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Hoosier National Forest

Fiscal Year 2008 Monitoring and Evaluation Report

July 2009

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

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PURPOSE/SCOPE OF REPORT

Introduction

The annual monitoring and evaluation report is required by the National Forest System Land Management Planning Rule 36 CFR 219.11 (2000). It is also required by the Hoosier's Land and Resource Management Plan (*Forest Plan*) (USDA FS 2006) which was signed by Regional Forester Randy Moore on January 11, 2006. The Monitoring Program is described in Chapter IV of the *Forest Plan*. This is the third annual M&E Report compiled under the 2006 Hoosier National *Forest Plan*. The first was completed in FY 2006. Monitoring and evaluation reports were completed under the old *Forest Plan* in two year increments.

The Monitoring and Evaluation Report contains four major sections: Purpose/Scope of Report, Specific Monitoring Activities for FY2008, Findings, and Potential Fiscal Year 2009 Monitoring Needs. Specific Monitoring Activities for FY2008 is subdivided into Monitoring That Occurred, Why This Monitoring, How and When Monitoring Accomplished, and Who Did the Monitoring. The Findings section is subdivided into What We Learned, Additional Findings, Contributions to Better Projects and Plan Implementation, and Contribution to 5 Year Report.

Monitoring Program

Forest Plan

The *Forest Plan* describes three levels of monitoring:

- Monitoring Implementation—Determines if prescriptions, projects, and activities are implemented as designed and in compliance with *Forest Plan* goals and guidance.
- Monitoring Effectiveness—Determines if prescriptions, projects, and activities are effective in meeting management goals and direction.
- Validation Monitoring—Determines if the initial data and assumptions used in developing the Plan were correct or if there is a better way to meet forest planning regulations, policies, and goals.

Table 4.2 of the *Forest Plan* (USDA FS 2006) contains the items to be monitored organized by Forest goal.

Monitoring Guide

The Monitoring Guide was completed in July 2007. The Monitoring Guide provides guidance on how to accomplish monitoring of the items listed in Table 4.2 of the *Forest Plan*.

Annual Monitoring Activities

Annual monitoring activities were selected from the Monitoring Guide and listed in the FY 2008 Hoosier National Forest Monitoring Work Plan. Timber harvesting has increased on the Hoosier in the last few years. This influenced the selection of several of the monitoring activities: compliance with *Forest Plan* guidance, water quality, soil and water mitigation measures, timber sale ASQ, and heritage monitoring.

Corporate Databases

All data collected during the monitoring process will be entered into the appropriate corporate database such as NRIS.

SPECIFIC MONITORING ACTIVITIES FOR FY2008

Monitoring That Occurred

ANNUAL BREEDING BIRD SURVEY

Purdue University conducted point-count surveys at nine areas on the Hoosier National Forest during summer 2008 as part of the Forest's annual breeding bird survey.

WOODCOCK SURVEY

Forest personnel conducted the second biennial American woodcock (*Scolopax minor*) singing ground survey on the Forest in the spring of 2008. Twenty-three different routes were surveyed.

AVAILABLE SUITABLE ROOST TREES

Forest personnel accessed the FIA data base to determine the number of suitable roost trees available on the Forest.

COMPLIANCE WITH FOREST PLAN GUIDANCE

Forest personnel conducted monitoring of numerous timber sales, road construction activities, and restoration projects checking for adherence to *Forest Plan* guidance.

WATER QUALITY

Forest personnel conducted monitoring of numerous timber sales, road construction activities, and restoration projects checking the effects on water quality. Also the effects of weed control in several lakes were monitored.

SOIL AND WATER MITIGATION MEASURES

Forest personnel monitored numerous timber sales, road construction activities, and restoration projects checking the effects of mitigation measures.

TRAIL MONITORING

Forest personnel monitored nine randomly selected trail segments in FY2008 as specified in the Soil and Water Monitoring Plan: 2008.

TIMBER SALE ASQ

Forest personnel reported a FY2008 harvest level of approximately 3,900 CCF or approximately 40 percent of the annual allowable harvest level permitted in the *Forest Plan*.

HERITAGE MONITORING

Heritage monitoring was completed by forest personnel on eight project areas.

LAND ACQUISITION

The Forest acquired 685 acres in FY 2008 through purchase and exchange. The deed acreage as of September 30, 2008 was 202,154.

Why This Monitoring

ANNUAL BREEDING BIRD SURVEY

The breeding bird survey responds to *Forest Plan* goal “Maintain and Restore Sustainable Ecosystems” and the two questions “What are the population trends of management indicator species?” and “How will diversity be affected by various mixes of resource outputs and uses?”

The breeding bird survey responds to three of Region 9’s Courageous Conservation goals (USDA FS 2005):

- Protect ecosystems across boundaries
- Walk the talk of sustainability
- Revolutionize effectiveness and efficiency

WOODCOCK SURVEY

The woodcock survey responds to *Forest Plan* goal “Maintain and Restore Sustainable Ecosystems.” The survey responds to the question “What are the population trends of management indicator species?” The American woodcock is one of five management indicator species (MIS) identified in the *Forest Plan*.

The American woodcock survey responds to three of Region 9’s Courageous Conservation goals:

- Protect ecosystems across boundaries
- Walk the talk of sustainability
- Revolutionize effectiveness and efficiency

The survey responds to the 2007 Forest Service strategic plan goal (USDA FS 2007):

- Restore, Sustain, and Enhance the Nation’s Forests and Grasslands

AVAILABLE SUITABLE ROOST TREES

The available suitable roost tree monitoring responds to the *Forest Plan* goal “Conservation of Threatened and Endangered Species Habitat.” The monitoring question it responds to is “Determine the number of suitable roost trees available on the Forest.”

The Indiana bat monitoring responds to one of Region 9’s Courageous Conservation goals:

- Protect ecosystems across boundaries

The survey responds to the 2007 Forest Service strategic plan goal:

- Restore, Sustain, and Enhance the Nation’s Forests and Grasslands

WATER QUALITY

The water quality monitoring responds to the *Forest Plan* goal “Maintain and Restore Watershed Health.” The monitoring question it responds to is “To what extent is Forest management affecting water quality, quantity, flow timing, and the physical features of aquatic, riparian, or wetland ecosystems?”

The monitoring responds to one of Region 9’s Courageous Conservation goals:

- Protect ecosystems across boundaries

The survey responds to the 2007 Forest Service strategic plan goal:

- Restore, Sustain, and Enhance the Nation’s Forests and Grasslands

SOIL AND WATER MITIGATION MEASURES

The water quality monitoring responds to the *Forest Plan* goal “Maintain and Restore Watershed Health.” The monitoring questions it responds to are “To what extent is Forest management affecting water quality, quantity, flow timing, and the physical features of aquatic, riparian, or wetland ecosystems?” and “Have the soil and water mitigation and protection measures been effective as applied to all management activities?”

The monitoring responds to one of Region 9’s Courageous Conservation goals:

- Protect ecosystems across boundaries

The survey responds to the 2007 Forest Service strategic plan goal:

- Restore, Sustain, and Enhance the Nation’s Forests and Grasslands

TRAIL MONITORING

The trail monitoring responds to the *Forest Plan* goal “Provide for Recreation in Harmony with Natural Communities.” It responds to the monitoring question “Is trail use planned and implemented to protect land and other resources, promote public safety, and minimize conflicts, with other users of the NFS lands?”

The monitoring responds to Region 9’s goal:

- Protect ecosystems across boundaries

The survey responds to the 2007 Forest Service strategic plan goal:

- Restore, Sustain, and Enhance the Nation’s Forests and Grasslands
- Sustain and Enhance Outdoor Recreation Opportunities
- Maintain basic management capabilities of the Forest Service

TIMBER SALE ASQ

The timber sale ASQ monitoring responds to the *Forest Plan* goal “Provide for Human and Community Development.” More specifically it responds to the question “Are timber sales meeting *Forest Plan* ASQ?”

This monitoring also responds to the 2007 Forest Service strategic goal:

- Provide and Sustain Benefits to the American People

HERITAGE MONITORING

The heritage resource monitoring responds to the *Forest Plan* goal “Protect our Cultural Heritage.” More specifically it responds to the two questions “Are mitigations and protection measures correctly applied for ground disturbing activities?” and “Are heritage resources being damaged by vandalism?”

The heritage monitoring responds to one of Region 9’s Courageous Conservation goals:

- Protect ecosystems across boundaries

LAND ACQUISITION

The land acquisition responds to the *Forest Plan* goal “Provide a Usable Landbase.” It responds to the question “Does the Forest’s land adjustment program support and enhance the Plan’s desired conditions and goals and contribute to efficient and effective stewardship?”

The land acquisition responds to two of Region 9’s Courageous Conservation goals:

- Protect ecosystems across boundaries
- Connect citizens to the land

It also responds to the 2007 Forest Service strategic goals:

- Restore, Sustain, and Enhance the Nation’s Forests and Grasslands
- Provide and Sustain Benefits to the American People
- Conserve Open Space
- Sustain and Enhance Outdoor Recreation Opportunities

How and When Monitoring Accomplished

ANNUAL BREEDING BIRD SURVEY

Point-count surveys were conducted at nine areas on the Forest during May-June 2008. They conducted two replicate point counts at each of 25 points in each area. Surveys were 10 minutes in length during which the number, identity, and behavior of all birds seen and heard were recorded. Biologists gathered the data using techniques similar to previous field seasons (described in Winslow 2000, Dunning and Bondo 2003, Dunning 2003) and the survey protocol described in Dunning and Rea (2001).

WOODCOCK SURVEY

The survey was conducted between April 10 and April 30 using the rangewide Woodcock Singing Ground Survey developed by USDI Fish and Wildlife Service. The surveys began 22 minutes following sunset. Survey routes were approximately 3.6 miles in length with 10 equally spaced stops. Survey personnel recorded the number of individual peenting woodcock at each survey stop.

AVAILABLE SUITABLE ROOST TREES

The analysis was completed in December 2008 by accessing the U.S. Forest Service, Forest Inventory and Analysis' Forest Inventory Data Online database.

WATER QUALITY

The monitoring was completed at various times throughout FY 2008.

SOIL AND WATER MITIGATION MEASURES

The monitoring was completed at various times throughout FY 2008.

TRAIL MONITORING

The monitoring was completed at various times throughout FY 2008.

TIMBER SALE ASQ

The analysis was completed in December 2008 by accessing the timber sale records.

HERITAGE MONITORING

The monitoring was completed at various times throughout FY 2008.

LAND ACQUISITION

The land acquisition report was completed at the end of FY 2008 using the deed records and information on file in the Supervisor's Office in Bedford.

Who Did the Monitoring

ANNUAL BREEDING BIRD SURVEY

The survey was completed by staff at Purdue University's Department of Forestry and Natural Resources.

WOODCOCK SURVEY

The woodcock survey was completed by Forest personnel.

AVAILABLE SUITABLE ROOST TREES

The estimate of available suitable roost trees was completed by Forest personnel.

WATER QUALITY

The water quality monitoring was completed by Forest personnel.

SOIL AND WATER MITIGATION MEASURES

The review of soil and water mitigation measures was completed by Forest personnel.

TRAIL MONITORING

Trail monitoring was completed by Forest personnel.

TIMBER SALE ASQ

The review of timber sale ASQ was completed by Forest personnel.

HERITAGE MONITORING

Heritage monitoring was completed by Forest personnel.

LAND ACQUISITION

The review of land acquisition was completed by Forest personnel.

FINDINGS

What We Learned

ANNUAL BREEDING BIRD SURVEY

The areas sampled in 2008 were the same ones sampled in 2006. Similar to previous years, Dunning and Riegel (2008) state, "The results of the 2008 monitoring season emphasize that the Hoosier National Forest supports sizeable populations of bird species associated with mature eastern deciduous forest. While the health and viability of these populations cannot be assessed without demographic studies, it is clear that many species of forest birds are widespread throughout the National Forest...The presence of several locally rare, potentially breeding species, such as Black-and-white Warbler, Black-throated Green Warbler, and American Redstart is encouraging."

Many neotropical migrants were among the common species noted, including two MIS - Acadian flycatcher (*Empidonax vireescens*, 5.4%) and wood thrush (*Hylocichla mustelina*, 7.8%). Another MIS, yellow-breasted chat (*Icteria virens*), was recorded six times (Dunning and Riegel 2008). However it prefers early successional habitat, a cover type not monitored in this survey. The numbers for these three species are similar to the areas surveyed in 2007.

WOODCOCK SURVEY

A total of six peenting woodcock were heard on four routes. This equates to 0.26 peenting woodcock heard per route surveyed. This corresponds to the statewide breeding index of 0.30 woodcock heard per route and a regional breeding index of 2.56 birds per route (Cooper, Parker, and Rau 2008). The 2008 results show a decrease from the 2006 results (0.26 peenting woodcock per route versus 0.4). Because this is only the second measurement, it cannot be determined if this is a trend or just normal fluctuation. It is important to remember that three additional routes were added to the 2008 survey.

AVAILABLE SUITABLE ROOST TREES

Tree species groups were selected to match as closely as possible the individual species listed in USDI Fish and Wildlife Biological Opinion (2005) for the *Forest Plan*. The total number of suitable roost trees, ≥ 15.0 inches DBH, could range from a low of 1.9 million to a high of 2.7 million trees ($2,283,317 \pm 372,180$). There is also a one in three chance that the values could be outside this range. The range in total potential roost trees is due to the 16.3 percent sampling error because of the limited number of survey points. As survey data are broken down into sections smaller than Forest totals, the sampling error increases. The percent sampling error is higher for individual diameter classes and tree species groups. Also it is important to remember that this estimate does not take into account the influence of stand densities, solar radiation, and

location on the landscape. All three of these factors will reduce the actual number of suitable roost trees.

WATER QUALITY

Water quality at Celina Lake and Tipsaw Lake was monitored June 4 following aquatic weed control done May 6, 2008. At Celina Lake there were no visible Eurasian water milfoil plants at the boat ramp. At Tipsaw Lake there were no visible Eurasian water milfoil plants at the boat ramp, but dead plants were on the dock. This means plants are being transported around the lake by boats. Continued treatment of Eurasian Water milfoil is recommended.

SOIL AND WATER MITIGATION MEASURES

One timber harvest area (Sigler), one road building for a timber harvest (Birdseye), and several forest roads were monitored. During January through March 2008, the area experienced several extreme rainfall events that taxed the skid trails, landings, roads under construction, and established roads. The rainfall events provided an opportunity at the Birdseye road construction site to improve drainage features while the road was still under construction.

On the Sigler timber sale a log landing and skid trail caused some concern to several forest resource professionals. The log landing was located within a riparian management zone. However, the chosen location caused less environmental disturbance than other choices. Similarly, the skid trail located on the ridge fall line provided the least amount of ground disturbance as compared to other choices. A subsequent BMP monitoring survey in early June following another intense runoff event showed no impacts to water quality and that the site was in stable condition and not adding sediment to water sources. All water diversion and control methods were working effectively. Restrictive guidelines in project documents can create situations where there are no viable alternatives but to violate the guidelines. It is also important that sale administrators ensure that loggers maintain water diversion elements and they are functioning properly in case of intense rainfall events. Another positive outcome was the increased communication between specialists on this and future projects.

Following intense rainfall in March on the Tell City Ranger District, road conditions were monitored. Roads associated with the Plock and Leopold salvage sales and the Gerald timber sale were all in excellent condition (Beck 2008). Other roads showed some erosion, aggregate loss, and culvert plugging. Tipsaw Recreation Area road showed some additional road settlement (Christensen 2008).

TRAIL MONITORING

Nine randomly selected trail segments were monitored. A majority of the trails observed did not impact water quality. Required maintenance includes reshaping the trail template, installing additional drainage features, and maintaining existing water bars. There was evidence of OHV or horse use on four of the five hike only trails.

TIMBER SALE ASQ

In FY 2008, the Hoosier National Forest harvested approximately 3,900 hundred cubic feet (CCF) of timber. The majority of this volume was on the Tell City Ranger District and was comprised of salvage from the Tell City Windthrow 2004 project and the removal of non-native pine in the German Ridge Restoration project.

The allowable sale quantity for the Forest as stated in the *Forest Plan* is 9.612 MMCF for the first decade of plan implementation. This is equal to an average of 9,612 CCF per year, which is well above the actual amount harvested in fiscal year 2008.

The Hoosier National Forest has not approached anticipated harvest limits since the implementation of the current *Forest Plan*.

HERITAGE MONITORING

Monitoring was completed on four timber sale areas - Birdseye Salvage, Krausch, Tower, and Oriole (Krieger 2009). Mitigation and protection measures were correctly applied. The crews laying out the timber sales discovered two unrecorded historic sites and took proper action to avoid them during the harvest operation.

Damage to heritage resources due to vandalism has not been observed. Two new interpretive signs were installed at Hickory Ridge Lookout Tower and Brooks Cabin.

Hoosier personnel have done a good job of applying mitigation and protection measures around ground-disturbing activities, and the mitigation and protection measures do provide protection to the sites marked.

LAND ACQUISITION

The acquisitions and exchanges have helped consolidate ownership providing better access to the Hoosier National Forest for users. The Forest acquired 685 acres in FY 2008 through purchase and exchange. The deed acreage as of September 30, 2008 was 202,154.

Additional Findings

Following monitoring in 2007, a small population of gypsy moth was discovered in the Pleasant Run Unit of the Hoosier National Forest. In 2008 in cooperation with Indiana Department of Natural Resources and Forest Service State and Private Forestry, the population was treated with pheromone flakes. Due to concern about flakes entering the karst system, pheromone flakes falling through the canopy was monitored. Only 3.3 percent of flakes fell through to the forest floor (Weigel and Dempsey 2009).

The Houston-Pin Oak Riparian Area restoration was completed in July of 2007. Monitoring of the levees continued through 2008. Intense rain storms occurred during January and February of 2008 and caused soil loss across the entire surface of the levee. Several unsuccessful activities during the initial restoration included the use of annual rye as a cover crop, aggressive rotary tilling, and broadcast of mulch. The annual rye root structure did not grow well enough in the drought year to hold the soil

during these intense rain events. Recommendations following the monitoring include seedbed on critical areas should receive reduced tillage, and broadcast mulch in floodplains should be crimped. Successful activities included use of partridge pea in the perennial mix and the use of riprap to armor spillways (Rigg 2008).

Monitoring of Haskins native plant seeding produced three recommendations: no vegetation should be cut lower than 12 inches, all ground-disturbed areas should receive a catch of seed and crimped mulch, and the initial prescribed fire should be in the late spring. Late spring prescribed fire would stress cool season grasses and promote warm season grass and native forb growth.

Contributions to Better Projects and Plan Implementation

Standards and guidelines in planning documents should not be so restrictive that they preclude the ability of forest personnel to establish acceptable skid trails and log landings. It is also important that personnel laying out skid trails and landings work with soil scientists, fisheries personnel, and others to locate them so as to reduce environmental impacts as much as possible and also to jointly develop and implement mitigation measures.

Contribution to 5 Year Report

Monitoring data collected this year and in subsequent years will support the Forest's ability to evaluate current social, economic, and ecological conditions and trends. Monitoring *Forest Plan* compliance and implementation will tell Forest long-range planners if initial projections in the plan were adequate to meet the goals considered.

Monitoring of MIS identified in the plan will show how well the *Forest Plan* is helping to improve and maintain viable habitat for the five MIS species identified.

Overall, monitoring will help determine if activities need to be adjusted or strengthened halfway through the planning period to meet *Forest Plan* goals and objectives.

POTENTIAL FISCAL YEAR 2009 MONITORING NEEDS

The monitoring for FY 2009 consists of the following questions from the *Forest Plan*.

- Is this Forest complying with guidance outlined in *Forest Plan*?
- Are insect and disease population levels compatible with objectives for restoring or maintaining healthy forest conditions?
- What level of prescribed fire should be used to maintain desired fuel levels or mimic natural processes, maintain and improve vegetative conditions, or restore natural processes and functions to ecosystems?
- Have there been changes in cave environments?
- To what extent is Forest management contributing or responding to populations of terrestrial or aquatic non-native invasive species that threaten native ecosystems?
- To what extent is Forest management affecting water quality, quantity, flow timing, and the physical features of aquatic, riparian, or wetland ecosystems?

- Have the soil and water mitigation and protection measures been effective as applied to all management activities?
- Is establishment of physical facilities, use regulations, and recreation opportunities responsive to current and anticipated user demands?
- Is trail use planned and implemented to protect land and other resources, promote public safety, and minimize conflicts with other users of the NFS lands?
- Are timber sales meeting *Forest Plan ASQ*?
- Are mitigation and protection measures correctly applied for ground-disturbing activities?
- Are heritage resources being damaged by vandalism?
- How do actual costs of carrying out planned management compare to cost estimates?
- Does the Forest's land adjustment program support and enhance the Plan's desired conditions and goals and contribute to efficient and effective stewardship?

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