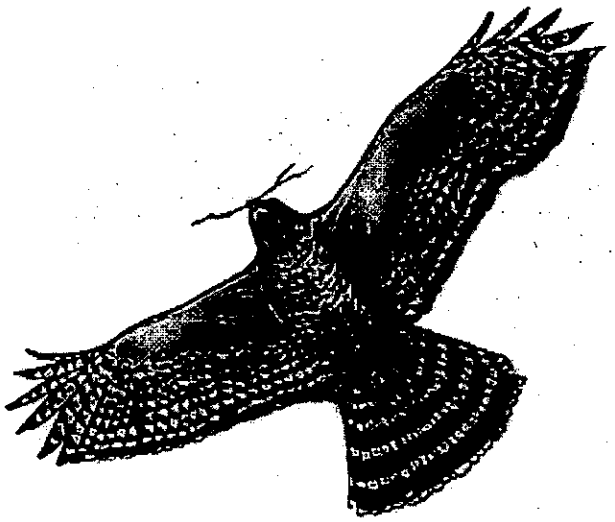
REPORT ON
RED-SHOULDERED HAWK MONITORING - 1997

POOLS 13 & 14, 16 & 17
OF THE MISSISSIPPI RIVER AND THE MILAN BOTTOMs



SUBMITTED TO:
U.S. ARMY CORPS OF ENGINEERS NATURAL RESOURCES DIVISION
MISSISSIPPI RIVER PROJECT, ROCK ISLAND DISTRICT

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
WILDLIFE PRESERVATION FUND

U.S. FISH & WILDLIFE SERVICE, LOUISA DIVISION
MARK TWAIN NATIONAL WILDLIFE REFUGE

DES MOINES AUDUBON SOCIETY
QUAD CITIES AUDUBON SOCIETY

SUBMITTED BY:
Jon W. Stravers, Kelly J. McKay, and Kathy McGrew-Smith
Midwest Raptor Research Fund
P.O. Box 32, Pella, IA 50219
PH# 515-628-4087

TABLE OF CONTENTS

RESEARCH OBJECTIVES

1. Monitor the known Red-shouldered Hawk nesting sites and search for new nesting sites within the Milan Bottoms/Mill Creek study area.

2. Identify Red-shouldered Hawk nesting sites and suitable nesting habitat within Pools 13 & 14, 16 & 17 of the Upper Mississippi River, with specific attention to certain areas of special interest.

3. Determine the reproductive success at all of the known Red-shouldered Hawk nesting sites.

4. Compare results at nest sites within the interior portion of forest tracts and those nest sites situated on the forest edge.

5. Compare reproductitve success in this general region with the reproductive success in other districts of the Upper Mississippi.

RATIONALE FOR PROPOSED RESEARCH:

1. Red-shouldered Hawks are considered endangered in Iowa and Illinois. Although some stretches along the Mississippi River have fairly high densities of nesting Red-shoulders, we have been able to locate only a handfull of nesting sites south of Savannah, Illinois.

2. Red-shouldered Hawks are indicators of high quality habitat. They prefer large tracts of mature flood-plain forests and they have a strong nest-site fidelity, often returning to the same nest site each spring.

3. Our understanding of habitat requirements for Red-shouldered Hawks has increased during the last five years; we feel long-term monitoring yield valuable information concerning Red-shouldered Hawk reproductive success, as well as information on the relationship between these hawks and a changing forest structure.

4. Increased understanding of Red-shouldered Hawks should reduce the potential for conflict with planned forest harvests in this region.

BACKGROUND

The investigations conducted within the Milan Bottoms during 1997 were part of an on-going research and monitoring project on red-shouldered hawks along the Upper Mississippi River which have been conducted each spring since 1983. Investigations within the Milan Bottoms have been conducted each year since 1992.

The U.S. Army Corps of Engineers Natural Resources Management Division had planned to complete three small timber harvests for a total of 28 acres in 1994. Because of concerns about the affects on red-shouldered hawk nesting, plans for two of those cuts were abandoned and a single cut of 11 acres was conducted in the western edge of the Milan Bottoms complex. Since then, individuals from the Midwest Raptor Research Fund have been monitoring the raptor activity and reproductive success within the study area in order to determine the affects of small clear cuts on red-shoulder nesting success.

This report summarizes the findings for 1997. For more details and more extensive maps readers should examine reports for 1995 and 1996, or the summary of Upper Mississippi River Valley surveys between 1983-1995 (available from the U.S. Army Corps of Engineers Natural Resources Division at Pleasant Valley, Iowa, or the Midwest Raptor Research Fund at P.O. Box 32, Pella, Ia 50219).

METHODS

Initial inventories for suitable Red-shouldered Hawk nesting areas were conducted using topographic maps, aerial photos, and notes from previous searches in this region. Previously known Red-shoulder nesting locations, areas of suspected nesting, and other areas of high potential were searched for evidence of Red-shouldered nesting. Several other randomly selected areas were also searched.

Searches in the most critical areas were conducted in March and April prior to leaf out. To assist in locating the hawks, taped calls were played in order to elicit a territorial response. All known active raptor nests and suspected breeding territories were plotted on topographic maps or aerial photos or Mississippi River Navigational charts. We also attempted to determine the history of forest managment at each known Red-shouldered Hawk nesting territory.

Progress of the nesting attempts was monitored periodically from mid-March until mid-June when the young red-shoulders left the nest. These observations were conducted in a manner that minimized disturbances to the nesting hawks. Duration of the visits was kept to a minimum and observations were not conducted during inclement weather.

RESULTS - MILAN BOTTOMS

During our investigations in 1997, we located two active red-shouldered hawk nesting attempts within the Milan Bottoms/Mill Creek Complex study area. We also found two barred owl, one great-horned owl, one red-tailed hawk, and one Cooper's hawk nesting attempt. Both red-shoulder attempts were successsful, as was one of the barred owl and the red-tailed hawk attempt. The Cooper's hawk nesting attempt was unsuccessful, and we are uncertain of the outcome of the other barred owl and the great-horned owl nesting attempt. (See the section on Description of Nesting Sites).

We suspected another red-shouldered hawk nesting attempt just east of the confluence of Kickapoo Slough and Mill Creek on the east end of the study area. We did observe territorial behavior during the courtship period, but we did not locate an active nest. Our investigations during the later stages of the nesting cycle were incomple in this specific portion of the study area.

RESULTS - POOLS 13, 14, 16, 17

In addition to the investigations within the Milan Bottoms, we searched other areas within the region for potential red-shoulder nesting. We observed adult red-shoulders and we heard territorial calling and conseqently, we suspect red-shoulder nesting near the confluence of the Wapsipinicon River (see Description of Nesting Sites for more details).

We also monitored the red-shoulder nesting attempt in the Lake Odessa Unit near the confluence of the Iowa and Mississippi River, and we verified red-shoulder presence at Lake Patterson near the confluence of the Skunk River near Burlington (see nest site descriptions for further details).

In addition, we searched nine other areas along the Mississippi River where we found no evidence of red-shoulder nesting (Table 2). Searches in four areas were considered incomplete.

SUMMARY OF RED-SHOULDERED HAWK REPRODUCTIVE SUCCESS IN 1997

During the spring of 1997, we monitored ten red-shouldered hawk nesting attempts along the Mississippi River Valley; five of these were down river from Savanna, Illinois, and five up river from Savanna. We were able to determine the outcome of six of these nesting attempts; four nesting attempts were successful and produced ten young red-shoulders that reached fledging age. (67.7% success rate, 2.17 per successful nest or 1.46 per nesting attempt).

Reproductive success at red-shoulder nests below Savanna was higher in 1997 than in any previous year, and was substantially higher than nesting attempts we monitored up river from Savanna. This is a reversal of the pattern that we found in the three previous years.

Following a rather extensive forest harvest, one traditional red-shoulder nesting territory at the mouth of Yellow River in Clayton County, Iowa, was unoccupied by nesting red-shoulders for the first time since our monitoring of this species began in the late 1970's.

All active red-shoulder nest found during 1997 were located near the edge of large contiguous forest tracts which consisted of at least 500 forested acres. However, all nesting sites located during 1997 were within 200 meters of a major forest opening and six of the nesting sites were within 200 meters of the forest edge.

DESCRIPTION OF NESTING SITES WITHIN MILAN BOTTOMS.

Mallard/Gun Pond - USCOE property between the two ponds - site has been referred to as the Klingman nest since John Klingman first located this nest in the spring of 1993. This is the first year that we have confirmed successful reproduction at this nesting site. Three young red-shoulders reached fleding age in 1997. Nest tree is a cottonwood 18" dbh. Egg laying (at the end of March) and hatching dates (near the end of April) were typical for this region.

Powerline - USCOE property just west of the Powerline and just south of Charlie Brandt's property. This is probably the same pair that nested closer to the powerline and just east of this site each of the two previous years. Two young red-shoulders reached fledging age. Nest tree was a 19" green ash. Egg laying and hatch dates were typical.

Kickpaoo Slough - private property east of the confluence of Kickapoo Slough and Mill Creek. We observed red-shouldered hawk territorial activity early in the season and then again late in the season. Actual location of the nest was not confirmed but territorial calling and behavior suggests that there was a successful nesting attempt at this location.

DESCRIPTION OF OTHER RED-SHOULDERED HAWK NESTING SITES WITHIN THE REGION

Wapsipinicon River - We found evidence of red-shouldered hawk nesting activity along the northern edge of the lower portion of the Wapsipinicon River between the town of Follets and the rock and sand quarry. We did not locate an active nest but we did hear and see red-shoulders in this general area on three occasions.

Despite existensive searches and the abundance of apparently suitable habitat, we did not find any other evidence of red-shoulder nesting in other portions of the lower Wapsipinicon.

Lake Odessa/Iowa River - Iowa DNR unit. Nest is located north of the access road about halfway between entrance and the Mississippi River. This site has had at least one red-shoulder nesting attempt each year since at least 1992. This particular nesting site (same tree) was used in unsuccessfully in 1993, but 1997 was the first year that we have documented successful nesting. Three young red-shoulders were observed on several occasions. Estimated incubation date of March 20th is the earliest we have recorded anywhere in Iowa during the last 15 years.

Although no other nesting was confirmed in this general area, we suspect that another pair of red-shoulders may nest someplace in this general area.

Red-shoulders had previously nested on the Iowa River side of the levy, but the flood of 1993 has altered the forest composition in this section and it may be currently unfavorable as nest-site habitat.

Skunk River/Blackhawk Bottoms - Iowa DNR unit near Lake Patterson.

We observed red-shouldered presence and territorial activity early in the nesting cycle during 1997, but due to the travel distance we did not monitor this particular pair on a regular basis later in the year.

AREAS OF POTENTIAL NESTING OR AREAS OF SPECIAL CONCERN

New Boston/Sturgeon Bay -

Although we did not locate any active red-shoulder nesting sites in this particular area, we feel the habitat may have good potential as nesting and foraging habitat and it may be an important part of the Lake Odessa/Iowa River complex as far as red-shoulders are concerned.

Lower Andalusia Island/Loud Thunder Forest Preserve -

Although we did not observe any evidence of red-shouldered hawk nesting in this area, we did observed Cooper's hawks and Ospreys on several occasions. Because of significant tracts of forested valley slopes and the relative forest diversity within the Andulusia Island complex, we feel this particular area should not be considered for any significant timber harvests.

RECOMMENDATIONS FOR FUTURE RESEARCH AND MONITORING WITHIN THE MILAN BOTTOMS

We feel that the investigation and monitoring of red-shouldered hawk nesting within the Milan Bottoms should be continued. We feel there is a distinct value in conducting a sustained monitoring program in this particular study area. We also feel that this monitoring could easily be expanded to include observations on several passerine bird species of special interest.

Our understanding of red-shouldered hawk habitat requirements and the interaction of this species with forest habitat and with the yearly flood cycles has increased during the past three years. Previously, we thought the Milan Bottoms area might be marginal habitat for nesting red-shoulders due to the lack topography and suitable dry sites during extended spring flooding. However, during 1997, both red-shoulder nests we monitored within the Milan Bottoms were successful; in fact, red-shouldered nests within the Milan Bottoms area out produced all other nesting territories including nesting sites monitored in the McGregor area which were considered to be the most stable producing territories. Such observations encourage the continuation of long-range monitoring.

Although we have been conducting observations of red-shouldered hawk nesting activity within the Milan Bottoms for several years, we have only been able to survey about 80% of the study area on any given year and we are not positive of the exact number of pairs nesting or the number of single "floaters" (non-nesting juveniles) that occupy the study area on any given year. The incompleteness of our survey is due mostly to the fact that the area is large enough and wet enough to make access difficult and the fact that surveys for active nests must be completed between mid-March and mid-April. Areas can be surveyed before or after those dates, but all areas must be rechecked within a four week period between mid-March to mid-April.

Red-shoulders typcially build at least one or two alternate nests in addition to a primary nest. Some pairs wait until right before incubation at the end of March to select the actual nest to be used; consequently, all areas of potential nesting need to be surveyed after March 15. On the other hand, leaf-out usually commences in late April and after that, nests can be extremely difficult or even impossible to locate.

We also feel that habitat diversity within the Milan Bottoms is important. This includes forest age, structure, and species diversity.
In connection with this, we feel that observations during 1998 should include some additional monitoring on other bird species within the Milan Bottoms study area, with an emphasis on birds nesting in or near the 11 acre cut.

TABLE 1. AREAS WHERE WE CONFIRMED OR SUSPECTED RED-SHOULDERED HAWK NESTING
(See section on Description of Nesting Sites for additional details).

Mallard/Gun Pond - Milan Bottoms. Confirmed nesting.
Three young red-shoulders reached fleding age.

Powerline - Milan Bottoms. Confirmed nesting
Two young red-shoulders reached fledging age.

Kickpaoo Slough - Milan Bottoms. suspected nesting.
Red-shouldered hawk territorial activity observed early in the season and then again late in the season.

Wapsipinicon River - northern edge of the lower portion between the town of Follets and the rock and sand quarry.
Red-shoulders heard and seen in this location late in the breeding season.

Lake Odessa/Iowa River - Iowa DNR unit.
Three young red-shoulders reached fledging age.

Skunk River/Blackhawk Bottoms - Iowa DNR unit near Lake Patterson.
Red-shouldered presence and territorial activity observed.

AREAS OF POTENTIAL NESTING OR AREAS OF SPECIAL CONCERN

New Boston/Sturgeon Bay -
Habitat appears to have good potential as nesting and foraging habitat for red-shoulders. This may be an important part of the Lake Odessa/Iowa River complex.

Lower Andalusia Island/Loud Thunder Forest Preserve -
Because of significant tracts of forested valley slopes and the relative forest diversity within the Andulusia Island complex, this area has potential as raptor nesting habitat.

TABLE 2. AREAS WHERE WE FOUND NO EVIDENCE OF RED-SHOULDERED HAWK NESTING

Corsepius Island & adjacent areas - r.m. 430-432 IA

Turkey Island & Otter Island - r.m. 437-439 IA

Northern & Middle sections of Lake Odessa

Barkis Island & Barkis Chute - r.m. 445-446 IL

Princeton Marsh & Steamboat Slough - r.m. 504-506 IA

Wapsipinicon River - above and below HWY 61 bridge

Confluence of the Wapsipinicon - lower end - r.m. 506-507 IA

Shricker Slough & Adams Island - r.m. 507-509 IA

Cat tail Slough & Sunfish Slough - r.m. 516-517 IL

MAP OF RAPTOR NESTING ACTIVITY IN MILAN BOTTOMS - SPRING 1997

X RSH = Red-shouldered Hawk Nest
X RTH = Red-tailed Hawk Nest
X GHO = Great-horned Owl Nest
X BO = Barred Owl Nest
X CH = Cooper's Hawk Nest