

# **INVESTIGATIONS OF NEST-SITE REOCCUPATION OF RED-SHOULDERED HAWKS IN NORTHWESTERN ILLINOIS ALONG THE MISSISSIPPI RIVER.**

**Submitted to the Illinois Department of Natural Resources Wildlife Preservation Fund (Project FY00 – 079)**

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## **ABSTRACT / EXECUTIVE SUMMARY**

During this study, we searched a total of fifteen areas for evidence of Red-shouldered Hawk nesting. Six active nests were located. Red-shouldered Hawks were observed exhibiting territorial behavior in three additional areas and we suspect but we could not confirm nesting. We found no evidence of Red-shouldered Hawk activity in two of the areas searched. And our searches in four areas were considered incomplete.

## **ACKNOWLEDGEMENTS**

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Field work was conducted by Jon Stravers, with assistance from Kelly McKay, Jay Stravers and Jon Stevens. Debbie Dee of the U.S. Fish and Wildlife Service contributed field observations, as did Gary Swenson and Casey Kohrt from the USACOE, and Mike Griffin from the Iowa DNR. In kind services were provided by the Iowa Department of Natural Resources Bellevue Field Station.

## **RESEARCH OBJECTIVES**

1. To determine the current rate of re-occupation of sites known to be formerly active Red-shouldered Hawk nesting sites within the upper portion of the Savanna District.
2. To determine the reproductive success for Red-shouldered Hawks nesting attempts within the Savannah District for 1999 and 2000 and compare that with reproductive success found in previous years in other sections of the Mississippi River.

## BACKGROUND ON RED-SHOULDERED HAWKS

At the time of European settlement, Red-shouldered Hawks were probably one of the more common raptors in the Upper Midwest (Anderson 1907; Bailey 1918). With the development of the floodplains into cropland, the clearing of many of the forests, and channelization of many streams, many floodplain forests were fragmented and consequently became more suitable for the more common Red-tailed Hawk (*Buteo jamaicensis*) which utilizes edge habitats and is more adapted to agricultural activity (Brown 1964; Hands et al 1989; Palmer 1988).

By the early 1960's, Red-shouldered Hawks remained in only a few sites along some of the larger streams in eastern Iowa and northwestern Illinois (Brown 1964 & 1971; Roosa & Stravers 1989). Further population declines occurred during an era when pesticide contamination caused population declines in other raptors such as Peregrine Falcons and Bald Eagles (Henny & Anderson 1968; Hickey 1969). However, since no specific research was being conducted on Red-shouldered Hawks in this region during that period, we are not certain of the cause and affect or the specific population dynamics.

Red-shouldered Hawks have been on the state endangered species list in Illinois since 1981 (Bowles & Thom 1981). They are considered an important indicator species since they nest in large tracts of mature floodplain forests (Bednarz & Dinsmore 1981; Stravers & McKay 1993). A variety of factors contribute to their presence or absence such as forest size and age, and the availability of suitable wetland habitats for foraging. Because of the long-term stability of refuge habitats along the Upper Mississippi River, some sections of the Upper Mississippi River Valley support apparently stable populations (Stravers & McKay 1993). During the past few years there has been an apparent increase in the number of Red-shoulders in the Iowa Bird Life field reports.

## METHODS

Methodology for Red-shouldered Hawk inventory generally followed the protocol used in previous years and suggested by Craighead & Craighead (1956) and Fuller & Mosher (1987). Because of the changing water levels within the Mississippi floodplain, some modification of techniques were necessary since some areas were difficult or impossible to access. Also, because approval of this proposal was not received until late in the 1999 field season, observations were conducted during both 1999 and 2000.

Initial inventories for suitable Red-shouldered Hawk nesting areas were conducted using topographic maps, aerial photos, notes from previous searches in this region, and from comments obtained from various land managers and biologists. Previously known Red-shoulder nesting locations, areas of suspected nesting, and other areas of high potential were searched for evidence of Red-shouldered nesting.

The first stage of searches were conducted in mid and late March prior to leaf out during the period when Red-shouldered Hawks were the most vocal. Areas of suspected activity were searched again in April following the period when the birds usually lay their eggs. Active nests were visited periodically during the nesting cycle to document progress and determine productivity.

All observations during this study were conducted in a manner that minimized the disturbance to the nesting hawks. Duration of the visits to active nests was kept to a minimum and, in most cases, observations were not conducted during inclement weather.

## RESULTS

During this study, we searched a total of fifteen areas for evidence of Red-shouldered Hawk nesting. Six active nests were located (Table 1). Red-shouldered Hawks were observed exhibiting territorial behavior in three additional areas and we suspect but we could not confirm nesting (Table 2). We found no evidence of Red-shouldered Hawk activity in two of the areas searched (Table 3). And our searches in four areas were considered incomplete (Table 4).

## DISCUSSION

From investigations conducted in 1999 and 2000, and from prior investigations, it appears the some portions of Pools 12 and 13 of the Upper Mississippi River (from Dubuque to Savannah) have some of the highest nesting densities of Red-shouldered Hawks along the Mississippi River. These nesting densities are possibly some of the highest in the Upper Midwest, and the northern half of Illinois.

The abundance of Red-shouldered Hawk nesting is probably due to a combination of factors, including the presence of large tracts of floodplain forests that are often adjacent to bluff or slope forests, and also due to the presence of suitable wetlands which are used as foraging habitats. Also, many of these forests appear to have rather low rates of human traffic.

Funding for this report was originally scheduled for 1999, but approval for the funding was not received until after the nesting season, so the investigations were continued over into the year 2000. However, the due date for this report was June 1, so this report does not include reproductive success information since that will not be collected until early or mid June of 2000.

Forest structure in these large tracts along the Mississippi River could have a direct impact on Red-shouldered Hawk populations in this region, since this species is seldom found in younger or fragmented tracts. The presence and persistence of Reed's Canary grass could be of concern since in some areas this species can prohibit the regeneration of the forest.

We feel that a program of monitoring of these Red-shouldered Hawk populations in this region should be continued in order to provide a longer term look at this species and the inter-relationship between these birds and a changing floodplain forest structure. We also feel that additional work should be conducted on various other bird species that co-inhabit these forests.

**TABLE 1. LIST OF ACTIVE AND SUSPECTED TERRITORIES WITHIN THE SAVANNAH DISTRICT – SPRING OF 2000.**

**Active Nests – GPS coordinates**

Menominee Slough – 15T 0703635 UTM 4699581, Illinois side, Upper portion of Pool 12

Sinsinawa River/Red Gate Creek – 15T 0706420 UTM 4697859, Illinois side, Pool 12

Galena River – 15T 0710264 UTM 4694327, Illinois side, Pool 12

Smallpox Creek – 15T 0712203 UTM 4691832, Illinois side, lower Pool 12

Lainsville Slough – 15T 0728295 UTM 4669902, Iowa side, Pool 13

Esmay Slough – 15T 0732239 UTM 4666570, Iowa side Pool 13

**TABLE 2. LIST OF TERRITORIES WHERE WE SUSPECT NESTING - adult rsh present in suitable habitat – territorial behavior observed.**

North of Gear's Ferry, Illinois side, Pool 12

Green Island, Iowa DNR area, Pool 13

Pleasant Creek, Iowa side (USCOE area), Pool 13

**TABLE 3. LIST OF TERRITORIES WHERE WE FOUND NO EVIDENCE OF RED-SHOULDERED HAWK NESTING.**

Shawondasse Slough, Iowa side, Upper Pool 12

Upper Menominee Slough, Illinois side, Upper Pool 12

**TABLE 4. AREAS WHERE WE CONSIDERED OUR SEARCHES TO BE INCOMPLETE.**

Savannah Army Depot, Illinois Side, Pool 13, (previously documented nesting).

Marcus Bottoms, Illinois side, Pool 13 (suitable habitat)

Plum River, Illinois side, Pool 13 (marginal habitat – higher rates of human traffic)

Stumpf Island, Illinois side, Pool 12 (marginal habitat – higher rates of human traffic)

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Note: this is sample data sheet which the Midwest Raptor Research Group keeps on file for all Red-shouldered Hawk nesting sites.

## RED-SHOULDERED HAWK NEST SITE DATA ■ 1999/2000

NEST SITE NAME: Smallpox Creek  
USF&WS DISTRICT: Savanna POOL: 12 RIVER MILE:  
UTM: 15T 0712203 UTM 4691832  
LOCATION WITHIN POOL: lower STATE: Illinois  
OWNERSHIP: private ■ bordering USF&WS refuge  
ACCESS: Best by boat by going up the confluence of Small Creek from  
Deadman's Slough. It can be accessed from the gravel road near the area where  
USACOE planted trees.

### STATUS:

#### OBSERVATIONS 1999:

Brief checks in 1999: nothing heard or seen: search incomplete.

2000: rsh present and calling on 3/05, incubating on 3/15 ■ nest located in  
silver maple near the northeast edge of the woodlot.

### SUMMARY OF INFORMATION FROM PREVIOUS YEARS:

Confirmed active in 1994: suspected active in '96.

Uncertain during most years.

NEST TREE SPECIES: silver maple	DBH:
HEIGHT OF NEST ABOVE GROUND:	HEIGHT OF TREE:
DISTANCE FROM NEST TO BLUFF:	EDGE OF THE MAIN CHANNEL:
EDGE OF SIDE CHANNEL:	SLOUGH:
POND/LAKE:	HUMAN STRUCTURE:
NEAREST ACTIVE RSH NEST:	NEAREST KNOWN RTH NEST:
OTHER RAPTOR NEST:	NEAREST CROW NEST:

(note: this data will be collected after the young fledge)

### FOREST STRUCTURE & SIZE & DIVERSITY:

Most silver maple, but some cottonwood, green ash, elm, box elder

### UNDERSTORY & GROUND LAYER:

### REPLACEMENT CANOPY TREES:

### COMPARATIVE ELEVATION OF NEST SITE:

Typical low

### ADDITIONAL COMMENTS:

Tough site to search ■ big ■ access to some portions is difficult.  
We've had some time in here, but seldom enough to understand what is going  
on. There is some private land within parts of the refuge and consequently  
some considerable traffic about half way between the railroad and the  
slough ■ boats, atvs, etc.