

# Research questions effectiveness of translocation conservation method

March 22 2017

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Credit: University of Arkansas

New research by University of Arkansas biologists suggests that supplementing the numbers of a threatened species with individuals from other locations might not be as effective for some species as previously thought.

The technique, known as translocation, is a valid conservation measure and offers the potential of increasing [genetic diversity](#) in small, isolated populations threatened with extinction. Examples of its use include the European adder, bighorn sheep, the Florida panther and the greater [prairie chicken](#) in Illinois.

But a recent study of the prairie chicken using modern DNA genotyping indicated a translocation program that took place in the 1990s temporarily increased the populations of [birds](#) in two Illinois counties but did not increase overall genetic diversity.

"We can now look back and say they faded again very quickly," said Michael Douglas, a professor in the Biological Sciences Department. "It really wasn't a rescue; it was an enhancement."

Douglas co-authored the study, published in the journal *Royal Society Open Science*, with his wife Marlis, also a U of A biology professor, and U of A graduate student Steven Mussmann, who was the lead author. Colleagues at the Illinois Natural History Survey and the Illinois Department of Natural Resources were also co-authors.

Prairie chickens once numbered in the millions in Illinois, but the

populations dwindled to just 46 birds by 1998, primarily due to habitat loss. A [translocation](#) program in the mid 1990s moved birds from Kansas, where they are not threatened, and was thought to have rescued the Illinois [population](#) from harmful effects of low genetic diversity—inbreeding.

U of A biologists extracted DNA from 1,831 shed feathers gathered in six "leks," or breeding areas, in two Illinois counties. They found little evidence that genetic diversity had improved in the established populations, indicating that many of the translocated birds may not have extensively interbred with the local birds or may have simply wandered off.

"It didn't have the genetic rescue effect," said Marlis Douglas. "That doesn't mean translocations are wrong. They bought time."

Augmenting habitat suitable for prairie chickens by conserving natural prairie and rehabilitating farmland would help increase population and genetic [diversity](#), she said. "The best way to maintain a genetically diverse population is to increase population size. To do that you need more habitat."

Provided by University of Arkansas

Citation: Research questions effectiveness of translocation conservation method (2017, March 22) retrieved 27 April 2024 from <https://phys.org/news/2017-03-effectiveness-translocation-method.html>

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