**Land Rehabilitation programs** teach individuals how to monitor, protect, and restore disturbed landscapes to natural functioning ecosystems. Also called ecological restoration, individuals will learn about the processes involved in structuring natural and managed ecosystems so knowledge can be used in management of natural resources.

Students will learn about the scientific classification of soils, soil properties, and their relationship to agricultural crops. They will do research, analyze soils, and learn about soil conservation and management, and soil-plant and soil-animal interactions. They will study the origin, fertility, mineralogy, and chemical-physical properties of soils, classify different soils for specific uses, such as plant growth, waste disposal, and other environmental considerations. Other studies include hydrology, mineralogy, environmental science, microbiology and related biological sciences, and applicable animal and plant sciences.

**Programs at Montana State University** provides training in site remediation and restoration ecology, including soil remediation, re-vegetation, fluvial and riparian restoration, investigation of impacted geologic resources, amelioration of contaminated soils and water, integrated management of invasive species, and remediation of sites impacted by industrial, recreational, and land management activities. Emphasis is placed on developing a broad understanding of hydrologic, soil, and plant processes, from both a basic and an applied science approach. Coursework in the chemical, biological, and environmental sciences provides a foundation of knowledge. Graduates possess a broad knowledge of land rehabilitation processes, are able to critically analyze and solve problems, and can work in teams to develop and implement effective land management strategies. Studies in Land Rehabilitation will infuse students with critical knowledge and skills needed to analyze and manage lands requiring rehabilitation.

**Characteristics associated with success** include a desire to improve the quality of life and a desire to preserve our natural resources. You should enjoy research and have an interest in soils and plant management, hydrologic processes, re-vegetation and remediation.

**You should be**:
- Interested in the environment
- Interested in improving the balance of natural resource use and maintaining ecosystem function
- Be creative and enjoy experimentation that turns ideas into practical use
- Have a strong interest in applying science based knowledge
- Have a strong curiosity about nature and enjoy being outdoors
- Interested in a management position with responsibilities to make important decisions with long-term consequences
- Interested in maintaining compliance with rules and regulations of federal and state agencies

**Occupations in this field require the ability to**: communicate well, both orally and in writing; think logically; and collect, organize, analyze, and interpret scientific data.

**Related occupations include**:
- Restoration Ecologist
- Range Conservationist/Manager
- Soil Conservationist
- Environmental Analyst
- Natural Resources Manager
- Forest Ecologist
- Environmental Monitoring Specialist
- Environmental Consultant
- Park Naturalist
- Environmental Biologist
- Ecologist
- Farm/Ranch Management Advisor
- GIS Technician
**Land Rehabilitation**

*MSU graduates (Bachelor’s degree) were hired in the following selected fields*¹:

- Environmental Scientist - Talley Group Inc./CH2M Hill
- Soil Scientist/Reclamation Specialist - Bureau of Land Management
- Soil Scientist - Confederated Tribes of Warm Springs Reservation of Oregon
- Seed Production Tech - Conservation Seeding & Restoration, Inc.
- Reclamation Engineer - Black Butte Coal Company
- Environmental Engineer - Black Butte Coal Company
- Environmental Engineer - Gaston Engineering & Surveying
- Nursery Manager - Apple Creek Propagators
- Rangeland and Management Specialist - Bureau of Land Management
- Reclamation Soil Scientist - KC Harvey Inc.
- Surveyor - Knight Technologies

*Salary averages of survey respondents: (# of respondents in parentheses)*²

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In the field for “Conservation Scientist”³ the lowest 10% of salaries for 2012 (comparable to new college graduate starting salaries) was $38,400 annually. The median wages in the nation in 2012 was estimated at $61,100 annually. In 2012 there were 22,100 positions nationally with an expected growth forecast of +1% through 2022. In 2012 the lowest 10% of salaries for the state of Montana (comparable to new college graduate starting salaries) was $37,600 annually. The median wages in Montana in 2012 was estimated at $58,500 annually. In 2012 there were 450 positions in Montana with an expected growth forecast of +4% through 2022. Job openings in Montana and nationally are due to both growth and net replacement. Please remember when reviewing the salary information that it is the “median,” meaning 50% of reported wages fell below and 50% above the reported wage.

**Graduates from this program entered programs of further education at these institutions:**

- Montana State University
- University of Montana
- University of Minnesota

**Other Sources of Information:**

- USDA Natural Resources Conservation Service: www.nrcs.usda.gov
- Society for Ecological Restoration International: www.ser.org
- Soil and Water Conservation Society: www.swcs.org
- Bureau of Land Management: www.blm.gov
- Land Resources & Environmental Sciences – Montana State University: http://landresources.montana.edu

*Insufficient Data*: Each year the Career, Internship & Student Employment Services Office at Montana State University conducts a survey to determine placement rates and salary survey information from recent MSU graduates. Graduates were requested to participate in the survey to provide relevant information regarding the transition from college to career/graduate school. At times, there are limited or no respondents. Statistics, therefore, are not always based upon the response of the total sample group and are sometimes listed as “Insufficient Data”.

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¹University of Oregon. 2007. Created by “intoCareers”, a unit of the University of Oregon.
²Montana State University Department of Land Rehabilitation
³Montana State University Career & Internship Services
⁵Number of graduates/number of respondents: 2009: 6/2; 2010: NA; 2011: 3/2; 2012: 0/1
⁶©Net: online.onetcenter.org
⁷Copyright © 2012 State of Minnesota. CareerOneStop. All rights reserved.