Vernal Pool Flora of the Pacific Northwest

ED ALVERSON

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Plagiobothrys figuratus
What is a Vernal Pool?

- Feature of Mediterranean climates, lower elevation sites
- Topographic depression (usually) with seasonal hydrology
- Stressed by excess: aquatic in winter, extreme drought in summer

*Downingia elegans*
Hydrology and Seasonality

- Vernal Pool hydrology supplied by precipitation (small drainage basins)

- Precipitation in Mediterranean climates is seasonal: rainy winters and dry summers

*Triteleia hyacinthina*
Distinctive Features

- Vegetation and Flora usually different from a region’s predominant composition
- Annual species overly represented in the flora
- High species diversity at micro scale
- Flora includes both obligate and generalist species
Winter
Spring
Sources of hydrology

- Seasonal hydrology usually a result of impermeable layer: bedrock, clay, weathered gravels.
- Hydrology derived from precipitation, typically not surface or groundwater flowing in from elsewhere.
- Oligotrophic nutrient status

*Trifolium wilddenovii*
Related Vernal Habitats:

- Vernal Seepage
- Prairie Swales
- Shallow Soil Over Bedrock
Where in the Pacific Northwest are vernal pools found?
Southwest Oregon
Agate Desert
Willamette Valley
Kingston Prairie
Columbia River Gorge
Tom McCall Preserve
Columbia Plateau
Columbia Plateau

Photo Credit: Joe Rocchio
Vancouver Island
Uplands Park

VERNAL POOLS
NOT Mud Puddles

SUNDAY JUNE 1, 2014
1 – 3 pm
Meet at the Uplands Park Sign on Beach Drive

Uplands Park “mud puddles” are actually vernal pools in the endangered Garry Oak Ecosystem. Many of the 22 rare plant species in Uplands Park are associated with wetland vernal pool ecology. Discover these pools with botanist James Miskelly, learn how they are formed and discuss how you can protect them.

Wear waterproof shoes or boots, bring your camera and enjoy seeing some of the smallest and rarest plants ever.
Distinctive/Characteristic Flora

Native Vernal Pool Species Richness

- California: >300 native plant species
- Columbia Plateau: “core vernal pool flora”, 200 species
- Willamette Valley/Puget Trough/Georgia Basin, 100 species with moderate or high fidelity to prairie habitats

Plagiobothrys figuratus and P. scouleri
Life Forms

- **Annuals:** typically >60% of species
- **Geophytes**
- **Some Perennial Hemicryptophytes**

*Trichostema lanceolatum*
Juncaceae and Poaceae

*Juncus hemiendytus*
Photo credit: Peter Zika

*Aristida oligantha*
Asteraceae

*Lasthenia glaberrima*

*Psilocarphus oregonus*

(photo credit: Ben Legler)
Polemoniaceae

Navarretia willamettensis

Leptosiphon bicolor
Gentianaceae

Zeltnera muhlenbergii*

Cicendia quadrangularis
Phrymaceae

*Erythranthe microphylla*  
*Diplacus tricolor*
Orobanchaceae

*Orthocarpus bracteosus*

*Castilleja victoriae*

(photo credit: Joe Arnett)
Limnanthes macounii

Limnanthes floccosa ssp. grandiflora
Amaryllidaceae/Asparagaceae

*Allium amplectens*  
*Brodiaea elegans ssp. hooveri*
Ferns and Allies

*Pilularia americana*
Photo credit: Peter Zika

*Isoetes nuttallii*
Invertebrates

Monarch on *Asclepias fascicularis*
Rare Plants in Vernal Pools

- British Columbia: 30 WPG vernal pool plants (1/3 of total VP taxa) considered at-risk

*Eryngium petiolatum*
For More Information: