

### South Puget Sound Prairie Ecosystems

Fire is an important & natural part of ecosystems

Photo from Dunn & Ewing 1997

### Garry Oak Woodlands

- Often associated with prairies
- Riparian corridors in prairies
- Extensive in Islands & BC

*Quercus garryana*

### Garry Oak Woodlands

Important Habitat

Streaked horned lark  
Mazama pocket gopher  
Mardon skipper & other butterflies  
Western gray squirrel

### Oak Woodland & Prairie Ecosystems: Human Impacts

Current prairie cover is about \_\_\_% of its historical extent in South Puget Sound

**Causes of Prairie Loss**  
Hall (1995)

Urban development \_\_\_%  
Forest invasion \_\_\_%  
Agriculture \_\_\_%

Crawford & Hall 1997

### South Sound Oak Woodland & Prairie Ecosystems: Protected Areas

Figure 1. South Puget Sound prairie region, including major protected prairies.

- 1 - Mima Mounds Natural Area Preserve
- 2 - Black River-Mima Prairie-Glacial Heritage Park
- 3 - Scatter Creek Wildlife Area
- 4 - Rocky Prairie Natural Area preserve
- 5 - Weir Prairie Research Natural Area
- 6 - Thirteenth Division Prairie Research Natural Area
- 7 - Bower Woods Ponderosa Pine Forest RNA
- 8 - Bensten Candidate RNA
- 9 - Talbot Candidate RNA

### South Sound Oak Woodland & Prairie Ecosystems: Protected Areas

Table 1. Protected prairie areas in the South Puget Sound region.

Protected Area	Ownership	Size (Acres)
Mima Mounds NAP*	WA State - Dept. of Natural Resources	445
Rocky Prairie NAP	WA State - Dept. of Natural Resources	47
Black River-Mima Prairie-Glacial Heritage Preserve	Thurston County - Dept. of Parks and Recreation	1,020
Scatter Creek Wildlife Area	WA State - Dept. of Fish and Wildlife	1,200
13th Division Prairie RNA**	US Army - Ft. Lewis	234
Weir Prairie RNA	US Army - Ft. Lewis	1,093
Bower Woods Ponderosa Pine Forest RNA	US Army - Ft. Lewis	1,739
Bensten Candidate RNA	McChord Air Force Base	131
Talbot Candidate RNA	McChord Air Force Base	128

\* Natural Area Preserve (NAP) \*\* Research Natural Area (RNA)

**Fort Lewis & McChord Air Base: Protected Areas**

> 75,000 acres of training grounds

Tacoma  
Olympia  
Fort Lewis

**Oak Woodland & Prairie Ecosystems: Human Impacts**

**Invasive Species are another threat**

Scot's Broom  
(*Cytisus scoparius*)  
Fort Lewis

**Oak Woodland & Prairie Ecosystems: Human Impacts**

**Control of Scot's Broom**

**Pulling**                      **Burning**

**Oak Woodland & Prairie Ecosystems**

These prairies & woodlands exist within the same climate as the surrounding sea of evergreen forest.

**WHY?**

A central question:  
What prevents the forest from existing here?

**What Restricts Forest Cover?** ★

**PLANT INVESTMENTS**

Sugar

Woody Plant                      Herbaceous Plant

leaves   wood   roots                      leaves   roots

**NOW IMAGINE DROUGHT CONDITIONS**

Which can better support its leaves with drought?

**What Restricts Forest Cover?**

Wood becomes a luxury in droughty conditions

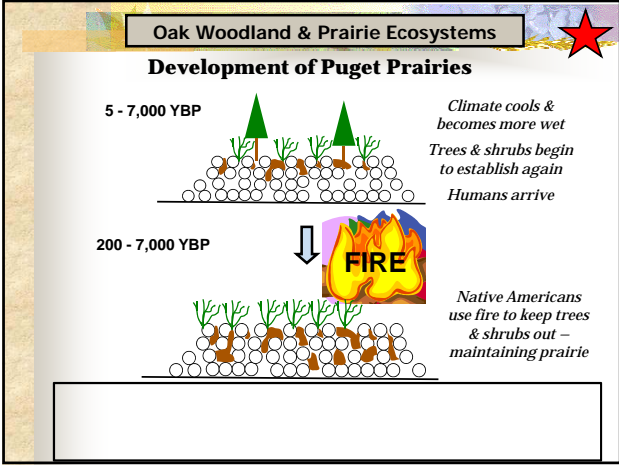
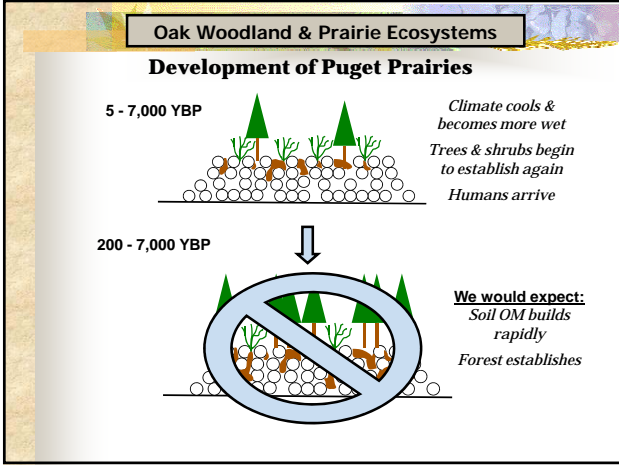
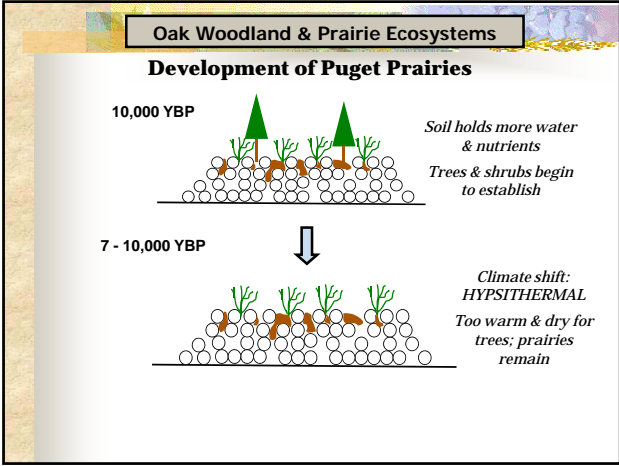
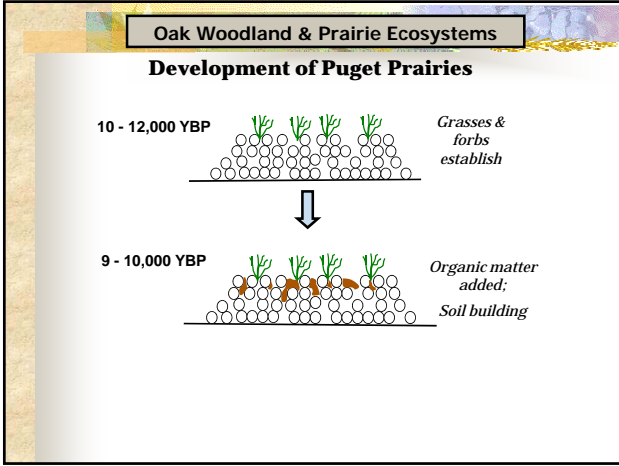
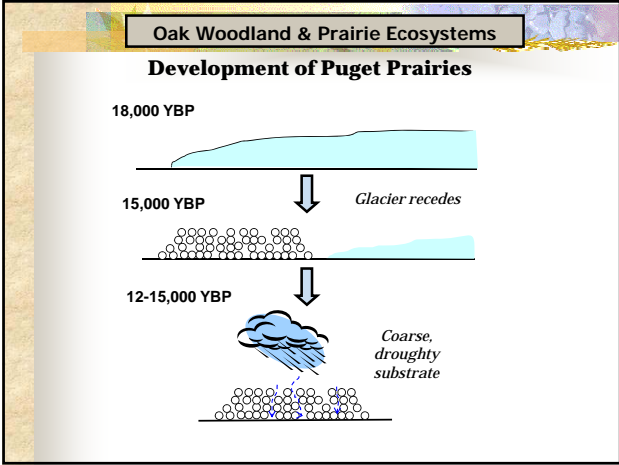
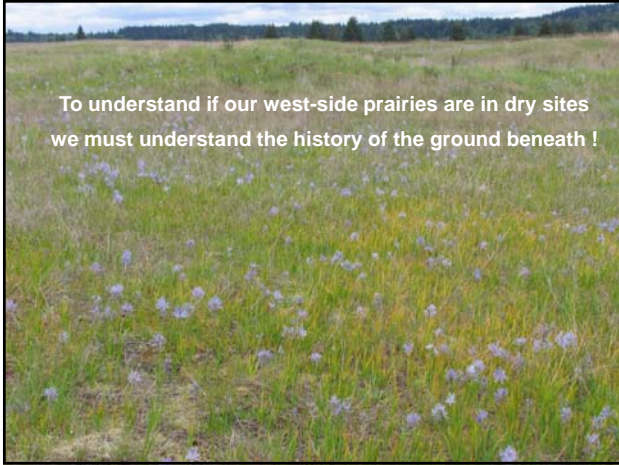
Sugar

Woody Plant                      Herbaceous Plant

leaves   wood   roots                      leaves   roots

This suggests herbaceous plants will do better in drier locations

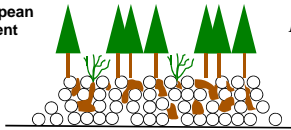
**Are these prairies & woodlands in drier locations?**



**Oak Woodland & Prairie Ecosystems**

**Development of Puget Prairies**

Post European settlement



*Fire suppression allows forest succession to proceed*

How do we maintain these unique ecosystems in the face of natural succession to forests?

**West-side Prairies & Woodlands**

1. South Puget Sound prairies & oak woodlands
2. Island / Peninsula coastal prairies & woodlands



**Oak Woodland & Prairie Ecosystems**

Prairies in San Juan Islands, NE Olympic Peninsula & Coastal Bluffs  
**Just a little different**

- Coarse, dry post-glacial soils
- Rainshadow – low precipitation



**Oak Woodland & Prairie Ecosystems**

**Rainshadow** of the San Juans & NE Olympic Peninsula



**Oak Woodland & Prairie Ecosystems**

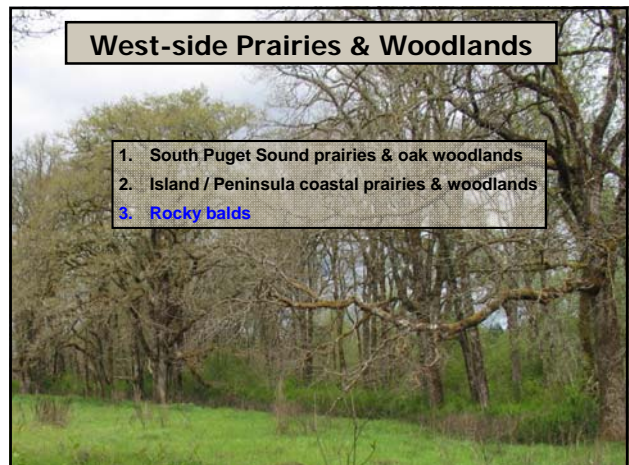
Prairies in San Juan Islands, NE Olympic Peninsula & Coastal Bluffs  
**Just a little different**

- Coarse, dry post-glacial soils
- Rainshadow – low precipitation
- Wind exposed
- Unusual soil chemistry



**West-side Prairies & Woodlands**

1. South Puget Sound prairies & oak woodlands
2. Island / Peninsula coastal prairies & woodlands
3. Rocky balds



**Rocky Balds: another west-side ecosystem not dominated by trees**



**Windswept resistant bedrock outcrops**



Lord Hill, Snohomish County

**More common on San Juan Islands  
Unique, rare species**

**West-side Prairies & Woodlands**



**Rocky balds**



**South Puget Sound prairies & oak woodlands**



**Island / Peninsula coastal prairies & woodlands**

**What is the common reason all of these ecosystems exist?  
How is that different from the factors that tend to control ecosystem existence for our more extensive ecosystems?**