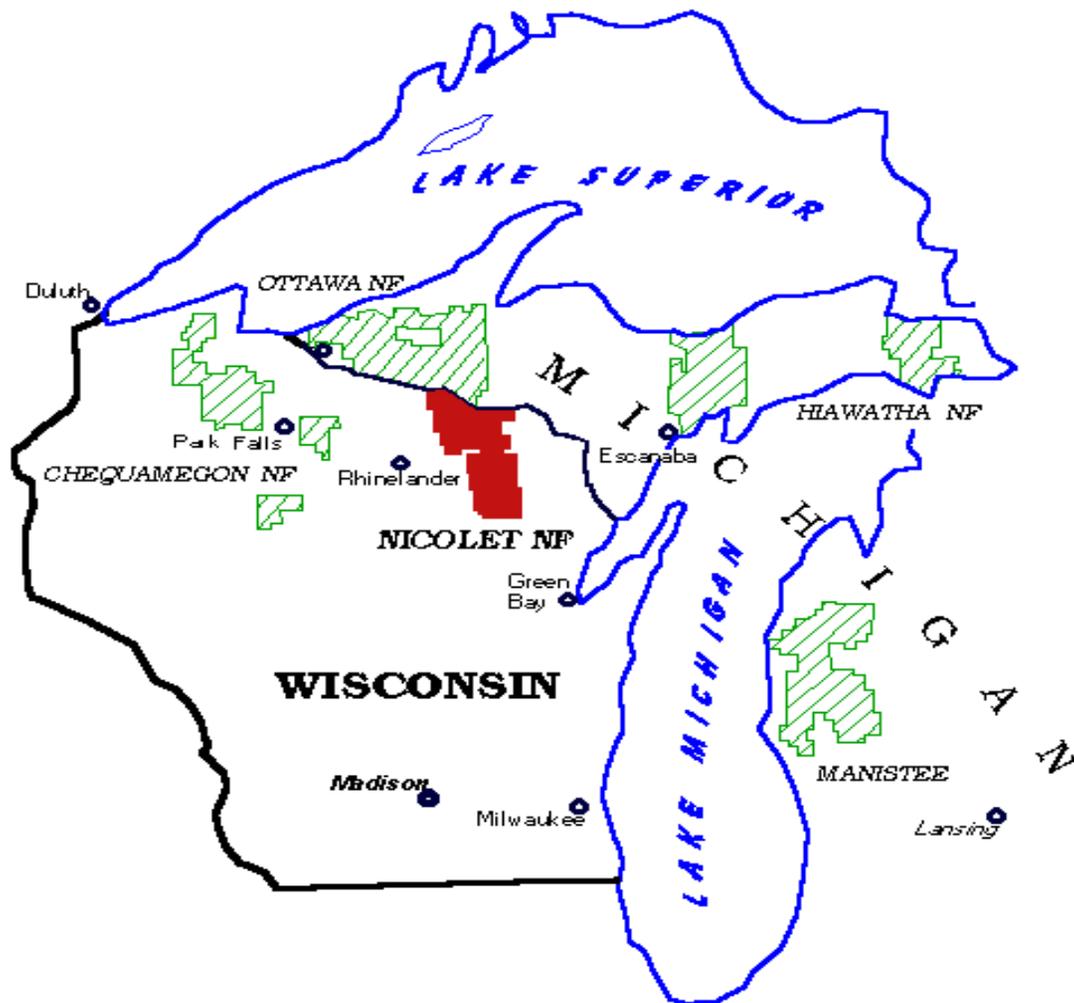


Chequamegon-Nicolet National Forest

Terrestrial Ecological Unit Inventory

Nicolet National Forest



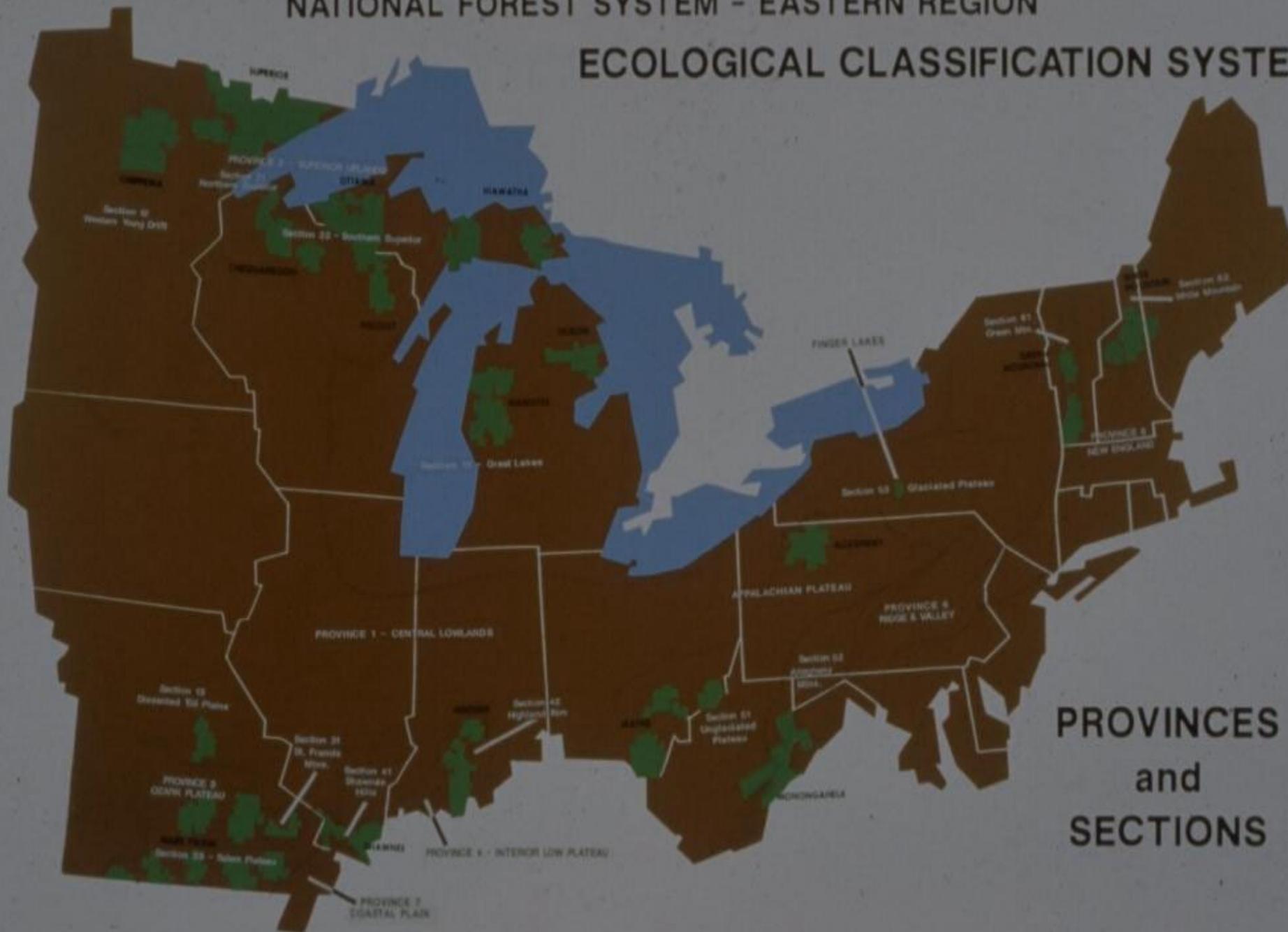


Chequamegon-Nicolet National Forest



NATIONAL FOREST SYSTEM - EASTERN REGION

ECOLOGICAL CLASSIFICATION SYSTEM





CANADA

Lake Superior

MINN

WIS

MICH

IOWA

ILL

OHIO

Lake Michigan

Lake Huron

Lake Erie

53

51

41

75

94

53

12

16

90

94

61

20

51

10

16

94

12

94

41

41

45

3

31

75

23

27

10

90

78

21

94

190

13

23



Douglas

Bayfield

Ashland

Iron

Vilas

Burnett

Washburn

Sawyer

Price

Oneida

Florence

Polk

Barron

Rusk

Forest

Marquette

Taylor

Lincoln

Langlade

St. Croix

Dunn

Chippewa

Marathon

Menominee

Oconto

Pierce

Eau Claire

Clark

Shawano

Door

Pepin

Buffalo

Jackson

Wood

Portage

Waupaca

Outagamie

Brown

Kewaunee

Trempealeau

Monroe

Juneau

Adams

Waushara

Winnebago

Calumet

Manitowoc

La Crosse

Monroe

Marquette

Green Lake

Fond du Lac

Sheboygan

Vernon

Sauk

Columbia

Dodge

Ozaukee

Crawford

Richland

Washington







CHEQUAMEGON
National Forest
CAMPGROUND

CHIPPEWA →



U. S. DEPARTMENT OF AGRICULTURE

RAINBOW
LAKE
WILDERNESS
CHEQUAMEGON
National Forest

FOREST SERVICE
U.S.
DEPARTMENT OF AGRICULTURE

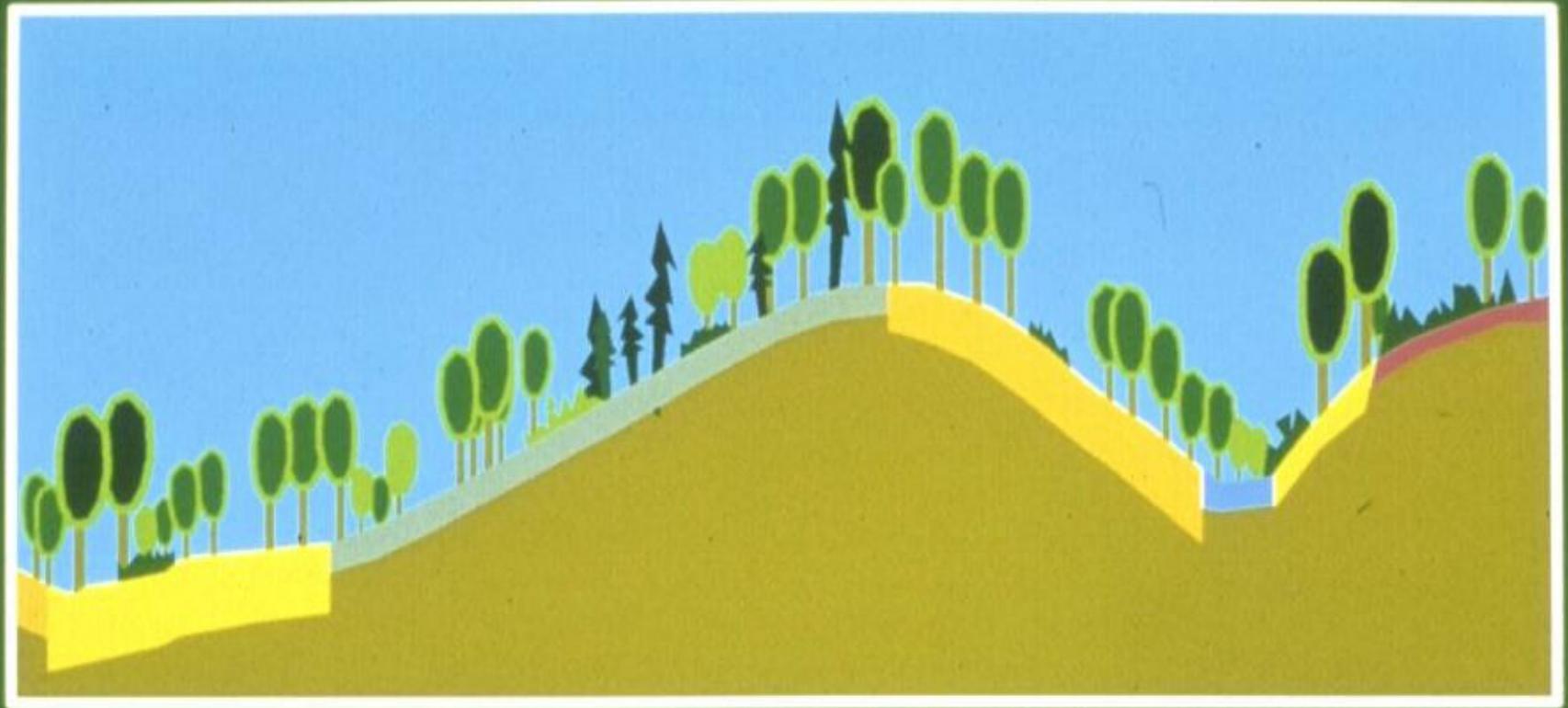
Forest Service
WILDERNESS



REGULATION 6

SECRETARY OF AGRICULTURE'S REGULATIONS

“National forest are ecosystems, and their management for goods and services requires an awareness of the interrelationship among plants, animals, soil, water, air and other environmental factors within the ecosystems.”



Ecological Classification System

An integrated system which delineates finite areas of land having ecological integrity and significance for management. It is a hierarchical system which integrates geology, landform, soils and vegetation.

National hierarchy of ecological units

<i>Planning and analysis scale</i>	<i>Ecological Units</i>	<i>Purpose, objectives, and general use</i>
Ecoregion Global Continental Regional	Domain Division Province	Broad applicability for modeling and sampling. Strategic planning and assessment. International planning.
Subregion	Section Subsection	Strategic, multiregional, statewide, and multiagency analysis and assessment.
Landscape	Landtype association	Forest or areawide planning, and watershed analysis
Land unit	Landtype Landtype phase	Project and management area planning and analysis.
Hierarchy can be expanded by user to smaller geographical areas and more detailed ecological units if needed.		Very detailed project planning.

Table 2. Principal map unit design criteria of ecological units

<i>Ecological unit</i>	<i>Principal map unit design criteria</i>
Domain	Broad climatic zones or groups (e.g., dry, humid, tropical)
Division	Regional climatic types (Koppen 1931, Trewatha 1968) Vegetational affinities (e.g., prairie or forest) Soil order
Province	Dominant potential natural vegetation (Kuchler 1964) Highlands or mountains with complex vertical climate-vegetation-soil zonation
Section	Geomorphic province, geologic age, stratigraphy, lithology Regional climatic data Phases of soil orders, suborders, or great groups Potential natural vegetation Potential natural communities (PNC) (FSH 2090)
Subsection	Geomorphic process, surficial geology, lithology Phases of soil orders, suborders, or great groups Subregional climatic data PNC—formation or series

MADE OF MAP UNITS

The map depicts communities or regions shown in hatched order in
 order of varying communities which communities with their locations
 of each community have a primary location assigned a general area
 indicated in the chart of the location. Some and some are based
 upon the map showing their own. Each station is further
 subdivided into positions on the basis of their location of the region.
 Mountainous terrain, elevation, and having the same region of the
 subject location on topographic projection to the details of the
 contour. Some communities which the same contour over community with
 topographic relief, photographs is used as a base for showing
 elevation, color relief.

DEVELOPMENT OF THE MAP

This map is the product of topographic
 information. Topographic data collected
 from U.S. Army Engineers in the
 United States, 2d Edition, 1924. From
 1924 to 1940, 1:50,000 scale, 1940.
 Subsequent maps were incorporated and
 prepared by Forest Service Region
 complete in collaboration with regional
 hydrographic divisions. These maps
 were not available and prepared by
 the office to produce the national map.

EXPLANATION



Mountains with elevation contour
 These contours are shown for the
 elevation of contour lines to show
 elevation, e.g., 1000 feet
 contour lines - same method

Representative stream station



SCOTCH BUCKLE



Stream



Stream

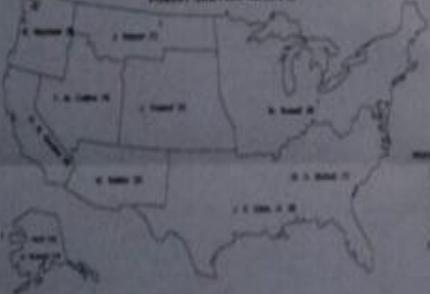


Stream



Stream

FOREST SERVICE REGIONS



- SYMBOLS FOR FOREST SERVICE REGIONS
- 1. Northwest
 - 2. North Central
 - 3. North East
 - 4. South West
 - 5. South Central
 - 6. South East
 - 7. Alaska

MAP SCALE AND PROJECTION

SCALE 1:500,000



<p>Landtype association</p>	<p>Geomorphic process, geologic formation, surficial geology, and elevation</p> <p>Phases of soil subgroups, families, or series</p> <p>Local climate</p> <p>PNC—series, subseries, plant associations</p>
<p>Landtype</p>	<p>Landform and topography (elevation, aspect, slope gradient, and position)</p> <p>Phases of soil subgroups, families, or series</p> <p>Rock type, geomorphic process</p> <p>PNC—plant associations</p>
<p>Landtype phase</p>	<p>Phases of soil subfamilies or series</p> <p>Landform and slope position</p> <p>PNC—plant associations or phases</p>

The Ecological Approach

Integrates relevant factors about

- Climate
- Landform/geomorphology
- Soil
- Vegetation
- Water

To form landscape units of homogeneous resource capability

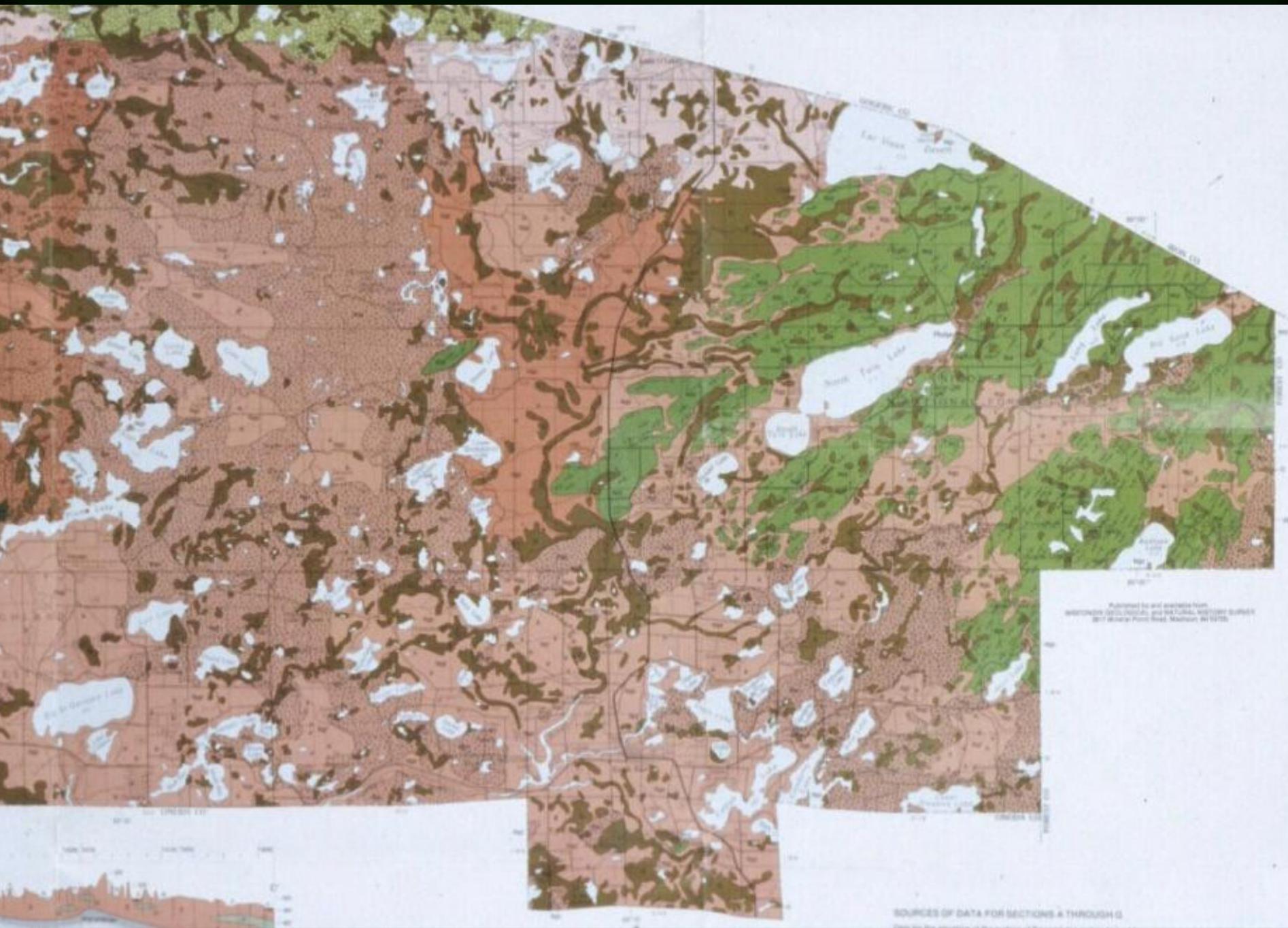
Pleistocene Geology of Vilas County, Wisconsin

John W. Attig



WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
INFORMATION CIRCULAR 50

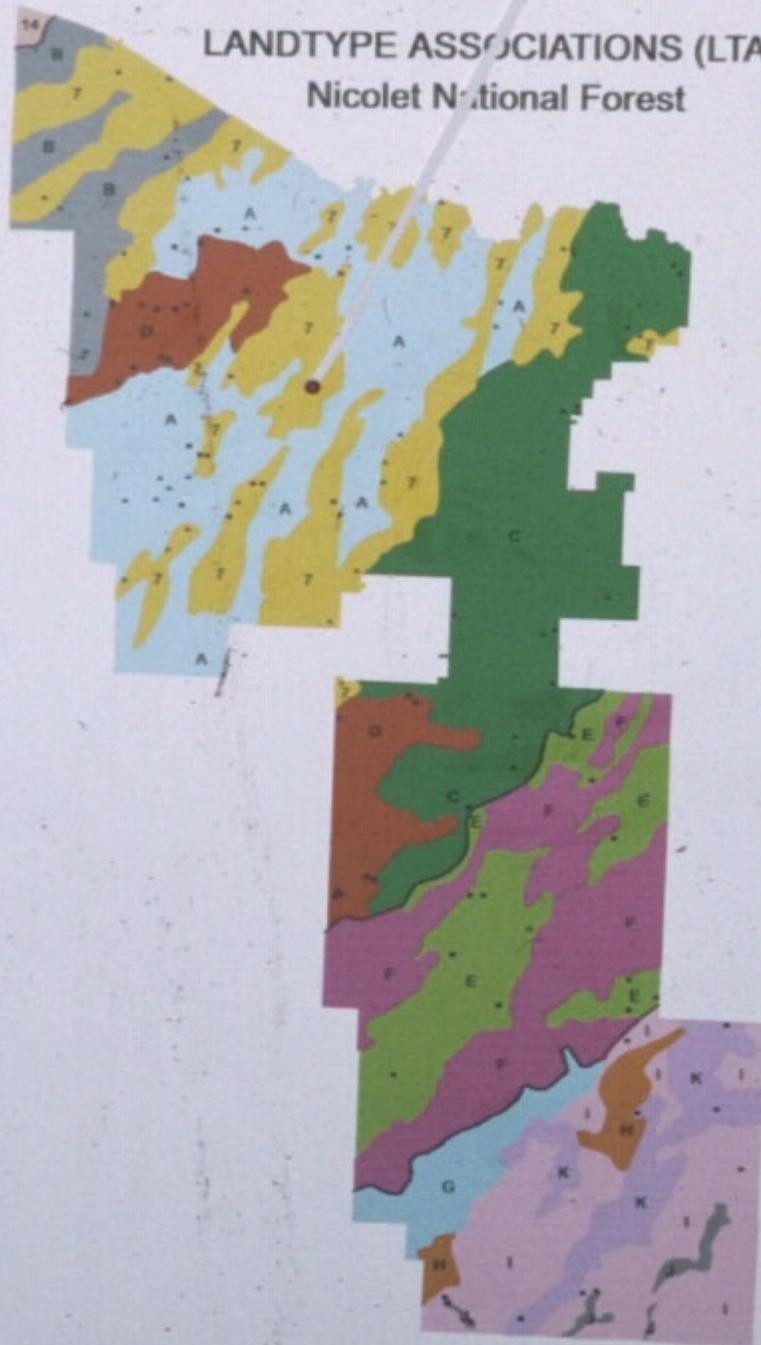
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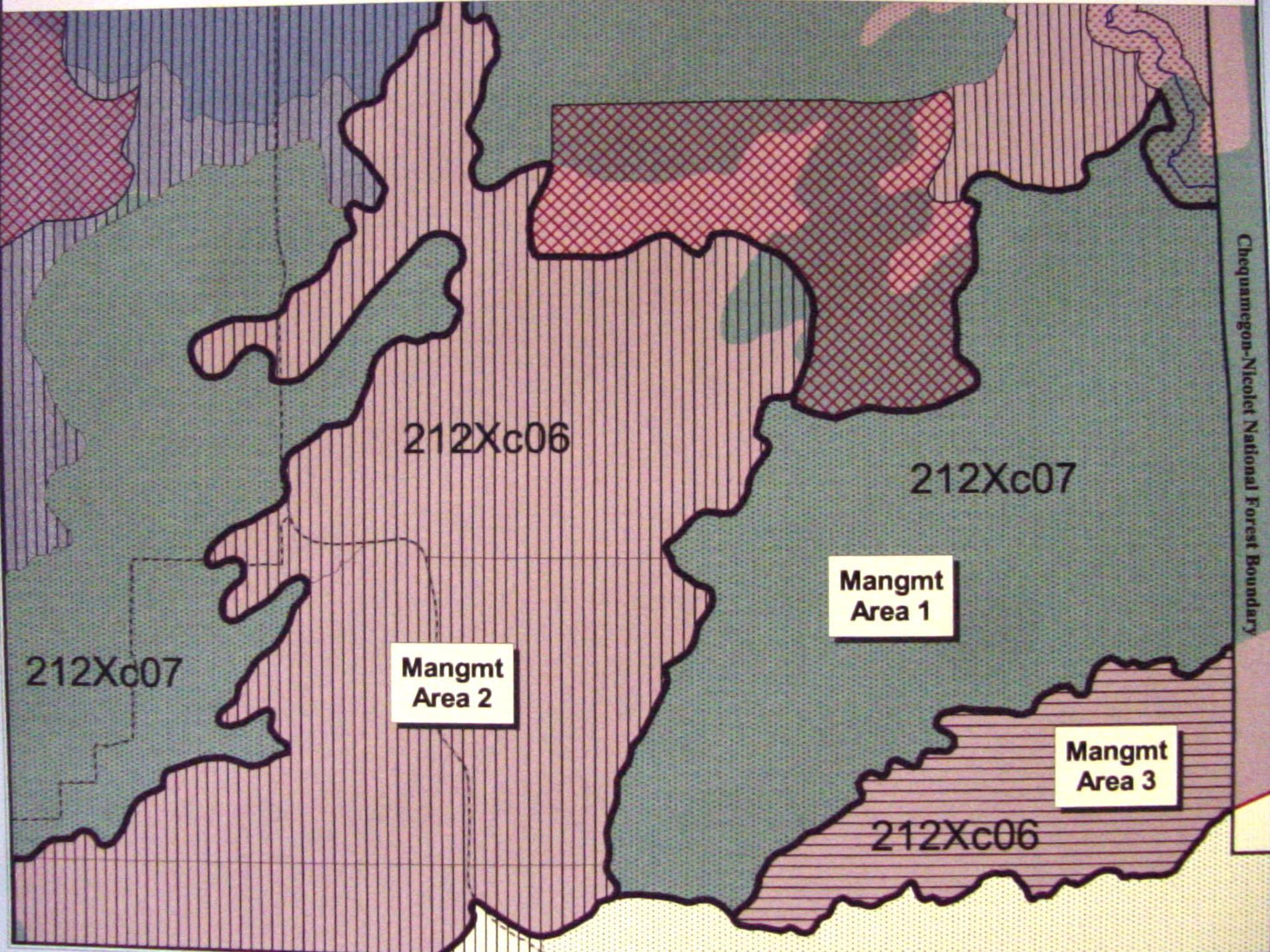


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 901 Mineral Point Road, Madison, WI 53706

SOURCES OF DATA FOR SECTIONS A THROUGH G

LANDTYPE ASSOCIATIONS (LTA) Nicolet National Forest





The Wisconsin Forest Accord

Preamble:

The Wisconsin Forest Accord constitutes a memorandum of understanding designed to focus future communication for statewide forest resource management. The parties to this memorandum agree that the Forest Habitat Classification System and The National Hierarchy of Ecological Units can work together to achieve better resource communication.

The Forest Habitat Classification System, an ecological tool, promotes a common language for interpreting site capability based on potential natural vegetation. It has been developed for Wisconsin, and is applicable across all ownerships.

The National Hierarchy of Ecological Units divides landscapes into ecologically significant regions at multiple scales. In Wisconsin the Forest Habitat Classification System will be the vegetative component for the National Hierarchy of Ecological Units.

We the Undersigned Believe:

- Healthy, diverse forest ecosystems are desirable for the long-term welfare of the State and its citizens.
- The future health of Wisconsin Forests for present and future generations will benefit from the participation of all landowners, the talents of all land managers, and the knowledge provided by the scientific community.
- All landowners have the responsibility to promote wise stewardship of the forest for the environmental, economic, social, and cultural well-being of the people of Wisconsin.
- Forests span geographic, political, and ownership boundaries and their wise management necessitates communication and information exchange.
- Forest resource managers depend on an understanding of the relationships among lifeforms and their environments, to sustain healthy forest ecosystems at various scales.
- Adoption and use of the Forest Habitat Classification System facilitates consistent assessment of ecological potential.

AND

The use of the National Hierarchy of Ecological Units in multi-scaled ecosystem analyses improves inter-State communication and coordination in natural resource management.

AND

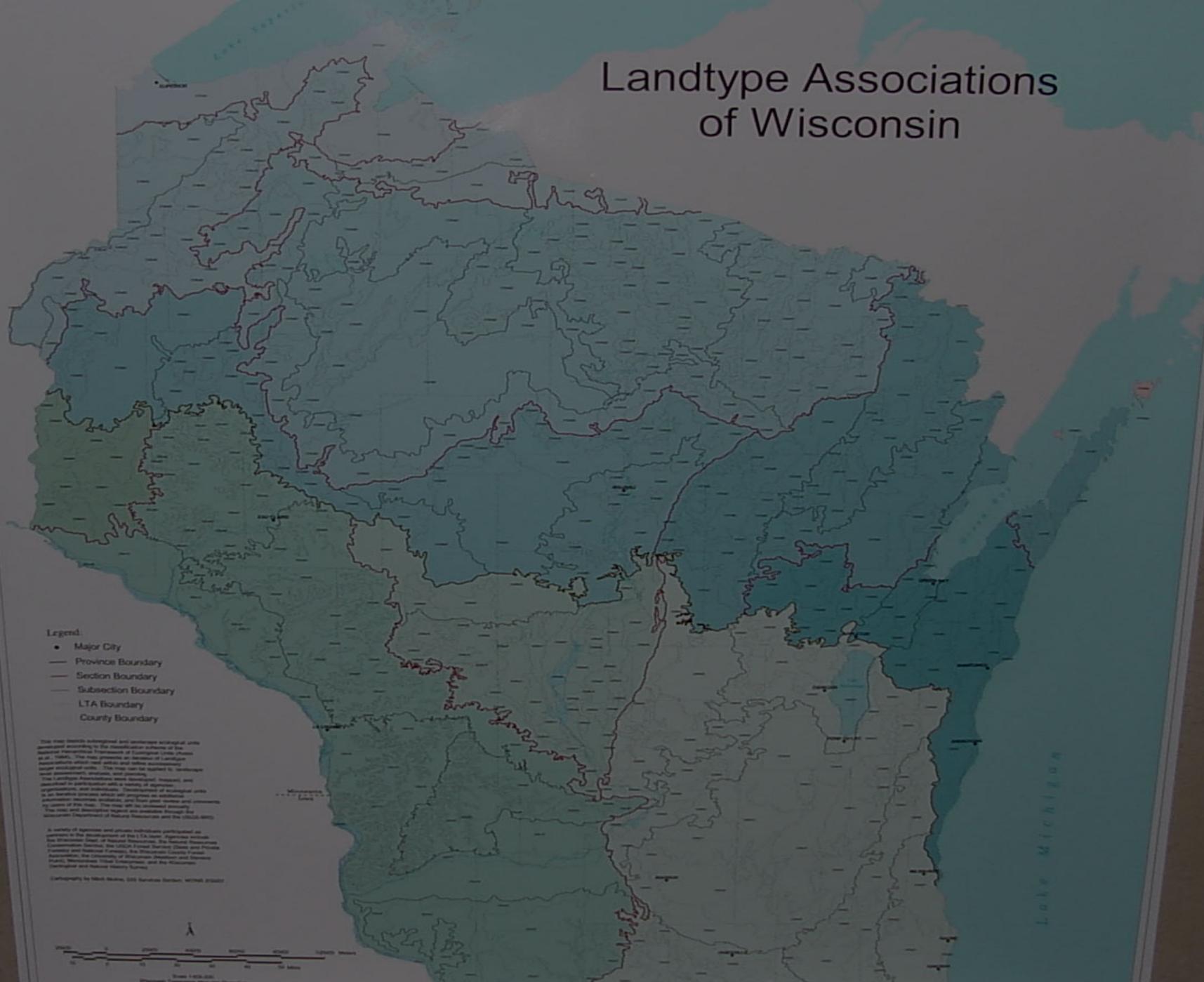
The two systems share objectives and complement one another.

Therefore, Be It Resolved:

All parties mutually support the continued development, evolution, and application of these ecological classification technologies.

July 26, 1994

Landtype Associations of Wisconsin



Legend:

- Major City
- Province Boundary
- Section Boundary
- Subsection Boundary
- LTA Boundary
- County Boundary

This map depicts ecological and landscape units as associated according to the classification scheme of the National Hierarchical Framework of Ecological Units (Peters et al., 1986). The map primarily is based on Landtype Associations which are units and their associated larger ecological units. The map can be further developed and improved, revised, and updated in partnership with a variety of agencies or organizations. Development of ecological units is an iterative process which will progress as additional information becomes available, and their names and contents may change in the future. The map will be updated annually. The map and associated reports are available through the Wisconsin Department of Natural Resources and the USGS-NDRC.

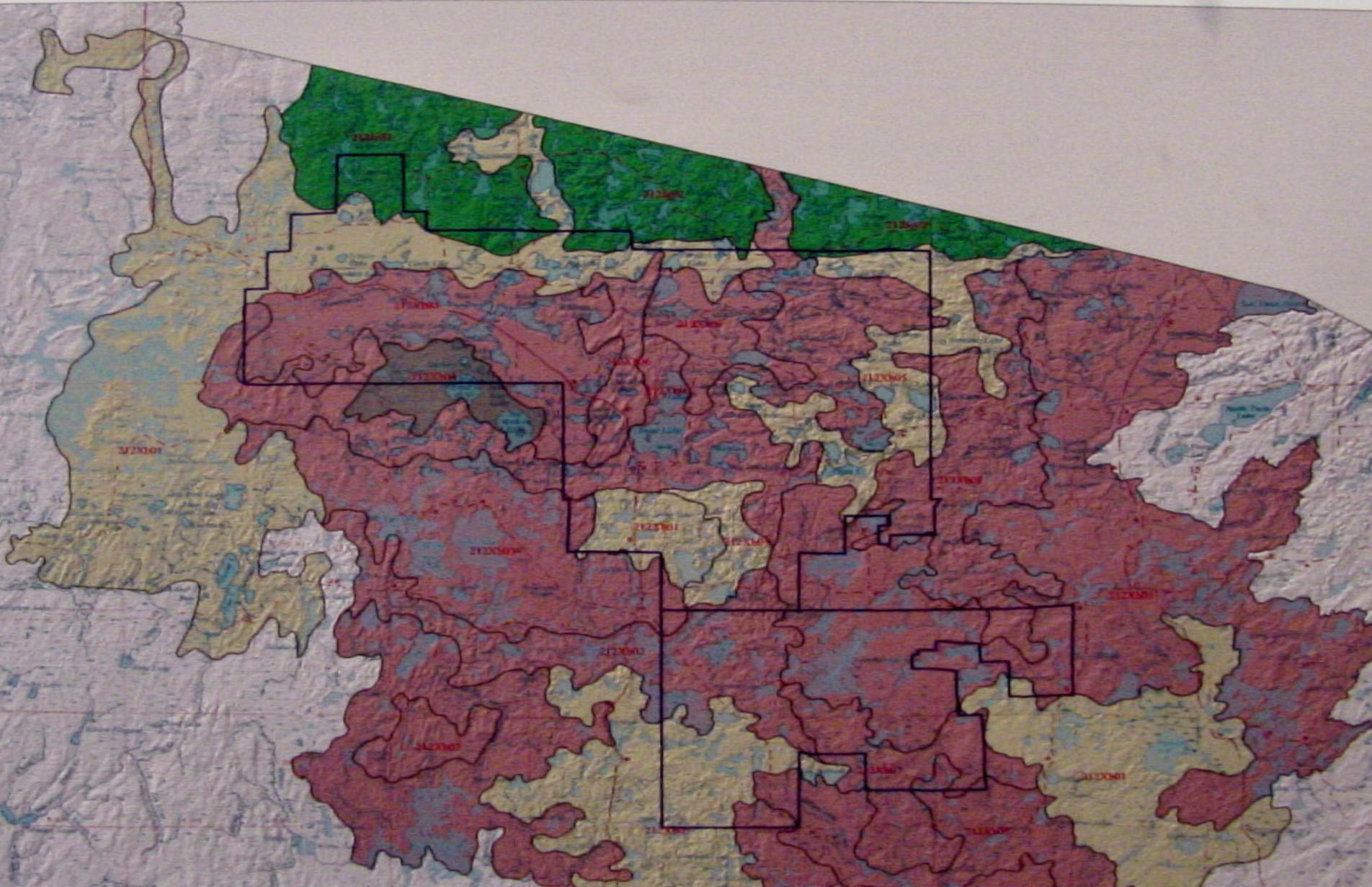
A variety of agencies and private individuals participated as partners in the development of this map. Organizations include the Wisconsin Dept. of Natural Resources, the National Resources Conservation Service, the USGS Forest Service, County and State Forestry and Wildlife Commissions, the Wisconsin County Forest Association, the University of Wisconsin, Statewide and Stevens County, Wisconsin Wild Landowners, and the Wisconsin Department of Natural Resources.

Cartography by Mark Stearns, GIS Services Section, WISCONSIN DNR



Northern Highland - American Legion State Forest

Management Opportunities by LTA

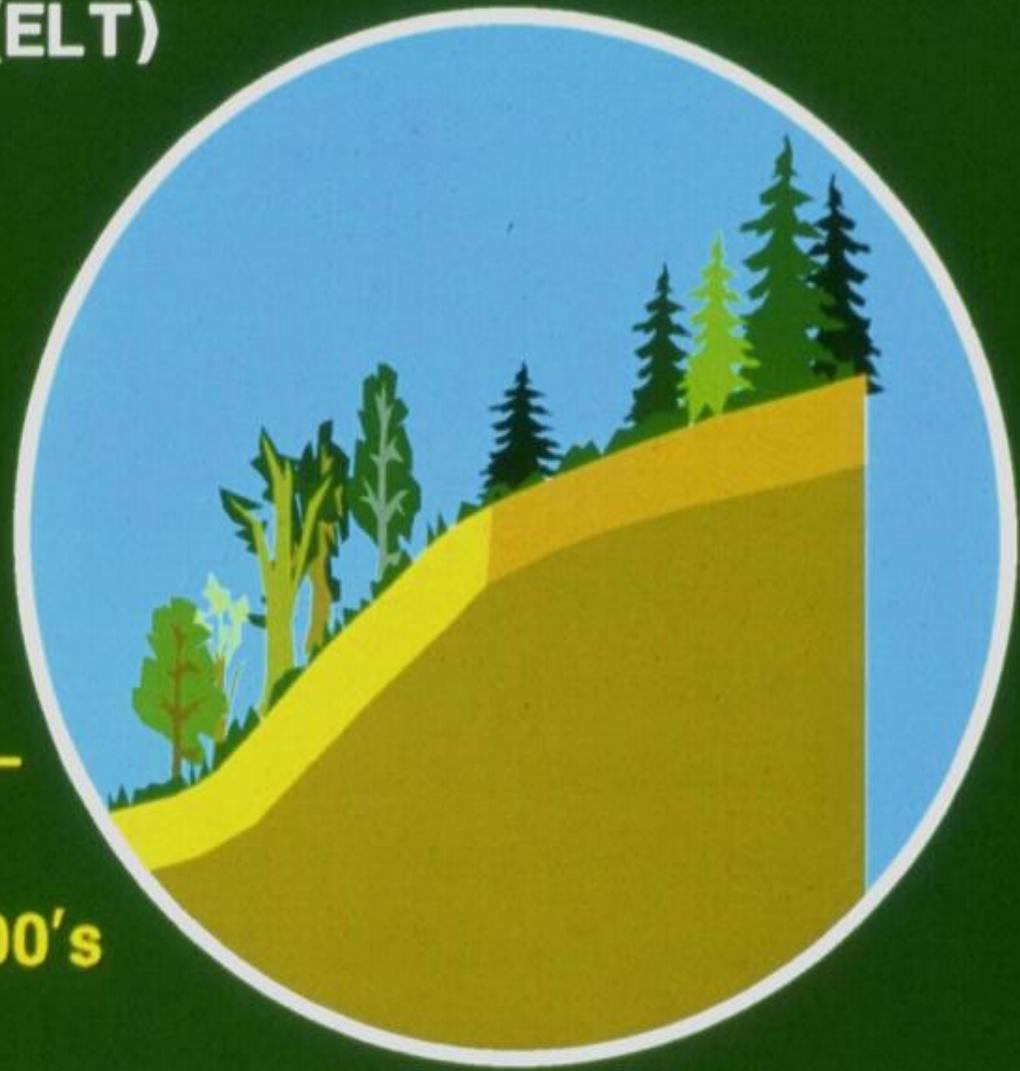


NHFEU Hierarchical Levels

- Province
- Section
- Subsection
- Landtype Association (LTA)
- Landtype (LT)
- Landtype Phase (LTP)

Ecological Land Type (ELT)

A recognizable unit of land with similar landform, soil and potential natural vegetation and having ecological similarities from which resource capabilities can be predicted. Areas range in size from 10's to 100's of acres.

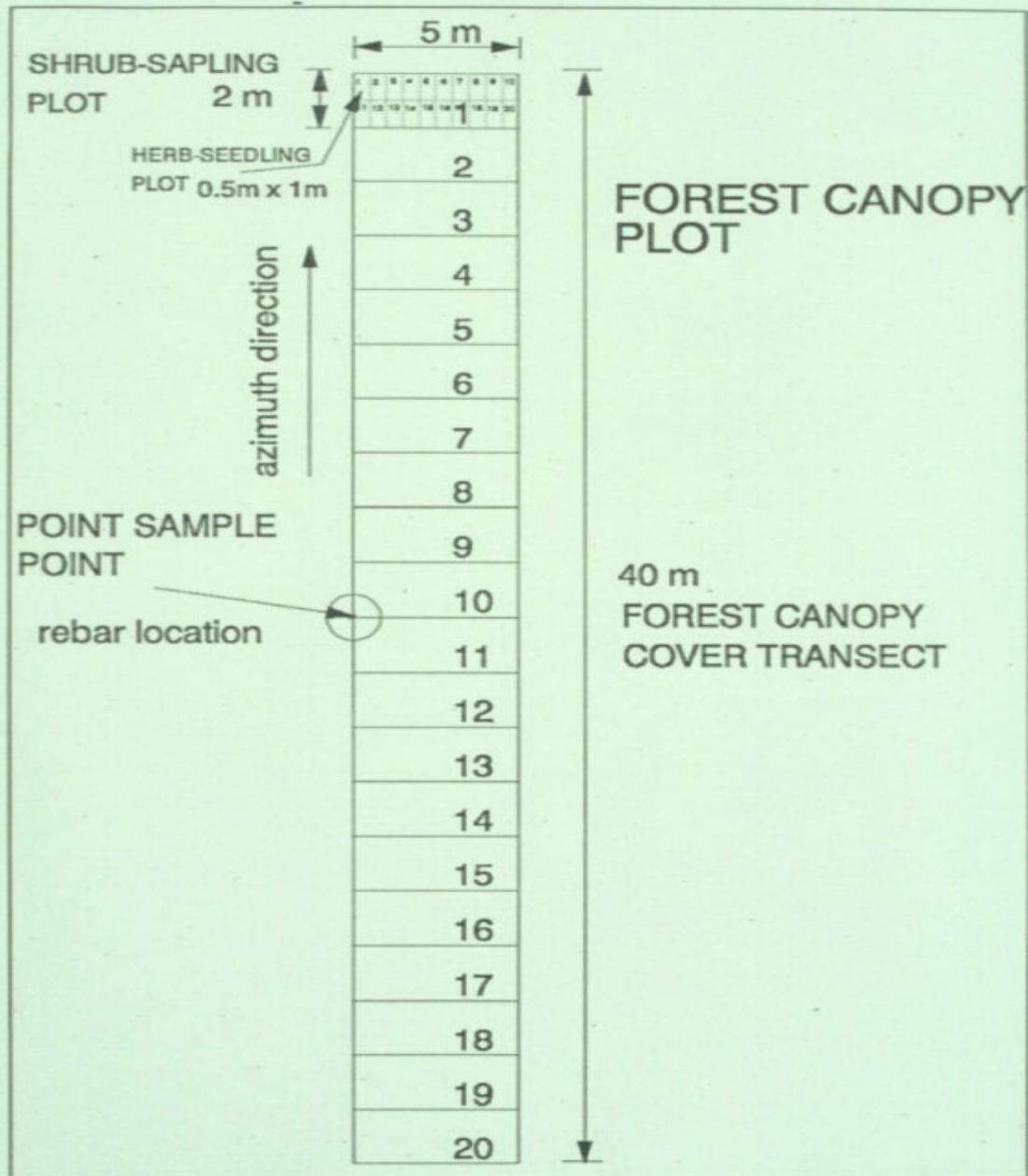


Ecological Land Type Phase (ELTP)

Subdivision of an ELT,
used for more site-
specific identification
of land capacity.
Areas range from
1's to 10's of acres.



FIELD PLOT LAYOUT AND NUMBERING





Forest Habitat Types Of Northern Wisconsin

By: John Kotar, Joe Kovach
And Craig Locey

The Habitat Type Concept

Plants normally are found in recognizable patterns or associations.

Climax plant associations are most meaningful as indicators of site.

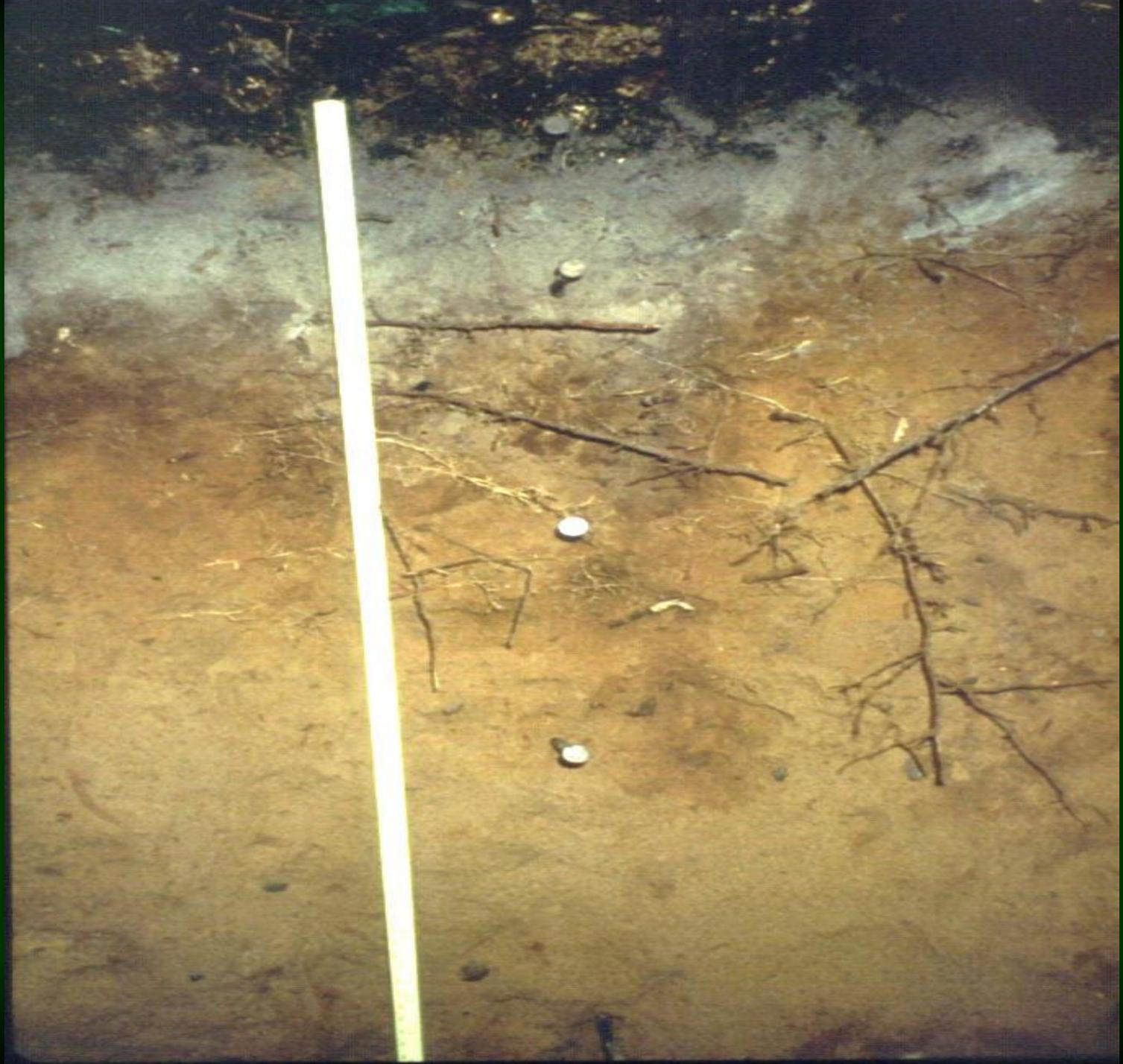
A Habitat Type includes all the land capable of supporting a particular plant association at “climax”.

The H.T. system is a method of site classification that uses the plant community as an integrated indicator of environmental conditions.







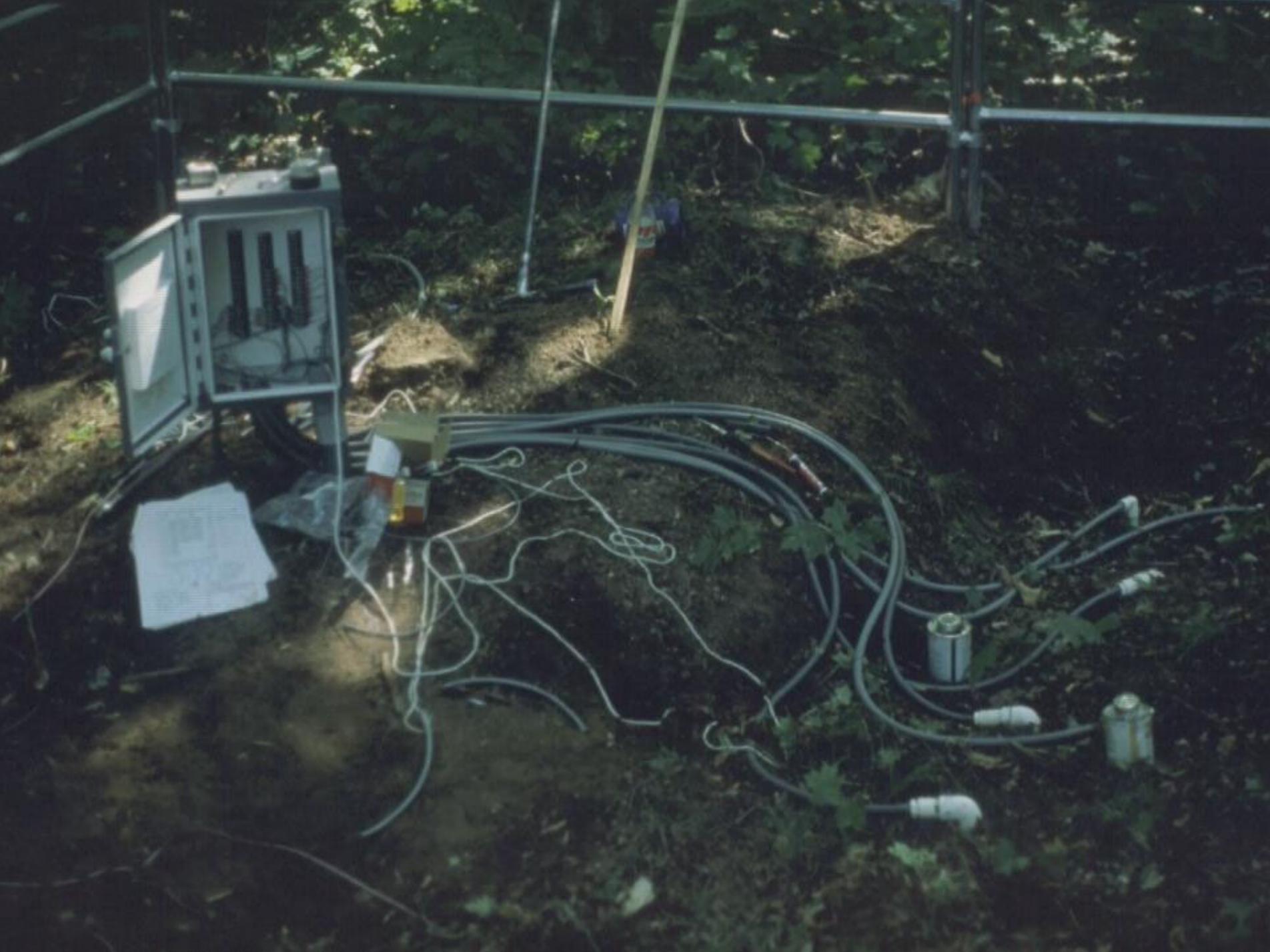














Past Cooperative Efforts

- Cooperative Soil Survey area MOUs 1958-present (NRCS, FS, GNHS, Universities)
- Correlation of FS soil resource inventory and ecological unit mapping to NCSS phases of soil series
- Typical pedon sampling for lab analysis done on FS lands
- FS mapped private lands <320 acres in size within the Forest Boundary
- NRCS updated and correlated FS SRI mapping
- Cooperative long-term monitoring on FS lands

Studies and Publications

- Classification and Properties of Soils an Drumlin Uplands of NE Wisconsin. 1988, Kopecky, UW-Madison
- Influence of Treethrow on Soil Properties in N. Wisconsin. 1995. Meyers and McSweeney
- Effects of Pine Plantations and Adjacent Deciduous Forests on Soil Calcium. 1995. Wilson and Grigal. UMN
- Soils in a hemlock-hardwood ecosystem mosaic in the Southern Lake Superior Uplands. 1997. Beckheim
- Spatial Patterns of Soil Attributes on Drumlins in the Nicolet NF, Wisconsin. 1995. Kabrick.

Studies and Publications

cont.

- Pattern and Diversity of Soils on Drumlins. Meyers, Kabrick, McSweeney.
- Characterization of Aquic Conditions in Soils of the Drumlin Uplands Within the Nicolet NF. Brewbaker
- Ecological Classification of Forested Wetlands in the Nicolet NF. Krupinski M.S. Thesis
- Quaternary Geology of Northern Oconto County, Wisconsin. 1999. Attig and Ham. WGNHS Bulletin 97
- Northern Wisconsin Dense Till Project. 1990-present. NRCS -Ron Yeck, Deb Harms.
- Soil Moisture/Soil Temperature Pilot Project. 1990-present. NRCS- Garry Schaefer

Current Cooperative Efforts

- FS lands mapped, correlated and 40% digitized, NRCS to complete digitizing the NF by 12/02
- NRCS mapping private lands within NF, FS soil scientist to map 10,000 acres in 2002
- Correlation updates and NASIS entry needed for FS ecological map units
- Continued monitoring of Soil Moisture and Soil Temperature Pilot Project sites on the Che-Nic NF

Future Projects

- Link/migrate NASIS data to Forest Service corporate database TERRA
- Implement Region 9 Soil Quality Standards
- Implement Forest Plan revision Standards and Guidelines to maintain inherent soil quality
- Monitor project impacts to the soil resource
- Incorporate findings of the Long-term Site Productivity Study to minimize project related soil disturbance effects















