

Scientists Explore How Landscape Affects Wildlife, Plant Genetics

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(PhysOrg.com) -- The University of Idaho College of Natural Resources is leading efforts to advance scientific understanding of a relatively new area of research called "landscape genetics," a science that has high potential for practical conservation and management of natural resources.

“The study of landscape genetics has the potential to greatly enhance our knowledge of how landscape and environmental features influence animal and plant movement, population viability and [gene flow](#),” said Lisette Waits, professor of wildlife resources.

Landscape genetics has both local and global applications, Waits explained. For example, Idaho and Montana researchers have employed landscape genetics to determine how the amount and depth of snowfall influences wolverine populations’ abilities to connect with each other. In Costa Rica, researchers will use landscape genetics to evaluate whether the Meso-American Biological Corridor is achieving goals of wildlife and plant connectivity, and if it is sustainable under future [climate scenarios](#).

Waits co-leads a group comprised of educators around the world who received a grant from the National Center for Ecological Analyses and Synthesis (NCEAS) to develop a biannual international graduate course in landscape genetics. Graduate students at different universities watch the same taped lectures and participate in group research projects that eventually will be published manuscripts.

“It’s really a unique model for graduate education,” said Waits. “Students get to learn from the best experts in the world instead of at just one university, and get the opportunity to interact with other students across the globe.”

Waits and postdoctoral scientist Steven Spear currently participate in an NCEAS-funded international research working group seeking to develop landscape genetic methods and theory that ultimately will help predict the effects of proposed management policies on endangered species. Their efforts also will enhance scientific understanding of habitat fragmentation, population viability, population connectivity, the spread of diseases and invasives and other ecological processes.

Waits also is co-leading the development of a special issue on landscape genetics that will be published in the September issue of “Molecular Ecology.” The issue will include cutting edge landscape genetic empirical studies and reviews that will advance the field of landscape genetics and help improve the conservation and management of a diversity of plant and animal species around the world.

Provided by University of Idaho

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