

African lion survival may be dependent on corridor creation

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An image of a lion in the study area named Cecil captured by collaborator A. Loveridge

Across Africa, lion populations are threatened by continued reductions in their range and associated genetic isolation.

Over the last fifteen years scientists from the U.S. Forest Service have developed a suite of methods to understand how ecological changes caused by human activities affect species occurrence, population sizes and movement. These methods have been adopted around the world to address a wide variety of research, management and conservation challenges. For the last six years, scientists from the U.S. Forest Service and Oxford University have been collaborating to understand how lions move across the African landscape and to model ways to try to conserve genetic diversity and populations across the continent.

Focusing on the Kavango-Zambezi Trans-frontier Conservation Area (KAZA), a new study published this month in *Landscape Ecology* shows that strategic directional fencing and/or corridors aimed at directing lions between [protected areas](#) may be a viable solution for lion conservation. Landscape connectivity is critical to the survival of the African lion. This study looked at lions with different dispersal, or movement abilities, and then compared this against nine different landscape scenarios, which included reduction of protected lands, doubling of human populations, transition of non-protected lands to agro-pastoral use and more.

Dr. Samuel Cushman, research ecologist with the U.S. Forest Service Rocky Mountain Research Station, is lead author and provided the modeling expertise for the various landscape scenarios. "We were surprised to see that [lion populations](#) were so vulnerable to habitat loss and fragmentation, given they are among the most mobile animals in all of Africa," said Cushman. "This suggests that habitat loss and fragmentation will possibly have more severe effects on other species, which are less mobile." Cushman went on to note that "the results demonstrated that protected areas are critical to the future survival of the African lion; and the building of corridors or funneling mechanisms between protected areas is equally critical so that lions can be directed to other suitable habitat and away from potential conflict areas."

Ultimately, the study showed that the most effective path toward long-term [lion](#) population conservation across the KAZA region is to retain current protected areas augmented with protected corridors between parks and/or strategic use of fencing.

"I am very honored," said Dr. Cushman "that the Forest Service is called upon for its [landscape](#) modeling expertise and that the research we developed, focusing on the ecology and management of forest ecosystems in the western United States, has had such a wide reach and could be applied so globally."

More information: *Landscape Ecology*,
www.fs.fed.us/rm/pubs_journals...015_cushman_s002.pdf

Provided by USDA Forest Service

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