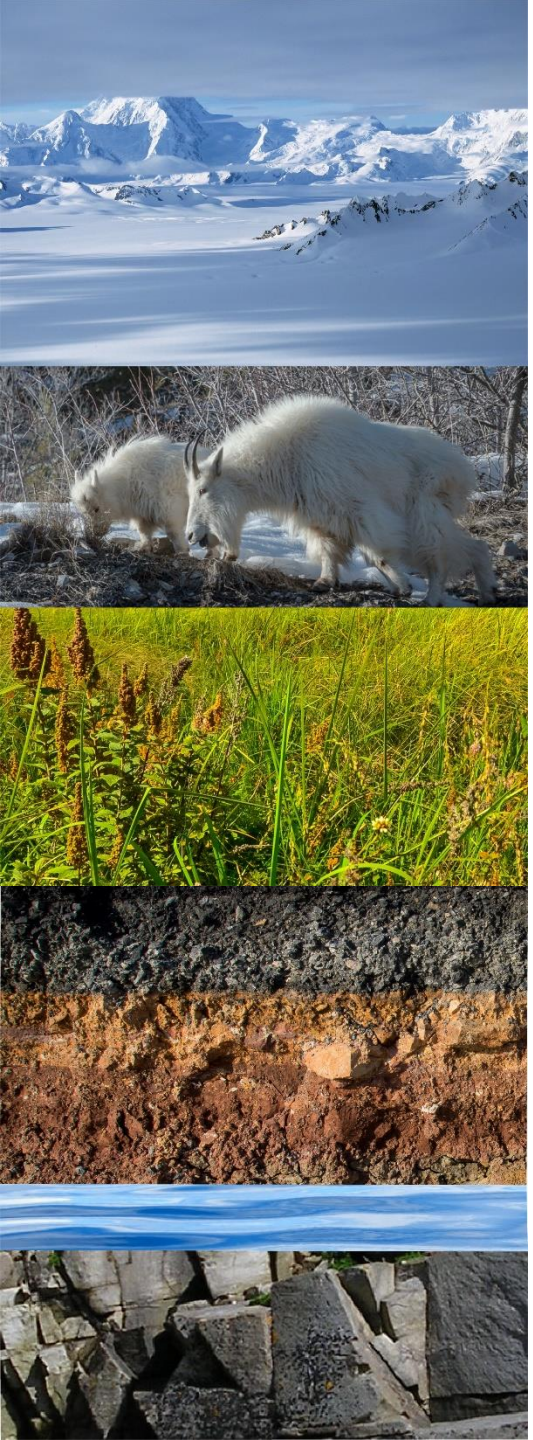

USDA Forest Service
U.S. DEPARTMENT OF AGRICULTURE

# Leveraging the National Hierarchy and

## TEUI TERRESTRIAL ECOLOGICAL UNIT INVENTORY

MACROCLIMATE | TOPOCLIMATE | BIOTA | LANDFORM | SURFACE WATER | SOILS | GROUNDWATER | BEDROCK


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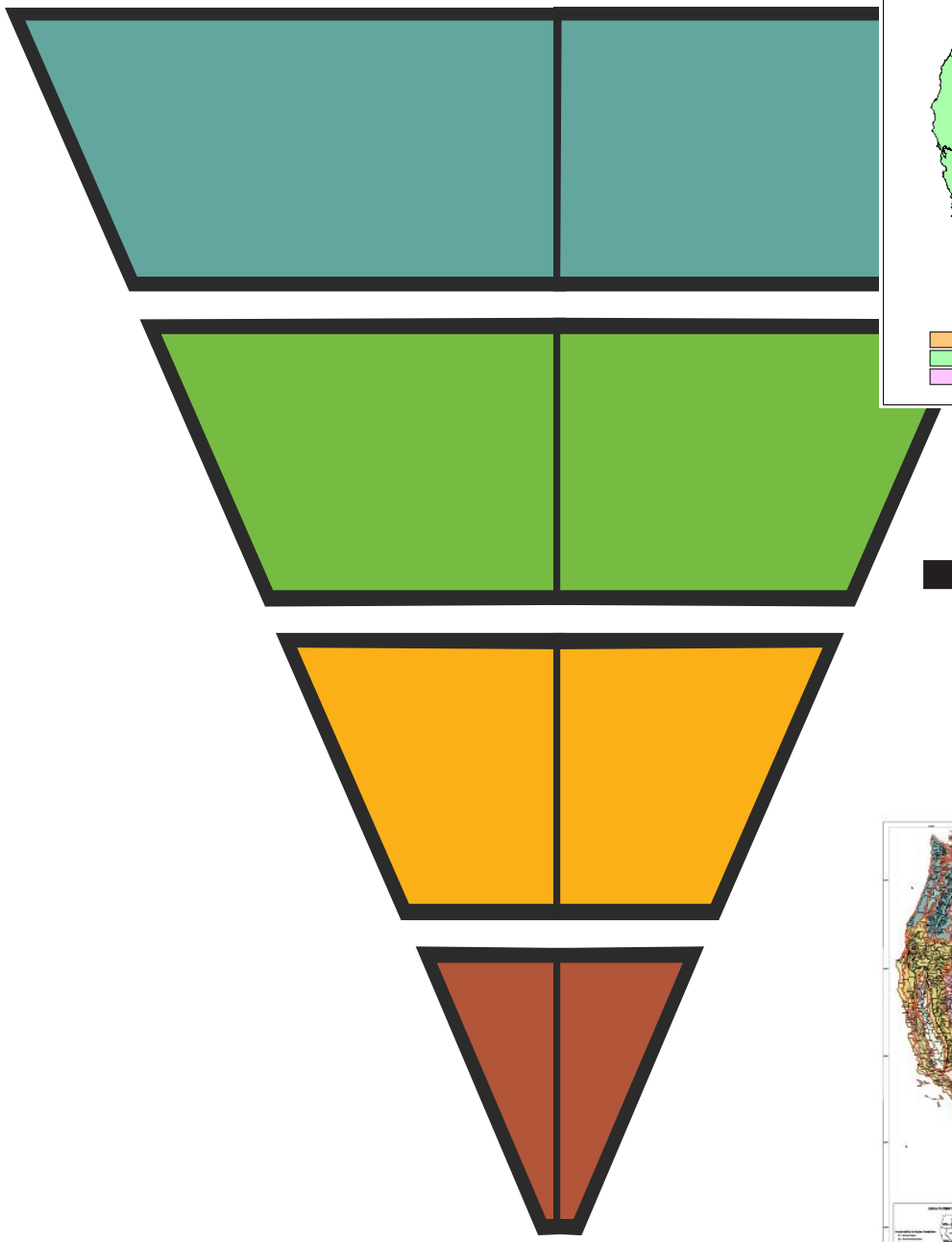
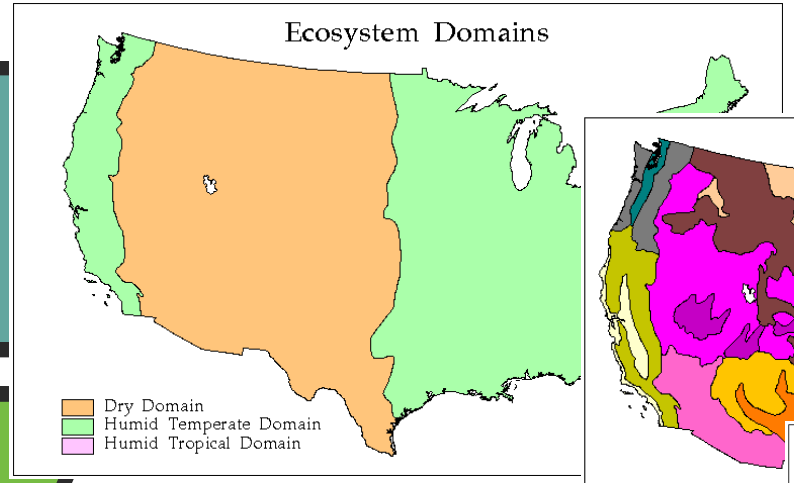
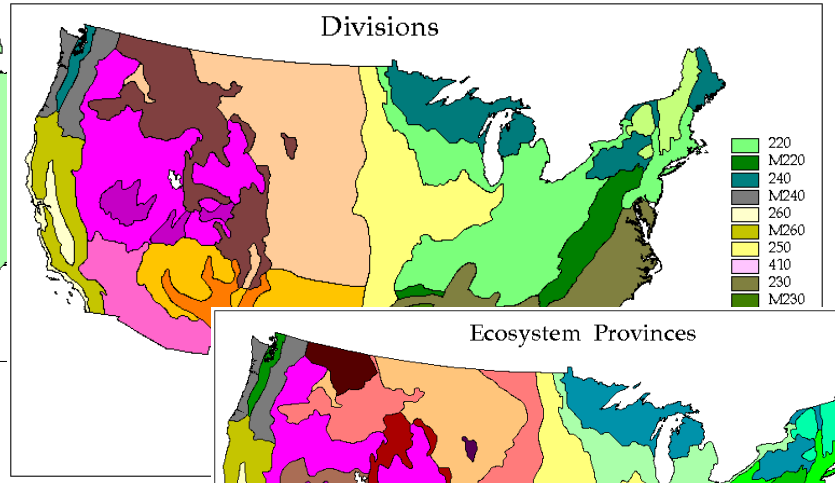
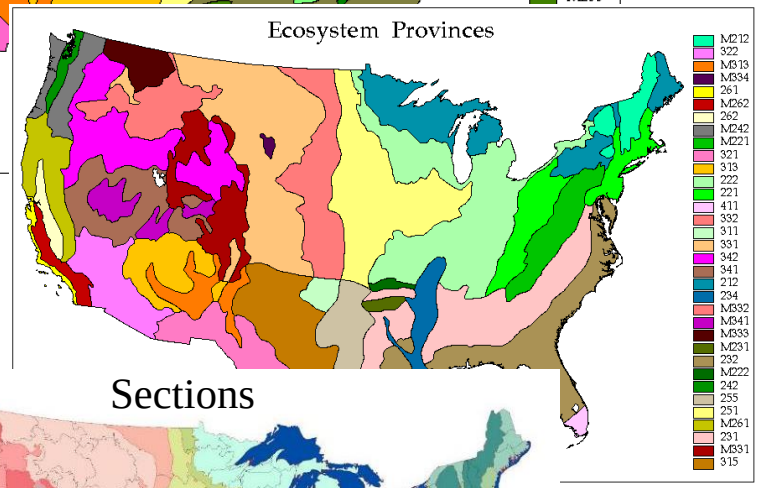
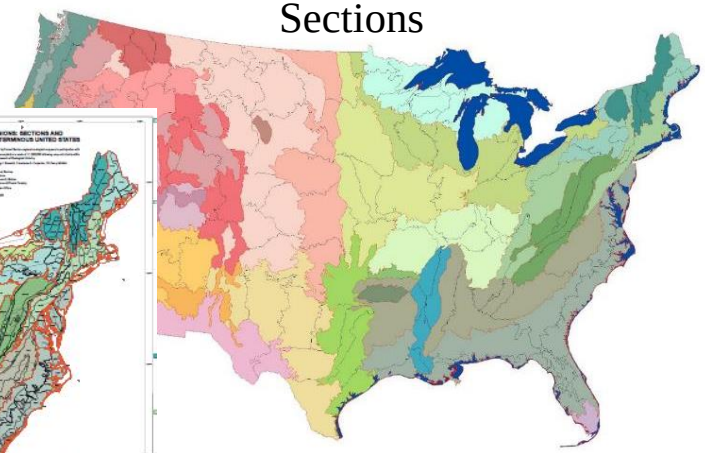


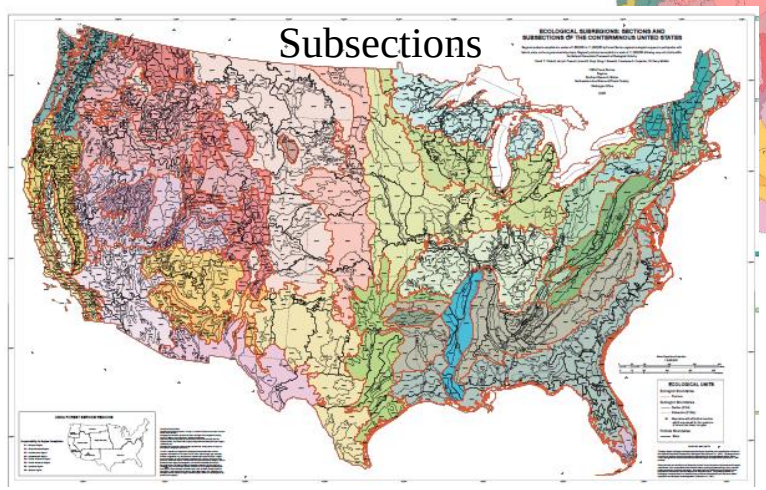
# TEUI


Ecosystem Domains
Dry Domain
Humid Temperate Domain
Humid Tropical Domain


Divisions
220
M220
240
M240
260
M260
250
410
230
M230


Ecosystem Provinces
M212
322
M313
M334
261
M262
262
M242
M221
321
313
222
221
411
332
311
331
342
341
212
234
M332
M041
M333
M231
232
M222
242
255
251
M261
231
M331
315


Sections


Subsections

TCA | Terrestrial Condition Assessment

# At the National Scale:

## *Identifying Opportunities for Ecological Restoration*

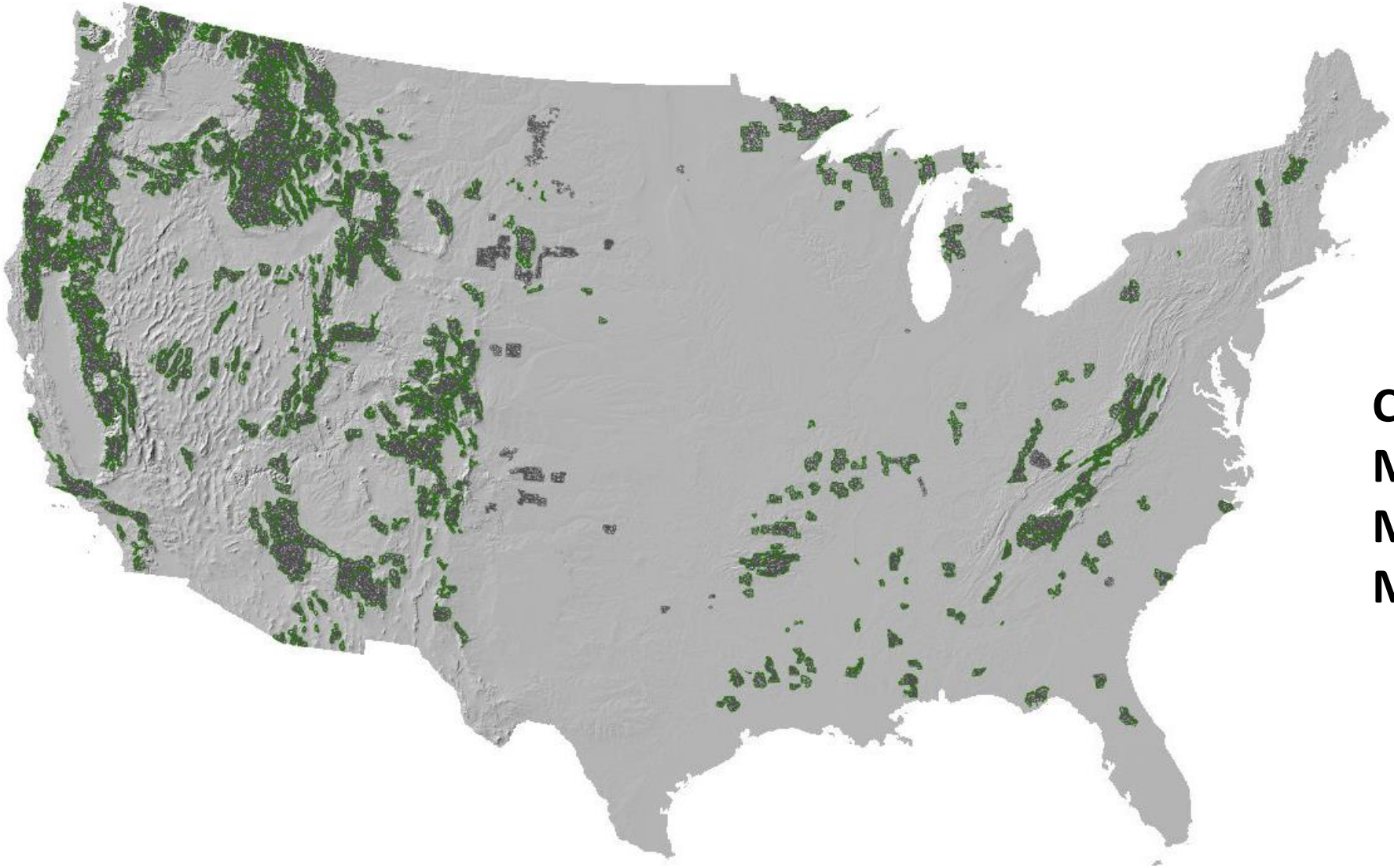
**Terrestrial Condition Assessment** is a ***management tool*** that provides an ***assessment of resource conditions*** and stressors

- **Primary Goal of TCA:**
  - Identifying restoration needs at a national scale

- **Leverages 12 indicators of ecological condition**


- **Uses landscape-scale analytical and reporting units**

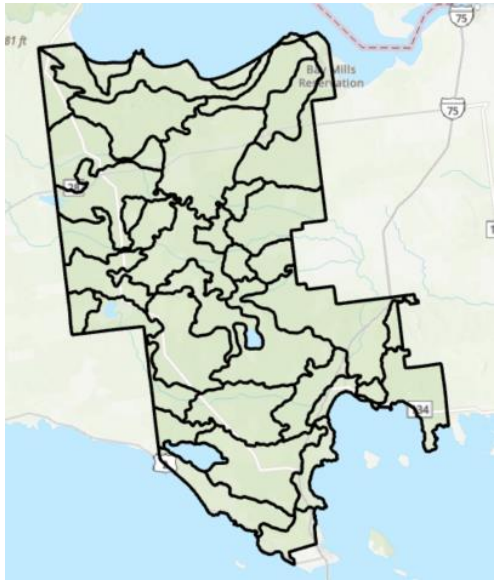
# Landscapes as Analysis Units



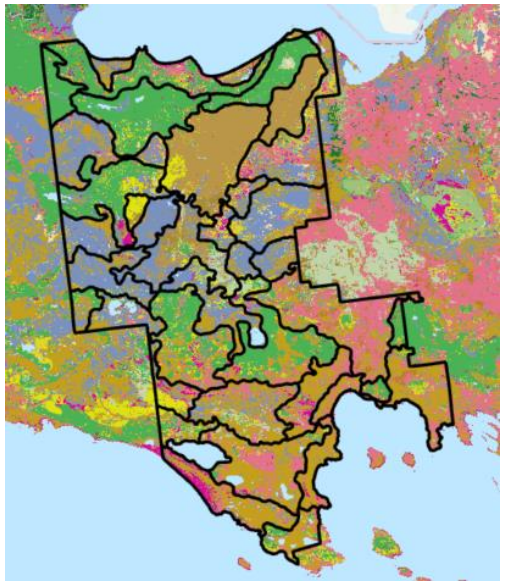
**Count:** 17,901
**Mean:** 11,783 ac
**Min:** 2,000 ac
**Max:** 34,871 ac

# Landtype Associations

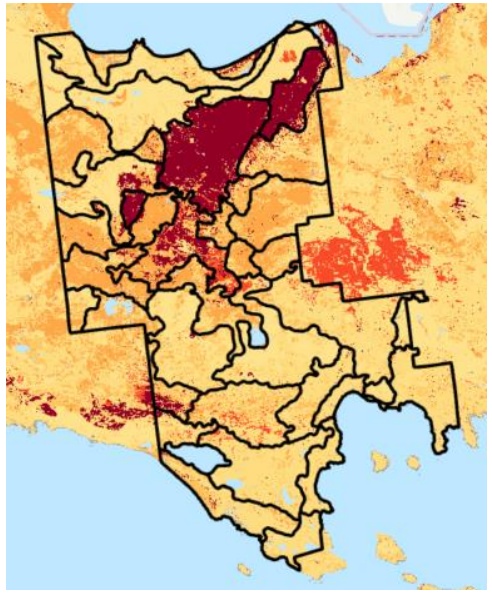
- **Based on Drivers that Create Terrestrial Ecosystems**
  - Geology
  - Landform & Topography
  - Soils
  - Climatic factors



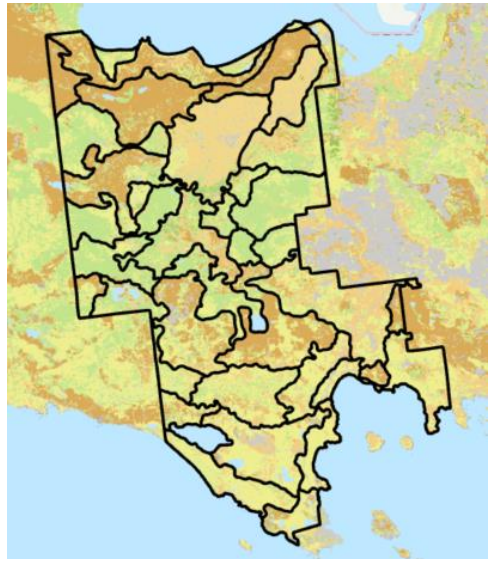
Biophysical Settings



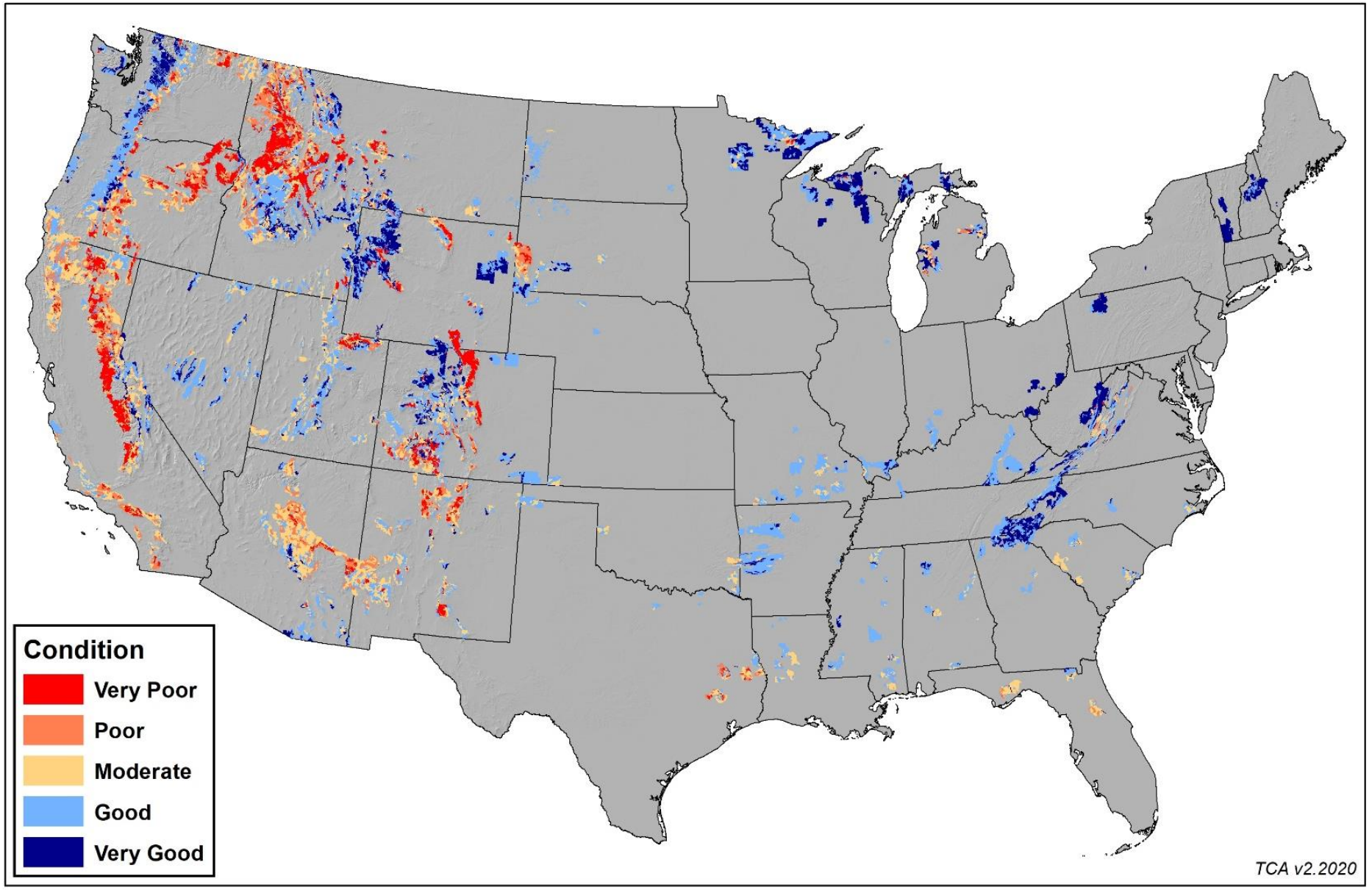
Mean Fire Return Interval



Vegetation Departure



# National Results



# At the Forest Scale:

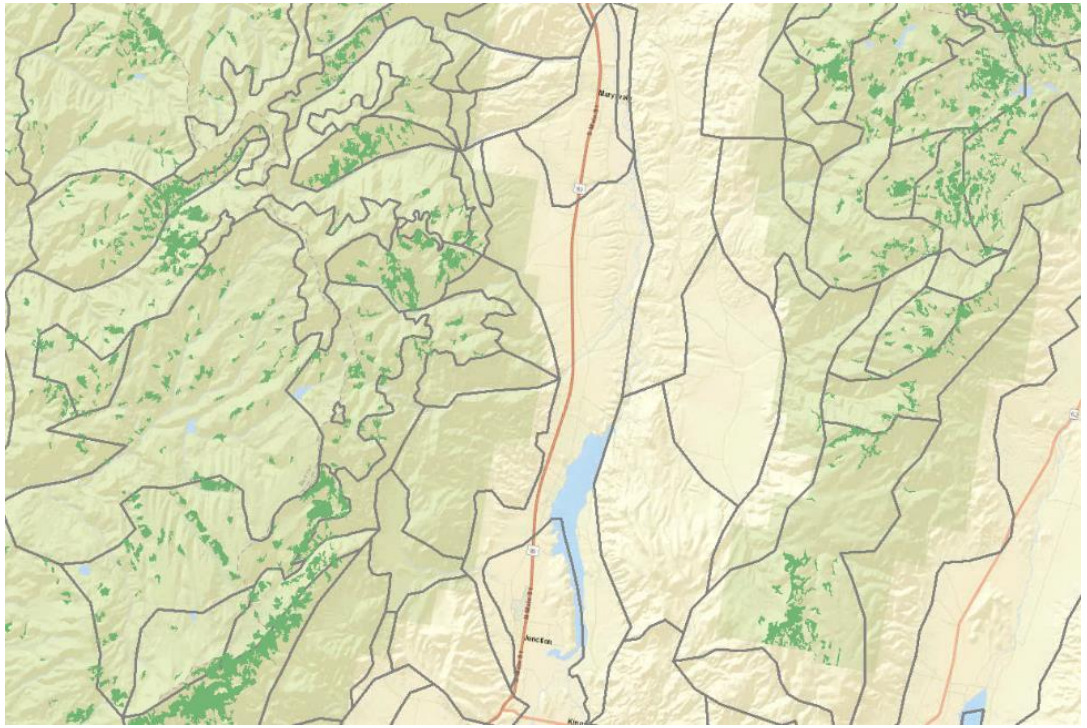
## *Delineating Resources for Planning*

# Sage Grouse Leks and Landtype Associations

**On the Manti-La Sal National Forest all Sage Grouse Leks fall in one LTA**

This Photo by Unknown Author is licensed under CC BY-NC

# Aspen Patches & LTAs

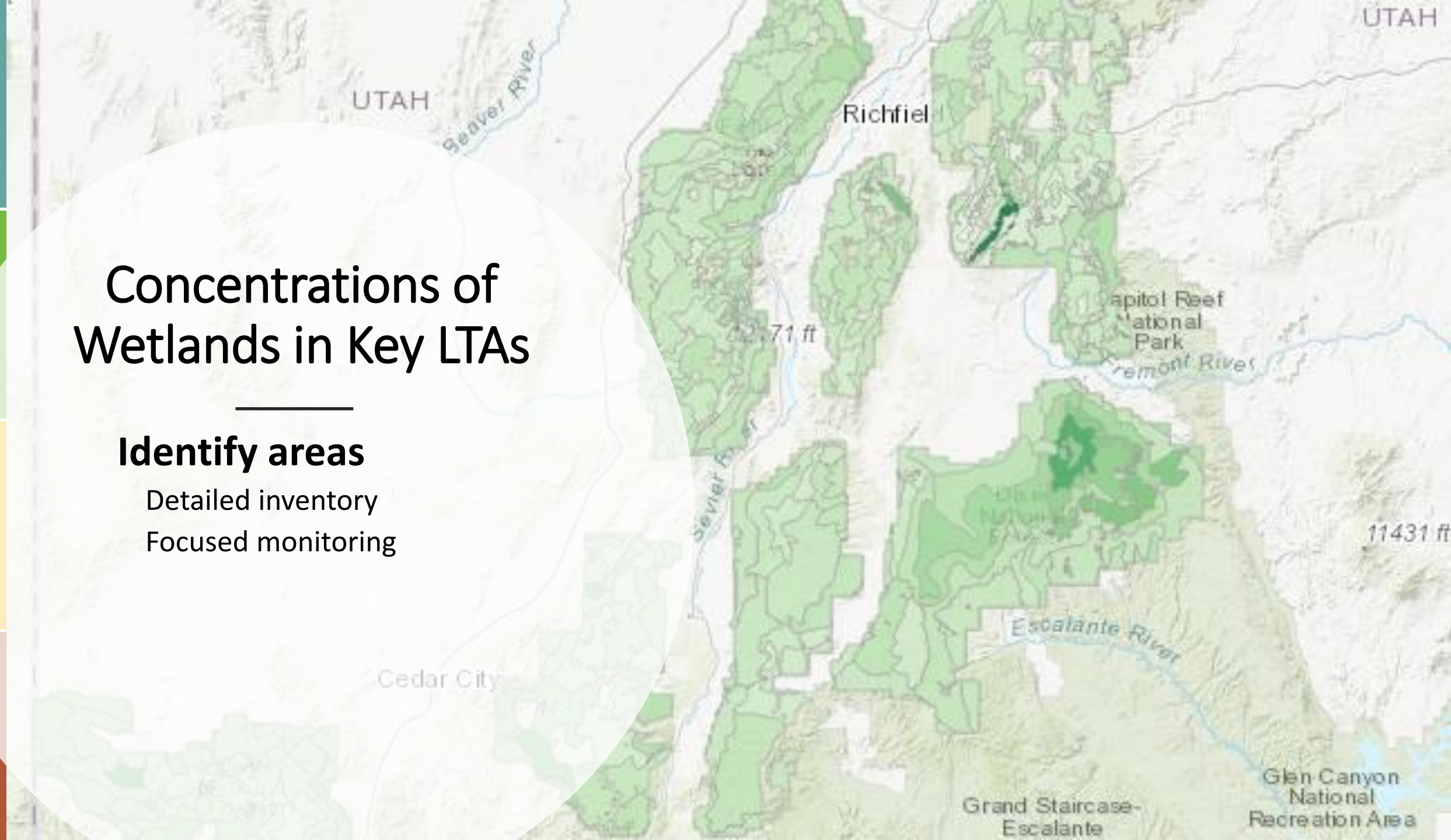


# Concentrations of Wetlands in Key LTAs

## Identify areas

Detailed inventory

Focused monitoring



# Defining Ecosystems

- **Geology, soils, topography, climate**
  - Driver of so many ecological characteristics, patterns, and functions
- **Landtype Associations delineate those variables across the map**
  - Provides a mapped unit that can be characterized
  - Patterns emerge in vegetation, disturbances and ecosystem responses to management

From New England Forestry Foundation

# On the Ground:

## *Siting Projects and Guiding Implementation*

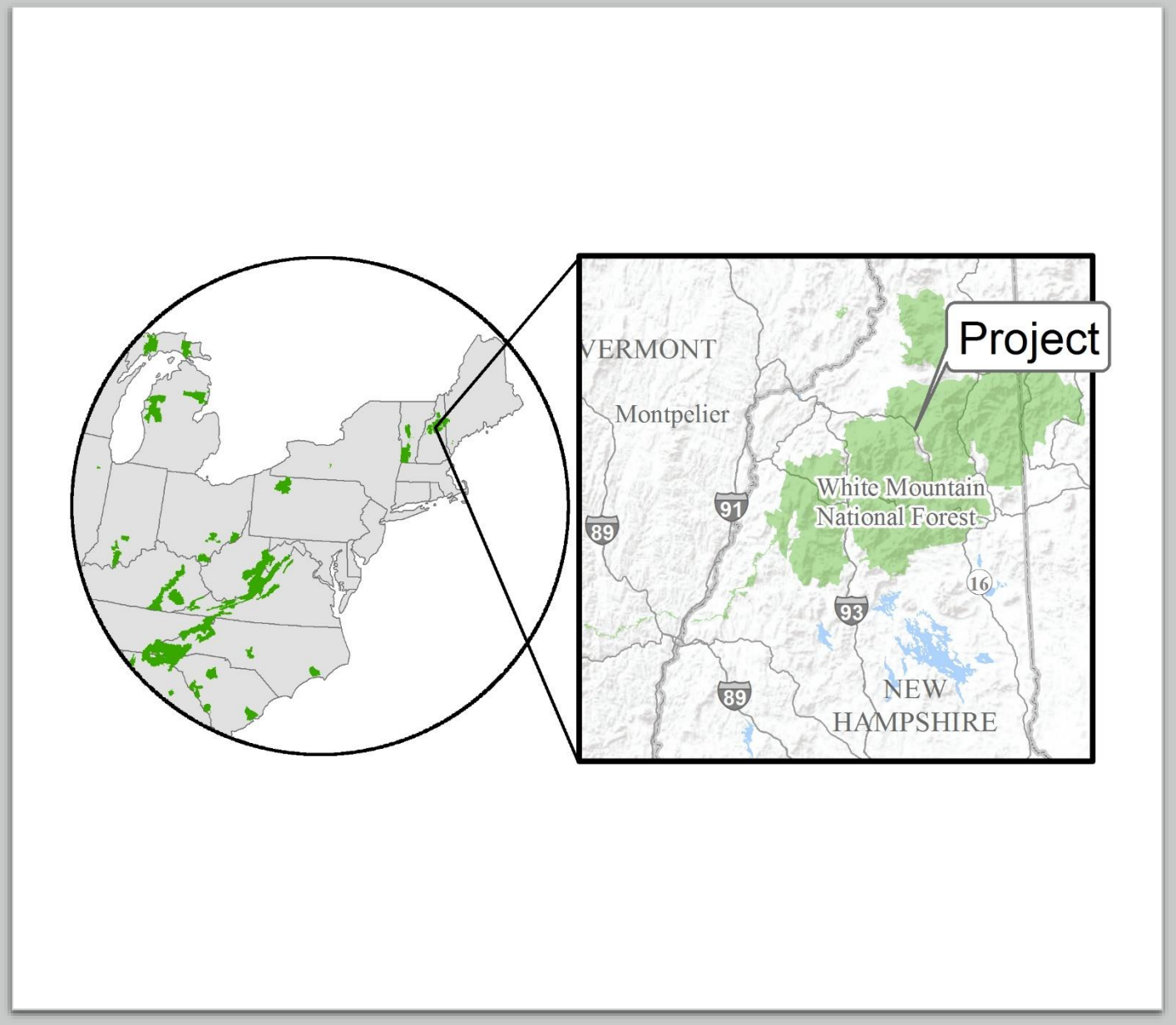
# Leveraging Levels of TEUI

**Landtype Associations**

- Context of what type of ecosystem
- Frames both limitations and possibilities for management options
- Two LTA types support most active management on the White Mountain National Forest:
  - Mountain Slope and Valley Bottom LTAs

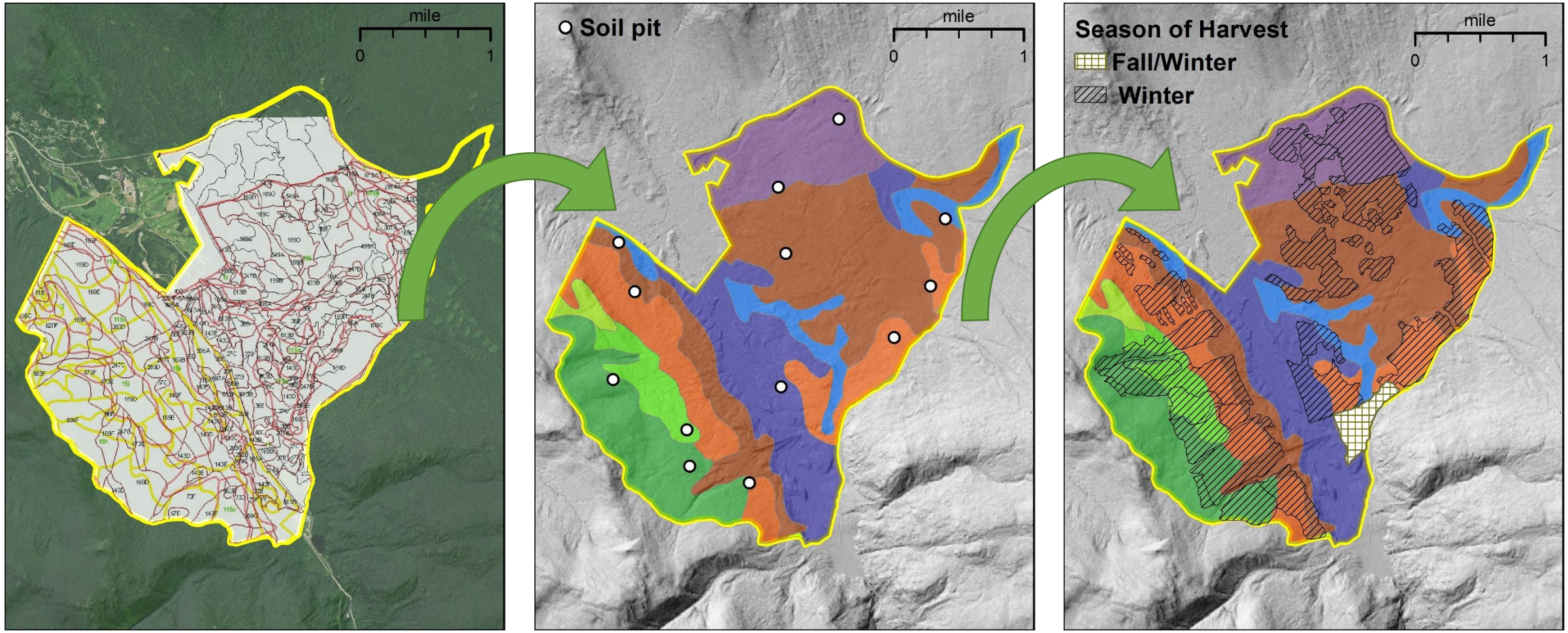
**Land Types**

- Range from few hundred to couple thousand acres



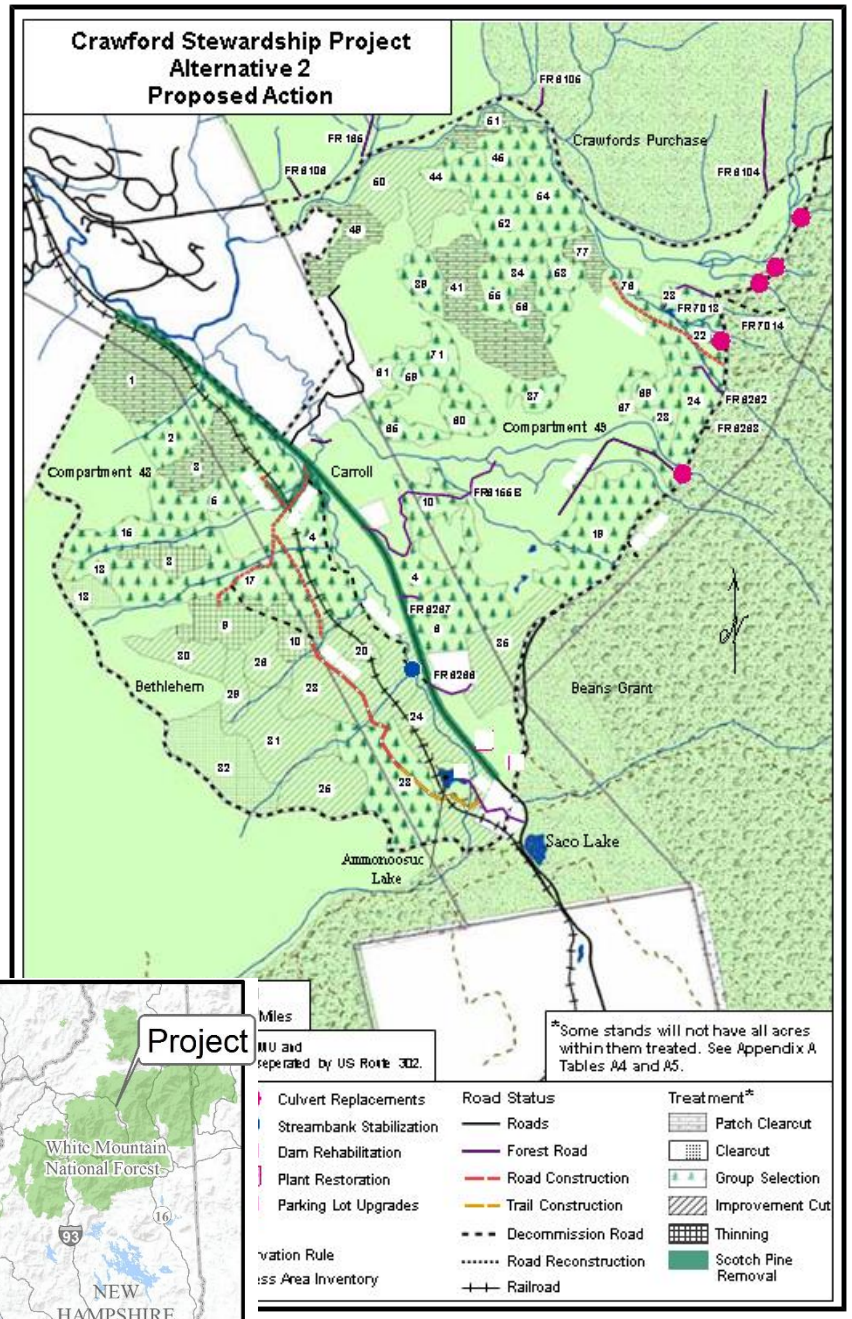
# Land Types

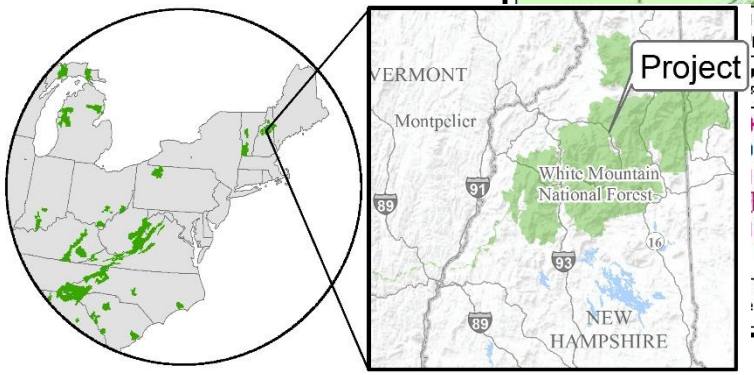
- Originally developed in early 2000
- Combination of 1956 B&W aerial photos, 30m DEM, and traditional TEU transect field work



# Implementation of Land Types

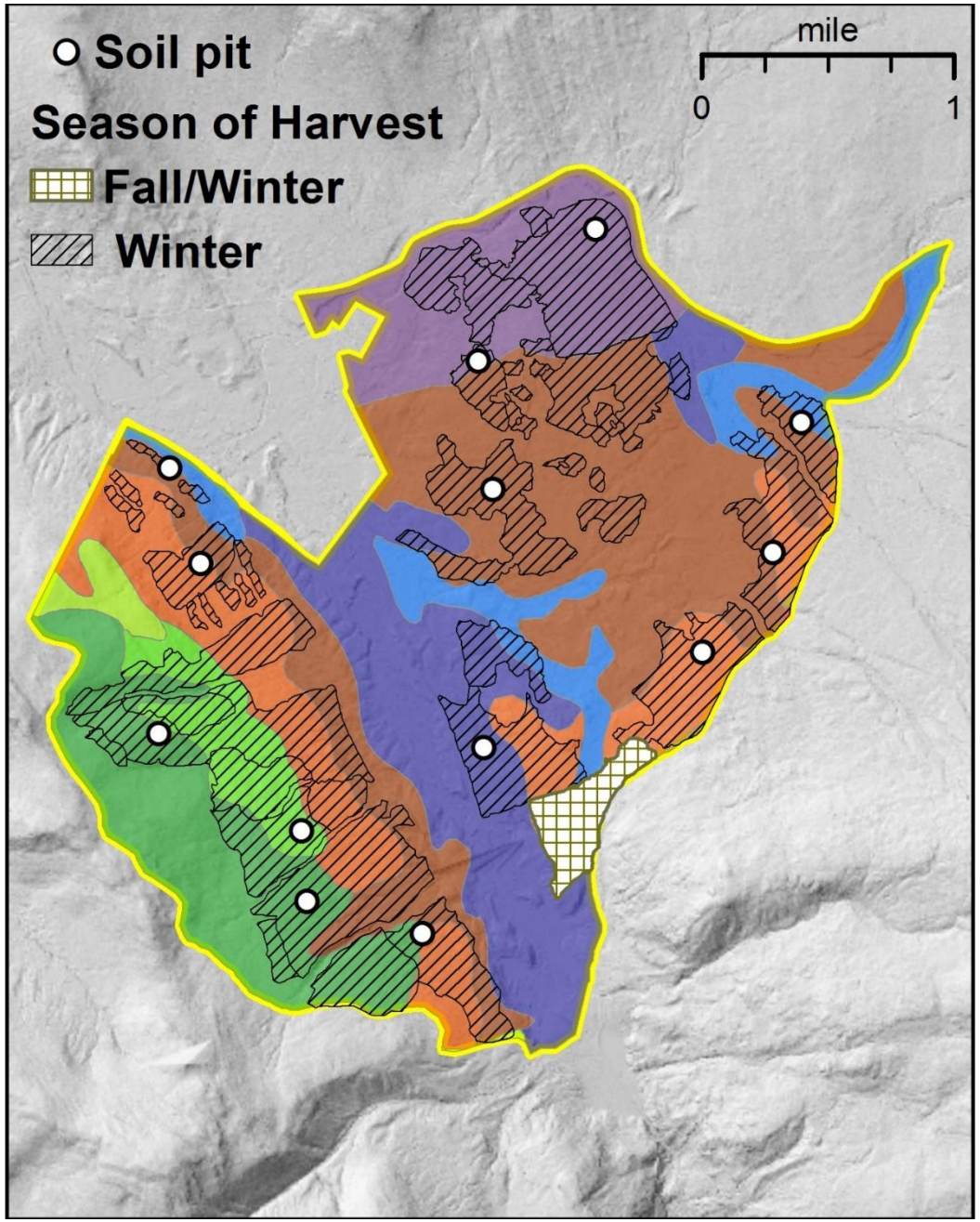
- **Crawford Stewardship Project in north-central portion of White Mountain NF**
  - Dominated by low-elevation spruce-fir habitat type, less mixed wood habitat, followed by northern hard-wood habitat
  - Much less aspen-paper birch habitat.
  - No oak-pine and only scattered small pockets of hemlock habitat type.
- **Project goals**
  - Improve future stand quality, promote growth on high-value timber, ensure future healthy-forest conditions, develop uneven-aged stand structure
  - Provide wood products for the local economy
  - Improve habitat conditions for wildlife at the broader landscape level.
  - Improve recreational opportunities



# Season of Harvest

- Soils observations → Harvest recommendations
  - Limit erosion, puddling and compaction
  - Ensure soil quality guidelines are met
- Soil and site ecology reviewed to verify mapped ecological Land Types
  - Ensure proper analysis of effects
  - Success in project implementation
- This required winter operations
  - Soil Quality guidelines
  - Project goals



# Employing Ecological Units

- **Ecological units used beyond Forest Service**
  - State agencies – Minnesota DNR in restoration of white pine
  - Researchers – Bioregional planning effort in Ontario

- **Ecological units have many uses**
  - Assessment, planning, and monitoring
  - Delineating wildlife habitat
  - Support visual quality mapping
  - And More!