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Great Basin Riparian Areas

*Ecology,
Management,
and Restoration*

Edited by

Jeanne C. Chambers and Jerry R. Miller

Foreword by James A. MacMahon

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Restoring and Maintaining Sustainable Riparian Ecosystems: The Great Basin Ecosystem Management Project

JEANNE C. CHAMBERS AND JERRY R. MILLER

In the Great Basin, as in other semiarid regions, riparian areas exhibit widespread degradation. It has been estimated that more than 50 percent of the riparian areas (streams and their associated riparian ecosystems) in the Great Basin are currently in poor ecological condition (Jenson and Platts 1990). The ongoing deterioration of these areas is of significant concern to land managers and other stakeholders who value these watersheds for a variety of purposes. Riparian areas are important components of all landscapes, but in the semiarid Great Basin they constitute an especially vital resource. Although they comprise less than 1 percent of the Great Basin, they supply many critical ecosystem services. Riparian areas supply water for both culinary and agricultural uses, forage and browse for native herbivores and livestock, and recreational opportunities. In addition, they serve as the foundation for much of the region's biodiversity. Riparian areas in the Great Basin provide habitat for a wide array of organisms such as butterflies (Fleishman et al. 1999) and Neotropical migrant birds (Martin and Finch 1996), and support a relatively high number of endemic species, including the Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), which is listed as threatened under the U.S. Endangered Species Act (Dunham et al. 1997).

Degradation of riparian areas in the Great Basin is the result of complex and interrelated responses of geomorphic, hydrologic, and biotic processes to climate change and natural and anthropogenic disturbances. These disturbances can alter the hydrologic or sedimentologic regime of a fluvial (river or stream) system and produce changes in the physical foundations of riparian ecosystems, such as stream channel characteristics and surface-groundwater interactions. Ultimately, they alter the structure and functioning of riparian ecosystems. In this chapter, we discuss the current state of