Overview

- What is ecological classification?
- Why classify and map ecosystems?
- Ecological zipcodes of southeast Ohio
What is Ecological Classification?

- We classify individual species – why not ecosystems?

- Ecosystems can be classified into distinct, geographic units across spatial scales.

- Brings together the biotic and abiotic worlds
  - Biotic – “living” world, e.g. vegetation
  - Abiotic – “non-living” world, e.g., physiography, soils, hydrology

Why Classify and Map?

- Classify to identify lands that have similar capabilities and potentials for management and conservation.

- Map to provide a spatial understanding of patterns and processes across a landscape.

- Forest Service uses the National Hierarchical Framework of Ecological Units, or ECOMAP
A Day in the Woods: What’s Your Ecological Zipcode?

**ECOMAP**

Each layer represents a distinct *ecological unit*.

- The highest units are separated by broad geoclimatic breaks and encompass millions of square miles.
- The middle units are separated by regional climatic patterns, geology, and soil phases and encompass 10s to 1000s of square miles.
- The lowest units are mapped at the local level by elevation, landform, slope, local rock type and encompass 10s to 100s of acres and less.

**Use of Subsections**

- Assess the **effects of human activities** on the environment at a broad scale.
- Assist in **ecological design and description** for landscape analyses, watershed assessments, riparian zone management.
- Describe baseline **environmental** and **vegetation characteristics** to assess natural, land-use, and broad-scale changes.
- Explain **landscape concepts** and ecological characteristics.
- Assess biological **diversity** and landscape **connectivity**.
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An Introduction to the Ecological Subsections of Southeastern Ohio

**SE Ohio Eco-Zipcodes**

- **Domain**
  - Humid Temperate

- **Division**
  - Hot Continental

- **Province**
  - Eastern Broadleaf Forest (Oceanic)

- **Section**
  - Southern Unglaciated Allegheny Plateau

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- **Subsection**
  - Ohio Valley Lowland
  - East Hocking Plateau
  - Unglaciated Muskingum Plains
  - Western Hocking Plateau
  - Lower Scioto River Plateau
**Abiotics At-A-Glance**

**Western Hocking Plateau**
- **PM:** Sedimentary rocks & conglomerate with some marine limestone
- **Clay/sand ratio:** 25.5%/27.7%
- **Ave. pH:** 5.1
- **Elevation:** 734-1017 feet
- **Slopes:** 10.7% ± 7.2%
- **Precip:** 41.9 inches

**Lower Scioto River Plateau**
- **PM:** Marine origin sedimentary rocks & glacial outwash sands
- **Clay/sand ratio:** 25.1%/24.3%
- **Ave. pH:** 5.2
- **Elevation:** 706-1083 feet
- **Slopes:** 13.6% ± 9.7%
- **Precip:** 43.1 inches

**East Hocking Plateau**
- **PM:** 302-307 MYA Sedimentary rocks
- **Clay/sand ratio:** 32%/19.2%
- **Ave. pH:** 5.8
- **Elevation:** 751-1092 feet
- **Slopes:** 10.2% ± 6.5%
- **Precip:** 40.6 inches

**Ohio Valley Lowland**
- **PM:** 300 MYA Sedimentary rocks
- **Clay/sand ratio:** 33.2%/17.3%
- **Ave. pH:** 5.3
- **Elevation:** 705-1046 ft
- **Slopes:** 12.2% ± 8.0%
- **Precip:** 43.0 inches

**Biotics At-A-Glance**

**Western Hocking Plateau**
- **Pre-settlement %**
  - White oak (35%)
  - Hickory (14%)
  - “Black” oak (13%)
  - Beech (10%)
  - **Chestnut (3%)**

  **Current Day I.V.**
  - Red maple (17.5)
  - Black cherry (12.9)
  - Bigtooth aspen (3.4)
  - Tulip poplar (7.4)

**Lower Scioto River Plateau**
- **Pre-settlement %**
  - White oak (23%)
  - Hickory (18%)
  - “Black” oak (13%)
  - Sugar maple (9%)
  - **Chestnut (3%)**

  **Current Day I.V.**
  - Sugar maple (12.9)
  - Red maple (10.2)
  - Chestnut oak (9.9)
  - Tulip poplar (8.5)

**East Hocking Plateau**
- **Pre-settlement %**
  - White oak (36%)
  - Hickory (14%)
  - Beech (11%)
  - “Black” oak (11%)
  - Sugar maple (5%)

  **Current Day I.V.**
  - Sugar maple (10.1)
  - Black cherry (8.4)
  - American elm (8.4)
  - Black locust (7.3)

**Ohio Valley Lowland**
- **Pre-settlement %**
  - White oak (53%)
  - Hickory (8%)
  - Chestnut oak (4%)

  **Current Day I.V.**
  - White oak (10.1)
  - Red maple (9.0)
  - Hickory (8.3)
  - Tulip poplar (6.7)
## Pre-settlement Vegetation

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Beech Forests</th>
<th>Mixed Oak Forests</th>
<th>Oak-Sugar Maple Forests</th>
<th>Elm-Ash Swamp Forests</th>
<th>Mixed Mesophytic Forests</th>
<th>Bottomland Hardwood Forests</th>
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</thead>
<tbody>
<tr>
<td>Ohio Valley Lowland</td>
<td>14.7%</td>
<td>71.1%</td>
<td>5.2%</td>
<td>--</td>
<td>7.4%</td>
<td>0.8%</td>
</tr>
<tr>
<td>East Hocking Plateau</td>
<td>20%</td>
<td>50.9%</td>
<td>1.2%</td>
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<td>26.6%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Unglaciated Muskingum Plains</td>
<td>4%</td>
<td>76.8%</td>
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<td>1.6%</td>
<td>17.6%</td>
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<tr>
<td>Western Hocking Plateau</td>
<td>7.5%</td>
<td>74%</td>
<td>&lt;0.01%</td>
<td>0.4%</td>
<td>13.8%</td>
<td>4.2%</td>
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<tr>
<td>Lower Scioto River Plateau</td>
<td>5.5%</td>
<td>28.7%</td>
<td>4.9%</td>
<td>0.5%</td>
<td>48.6%</td>
<td>11.2%</td>
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</tbody>
</table>

Data based on Gordon (1969) Pre-settlement Map

## Current Day Land-Use

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Developed</th>
<th>Crop &amp; Pasture</th>
<th>Herbaceous</th>
<th>Shrub/Scrub</th>
<th>Forest</th>
<th>Wetland &amp; Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio Valley Lowland</td>
<td>8.3%</td>
<td>20%</td>
<td>1%</td>
<td>0.3%</td>
<td>69.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td>East Hocking Plateau</td>
<td>8%</td>
<td>21.3%</td>
<td>3.1%</td>
<td>0.6%</td>
<td>65.8%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Unglaciated Muskingum Plains</td>
<td>11.6%</td>
<td>34.8%</td>
<td>1.4%</td>
<td>0.2%</td>
<td>49.8%</td>
<td>2%</td>
</tr>
<tr>
<td>Western Hocking Plateau</td>
<td>7.4%</td>
<td>16.3%</td>
<td>3.1%</td>
<td>1.2%</td>
<td>71.2%</td>
<td>0.6%</td>
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<tr>
<td>Lower Scioto River Plateau</td>
<td>6.7%</td>
<td>20.5%</td>
<td>4.6%</td>
<td>3.4%</td>
<td>63.8%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

Data from National Land Cover Dataset (Homer et al. 2015)
Ohio Valley Lowland

Marietta Unit, Wayne National Forest

Consol Energy Powhatan Point Wildlife Area

East Hocking Plateau

Jesse Owens State Park

Dow Lake, Strouds Run State Park
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**Unglaciated Muskingum Plains**

- Woodbury Wildlife Area
- Tri-Valley Wildlife Area
- The Wilds, Columbus Zoo

**Western Hocking Plateau**

- Lookout Rock, Zaleski State Forest
- Ash Cave, Hocking Hills State Park
- Ironton Unit, Wayne National Forest

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**Lower Scioto River Plateau**

- Shawnee State Park
- Shawnee State Forest
- Scioto River

Want to learn more?

Questions?

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