U.S. National Vegetation Classification:
Advancing the Description and Management of the Nation's Ecosystems

Use of the NVC hierarchy to scale the GAP/LANDFIRE National Ecosystems Map Legend

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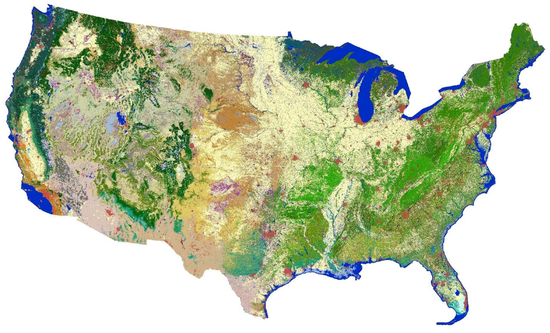
Background

A national inventory of the existing vegetation across the U.S. has been central to the missions of both the Landscape Fire and Resource Management Planning Tools Project (LANDFIRE) and the National Gap Analysis Program (GAP). Over the past several years these two programs have come together to collaborate on the next generation highly detailed existing vegetation maps for the U.S. This collaboration leverages the mapping and inventory to meet needs for both fire and fuels management, as well as for wildlife habitat conservation planning.

GAP/LANDFIRE National Terrestrial Ecosystems 2011



While the initial mapping effort focused on the Ecological Systems Classification (Comer et al. 2003), a 2011 update incorporated a crosswalk to the U.S. National Vegetation Classification specific to the USNVC hierarchy. The crosswalk to the hierarchical structure of the USNVC allows for scaling of the map legend in a standardized way.

Citations

Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, and J. Teague. 2003. *Ecological Systems of the United States: A Working Classification of U.S. Terrestrial Systems.* NatureServe, Arlington, Virginia.

Federal Geographic Data Committee. 2008. The National Vegetation Classification Standard, Version 2. FGDC Vegetation Subcommittee. FGDC-STD-005-2008 (Version 2). pp. 126.

Methods

There are 551 natural vegetation classes represented in the GAP/LANDFIRE National Terrestrial Ecosystems Map for the conterminous U.S. The crosswalk allows for the aggregation of the mapped classes into the hierarchical structure of the USNVC; specifically, the ecological systems are crosswalked to the middle and upper levels of the USNVC. Relationships between the two classification systems developed by NatureServe ecologists were used to link the mapped Ecological Systems to the Group level of the USNVC. Figure 2 provides an example of the hierarchical structure from Association to Class and the conceptual relationship between the Ecological Systems Classification and the USNVC.

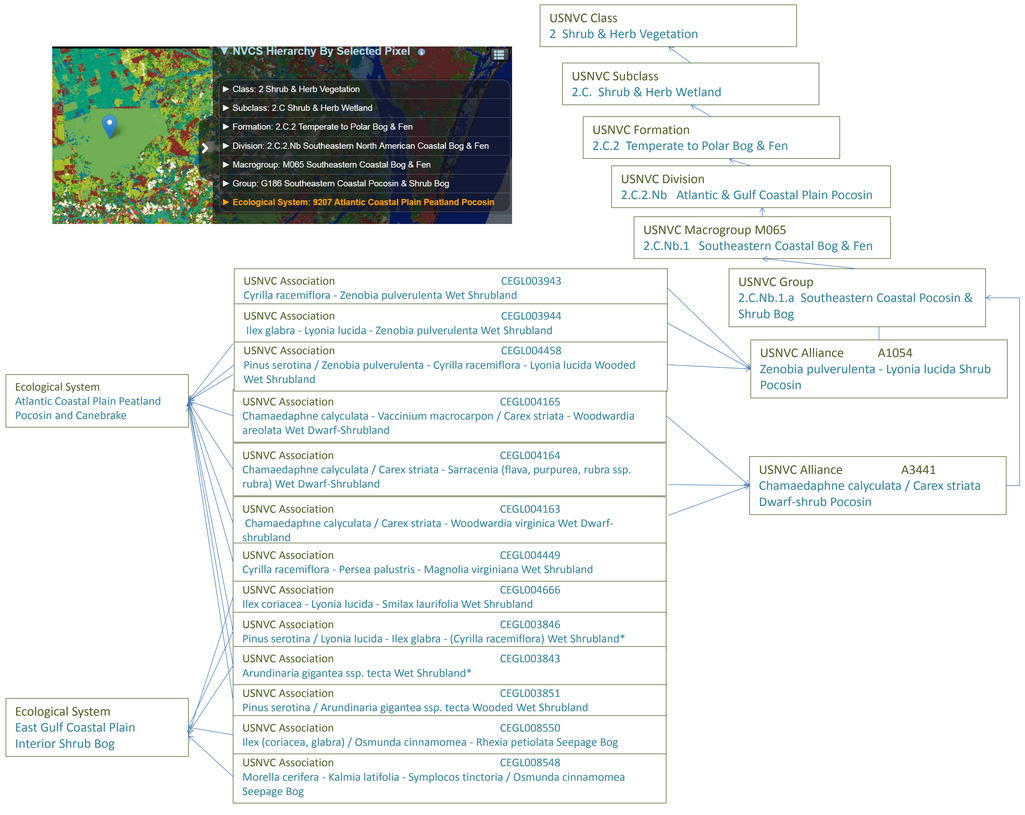


Figure 2. The relationship between USNVC Associations and two Ecological Systems and the associations and their membership within the USNVC Hierarchy.

Results

6 Classes

a. Forest & Woodland
b. Desert & Semi-Desert

13 Subclasses

a. Temperate & Boreal Forest & Woodland
b. Warm Desert & Semi-Desert Woodland, Scrub & Grassland

22 Formations

a. Temperate Flooded & Swamp Forest
b. Warm Desert & Semi-Desert Scrub & Grassland

51 Divisions

a. Eastern North American Great Plains Flooded & Swamp Forest
b. North American Warm Desert Scrub & Grassland

112 Macrogroups

a. Laurentian-Acadian-Northeast Flooded & Swamp Forest
b. Chihuahuan Desert Scrub

240 Groups

a. Laurentian-Acadian-Appalachian Alkaline Swamp
b. Chihuahuan Desert Sand Scrub

Figure 3. Example of the scaling of the map legend based on the USNVC for two sites in the conterminous U.S.

Discussion

The existing crosswalk allows us to represent the mapped vegetation types at different levels of the hierarchy. The ability to change the thematic resolution provides the ecological context for the vegetation at multiple scales. The fact that there are some many-to-many relationships between the Ecological Systems Classification and the USNVC systems means there is error incorporated in the higher levels of the map based on the choices made during the crosswalk process. While both classifications systems have been in use for several years, the concepts and descriptions of the types continue to evolve. In addition to providing for a rigorous standard, the process of crosswalking the concepts between systems should help our understanding of vegetation types across the U.S. For the 2016 LANDFIRE Existing Vegetation Dataset one map will be modeled directly from plots labeled to the USNVC Groups (See Comer and Long this session).