

Research offers way to save endangered Florida bird, and a lesson for conservationists

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A team of researchers has found a key to the habitat puzzle for improving long-term survival of the endangered Florida Scrub-Jay.

New research published online today in The Royal Society's journal *Biology Letters* shows that "clustered habitat networks" are needed to maintain the [genetic diversity](#) of Florida Scrub-Jays, a species at risk of [extinction](#) with just more than 5,000 [birds](#) left in the world.

The new research reveals, for the first time, a direct connection between [genetic variation](#) of Florida Scrub-Jay groups and geographic distances separating patches of their favored scrub-oak habitat. Researchers analyzed [DNA samples](#) of Florida Scrub-Jays and evaluated how [genetic differences](#) between them were affected by the gaps of habitat in between them. They found that if habitat patches were separated by more than 2 to 3 miles, the distance was too far to permit free [interbreeding](#) – thereby resulting in more inbreeding within isolated groups. Inbreeding reduces genetic fitness, and raises the risk that an isolated population will blink out.

"We now know how to configure the stepping stones of scrub-oak habitat so they can link together Florida Scrub-Jay populations and maintain sufficient genetic diversity to promote long-term survival of the species," says John Fitzpatrick, co-author of the research and executive director of The Cornell Lab of Ornithology. "These research findings

will be critical to a revision of the recovery plan for endangered Florida Scrub-Jays."

Fitzpatrick says the findings lay out, for the first time, a precise prescription for sustaining fragmented populations of an endangered species, and could be a model for other examples around the country. For Florida Scrub-Jays, that prescription is to maintain or restore networks of the bird's scrub-oak habitat so that individual preserves would be located within 2 to 3 miles of each other. Fitzpatrick says that because the Florida Scrub-Jay population is broken up into 10 distinct genetic units, these habitat networks would only need to be established locally within the 10 regions of individual populations, not across the bird's entire range in Florida.

"We are now revising the Florida Scrub-Jay Recovery Plan to create the geometry of habitat preserves needed within each of the 10 units of the Florida-Scrub Jay population," says Fitzpatrick, who also is a team leader for the group of government and university biologists working on submitting a revised Florida Scrub-Jay recovery plan to the U.S. Fish and Wildlife Service by year's end.

The Florida Scrub-Jay is the only bird found exclusively in Florida. It was added to the federal Endangered Species List in 1987, with a dwindling population down to less than 10 percent of its pre-settlement numbers. The high, dry, sandy scrub-oak patches where the bird lives and breeds exclusively have been prime real estate for Florida developers and for citrus farms. Today, only about 5 percent of the original scrub-oak [habitat](#) remains.

"The pizza is gone," Fitzpatrick says. "We're just trying to save the crumbs, so we can keep the Florida Scrub-Jay and a host of other scrub animals and plants in existence."

More information: [rsbl.royalsocietypublishing.org ...
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Provided by Cornell University

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