Region 3 Endangered Species Grant Proposal

STATE: Iowa

TITLE: Indiana Bat Roost Site Survey: Buildings and Bridges in Iowa.

PROJECT PERIOD: October 1, 2004 through March 31, 2009

RECOVERY PLAN TASKS: Agency Draft Indiana Bat Recovery Plan (USFWS, 1999)

Priority 1: Task 1.1.9 Determine if Indiana bats use night roosts.
Priority 1: Task 1.3.1 Determine if there are regional differences in roosting or foraging habitat for maternity colonies and males.

NEED

Recent studies have documented the use of buildings by Indiana bats for maternity roosts in Pennsylvania (Butchkoki and Hassinger, 2002) and Iowa (Joe Haffner, Iowa Army Ammunition Plant, pers.comm. 2003). At the Pennsylvania site Indiana bats were roosting in the attic of a de-sanctified, 19th century, wood frame church located in Canoe Creek State Park. The site in Iowa is an old barn located on private land near the Iowa Army Ammunition Plant in southeast Iowa. Both buildings have metal roofs and the barn is also partially sided with metal. The typical method of fastening metal roofing is to nail 2x4 nailers to the rafters or trusses. This provides a roosting space between the original shingles or shakes and the metal roofing. The bats may also move to other areas of the buildings to maintain optimum temperature. At the barn in Iowa bats roosted behind sliding doors and in crevices in the sidewalls, while bats used the inside of the attic and crevices in the end walls at the Pennsylvania site.

Kiser et al. (2002) found Indiana bats using concrete bridges as night roosts in south-central Indiana. Little information is available concerning selection of night roosts by Indiana bats and the draft revised recovery plan states that this information will add to the understanding of habitat use by the species. Iowa Department of Transportation bridge inspection crews have found only a few bats using bridges for day roosts; however there has been no survey of bridges at night to determine if bats are using bridges for night roosts.

Do buildings and bridges provide important roost sites for Indiana bats? Surveys of buildings and bridges in southern Iowa will help determine the value of these structures to the Indiana bat and provide a better understanding habitat use by this species.

OBJECTIVES

- Identify and survey 50 barns or other farm buildings with signs of bat use in six southeast Iowa counties to determine if Indiana bats are using any of these structures as day roosts by September 1, 2006.

- Identify and survey 30 concrete bridges over streams with forested riparian corridors or that connect forest tracts in the same six counties to determine if Indiana bats are using bridges as night roosts by September 1, 2006.
- If bridges are providing night roosts, work with the Iowa Department of Transportation to ensure that replacement bridges and new bridges are "bat-friendly" and provide roosting habitat.
- Capture, attach radio transmitters, and track up to 20 Indiana bats from day and night roosts identified during the first and second year of the study. The radio tracking portion of the study will occur during the third year of the study only if Indiana bats are found using structures. Radio tracking will be completed by September 1, 2007.
- Capture, attach radio transmitters, and track up to 20 Indiana bats. Bats will be captured over streams or trails near barns and bridges where Indiana bats were captured in previous years. In 2007 it appeared that bats captured and tagged at structures avoided returning to the capture sites. The work will be conducted between June 25 and August 10, 2008.
- The final project report will include the information from surveys of years one and two, the radio tracking efforts, and the cooperative work with the Iowa Department of Transportation. Completion date for the final report will be March 31, 2009.

EXPECTED RESULTS/BENEFITS

The surveys will help determine the likelihood of Indiana bats using buildings and bridges for roosting sites. Currently many barns and other buildings that are similar to those being used by Indiana bats are being destroyed every year. At the very least removal can be timed to avoid potential harm to the species and it may be possible to retain some of these sites through programs such as the Landowner's Incentives Program. If bridges are found to be used for night roosts it will be possible to work with Iowa DOT to ensure that new and replacement bridges are bat-friendly and that timing of repairs or replacement avoids harm or harassment to the species.

APPROACH

Year 1 (2005)

Review the 2002 color IR aerial imagery for the six counties to identify barns and other buildings located near forested areas or riparian corridors to be ground checked. After the buildings are checked from the ground, landowners will be contacted to obtain permission to inspect the buildings for presence of bat guano. Once 25 potential buildings have been identified in Lucas, Madison, and Marion Counties they will be visually checked during the day or for one to two hours after sunset to determine if bats are using the structure. Each site will be checked a second time if no bats are observed during the first survey. The surveys will be conducted from June 15 to August 15. Depending on the structure and the areas used for exit and entry, mist nets, a harp trap, or hand nets may be used to capture and identify the species using the roost. Once an Indiana bat is captured at a site capture efforts will cease to minimize disturbance to the roost.

The Iowa Department of Transportation will be contacted to provide a list of the concrete bridges in these three counties. The 2002 color IR imagery will again be used to determine which bridges are exposed to full sunlight during the day. Fifteen bridges will be selected to check for night roosting (between 11:00PM and 4:00 AM). If the bats cannot be positively identified from the ground mist nets will be used to capture bats to determine species and reproductive status. The surveys will be conducted between June 1 and August 15.

Year 2 (2006)

The methods will be the same as the first year and the surveys will be conducted in Decatur, Mahaska, and Van Buren Counties.

Year 3 (2007)

If Indiana bats are found to use buildings or bridges during the first two years of the study, up to 20 (10 from buildings and 10 from bridges) will be radio tagged to determine distances moved between roosts, do individuals use artificial structures for both day and night roosts, and do they shift roost sites. Radio tagging will be done after females have given birth about June 20 and be completed by September 1.

Year 4 (2008)

Continue radio tracking bats captured over streams, trails or roads near barns and bridges where Indiana bats were previously captured. In 2007 bats captured at barns or buildings did not return to these roosts before the transmitters failed or fell off the tagged bats. It is thought that capture at the roost may have caused the bats to avoid these roosts for several days. Up to 20 will be radio tagged to determine distances moved between roosts, do individuals use artificial structures for both day and night roosts, and do they shift roost sites. Radio tagging will be done after females have given birth about June 20 and be completed by August 10, 2008.

ROLES AND RESPONSIBILITIES

Daryl Howell, Endangered Species Coordinator, will act as the Co-Principal Investigator and Project Supervisor for the IDNR and will be responsible for project reporting and budget management.

A contractor will be selected by competitive bid or through existing agreements with nonprofit organizations to help with the field surveys and will prepare progress reports and the final report. The contractor will act as the second Principal Investigator.

LOCATION

The surveys will be conducted in Decatur, Lucas, Madison, Mahaska, Marion, and Van Buren counties in southeast Iowa.

REPORTS AND PUBLICATIONS

Progress reports will be completed by January 31, 2006 and January 31, 2007 for the field surveys of the previous summers. The final project report will be submitted by December 31, 2007.

ESTIMATED COSTS

Year 1
Contracted Services

Principal Investigator	400 hours @ $25.00/hour		$10,000
Student Assistants	260 hours @ $15.00/hour		$ 3,900
Travel			
Mileage	8,000 miles @ $.31/mile		$ 2,480
Lodging and Meals			$ 1,800
Field Supplies			$ 800
Office Supplies and Phone			$ 595
Indirect Cost (10%)			$ 1,957
		TOTAL	$21,532
IDNR Principal Investigator – State 25% match (includes salary, benefits, and indirect costs) 195 hours			$ 7,178
		TOTAL	**$28,710**
TOTAL REQUESTED FROM USFWS (75%)			**$21,532**

Year 2
Contracted Services

Principal Investigator	400 hours @ $25.00/hour		$10,000
Student Assistants	260 hours @ $15.00/hour		$ 3,900
Travel			
Mileage	8,000 miles @ $.31/mile		$ 2,480
Lodging and Meals			$ 1,800
Field Supplies			$ 800
Office Supplies and Phone			$ 595
Indirect Cost (10%)			$ 1,957
		TOTAL	$21,532
IDNR Principal Investigator – State 25% match (includes salary, benefits, and indirect costs) 195 hours			$ 7,178
		TOTAL	**$28,710**
TOTAL REQUESTED FROM USFWS (75%)			**$21,532**

Year 3

Contracted Services

Principal Investigator	320 hours @ $25.00/hour	$ 6,000
Student Assistants	260 hours @ $15.00/hour	$ 2,700
Travel		
Mileage	5,000 miles @ $.31/mile	$ 1,550
Lodging and Meals		$ 1,000
Field Supplies including 20 transmitters		$ 4,000
Office Supplies and Phone		$ 470
Indirect Cost (10%)		$ 1,572
	TOTAL	$17,292

IDNR Principal Investigator – State 25% match
(includes salary, benefits, and indirect costs) 160 hours $ 5,764

TOTAL **$23,056**

TOTAL REQUESTED FROM USFWS (75%) **$17,292**

Year 4

Contracted Services

Principal Investigator	140 hours @ $25.00/hour	$ 3,500
Student Assistants	240 hours @$9.00/hour	$ 2,160
Travel		
Milage	3,000 miles @ $.34/mile	$ 1,020
Lodging and Meals		$ 1,500
Field Supplies including 10 transmitters		$ 2,000
Office Supplies and Phone		$ 200
	TOTAL	$10,380

IDNR Principal Investigator – State 25% match
(includes salary, benefits, and indirect costs) 100 hours $ 3,600

TOTAL **$13,980**

TOTAL REQUESTED FROM USFWS (75%) **$10,380**

Funding will be from Federal Fiscal Year 2008 and be subject to availability of funds.

TOTAL ESTIMATED PROJECT COST	**$94,456**
FEDERAL	**$70,736**
STATE	**$23,720**

REFERENCES

Butchkoski, C. M. and J. D. Hassinger. 2002. Ecology of a maternity colony roosting in a building. *In* The Indiana bat: biology and management of an endangered species (A. Kurta and J Kennedy, eds.). Bat Conservation International, Austin Texas.

Kiser, J. D., J.R. MacGregor, H. D. Bryan, and A. Howard. 2002. Use of concrete bridges as nightroosts. *In* The Indiana bat: biology and management of an endangered species (A. Kurta and J Kennedy, eds.). Bat Conservation International, Austin Texas.