

# Finding winners and losers in global land use

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The United States added about 7.6 million acres of forests between 1990 and 2010, which may seem like a great environmental gain.

But the real question is how the United States achieved that milestone, said Darla Munroe, associate professor of geography at The Ohio State University.

"Reforestation in the United States may have come at the expense of some other country's forest," Munroe said. "There isn't any environmental gain for the world if we are saving trees here by simply getting trees for our paper products from some other place."

This is just one example of how an increasingly complex, interconnected world makes it difficult to study sustainability and figure out who the winners and losers are, she said.

Munroe studies how land is used in a global context, using concepts such as "telecoupling," which involves how humans and natural systems interact over long distances.

She discussed some of her research on land use and sustainability and the challenges facing her field Feb. 13 in San Jose at the annual meeting of the American Association for the Advancement of Science.

While the world has changed significantly in recent decades, the tools and concepts that geographers use to study the world have not, she said.

"The way we work and our conceptual framework aren't up to the 21st century world. We need to use ideas about how networks operate to understand connections across the globe," she said.

Many of the issues that land-use researchers face have changed substantially in recent decades.

One prime example is the rise of global agribusiness, which has major impact because of these companies' size, influence and speed in making decisions.

For example, a Chinese food company may need to buy large quantities of soybeans and evaluate three or four sources from around the globe before making a quick decision based on fluctuations in soybean prices. The decision may lead to thousands of acres of forest being cut down in one country to make room for more fields and economically devastate farmers in another country that didn't get the contract.

"These corporate decisions can have huge environmental impacts and they are made very quickly. It is hard for research to keep up," Munroe said.

The rise of large multinational corporations may make it harder for land-use researchers to make sense of what is happening to the world. Corporations are much less transparent than governments in making their data and decisions publicly available, meaning that researchers may struggle to get all the information they need.

But it is not just [multinational corporations](#) that have made the work of geographers more complex. Everything, in a sense, is multinational now, from trade and trade agreements to the work of international environmental groups.

"We used to think about local land-use decisions filtering up to global markets. But now the global is in the local. They are all related and the challenge for land-use scientists is to keep up with the change," Munroe said.

Provided by The Ohio State University

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