Study: Wildlife need more complex travel plans

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A new UC Davis study says that people trying to help nature by designing corridors for wildlife need to think more naturally.

"Human beings tend to think in terms of regular, symmetrical structures, but nature can be much more irregular," said UC Davis postdoctoral researcher Matthew Holland, the study's lead author. "We found that symmetrical systems of corridors may actually do less good for natural communities than designs with some randomness or asymmetry built in."

Corridors are physical connections between disconnected fragments of plant and animal habitat. A corridor can be as big as a swath of river and forest miles wide that links two national parks, or as small as a tunnel under an interstate highway.

Without such connections, animals cannot travel to food, water, mates and shelter. Plants cannot disperse their pollen and seeds to maintain healthy, genetically diverse populations.

Designing and implementing corridors (sometimes called corridor ecology or connectivity conservation) is a new subfield in environmental science. Holland's research is among the first to help land managers and community planners designing corridors to know what will work and what will not.

Holland's co-author is UC Davis theoretical ecologist Alan Hastings. Hastings is one of the world's mostly highly regarded experts in using

mathematical models (sets of equations) to understand natural systems. His analyses have shed light on environmental issues as diverse as salt marsh grass invasions in San Francisco Bay; climate change and coral reefs; and marine reserves and fish populations. In 2006, Hastings received the Robert H. MacArthur Award, the highest honor given by the Ecological Society of America.

The new study, titled "Strong effect of dispersal network structure on ecological dynamics," is scheduled to be published online on Sunday, Oct. 19, by the journal *Nature*. (DOI number: 10.1038/nature07395))

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