Still-water Species and Salmon Restoration

Natural History of Turtles and Still-water Amphibians

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Outline

• Overview of still-water species river restoration
• Declines and threats
• Native species in this region
• Life cycle
• Habitat needs of these species
Still-water Species in Restoration

- Various species depend on side channels and pools in and near rivers
- Huge opportunity to benefit many species
Declines

- Turtles and amphibians declining
- Major threats

- Disease
- Overharvesting
- Invasive species
- Habitat loss, degradation, and fragmentation
Fed Under Review
WA Endangered
OR Sensitive - Critical

Western Pond Turtle
*(Actinemys marmorata)*

Western Painted Turtle
*(Chrysemys picta bellii)*
Native Species—Salamanders

Northwestern Salamander
(*Ambystoma gracile*)

Long-toed Salamander
(*Ambystoma macrodactylum*)

Rough-skinned Newt
(*Taricha granulosa*)
Pacific Chorus Frog
(*Pseudacris regilla*)

Native Species—Frogs

**Fed Threatened**
- WA Endangered
- OR Sensitive

**Fed Candidate**
- WA Candidate
- OR Sensitive

**Fed Under Review**
- OR Sensitive

*Oregon Spotted Frog* (*Rana pretiosa*)

*Columbia Spotted Frog* (*Rana luteiventris*)

*Western Toad* (*Bufo boreas*)

*Oregon Spotted Frog* (*Rana pretiosa*)

*Northern Red-legged Frog* (*Rana aurora*)

*Great Basin Spadefoot* (*Spea intermontana*)

*Cascades Frog* (*Rana cascadae*)
Native Species—Amphibian Eggs

Native: winter and spring; roundish or strings; embryo ~BB size

Bullfrog: summer; sheet; embryo ~sesame or poppy seed size
Life Cycle—Turtles

**Summer**

- [Image of turtle eggs]

**ODFW**

**Winter**

- [Image of hibernating turtle]

**Spring**

- [Image of turtles in water]

- [Image of turtles on road]

- [Image of turtles on road]

- [Image of turtles on road]
Life Cycle—Amphibians

**Autumn**

- **LIFE CYCLE OF A FROG**
  - Adult frog
  - Tadpole frog
  - Eggs
  - Embryo
  - Tadpole
  - Start of pulmonary breathing
  - Front legs break through

**Spring**

- **Life Cycle of a Salamander**
  - Terrestrial Adult
  - Aquatic Larva
  - Egg mass laid in water

[Images of life cycles of a frog and a salamander]
Natural History—Correlates with Salmon

- Critical to ecosystem by moving nutrients against the flow of water
- Need two habitats and connections between them
Habitat Features

- Hydroperiod
- Aquatic vegetation
- Bottom
- Wood
- Sun
- Upland
- Movement
Habitat Features—Hydroperiod

- **Turtles**: year-round deep water
- **Amphibians**: water at least through mid-summer
Habitat Features—Aquatic Vegetation

- **Turtles**: feeding, refuge
- **Amphibians**: oviposition, refuge, periphyton growth
Habitat Features—Bottom

- **Turtles**: silty for refuge, hibernation and aestivation
- **Amphibians**: silty for refuge
Habitat Features—Wood

- **Turtles**: in water for basking
- **Amphibians**: in uplands to avoid desiccation
Habitat Features—Sun

• **Turtles**: basking (several hours in spring), nesting
• **Amphibians**: basking
Habitat Features—Upland

- **Turtles**: open nesting areas; forest for hibernation and aestivation
- **Amphibians**: forest for foraging and aestivation
Habitat Features—Movement

• Water bodies connected to uplands and each other
Note on Beavers

• Beaver activity can promote still-water species in restored rivers