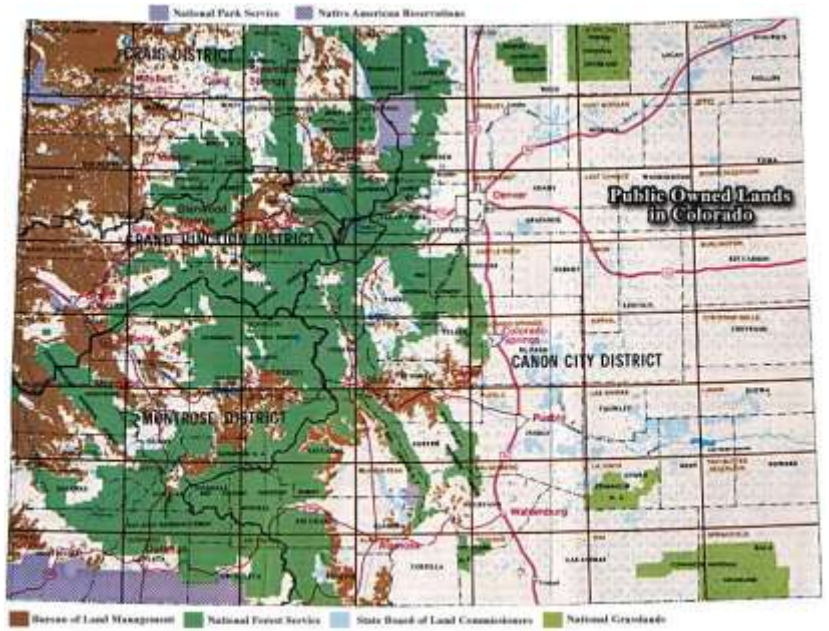
Update of Vegetation Classification Panel Activities for the ESA Governing Board May 8, 2018

Outline/Objectives of Update

Vegetation Classification Panel

Purpose of the Panel and the National Vegetation Classification (NVC)
How the Panel Supports the NVC
Importance of this Work to our Federal Partners

The Crux of the Issue



Many researchers had published classifications, so there was much knowledge

And

Government agencies had their own specific classifications

(e.g., SAF Cover Types)

And

Such classifications are very important for conservation management.

BUT,

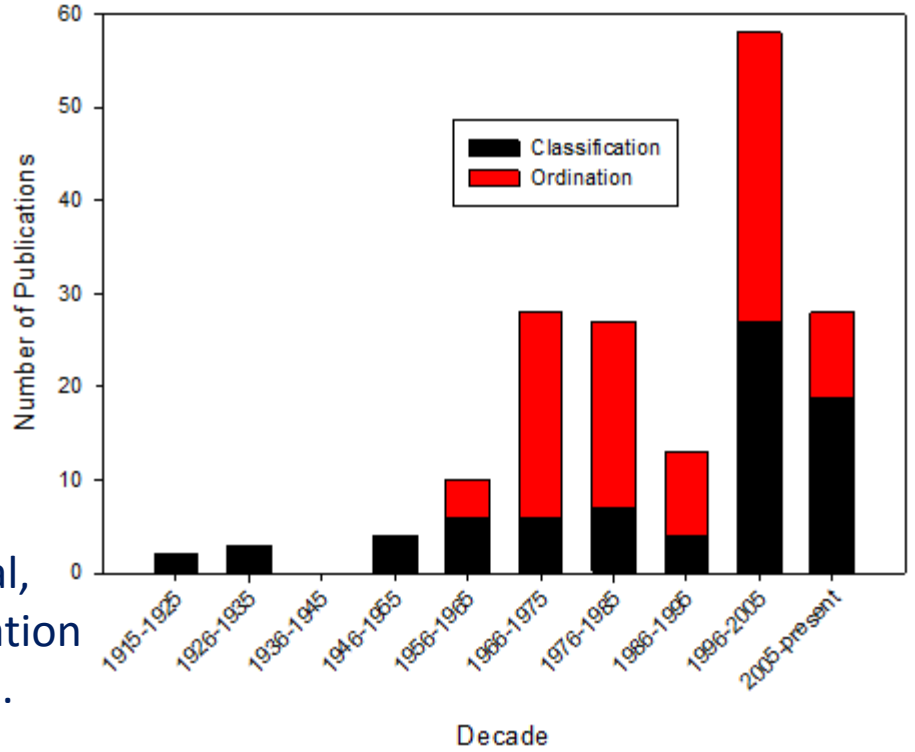
The classifications were usually restricted to small geographic areas and fairly small data sets

Various methods were used for classifications and thus they did not meld

Government agencies had no way to share their classifications

THEREFORE,

A need existed to develop a national classification to share information with a common language and set of definitions

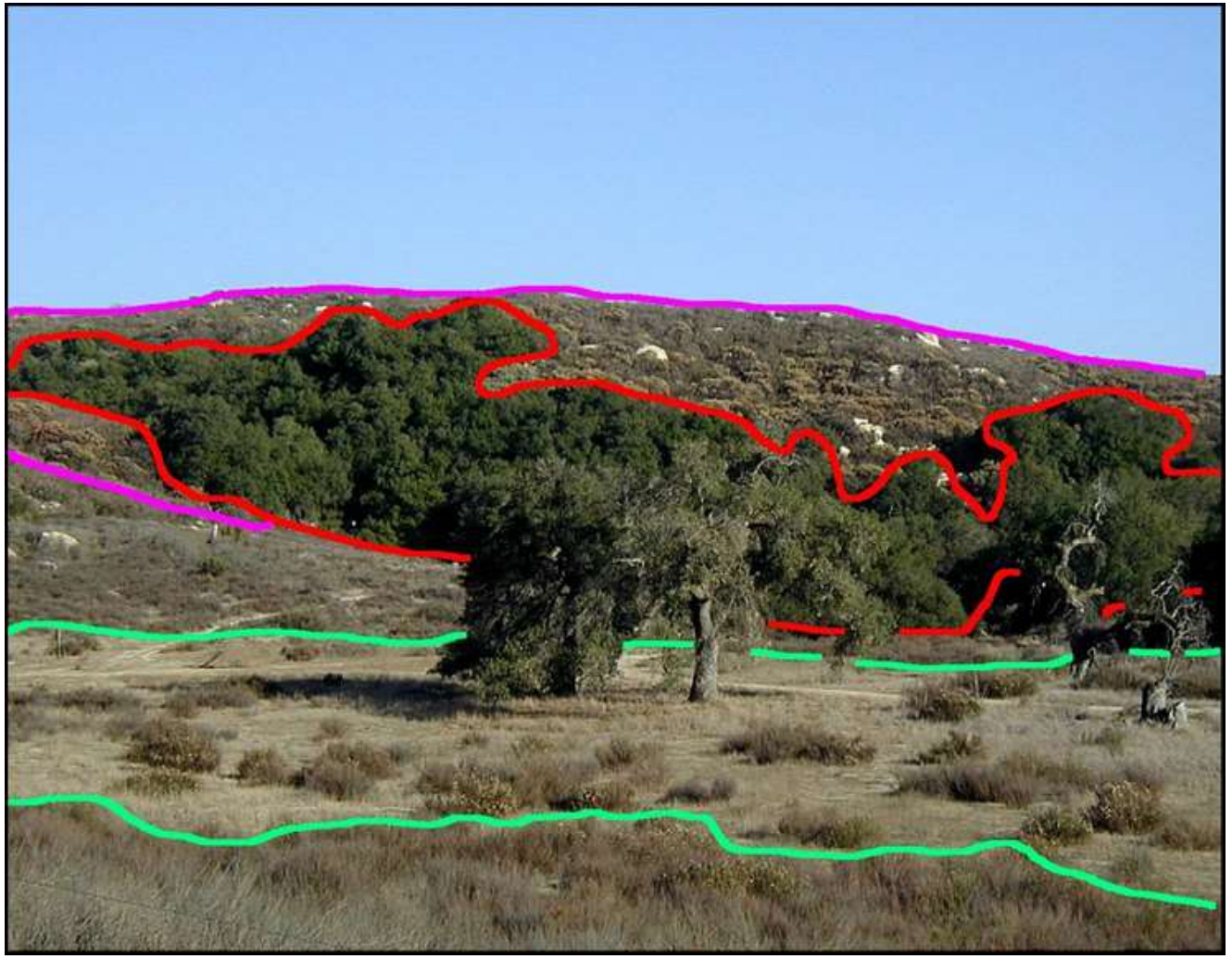


This conservation need is global, hence and increase in classification and ordination in the literature.

Oh, and the Crux of Change.

The *Standard* calls for a dynamic content…why?

1. Climate change has lead to range expansions and contractions (mapping issue), often altering species compositions (classification issue)
2. Exotic species invasions
3. Novel disturbances often yield novel communities
4. Community composition changes over time
5. We simply do not have data on all community concepts



Milestones


The Ecological Society of America

1995, ESA President Judy Meyer appointed a Panel to facilitate and support development of a standardized, scientifically credible vegetation classification system

2017, NVC Ver 2.01

2016, NVC Ver 1

Adaptable, ecology-based U.S. National Vegetation Classification for monitoring multi-scale change debuts today

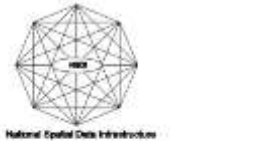
Public release of a 20-year collaborative effort to devise a unified and consistent national reporting system for plant communities opens new avenues for broad-scale and long-term analyses of landscape change.

FOR IMMEDIATE RELEASE: Tuesday, 23 February 2016
Contact: Liza Lester, 202-833-8773 ext. 211, LLester@esa.org

2002, Database established

Building the NVC

1995 — 2000 — 2005 — 2010 — 2015




Vegetation Classification Standard

Vegetation Subcommittee
Federal Geographic Data Committee

June 1997

2009, Panel becomes a Standing Committee

2018, *Proceedings* and Peer Review System

1992, Federal Geographic Data Committee Established

Development, sharing, and use of geospatial data and services

11.2. Standing committees that report to the Vice President for Science.

D) Vegetation Classification Panel. The Vegetation Classification Panel is responsible for (1) **facilitating and supporting the development, implementation, and use** of a standardized vegetation classification for the United States; (2) **guiding professional ecologists** in defining and adopting standards for vegetation sampling and analysis in support of the classification; (3) collaborating with partner organizations to maintain scientific credibility of the classification through oversight of a **peer review system**; and (4) promoting and facilitating **international collaboration** in development of vegetation classifications and associated standards.

A Team Effort Has Been Maintained

Partners

NRCS

USGS

NatureServe

esa

esa Vegetation Classification Panel

Implementation

Also: Education & Outreach
Crosswalks
Collaborations

Classification System developed by partners for partners.

Three legs to stool:

Federal Geographic Data Committee – Vegetation Subcommittee

NatureServe

ESA Panel

Forest Service Lead Organization – Carol Spurrier & Linda Spencer

USGS supports part-time position – Alexa McKerrow

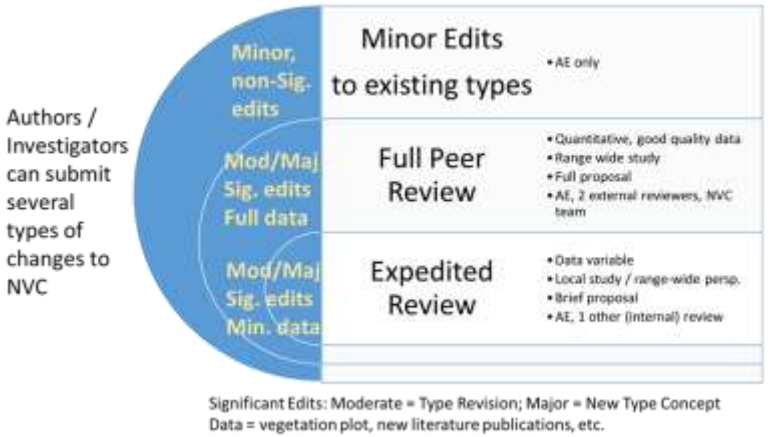
The Three Main Things the Panel Receives Support for are Ed/Outreach, Peer Review Process and VegBank

Most of Funding to:

1. Workshops & Webinars
    1. Mid-career
    2. Peer-review
    3. Mapping
2. Panel Meetings
3. ESA Staff that coordinate 1 & 2
    Also monthly calls, etc.
    Also *Proceedings*
4. Editor-In-Chief/Regional Editors
5. VegBank

The three components are required by the Standard.

Funding to:	Amount (2008-2013)	Amount (2013-2018)	Primary Activity
NatureServe	1,646,892	??	Content development
ESA	NPS, FS, GS 448,185	FS, GS ~500,000	VegBank, Peer review, outreach and education
Other	75,000		Other (outreach)
Total	2,170,077		



Hierarchy Revisions
Proposed Structure - ~~draft~~

	FGDC 1997 - standard	Revised Hierarchy
1	CLASS	CLASS
2	SUBCLASS	SUBCLASS
3	FORMATION GROUP	FORMATION
4	FORMATION SUBGROUP	DIVISION
5	FORMATION	MACROGROUP
6	*ALLIANCE*	GROUP
7	*ASSOCIATION*	*ALLIANCE*
8		*ASSOCIATION*

Natural
Cultural

New mid levels

Building the USNVC

2008

2009-2013

2013 - now

UPPER LEVELS
Formations

MID LEVELS
Div, MG, Group

LOWER LEVELS

Provisional Types
HRWG
(FGDC 2008)

Provisional Types
(incomplete)
HRWG

Provisional Types
& Descriptions
NatureServe,
Biotics Database

Descriptions
HRWG

Provisional Types
(complete) &
Descriptions
NatureServe &
partners

Alliance | Association
NatureServe

Peer Review

Peer Review

Peer Review - Lite

Screening Tool

Initial NVC Content
(Database Management)

Formal Peer Review /
Maintenance Review

REVIEWS

Ecological Monographs, 84(4), 2014, pp. 533–561

EcoVeg: a new approach to vegetation description and classification

Don Faber-Langendoen,[1,11] Todd Keeler-Wolf,[2] Del Meidinger,[3,12] Dave Tart,[4] Bruce Hoagland,[5] Carmen Josse,[1] Gonzalo Navarro,[6] Serguei Ponomarenko,[7] Jean-Pierre Saucier,[8] Alan Weakley,[9] and Patrick Comer[10]

The EcoVeg Approach paper describes the approach used for the NVC…and IVC.

How a national vegetation classification can help ecological research and management

Peer-reviewed letter

The elegance of classification lies in its ability to compile and systematize various terminological conventions and masses of information that are unattainable during typical research projects. Imagine a discipline without standards for collection, analysis, and interpretation; unfortunately, that letter, we introduce the US National Vegetation Classification (USNVC; www.usnvc.org) as a powerful tool for research and conservation, analogous to the argument made by Schimel and Chadwick (2013) for soils. The USNVC provides a national framework to classify and describe vegetation; here we describe the USNVC and offer brief examples of its efficacy.

Prominent uses of classification include establishing baseline knowledge (eg to assess diversity, monitor change, or develop management pro- [ESA's] Vegetation Classification Panel) of the FGDC Vegetation Subcommittee formalized standards for vegetation classification in 2008 (FGDC 2008; Peet 2008; Faber-Langendoen *et al.* 2009; Jennings *et al.* 2009). They developed an eight-level hierarchy (WebTable 1), a common terminology that is international in scope (Faber-Langendoen *et al.* 2014), and a dynamic content standard. The Classification is dynamic in that it can be updated through a proposal and review process with changes archived at

But it is not the only approach; the Panel works with others throughout the world to standardize classification.

IUCN Red Lists of Endangered Communities

Applied Vegetation Science **18** (2015) 543–560

SYNTHESIS

A comparative framework for broad-scale plot-based vegetation classification

Miquel De Cáceres, Milan Chytrý, Emiliano Agrillo, Fabio Attorre, Zoltán Botta-Dukát, Jorge Capelo, Bálint Czúcz, Jürgen Dengler, Jörg Ewald, Don Faber-Langendoen, Enrico Feoli, Scott B. Franklin, Rosario Gavilán, François Gillet, Florian Jansen, Borja Jiménez-Alfaro, Pavel Krestov, Flavia Landucci, Attila Lengyel, Javier Loidi, Ladislav Mucina, Robert K. Peet, David W. Roberts, Jan Roleček, Joop H.J. Schaminée, Sebastian Schmidtlein, Jean-Paul Theurillat, Lubomír Tichý, Donald A. Walker, Otto Wildi, Wolfgang Willner & Susan K. Wiser

Content Descriptions for All Concepts at All Levels

CEGL003592 *Pinus palustris - Pinus taeda / Quercus laevis / Gaylussacia frondosa - Gaylussacia baccata* Woodland

Print Report

Link to NatureServe Explorer

Type Concept Sentence:

Collapse All :: Expand All

Overview

Common (Translated Scientific) Name: Longleaf Pine - Loblolly Pine / Turkey Oak / Blue Huckleberry - Black Huckleberry Woodland

Colloquial Name: Longleaf Pine / Scrub Oak Sandhill (Northern Type)

Hierarchy Level: Association

Type Concept: This association is a longleaf pine / scrub oak sandhill community that occurs in the northern portion of the Mid-Atlantic Coastal Plain and hence differs substantially in floristic composition from more southern types. *Pinus palustris* and *Pinus taeda* dominate the canopy with a variety of scrub oaks in the subcanopy layer. The shrub layer is often dense and diverse, dominated by *Gaylussacia* spp. and *Vaccinium tenellum*, in contrast to the herbaceous layer, which is often sparse and relatively species-poor.

Diagnostic Characteristics: This type is constrained to the northern portion of the Mid-Atlantic Coastal Plain and hence is characterized by very different species than other xeric types, including *Quercus nigra*, *Sassafras albidum*, *Smilax glauca*, *Gaylussacia frondosa*, *Gaylussacia baccata*, and *Vaccinium pallidum*. The herbaceous layer is sparse and species-poor.

Vegetation

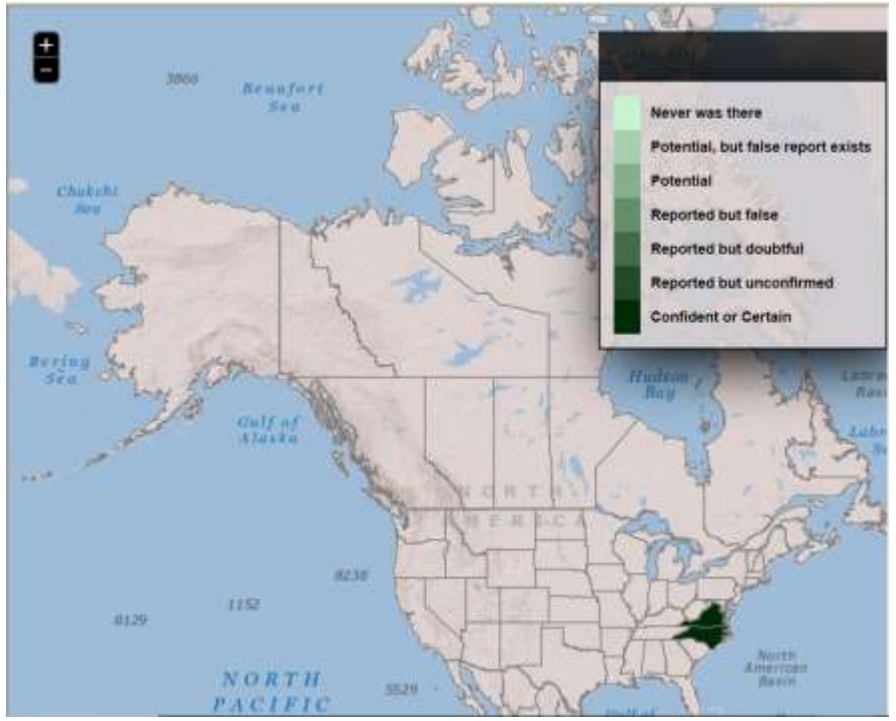
Physiognomy and Structure: No Data Available

Floristics: This northern longleaf pine sandhill community differs substantially in floristic composition from other, more southern types. In part, this is a matter of many species occurring to the south being absent, but other, more northern species atypical of longleaf sandhills are also present. The overstory canopy is composed of equal parts *Pinus palustris* and *Pinus taeda* and the subcanopy layer is composed primarily of scrub oaks, including *Quercus laevis*, *Quercus nigra*, and *Quercus falcata*. Other common trees in this type include *Pinus serotina*, *Diospyros virginiana*, *Sassafras albidum*, and *Castanea pumila*. The shrub layer is dominated by *Gaylussacia frondosa*, *Gaylussacia dumosa*, and *Vaccinium tenellum*. Other common shrubs include *Gaylussacia baccata*, *Gaultheria procumbens*, *Morella cerifera*, *Vaccinium pallidum*, and *Vaccinium stamineum*. The herbaceous layer is relatively sparse and species-poor. *Aristida stricta* is lacking in this type. Other characteristic understory species include *Euphorbia ipecacuanhae*, *Smilax glauca*, *Schizachyrium scoparium*, *Carphephorus bellidifolius*, and *Pteridium aquilinum*. In Virginia, where longleaf pine vegetation is very limited and remaining sites are intensely managed with prescription fire, removal of loblolly pine, and planting of longleaf pine, existing association concepts are difficult to apply. The pre-settlement nature of these communities is somewhat obscure, because so few examples remain, and none of which are in very good condition.

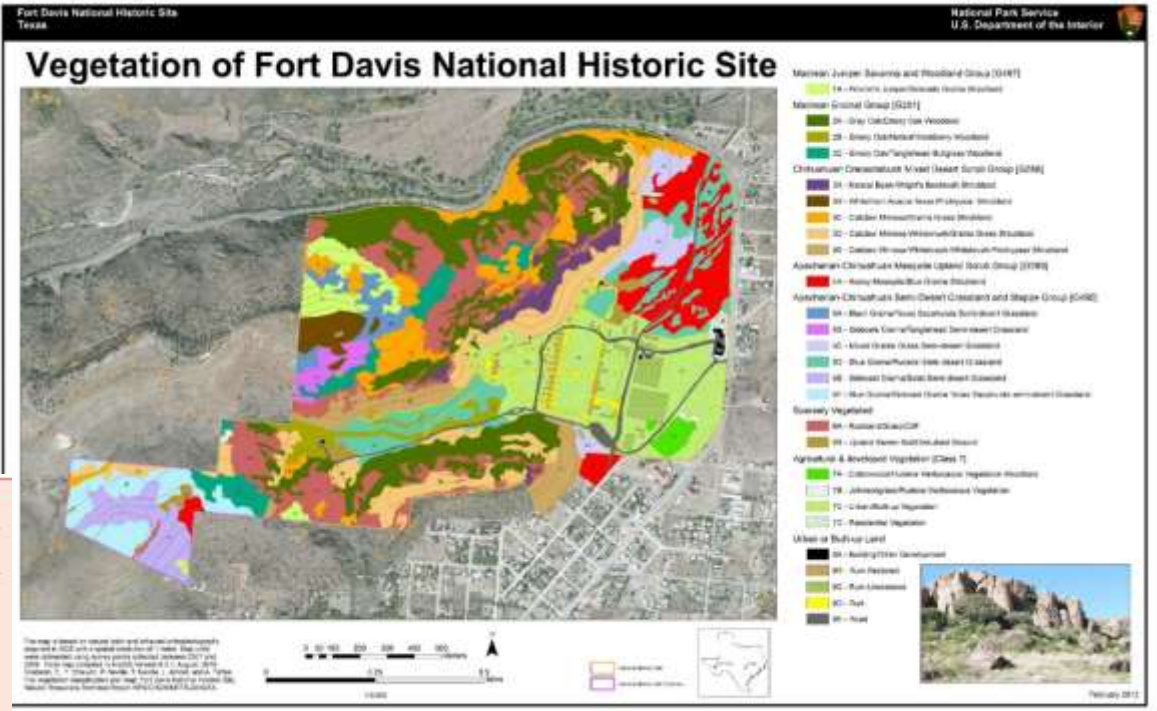
Dynamics: No Data Available

Environment

Environmental Description: This association is a longleaf pine / scrub oak sandhill community located in the northern portion of the Mid-Atlantic Coastal Plain of Virginia and North Carolina on sandy loam soils. Even the slightest change of elevation at these sites can result in significant differences of soil moisture, thus, "wet" and "dry" variants occur in small-scale mosaics. Documented soil types include Spodic Quartzipsamments, Aquic Quartzipsamments, and Typic Quartzipsamments.



This Work is Important For Research and Our Government Partners



WebTable 2. Examples of agency use of the USNVC levels

	USNVC level	*Possible agency application*
Upper	Level 1 – Formation Class	
	Level 2 – Formation Subclass	1. US Army Corps of Engineers – Stewardship
	Level 3 – Formation	1. US Army Corps of Engineers & Environmental Protection Agency (wetland mitigation) 2. Environmental Protection Agency – National Wetland Condition Assessment 3. National Marine Fisheries Service – Status and Trends of Wetlands in the Coastal Watersheds of the Conterminous United States (assessment)
Mid	Level 4 – Division	1. International Biome Classification??
	Level 5 – Macrogroup	1. US Forest Service Forest Inventory and Analysis Program (forest assessment) 2. Bureau of Land Management (regional assessments, land-use plans)
	Level 6 – Group	1. National Park Service Vegetation Inventory Program (natural resource inventory) 2. Fish and Wildlife Service (natural resource inventory, ecological integrity assessment) 3. US Forest Service Forest Inventory and Analysis Program (forest assessment) 4. LandFire (fire modeling) 5. US Geological Survey – GAP Analysis Program (habitat distribution) 6. Northeast Association of Fish & Wildlife Agencies (habitat inventory) 7. Western Governors Association Initiative on Wildlife Corridors and Crucial Habitat (wildlife habitat inventory) 8. State Natural Heritage Programs (natural resources inventory)
Lower	Level 7 – Alliance	1. National Park Service Vegetation Inventory Program, State Natural Heritage Programs (natural resources inventory)
	Level 8 – Association	1. National Park Service Vegetation Inventory Program, State Natural Heritage Programs (natural resources inventory)

Ways the Panel is working with agencies:

LandFire has paid for autokeys – modeled keys that determine community type from plot data.

FGDC-CAP grants have helped states like CA match their classification to the NVC.

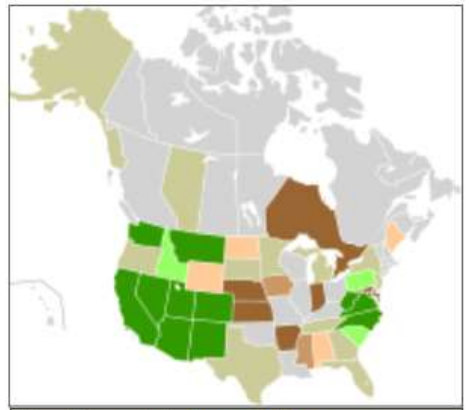
Partnering with State Heritage Programs

Currently working to have all NPS plot data incorporated into VegBank.

VEGBANK

Find Plots

Browse plots
Simple search
Search with a map
Advanced plot search



Map Key: plots Larger Map		
1-49	50-99	100-249
250-999	1,000-3,000	> 3,000

Recently Added Plots

Project (view all)	Added
Vermont Natural Heritage Inve...	27-Feb-18
Carolina Vegetation Survey	17-Feb-17
	03-Nov-

Plant Taxa

What is a plant concept?
Browse plants
Search plants
Submit plants

Plant Communities

What is a community?
Search communities
Submit communities

Supplemental Data

People
Stratum methods
Cover methods
Projects
References
Search supplemental data

Data in VegBank

Plots	111,708
--Classified Plots	91,682
----to NVC communities	22,342
Plant Concepts	293,165
--accepted by USDA	97,017
----and on plots	9,398

News

» **Map plots:** Example | Datacart | Multiple Datasets (Requires Login)
» Save Your Datacart | Edit Datasets
» Create a Constancy Table

My VegBank Account

Edit profile information
Manage datasets

Learn About VegBank

What is VegBank?
What is a plot?
FAQ
Tutorial
Cite or link to VegBank
Terms of use
Site map
Contact

Contribute Plot Data

Submit plots
Annotate plots

Tools

The *Proceedings* is housed by ESA – THANK YOU!

Developed (Hortomorphic) Vegetation

Lawn

Golf course

Right-of-way

Agricultural (Agromorphic) Vegetation

Corn field

Intensive Hay field

Intensive Hay field: Red top, with timothy, tall fescue, creeping foxtail (e. OR)

Grassland & Shrubland (Mesomorphic) Vegetation

Ruderal

Crested wheatgrass (exotic), SD

Cogon grass (exotic) southeastern U.S.

Heavy/light grazed (planted) pasture, Texas

(near)-Natural

Tallgrass prairie, WI

Mixed grass prairie, SD

Shortgrass prairie, CO

Cultural Vegetation ⟷ Ruderal & Native Vegetation

Orchards and Treed Lawns

Northern cherry orchard

Apple orchard (Empire)

Lawn with trees (Thomas Jefferson home)

Plantation Forests

Poplar plantation

Douglas fir plantation (40 yr)

Red pine plantation

Natural Forests

Beech - maple northern hardwood forest,

- mature & partially logged

Red pine forest

Cultural Vegetation ⟷ Ruderal, Plantation and Native Vegetation