

AVIAN STUDIES IN ILLINOIS

In this issue, we begin a new column, which will provide you with accounts of some of the avian research being done in Illinois. Mike Ward of the Illinois Natural History Survey tells you about Prothonotary Warbler research being done by Jeff Hoover, while Elizabeth dela Baume discusses her waterfowl monitoring project at the Chicago Botanic Garden.

Monitoring Site Fidelity of Prothonotary Warblers

by Mike Ward

"Is that the same bird that was here last year?" John James Audubon was probably the first North American to try to answer that question when he banded an Eastern Phoebe with a piece of twine to see if it returned. Since Audubon's attempts to record site fidelity (the tendency for a bird to return to the same area in subsequent years), many scientists have conducted studies to measure the phenomenon, as well as to discover why a bird would choose to return, or not to return, to the same site.

Many working hypotheses to explain breeding site fidelity exist because most birds are site-faithful to some degree, and their fidelity varies according to different situations including age and migratory status. Some of the hypotheses include the following:

Why might a bird return?

- The bird knows where on the breeding site to build nests and to forage for food for young.
- The bird produced offspring there in the past.
- The area no longer supports social constraints that may have interfered with breeding in the past.

• Other colonial nesting species have returned, for example, in a rookery where several heron species nest together.

Why would a bird not return?

- Genetics: If all birds return to their natal and breeding areas the bird's chances of breeding with a close relative becomes greater.
- A more dominant individual overtakes the bird's area.
- The habitat has been destroyed or altered.
- Predation threat is high.
- The bird has never raised any offspring there.
- The bird does not remember where the breeding site is located.
- The bird encounters too many conspecifics (competition).

Some of these hypotheses deserve more merit than others, but none prove why all birds are site faithful, and most studies have produced no conclusive evidence.

Implication of Site Fidelity in Conservation

Conservationists and restorationists typically give little thought to avian site fidelity when designing or initiating their activities. Site fi-

delity issues are important, however, if a bird returns every year to a place where the nest is predated or where the bird never produced any offspring. A conservation or restoration attempt may lead to the formation of an ecological trap, a place that looks suitable for nesting, but is really a poor area for reproduction. The bird may experience a high rate of nest predation and/or cowbird brood parasitism that results in reproductive failure.

Research on Site Fidelity in Southern Illinois

Jeff Hoover, a University of Illinois doctoral student, is researching site fidelity at the Cache River Wetland Restoration Project in southern Illinois. The major component of his study is breeding site fidelity of the Prothonotary Warbler (*Protonotaria citrea*), a cavity-nesting neotropical migrant that nests in large flood plains and swamps throughout Illinois, mostly in the south.

Hoover has erected 1,400 nest boxes (made from milk cartons) for these birds in the Cache River floodplain. He has also uniquely color-marked 800 birds, which enables him to examine why these birds that winter in Central America return to the same nest box year after year.

This project was initiated to restore the riparian area along this

Meadowlark