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Eco groups need to hit size ‘sweet spot’

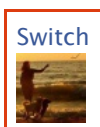


"Free riders" can threaten the effectiveness of big environmental groups, whereas the members of smaller groups can become overburdened. Groups in the "sweet spot" in between work best, report the researchers. (Credit: [Maggie/Flickr](#))

MICHIGAN STATE (US) — Sustainability programs are a Goldilocks proposition—the environment benefits when the size of a group of people working to save it is just right, say researchers.

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Scientists have found that there is a sweet spot—a group size at which the action is most effective. More importantly, the work reveals how behaviors of group members can pull bad policy up or drag good policy down. The work is published in this week’s [Proceedings of the National Academy of Sciences](#).

Straight from the Source

[Read the original study](#)

DOI: [10.1073/pnas.1301733110](https://doi.org/10.1073/pnas.1301733110)

“This paper finds that group size does matter—and the answer is right in the middle,” says Jianguo “Jack” Liu, chair of sustainability at Michigan State University and director of the Center for Systems Integration and Sustainability (CSIS).

“Collective action is of growing importance as the world becomes more interdependent. It’s important to understand how collective action works if we want programs that are effective.”

Doctoral student Wu Yang and his colleagues studied how groups in the Wolong Nature Reserve worked to participate in China’s massive Natural Forest Conservation Program. That program pays all of the 1,100 rural households there to monitor the forest, and relies on them to enforce logging bans intended to allow forests to recover.

Since it’s mostly local residents who chop down the trees for firewood or to build homes, enlisting locals has been identified as the best way to increase forest cover.

The stakes are high there. Wolong is a biodiversity hotspot that’s home to endangered giant pandas.

Wolong and the conservation program became a stage on which the universal behaviors that have bogged down collective actions are played out. If groups get too big, “free riders”—individuals who dodge their duty undetected and still reap the benefits—can make the collective actions less effective.

In small groups, participants can be overburdened. In contrast, large groups need to have expensive enforcement efforts to reduce free riders and improve the effectiveness.

For both group sizes, those limiting forces drag the effectiveness down. Liu says that holds true in Wolong, as well as in other efforts, including students’ class group projects.

This work for the first time tests and quantifies the non-linear relationship hypothesized by Elinor Ostrom, the first woman to win the Nobel Prize in

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economics for her analysis of governance, particularly how people managed “the commons”—as she referred to shared natural resources.

“We’re showing that the outcomes of these actions are important,” Liu says. “This can point the way to determine how to better protect the environment and utilize natural resources.”

Additional researchers from Michigan State University, IIASA in Laxenburg, Austria, and Yale University contributed to the study, which is funded by the National Science Foundation, NASA, and Michigan State University AgBioResearch.

Source: [Michigan State University](#)

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