

Ecological Sites: Understanding the Landscape

The transition to ecological site descriptions will provide the foundation that will assist land managers in making timely, well informed resource management decisions on rangeland and forest land.

By **Stan Boltz**, *Rangeland Management Specialist, Natural Resources Conservation Service, Rapid City, South Dakota* and **George Peacock**, *Rangeland Management Specialist, Grazing Lands Technology Institute, Natural Resources Conservation Service, Fort Worth, Texas*

Looking across any landscape it is not difficult to recognize that some parts are different from other parts in regard to the kinds and amounts of vegetation. Upon noticing these differences, one may ask, "Are these changes random occurrences, or is there a pattern or repeatable entity that can be described?"

As nature would have it, there indeed does exist a relationship. In fact in most cases, an inextricable link between the specific soils on the landscape and the resultant expression of the plants exists. To understand this variation across the landscape, we classify these different parts into units called ecological sites. Landscapes are divided into ecological sites for the purpose of inventory, evaluation, and management.

Any land inventory, analysis, and resulting management decisions require the knowledge of these individual sites and their interrelationships to one another on the landscape. The ecological site description is the document that will contain information about the individual ecological sites.

Why are ecological site descriptions important?

Range site descriptions have provided ecologically based guidance in making land management decisions for more than 60 years. However, a greater understanding of ecosystem dynamics coupled with an emerging host of new landowners, non-traditional uses, and management objectives has resulted in the transition to ecological site descriptions.

As an evolution of range site descriptions and woodland suitability group descriptions, ecological site descriptions contain information about the ecological dynamics of each site and are used as the standard or reference for resource evaluations and assessments such as trend, similarity index, and rangeland health.

Today, land managers are challenged with synthesizing an overwhelming amount of scientific information concerning soils, hydrology, ecology, management, etc. Ecological site descriptions can serve as a clearinghouse of this information for each ecological site.

What is an ecological site?

Ecological sites are the subdivisions of forest land and rangeland landscapes which are utilized for inventory and analysis. An ecological site is defined as a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (USDA 1997). Ecological sites evolved from and have replaced range sites and woodland suitability groups.

Each ecological site is the product of all the environmental factors responsible for its development, such as soils, relief or topography, climate, and natural disturbances (fire, herbivory, drought, etc.). Unique associations of plants (plant communities) typically recur when specific environmental factors are repeated across the landscape. An ecological site is recognized and described on the basis of these characteristics and its ability to produce and support a characteristic plant community.

Where changes in soils, aspect, topography or moisture conditions are abrupt, ecological site boundaries are fairly distinct and recognizable. Boundaries are broader and less distinct where ecological sites change gradually along broad environmental gradients of relatively uniform soils and topography.

Although some ecological sites may appear to be along a continuum, distinctive ecological sites can be identified and described. These sites occur with predictable regularity and are associated with concurrent differences in soil, topography, hydrology, or climate.

