# Wetland Types & Functions

Presented by

Allison Cowie
Region 4 Wetland Specialist
&
Jacob Kercher Region 3 Wetland Specialist

# Types of Wetlands

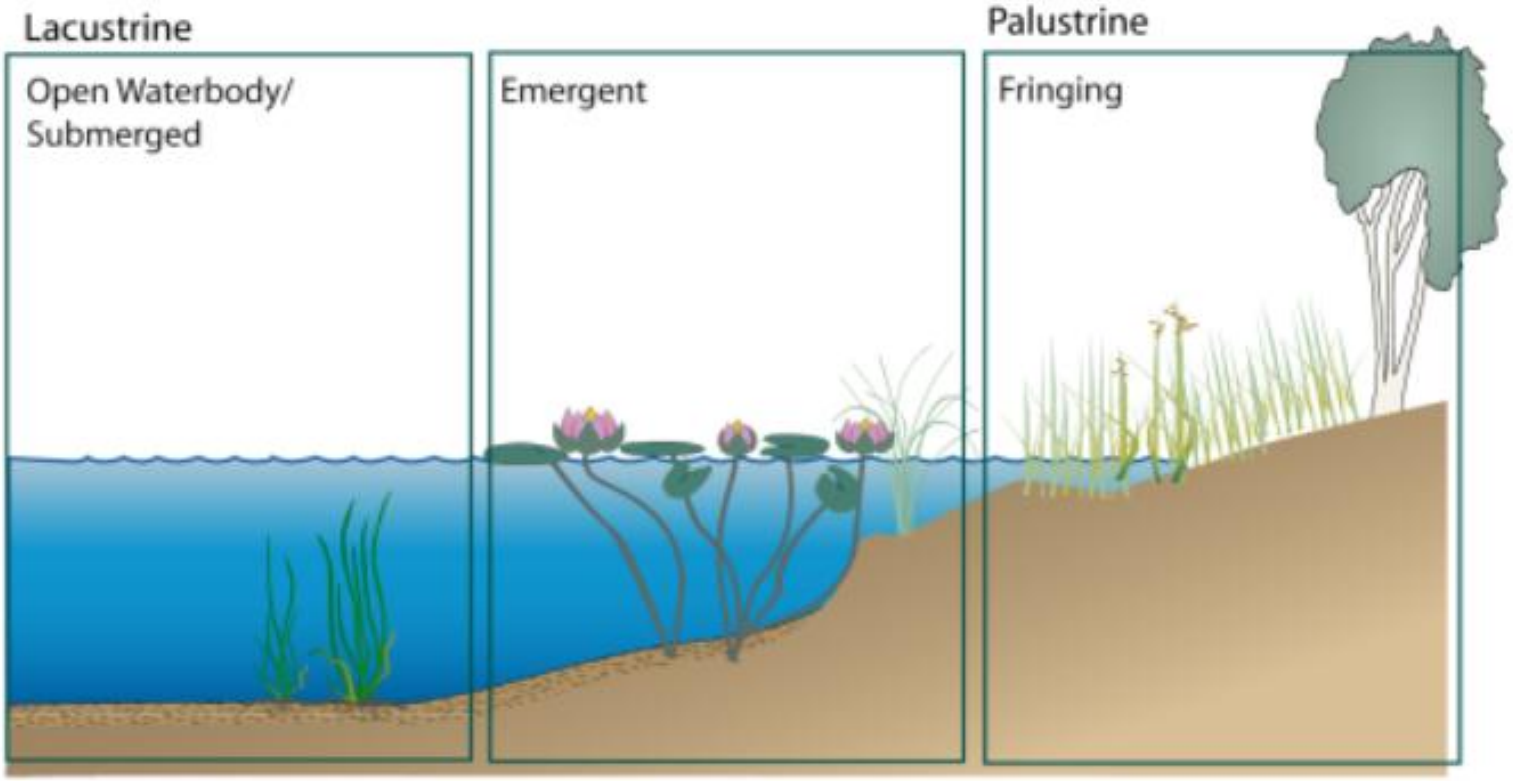
(oregonexplorer.info/wetlands)

- Alkaline wetlands
- Aquatic beds
- Fens
- Forested wetlands
- Freshwater marshes
- Freshwater tidal wetlands
- Salt marshes and brackish marshes
- Serpentine Fens
- Shrub swamps and shrub riparian
- Snowbed depressions
- Spray zones
- Springs
- Vernal pools
- Wet meadows
- Wet prairies

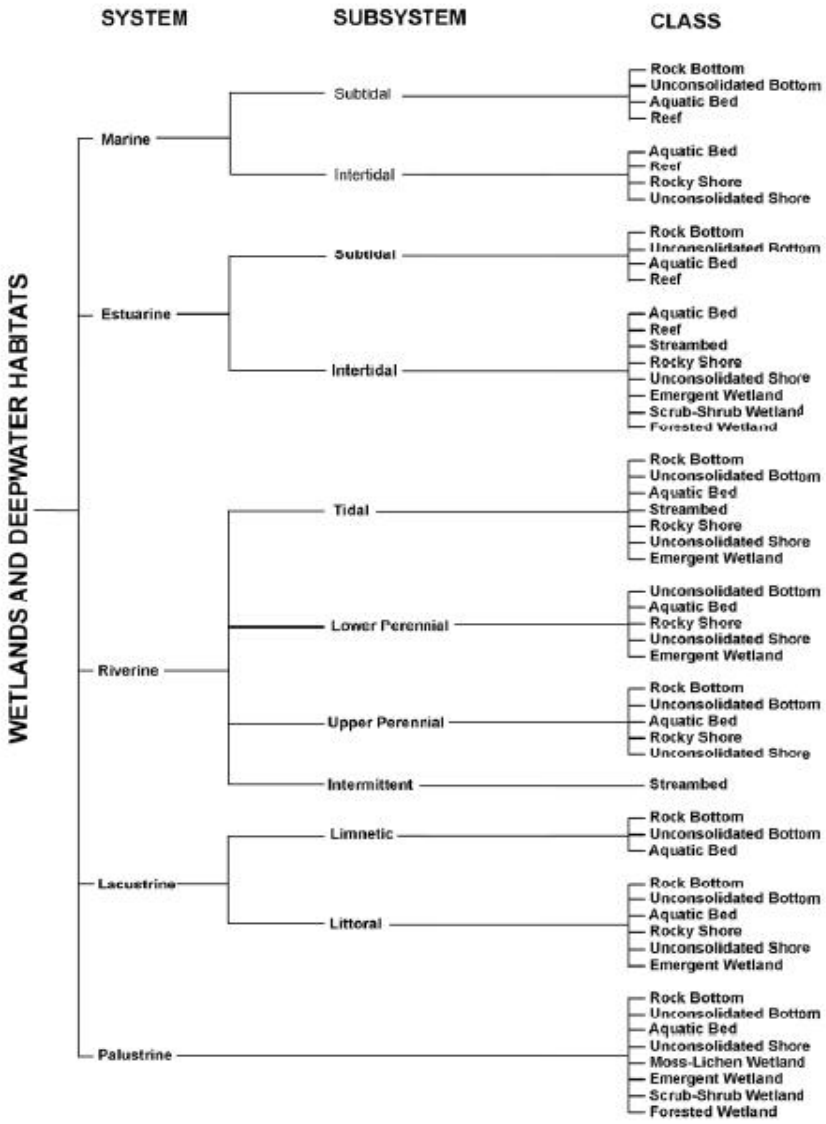
# Wetland Classification Schemes

- Circular 39 Wetland Types (Shaw and Fredine 1956)
- Anderson Classification (Anderson et al. 1976)
- Cowardin Classification (Cowardin et al. 1979)
- Hydrogeomorphic Classification (Brinson 1993)

# Lake Flora Zones




Australian Government
Queensland Government
Queensland Wetlands Programme


SYSTEM
SUBSYSTEM
CLASS
WETLANDS AND DEEPWATER HABITATS
Marine
Subtidal
Rock Bottom
Unconsolidated Bottom
Aquatic Bed
Reef
Intertidal
Aquatic Bed
Reef
Rocky Shore
Unconsolidated Shore
Estuarine
Subtidal
Rock Bottom
Unconsolidated Bottom
Aquatic Bed
Reef
Intertidal
Aquatic Bed
Reef
Streambed
Rocky Shore
Unconsolidated Shore
Emergent Wetland
Scrub-Shrub Wetland
Forested Wetland
Riverine
Tidal
Rock Bottom
Unconsolidated Bottom
Aquatic Bed
Streambed
Rocky Shore
Unconsolidated Shore
Emergent Wetland
Lower Perennial
Unconsolidated Bottom
Aquatic Bed
Rocky Shore
Unconsolidated Shore
Emergent Wetland
Upper Perennial
Rock Bottom
Unconsolidated Bottom
Aquatic Bed
Rocky Shore
Unconsolidated Shore
Intermittent
Streambed
Lacustrine
Limnetic
Rock Bottom
Unconsolidated Bottom
Aquatic Bed
Littoral
Rock Bottom
Unconsolidated Bottom
Aquatic Bed
Rocky Shore
Unconsolidated Shore
Emergent Wetland
Palustrine
Rock Bottom
Unconsolidated Bottom
Aquatic Bed
Unconsolidated Shore
Moss-Lichen Wetland
Emergent Wetland
Scrub-Shrub Wetland
Forested Wetland

# Wetlands of Concern

(oregon.gov/dsl/permits/docs/wetlands_cons_concern.pdf)

- Bogs
- Fens
- Playas
- **Salt Flats**
- **Alkaline Lakes**
- Hot Springs
- **Native Wet Prairies**
- **Vernal Pools**
- Inter-dunal Wetlands
- Mature Forest Wetlands
- **Ultramafic soil Wetlands**
- Wooded Tidal Wetlands
- Un-diked tidal freshwater wetlands

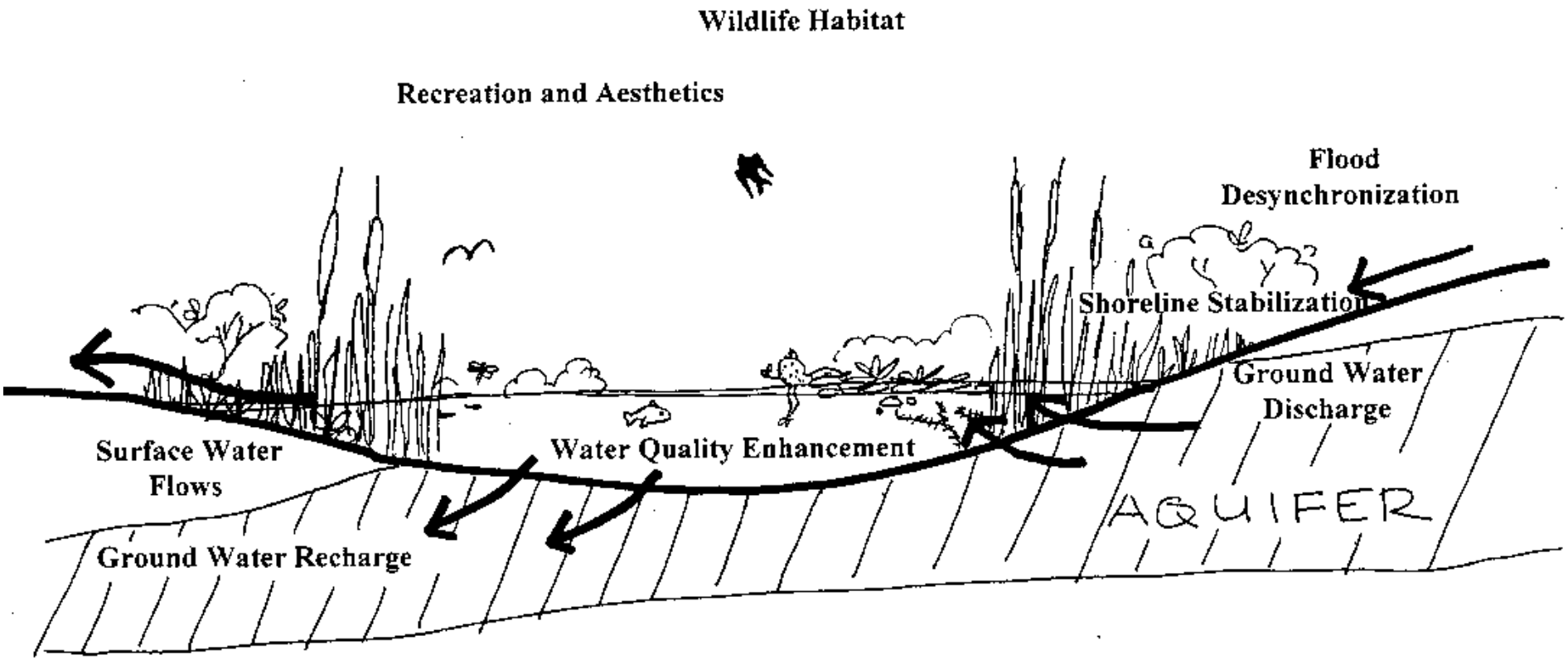
395
North
Alkali Lake

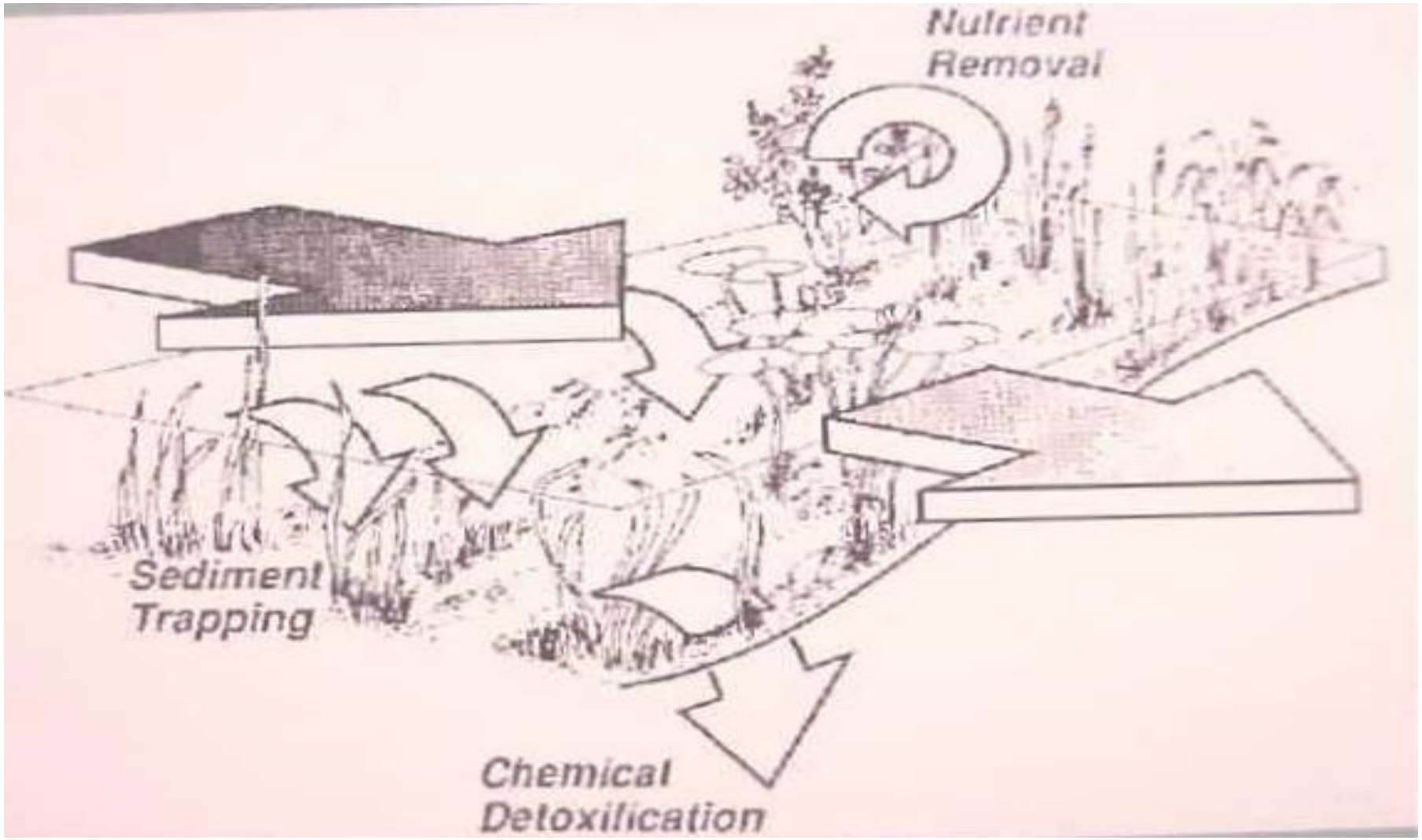
# Wetland Functions

(Oregon Rapid Wetland Assessment Protocol)

- Hydrologic Functions
  - Water storage
- Water Quality
  - Stream cooling
  - Sediment & toxicant Retention & Stabilization
  - Phosphorus Retention
  - Nitrate Removal & Retention
- Fish Support
  - Anadromous Fish Habitat
  - Resident Fish Habitat
- Aquatic  Support
  - Organic Nutrient Export
  - Amphibian Habitat
  - Aquatic Invertebrate habitat
  - Waterbird Feeding Habitat
  - Waterbird Nesting Habitat
- Terrestrial
  - Native plant habitat
  - Pollinator habitat

# WETLANDS - THEIR FUNCTIONS AND VALUES

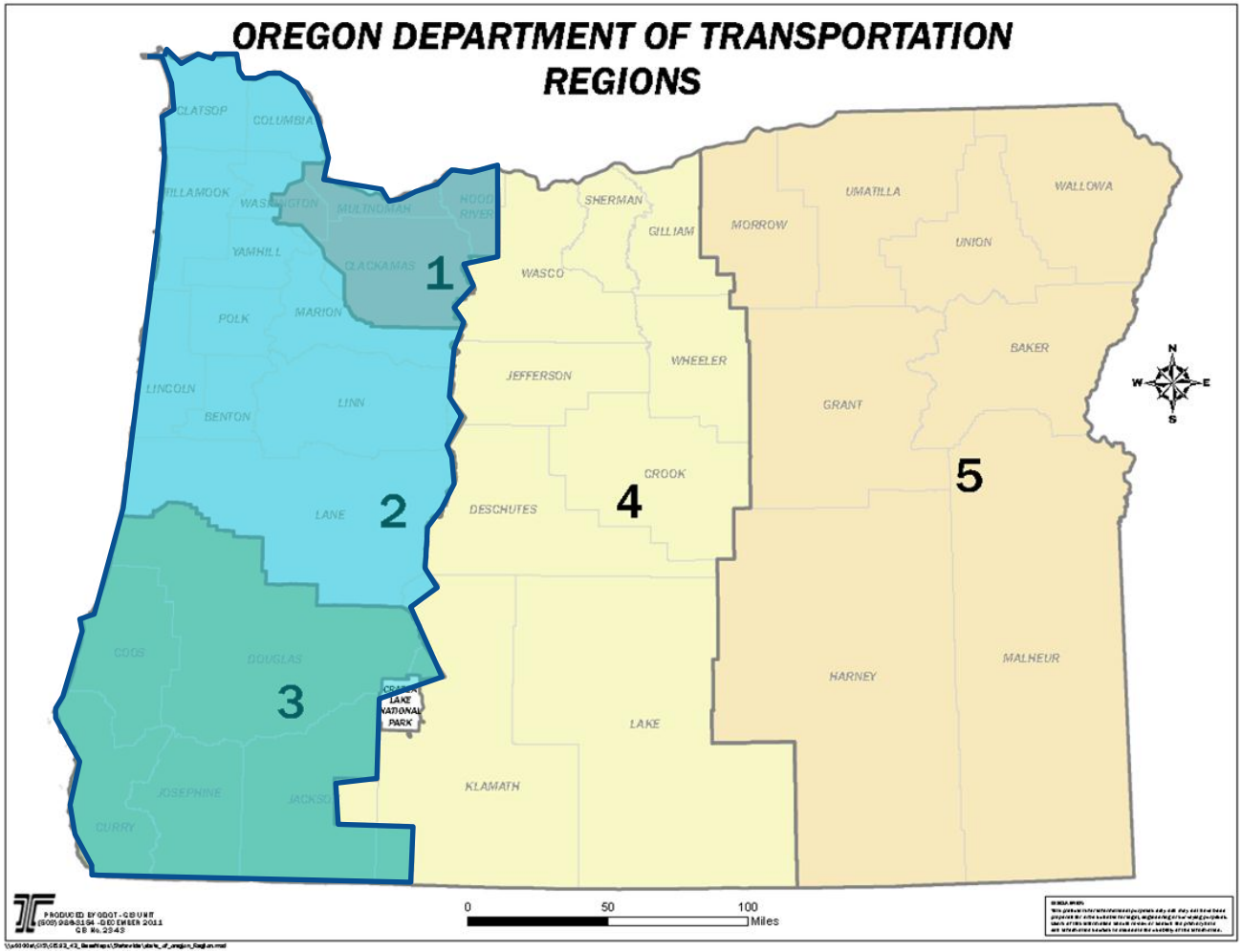



Nutrient
Removal
Sediment
Trapping
Chemical
Detoxification

# Why do we need Storage

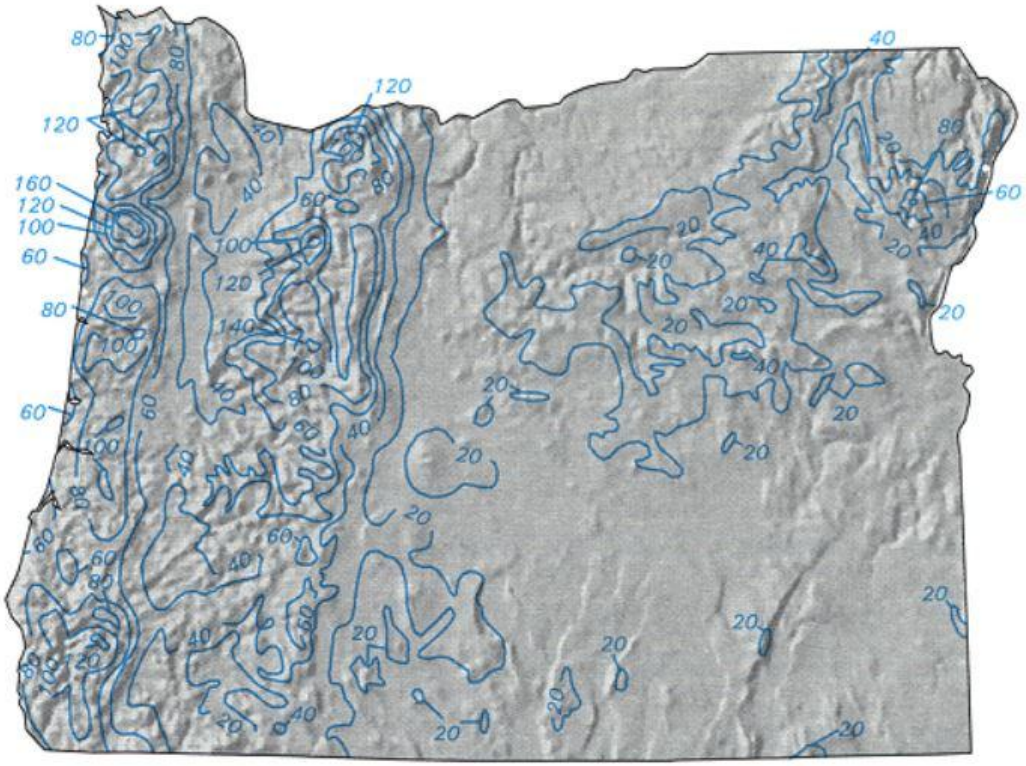
# O’ the river only gets that high every 100 yrs

# Regions 1-3
# (AKA: West Side)



# Precipitation in Oregon

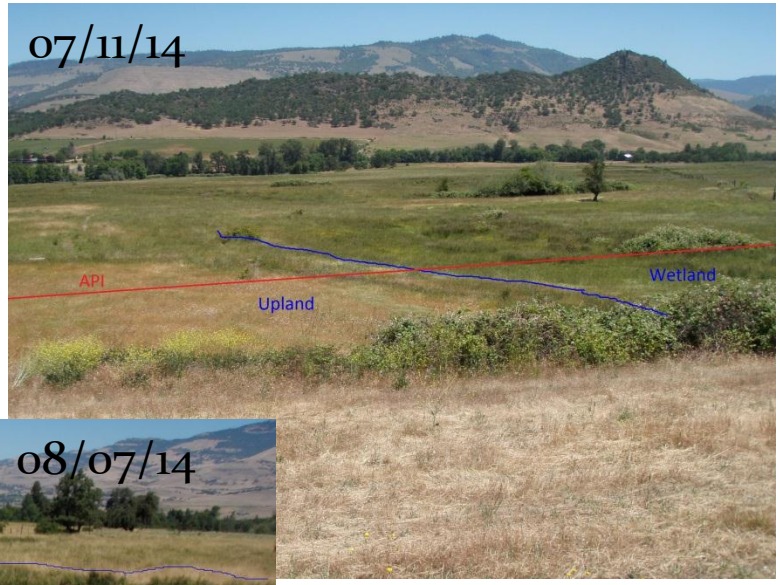
(http://or.water.usgs.gov/pubs/Online/Html/WSP2425/)



**C** PRECIPITATION

—80— **Line of equal annual precipitation—**
Interval, in inches, is variable

# WET SEASON VS. DRY SEASON



# WET OR DRY SEASON?

# REGIONS 1-3: WETLAND TYPES

oregonexplorer.info/wetlands

- ~~Alkaline wetlands~~
- Aquatic beds
- Fens
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- Freshwater tidal wetlands
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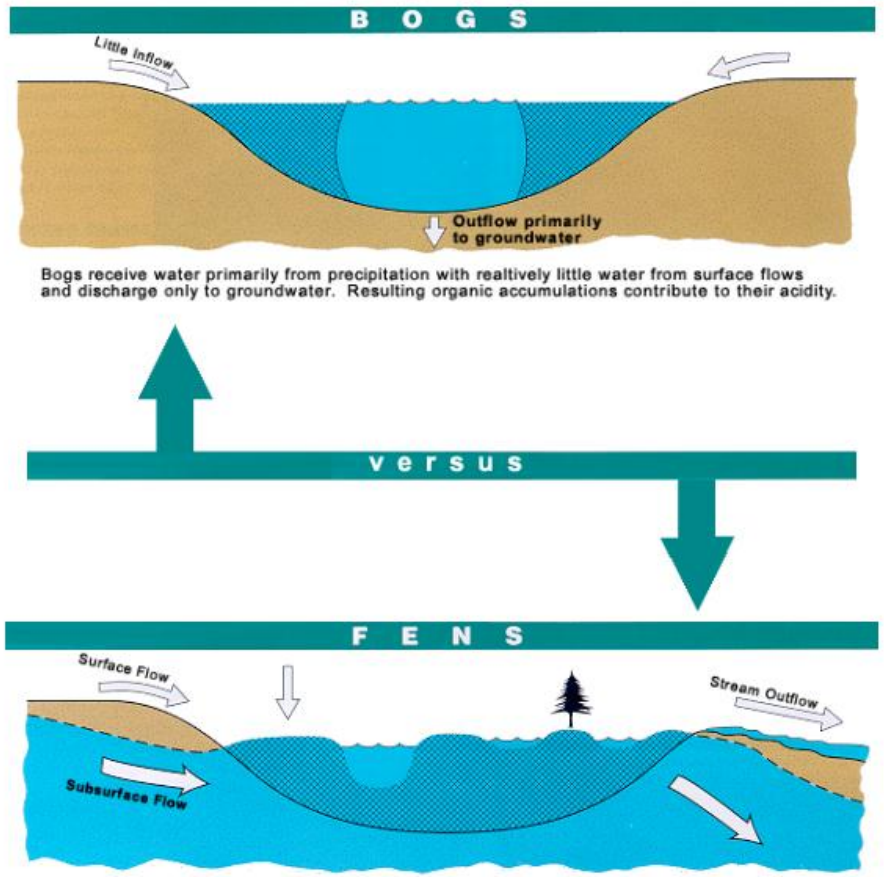
- Wet prairies

# AQUATIC BED

Aquatic Beds

# FENS



Map of Fens in Oregon

# FORESTED WETLAND

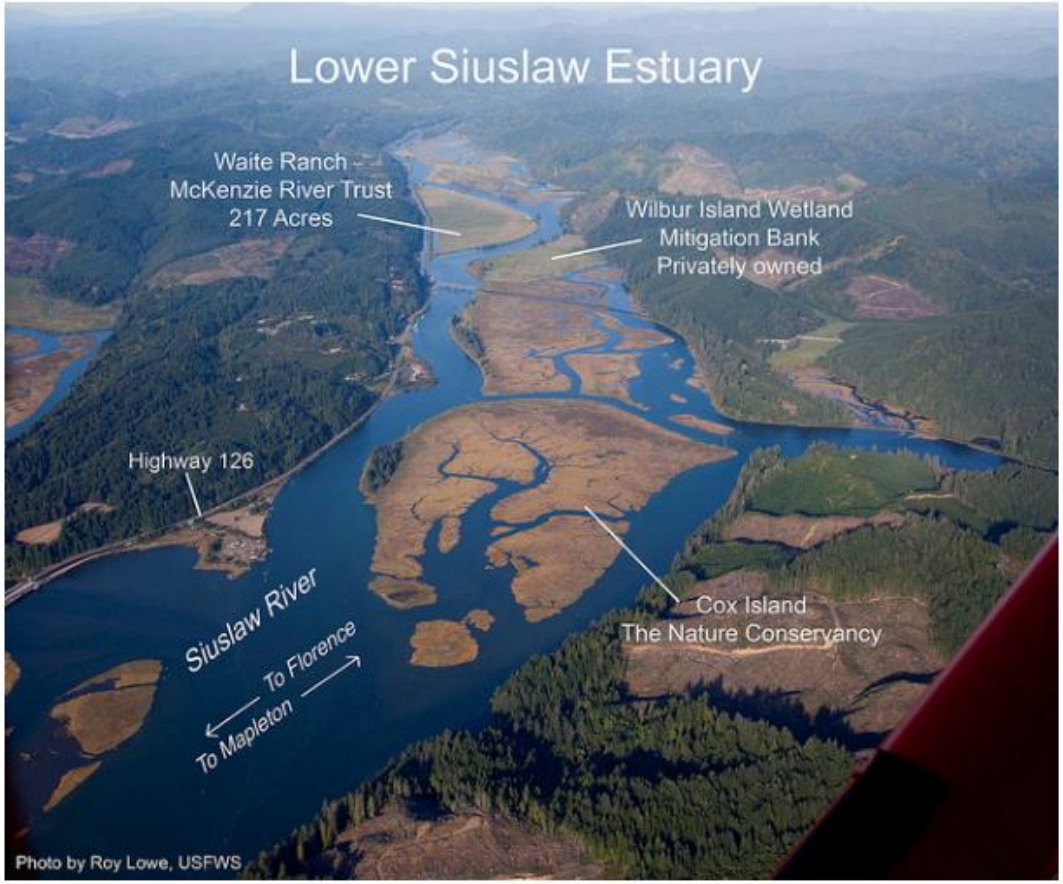
Forested Wetlands Map

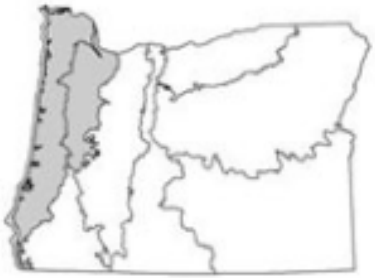
# FRESHWATER MARSH

Freshwater marsh with wapato, Multnomah County
(John A. Christy, PSU Oregon Biodiversity Information Center)

Freshwater Marshes Map

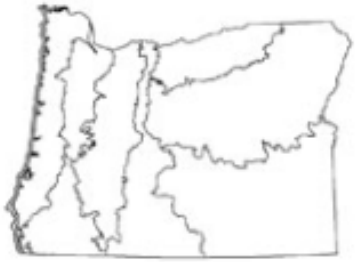
# FRESHWATER TIDAL WETLANDS



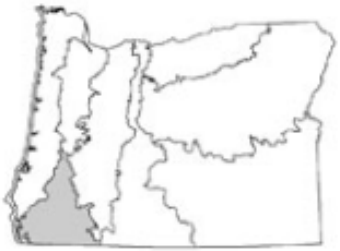
Freshwater Tidal Wetlands

# SALT MARSHES AND BRACKISH MARSHES



Salt Marsh Map

# SERPENTINE FENS



Serpentine Fens Map

# SHRUB SWAMPS AND SHRUB RIPARIAN

Shrub swamps and shrub riparian map

# SNOWBED DEPRESSIONS

Snowbed Depressions Map

# SPRAY ZONES

Spray Zones Map

# SPRINGS

Springs Map

# VERNAL POOLS

Vernal Pools

# WET MEADOWS

Wet Meadows

# WET PRAIRIES

Wet Prairie Map

# ODOT WETLAND TYPES

- Wetland Ditches
- Ditched wetland
- Confined swale with wetland characteristics
- Narrow wetland with confined banks
- Gravel substrate (3/4-) with wetland dominant vegetation
- Grassy area where mower gets stuck in late spring wetland
- Mounded cattle pasture with flood irrigation wetland
- Etc.

Very rough API hand
drawn in

SPEED
40

RADIANT FLOOR
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FLEGEL MOVING
& STORAGE
BEKINS
FOR LEASE
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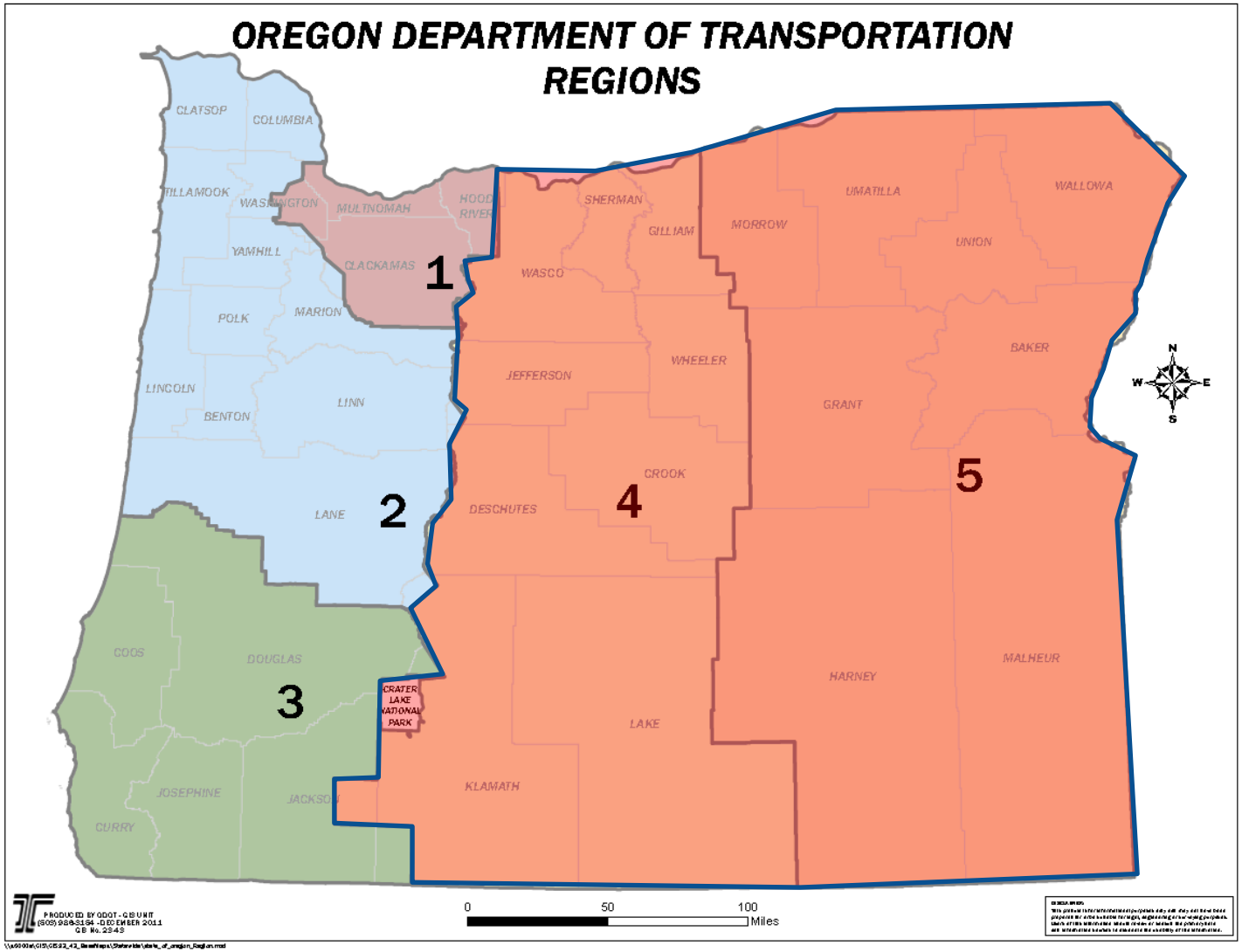
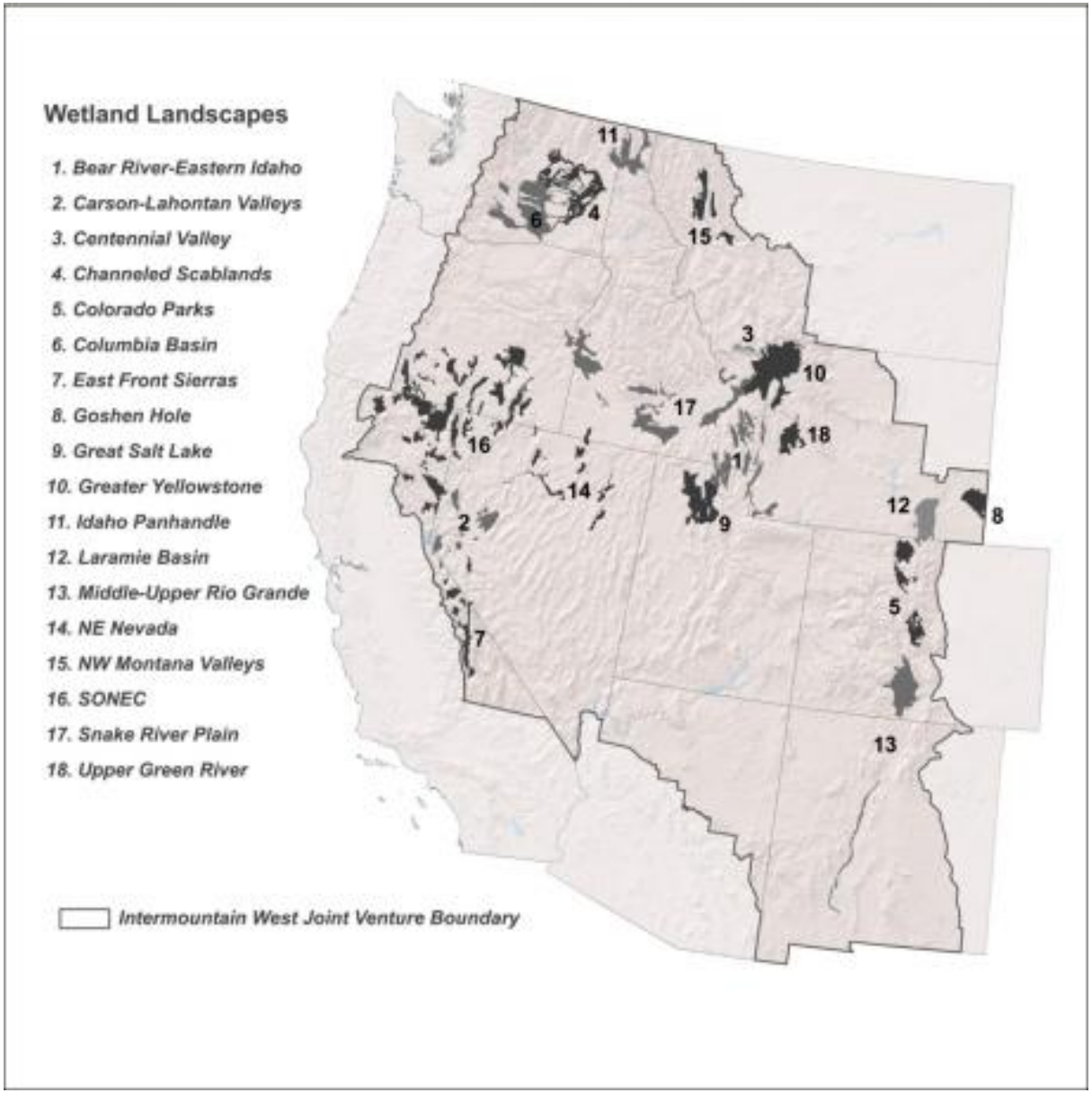
OR BUILD TO SUIT
CALL BOB
673-5012 OR 784-8316

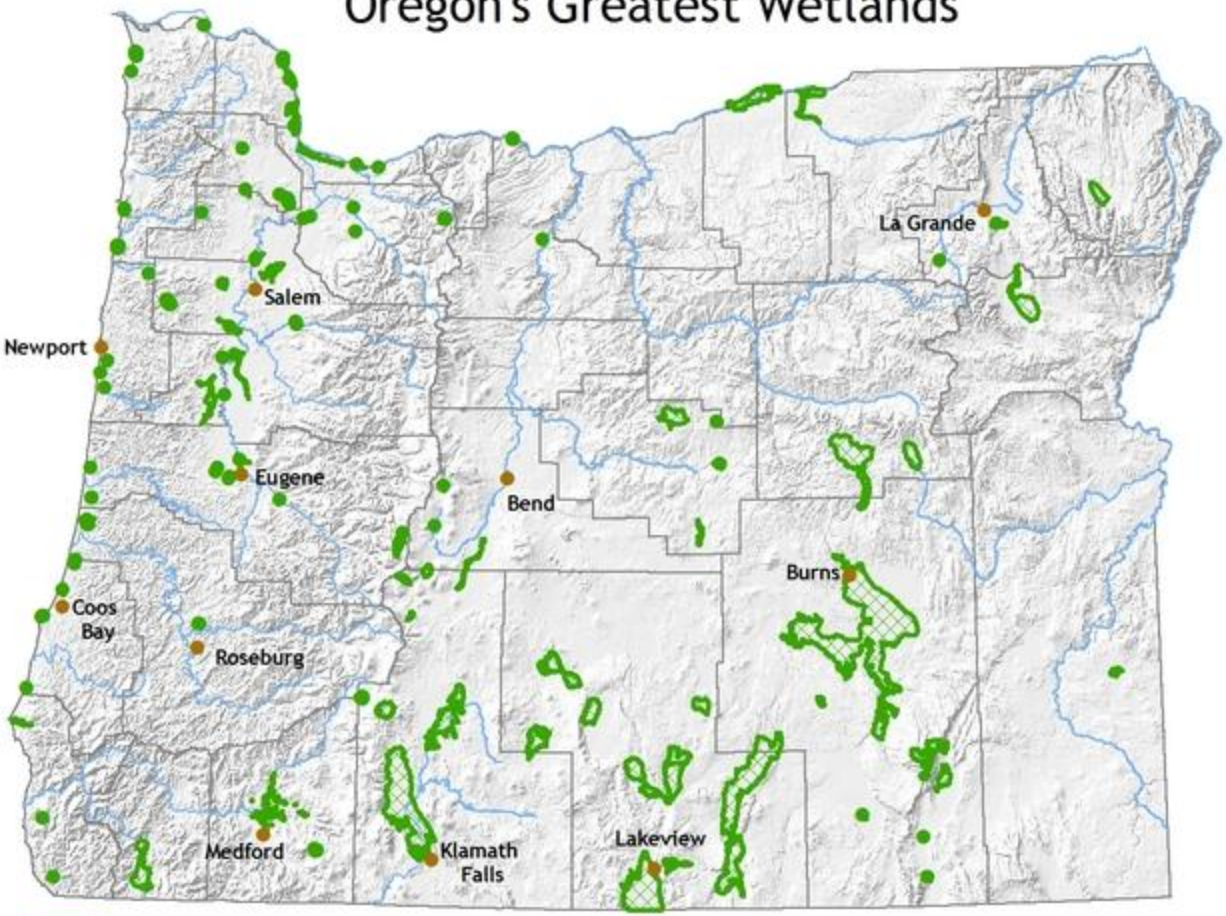
UMPQUA MINI STORAGE - 672-3800

# Regions 4 and 5




Wetland Landscapes
1. Bear River-Eastern Idaho
2. Carson-Lahontan Valleys
3. Centennial Valley
4. Channeled Scablands
5. Colorado Parks
6. Columbia Basin
7. East Front Sierras
8. Goshen Hole
9. Great Salt Lake
10. Greater Yellowstone
11. Idaho Panhandle
12. Laramie Basin
13. Middle-Upper Rio Grande
14. NE Nevada
15. NW Montana Valleys
16. SONEC
17. Snake River Plain
18. Upper Green River
Intermountain West Joint Venture Boundary

# Oregon's Greatest Wetlands



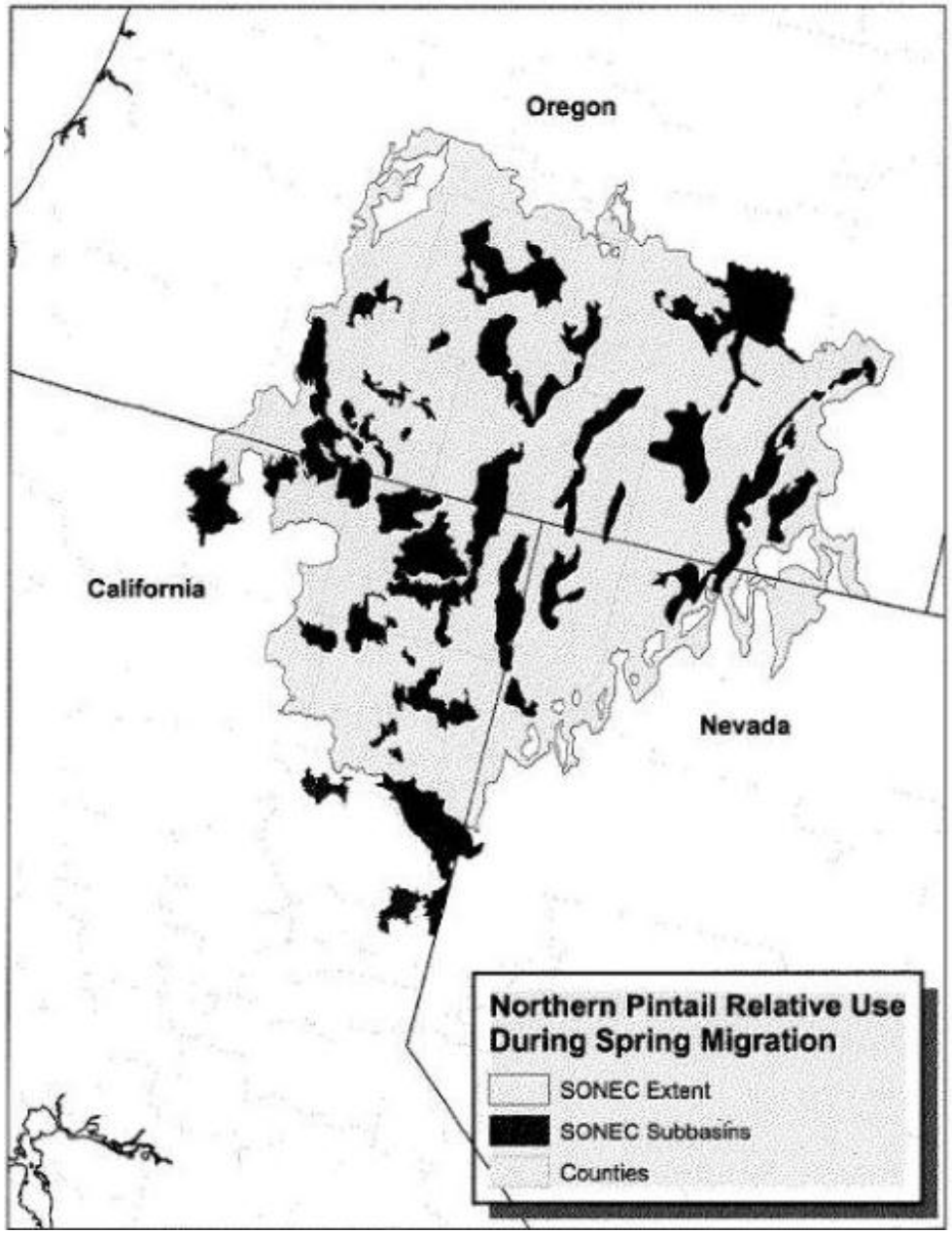

Oregon's Greatest Wetlands

County Borders

Major Rivers

Source: The Wetlands Conservancy 2005

Smaller wetlands represented with a minimum-sized green circle


Oregon
California
Nevada
Northern Pintail Relative Use During Spring Migration
SONEC Extent
SONEC Subbasins
Counties

# Hydrology

Bend:

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.78 | 1.05 | 0.82 | 0.65 | 0.98 | 0.93 | 0.47 | 0.49 | 0.41 | 0.72 | 1.42 | 1.9 | 11.63 |

| | | | |
|---|---|---|---|
| Oct - Mar | 7.69 | total snowfall: | 32.4 |
| Apr - Sept | 3.93 | | |
| | 11.62 | | |

La Grande:

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.87 | 1.3 | 1.45 | 1.51 | 1.86 | 1.46 | 0.68 | 0.81 | 0.84 | 1.27 | 1.99 | 1.85 | 16.88 |

| | | | |
|---|---|---|---|
| Oct - Mar | 9.73 | total snowfall: | 20.8 |
| Apr - Sept | 7.16 | | |
| | 16.89 | | |

Pendleton:

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.49 | 1.13 | 1.18 | 1.07 | 1.14 | 0.91 | 0.31 | 0.39 | 0.58 | 1.04 | 1.44 | 1.53 | 12.21 |

| | | | |
|---|---|---|---|
| Oct - Mar | 7.81 | total snowfall: | 16.3 |
| Apr - Sept | 4.4 | | |
| | 12.21 | | |

Klamath Falls:

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.02 | 1.34 | 1.33 | 0.84 | 1.05 | 0.8 | 0.3 | 0.46 | 0.54 | 1.04 | 1.77 | 2.25 | 13.72 |

| | | | |
|---|---|---|---|
| Oct - Mar | 9.75 | total snowfall: | 37.8 |
| Apr - Sept | 3.99 | | |
| | 13.74 | | |

# Soils

# Plants

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www.naturfoto.cz

# Interesting wetlands in R4 and R5

# Alkali Lake area

# Subsided wetlands

# Vernal Pools in the Dalles

# Common Wetlands Impacted by ODOT in R4 and R5

08/07/2013

08/05/2014

30