

Landscape Ecology & Environmental Management

A training course for resource management professionals

With the growing emphasis on ecosystem- and watershed-based management strategies, resource management professionals of all types — from local government land planners to state and federal agency staff — will benefit from an understanding of the principles of landscape ecology. This course provides an introduction to the science of landscape ecology, and explains the relevance of a landscape approach to natural resource management. Originally developed as a 2-3 day classroom course, this material can be tailored and built upon to suit a variety of training and educational needs.

Course Topics:

Introduction

The course introduction provides some background on landscape ecology as a scientific field of study, and contrasts the piece-meal approach of past management paradigms with the whole-system view embodied by contemporary management strategies. Important concepts such as sustainability, ecosystem goods and services, and cumulative effects are defined. Examples are used to demonstrate how a landscape approach can help solve many of today's most pressing environmental problems.

- What is Landscape Ecology?
- Successes and Limitations of Past Management Approaches
- Cumulative Effects in Space and Time
- Benefits of a Landscape Approach

Concepts of Landscape Ecology

This section presents the basic concepts of landscape ecology in the context of a simple framework that includes landscape structure, function, and change. Structural elements — patches, corridors, and matrix — are described using graphics, aerial photographs, and a classroom exercise. How these elements combine to influence landscape function is explored through concepts such as connectivity, heterogeneity, and stability. Processes of landscape change are described, with distinctions being drawn between natural processes and human-caused *changes of concern*.

- A Framework for Landscape Ecology
- Elements of Landscape Structure
- Emergent Properties and Landscape Function
- Processes of Landscape Change

Tools and Quantitative Methods

Some of the technological tools and methods that are most commonly used in landscape assessments are briefly described. While the level of detail presented is not sufficient to allow course participants to become practitioners, it will permit them to be undaunted by the terminology and to recognize opportunities for drawing upon the technological resources available.

- Remote Sensing
- Image Analysis
- Geographic Information Systems (GIS)
- Landscape Indicators and Indices

Case Studies

Several case studies are presented to demonstrate how the concepts and tools of landscape ecology have been applied to different situations and problems.

- Ecological Assessment of the Mid-Atlantic Region
- San Diego MSCP
- Maryland Smart Growth: Green

Contact us:

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We are actively seeking grants, contracts, partnerships, or other mechanisms to fund additional development of this course, as well as other landscape ecology tools and training materials. We see numerous possibilities that we would be happy to discuss with interested individuals, organizations, or agencies.