

6.1 Appendix A. Ecological Classification System (ECS)

6.1A - Definition

The Ecological Classification System (ECS) is part of a nationwide mapping initiative developed to improve our ability to manage all natural resources on a sustainable basis.

The ECS is a method to identify, describe, and map units of land with different capabilities to support natural resources. This is done by integrating climatic, geologic, hydrologic, topographic, soil, and vegetation data.

In Minnesota, the classification and mapping is divided into six levels of detail (see Figure 6.1 for a map of Ecological Provinces, Sections, and Subsections of Minnesota). These levels are:

Province: Largest units representing the major climate zones in North America, each covering several states. Minnesota has four provinces: eastern broadleaf forest, Laurentian mixed forest, prairie parkland and tallgrass aspen parklands.

Section: Divisions within provinces that often cross state lines. Sections are defined by the origin of glacial deposits, regional elevation, distribution of plants and regional climate. Minnesota has 10 sections (e.g., Lake Agassiz, Aspen Parklands).

Subsection: County-sized areas within sections that are defined by glacial land-forming processes, bedrock formations, local climate, topographic relief, and the distribution of plants. Minnesota has 24 subsections (e.g., Aspen Parklands).

Land type association: Landscapes within subsections, characterized by glacial formations, bedrock types, topographic roughness, lake and stream patterns, depth to ground water table, and soil material (e.g., Bronson Lake Plain).

Land type: The individual elements of land type associations, defined by recurring patterns of uplands and wetlands, soil types, plant communities, and fire history (e.g., fire-dependent xeric pine-hardwood association).

Community: Unique combinations of plants and soils within land types, defined by characteristic trees, shrubs and forbs, elevation, and soil moisture (e.g., Mesic Aspen-Oak Woodland).

6.1B - Purpose of an Ecological Classification System

- Define the units of Minnesota's landscape using a consistent methodology.
- Provide a common means for communication among a variety of resource managers and with the public.
- Provide a framework to organize natural resource information.

- Improve predictions about how vegetation will change over time in response to various influences.
- Improve our understanding of the interrelationships between plant communities, wildlife habitat, timber production, and water quality.

6.1C - End Products

- Maps and descriptions of ecological units for provinces through land types.
- Field keys and descriptions to determine which communities are present on a parcel of land.
- Applications for management for provinces through communities.
- Mapping of province, section, subsection, and land type association boundaries is complete throughout Minnesota.

For more information on ECS visit: <http://www.dnr.state.mn.us/ecs/index.html>

Figure 6.1. Ecological Provinces, Sections, and Subsections of Minnesota, 1999.

