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Hoosier
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Hoosier National Forest

Fiscal Year 2011 & 2012 Monitoring and Evaluation Report

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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 fourth annual M&E Report compiled under the 2006 Hoosier National *Forest Plan*. The first was completed in FY 2006.

The Monitoring and Evaluation Report contains four major sections: Purpose/Scope of Report, Specific Monitoring Activities for FY 2011 and 2012, Findings, and Potential Fiscal Year 2013 Monitoring Needs. Specific Monitoring Activities for FY 2011 and 2012 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 both the FY 2011 and 2012 Hoosier National Forest Monitoring Work Plans. 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, 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 FISCAL YEARS 2011 & 2012

Monitoring That Occurred

ANNUAL BREEDING BIRD SURVEY

Purdue University conducted point-count surveys at nine areas on the Hoosier National Forest during summer 2011 and 2012 as part of the Forest's annual breeding bird survey.

COMPLIANCE WITH FOREST PLAN GUIDANCE

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

HERITAGE MONITORING

Heritage monitoring was completed by forest personnel on six project areas and seven priority heritage asset.

INSECT SURVEYS

Surveys for emerald ash borer (EAB) (*Agrilus planipennis*) were conducted in both the summer of 2011 and 2012 by Hoosier National Forest personnel.

LAND ACQUISITION

The Forest acquired 37 acres in FY2011 through purchase, and 1.05 acres in FY2012 through donation. The deed acreage as of September 30, 2012 was 202,972 acres.

ROAD MONITORING

The Forest maintains many miles of roads. Roads are divided into maintenance depending on their construction standards. Maintenance levels vary from 1 to 5, though only levels 1 through 4 are applicable on the Forest.

SOIL AND WATER MITIGATION MEASURES

Forest personnel collected baseline water samples from selected streams during early spring FY 2012.

TIMBER SALE ASQ

Fiscal Year 2011 timber harvest totals were 3,868 CCF. This is approximately 40 percent of the average annual harvest allowed in the *Forest Plan*. Forest personnel reported a FY 2012 harvest level of approximately 4,755 CCF or 41 percent of the annual allowable harvest level permitted in the *Forest Plan*. This is below the average annual harvest allowed in the *Forest Plan* of 9,612 CCF/year.

TRAIL MONITORING

The Forest monitors trails annually. There are over 260 miles of trails on the Forest available for hiking, biking, and horseback riding.

WOODCOCK SURVEY

Forest personnel conducted the third biennial American woodcock (*Scolopax minor*) singing ground survey on the Forest in the spring of 2012. Twenty-four different routes were surveyed.

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

COMPLIANCE WITH FOREST PLAN GUIDANCE

Chapter 4 of the Forest Plan addresses guidance and compliance with the *Forest Plan* in this question “Is this Forest complying with guidance outlined in *Forest Plan*?” The question addresses all eight of the *Forest Plan* goals.

The question addresses one of Regions 9’s Courageous Conservation goals:

- Protect ecosystems across boundaries

The monitoring responds to the 2007 Forest Service Strategic Plan Goals:

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

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

INSECT SURVEYS

Insect surveys respond to *Forest Plan* goal “Maintain and Restore Sustainable Ecosystems” and the questions “Are insect and disease population levels compatible

with objectives for restoring or maintaining healthy forest conditions?” and “To what extent is Forest management controlling undesirable occurrences of fire, insect, and disease outbreaks?”

The insect surveys respond to one of Regions 9’s Courageous Conservation goals:

- Protect ecosystems across boundaries

The surveys respond to the 2007 Forest Service Strategic Plan Objective:

- Reduce adverse impacts from invasive and native species, pests, and diseases

ROAD MONITORING

Monitoring of roads also responds to the Forest Plan Goals including: Maintain and Restore Watershed Health, and Provide for Recreation Use in Harmony with Natural Communities. Specifically monitoring of roads responds to the following questions: Are mitigation and protection measures correctly applied for ground disturbing activities; and 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?

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

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 Plan Goal:

- Provide and Sustain Benefits to the American People

TRAIL MONITORING

Monitoring of trails responds to the Forest Plan Goals including: Maintain and Restore Watershed Health, and Provide for Recreation Use in Harmony with Natural Communities. Specifically monitoring of trails responds to the following questions:

“Are mitigation and protection measures correctly applied for ground disturbing activities”; and “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?”

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

How and When Monitoring Accomplished

ANNUAL BREEDING BIRD SURVEY

Point-count surveys were conducted at nine areas on the Forest during May-June 2011 and May-June 2012 by Purdue University (Dunning and Riegel 2012). 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).

COMPLIANCE WITH FOREST PLAN GUIDANCE

The monitoring was completed at various times throughout FY 2012.

HERITAGE MONITORING

The monitoring was completed at various times throughout FYs 2011 and 2012.

INSECT SURVEYS

November 2010 trees in the Hardin Ridge delimitation area (defined by IDNR) were inventoried; found that less than two percent were ash.

March – May 2011 marked and injected 127 trees with Tree-age (ememectin benzoate).

Spring 2012 injected an additional 158 trees including some on private lands.

Also in the Spring 2012, purple panel traps were set and trap trees were girdled on the southern border of the delimitation area.

LAND ACQUISITION

The land acquisition report was completed at the end of FYs 2011 and 2012 using the deed records and information on file in the Supervisor's Office in Bedford.

ROAD MONITORING

The monitoring was completed at various times and locations throughout FY 2012.

SOIL AND WATER MITIGATION MEASURES

The monitoring was completed in the spring of FY 2012.

TIMBER SALE ASQ

The analysis was completed in January 2012 and December 2012 by accessing the timber sale records for FYs 2011 and 2012.

TRAIL MONITORING

The monitoring was completed at various times and locations throughout FY 2012.

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.

Who Did the Monitoring?

ANNUAL BREEDING BIRD SURVEY

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

COMPLIANCE WITH FOREST PLAN GUIDANCE

The monitoring was completed by Forest personnel.

HERITAGE MONITORING

Heritage monitoring was completed by Forest personnel.

INSECT SURVEYS

Much of work is being completed using both Indiana DNR and Forest Service personnel. Survey results are being collected and analyzed by Indiana DNR.

LAND ACQUISITION

The review of land acquisition was completed by Forest personnel.

ROAD MONITORING

The monitoring was completed by Forest personnel.

SOIL AND WATER MITIGATION MEASURES

The review of soil and water mitigation measures was completed by Forest personnel. Monitoring work on the Lacy Mine Bioreactor is being completed by United States Geologic Service.

TIMBER SALE ASQ

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

TRAIL MONITORING

The monitoring was completed by Forest personnel.

WOODCOCK SURVEY

The woodcock survey was completed by Forest personnel.

FINDINGS

What We Learned

ANNUAL BREEDING BIRD SURVEY

The areas sampled in 2012 were the same ones sampled in 2010. Similar to previous years, Dunning and Riegel (2012) state, "The results of the 2012 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 list of common species includes many neotropical migrants, a group of management concern. The continued presence of several locally rare, potentially breeding species, such as Black-and-white Warbler, Black-throated Green Warbler is encouraging."

Many neotropical migrants were among the common species noted, including two Management Indicator Species (MIS) - Acadian flycatcher (*Empidonax virescens*, 5.4% of total count) and wood thrush (*Hylocichla mustelina*, 4.5% of total count). The number of Yellow-billed Cuckoos (*Coccyzus americanus*, 116 observations) represents a continued increase from the 2010, 2008 and 2006 surveys. Approximately 45% of all observations consisted of eight species: Acadian Flycatcher, American Crow [*Corvus brachyrhynchos*, 4.1%], Eastern Wood-Pewee (*Contopus virens*, 5.6%), Ovenbird [*Seiurus aurocapilla*, 4.9%], Red-eyed Vireo (*Vireo olivaceus*, 9.5%), Scarlet Tanager (*Piranga olivacea*, 6.3%), Tufted Titmouse [*Baeolophus bicolor*, 4.6%], and Wood Thrush.

INSECT SURVEYS

The SLAM, or Slow Ash Mortality, treatments are a multi-agency, multi-year, and multi-faceted effort to slow the rate at which ash trees succumb to emerald ash borer. Efforts conducted in 2011 and 2012 will be collected and analyzed subsequent years.

COMPLIANCE WITH FOREST PLAN GUIDANCE

The Forest Leadership Team monitored the Tower and Plock timber sales. The skid and log roads had been closed and water bars and other mitigation measures were working. The seeding had not taken hold due to the severe drought that was occurring. Once

moisture conditions improved it was planned to reseed areas as needed. There were no other reported problems associated with timber sales.

HERITAGE MONITORING

Monitoring was completed on six priority heritage assets in FY2011 (Krieger 2011) and reevaluated one of those sites in FY2012 (Krieger 2012).

The sites monitored in FY2011 and reevaluated in FY2012 were previously monitored in 2010. The site continues to receive damage as a result of illegal ATV use. In November 2009, several trees were placed to prohibit ATV access. This is limited ATV access into the cave; however, extensive damage continues to occur to the ridge top.

Other priority heritage assets were monitored with no new disturbance recorded.

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. They have reported newly discovered sites as required to the Heritage Resource Specialist.

LAND ACQUISITION

The acquisitions have helped consolidate ownership providing better user access to the Hoosier National Forest. The Forest acquired 38.05 acres in in Fiscal years 2011 and 2012 through purchase and donation. The deed acreage as of September 30, 2012 was 208,872.

ROAD MONITORING

Sixty-one miles of Forest roadways were monitored in 2012. Roads were reviewed to check conditions due to heavy use, extended hot and dry conditions, monitor previous activities and mitigations, remove hazard trees, inspect bridges, and more. No corrective actions were noted as a result of the monitoring.

SOIL AND WATER MITIGATION MEASURES

Monitoring of the Lacy Mine bio-reactor is being done under Forest Service CERCLA authority as a three-year treatability study. Monitoring in FY2011 showed very little data as the flow into the North Bioreactor have been more consistent there has been very little dilution effect except during the late winter thaw.

TIMBER SALE ASQ

In FY 2011, the Hoosier National Forest harvested approximately 3,868 hundred cubic feet (CCF) of timber. In FY 2012, the Hoosier harvested an estimated 4,755 CCF. This came predominantly from four green timber sales.

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 above the actual amount harvested in fiscal year 2012.

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

TRAIL MONITORING

One hundred and thirty-one miles of trail were monitored in 2012. During that review 1.2 miles of the Mogan Ridge West trail was noted for erosion. The erosion problems were mitigated by constructing rolling dips and hardening the 1.2 miles of trail.

WOODCOCK SURVEY

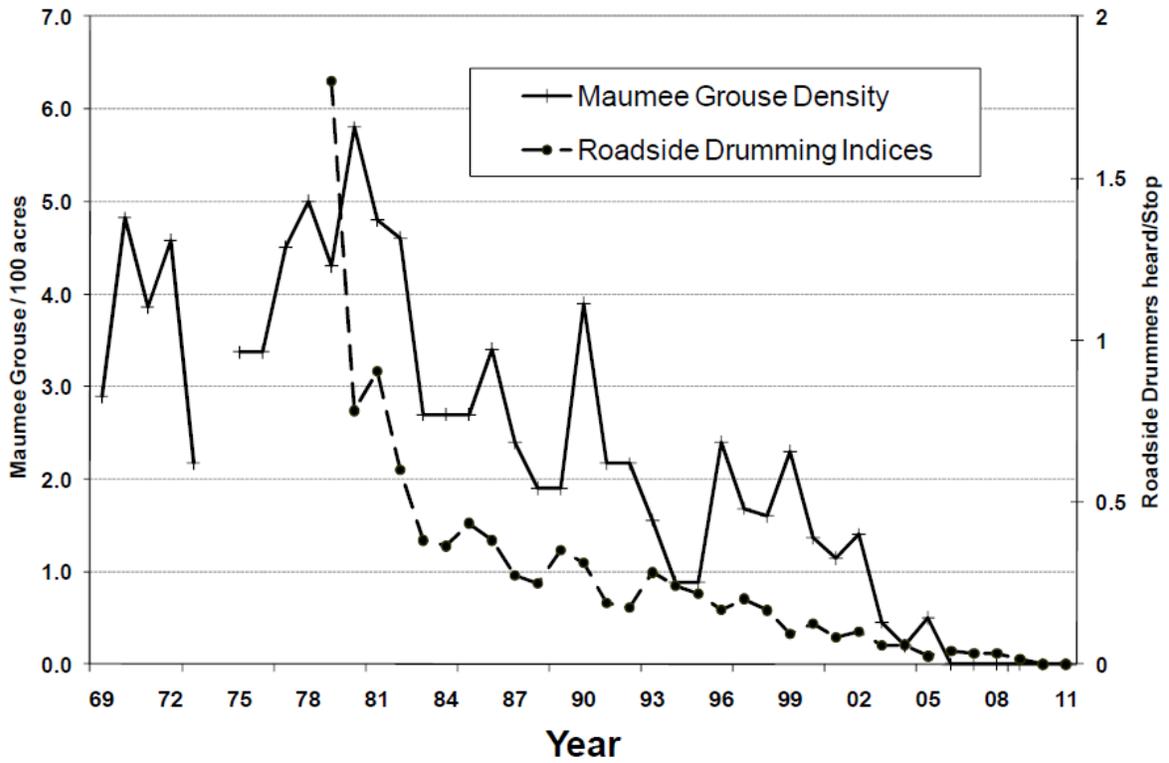
A total of 24 peenting woodcock were heard on 25 routes. This equates to 0.96 peenting woodcock heard per route surveyed. Even though the Hoosier's surveys shows a small decline, the average number of signing woodcock has remained stable for the past 10 years (Cooper and Rau 2012). However, because this is only the fourth measurement, it remains difficult to determine a trend because of the fluctuation over the four measurement years. The fluctuation may be in part a response to the addition of new surveyors with less experience and an addition in the number of routes being considered.

Additional Findings

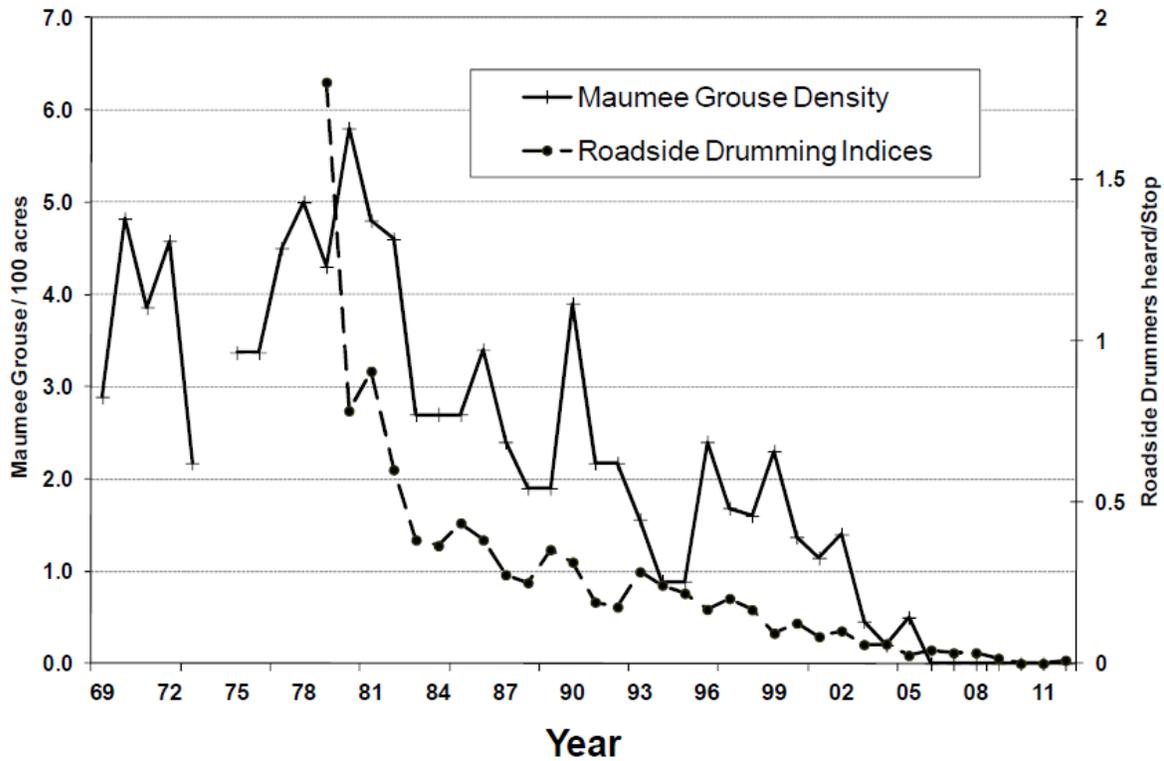
The IDNR, Division of Fish & Wildlife coordinated surveys of ruffed grouse (*Bonasa umbellus monticola*) breeding populations during the spring of 2011 and 2012 on the Hoosier (Backs 2011 & Backs 2012). "For the second time (Two consecutive years) since the roadside counts were initiated in 1953, no male ruffed grouse were heard along the roadside drumming routes" (Backs 2011).

However, the 2012 report showed that two male ruffed grouse were heard along the roadside drumming routes. ...[O]ne on a traditionally conducted control route and the other on a newly re-established route" (Backs 2012). Backs (2012) concluded "Ruffed grouse population levels are projected to drop below "viable population levels" within the next few years in portions of their existing range in south-central Indiana unless some intervention (e.g. timber harvests of sufficient intensity) or sizable natural disturbances occur across the forested landscape to create early successional forest habitats." (Figures 1 & 2).

2011
Figure 1. Indiana Grouse Population Trends



2012
Figure 2 Indiana Grouse Population Trends



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.

Literature Cited

Backs, Steven E. 2011. 2011 spring breeding indices of ruffed grouse. Indiana Department of Natural Resources, Division of Fish & Wildlife, Wildlife management and research notes, no. 2019. 5 p.

Backs, Steven E. 2012. 2012 spring breeding indices of ruffed grouse. Indiana Department of Natural Resources, Division of Fish & Wildlife, Wildlife management and research notes, no. 1042. 6 p.

Cooper, T.R., and R.D. Rau. 2012. American woodcock population status, 2012. U.S. Fish and Wildlife Service, Laurel, Maryland. 16 pp.
<http://www.fws.gov/migratorybirds/NewReportsPublications/PopulationStatus/Woodcock/2012%20American%20Woodcock%20Population%20Status,%202012.pdf>

Dunning, John B. 2003. Results of the breeding bird monitoring survey, Hoosier National Forest, Spring 2003. West Lafayette, IN: Department of Forestry and Natural Resources, Purdue University. [On file with: Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

Dunning, John B.; Bondo, Kristin. 2003. Results of the breeding bird monitoring survey, Hoosier National Forest, Spring 2002. West Lafayette, IN: Department of Forestry and Natural Resources, Purdue University. [On file with: Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

Dunning, John B.; Rea, Christopher M. 2001. Results of the breeding bird monitoring survey, Hoosier National Forest, spring 2001. West Lafayette, IN: Department of Forestry and Natural Resources, Purdue University. [On file with: Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

Dunning, John B.; Riegel, Jeffrey K. 2010. Results of the breeding bird monitoring survey Hoosier National Forest, summer 2010. West Lafayette, IN: Department of Forestry and Natural Resources, Purdue University. 9 p. [On file with: Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

Dunning, John B.; Riegel, Jeffrey K. 2012. Results of the breeding bird monitoring survey Hoosier National Forest, summer 2012. West Lafayette, IN: Department of Forestry and Natural Resources, Purdue University. 8 p. [On file with: Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

Krieger, Angie. 2011. Letter dated October 12, 2012 to Dale Weigel. On file with Hoosier National Forest, Bedford, IN.

Krieger, Angie. 2012. Letter dated September 16, 2011 to Dale Weigel. On file with Hoosier National Forest, Bedford, IN.

U.S. Department of Agriculture, Forest Service. 2005. Strategic framework for the Eastern Region. Eastern Region. 26 p.

U.S. Department of Agriculture, Forest Service. 2006. Land and resource management plan--Hoosier National Forest. Eastern Region, Hoosier National Forest. 85 p. + appendices.

U.S. Department of Agriculture, Forest Service. 2007. USDA Forest Service Strategic Plan FY 2007-2012. Forest Service. 32 p.

Weigel, Dale R. 2010. Analysis of Hoosier National Forest's Land Acquisition Program 1990-2010. On file with Hoosier National Forest, Bedford, IN. 2 p.

Winslow, Donald. 2000. Results of the breeding bird monitoring survey, Hoosier National Forest, spring 2000. Bloomington, IN: Department of Biology, Indiana University.