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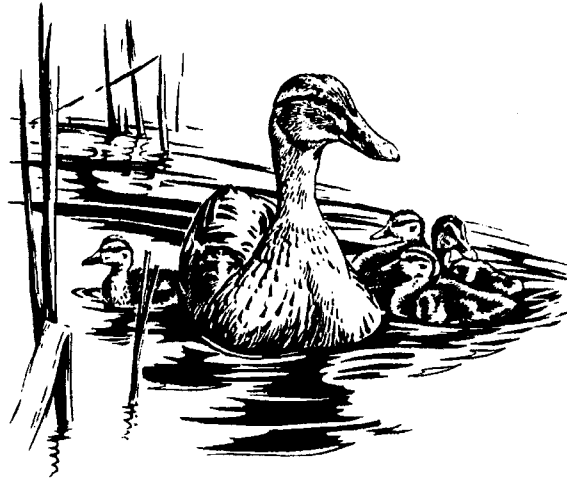
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# ILLINOIS NATURAL HISTORY SURVEY

CENTER FOR WILDLIFE ECOLOGY



**Mallard Investigations**

**W-130-R-4**

**Quarterly Federal Aid Performance Report**

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December 20, 2000**



## QUARTERLY FEDERAL AID PERFORMANCE REPORT

Mallard Investigations

W-130-R-4

Stephen P. Havera--Illinois Natural History Survey, Havana

1 October through 31 December 2000

### STUDY I: NESTING BIOLOGY OF MALLARDS IN ILLINOIS

JOB NO. I.1. Nesting History and Reproductive Success of Mallards in Illinois

JOB NO. I.2. Mallard Use of Cylindrical Artificial Nest Structures

During this quarter, data from segments 1-3 of this study were summarized in a slide presentation at the Second North American Duck Symposium & Workshop in Saskatoon, Saskatchewan, Canada (Hine et al. 2000). We discussed current and future research and gathered information from waterfowl biologists from around the world at the Symposium. While traveling through Canada, we observed the various wetland habitats of the prairie pothole region and noted the type and placement of artificial mallard (Anas platyrhynchos) nesting structures used by Ducks Unlimited, Inc. and the Delta Waterfowl Foundation.

Other activities included a continued literature review of waterfowl nesting biology, radio telemetry, and artificial nesting structures. We obtained literature concerning a statistical technique known as a Sensitivity (Elasticity) Analysis which is used to identify the most important vital rates of an organism's life cycle (i.e., nest success, breeding survival, duckling survival, brood survival, or annual survival) in relation to the population growth rate (McDonald and Caswell 1993, Hoekman et al. 2000). In addition, materials were purchased to build additional decoy traps (Sharp and Lokemoen 1987, Ringelman 1990), and a live decoy holding facility was built for use at the Forbes Biological Station.

We also identified 52 potential sites for artificial nest structure (Hen House™) deployment during winter 2000-2001 at the Metropolitan Water Reclamation District of Greater Chicago (MSD) in Fulton County, IL (Yetter et al. 2000). A renewal application for the special use permit for this project (2002-2003) was submitted to Reclamation District authorities.

## METHODS

### Basin Classification and Selection

We used spring 1986 National Wetlands Inventory (NWI) data stored on the Illinois Geographic Information System, Illinois Department of Natural Resources, Springfield, Illinois, to classify wetland and deepwater habitats at MSD on the basin level. Basins within the study area were classified as ponds (palustrine habitats) or lakes (lacustrine habitats)(Cowardin et al. 1979) depending on the water depth in the deepest part of the basin during low water levels. Basins with a water depth of  $> 2$  m (6.6 ft) at low water were considered lakes, and basins  $\leq 2$  m deep at low water were classified as ponds. Due to prior coal-mining activities, most basins at MSD were pond and lake habitats with few existing emergent marshes.

We selected 13 random points (latitude–longitude coordinates) within the property boundaries of MSD. Four basins (2 ponds and 2 lakes) nearest each random point were selected as sites for Hen House™ placement. Criteria for basin selection and nest structure placement were: 1) basins without surface water in fall 2000 were excluded; 2) only one Hen House™ will be placed per basin regardless of basin size; and 3) Hen House's™ must be  $\geq 100$  m from each other. Therefore, 26 ponds and 26 lakes were selected for nest structure deployment. We will use existing information obtained from the literature and the Delta Waterfowl Foundation for the actual placement of structures. Nest structures will be erected as soon as sufficient ice forms on the ponds and lakes to allow safe passage by field crews.

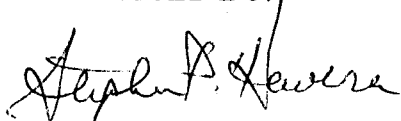
## LITERATURE CITED

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SUBMITTED BY:

A handwritten signature in black ink, appearing to read "Stephen P. Havera". The signature is written in a cursive style with a large initial 'S'.

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DATE: 20 December 2000

