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The Disconnect Between Restoration Goals and Practices: A Case Study of Watershed Restoration in the Russian River Basin, California

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Abstract

Over the past two decades, watershed restoration has dramatically increased internationally. California has been at the forefront, allocating billions of dollars to restoration activities through legislation and voter-approved bonds. Yet, the implications of restoration remain ambiguous because there has been little examination of restoration accomplishments and almost no analysis of the political context of restoration. This article addresses these gaps, utilizing a case study of the Russian River basin in Northern California. We identify trends that shed light on both the ecological and the political implications of restoration at a basin scale by examining a database of 787 restoration projects implemented in the Russian River basin since the early 1980s. Although a total of over $47 million has been spent on restoration in the basin, dominant forms of restoration are limited in scope to small-scale projects that focus on technical solutions to site-specific problems. The majority of restoration efforts are devoted to road repair, riparian stabilization, and in-stream structures, accounting for 62% of all projects. These types of projects do not address the broader social drivers of watershed change such as land and water uses. We suggest that restoration can become more effective by addressing the entire watershed as a combination of social and ecological forces that interact to produce watershed conditions.

Key words: ecological restoration, geographic information systems, Mediterranean-climate streams, post project monitoring.

Introduction

The amount of public investment in restoration is increasing, accounting for more than a billion dollars annually in the United States alone (Bernhardt et al. 2005). Yet, there is limited understanding of ecological patterns (Kondolf 1995, 1997; Downs and Kondolf 2002) and social implications associated with restoration (Gobster and Hull 2000; Higgs 2003). A recent study compiled coarse-scale data on restoration efforts nationwide (Bernhardt et al. 2005), concluding that little is known about the outcomes of restoration because postproject monitoring and assessment are extremely limited. A growing literature on biophysical monitoring has attempted to address this gap, focusing primarily on site-level analyses of ecological and geomorphic metrics (Harris et al. 2005). However, these measures do not address social aspects of restoration like the institutional context, which many credit as determining where and how restoration is done (Lufkin 1991).

The objective of this article is to better understand how and why restoration occurs the way that it does. The central questions that we address are: (1) Where is restoration happening; (2) How is restoration happening?; and (3) How has the practice of restoration changed over time? In answering these questions, we discover a disconnect between restoration goals and practices that we investigate further in the Discussion and Conclusions by asking: Why does this disconnect exist? and How can it be bridged? Our methods focus on analyzing a database of 787 restoration projects implemented in the Russian River basin, California, over 21 years. Although this article primarily analyzes the long-term dataset, we have also conducted extensive interviews with restoration practitioners and participated in restoration activities throughout the Russian River watershed, which informs our interpretation of the data (Christian-Smith 2006).

In order to understand where restoration is happening, we examine the spatial distribution and landscape attributes of restoration projects using a geographic information system (GIS) database of restoration project locations throughout the basin and available data layers on landscape features such as land use/land cover and lot size. This examination provides insight into the types of landowners who are primarily benefiting from the current practice of restoration and the ecological context in which it occurs. In order to understand how restoration is happening, we devote particular attention to the often overlooked institutional framework—the agencies and organizations involved in funding and implementing restoration. We analyze how policy language and funding priorities are translated into on-the-ground practices,

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