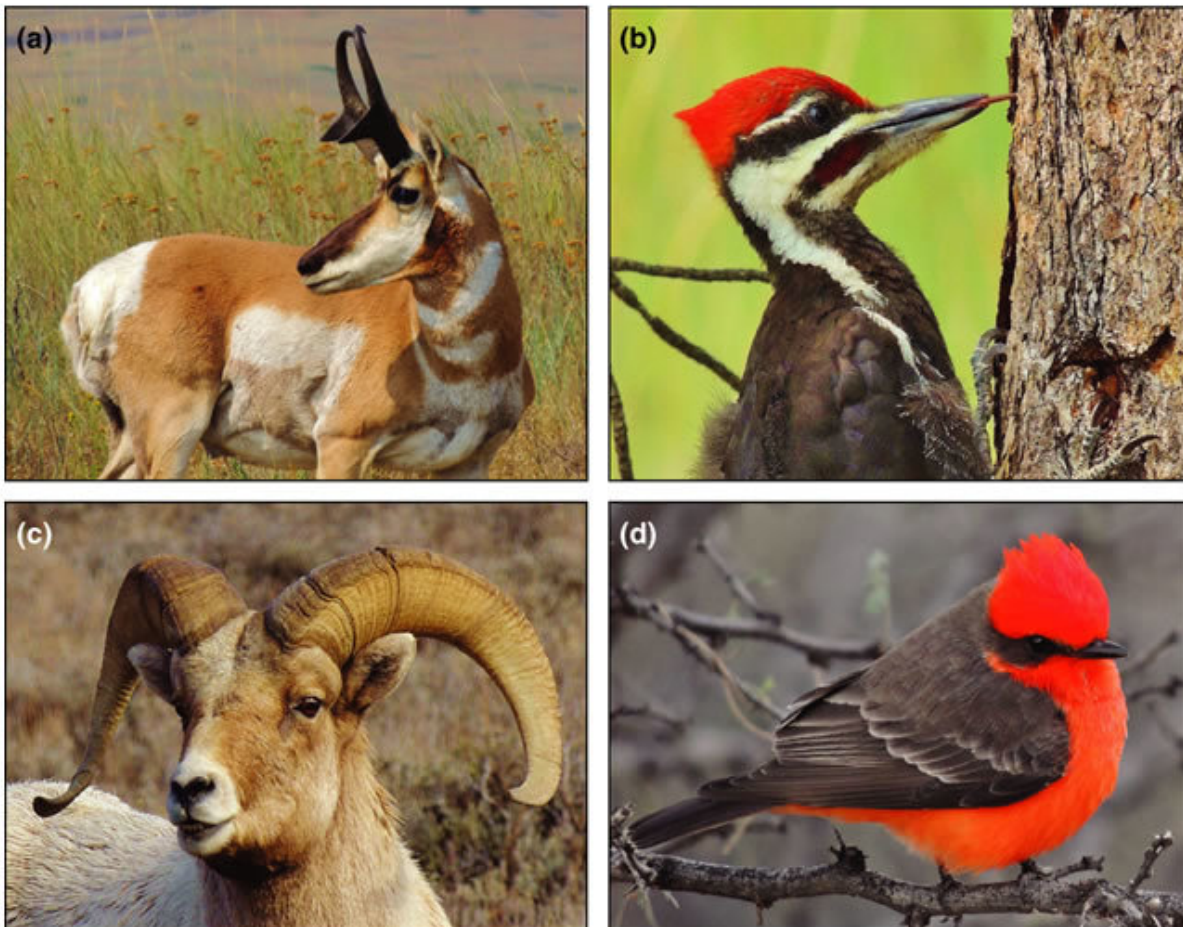


Protecting the wild: professor helps to minimize recreation disturbance to wildlife

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Examples of bird and mammal images often sought by visitors to parks and other wildlands: (a) pronghorn, (b) pileated woodpecker, (c) bighorn sheep, and (d) vermilion flycatcher. Credit: Kevin J. Gutzwiller/Baylor University

Nature and outdoor enthusiasts seek to enjoy recreational activities such as hiking, mountain biking, horseback riding and camping. However, sometimes appreciating nature's beauty comes at a cost to wildlife.

For example, hikers creating informal trails in [wildlife](#) habitats can negatively affect animals' reproduction, and nature area visitors feeding animals can cause dependency on humans for food, among other issues.

In a cover story published this week in the Ecological Society of America's premier journal, *Frontiers in Ecology and the Environment*, Kevin J. Gutzwiller, Ph.D., professor of biology in Baylor University's College of Arts & Sciences, and co-authors harnessed existing technology to help recreation ecologists and managers better understand and minimize those recreation disturbances to wildlife.

Lead author Gutzwiller, along with researchers Ashley L. D'Antonio of Oregon State University and Christopher A. Monz of Utah State University, combined techniques of two different fields to measure recreation disturbance distributed across large landscapes.

As part of the study, the researchers provided GPS trackers to a random sample of hikers and surveyed them over two to four weeks during their visits to Acadia National Park in Maine, Rocky Mountain National Park in Colorado and Grand Teton National Park in Wyoming.

Using the GPS data, the team processed the information in geographic information systems and examined the recreation use and its potential impact to wildlife. Using three different landscape analysis software systems common in ecology, Gutzwiller said they demonstrated how ecologists and recreation managers can use the technology to assess wildland recreation disturbance over large geographic areas.

"Knowledge of the relationship between recreation disturbance and

wildlife over a much broader extent could be very valuable in helping staff at parks or natural areas decide, for example, where to monitor informal trails or create a policy or management approach for minimizing those," Gutzwiller said.

Previous studies of recreation disturbance of wildlife have focused on individual and relatively small areas, and Gutzwiller said he and the research team wanted to understand further the impact to landscape-scale areas.

"This is the first paper that we know of that has measured recreation disturbance relevant to wildlife on a broad spatial scale with the intent of using the metrics in predictive modeling and broad-scale management of this type of disturbance," Gutzwiller said. "That is the unique aspect of this paper."

Ultimately, Gutzwiller, D'Antonio and Monz hope that their study will help inform management decisions in natural areas and give recreation managers a tool to help manage and mitigate [recreation](#) disturbance over large areas by predicting the impact to wildlife.

"We are not trying to prevent recreationists from using natural landscapes. What we are seeking is a balance between their use and maintaining natural, viable populations of wildlife," Gutzwiller said. "We know the people that use these areas are very important to the support of those and all [natural areas](#). We do not want to exclude them, but we do want recreationists to be aware of activities that are detrimental to the areas and the resources they are there to enjoy."

More information: Kevin J Gutzwiller et al, Wildland recreation disturbance: broad-scale spatial analysis and management, *Frontiers in Ecology and the Environment* (2017). [DOI: 10.1002/fee.1631](https://doi.org/10.1002/fee.1631)

Provided by Baylor University

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