C H A P T E R 1

Land Use and Cover

St. Louis Moraines, Tamarack Lowlands, Nashwauk Uplands, and Littlefork-Vermilion Uplands

How graphics are labeled:

Graphics (i.e., Tables, Charts, and Maps) referring to all four subsections combined (St. Louis Moraines, Tamarack Lowlands, Nashwauk Uplands, and Littlefork-Vermilion Uplands) are indicated by a "North-4 Subsections" after the chart designation (e.g., Table 3.2 North-4 Subsections).

Graphics referring to the St. Louis Moraines Subsection only are indicated by a "slm" after each chart designation (e.g., Chart 3.2 slm).

Graphics referring to the Tamarack Lowlands Subsection only are indicated by a "tl" after each chart designation (e.g., Map 3.2 tl).

Graphics referring to the Nashwauk Uplands Subsection only are indicated by a "nu" after each chart designation (e.g., Map 3.2 nu).

Graphics referring to the Littlefork-Vermilion Uplands Subsection only are indicated by a "lvu" after each chart designation (e.g., Map 3.2 lvu).

Notes relating to this chapter:
Color maps may be viewed as PDF files on the St. Louis Moraines, Tamarack Lowlands, Nashwauk Uplands, and Littlefork-Vermilion Uplands ("North-4") Subsection Forest Resource Management Plan (SFRMP) Web site at:
http://www.dnr.state.mn.us/forestry/subsection/north_4subsections/assessment.html

Maps in this chapter depict information for an area within a " planning boundary." This boundary closely approximates the subsection(s) while capturing data summary and planning efficiencies by using survey or jurisdiction lines in some cases.

Printed documents will be available for review at the Minnesota DNR Grand Rapids Region Headquarters at 1201 E Hwy 2, Grand Rapids, Minnesota, and on compact disk by request.

1.1 Land Use and Cover

Chart 1.1 slm

St Louis Moraines

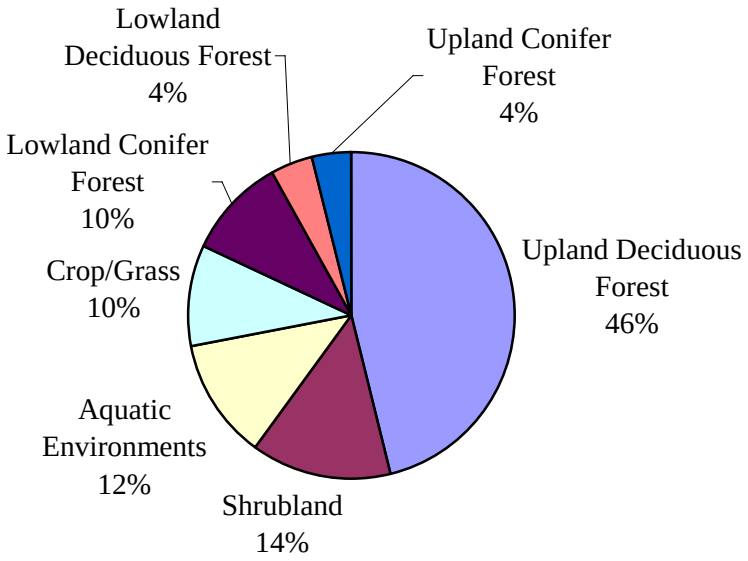


Chart 1.1 tl

Tamarack Lowlands

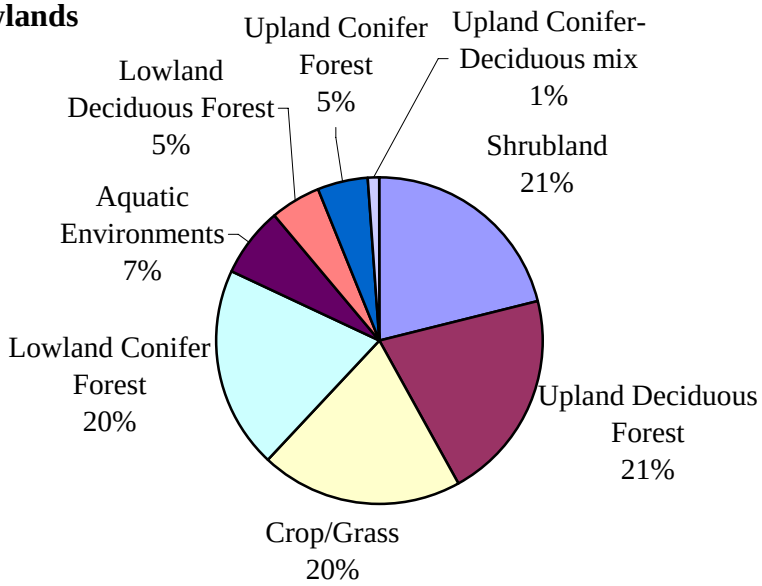


Chart 1.1 nu

Nashwauk Uplands

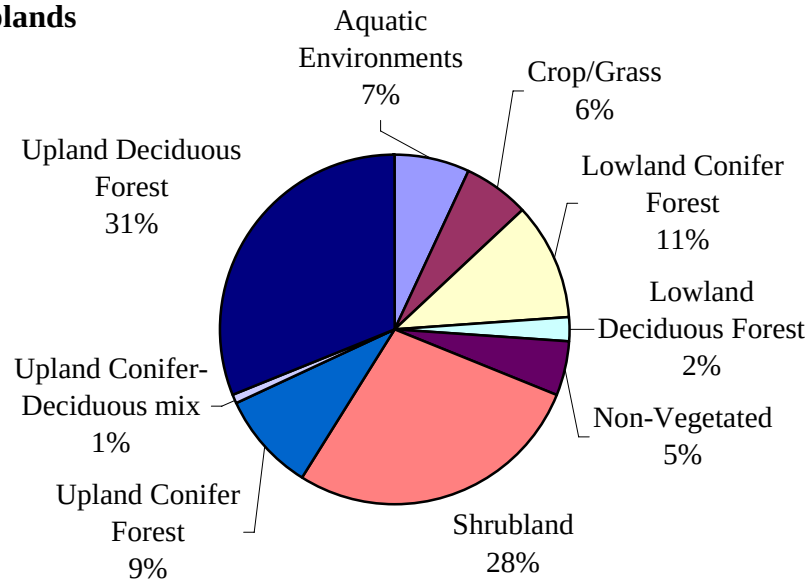
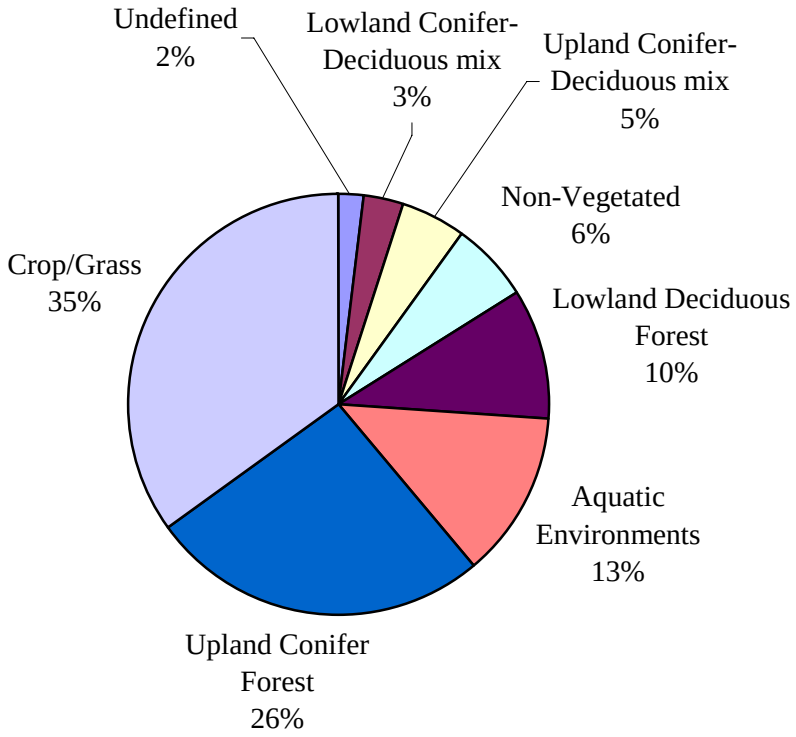


Chart 1.1 lvu

Littlefork-Vermilion Uplands



Land Use and Cover Classification Descriptions

Forested: Areas with at least two-thirds of the total canopy cover composed of deciduous forest, coniferous forest, or mixed deciduous/conifer forest. Forest stands may be either natural origin or planted.

Cultivated land: Areas under intensive cropping or rotation, fallow fields, and fields seeded with forage and cover crops. Fields exhibit linear or other patterns associated with current or recent tillage.

Hay/pasture/grassland: Areas covered by grasslands and herbaceous plants. May contain up to one-third shrubs and/or tree cover. Areas range in size (small to extensive) and shape (regular to irregular). These areas often exist between agricultural land and more heavily wooded areas, and along rights-of-way and drains. Some areas may be used as pastures or mowed or grazed, and range in appearance from smooth to mottled. Included are fields that show evidence of past tillage but are retired and planted to a cover crop or appear abandoned and occupied by native vegetation.

Water: Areas of permanent water bodies—such as lakes, rivers, reservoirs, stock ponds, ditches, and permanent and intermittently exposed palustrine (marshy) open water areas—where photo evidence indicates that water covers the area most of the time.

Urban-rural development: Areas that are used for urban and industrial purposes (e.g., cities).

Bog/marsh/fen: Peat-covered or peat-filled depressions with a high water table. Bogs are carpeted with sphagnum moss and ericaceous (heath) shrubs and may be treeless or tree-covered with black spruce and/or tamarack. Bogs, marshes, and fens may be grassy and contain standing or slowly moving water. Vegetation consists of grass, sedge sods, or common hydrophytic (i.e., water-loving) vegetation such as cattail and rushes. Areas are often interspersed with channels or pools of open water.

Brushland: Areas with combinations of grass, shrubs, and trees in which deciduous and/or coniferous tree cover comprises one-third to two-thirds of the area, and/or the shrub cover comprises more than one-third of the area. This complex often exists next to grassland or forested areas but may be found alone. Brushland areas vary in shape (i.e., irregular) and size.

Mining: Areas stripped of topsoil revealing exposed substrate such as sand/gravel. Included are gravel quarry operations, mine tailings, borrow pits, rock quarries, and natural beaches/sand dunes.

Source: *Land-cover data set derived from classified 30-meter resolution Thematic Mapper satellite imagery. Landsat images between 1991 and 1996 were classified by Manitoba Remote Sensing Centre. Detailed metadata can be found at the Interagency Information Cooperative's Web site at: http://iic.gis.umn.edu/*

Color maps found in this document may be viewed as PDF files on the North-4 Subsections Forest Resource Management Plan (SFRMP) Web site at: http://www.dnr.state.mn.us/forestry/subsection/north_4subsections/assessment.html

1.2 GAP Classification of the North-4 Subsections

What Is a GAP Classification?
The Gap Analysis Program (GAP) was project sponsored and coordinated by the Biological Resources Division of the U.S. Geological Survey. The Minnesota DNR participated in this nationwide project. Coordination of GAP activities with neighboring states is done to ensure the development of regionally compatible information.

The GAP Web site defines the project as "… a scientific method for identifying the degree to which native animal species and natural communities are represented in our present-day mix of conservation lands. Those species and communities not adequately represented in the existing network of conservation lands constitute conservation 'gaps.'" The purpose of GAP is to provide broad geographic information on the status of ordinary species (those not threatened with extinction or naturally rare) and their habitats in order to provide land managers, planners, scientists, and policy makers with the information they need to make better-informed decisions. Further information is available at www.gap.uidaho.edu/default.htm.

The basic statewide geographic information systems (GIS) datasets of GAP include land cover, distributions of native vertebrate species, major land-ownership patterns, and land management. Gap analysis is conducted by overlaying vegetation and species richness maps with ownership and management maps so that gaps in the management for biodiversity can be identified. The data layers are developed, displayed, and analyzed using GIS techniques.

Land-Cover Classification
The GAP classification of current vegetation (land cover map), which is a part of the larger project, was produced by computer classification of satellite imagery (Landsat 5 Thematic Mapper imagery [draft} by the Resource Assessment Unit of the DNR Division of Forestry. Units of analysis are divided by Ecological Classification System (ECS) subsections. The minimum mapping unit is one acre.

The following table and map show the GAP land-cover classification of the subsections in this plan.

Table 1.2 North-4 Subsections GAP Covertype Acres and Percentages

North-4 Subsections GAP Covertypes		
Cover Type	Acres	Percent[1]
Unknown	13	<1
Aquatic Environments	430,824	8
Crop/Grass	654,209	11
Lowland Conifer Forest	967,200	17
Lowland Conifer-Deciduous mix	1,064	<1
Lowland Deciduous Forest	187,438	6
Non-Vegetated	97,262	2
Shrubland	992,123	21
Upland Conifer Forest	317,082	12
Upland Conifer-Deciduous mix	17,316	1
Upland Deciduous Forest	1,857,857	21
All Four Subsections Total	5,522,388	100

[1]Decimal percentages are rounded to the nearest one percent.

Map 1.2 GAP Land Cover Classification of the North-4 Subsections