2002.)

County	2002 Harvest	Percent of Harvest	2003 Harvest	Percent of Harvest
Brown	1017	0.97		
Crawford	1425	1.36		
Dubois	1656	1.59		
Jackson	2362	2.26	Data analysis to begin at close of hunt seasons on January 4, 2004	
Lawrence	1302	1.25		
Martin	1545	1.48		
Monroe	1514	1.45		
Orange	2061	1.97		
Perry	1950	1.87		
<b>Totals</b>	<b>14832</b>	<b>14.20</b>		

*Archer Furbearer Wildlife Index*

This State-wide survey is conducted annually under the direction of Bruce Plowman, research biologist for the Indiana Division of Fish and Wildlife. In general, beginning October 1, for six weeks archery hunters record observations of wildlife on a standardized log that also requires the tracking of time in the field. Consequently, wildlife observations for this survey are standardized by hours of observation and stratified by furbearer management region in the State of Indiana. The southcentral furbearer management region corresponds well to the general area of the Hoosier National Forest. This survey tracks population trends of wildlife species. Results, by region, are indicative of general land use patterns and habitat type within the respective regions.

Due to limited personnel, reporting of survey results typically lags behind field collection of data. For example, results reported in 2002 record observations collected during the 2000 field season, that is, results of this survey are typically reported two years following collection of data.

**TABLE 24. WILDLIFE OBSERVATIONS 2000 AND 2001**

(Comparison of State-wide and southern region wildlife observations per 1000 hours of observation by archery hunters between October 1 and mid-November of 2000 and 2001 in southern Indiana. The southcentral management region corresponds well to the general area of the Hoosier National Forest. This survey tracks population trends of wildlife species. Results, by region, are indicative of general land use patterns and habitat type within the respective regions (SW = southwest Indiana; SC = southcentral Indiana; SE = southeast Indiana; State = State-wide).)

Species	2000				2001			
	SW	SC	SE	State	SW	SC	SE	State
Deer	604	460	543	607	756	548	623	715

Coyote	25	20	17	20	34	24	16	19
Red Fox	6	2	6	5	6	5	5	8
Gray Fox	1	1	1	2	0	4	1	2
Bobcat	0.0	0.8	0.8	0.5	0.4	0.6	1.1	0.8
Raccoon	29	25	27	36	39	21	33	40
Opossum	15	5	6	10	8	6	7	8
Skunk	2	5	2	4	3	3	2	3
Quail	56	17	33	31	20	6	45	16
Grouse	3	11	3	4	0	8	2	2
Turkey	205	257	485	224	162	344	322	196
Fox Squirrel	715	447	608	576	765	547	588	611
Gray Squirrel	181	678	328	274	188	806	233	279
Rabbit	32	33	44	43	34	33	19	28

## Protect Our Cultural Resources

### *Cultural and Heritage Resources [36 CFR 219.24]*

**Project reviews to ensure mitigation and protection measures are correctly applied for ground-disturbing activities.**

Legal/Regulations Reference: Antiquities Act of 1906; National Historic Preservation Act of 1966 as amended; Executive Order 11593; Archaeological Resources Protection Act of 1979 as amended; 36 CFR 219, 296, and 800.

Methodology: New resource damage does not occur and vandalism does not increase; that is, deterioration or collapse of significant buildings is avoided and rockshelters are not actively looted or inadvertently damaged by recreation users. Steps are taken to protect sites through public education, signing, and law enforcement activities.

Acceptable Criteria: Project areas are inspected for the presence of historic and prehistoric properties prior to project implementation. Significant and potentially significant properties are protected. Discovery of unrecorded resources are brought to the attention of the forest archaeologist.

#### Results:

##### **Paw Paw Marsh**

On April 23, 2003 a large prehistoric site (12 Mn 0202) was disturbed as a result of clearing an unimproved access road prior to maintenance work on the wetland area. The purpose was to drain Paw Paw Marsh for restoration of the wetland.

### **Hardin Ridge UDWI**

In July, two multi-component sites (12 Mo 1222 and 12 Mo 1223) were disturbed by the Utilities District of Western Indiana (UDWI) R.E.M.C. while conducting earth disturbing activities related to maintenance of a powerline right-of-way

### **Hardin Ridge Pine Loop Vault Toilet**

An historic site (12 Mo 0958) was not protected, and a vault toilet was installed on the site..

### **Two Lakes Loop Dump Cleanup**

On Public Lands Day in September of 2003, a modern trash dump was cleaned up adjacent to the Two Lakes Loop Trail. Early twentieth century domestic artifacts associated with a previously unrecorded historic site were removed. These artifacts were later returned to the site but are no longer in context..

Forest Plan Met? No.

Recommendations: Officials on the Forest discussed the unprecedented number of archaeological sites that were damaged this year and brainstormed ways to ensure it does not happen in the future. The Public Affairs Officer and the Forest Archeologist have developed a plan to address this issue. The action plan for protecting heritage resources is presented below. Included in the plan is an all-employee heritage resource protection workshop that will be held this winter. We will explore ways to more fully involve the heritage program in all aspects of project planning and implementation. We need to improve effective communications both internally and externally.

We need to continue to carefully monitor all kinds of projects occurring on the forest to ensure protection measures are followed and significant sites are protected. We will continue to work with law enforcement, as needed.

## **HERITAGE RESOURCES PROTECTION ACTION PLAN**

<b>ACTION ITEM</b>	<b>RESPONSIBLE PARTY</b>	<b>DUE DATE</b>
“Stop the line” if archaeological resources or human remains are discovered during project implementation. Ensure work ceases and contact the heritage resource specialist.	All employees	On-going
At Monday morning meetings, ensure employees coordinate with the heritage resource specialist on any new or maintenance activities that may involve archaeological sites.	Les Wadzinski	On-going
Create a paragraph describing archaeological site protection laws and violation information to include in annual permittee letter.	Angie Krieger and Tom Krueger	11/2003
Add a signature block to engineering designs and drawings to ensure project review by the heritage resource specialist.	Angie Krieger, Brad Lidell, James Klug, Dave Kissel, Sue Peterson	1/2004
Host an all employee workshop to promote archaeological site protection and appreciation. Create a power point to highlight local resources, research conducted and information learned.	Angie Krieger, Frank Lewis, Teena Ligan, Lafayette Chamberlain,	2/2004

Include slides specific to laws and the responsibilities of COR's and inspectors.	Donald Kidd, Jim Mohow (IDNR-DHPA)	
Create a CD from workshop power point for use in contract prework meetings.	Angie Krieger	2/2004
Insert archaeological site protection clause into contracts, permits, and agreement documents. Ensure people know that, if archaeological sites are discovered, work must cease and the heritage resource specialist be notified immediately.	Frank Lewis, Mary St. Louis, Vinda Anderson, Tom Krueger, Project leaders.	2/2004
Discuss archaeological concerns at pre-work or tailgate meetings at the beginning of projects. Create an initial block to complete at the prework meeting after viewing the mandatory CD on protection of heritage resource sites.	Project leaders, COR's and Inspectors	2/2004
Update the one-page summary of our heritage resource responsibilities. Distribute to program managers.	Angie Krieger	3/2004
Execute MOU w/IDNR-F&W after inserting an archaeological site protection clause and statement of action required upon discovery of sites. Document annual program of work.	Frank Lewis, Angie Krieger, and Gary Dinkel	3/2004
Create heritage resources education materials for youth and adults (i.e. coloring book and exhibits for district lobbies).	Janet Farless, summer interpreters	9/30/2004
Provide open houses and opportunities for employees to assist field projects.	Angie Krieger	9/30/2004
Organize and implement an annual field project for a paraprofessional refresher.	Angie Krieger, Pat Merchant, Bob Aynes, Ron Overshiner, Dave Morris, Maggie Schetter, Ronnie Roark, Randy Lutz, and Ryan Jahn	9/30/2004

**Monitor several National Register listed sites and several potentially significant sites to ensure resource protection forest-wide.**

Legal/Regulations Reference: Antiquities Act of 1906; National Historic Preservation Act of 1966 as amended; Executive Order 11593; Archaeological Resources Protection Act of 1979 as amended; 36 CFR 219, 296, and 800.

Methodology: Methods include literature reviews, field inspections, and surface and subsurface investigations. Original site forms and associated sketch maps are used to determine change and assess current site condition. All changes are noted in these permanent records. Develop, recommend, and implement protection or mitigation measures, if applicable.

Acceptable Criteria: New resource damage does not occur and vandalism does not increase, i.e. deterioration/collapse of significant buildings is avoided and rockshelters are not actively looted or inadvertently damaged by recreation users. Steps are taken to protect sites through public education, signing and law enforcement activities.

Results: Four incidents of damage to archeological sites occurred, which led to the development of the Heritage Resources Protection Action Plan above.

Nine rockshelters were reinvestigated during FY03 during a survey of Peter Cave Hollow. No disturbance was noted.

Cox's Woods, Wesley Chapel Gulf, and the Rickenbaugh House were visited to acquaint the Hoosier's new Public Affairs Officer with the heritage resources on the forest. No disturbance was noted.

Forest Plan Met? No.

Recommendations: See the recommendation section presented above and the Heritage Resources Protection Action Plan, also above.

As recommended last year, both law enforcement officers stationed on the Forest attended an Archaeological Resources Protection Act (ARPA) training in FY 2003. This training provided them with a better understanding of the laws, regulations, and methods used in the protection of fragile archaeological resources.

Also, as recommended last year, Forest Order No. 09-12-04 was rescinded.

Place interpretive signs at Cox's Woods and Wesley Chapel Gulf.

Continue to monitor significant and potentially significant sites throughout the forest to ensure their protection. Continue to work with law enforcement in areas of high use or repeat vandalism.

## **Provide for a Visually Pleasing Landscape**

### ***Visual Quality Objectives [36 CFR 219.21]***

**Monitor project design and execution to ensure visual quality objectives (VQO's) are met**

Legal/Regulation Reference: 36 CFR 219.21 (f), *Forest Plan* (p.2-15 to 2-16)

Methodology: Inspect projects that affect landform, water, vegetation, and structures; furthermore, compare effects to *Forest Plan* criteria. Projects that potentially affect the VQO's include soil and water improvements, wildlife opening maintenance, prescribed burns, trail maintenance, trail construction, and recreation construction.

Acceptable Criteria: Meet the VQO's stated in the *Forest Plan*

Results:

### **Trail Maintenance Project**

A trail maintenance project was completed in October 2003 on the Youngs Creek Trail. The trail was widened in sections with minimal clearing to accommodate equipment. In places where there was erosion, entrenchment, and wet muddy areas, the tread was treated with synthetic materials and gravel. Waterbars and drainage dips were constructed into the existing

trail tread using native materials, and some were hardened with gravel. This project partially meets the assigned VQO's. According to the Visual Quality map of the Forest, the Youngs Creek trail is within modification and partial retention areas. Some of the trail sections treated with gravel may be within a partial retention area rather than a modification area. The maintenance work was based on degradation of the trail. The graveled sections of the trail will be more noticeable initially, but should be natural appearing within two to five years. The areas of the trail where waterbars and drainage dips were installed correspond to partial retention. The waterbars and dips may be evident to forest visitors but will look more like a natural occurrence.

### **Burn Project**

In April 2003 an 855-acre Boone Creek burn was completed in the Buzzard Roost area. Initially the burned area was noticeable from the road. Over the summer, vegetation has grown in and the burned area now blends into the natural setting. This project met the assigned VQO's

Forest Plan met: Partially, see above under Trail Maintenance Project

Recommendations: Continue to follow VQO principles on all projects and coordinate with the Forest VQO coordinator.

## **Provide for Recreation in Harmony with Natural Communities**

### ***Wilderness Management [36 CFR 219.18]***

#### **Monitor wilderness resources according to Wilderness Implementation Schedule (WIS)**

Legal or Regulation Reference: 36 CFR 219.18, Forest Service Manual (FSM) 2320, FSH 2309.19 R9 Supplement 1, Forest Plan (pp 2-36 through 2-39).

Methodology: Visual observation of limits of acceptable change (LAC) indicators per the WIS monitoring schedule.

Acceptable Criteria: Limits of acceptable change standards as developed for the Charles C. Deam Wilderness.

#### Results:

#### **2002---**

All areas were monitored according to monitoring plan for the Charles C. Deam Wilderness. The monitoring plan will be updated in the next few years to include new monitoring information such as use of trail counters, Cole campsite inventories, and trail condition surveys.

Cole campsite inventories are used to determine campsite conditions within wilderness. The parameters used in the Charles C. Deam Wilderness are: amount to root exposure, amount of

tree damage, square footage of camp area, square footage of bare ground, amount of “social \” trails, and vegetation loss on the site. Campsites too close to trails and water are rehabilitated. Campsites with a rating of 4 or 5 are restored at least to a rating of 3. The monitoring also helps track trends in campsite proliferation.

1. Campsite Impact and Inventory:

No campsites were monitored in 2002.

2. Trail Social Encounters:

Three infrared trail counters were used in the Charles C. Deam Wilderness during July, August, and September. One counter was placed on the Grubb Ridge Loop Trail, west of Blackwell Campground. A second counter was placed on Terrill Ridge. The third counter was placed on the Grubb Ridge Trail, near the Grubb Ridge Trailhead.

Counter Results:

Grubb Ridge Loop Trail (near Blackwell) – between July 1, 2002 and September 27, 2002, the counter collected 50 days of data. During the 50 days, 952 counts were recorded.

Grubb Ridge Loop (near Grubb Ridge Trailhead)– between July 1, 2002 and September 27, 2002, the counter collected 38 days of data. During the 38 days, 783 counts were recorded.

Terrill Ridge - between July 1, 2002 and September 27, 2002, the counter collected 27 days of data. During the 27 days, 1,148 counts were recorded.

Wilderness Ranger Rod Fahl, Fee Demo Ranger Danna Strout, and Wilderness Manager Eric Sandeno patrolled trails in the Charles C. Deam Wilderness. A total of 441 hikers and 383 horse riders were observed.

Based on information collected, it is difficult to determine overall use in the Charles C. Deam Wilderness. Trail counters will again be placed at all access points during FY2003 and other monitoring efforts will be utilized to determine use.

3. Trail Social Impact:

The amount of garbage on or along the trails and in campsites was minimal. However, garbage at trailheads and off-trail areas has a social impact to wilderness visitors as much as garbage along trails. Garbage continues to be a problem at the Hickory Ridge Fire Tower. Most garbage is a result of Friday and Saturday night parties by local residents. Law Enforcement is aware of the problem and has been working with local authorities to develop a solution.

A significant amount of garbage washes onto the shore of the Charles C. Deam Wilderness along Monroe Lake. Every May, the Hoosier National Forest sponsors Take Pride in America, a day for people to complete volunteer work projects on the forest. A popular project has been cleaning the shoreline in the wilderness. This annual clean up prevents large amounts of garbage from accumulating.

Another concern area is the northeast side of the Charles C. Deam Wilderness adjacent to the Middle Fork Salt Creek. Middle Fork Salt Creek itself is managed by the Army Corps of Engineers, but garbage is collecting along the wilderness boundary. This is a potential location for work projects.

#### 4. Trail Tread Condition:

Problem erosion units were not inventoried, as identified in the Charles. C. Deam Wilderness monitoring plan. Problem erosion units have not proven to be an effective measurement of trail conditions. Trails will continue to be monitored and muddy areas or areas draining poorly will be identified and corrective action taken.

A five-person seasonal trail crew was hired for the summer to complete trail work within the wilderness. The crew worked for four months on construction and heavy maintenance projects. The Saddle Creek trail construction project was completed (1.5 miles), 36 miles of trail were cleared of down trees, four miles of existing trail was graveled, all water bars were cleaned, one mile of trail (in nine different locations) was rehabilitated, and several locations had other minor maintenance completed.

The Hoosier Horsemen provided a total of 27 volunteers on two separate workdays. The workdays concentrated efforts on improving drainage on the trails and eliminating muddy sections.

During the annual Take Pride in America volunteer workday, a small group concentrated on the Sycamore Loop Trail. A total of 47 water bars were cleaned, 26 new water bars constructed, four drainage dips installed, eleven check dams were replaced, and several sections had berm removed.

#### 5. Access Trail and Impact:

Minimal trash was collected at Hayes, Blackwell, and Grubb Ridge Trailheads. As stated above, garbage at the Hickory Ridge Fire Tower, alcohol containers picked up on Saturday and Sunday mornings, continues to be a problem.

Information and education is listed in the Wilderness Implementation Schedule as an issue and concern (Appendix B), but does not have a category in the Monitoring Plan. There appears to be a lack of awareness of why the Charles C. Deam Wilderness is unique and why management direction in wilderness is different. When the Charles C. Deam Wilderness monitoring plan is updated, information and education will be included as a monitoring category. Results of information and education efforts in 2002 are:

- a. Leave No Trace demonstrations were provided to individual Boy Scout Troops during the year.
- b. A volunteer staffed Brooks Cabin every Sunday during the summer and fall. The volunteer provided wilderness information to approximately 200 people.
- c. Two lectures were given discussing wilderness management on the Hoosier National Forest at an Indiana University SPEA class. A total of approximately 75 people attended the two lectures.
- d. Presentations were given at Midwest Trail Rides regarding the use of forest trails and wilderness management.
- e. The Hoosier National Forest had a booth at the Indianapolis Horse Show.
- f. Leave No Trace programs were presented to approximately 200 Boy Scouts at Maumee Boy Scout Camp.
- g. The forest interpreters provided programs to schools and other forest users on Leave No Trace.

- h. The Hoosier National Forest staffed a booth at the Order of the Arrow National Conference (theme, Leave No Trace).

Forest Plan Met? Yes

Recommendations: Improve Monitoring Program for Deam Wilderness and review Wilderness Implementation Schedule for possible changes.

1. Campsite inventory utilizing either Frissell or Cole method will be a priority for 2003.
2. Continue to use trail counters to determine use on trails.
3. Continue to hire trail crews to improve trail conditions.
4. Continue to emphasize education and interpretation program.
5. Eliminate problem erosion units from monitoring protocol and replace in trail inventory logs.

### 2003---

All areas were monitored according to monitoring plan for the Charles C. Deam Wilderness. The monitoring plan will be updated in the next few years to include new monitoring information such as use of trail counters, Frissell and Cole campsite inventories, and trail condition surveys.

#### 1. Campsite Impact and Inventory:

A three person seasonal Wilderness Crew was hired in FY 2003 to complete a variety of tasks. One task was to complete campsite inventories within the wilderness. A total of 103 campsites were surveyed utilizing the Cole method. Survey forms will be thoroughly reviewed during the winter of 2003/2004. Preliminary review of the information shows that site ratings did fairly well with an average of about 2.8 (1 being the best and 5 the worst). Of the 103 sites surveyed, 69 were illegal (too close to water or trails). 45 of the 69 illegal campsites were rehabilitated. Many of the legal campsites had ash removed from the fire rings, fire rings removed, and "Flintstone" furniture removed.

2003 survey information will be reviewed closely during the winter. A seasonal crew in 2004 will continue to monitor sites and take corrective action on sites reviewed in 2003.

#### 2. Trail Social Encounters:

Three infrared trail counters were used in the Charles C. Deam Wilderness during July, August, and September. One counter was placed on the Grubb Ridge Loop Trail, west of Blackwell Campground. A second counter was placed on Terrill Ridge. The third counter was placed on the Grubb Ridge Trail, near the Grubb Ridge Trailhead.

#### Counter Results:

Grubb Ridge Loop Trail (near Blackwell) – between July 6, 2003 and October 10, 2003, the counter collected 50 days of data. During the 116 days, 2,140 counts were recorded.

Grubb Ridge Loop (near Grubb Ridge Trailhead)– between July 6, 2003 and October 10, 2003, the counter collected 38 days of data. During the 33 days, 1,152 counts were recorded.

Terrill Ridge - between July 6, 2003 and October 10, 2003, the counter collected 27 days of data. During the 109 days, 1,799 counts were recorded.

Wilderness Ranger Rod Fahl, Fee Demo Ranger Danna Strout, and Wilderness Manager Eric Sandeno patrolled trails in the Charles C. Deam Wilderness. A total of 289 hikers and 378 horse riders were observed.

Based on information collected, it is difficult to determine overall use in the Charles C. Deam Wilderness. Trail counters will again be placed at all access points during FY2004. The national recreation use survey took place on the Hoosier National Forest in 2003. Results from this survey will not be available until spring 2004. Information from this survey may help determine use in the wilderness.

### 3. Trail Social Impact:

The amount of garbage on or along the trails and in campsites was minimal. However, garbage at trailheads and off-trail areas has a social impact to wilderness visitors as much as garbage along trails. Garbage continues to be a problem at the Hickory Ridge Fire Tower. Most garbage is a result of Friday and Saturday night parties by local residents. The amount of garbage and known incidents at the tower seemed to be reduced in 2003.

A significant amount of garbage washes onto the shore of the Charles C. Deam Wilderness along Monroe Lake. Every May, the Hoosier National Forest sponsors Take Pride in America, a day for people to complete volunteer work projects on the forest. A popular project has been cleaning the shoreline in the wilderness. This annual clean up prevents large amounts of garbage from accumulating.

Another concern area is the northeast side of the Charles C. Deam Wilderness adjacent to the Middle Fork Salt Creek. Middle Fork Salt Creek itself is managed by the Army Corps of Engineers, but garbage is collecting along the wilderness boundary. This is a potential location for work projects.

The seasonal wilderness crew spent a great deal of the summer locating and removing garbage sites within the wilderness. These dumpsites were either packed out by hand or packed out using the mule string. A total of 21 dumpsites were found. Items in the sites consisted of old tires, refrigerators, glass, and assorted appliances. The crew also used a boat and cleaned the lakeshore as well.

### 4. Trail Tread Condition:

Trail inventories were completed by the trail crew and wilderness crew. Muddy areas or areas draining poorly were identified and corrective action taken. Locations that need additional work were noted.

A five-person seasonal trail crew was hired for the summer to complete trail work within the wilderness. The crew worked for four months on construction and heavy maintenance projects. The Axsom Branch trail construction project was completed (1.5 miles), 36 miles of trail were cleared of down trees, three miles of existing trail was graveled, all water bars were cleaned, and several locations had other minor maintenance completed.

The Hoosier Horsemen provided a total of 14 volunteers on one volunteer workday. The workday concentrated efforts on improving drainage on the trails and eliminating muddy sections.

5. Access Trail and Impact:

Minimal trash was collected at Hayes, Blackwell, and Grubb Ridge Trailheads. As stated above, garbage at the Hickory Ridge Fire Tower, alcohol containers picked up on Saturday and Sunday mornings continues to be a problem, but appears to be improving.

Information and education is listed in the Wilderness Implementation Schedule as an issue and concern (Appendix B), but does not have a category in the Monitoring Plan. There appears to be a lack of awareness of why the Charles C. Deam Wilderness is unique and why management direction in wilderness is different. When the Charles C. Deam Wilderness monitoring plan is updated, information and education will be included as a monitoring category. Results of information and education efforts in 2003 are:

- a. Weekly Leave No Trace demonstrations were provided at Ransburg Boy Scout Camp. Approximately 700 Boy Scouts attended these programs.
- b. Leave No Trace demonstrations were provided to individual Boy Scout Troops during the year.
- c. A volunteer staffed Brooks Cabin every Sunday during the summer and fall. The volunteer provided wilderness information to approximately 200 people.
- d. Two lectures were given discussing wilderness management on the Hoosier National Forest at an Indiana University SPEA class. A total of approximately 100 people attended the two lectures.
- e. Presentations were given at Midwest Trail Rides regarding the use of forest trails and wilderness management.
- f. The 2003 spring camporee for the Valley Trails District of the Hoosier Trails Council (Boy Scouts of America) was sponsored by the Hoosier National Forest. The theme was Leave No Trace. 200 scouts attended this two-day event.
- g. The Hoosier National Forest had a booth at the Indianapolis Horse Show.
- h. Leave No Trace programs were presented to Boy Scouts at Maumee Boy Scout Camp.
- i. The Forest interpreters provided programs to schools and other forest users on Leave No Trace.

Forest Plan Met? Yes

Recommendations: Improve Monitoring Program for Deam Wilderness and review Wilderness Implementation Schedule for possible changes.

- Complete campsite inventory utilizing either the Cole method. Review work completed in 2003 and implement suggestions to improve campsite conditions.
- Continue to use trail counters to determine use on trails.
- Continue to hire trail crews to improve trail conditions.
- Continue to emphasize education and interpretation program.
- Rehabilitate muddy and poorly drained areas noted in 2003 trail inspections.

## ***Recreation Facilities [36 CFR 219.21©]***

### **Monitor public feedback to trailhead, campground, sign, and restroom designs and function, including accessibility.**

Legal or Regulation Reference: 36 CFR 219.21©, FSM 2300, Forest Plan (pages 2-17 and 2-18)

Methodology: Public comment is obtained from phone-ins, letters, Congressional inquiries, the “Serving People” customer survey cards, concessionaire customer response forms, e-mails to the Forest website, responses to scoping for project proposals, and personal contacts at Forest offices and in the field. Comments are also occasionally found on bulletin boards, notes left on vehicle windshields, or in the form of graffiti.

Acceptable Criteria: There is no standard regarding this type of public feedback. Each comment is evaluated, however, and action taken if warranted.

### **2002---**

Results: Ninety-six Forest Service Customer Comment Cards were forwarded from the Washington Office in 2002. Sixty five visitor comment forms were forwarded to the forest by the concessionaire in 2002, and nine comments were received by email or letter. Numerous phone calls regarding customer’s concerns were handled on the spot. In addition, in June 2002, the Forest was visited for a “Reality Check” by Washington Office “Mystery Shopper” Bill Delaney. The majority of the responses from the comment cards and the Reality Check provided very favorable feedback, particularly in regard to good service by the staff. This was the situation for both Forest Service and concessionaire personnel. Public input that came from letters or emails contained complements, complaints, or requests for more facilities.

In instances where a complaint was voiced, the problem was addressed on the spot by the front liner if it was a routine issue. If it constituted a more significant issue, the program manager was notified so that it could be handled appropriately. A common example is someone disagreeing with a forest policy such as the ban on ATV use and refusing to accept the first contact’s explanation. The Program Manager would typically contact the constituent to explain why the policy exists and to suggest alternatives off forest.

Suggestions and comments (internal and external) were also reviewed and action taken when possible and appropriate. Some comments centered on a desire for additional facilities such as more trails and shower buildings, and there were also general statements about having a great time and liking the facilities.

Forest Plan met: Partially. As a result of scarce resources, the recreation program is not functioning at full level. Most notably, there is a backlog regarding replacement or rehabilitation of aging facilities, non-accessible facilities, recreation area roads, and degraded trails.

Recommendations: Continue to strictly enforce concessionaire requirements, emphasize customer service, and continue to pursue capital investment funds and other resources to address the facility backlog situation.

### 2003---

Results: In 2003, only two Forest Service Customer Comment Cards were forwarded from the Washington Office, and 135 visitor comment forms were forwarded to the Forest by the concessionaire. Twenty-two comments were received by email or letter, and numerous phone calls regarding customers' concerns were handled on the spot. The majority of the responses from the comment cards provided favorable feedback, particularly in regard to good service by the staff. This was the situation for both Forest Service and concessionaire personnel. Public input that came from letters or emails contained complements, complaints, or requests for more facilities.

In instances where a complaint was voiced, the problem was addressed on the spot by the front liner if it was a routine issue. If it constituted a more significant issue, the program manager was notified, and the complaint was handled accordingly. A typical example is when someone disagrees with a forest policy such as the ban on all-terrain vehicle (ATVs) use and refuses to accept the explanation of the first person they contact. The program manager typically contacts the constituent to explain why the policy exists and to offer alternatives off of the Forest.

Suggestions and comments (internal and external) were also reviewed and action taken when possible and appropriate. For example, the proliferation of aquatic weeds was causing a problem at the Tipsaw beach and boat ramp, and complaints were voiced to the concessionaire. In response, the Forest implemented an integrated pest management plan to use herbicides to control the weeds; complaints have stopped. Other comments centered on a desire for additional facilities such as more trails and shower buildings, and there were also general statements about having a great time and liking the facilities.

Forest Plan met: Partially. As a result of scarce resources, the recreation program is not functioning at full level. Most notably, there is a backlog regarding replacement or rehabilitation of aging facilities, non-accessible facilities, recreation area roads, and degraded trails.

Recommendations: Continue to strictly enforce concessionaire requirements, emphasize customer service, and continue to pursue capital investment funds and other resources to address the facility backlog situation. Because the Washington Office has discontinued the use of the Customer Comment Cards, the Forest has developed one of its own. It is recommended that this opportunity continue to be made available to the public.

### ***Trails [36 CFR 219.21(G)]***

**Set up and schedule trail use monitoring on selected trails. Evaluate the type and amount of use.**

Legal or Regulation Reference: 36 CFR 219.21

Methodology: On multiple-use trails, we are able to estimate use by comparing the number of trail permits sold with field observations. The methodology and results are documented in a memorandum to the file dated February 4, 2003 titled Methodology for estimating horse and bike use for CY 2002, file code 2350, authored by Les Wadzinski.

Trail counters were installed in the Deam Wilderness and are summarized in the Wilderness Management monitoring report in this document.

**2002---**

The Forest conducted numerous field trips with trail users, trail professionals, internal staff, and other interested parties for the purpose of gaining input into the trail program. Although these field trips did not result in data related to the amount and type of trail use, they did provide the forest with other valuable information about the trail program such as the general condition of trails and feedback from users. These trips are summarized in the following table. Each field trip is also documented by memo in the Hoosier National Forest files.

**TABLE 25. SUMMARY OF TRAIL FIELD TRIPS FY 2002**

<b>Trail</b>	<b>Date</b>	<b>Purpose</b>	<b>Participants</b>
Deam Wilderness: Hays, Grubb, and high water route (now known as 545)	4/17/02	Annual Forest Monitoring Trip	Hoosier NF Operations and Strategy Team, Soils Scientist
Deam Wilderness: Grubb	6/10/02	Discuss sharing of trails by hikers and horses	Executive Director Hoosier Hikers Council, Indiana University Professor, Officer of Hoosier Horsemen, Officer of Indiana Trail Riders Association, Recreation Program Manager and Wilderness Manager
Deam Wilderness: Hays and Grubb	8/28/02	Trail inspection	Forest Supervisor
Deam Wilderness: Grubb	6/5/02	Trail inspection	Researcher from the Leopold Wilderness Institute, Recreation Program Manager, Wilderness Manager, Outdoor Recreation Planner

Acceptable Criteria: For trails in the Charles C. Deam Wilderness, acceptable use criteria is based on limits of acceptable change (LAC) social indicators for trails (see Wilderness Management monitoring report in this document). For Forest-wide trails, we have no formal specific use criteria; however, we use the following general guidelines: use must be high enough to justify keeping the trail on the system, yet not so high that severe resource damage occurs or

undue user conflict occurs. Interpretation of these guidelines should consider site-specific conditions such as soil types, topography, weather, season, and use type.

Results: It is estimated that 4,052 bike riders and 22,964 horse riders used the trails in 2002. About three-fourths of this use likely occurred on the Pleasant Run Unit based on permit sales in that area. It is more difficult to draw conclusions about hikers because they are not required to buy a trail permit. However, hikers accounted for 34 percent of the users observed on multiple-use trails. There are also additional hikers using hiking-only trails, such as the Two Lakes Loop and Hardin Ridge trails, but exact numbers are unknown. There is evidence of some illegal use of trails by ATVs, most notably in the Tell City District.

In regard to the field trips and general observations, all trails are receiving enough use to justify keeping them open. Impacts from high use trails have been mitigated through maintenance, and reports of user conflicts are infrequent. For technical information on the condition of trails, see the soils section of this document or the individual field trip memos referenced above.

Forest Plan met: Yes. Forest trail use is generally within moderate levels, with sporadic high use periods at some locations. Trail conditions have now been upgraded in many areas where work was needed to sustain the levels of use and to provide environmental protection.

Recommendations: Continue using the trail permit program to determine use. Analyze the data collected from trail counters and continue the use of trail counters at high use areas or high impact areas. Use the data from the National Visitor Use Monitoring (NVUM) and Virginia Tech studies to assist in the evaluation of the amount and type of use.

### **2003---**

The Forest had two research programs underway in 2003 related to trails. The first was the NVUM program. The NVUM is the Forest Service's national program to determine use levels and types, including trail use. That effort ended October 31, 2003, and the results have not been made available as of this writing. Another program was a study by Virginia Tech to look at trail impacts and determine best management practices. That study is scheduled to be completed by summer 2004 and should also yield data about trail use and impacts.

In addition, the Forest conducted numerous field trips with trail users, trail professionals, internal staff, and other interested parties for the purpose of gaining input into the trail program. Although these field trips did not result in data related to the amount and type of trail use, they did provide the Forest with other valuable information about the trail program, such as the general condition of trails and feedback from users. These trips are summarized in the following table. Each field trip is also documented by memo in the Hoosier National Forest files.

**TABLE 26. SUMMARY OF TRAIL FIELD TRIPS FY 2003**

<b>Trail</b>	<b>Date</b>	<b>Purpose</b>	<b>Participants</b>
Deam Wilderness: Hays, Grubb, and 545	11/14/02	Trail program review	Regional Office Review Team, Recreation Program Manager, Wilderness Manager
Deam Wilderness: Grubb, Sycamore; Hickory Ridge #s 1, 13 and 14; Shirley Creek Trail; Springs Valley Trail.	4/24/03	Provide overview of trail program	Deputy State Director for Senator Richard Lugar, Forest Supervisor, Recreation Program Manager, Wilderness Manager, Wilderness Ranger
Deam Wilderness: Axsom	5/22/03	View trail reroute under construction	Regional Office Trails Specialist, Forest Engineer, Recreation Program Manager, Wilderness Manager, Wilderness Ranger
Birdseye Trail	7/30/03	Trail inspection	Recreation program Manager, Outdoor Recreation Planner, Forestry Technician
Youngs Creek, Springs Valley	4/1/03 8/21/03	Review rehabilitation work with concerned landowner	Adjacent landowner, Engineering Technician, Recreation Program Manager, two members of the horse community, one member from the mountain bike community

Acceptable Criteria: For trails in the Charles C. Deam Wilderness, acceptable use criteria is based on limits of acceptable change (LAC) social indicators for trails (see Wilderness Management monitoring report in this document). For Forest-wide trails, we have no formal specific use criteria; we do, however, use the following general guidelines: use must be high enough to justify keeping the trail on the system yet not so high that severe resource damage occurs or undue user conflict occurs. These guidelines are influenced by site-specific conditions such as soil types, topography, weather, season, and use type.

Results: It is difficult to draw conclusions about hikers because they are not required to buy a trail permit. However, hikers accounted for 34 percent of the users observed on multiple-use trails. There are also additional hikers using hiking-only trails such as the Two Lakes Loop and Hardin Ridge trails, although exact numbers are unknown. There is evidence of some illegal use of trails by ATVs, most notably in the Tell City Ranger District.

The field trips and general observations indicate that all trails are receiving enough use to justify keeping them open. Impacts from high-use trails have been mitigated through maintenance, and reports of user conflicts are infrequent. For technical information on the condition of trails, see the soils section of this document or the individual field trip memos referenced above.

Forest Plan met: Yes. Forest trail use is generally within moderate levels, with sporadic high use periods at some locations. Trail conditions have now been upgraded in many areas where work was needed to sustain the levels of use and to provide environmental protection.

Recommendations: Continue using the trail permit program to determine use. Analyze the data collected from trail counters and continue the use of trail counters at high use areas or high impact areas. Use the data from the NVUM and Virginia Tech studies to assist in the evaluation of the amount and type of use.

## Provide for a Useable Landbase

### *Report land status changes by County, District, and Management Area*

**TABLE 27. LAND ADJUSTMENT BY MANAGEMENT AREA FOR FY 2003**

Management Area	2003 Acreage Adjusted	Total NFS Land Acres
2.4	183	16,867
2.8	302	102,737
5.1	0	12,965
6.2	147	18,720
6.4	42	23,698
7.1	0	6,357
8.1	0	72
8.2	0	18,424
8.3	0	616
<b>Total</b>	<b>674</b>	<b>200,456</b>

The acreage figures were calculated based on two GIS layers--ownership and management area. The acreage on this report, having been calculated according to GIS, does not match the acres acquired by deed.

**TABLE 28. LAND ADJUSTMENT BY COUNTY AND DISTRICT FOR FY 2003**

County	District	Acreage	Value (\$)	Management Area
Brown	Brownstown	29	\$95,000	2.8
Brown	Brownstown	3	\$6,000	6.2
Brown	Brownstown	186	\$377,500	6.2, 6.4
Crawford	Tell City	30	\$45,720	2.8
Crawford	Tell City	8	\$18,000	2.4
Martin	Brownstown	223	\$557,500	2.8
Orange	Tell City	195	\$220,000	2.4, 2.8

**TABLE 29. OTHER LAND ADJUSTMENTS FOR FY 2003**

County	District	Acreage	Value (\$)	Management Area
Crawford	Tell City	2	Donation <sup>1</sup>	2.4

<sup>1</sup> Donation of a flowage easement.

# Provide for Human and Community Development

## *Special Uses and Outstanding Rights*

Methodology: The special uses team monitored rights-of-way (ROW) maintenance work on Hoosier Energy 100 foot-wide ROW for tower replacement.

Results: No impacts were found on soil or water from maintenance work. The seeding and waterbarring worked well.

Forest Plan Met: Yes.

Recommendations: Work with company to plan access for future power upgrades when new conductor wire is installed on new and taller structures to utilize the same width ROW.

## **Monitoring of earth-disturbing permit activities**

Methodology: The Special uses team monitored earth-disturbing activity associated with new permit rights-of-way for compliance with Forest Plan guidance in Appendix K and mitigation measures built into each permit. We also monitored for outstanding rights for working on segments of county roads.

Results:

1) No impacts were found on soil and water because of the replacement of 12 towers and conductors on Hoosier Energy 100 foot wide ROW. A road was reconstructed with waterbars and seeded after use.

2) No impacts were found on soil and water resources because of the reconstruction of approximately 1600 feet of existing county road. New cross drainage was constructed and gravel surfacing was added. The road access was closed to motorized use by a berm on the access road to the west and by gate to the private land to the south.

3) No impacts were found on soil and water resources as a result of the powerline trenching and burying process across NFS land in Monroe County to bring power to Boy Scouts of America land on the Ransburg Boy Scout Reservation. Utilities District of Western Indiana did the work. This same company also attempted to build a road to access steep side-hill terrain in the Hardin Ridge Recreation Area entrance. Impacts associated with unauthorized construction activities were mitigated and alleviated. They have restored the site for soil and water concerns.

Forest Plan Met: Partially met.

Recommendations: Monitor use of ATV's and 4x4 trucks who may try to breach closures. Send reminder to utility and road authorities of their responsibility to notify the Forest Service of planned maintenance work prior to the work so we can monitor protection of soil, water, and heritage resources.

## **Pesticide use**

Methodology: The Special uses team monitored pesticide use by Jackson County REMC on rights-of-way (ROW) where the company had outstanding rights. Jackson Co. REMC used broadleaf herbicides to treat regrowth of trees in the ROW by spot treatment. Very small amounts of chemical were needed, and about one mile of ROW was treated. The objective was to determine if there had been damage to non-target organisms or soil and water.

Results: No impacts were found to soil and water or non-target organisms in the ROW on the Jackson County REMC powerline ROW.

Forest Plan Met: Yes

Recommendations: The areas of ROW under permit from the Forest Service do not presently permit herbicide use, but mechanical treatment is far more damaging since much of the access is steep. Herbicide treatment to maintain the ROW in a grass/brush mix of vegetation with no trees would be less damaging to the soil resource.

## **Monitor special uses for compliance with nondiscrimination**

Legal or Regulation Reference: Civil Rights Act of 1964 Title VI prohibits discrimination on the basis of race, color, religion, sex, or national origin.

Methodology: Permittees are subject to pre-award nondiscrimination reviews anytime a permit involves public use. The permittee is also notified of the responsibility. Assurance statements (Form 1700-1) are signed by all new "direct service" providers. Permittees must agree to comply; otherwise, we do not issue the permit.

The Federally Assisted Program Manager visited with permittees at the start of the season to monitor compliance with Title VI by concessionaires who have recreation areas under contract and with trail permittees who have large programs.

Results: All permittees visited were in compliance, and no complaints were received.

Forest Plan Met: Yes

Recommendations: Continue to monitor recreation permittees and send reminders of compliance requirements to other permittees according to the schedule.

## ***Air Quality [36 CFR 219.27(a)(12)]***

### **Monitor prescribed burns for adequacy of smoke management practices per burning plans.**

Methodology: Record any comments or calls received.

Results: The Hoosier NF completed 11 prescribed burns for 1,167 acres in 2003. Post monitoring was completed on the burns to determine if objectives were met for ecological

purposes. All burns were monitored for smoke management and were in compliance with no negative comments or calls received.

Forest Plan met: Yes

Recommendations: Continue to monitor future burns, and accompany each burn with an aggressive public outreach to assure that people are aware of the plans to burn and know where to call if smoke is a problem.

### ***Health and Safety***

Monitor the effluent discharge at the Hardin Ridge Recreation area according to the National Pollution Discharge Elimination System (NPDES) permit requirements.

Legal or Regulation Reference: NPDES, State of Indiana, and Monroe County

Methodology: Licensed operator collects and tests as required by NPDES permit.

Acceptable Criteria: Pass NPDES requirements.

Results: All NPDES requirements were met.

Forest Plan met: Yes

Recommendations: During FY2004 continue working closely with concessionaire and monitor to meet NPDES permit requirements.

### **Check bacteria levels at public swimming beaches.**

Legal or Regulation Reference: 36 CFR 219.21(c)

Methodology: Check five times each 30-day period and once each week for two weeks before beach is open to public, per state standards.

Acceptable Criteria: Meet state standards for bacteria.

Results: State standards were met.

Forest Plan met: Yes

Recommendations: Continue testing to meet state standards.

## Conclusion

We carried out the Monitoring and Evaluation Program for Fiscal Years 2002 and 2003 to take a close look at our project activities and other resource uses and determine if they are consistent with *Forest Plan* guidance. This program also provided an opportunity to evaluate if that guidance meets the goals and objectives established in the *Forest Plan*.

Meeting *Forest Plan* objectives is dependent on the level of funding allocated to the Hoosier National Forest. It is our responsibility, within this allocation and Congressional direction, to emphasize a balanced mix of projects that are environmentally sound and provide benefits to people. We developed many projects in partnerships with individuals and organizations.

I have reviewed this Monitoring and Evaluation Report for the Hoosier National Forest for Fiscal Years 2002 and 2003. Our deficiencies are noted. We will ensure that corrective action is taken where appropriate. I am satisfied that management activities accomplished during Fiscal Years 2002 and 2003 were consistent with *Forest Plan* guidance, except where noted, and that the guidance provides solid direction in meeting the goals and objectives set forth in the *Forest Plan*.

This report documents our review of the conditions of National Forest System lands managed by the Hoosier National Forest. Since we replaced the plan in 1991, I have not observed any significant changes in conditions or demands. Therefore, I recommend that we continue the current course of carrying out the *Forest Plan* as we work toward plan revision.

This meets the intent of both the *Forest Plan* (Chapter 5) and the National Forest Management Act planning regulations (36 CFR 219).

/s/Jim Denoncour

JIM DENONCOUR

Acting Forest Supervisor

1/15/04

Date