Vegetation Classification and Mapping in the National Parks of the North Coast and Cascades Network

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North Coast and Cascades Network
National Park Service Inventory & Monitoring Program
CANADA
WASHINGTON
Bellingham
North Cascades
San Juan Island
National Historic Park
Ebey's Landing
National Historical Reserve
Port Angles
Olympic
National Park
Cascade Mountains
Seattle
Wenatchee
Mount Rainier
National Park
Olympia
Pacific
Ocean
Yakima
Lewis & Clark
National Historical Park
WASHINGTON
OREGON
North Coast and Cascades Network
Fort Vancouver
National Historic Site
Portland
Parks
Roads
Ebey's Landing, Fort Vancouver, Lewis & Clark, Mount Rainier, North Cascades, Olympic, San Juan Island
Miles 25 50 75 100 125 150 175 200 225 25

Presentation Overview

- Completed Projects- Overview and Highlights
  - San Juan Island, Ebey's Landing, Fort Vancouver and Lewis and Clark National Historical Parks and Reserves
- Wilderness Park Mapping Challenges and Preview
  - Mount Rainier, North Cascades and Olympic
- Classification and Mapping in the Context of Climate Change

- NPS Project Standards:
  - Maps
    - 1:24,00 scale, 80% accuracy, using Alliance level from National Vegetation Classification System
  - Final Products
    - Vegetation classification- keys and descriptions
    - Field data, spatial data, accuracy assessment, report

- National Vegetation Classification System
  http://usnvc.org/

- Key to and Descriptions of Associations

Tsuga heterophylla is prominent to dominant in the tree canopy layer, typically with greater than 10% cover. *Pseudotsuga menziesii* almost always codominates and *Thuja plicata* may be present to codominant.

Rhododendron macrophyllum forms a variable-density tall shrub layer, typically with greater than 10% cover, but sometimes as low as 5%. *Holodiscus discolor* is usually prominent to codominant in the tall shrub layer. *Gaultheria shallon* forms a lower shrub layer and *Vaccinium ovatum* is occasionally present.
.....***Pseudotsuga menziesii - Tsuga heterophylla / Rhododendron macrophyllum - Vaccinium ovatum - Gaultheria shallon* Forest, p. 22**

Polystichum munitum is the dominant herbaceous species, typically with greater than 10% cover, but sometimes as low as 2% when understory vegetation is sparse. Other ferns may also codominate.

Tiarella trifoliata and/or *Athyrium filix-femina* are present, occupying greater than 1% total cover and exceeding cover of *Gaultheria shallon*. Other moist-site indicator species such as *Rubus spectabilis* and *Dryopteris expansa* are frequently present. *Sambucus racemosa* occasionally dominates the tall shrub layer. *Thuja plicata* and *Alnus rubra* are common in the tree canopy layer.
.....***Tsuga heterophylla - (Pseudotsuga menziesii - Thuja plicata) / Polystichum munitum - Athyrium filix-femina* Forest, p. 28**

Gaultheria shallon is the dominant shrub in a variable density shrub layer. *Holodiscus discolor* frequently codominates. Shrub cover may be sparse and combined *G. shallon* and *Polystichum munitum* cover may be as little as 3%. Moist-site indicators such as *Rubus spectabilis* and *Dryopteris expansa* are absent.
.....***Pseudotsuga menziesii - Tsuga heterophylla / Gaultheria shallon / Polystichum munitum* Forest, p. 21**

Gaultheria shallon dominates a variable density low shrub layer. *Holodiscus discolor* is present and characterizes the tall shrub layer. *Linnaea borealis* often forms a persistent carpet. *Vaccinium ovatum* or *V. parvifolium* may be present. *Rhododendron macrophyllum* is characteristically absent.
.....***Pseudotsuga menziesii - Tsuga heterophylla / Gaultheria shallon - Holodiscus discolor* Forest, p. 24**

***Pseudotsuga menziesii - Tsuga heterophylla / Rhododendron macrophyllum - Vaccinnium ovatum - Gaultheria shallon* Forest**

Douglas-fir - Western Hemlock/ Rhododendron - Huckleberry - Salal Forest

Acronym: PSEMEN-TSUHET/RHOMAC-VACOVAT-GAUSHA

NatureServe Code: CEGL002615

Macrogroup: Vancouverian Lowland and Montane Rainforest

Group: North Pacific Maritime Douglas-fir - Western Hemlock Forest

Alliance: *Tsuga heterophylla - Pseudotsuga menziesii / Holodiscus discolor* Dry Forest Alliance

Range: This association occurs below 460 m (1500 ft.) in west-central portions of the Puget Lowland, including the Kitsap Peninsula, Whidbey Island and the northeastern Olympic Peninsula.

EBLA Distribution: Comprises the majority of the forested lands at Ft. Ebey State Park, Kettles Recreation Area, Rhododendron County Park, and the surrounding private lands. It is the largest plant association by area within the Reserve.

Plots: EBLA (3); Chappell (2006b)

Environmental Description: This association typically occurs on moderately dry, very nutrient-poor sites including soil parent materials of gravelly glacial till or outwash, or basalt bedrock. At EBLA, it can occur on any slope or aspect.

Vegetation Description: This is an evergreen needle-leaved forest dominated by *Pseudotsuga menziesii* and *Tsuga heterophylla*, the former usually taller and more abundant, the latter usually dominating tree regeneration. *Thuja plicata* is usually present and sometimes codominant, and *Pinus monticola* is present in about half the plots collected elsewhere, but absent at EBLA. The understory is dominated by the evergreen broad-leaved shrubs *Rhododendron macrophyllum* (2-4 m tall), *Vaccinium ovatum*, and *Gaultheria shallon*, and may be sparse or dense depending on tree density, though *Vaccinium ovatum* is frequently absent or low in cover at EBLA. Other frequent species are *Pteridium aquilinum, Mahonia nervosa*, and *Vaccinium parvifolium*. Herbaceous species are typically found in very small amounts.

USFWS Wetland System: Not applicable.

Comments: This association is distinguished from similar ones by >10% cover of *Tsuga heterophylla* or *Thuja plicata*, >5% cover of *Rhododendron macrophyllum*, usually with *Vaccinium ovatum*, combined with <3% cover of *Polystichum munitum*.

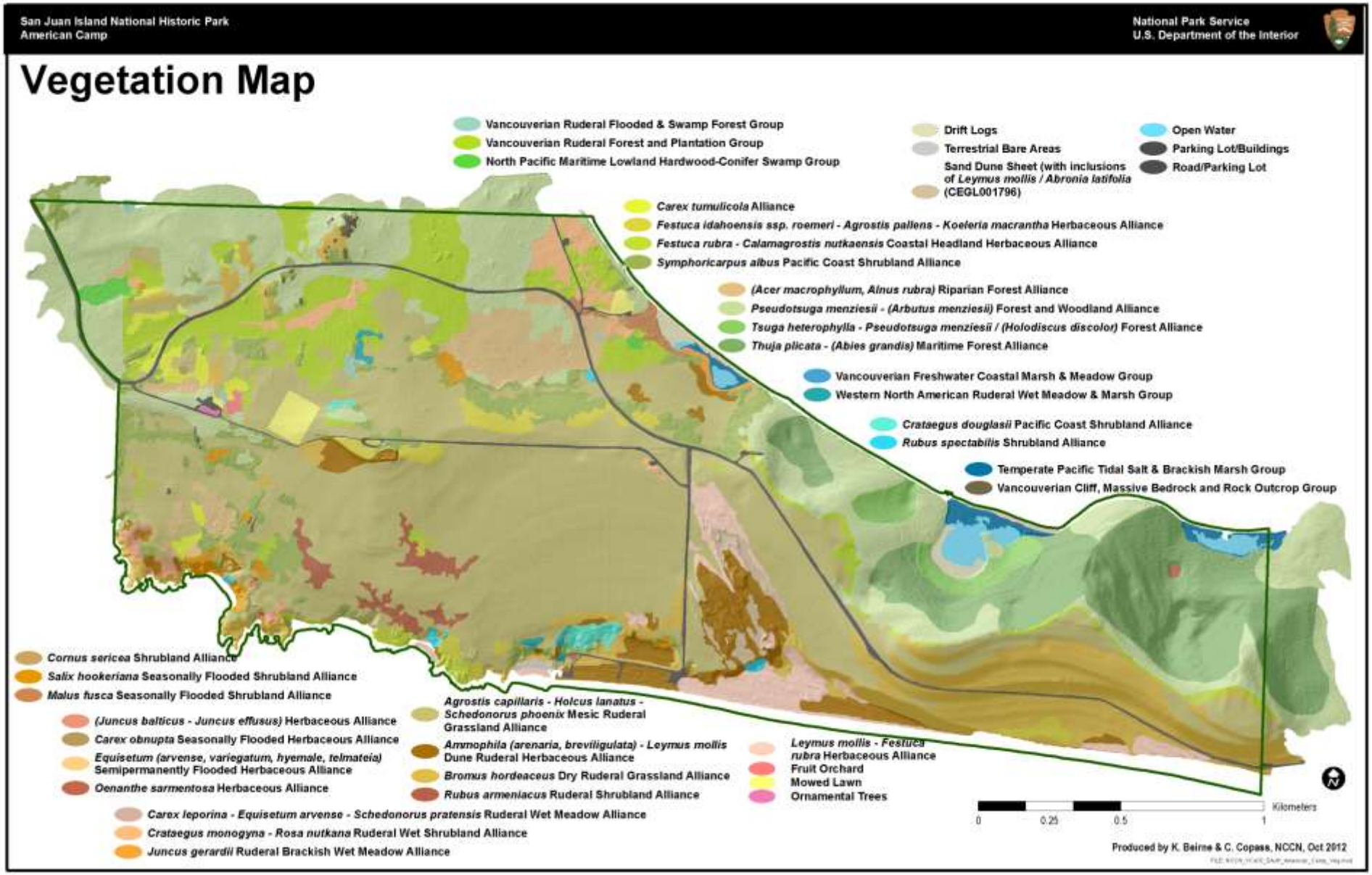
Rank: G2S2

Rank Justification: This association is found in a limited range within the Puget Lowland, with few good quality occurrences remaining due to logging and fragmentation.

Synonyms:
Pseudotsuga menziesii-Tsuga heterophylla/Rhododendron macrophyllum-Vaccinium ovatum WA; Chappell 2006b

San Juan Island National Historical Park

National Park Service
US Department of the Interior



San Juan Island National Historical Park

National Park Service
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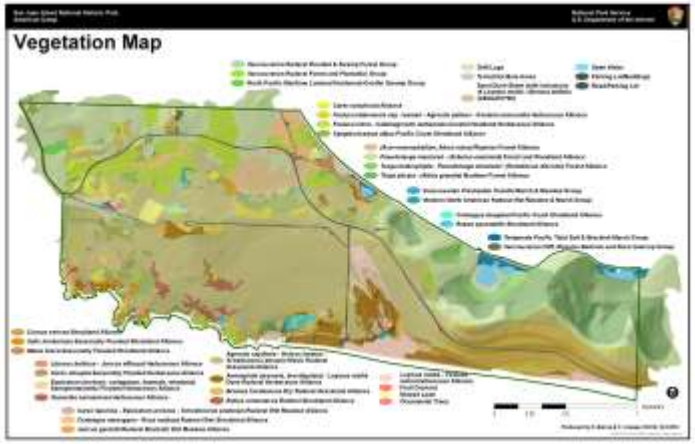
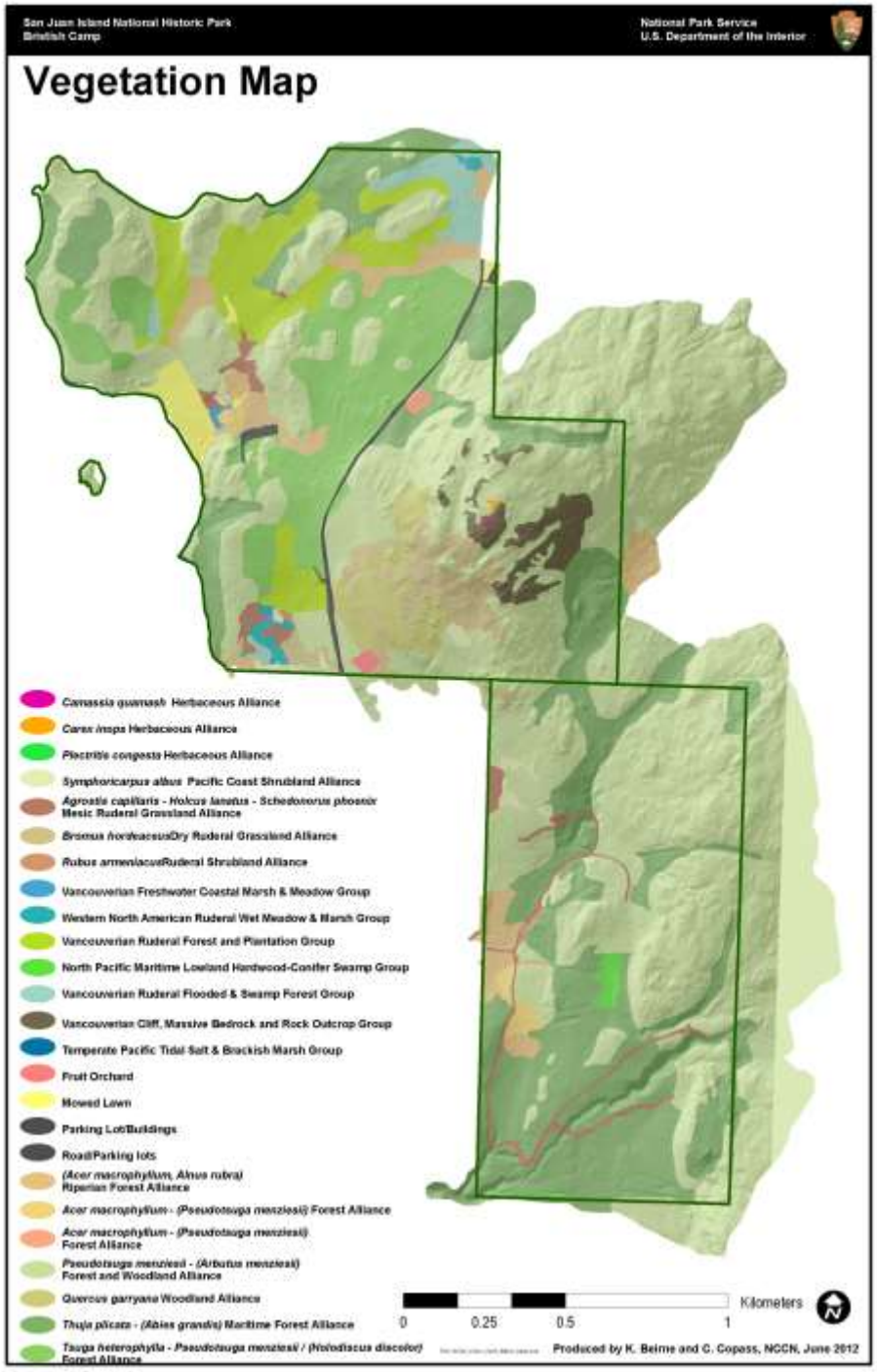


Festuca idahoensis ssp. roemeri - Camassia quamash - Cerastium arvense
Roemer's Fescue - Blue Camas - Field Chickweed Herbaceous Vegetation Association

***Leymus mollis - Abronia latifolia* Herbaceous Vegetation Association**
American Dune Grass - Yellow Sand-verbena Herbaceous Vegetation Association

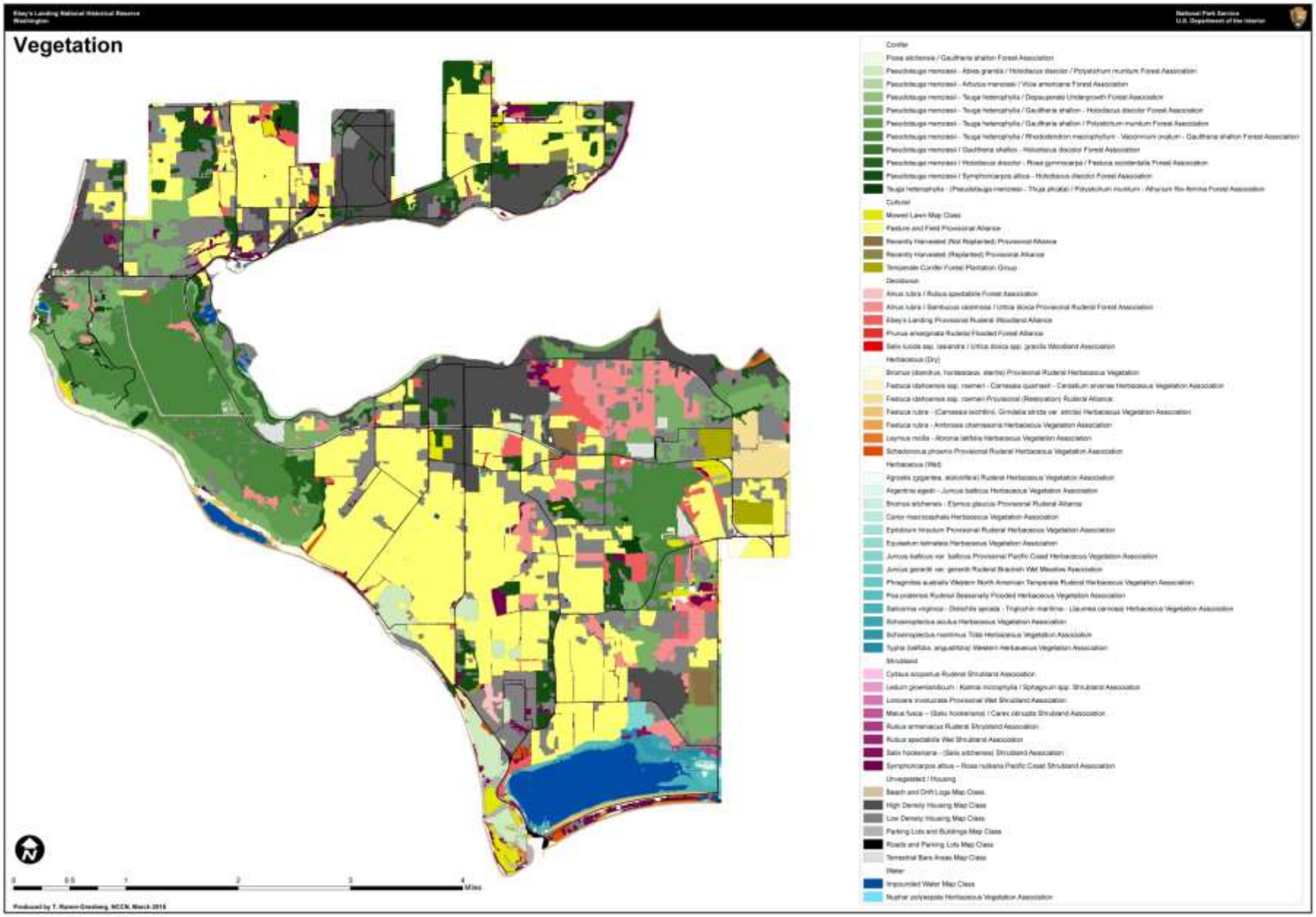


Camassia quamash - Triteleia hyacinthina
Common Camas - White Fool's Onion Seasonally Flooded Herbaceous Vegetation Association

Quercus garryana / Symphoricarpos albus / Carex inops
Oregon White Oak / Snowberry / Long-stolon Sedge Association

Ebey's Landing National Historical Reserve

National Park Service
US Department of the Interior



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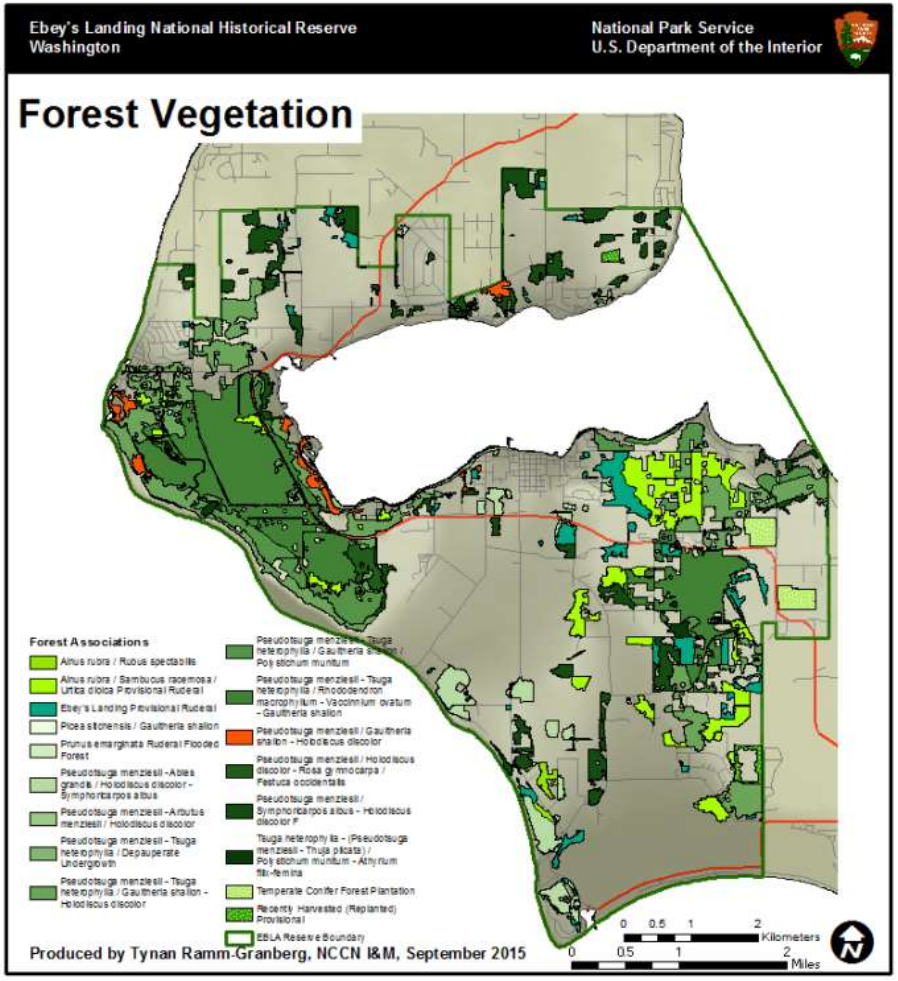

Pseudotsuga menziesii- Symphoricarpos albus Forest Association

Douglas fir / Snowberry Forest Association

Ebey's Landing National Historical Reserve

National Park Service
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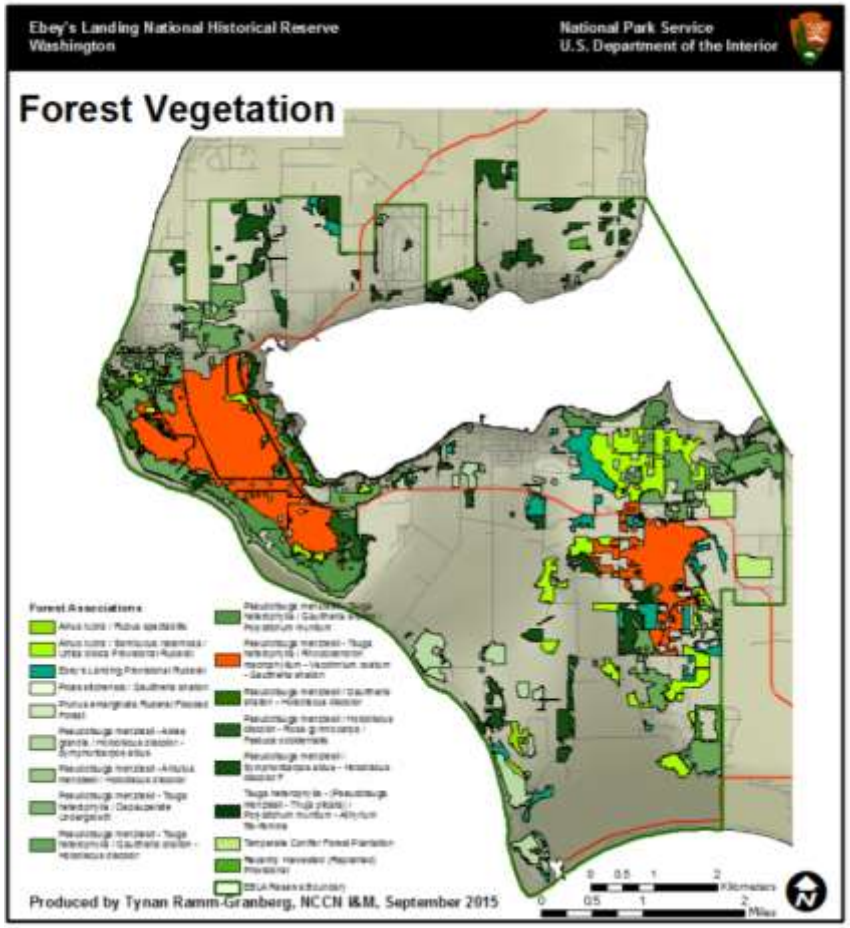


***Pseudotsuga menziesii - Tsuga heterophylla / Rhododendron macrophyllum - Vaccinnium ovatum - Gaultheria shallon* Forest**

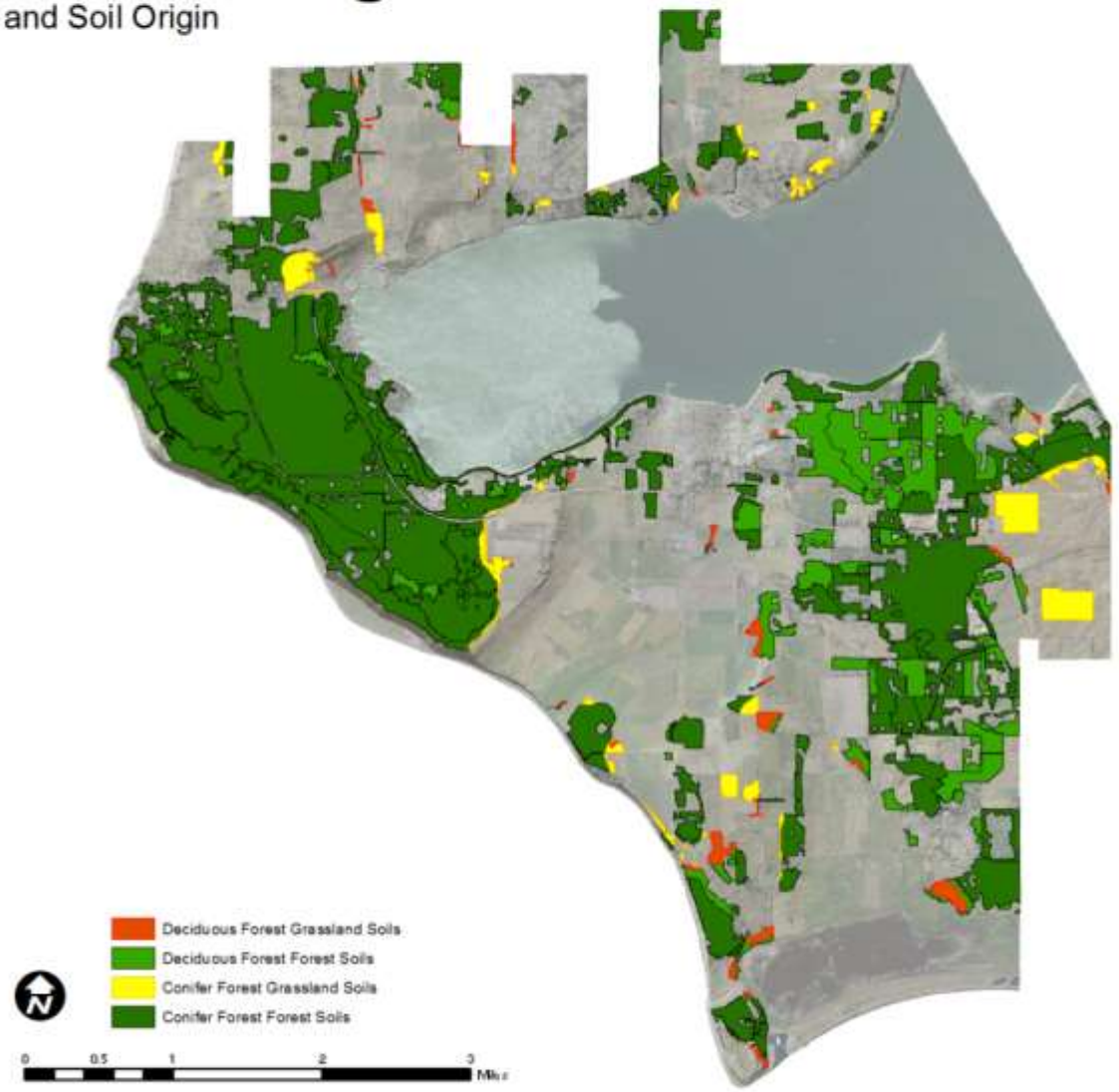
Douglas fir - Western Hemlock/ Rhododendron - Huckleberry - Salal Forest

Ebey's Landing National Historical Reserve
Washington

National Park Service
U.S. Department of the Interior

Forest Vegetation

and Soil Origin

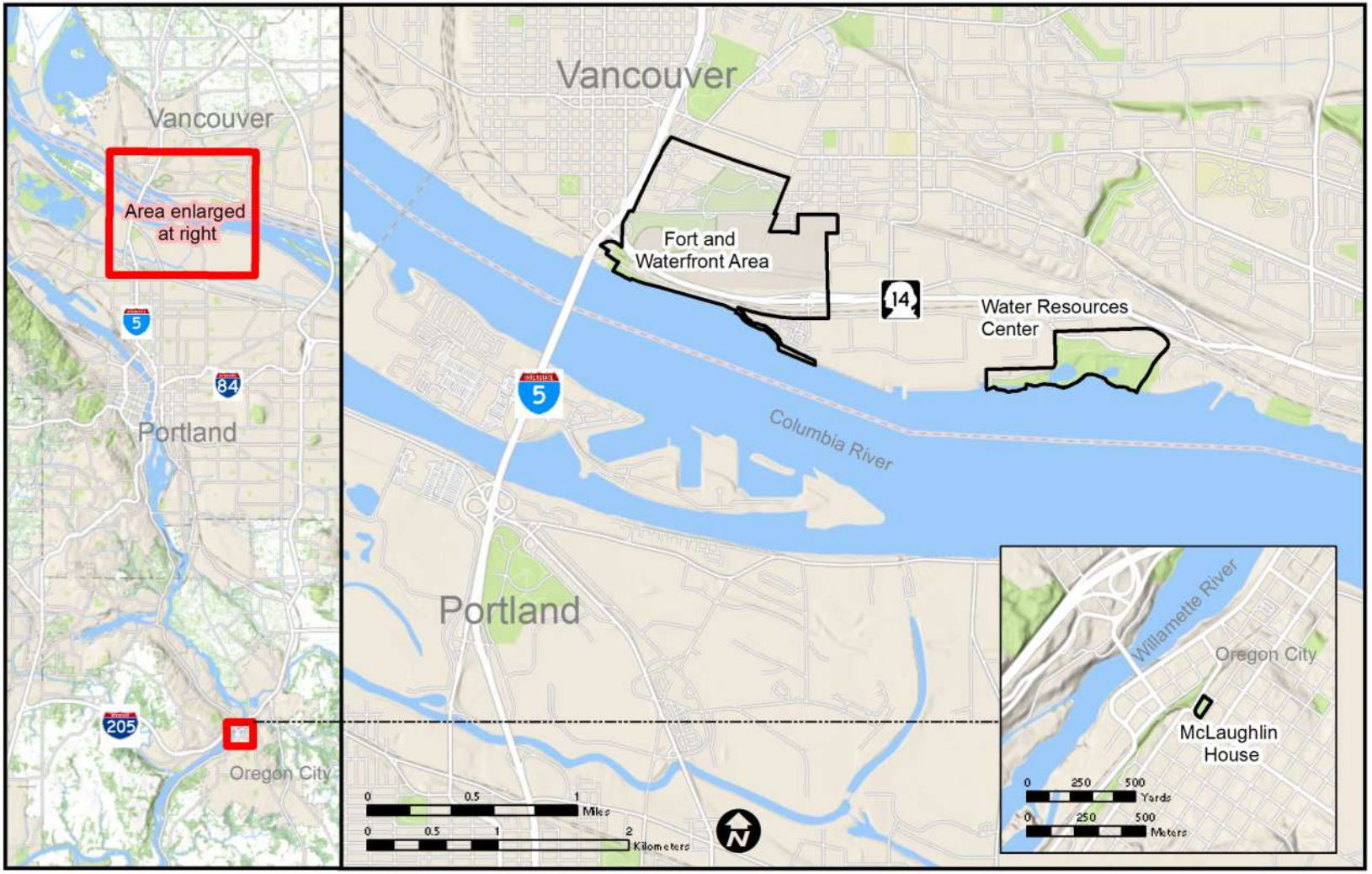


Produced by Tynan Ramm-Granberg, NCCN I&M, June 2015

Fort Vancouver National Historical Reserve

National Park Service
US Department of the Interior

Location



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Fort Vancouver National Historical Reserve

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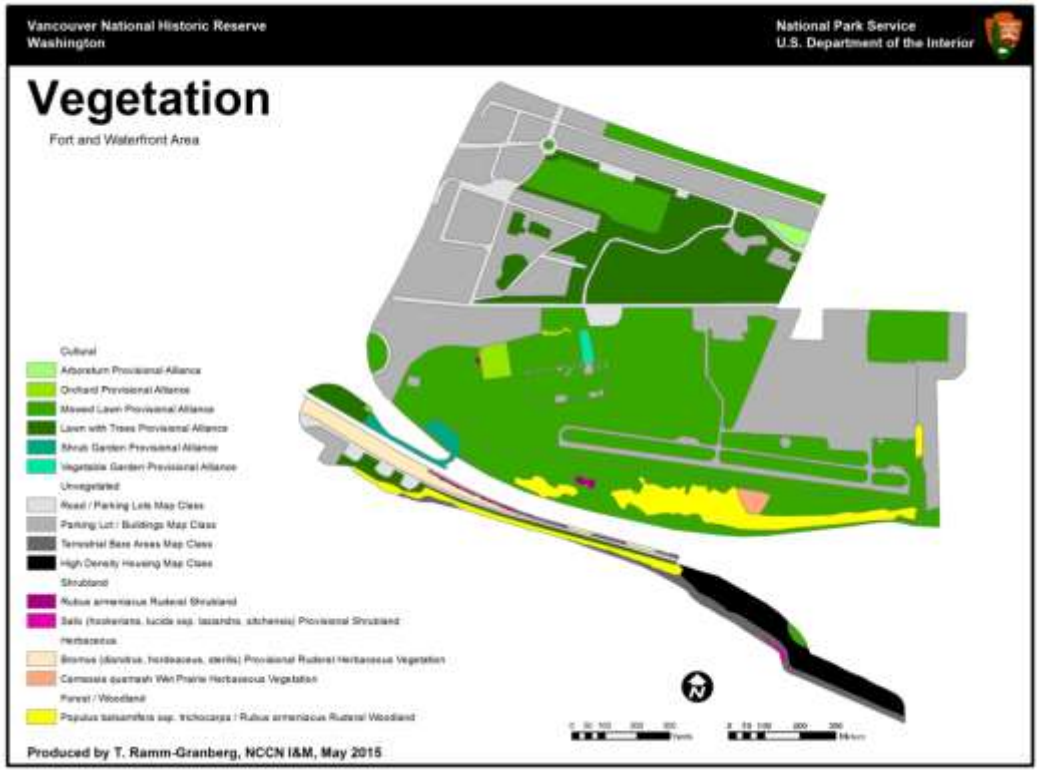

***Camassia quamash* Wet Prairie Herbaceous Vegetation**

Common Camas Wet Prairie Herbaceous Vegetation

Fort Vancouver National Historical Reserve

National Park Service
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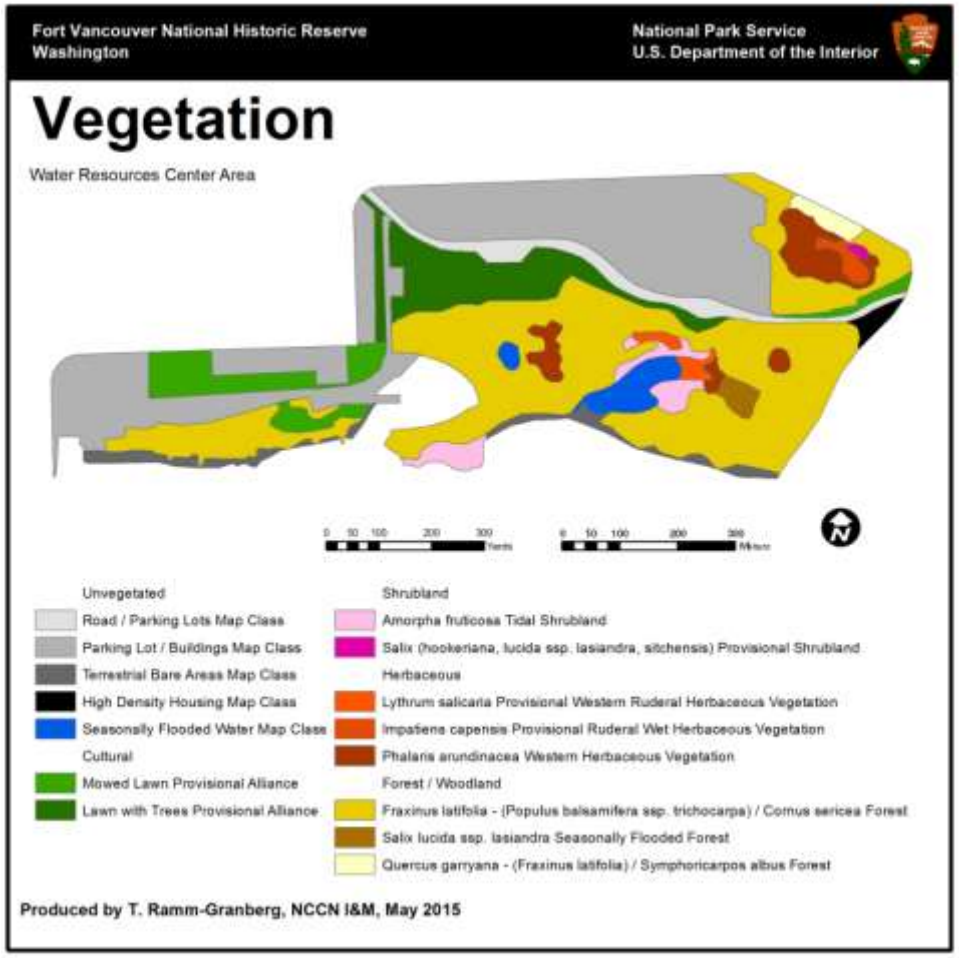

***Quercus garryana - (Fraxinus latifolia) / Symphoricarpos albus* Forest**

Oregon White Oak - (Oregon Ash) / Snowberry Forest

Lewis and Clark National Historical Park

National Park Service
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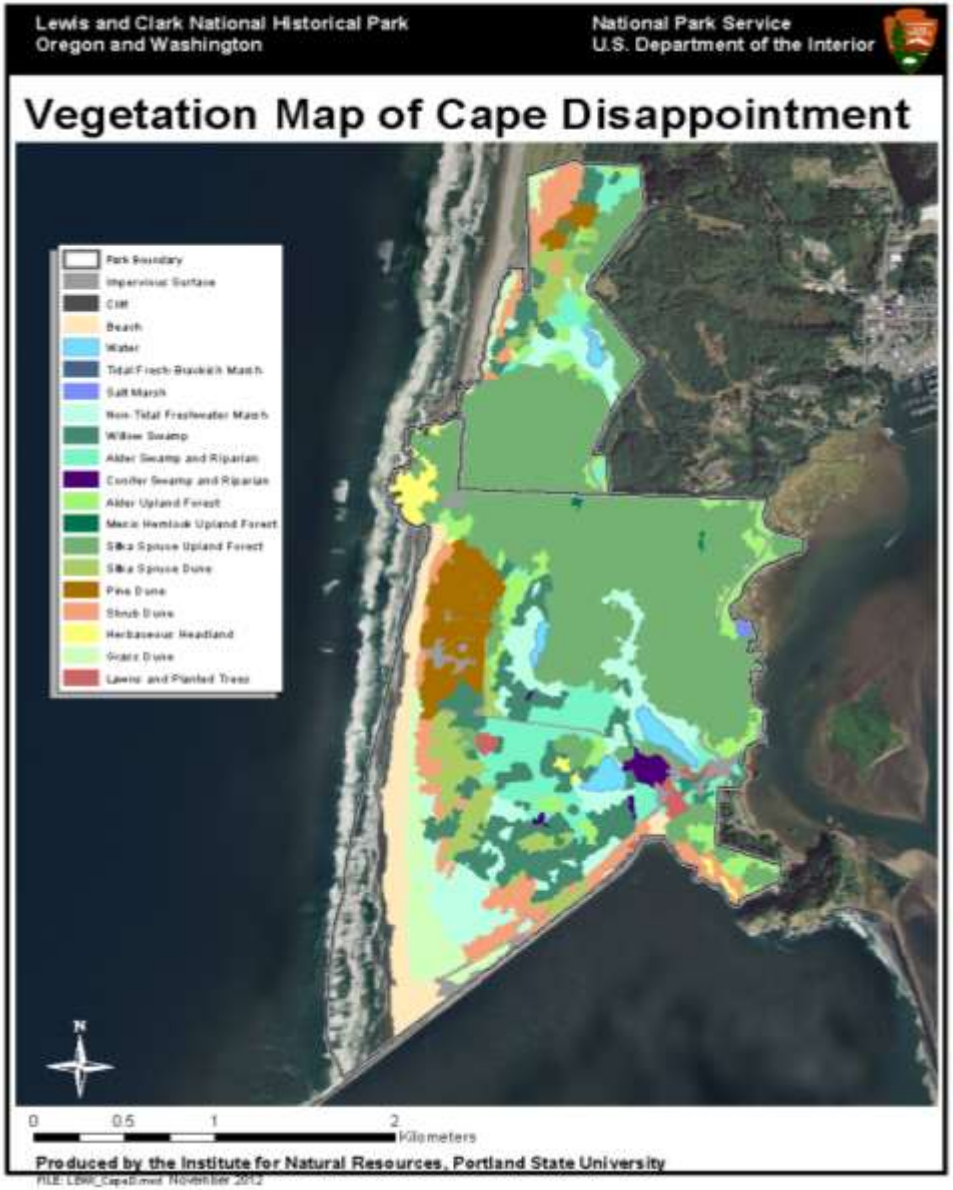
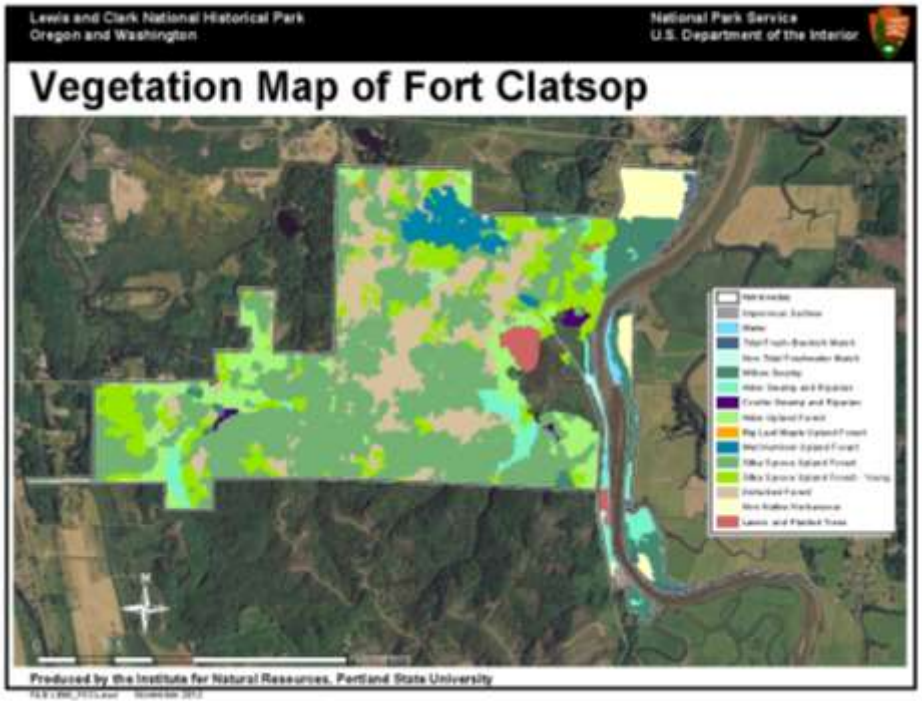
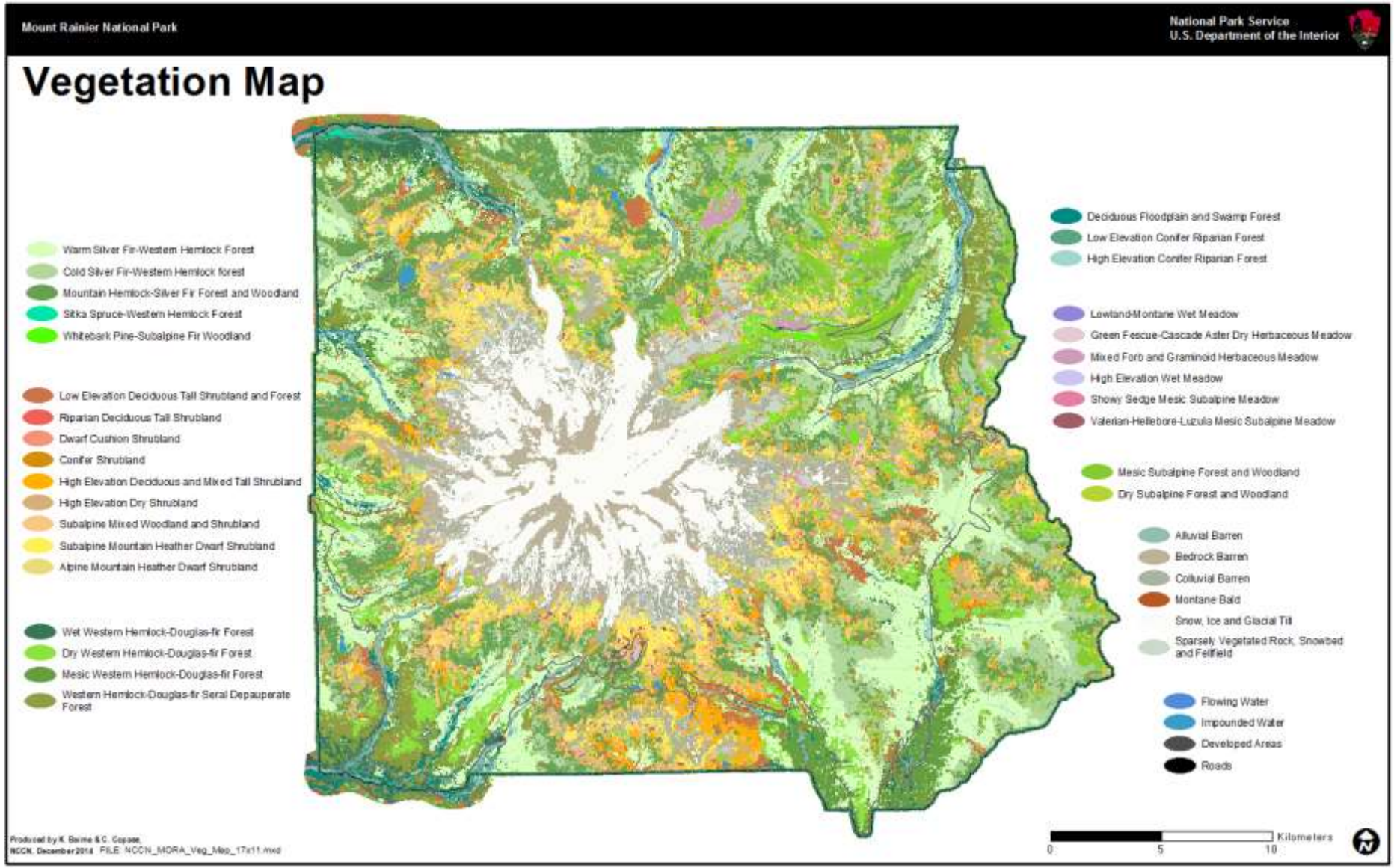




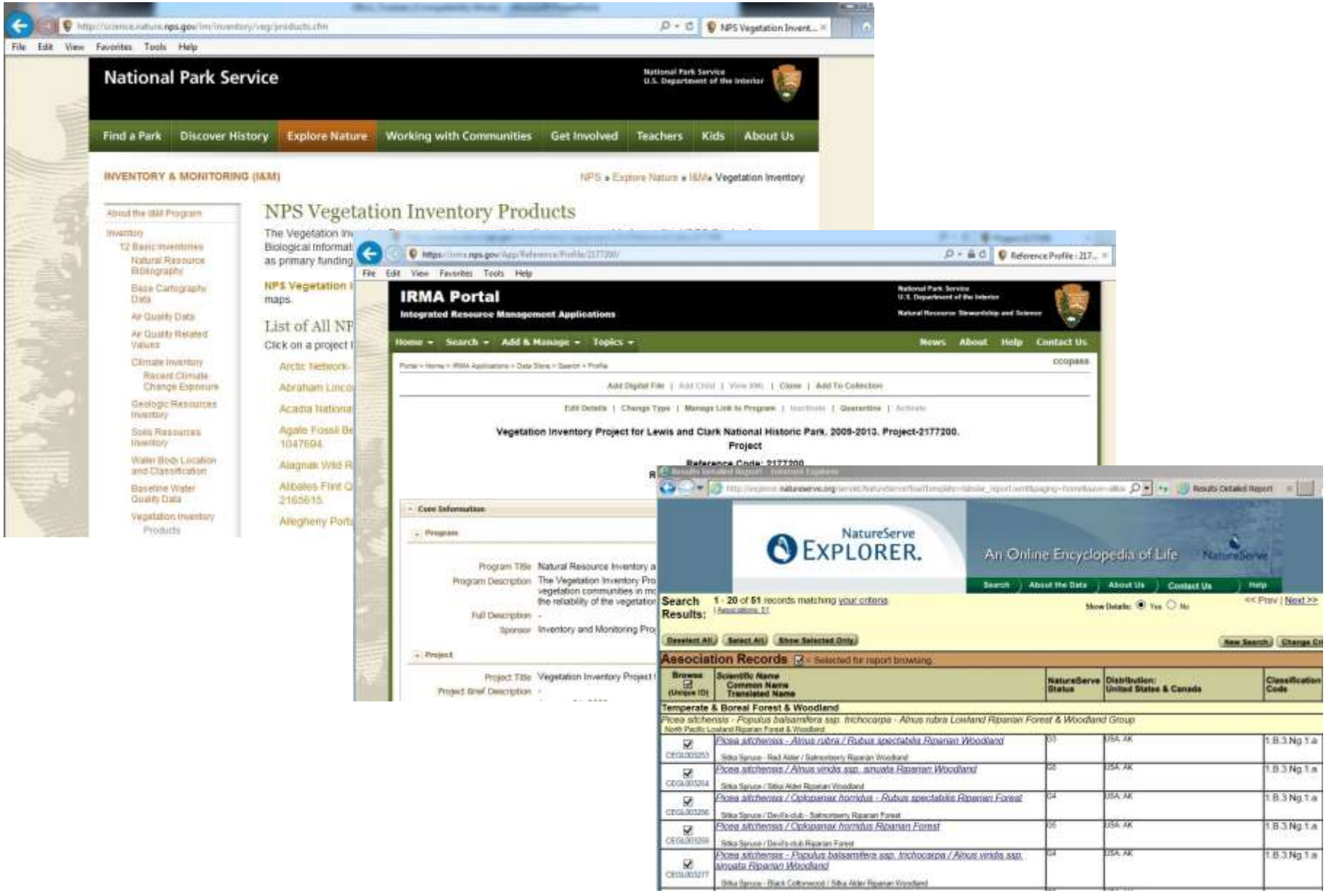
Wilderness Parks- Challenges/ Draft Maps

National Park Service
US Department of the Interior



Products

National Park Service
US Department of the Interior



Plant species respond individually to climate change, what are the benefits of community level classification work?

- Species occur together repeatedly
- Plant communities are often more than the sum of their parts
- No-analog communities
- Baseline studies needed for assessing change


Thank you!