

Novel Ecosystems and Adapting Nature Conservation

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Presentation:

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We live on the cusp of radical environmental changes. These changes are occurring globally, regionally, and locally and are driven by human activity. Human beings have always effected environmental change but never at the scale and rate now underway. Evidence that these changes are occurring and the fact that human activity is the primary driver is well documented in various environmental sciences. The sheer scale of human impacts has motivated serious consideration that the Earth has entered a new age, a new unit measured on the geologic time scale, the Anthropocene.

Anthropogenic environmental change is often imagined on the planetary scale. Climate change, for example, is discussed in terms of increase to the mean surface temperature of the globe, melting polar ice caps, or parts per million atmospheric concentrations of carbon dioxide. But anthropogenic drivers are also having a significant effect on particular places, on specific ecosystems, at the local and landscape scale. The dominant contemporary theory of ecological change predicts that particular existing ecosystems and ecosystems types - those that have characterized much of the Holocene - will be pulled apart as individual species migrate. The result will be new biotic combinations, hanging together under new abiotic conditions, and exhibiting the structural and functional characteristics of new ecosystems, new ecosystem types for which there is no analog in ecological history.

There is an emerging branch of thought in ecology turning attention to examples of recombinant ecology, ecosystems with compositional, structural, and functional profiles for which there is no analog in the ecological record. Ecologists are calling them "novel ecosystems." In this paper, I explain the concept of novel ecosystems and locate them as having a significant role in adapting received traditions of land management, especially in North America, including the practices of nature conservation and restoration ecology. Pervasive anthropogenic environmental change, ubiquitous and directional, including climate change, exotic species, pollution, and land use/fragmentation, challenge traditional mandates to manage parks and protected areas for "naturalness."

Traditional values that underlie and motivate much conservation, appealing to the intrinsic value of natural ecosystems, are threatened. If we understand the intrinsic value of ecosystems to be connected with historical structure and function, then we will have to tolerate more and more human interventions. On the other hand, if we value nature's "wildness" and freedom from human intervention, then we will have to accept ecosystem novelty, in both the composition and functional profiles of emerging ecosystems. The rapid and pervasive emergence of novel ecosystems, I argue, has significance for the debates about "new conservationism" in North America and Australia and has implications for conservation practices generally.

Recently, restoration and conservation theorists have proposed a model for managing heterogeneous landscapes that include historic, hybrid, and novel ecosystem types. I close my paper arguing that adapting the received ethos of nature conservation and adopting an approach to managing the whole mixed-type landscape is itself an important instance of incorporating adaptive ecosystem management, with significant ties to Bryon Norton's normative conception of sustainability. I briefly outline how either of two pluralistic views in environmental ethics, environmental pragmatism or environmental virtue ethics, could be progressive replacements for a monistic intrinsic value theory and suggest how these two views may even be complimentary.

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