

Mine Reclamation - A Type of Ecological Restoration

by Leah Gardner

Reclamation, restoration, rehabilitation – these “R” words are used interchangeably to describe a variety of efforts to bring a piece of land back into a more natural or productive state after it has been damaged or altered in some way. The Society for Ecological Restoration (SER) defines **ecological restoration** as “the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed” with the goal of returning all or nearly all the physical and ecological processes and biological components of the ecosystem historically native to the site. **Rehabilitation** is defined as “any ecologically beneficial treatment short of full restoration” and its goal is to re-establish some of the physical processes and biological components of an indigenous ecosystem.

Reclamation is still less ambitious along this spectrum of goals. To reclaim something is to rescue it from an undesirable condition. The focus is usually on achieving a self-sustaining vegetative cover to protect a site from erosion and blend it in with the surroundings. Generally, reclamation aims at converting land damaged through resource extraction or poor management to a productive use. Using native plants for revegetation and mimicking naturally occurring plant communities help to achieve these goals and brings the damaged land back to a stable condition.

Mined land reclamation certainly fits into this range of activities, qualifying it as a type of environmental or ecological restoration employing the same principles and practices as other types of restoration projects. Removing large quantities of minerals and overburden disrupts the land surface, temporarily removing the topsoil and vegetative cover, making the site susceptible to erosion and further degradation. Ecological processes and species richness are temporarily lowered.

Ecological Restoration is an exciting field built on the science of ecology and bringing together many disciplines such as conservation biology, engineering, hydrology, landscape architecture, and horticulture. Contractors specializing in ecological restoration are well suited to design, implement, and maintain mine reclamation projects. Environmental restoration principles and practices are being applied to a wide variety of projects in every type of ecosystem on every continent and is a subject taught at many colleges and universities. For example, the University of California, Davis offers bachelors and masters degrees in Restoration Ecology through their Environmental Horticulture department.

“Ecological restoration is not only escalating at an astounding rate, but also remains the most ecologically viable and aesthetically appealing remedy for mending the Earth’s ever-increasing number and scale of degraded ecosystems.” (Falk, et al, 2006).

So let us not forget to view mine reclamation in the context of something broader, as an offshoot of the science and practice of Restoration Ecology, and as one of many types of projects aimed at mitigating and repairing damage to the land and enhancing biodiversity that are being implemented all over the state and around the world.

The following organizations provide websites, publications, and conferences on **Ecological Restoration**. You may want to attend the annual SERCAL conference held each October, as members of the OMR Reclamation Unit have done for many years, to keep abreast of the latest trends in the science and practice of restoration and see case

study examples of a wide range of restoration projects, including mine reclamation projects, all over the state. The 2007 conference will be held in San Diego October 23rd-25th.

Founded in 1987, the Society for Ecological Restoration International (SER) is an international non-profit organization whose mission is to promote ecological restoration as a means of sustaining the diversity of life and reestablishing an ecologically healthy relationship between nature and culture. (www.ser.org) They will be holding their annual conference next August 5-10th in San Jose. The 2007 theme will be “Restoration in a Changing World.”

SERCAL was founded in 1991 as the first state chapter of SER. In 2000, SERCAL elected to separate from SER and was reorganized as **The California Society for Ecological Restoration**, an independent nonprofit, public benefit corporation. SERCAL no longer has any organizational or financial affiliation with SER, International. (www.sercal.org) Over the years, SERCAL has been strongly dedicated to the following objectives:

- ✘ To advance the science, art and practice of ecological restoration.
- ✘ To educate our members and the public on sound scientific strategies and techniques of protecting, restoring and monitoring native habitat.
- ✘ To develop and promote ethical standards for practitioners in the field of ecological restoration.
- ✘ To facilitate communication among professionals and others with an interest in ecological restoration.
- ✘ To advise and consult with public agencies and appropriate entities regarding the improvement of standards and criteria for ecological restoration.



Participants at SERCAL's 13th Annual Conference held in October in Santa Barbara peruse the posters, booths and displays exhibited by vendors and consultants involved in environmental restoration. Photo by Leah G. Miller

Further reading on the subject of **Environmental Restoration**:

Environmental Restoration: Science and Strategies for Restoring the Earth. John J. Berger (ed.) 1990

Repairing Damaged Wildlands: A Process-Oriented, Landscape-Scale Approach. Steven G. Whisenant, 1999.

The Science and Practice of Ecological Restoration. James Aronson (ed.), 2004.

Foundations of Restoration Ecology. Donald A. Falk, et al., 2006



Revegetation is an important component of any environmental restoration project. Here, a CCC crew is planting and caging oak trees as mitigation for a pipeline project. Native grass seed and mulch is being applied to reduce erosion and blend the site with the surroundings. The same principles and practices would be used to reclaim a quarry.

Photo by Beth Hendrickson