

Data overload can stand in the way of new discoveries in conservation efforts

11 March 2020, by Angela Nicoletti



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When it comes to conservation, more data is better—except when it's not.

Sometimes, the amount of data generated by scientists can be overwhelming. Today, more and more research is being dedicated to protecting animals, plants and critically important ecosystems. But this data overload can actually stand in the way of new discoveries needed that could inform conservation efforts.

J. Aaron Hogan, a Ph.D. student researching the ecology of tropical plants at FIU's International Center for Tropical Botany, wants to make sure this doesn't happen.

He collaborated with an international team of scientists from universities, museums and government agencies on what to do with the mountains of data being generated by biological field research.

Across industries, [big data](#) promises to boost efficiency and productivity, but people are still figuring out how to wade through it. According to a

report from McKinsey, it's estimated there's more data being generated than being analyzed. Science is no different. This is where big problems with big data begin to creep in.

"Science today is all big data, because there are more researchers putting out more research. This creates new problems of organization, coordination and actually knowing where exactly data is missing—both geographically and for specific species," Hogan said. "Like, what if everyone forgot about the earthworms?"

So that no animal in no part of the world is forgotten—not even the earthworms—the group formed the Open Traits Network. It's open to biologist from across to globe who are dedicated to sharing their data and publicizing current projects.

Rachael Gallagher—a researcher at Macquarie University in Sydney, Australia and lead on this project—describes the project as a much-needed roadmap that helps "chorale the vast amount of data" and encourage better collaboration and coordination among researchers. It's about filling in data gaps, moving science forward and answering new questions.

This project may not sound daring but it is. In the [scientific community](#), open sharing on data has long been a taboo.

"The old guard in science would say that you never share your data," Hogan said. "That can lead to people measuring the same thing in the same place, though, which is very inefficient."

It's not just inefficient. It's playing a high stakes game in a race against the clock to collect information on species that may be quickly disappearing.

The Open Traits Network aims to encourage the open flow of information among researchers by

providing a platform for sharing and storing their data. Participants can feed their [personal knowledge](#) and data into this one single resource that's accessible to everyone.

"This is about helping other scientists out, because ultimately, [science](#) always comes down to the flow of information," Hogan said.

And sometimes that flow isn't exactly flowing.

First, a paper is published. Then it can be found by other scientists. The data in the paper opens up new pathways for them to explore. In a world of big data, though, those pathways have become labyrinths. The process of pinpointing what has been studied and what needs to be still be gathered is often slow and time-consuming.

"Open [data](#) is invaluable. I think things are slowly changing, because scientists are realizing the benefits of sharing far outweigh the risks or drawbacks," Hogan said. "It's about focusing on attacking knowledge gaps and not just spending time looking for them."

Recently, a study proposing the creation the Open Traits Network was published in *Nature Ecology & Evolution*.

More information: Rachael V. Gallagher et al. Open Science principles for accelerating trait-based science across the Tree of Life, *Nature Ecology & Evolution* (2020). [DOI: 10.1038/s41559-020-1109-6](https://doi.org/10.1038/s41559-020-1109-6)

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