

# Appendix G

## MANAGEMENT INDICATOR SPECIES

Direction for Management Indicator Species (MIS) has been given by the National Forest Management Act, which states that in "order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species.... These species shall be selected because their population changes are believed to indicate the effects of management activities."

36 CFR 219.19(a)(i) states that "in the selection of management indicator species, the following categories shall be represented where appropriate: endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; non-game species of special interest; and additional plant and animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality."

The Forest held six meetings along with numerous one-on-one discussions with species experts between November 1993 and February 1994 to review the MIS list in the Forest Plan, recommend changes to the MIS list, and prepare monitoring plans for the Hoosier's MIS. The Hoosier invited experts in fish, wildlife, and community management to assist in the revision of the MIS list and to recommend monitoring methodologies. The result of these discussions was a proposed list of species that are sensitive to management and can be monitored, ensuring that the intent of NFMA is met. Following the development of the proposed MIS list, new regulations guiding forest plan revision and implementation were proposed and published in the Federal Register. The Hoosier decided to forego pursuing a forest plan amendment to update the existing MIS list until a decision was made on the new regulations. The proposed regulations were never finalized, and the Forest Plan was never amended to include the 1994 proposed MIS list.

As a part of revising the Forest Plan, the Hoosier once again evaluated MIS species. Since a great deal of work had been put into the development of the proposed MIS list in 1994, this list along with the 31 species identified as MIS in the 1991 Plan Amendment was reviewed with these criteria in mind:

- Feasibility and cost associated with monitoring populations across the Forest.
- Ability to assess the effects of management activities listed in the alternatives on the selected species, as well as the effects of additional species that use similar habitats.
- Recommendations of the Species Viability Evaluation Panels.
- Are the species being modeled by North Central Research Station?

Guidance from the Regional Office suggested that communities should not be chosen as MIS, eliminating these groups from consideration. The lack of creel surveys on the forest limited the selection of fish species, and the lack of surveys covering the three terrestrial species (bobcat, gray squirrel, and raccoon) limited their selection. Because breeding bird survey routes have already been established on the Forest and breeding bird data has been consistently collected

over the last decade, bird species were chosen as MIS. The Forest generated a list of all habitat types on the Forest to ensure that species were selected to represent the range of habitats found on the Hoosier. After this selection, another criterion that was reviewed was whether a bird species was included in Cornell Lab of Ornithology's, "Birds in Forested Landscapes Program." The Forest could collect data for this program with little additional cost and provide data regarding the specific habitat requirements of high-priority forest birds across the landscape.

Gaines *et al.* (1999) recommended focusing monitoring efforts on elements relevant to key management issues. The Forest selected the following five species to cover a range of habitats, as well as provide a range of responses to the issues presented in the Forest Plan:

- Acadian flycatcher
- American woodcock
- Louisiana waterthrush
- wood thrush
- yellow-breasted chat

Yellow-breasted chat and American woodcock are MIS of early successional hardwood habitats. The effects of forest activities on these species indicate the effects on wildlife associated with early successional upland hardwood forest, open lands including old fields, and herbaceous open lands. The remaining species are associated with mature forests of varying tract sizes ranging from wood thrush on small tracts, to Louisiana waterthrush, to Acadian flycatchers, which require much larger tracts of forest interior habitat. These species represent the effects on forest interior and forest fragmentation. Response to fire would vary among the species.

Comprehensive monitoring of these species will provide data on population trends under a variety of habitat conditions found on the Forest. These species will be the focus of some management objectives and are most likely to provide information on the effects of implementing management prescriptions.