

Study proposes first nationwide wildlife conservation network

6 October 2015, by Will Ferguson



Elk migrate by the thousands each spring from far-flung winter ranges in Wyoming, Montana and Idaho to high-elevation summer ranges near the core of Yellowstone National Park.

Wolves, elk and grizzly bears - some of the largest wild animals in America - are literally dying for more room to roam. But Alexander Fremier, associate professor in the School of the Environment at Washington State University, proposes a viable solution.

His research, published in the journal *Biological Conservation*, shows that isolated wildlife sanctuaries could be linked by a national network of protected river corridors to provide animals with the spacious, connected habitats they need to thrive. The work provides a unifying solution to the complex, long-standing problem of connecting wildlife conservation areas and necessary habitats over vast areas.

Fremier's analysis revealed 95 percent of federally protected lands are connected by a river or stream network to at least one other protected area. And

many of the environmental policies and incentives a national river conservation network would need are already in place, he said. The Clean Water Act, the Endangered Species Act and state-level environmental protection laws afford riparian areas double the protection of terrestrial lands.

"From a policy perspective this is a win-win," he said. "The legislation already exists. Plus, people already want clean water and protections for endangered species. A riparian connectivity network (RCN) would provide a lot of value to both of these concerns."

An unprecedented challenge

Although conceptually simple, a nationwide RCN would require unprecedented coordination among governance agencies and [private landowners](#) in order to stretch across the country. No federal policy exists for connecting landscapes, even on a small scale.

However, Fremier said, most public lands are managed by only four federal agencies - the Forest Service, Bureau of Land Management, National Park Service and Fish and Wildlife Service - which increases the potential for interagency coordination.

Additionally, policymakers could use regional-scale restoration projects as models for a more robust RCN. Examples include the Yellowstone to Yukon, a project to reconnect the isolated grizzly bears in Yellowstone National Park with their cousins to the north, and the Path of the Pronghorn, a decade-long effort to protect pronghorns migrating along a 100-mile corridor to and from Wyoming's Grand Teton National Park.

Helping animals adapt

Fremier and his colleagues are focusing on rivers as a means to connect wildlife habitats because the lands around them provide food, water and cover

for traveling animals. Previous research shows mammals will use river corridors to move through inhospitable areas.

This is especially critical as conservation areas in national parks, forests and wilderness are more frequently separated by cities, roads and farmland that make it difficult for at-risk species to find new locations and adapt.

"As the climate changes, animals are going to need to move," Fremier said. "A riparian connectivity network would give many species avenues to go from one wildlife refuge to another. Ultimately, rivers should be part of a broader conversation about conservation resilience."

Next step: A regional model

Ph.D. candidate Amanda Stahl, one of Fremier's colleagues on the project, said the next step in their research will be to develop a better understanding of the environmental conditions that encourage specific species to migrate along river corridors in the Pacific Northwest.

"Before we can go about coordinating a national riparian conservation network, we need to figure out a methodology to implement it on a small, localized scale," she said. "We also need to come up with baseline estimates of how wide protected corridors need to be to facilitate connectivity and how to get private landowners on board with the project."

One area the research team is considering as a trial site is the Wallowa Mountains and Hell's Canyon ecosystem. The region spreads from eastern Oregon to central Idaho and is connected by the Snake River. It is home to the largest free-roaming elk herd in North America as well as bears and gray wolves and species of wildcats.

Landowner incentives

Stahl said one idea to get private landowners on board is to overlay a computer-generated map of the river system with layers of digital information on the desirable environmental conditions for different animals. Down the road, landowners could be given

incentives to satisfy the habitat preferences detailed on the map.

"The pieces aren't all in place but our research does suggest a natural confluence of conservation objectives," Fremier said. "Our hope is this paper will help bring the different federal and state players to the table to try to make a national conservation project like this a reality."

Provided by Washington State University

APA citation: Study proposes first nationwide wildlife conservation network (2015, October 6) retrieved 21 November 2019 from <https://phys.org/news/2015-10-nationwide-wildlife-network.html>

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