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Illinois Farm Programs

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**ILLINOIS FARM PROGRAMS:
LONG-TERM IMPACTS ON TERRESTRIAL ECOSYSTEMS
AND WILDLIFE-RELATED RECREATION, TOURISM,
AND ECONOMIC DEVELOPMENT**

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STATUS REPORT

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Objectives

1. To define the potential directions and implications of major federal and state initiatives--including education, incentives, and mandatory compliance affecting land use and natural resources in Illinois through the year 2000;
2. To describe the effects of potentially emerging land use scenarios on the integrity of agricultural ecosystems, as inferred by qualitative and quantitative measures of upland wildlife habitat;
3. To make recommendations for maximizing wildlife-related benefits to the economy through enhanced recreation (both consumptive and appreciative) and tourism that could result from long-term integrated farm conservation programs and policies in Illinois;
4. To suggest means for better defining and predicting linkages between agricultural land use and resulting wildlife recreation opportunities, and the importance of such recreation to local economies;
5. To develop high-quality products (illustrations, reports, articles for peer-reviewed scientific journals) that will make the findings of the study visible, and useful, for a variety of user groups.

Methods and Procedures

Data sets

The project will develop predictive models to evaluate the impacts of present and future farm policies as they relate to land use, the biological integrity of terrestrial ecosystems, and the economics of wildlife-related recreation. There are nine primary data sets that will be incorporated in the analyses:

(1) Annual trends in agricultural land use (1955-1987) available regionally and state-wide from the Illinois Department of Agriculture (DOA). **STATUS:** State-wide land use statistics are on computer for 1955-1983; land use at a township level will be entered on computer for 1 or 2 years. Projected date for completion of this task 1 September 1988.

(2) Trends in wildlife-related economics and recreation associated with key species that are highly sensitive to agricultural land use, available state-wide from the U.S. Fish and Wildlife Service (USFWS) at 5-year intervals (and soon to become available for 1986). **STATUS:** Information for the 1985-86 survey should become available in May. Earlier surveys are in the process of being reviewed. Projected date for completion of this task is 1 August 1988.

(3) Annual trends in consumptive recreation and expenditures associated with the hunting of upland game in Illinois, available state-wide and regionally from the Illinois Department of Conservation (IDOC) and USFWS. **STATUS:** Data have been entered on computer for 1955-1983. Projected date for completion of this task is 1 September 1988.

(4) The 1978, 1982, and 1987 Natural Resources Inventory (NRI) data from which changes in both quantitative and qualitative aspects of wildlife habitat may be inferred regionally and state-

wide, available from the U.S. Department of Agriculture, Soil Conservation Service (USDA/SCS). **STATUS:** The computer tape for the 1982 NRI has been acquired, and programs written, for Illinois. Projected date for completion of this task is 1 June, because the 1987 NRI information will probably not become available during Phase I.

(5) Broadly defined goals for land use changes relative to the "T by 2000" program, available regionally and state-wide from the USDA/SCS and Soil and Water Conservation Districts. **STATUS:** This information will probably not become available during Phase I.

(6) Long-term data sets (1949-1987) that describe interactions of ring-necked pheasant populations with agricultural land use, especially in east-central Illinois, available at the NHS (the pheasant is a key indicator species reflecting the effects of land use on grassland wildlife). **STATUS:** Computer entry of data is ~80% complete; data for 1984-1988 need to be analyzed before computer entry can continue. Projected date for completion of this task is 1 September 1988.

(7) The relative abundance of pheasants at a township resolution for 5-year intervals since 1958--and to be repeated in 1988--is also available at NHS. **STATUS:** Since this project was initiated, the DOC has provided funds to conduct the 1988 census, and to computerize data. Data have now been entered on computer for the 1958, 1963, 1968, 1973, 1978, and 1983 censuses. Computer entry and analysis of the 1988 census will begin in late May. Projected date for completion of this task is 1 September 1988.

(8) Breeding bird surveys coordinated by the USFWS and conducted for the last 20 years over standardized routes in Illinois. **STATUS:** Tables describing raw data for the census routes in Illinois have been acquired. Contacts are being made in order to acquire the data on computer disk, which would prevent the need

for computer entry as part of this project. Projected date for completion of this task is 1 September 1988.

(9) Data available for the entire state that are stored on the ARCH/INFO GIS system at NHS. These data include overlays of geographic/political boundaries, soil types, locations of natural areas, tributaries, etc. **STATUS:** These data sets are currently available at NHS.

ADDITIONAL (UNANTICIPATED DATA SETS)

(10) Agricultural census data collected at 5-year intervals for the entire U.S. at a county level, available from the Economic Research Service, USDA. **STATUS:** Computer tapes have been ordered (\$500) that will have all agricultural census data for all counties in the U.S. at 5-year intervals, beginning in the 1940s. Projected date for completion of this task is 1 September 1988.

(11) Data are collected by state departments of agriculture (Illinois and surrounding states), that describe the timing of all major agricultural field operations (disturbances). **STATUS:** The numbers of years for which states have such data varies, and range from 15-40 years. All states have responded to requests, and computer entry of data is completed. Projected date for completion of this task is 1 May 1988.

(12) Data are available from the Conservation Tillage Information Center (CTIC) describing on a county level, the acres subjected to various tillage and planting systems for each major crop, annually since the early 1980s. **STATUS:** The CTIC charges \$200 per state for a diskette with the most recent year of information; the charge is \$100 for other years. Projected date for completion is uncertain because of a potential lack of funds.

Project tasks - Phase I

Project tasks during Phase I will include (1) assembly and computer-archiving of data sets; and (2) development of predictive models. Using multiple regression, models predicting state-wide trends in key wildlife species, and associated recreation (dependent variables), will be developed using land use trends (independent variables, see items 1,2,3, and 8 under data sets). In addition to these models which are applicable primarily on a state-wide basis, pheasant data (items 6 and 7) will be used to develop a population ecology model that can simulate responses by this key species to different types of land use controls that might be promoted on a regional basis; for example, this would facilitate comparative simulations of responses by wildlife to the presence or absence of buffer strips along head water streams, or the use of conservation tillage vs. rotation systems.

Project tasks - Phase II

Following development of predictive models (Phase I), the next task will be to construct alternative pathways of land use change that could occur as the result of present and future farm programs. Parameters for future changes in land use will be structured around numerous factors; these include non-point source pollution goals (item 5), various facets of the Conservation Reserve Program, Department of Agriculture estimates of recent and possible future participation by farm operators in key programs as affected by economics, possible revisions of the laws in place and emerging legislation, and recent land use trends (items 1,4,5). Because these sources of information are divergent, key agencies will be solicited for input concerning the assumptions used to structure future pathways of land use change.

The final task will be to set forth recommendations for future farm programs and policies relative to the simulated effects of alternative directions on wildlife-related recreation,

related expenditures, and potential farm income related to such recreation. Needs for follow-up research will also be identified.

{Note: Phase II is structured over a 24-month period, instead of 18 months as originally proposed. The additional 6 months appears necessary in order to acquire information pertaining to farm plans being developed as part of the "Conservation Compliance" portion of the 1985 Farm Bill.}