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UAF ecologist honored for scientific contributions

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A University of Alaska Fairbanks professor was recognized for his distinguished contributions in the terrestrial ecology field last week. A. David McGuire has been studying how boreal and Arctic terrestrial ecosystems affect the world's climate system, and garnered the attention of the world's largest general scientific society.

The American Association for the Advancement of Science (AAAS) named McGuire a fellow last week, honoring his work in landscape ecology. The Fairbanks man teaches ecology at UAF's Institute of Arctic Biology, as well as in the biology and wildlife department. McGuire is the assistant leader of ecology in the United States Geological Survey Alaska Cooperative Fish and Wildlife Research Unit.

"Dave is internationally recognized for the importance of his research on the role of the carbon cycle in arctic and subarctic environments and for his work modeling its effects on the global climate system," said Brian Barnes in a UAF release. Barnes is the Institute of Arctic Biology director and an AAAS Fellow.

The Institute of Arctic Biology studies the biology of the northern latitudes, supplying the public and state lawmakers with the scientific information needed to manage and interpret Alaska's biological systems.

As the planet warms and ecosystems begin to shift at a faster rate, science has worked hard to keep up with and understand the changing globe. McGuire has spent more than 20 years on a terrestrial ecosystem model that aims to forecast how the landscapes of the north may change with the climate. The model tracks the flow of carbon and nitrogen within a terrestrial ecosystem to do so.

McGuire's research, a collaborative effort with colleagues, postdoctoral fellows and graduate students, is a study of transition.

"We're looking at the transition of grassy tundra to shrub tundra and shrub tundra to forest tundra," McGuire said in the release. "The key issue is how quickly these transitions will occur and how much of a change in atmospheric heating you get going from one type of tundra to another. We've conducted retrospective studies to look at these effects and they have been relatively minor. It's in the future that they have the potential to become stronger."

Change in the Arctic is far from being simply a polar issue. It reflects shifts in ecology that can be felt throughout the world's ecosystems. From food and other natural resources to recreation opportunities, a shifting Arctic reflects a shifting planet.

"Dave's work on plant community dynamics is important to our efforts to project changes in future wildlife habitats and the implications of these habitat changes for wildlife populations," said Brad Griffith, leader of the U.S. Geological Survey cooperative McGuire works within.

His research uses soil, plant, water and permafrost measurements, McGuire said, often compiling the data collected by fellow scientists into his models and projections.

"Our research is built on the work of colleagues," McGuire said, "especially Terry Chapin, professor emeritus of ecology and AAAS Fellow, who so clearly articulated the possibility of changes in tundra vegetation, and the students and post-docs in my lab who have done the heavy lifting. It's the synergy among all these people that has allowed me to be accomplished enough to be elected as a Fellow."

McGuire will join the rest of the nation's 702 AAAS fellows in Boston, Mass., this month as they are recognized for their work. Fellows are chosen for distinguished scientific work or social effort to advance science and scientific applications.

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