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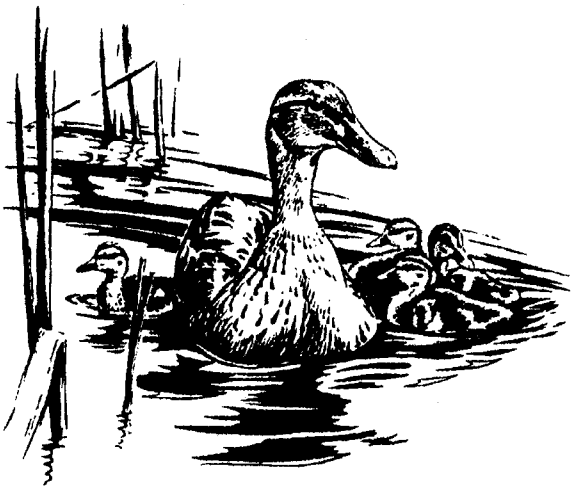

Mallard Investigations

W-130-R-3

Quarterly Federal Aid Performance Report

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Submitted by:

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22 December 1999

QUARTERLY FEDERAL AID PERFORMANCE REPORT

Mallard Investigations W-130-R-3

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

1 October through 31 December 1999

STUDY I: NESTING BIOLOGY OF MALLARDS IN ILLINOIS

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

During this quarter, a slide presentation was prepared and presented on December 8th at the 61st Midwest Fish and Wildlife Conference in Chicago, IL. Survival estimates were generated for mallard (Anas platyrhynchos) broods and ducklings with comparisons between the 1998 and 1999 brood-rearing seasons.

Methods

Brood and duckling survival rates were calculated for mallard hens fitted with radio transmitters during the 1998 and 1999 nesting seasons in central Illinois (Hine et al. 1998, Yetter et al. 1999) using the Kaplan-Meier product-limit estimator (Kaplan and Meier 1958, Pollock et al. 1989, White and Garrott 1990). For determining survival, broods and ducklings were censored the day following the last radio contact, the day following loss of a transmitter, the day of brood loss, or the 20th day posthatch (Paquette et al. 1997).

Differences in survival rates of mallard broods and ducklings between years were tested using log-rank tests. The

most conservative of the three χ^2 tests was used to detect differences in hen survival between the study sites (White and Garrott 1990:241). Significance levels were set at $P \leq 0.05$.

Results

Ten and seven mallard hens with radio transmitters were successful nesters during 1998 and 1999, respectively. We encountered entire brood loss from two of 10 (20%) successful hens during 1998 and one of seven (14.3%) successful hens in 1999. The brood survival rate in 1998 was $\hat{s}=0.788$ (SE=0.131), and brood survival in 1999 was $\hat{s}=0.857$ (SE=0.130). No differences were detected in brood survival between the years ($\chi^2=0.869$, 1 df, $P=0.351$); therefore, the pooled brood survival rate was 0.814 (SE=0.097, n=17).

Eighty-two ducklings hatched from the 10 successful mallard nests during spring 1998, and 58 ducklings hatched from the seven successful nests in 1999. In 1998, 34 ducklings (41.5%) perished prior to 20 days posthatch resulting in a duckling survival rate of $\hat{s}=0.500$ (SE=0.064). Thirty-one ducklings (53.4%) died prior to 20 days posthatch in 1999 as duckling survival dropped to $\hat{s}=0.388$ (SE=0.071). Duckling survival differed between the years ($\chi^2=7.57$, 1 df, $P=0.006$); therefore, survival estimates were not pooled across years.

Literature Cited

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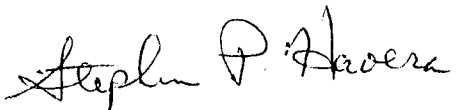

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DATE: 22 December 1999