



Vegetation Classification:
Concepts and Standards

 Elizabeth Byers, Natural Heritage Vegetation Ecologist
NCTC Vegetation Mapping, 17-21 June 2013

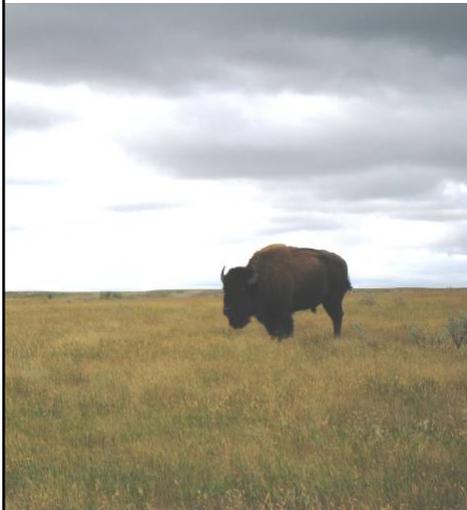
Vegetation = Community = Habitat



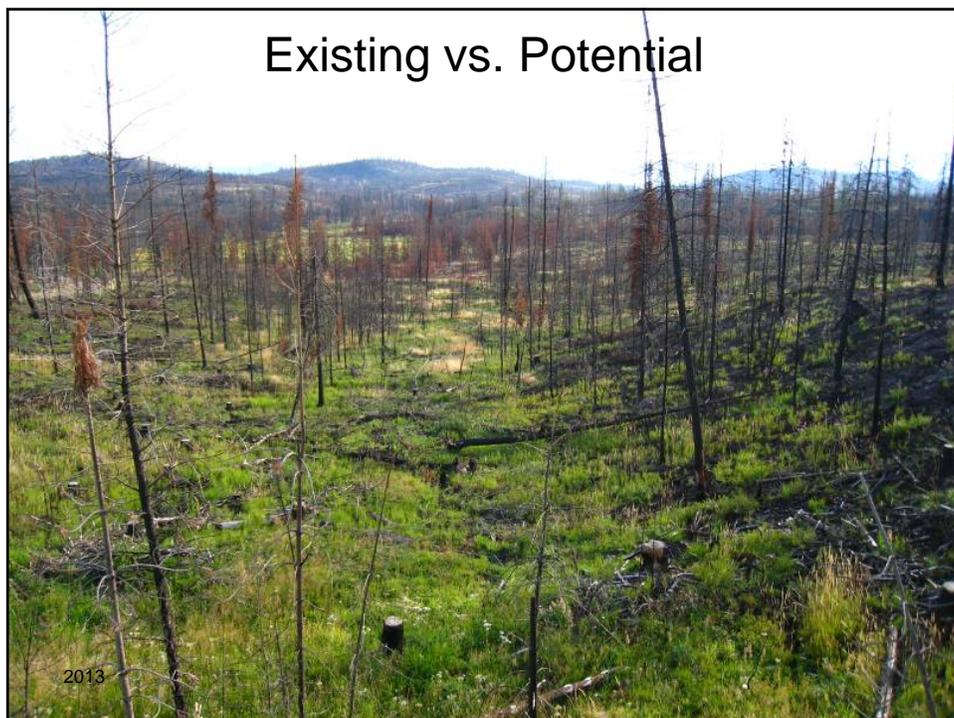
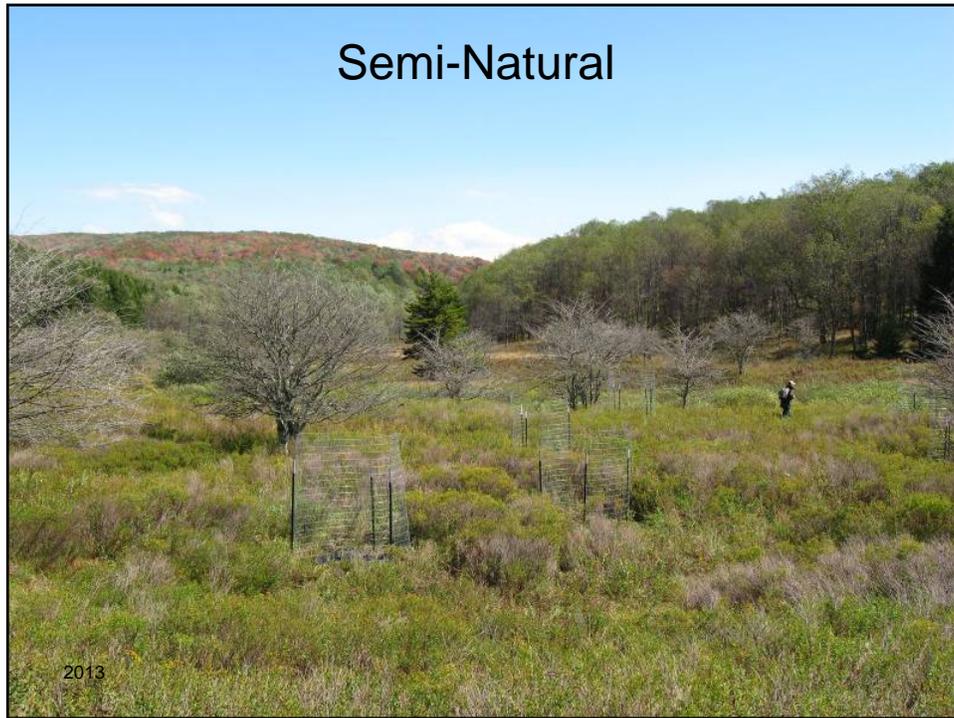
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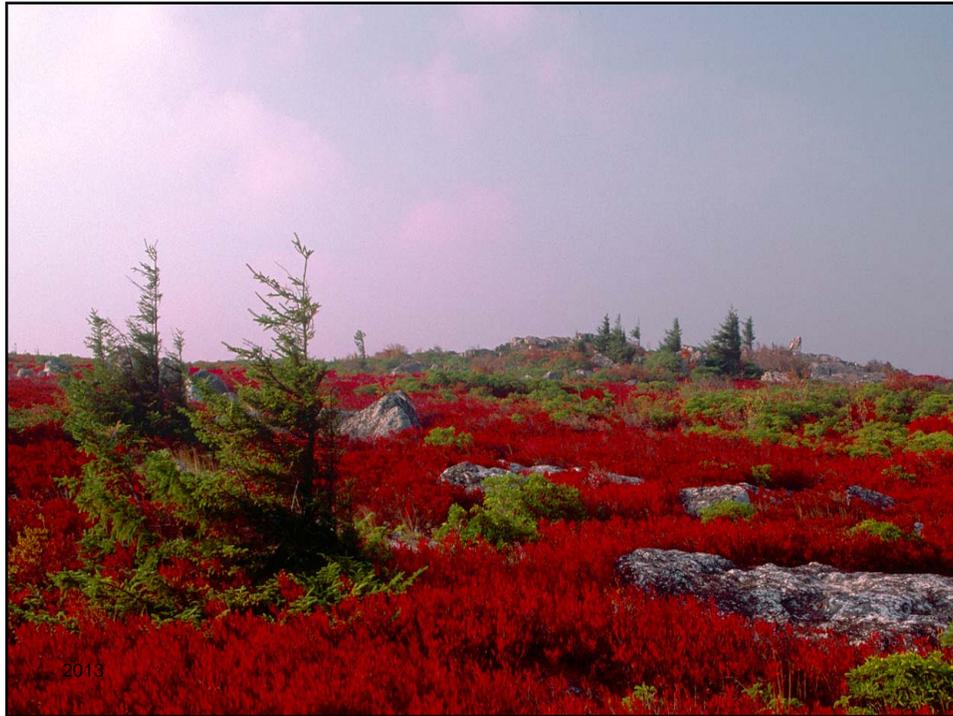


Natural vs. Cultural



2013





Physiognomy



Deciduous Forest



Evergreen Woodland

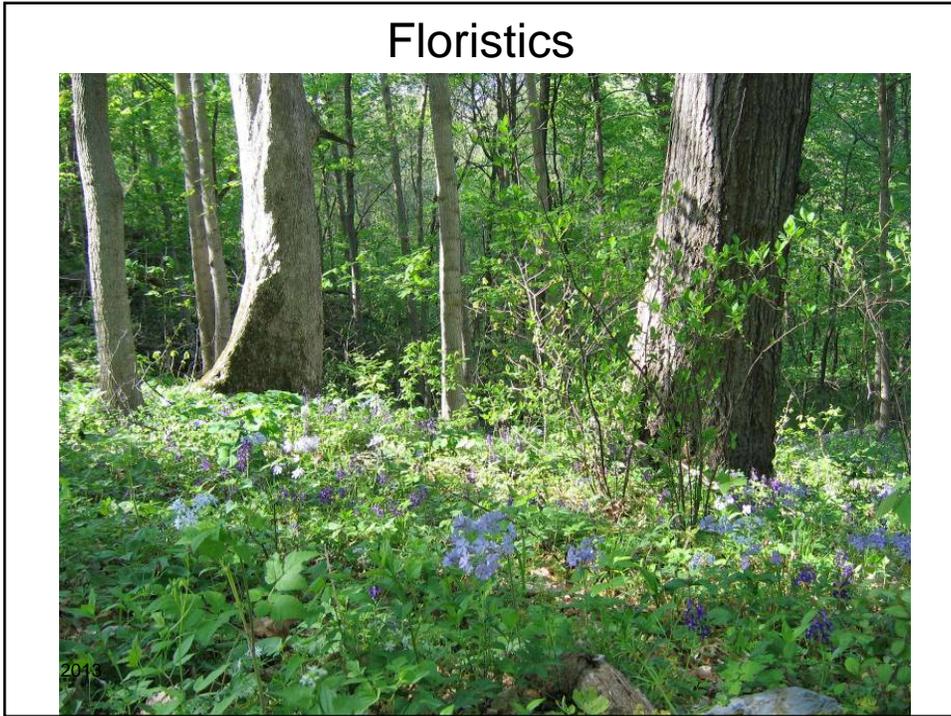


Shrubland



Grassland

Floristics





U. S. National Vegetation Classification

- Maintained by NatureServe (and Natural Heritage Programs)
- Federal standard (FGDC) – 1997, 2008
- Describes existing vegetation
- Hierarchical system: physiognomy and floristics
- Built from plot data, peer reviewed

U. S. National Vegetation Classification Hierarchy

Level	#
1. Class	8
2. Subclass	18
3. Formation	38
4. Division	77
5. Macrogroup	214
6. Group	430
7. Alliance (under review)	1558
8. Association	6105

U.S. National Vegetation Classification

Class [Forest and Woodland](#)

Formation [Temperate Flooded and Swamp Forest](#)

Division [Eastern North American Flooded and Swamp Forest](#)

Group [Northern & Central Conifer & Hardwood Acidic Swamp Group](#)



Association

Red spruce – Eastern hemlock / Great Rhododendron / Peatmoss swamp

FGDC 2013



[Overview](#) | [Get Involved](#) | [Explore The Classification](#) | [Revisions](#) | [Data Standard](#) | [Resources](#) | [About](#)

Home > Explore The Classification

Explore The Classification



Explore the National Vegetation Classification with the USNVC Hierarchy Explorer, which provides detailed descriptions of all U.S. vegetation, with ecological context and geographic ranges. (NOTE: This tool is still under development. Types and descriptions are drafts and in peer review. The browser may take a few seconds to load).

SEARCH by typing one or more keywords

BROWSE by clicking on + signs to expand categories, and click "NS" symbol for a detailed

- 1 Forest & Woodland**
- 2 Shrubland & Grassland**
- 3 Semi-Desert**
- 4 Polar & High Montane Vegetation**
- 5 Aquatic Vegetation**
- 6 Nonvascular & Sparse Vascular Rock Vegetation**
- 7 Agricultural Vegetation**
- 8 Developed Vegetation**

Class: Forest & Woodland (Formation examples)



FL (Temperate Flooded & Swamp Forest)



MT (Cool Temperate Forest)



WV (Cool Temperate Forest)



WV (Temperate Flooded & Swamp Forest)

Forest & Woodland Groups



Bald-cypress – Tupelo Floodplain Forest Group



Northern Rocky Mountain Whitebark Pine – Subalpine Larch Woodland Group



Red Spruce – Fir Forest Group



Silver Maple – Green Ash – Sycamore Floodplain Group

Forest & Woodland Associations



Swamp Tupelo / Virginia Sweetspire –
Common Buttonbush Depression Forest G3G4



Subalpine Larch / Square-twig Blueberry /
Hitchcock's Smooth Woodrush Woodland G2G3



Red Spruce / Yellow Birch / Three-lobed
Bazzania Forest G2



American Sycamore - River Birch / Silky Dogwood
/ (Big Bluestem, River-oats) Woodland G3

Class: Shrubland & Grassland



MI Eastern North American Boreal Acidic Bog
& Poor Fen Group



TN Southern Appalachian Grass & Shrub Bald Group



2013
FL North American Atlantic Tidal Flat & Panne Group



KS Central Great Plains Tallgrass Prairie Group

Class: Semi-Desert

	
<p>CO Intermountain Shadscale – Saltbrush Scrub Group</p>	<p>AZ Mojave-Sonoran Semi-Desert Scrub Group</p>
	
<p>NM Apacherian-Chihuahuan Mesquite Upland Scrub Group</p>	<p>CO Intermountain Mountain Big Sagebrush Shrubland & Steppe Group</p>

Class: Polar & High Montane Vegetation

	
<p>AK North American Arctic Low Shrub Tundra Group</p>	<p>NY Eastern Alpine Dwarf-Shrub & Herbaceous Meadow Group</p>
	
<p>HI Hawaiian Alpine Dwarf Shrubland Group</p>	<p>MT Rocky Mountain Alpine Dwarf-Shrubland Group</p>

Class: Aquatic Vegetation



WV Eastern North American Freshwater Aquatic Vegetation Group



CA North American Pacific Intertidal Algal Flat Group



FL Southeastern North American Freshwater Aquatic Vegetation Group



FL Caribbean Seagrass Group

Class: Nonvascular & Sparse Vascular Rock Vegetation



WV Eastern North American Temperate Cliff Group



MT Rocky Mountain Alpine Bedrock & Scree Group



WV Eastern North American Talus & Bluff group



ND Great Plains Badlands Vegetation Group

The screenshot shows the NatureServe Explorer website interface. The browser window title is "Comprehensive Report Association - Picea rubens / Betula alleghaniensis / Bazzania trilobata Forest - Mozilla Firefox". The URL is "http://www.natureserve.org/explorer/servlet/NatureServe?sourceTemplate=t:". The page header includes the NatureServe Explorer logo and navigation links: Search, About the Data, About Us, Contact Us, Help. Below the header, it indicates "Ecological Association Comprehensive Report: Record 11 of 40 selected." and provides links for "See All Search Results" and "View Glossary". The main content area displays the title "Picea rubens / Betula alleghaniensis / Bazzania trilobata Forest" and lists various identifiers and a summary. A second browser window is overlaid on top, showing the "NatureServe Conservation Status" section for the same record, which includes "Global Status: G2 (01Jun2009)", "Rounded Global Status: G2 - Imperiled", and a detailed "Reasons" paragraph. The status section also includes a "Jump to Section" dropdown menu.

Conservation Ranking

Rarity **Threats**

Status **Trends**

2013

Conservation Ranking

G = Global **S** = State

1 = critically imperiled

2 = imperiled

3 = vulnerable

4 = apparently secure

5 = widespread, abundant, and secure

X = Extirpated, **H** = Historic

NR = Not Ranked, **NA** = Not Applicable



USNVC Hierarchy for Cultural Vegetation (2008)

Levels	Example
1. Class	Developed Vegetation
2. Subclass	Herbaceous & Woody Developed Vegetation
3. Formation	Developed (Close-cropped) Vegetation
4. Subformation	Lawn (with or without trees, urban & recreational)
5. Group [optional]	Temperate and Tropical Lawns
6. Subgroup	Cool-season Lawn
7. Type	Fescue Lawn
8. Subtype [optional]	



2013

Class: Agricultural Vegetation



GA



GA



CA



WA

Class: Developed Vegetation



DC



DE



2013
HI



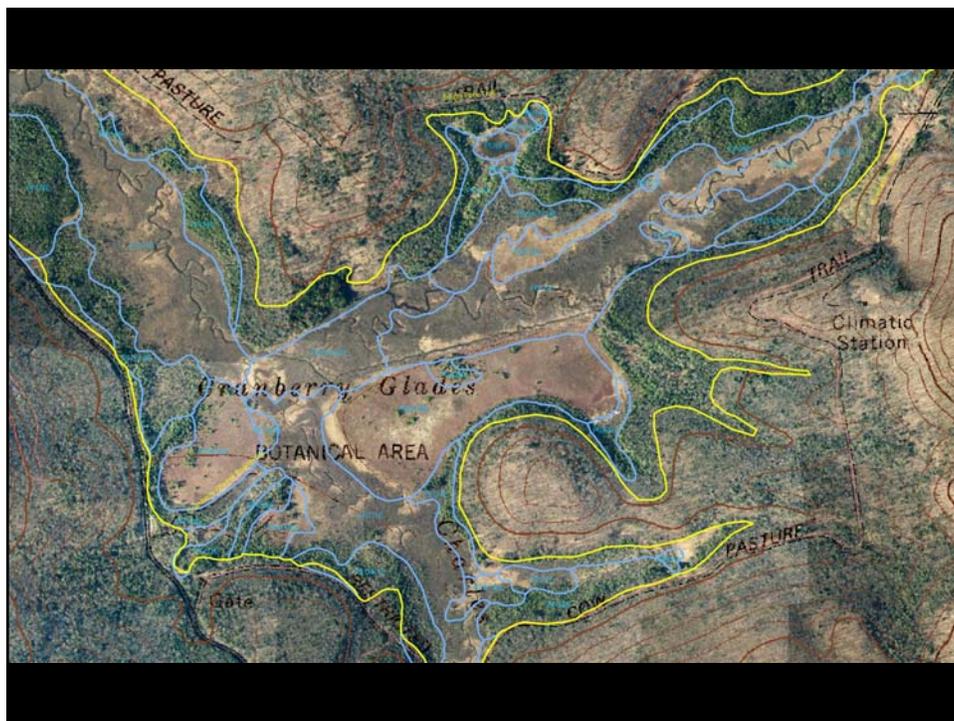
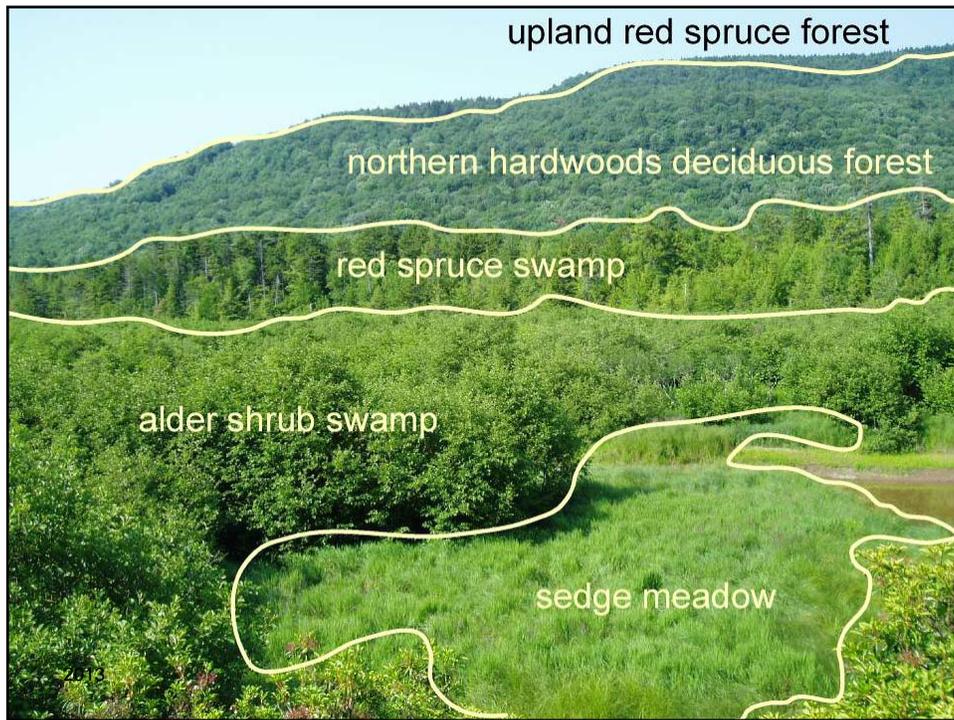
VA

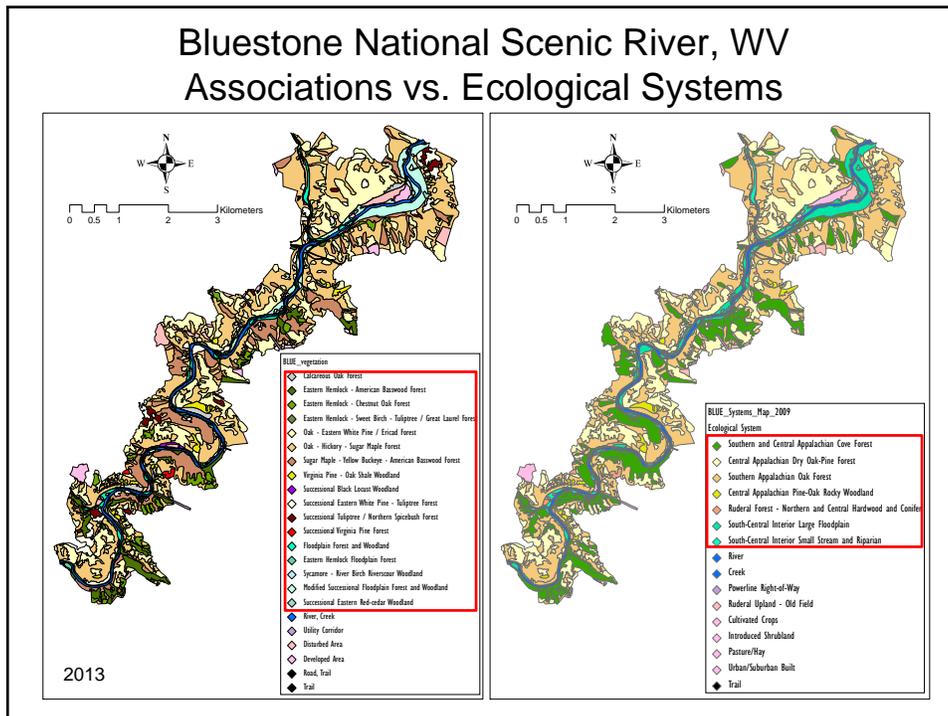
	
<p>Forest & Woodland</p>	<p>(Mesomorphic) Shrubland & Grassland</p>
	
<p>Aquatic (Hydromorphic Vegetation)</p>	<p>Semi-Desert (Xeromorphic Vegetation)</p>
<p>Nonvascular Vegetation (Lithomorphic Vegetation)</p> 	
<p>CULTURAL VEGETATION 2013 Agricultural Vegetation; Developed Vegetation</p>	<p>Polar and High Montane (Cryomorphic Vegetation)</p>

Ecological Systems

2013





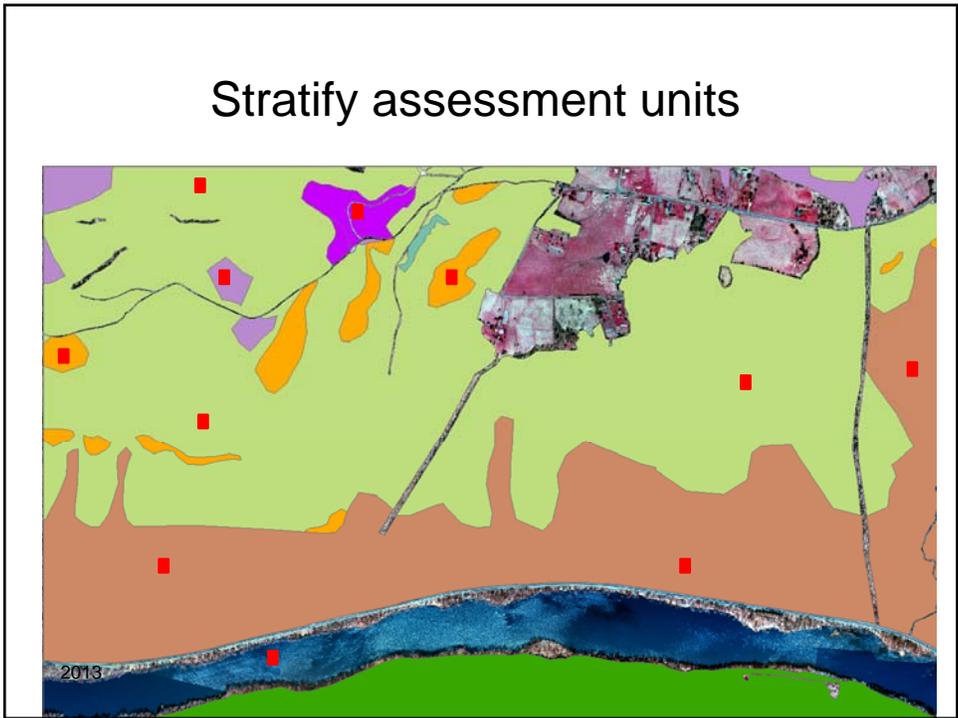
Compile existing data

The image shows three overlapping document covers. The central cover is titled "Vegetation Classification and Mapping of New River Gorge National River, West Virginia" and includes the text "United Park Service, U.S. Department of the Interior" and "Technical Report NPS/NER/SEIR-2007/002". It features a photograph of a forested mountain landscape. To the left, a cover titled "Classification and Conservation Assessment of Wetland Communities in the Allegheny Mountain" is visible. To the right, a cover titled "Vegetation and Conservation Assessment of Wetland Communities in West Virginia" is visible. The year "2013" is printed in the bottom left corner of the slide.

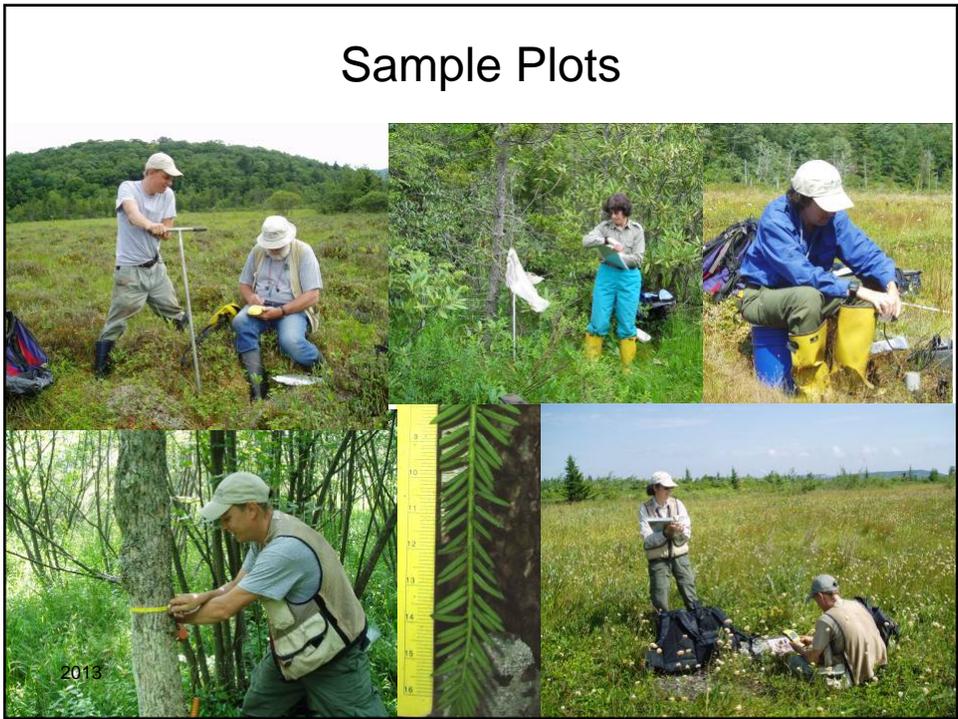
Envision map purpose

The image is a collage of six nature photographs. On the left is a tall evergreen tree against a blue sky. In the top center is a brown salamander on a green mossy rock. In the top right is a squirrel on a tree trunk. In the middle center is a blue flower. In the bottom center is a rainbow trout in a stream. In the bottom right is a white rabbit in a snowy environment. The year "2013" is printed in the bottom left corner of the slide.

Stratify assessment units



Sample Plots



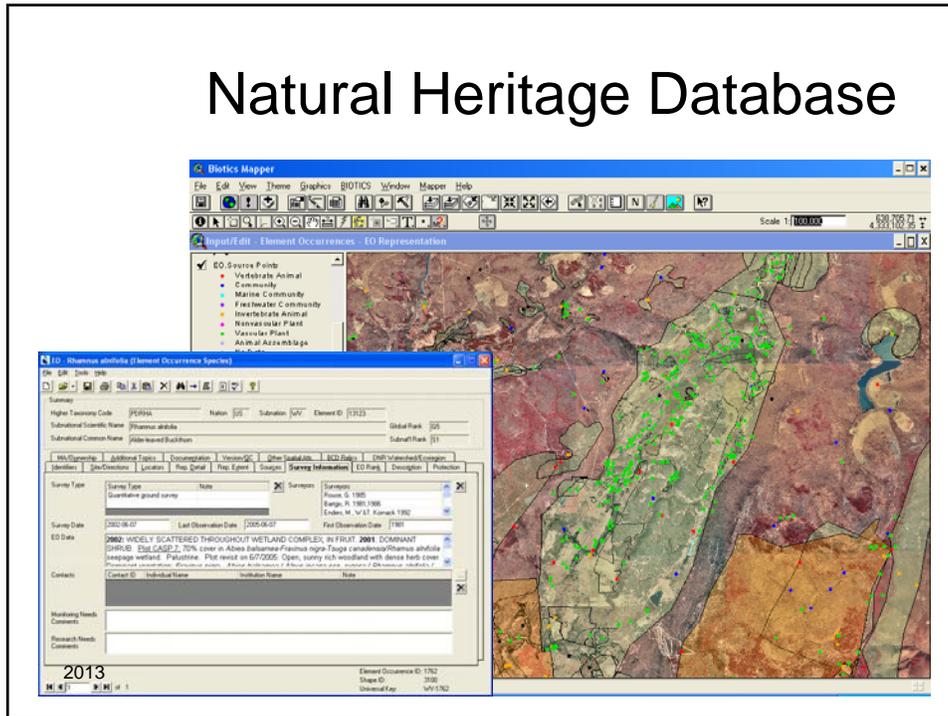
The screenshot shows the PLOTS2007 software interface. The main window displays plot details for plot ID 'MONF 148'. The plot is located in Monongahela National Forest, West Virginia, USA. The community is classified as *Picea rubens - Betula algharenensis var. algharenensis - Tsuga canadensis*. The survey date is 08/04/2004, and the survey time is 3:45 PM. The plot dimensions are 20m x 20m. The species list window is open, showing a table of species recorded at the plot.

Stature	Symbol	Species Scientific Name	Final PLANTS Name	Collection	Day	Cover	Final Cover	Phenology	DBH/Comp
T	TR	<i>Tsuga canadensis</i>	<i>Tsuga canadensis</i>			0%	0%		
T	VT	<i>Vaccinium vitis-idaea</i> L. Gray	<i>Vaccinium vitis-idaea</i> L. Gray			0%	0%		
T	PR	<i>Picea rubens</i> Sars	<i>Picea rubens</i> Sars			0%	0%		
T	VT	<i>Vaccinium myrtillus</i> L.	<i>Vaccinium myrtillus</i> L.			0%	0%		
T	PR	<i>Picea canadensis</i> (Mills) B.S.P.	<i>Picea canadensis</i> (Mills) B.S.P.			0%	0%		
T	BT	<i>Betula algharenensis</i> var. <i>algharenensis</i>	<i>Betula algharenensis</i> var. <i>algharenensis</i>			0%	0%		

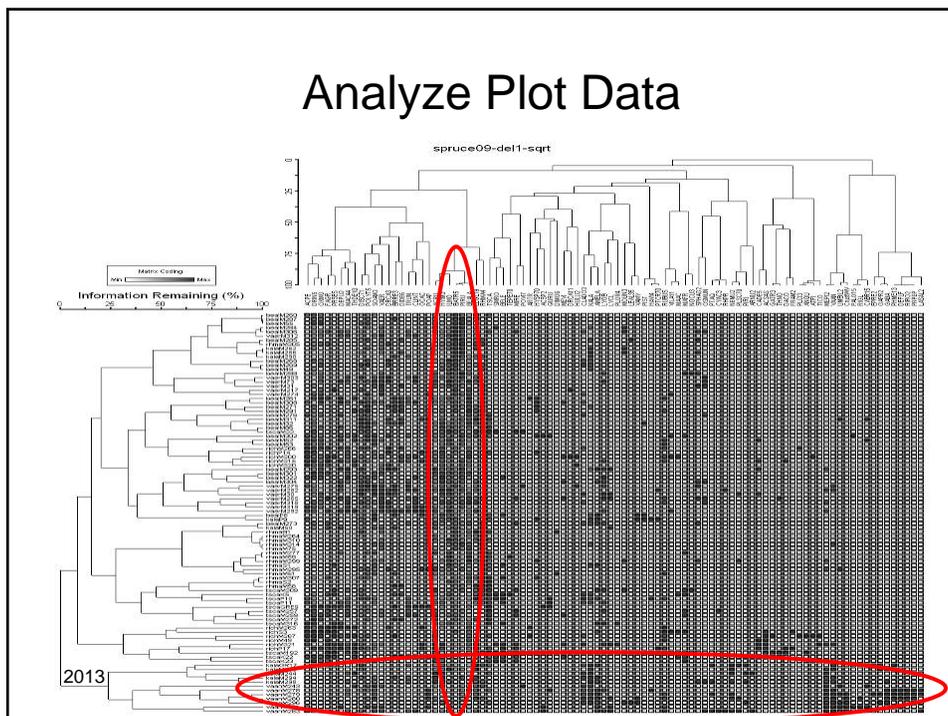
The screenshot shows the VegBank website interface in a Mozilla Firefox browser. The page features a search bar with the text 'find plots containing' and a 'go' button. There are navigation links for 'HOME', 'SUBMIT DATA', and 'MY ACCOUNT'. The main content area is divided into several sections: 'Find Plots' with links for 'Browse plots', 'Simple search', 'Search with a map', and 'Advanced plot search'; 'Plant Taxa' with links for 'What is a plant concept?', 'Browse plants', 'Search plants', and 'Submit plants'; 'Plant Communities' with links for 'What is a community?', 'Search communities', and 'Submit communities'; 'Supplemental Data' with links for 'People', 'Stratum methods', 'Cover methods', and 'Projects'; 'News' with links for 'Map plots: Exa Multiple Datasets', 'Save Your Data Datasets', and 'Create a Cons'; and 'My VegBank' with links for 'Edit profile inform' and 'Manage datasets'. A map of North America is visible in the 'Find Plots' section.

2013

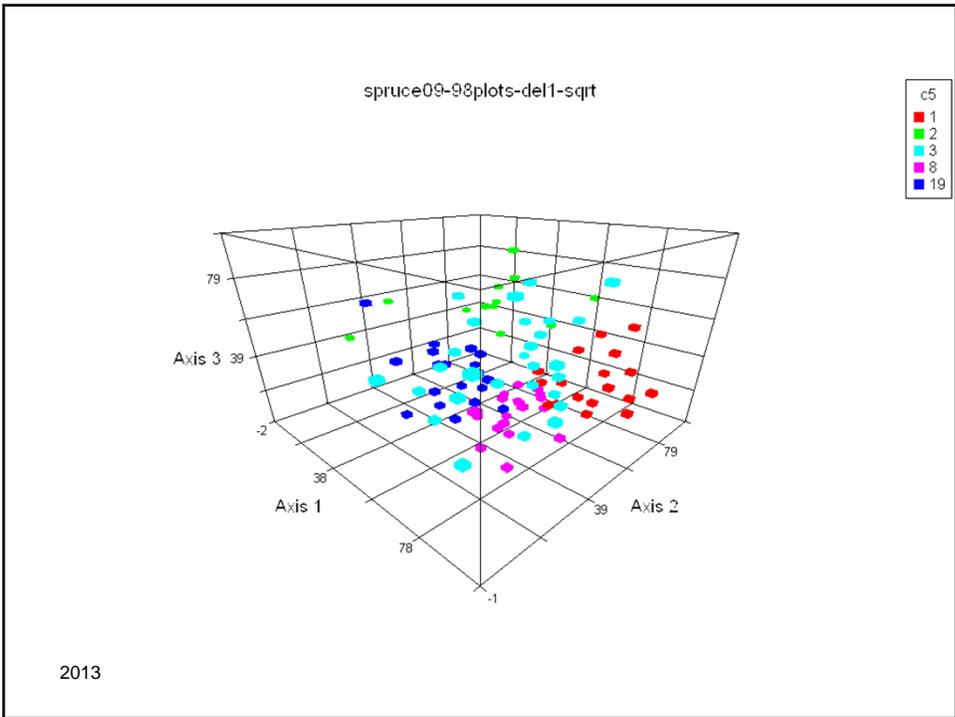
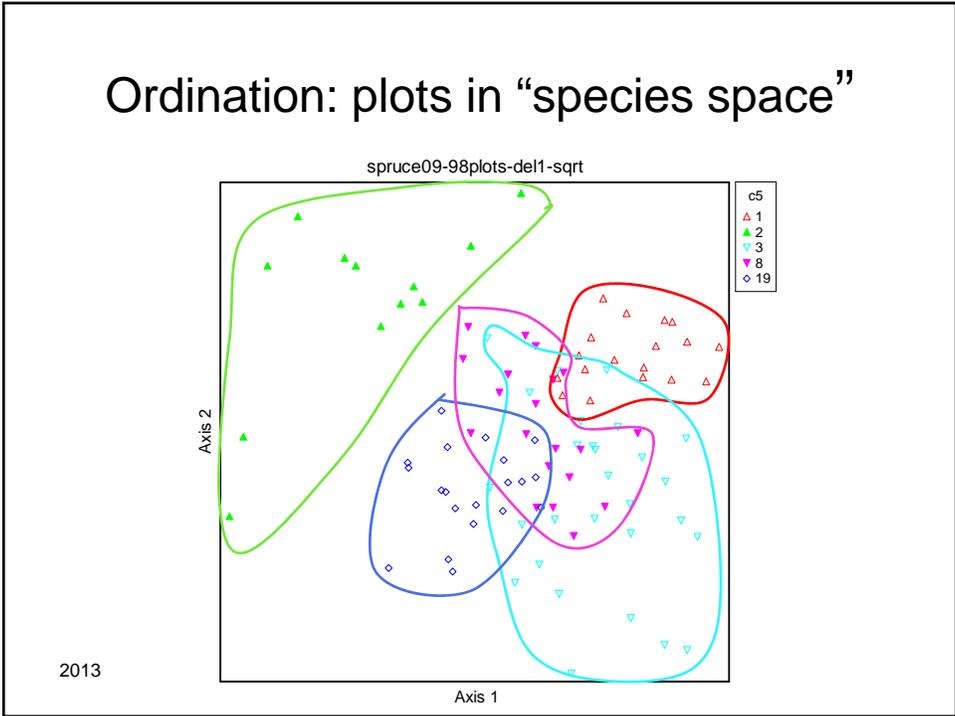
Natural Heritage Database



Analyze Plot Data



Ordination: plots in “species space”



Crosswalk to NVC


An Online Encyclopedia of Life


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About the Data
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[New Search](#)

Ecological Association Comprehensive Report: Record 2 of 2

[<< Previous](#) | [Next >>](#)

selected.
---Jump to Section---

***Alnus incana* Swamp Shrubland**

Translated Name: Gray Alder Swamp Shrubland
Common Name: Gray Alder Swamp
Unique Identifier: C EGL002381

Classification Approach: International Vegetation Classification (IVC)

Summary: This alder swamp community is widespread in the midwestern and northeastern United States and southern Canada. Stands occur on shores, edges of beaver meadows in stream floodplains, swales associated with small streams in peatlands, or upland forests. Soils are well-decomposed peat, muck or mineral soils. The hydrology is typically seasonally flooded, with most sites remaining saturated. The vegetation is dominated by tall shrubs, 2-8 m in height, with a moderately open to dense shrub canopy. There is an understory of shorter shrubs and herbaceous species. The density of the understory varies inversely with the tall-shrub canopy. The overstory is usually overwhelmingly dominated by *Alnus incana*, but in the more southeastern portions of this type's range, *Alnus serrulata* can occur with *Alnus incana*. Where alder is not as dominant, other shrubs, such as *Cornus sericea*, *Ilex verticillata*, *Rubus idaeus*, *Salix* spp., *Spiraea alba*, *Spiraea tomentosa*, and *Viburnum* spp. can be found. At the southern range limit of this type in West Virginia, shrub layers may be dominated or codominated by the Central Appalachian endemic *Ilex collina*. The herbaceous layer contains species such as *Symphytotrichum lanceolatum* var. *lanceolatum* (= *Aster simplex*), *Symphytotrichum puniceum* (= *Aster puniceus*), *Calamagrostis canadensis*, *Caltha palustris*, *Carex lacustris*, *Carex prairiea*, *Carex trisperma*, *Doellingeria umbellata* (= *Aster umbellatus*), *Eupatorium maculatum*, *Glyceria melicaria*, *Glyceria striata*, *Impatiens capensis*, *Lycopus uniflorus*, *Onoclea sensibilis*, *Osmunda cinnamomea*, *Rubus pubescens*, *Scirpus atrovirens*, *Symplocarpus foetidus*, *Thelypteris*

Build map units

Map_Class	
Beaver-influenced Wetland	
Cliff	
Cliff Top Virginia Pine Forest	
Deciduous Tree / Great Laurel Forest	
Developed Area	
Disturbed Area	
Eastern Hemlock – Chestnut Oak / Catawba Rhododendron Forest	
Eastern Hemlock – Sweet Birch – Tuliptree / Great Laurel Forest	
Oak / Ericad Forest	
Oak – Hickory Forest	
Oak – Hickory – Sugar Maple Forest	
Strip Mine Reclamation	
Successional Tuliptree Forest	
Sugar Maple – Yellow Buckeye – American Basswood Forest	
Utility Corridor	

2013

Write local descriptions

Cottongrass Fen



Scientific Name: *Eriophorum virginicum* - (*Carex folliculata*) / *Sphagnum* spp. - *Polytrichum* spp. Fen

Translated Name: Tawny Cotton-grass - (Northern Long Sedge) / Peatmoss - Haircap Moss Fen

NVC Name: CEGLO06570: *Eriophorum virginicum* - (*Carex folliculata*) / *Sphagnum* spp. - *Polytrichum* spp. Herbaceous Vegetation

Conservation Rank: S3 / G3

This acidic herbaceous community occurs on temporarily flooded, semi-permanently flooded, or saturated peat in

the Allegheny Mountains region of West Virginia, at elevations between 770 and 1210 m. It is a small-patch type that occupies flat-lying land (0- to 1-degree slopes) in headwater basins. Older stands typically occur over shallow bedrock, where they are kept open by high water tables.

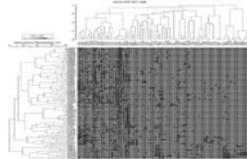
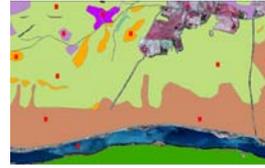
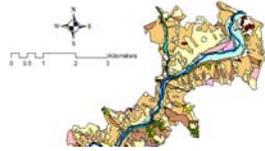
✓ 2013
 Younger stands often occur in beaver-influenced wetland mosaics, often behind breached dams on the site of former beaver ponds. The type also occurs as a successional community on

Create field key

1. Riparian and floodplain forests. Site subject to flooding of the Potomac River (within the mapped flood-prone zone). 2
- Not as above; forests and woodlands of upland sites (slopes, ridges, and upland flats not subject to flooding) 5
2. Natural floodplain forest communities with tall canopies dominated by *Platanus occidentalis* (sycamore), *Acer saccharinum* (silver maple), or *Carya cordiformis* (bitternut hickory), often with *Acer negundo* (box-elder) abundant in the subcanopy. 3
- Forests and thickets strongly dominated by a short canopy of *Acer negundo* (box elder). Semi-natural communities developed on abandoned farmland. CEGLO05033 *Acer negundo* forest
3. Frequently flooded communities along the river's edge with canopies dominated by *Platanus occidentalis* (sycamore) and/or *Acer saccharinum* (silver maple) 4
- Infrequently flooded communities on or behind a natural levee above the river's edge with canopies dominated by *Carya cordiformis* (bitternut hickory), often with *Juglans nigra* (black walnut) and *Fraxinus* spp. (ash)..... CEGLO06445 *Carya cordiformis* - *Prunus serotina* / *Ageratina altissima*

2013
 Pest

Classification Review



- Oak / Ericad Forest
 - Oak – Hickory Forest
- 2013

Cottongrass Fen



Scientific Name: *Juncus*
Juncus spp. - F
Translated Name:
Northern Long-Sp
Hairygrass Fen
SWC Name: CEE
Organism: (C)ter
Vegetation spp. - F
Barboursville Virginia
Conservation Ran
This article
occurs on terrestrial

1. Floodplain
2. Not Floodplain

Ready to Map!

