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Landscape ecology as a foundation for sustainable conservation

Landscape ecology and conservation both focus on *places*. Landscape ecology views places as parts of a mosaic in which interactions among places have important ecological consequences. Conservation often deals with places as areas to be protected to ensure the persistence of species or ecosystems. Too often, the protected areas are managed as isolated places, fenced and cut off from interactions with their surrounding landscape mosaic.

In a paper published in *Landscape Ecology*, I argue that for conservation to yield sustainable results, it must be cast in a landscape context, incorporating the places where people live and work as well as those places under protection. Protected areas are important, but they cannot by themselves stem the tide of global biodiversity loss or foster adaptation to the growing threat of climate change, and they cannot be thought of as detached and isolated from the landscapes in which they are embedded.

Several insights from landscape ecology may provide a foundation for expanding the scope of conservation. First, context matters. This means that the movements of individuals into or out of an area may be influenced by the habitats in the surrounding areas, so managing those surroundings may enhance the value of a protected area. Second, the surroundings may contain threats to the species in a protected area, so reducing those threats may entail actions outside of the protected area. Third, the size of a reserve may not match the scales of population dynamics or other ecological processes. A small reserve that cannot support a functioning population by itself may contribute to the viability of the population over a broader landscape. And fourth, landscapes encompass people and their activities, so conservation needs must be balanced

with other uses of the landscape, and uses that are compatible with biodiversity should be encouraged.

I illustrate these points with the example of prairie dogs in the Great Plains. Prairie dogs are integral parts of functioning grassland ecosystems, but their colonies frequently spill over from protected areas into private lands, where they are regarded as varmints that degrade rangeland conditions. Consequently, prairie dog conservation is contentious because the various stakeholders in landscapes have vastly different perspectives about the value of prairie dogs or the need for their conservation. Sustainable conservation of prairie dogs, or of any species or ecosystem, requires that such differing perspectives be taken into account. Issues must be addressed in terms of the biological, social, and cultural features of entire landscapes.

Management Implications

- Protected areas are important, but cannot by themselves provide sustainable conservation.
- Protected areas cannot be isolated from the surrounding landscape.
- Sustainable conservation must include the places where people live and work and recognize the differing perspectives of multiple stakeholders.

Paper citation

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