



Improving the Integrity of Damaged Watersheds in the Southern Rockies

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The Southern Rockies of the United States, including Colorado and Northern New Mexico, are known for their scenic beauty with numerous opportunities for recreation. However, because of decades of overuse, much of the Southern Rockies Ecoregion has been tremendously degraded by logging, road-building, mining and grazing. These impacts create land with the inability to sustain the native species that utilize its resources (Lewis, 1996). Some remote areas of the Southern Rockies have barely been touched by human effects. Many others are degraded and damaged by human's overuse and abuse. The remaining areas that are intact are possibly not big enough to sustain long-term biological success of the region (Lewis, 1996).

The Southern Rockies Restoration Project, (SRRP), has been designing and implementing locally based restoration plans for the Southern Rockies Ecoregion since 1996 (Smith, 1998). The SRRP is one of the many programs that is under the direction of the Earth Island Institute. Earth Island Institute (EII) was founded in 1982 by David Brower to encourage the work of creative individuals by providing organizational support in developing projects for the conservation, preservation, and restoration of the global environment (Lewis, 1998). EII provides assistance to SRRP in program strategy, public relations, database management, accounting, and project coverage. EII facilitates many aspects that organize and advance the restoration programs; it doesn't however directly fund or subsidize the projects.

SRRP's Mission

According to SRRP, their mission is to rehabilitate damaged watersheds in the Southern Rockies Ecoregion, through the establishment and support of locally-based watershed councils, and the design and implementation of watershed restoration plans (Lewis, 1998). SRRP considers the establishment of community-based watershed groups to be the most effective approach for protecting, restoring, and enhancing the region's watershed resources. Restoring damaged watersheds requires the coordination of many groups of people from diverse backgrounds. Teaming community leaders with indigenous leaders, scientific experts and environmental activists helps to determine the needs of the land and the development of long-term strategies for watershed management. The issues that are addressed are problems of environmental degradation, habitat fragmentation, loss of biodiversity, declining local economies, and quality of life (Lewis, 1996).

SRRP uses the USGS Hydrologic Units to delineate their watershed units (Lewis 1998). Using this approach allow them to maximize the portability of existing data into their GIS database. The SRRP then establishes a watershed council in each of the region's watersheds. The watershed council has four primary goals for planning and carrying out effective restoration projects (Lewis, 1996).

1. Assess the integrity of all the region's watershed resources.

1. Develop a regional restoration strategy that builds upon landscape-scale conservation reserve designs.
1. Design and implement long-term restoration strategies for every watershed in the region, by working first on the most damaged regions that are most ecologically critical, including those that are adjacent to protected, intact or roadless areas.
1. Develop innovative restoration methods that are applicable across the region.

Watershed Health Survey

The SRRP's watershed councils accomplish their goals by working to promote public involvement and gain a better understanding of the watershed's health. SRRP uses information given to them from both citizen and professional managers to compile a comprehensive survey. These survey's provide the SRRP with an overview of watershed conditions in the region. The survey is the first step in the SRRP's assessment of the watershed. The survey is used along with aerial photographs and historical records to get a better understanding of the current conditions (Lewis, 1996). SRRP can then prioritize which watersheds are in the most need of restoration based on its importance in regional landscape conservation strategy, potential recovery, political feasibility and economic efficiency (Lewis, 1996). The SRRP is developing guidelines that can be used to advance restoration discipline by creating appropriate research approaches. There are conditions that are unplanned and uncontrollable, like natural and anthropogenic disturbances, that cannot be replicated or studied using traditional approaches (Michener, 1997). When assessing political feasibility SRRP uses a fairly complex process which looks at organizational capacity, existing collaboration, perceived interests, willingness to collaborate and entrenched conflicts (Lewis, 1998).

The public's role in restoration does not end with the survey. The public can get involved in the actual field work in the area that they reported on. The SRRP conducts workshops on restoration and assessment that teach skills in watershed health assessment, and treatments. The workshops are open to the general public and are taught by local experts and staff members. The SRRP is working to help community members better understand the importance of their ecosystem and how human impact affects the overall health of the area.

SRRP obtains much of their information about the watershed from the general public and also from scientific research on restoration planning. They are then able to address the problem of declining watershed health by incorporating a landscape-scale look at the problem with indigenous, place-oriented perspectives as possible solutions. The SPPR has three primary programs that work to rehabilitate the region's watershed resources.

Programs

The first main program is the Regional Watershed Assessment. The assessment of the current watershed, from the watershed survey, helps the program overcome the setback of limited funds. Being able to prioritize the watersheds based on ecological criteria along with political and

economic feasibility allows the SRRP to identify those watersheds where restoration is most likely to succeed.

The second program is the Wild Fisheries Program. Hatcheries have played a significant role in the management of fisheries in the Southern Rockies (Lewis, 1996). The stocking of non-native, hatchery fish has caused negative effects to streams and overall watershed health. The negative impacts the SRRP is concerned with include (Lewis, 1996):

- Elimination of genetic diversity and increased susceptibility to disease
- Selection for aggressive feeding behavior and other unnatural competitive behaviors which have a direct effect on native fish
- "Masking" of watershed conditions. Masking occurs when huge numbers of fish are stocked in a stream and an important indicator of watershed health is lost. The fact that most of the region's fishery would collapse in the absence of stocking suggests habitat conditions are degraded and many watersheds are seriously degraded.

The SRRP is working to change how the Colorado Division of Wildlife is managing the fisheries in the Rockies. By eliminating the current stocking practices and switching to managing for "wild" trout will in turn decrease the current reliance on hatcheries to maintain wild populations (Lewis, 1996).

The third program to restore the watershed focuses on agricultural land that is no longer in production. The Abandoned Farmlands Initiative recommends land use changes in abandoned farmland that poses serious threats and ecological problems for the surrounding landscapes. These particular lands allow for the growth of invasive, non-native species due to poor soils and plenty of undisturbed space. Wind and water erosion are also often a severe problem on these lands. SRRP has not been able to get an accurate count of how much land in Colorado and New Mexico could be classified as "abandoned." Many of these "abandoned" areas are owned by lending institutions or private parties which are no longer working the lands due to its low productivity and lack of sustainability (Lewis, 1996). SRRP is working to identify these lands and assess their condition, in relation to their restoration potential. This program is the least active of all their programs (Lewis 1998). They anticipate that water rights will undoubtedly play a significant role in how they approach these lands. SRRP would like to see abandoned farms not just left to degrade even further to the negative consequence of surrounding areas. They are exploring the possibility of creating native seed farms that would provide seed stock for other restoration projects as well as economic dollars for the local community. They expect they will look at potential natural vegetation for a given site and develop plant propagation programs accordingly.

Evaluation of Success

SRRP initially has conducted a feasibility study for their overall mission prior to founding. The study involved many types of information, including literature searches, interviews, and drawing

upon the experience of the EII (Lewis, 1998). They have not, however, established any guidelines to assess the effectiveness of their actions and goals. The SRRP should continue to collect information showing the progress of their restoration and to get a better understanding of what works and what doesn't.

Critique

SRRP is working to include all valuable stakeholders in their program development. They encourage extensive input from a broad spectrum of society that enables them to get their programs focused in the most effective direction. Extensive prioritizing of potential sites before attempting any restoration helps to predict success. Ultimately, every action they take must follow strict guidelines for scientific credibility and social justice. SRRP's strength is in the preparation of restoration goal. Their weakness lies in their monitoring and evaluation of results once their physical and ecological goals have been attained. The conditions of the watershed must be naturally sustainable in its restored condition. If the restored conditions cannot be naturally sustained the restoration will fail to meet the original goals (Goodwin 1997). Those areas that need further attention can be corrected less expensively and with a much smaller impact on the ecosystem and its surrounding areas.

Works Cited

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