Research connects big data marketing tools, land conservation

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The same data used by digital marketers to sell products can also help inspire conservation behaviors, according to new research from the University of Montana.

In a recent study, "Microtargeting for Conservation," published in *Conservation Biology*, UM faculty in the W.A. Franke College of Forestry and Conversation demonstrate how conservation programs can benefit from tools and analyses generally reserved for businesses and political campaigns.

Researchers with UM, Penn State University, Chesapeake Conservancy and the Yuhas Consulting Group created models to study how microtargeting can identify landowners agreeable to installing riparian buffers on their land located in the Chesapeake Bay Watershed. The watershed is home to 18 million people in six states and encompasses cities like Baltimore, Norfolk and Washington, D.C. It is the country's largest estuary and provides vital habitat for more than 3,600 plant and animal species.

Microtargeting is a marketing technique that uses predictive big data analysis to identify the people most likely to respond positively to particular messages or interventions, and it can aggregate marketing formulas from an individual's digital footprint.

"These are the types of data that inform the ads you get on Facebook or Google," said Alex Metcalf, assistant professor in UM's W.A. Franke

College of Forestry and Conservation and the study's lead author. "We're taking that same technology and instead of trying to sell people stuff, we're trying to find people most willing to invest in conservation."

The researchers created a high-resolution land cover dataset and overlaid it with property records to identify private owners of riparian areas needing restoration. They then developed and evaluated a restoration propensity model using a database of landowners who had conducted restoration in the past and tested to see how well the model predicted future participation.

The results found that the landowners identified by the model were more than twice as likely to have conducted restoration in the past and would likely do so in the future. That data has big impacts for future conversation efforts, according to Metcalf.

"If you are a conservation NGO or government agency conducting outreach, microtargeting can dramatically increase your impact or cut your outreach budget," Metcalf said. "The marketing tools that we see all around us can be employed to do really good work for conservation agencies and groups. There's a lot of power there."

Metcalf and other researchers have used similar social marketing campaigns to assess land-use decisions and aptitude for conservation. The researchers also are exploring this technology for applications related to pressing conservation challenges, including wildlife habitat conservation and public lands access in Montana.

"There is growing recognition that conservation needs frequently surpass the resources we have to invest in them," Metcalf said. "If we're going to make progress toward conservation objectives, we have to be smart about where we spend our money, so we have to look for the places that have the highest return on our conservation investment."

More information: Alexander L. Metcalf et al, Microtargeting for conservation, *Conservation Biology* (2019). DOI: 10.1111/cobi.13315