

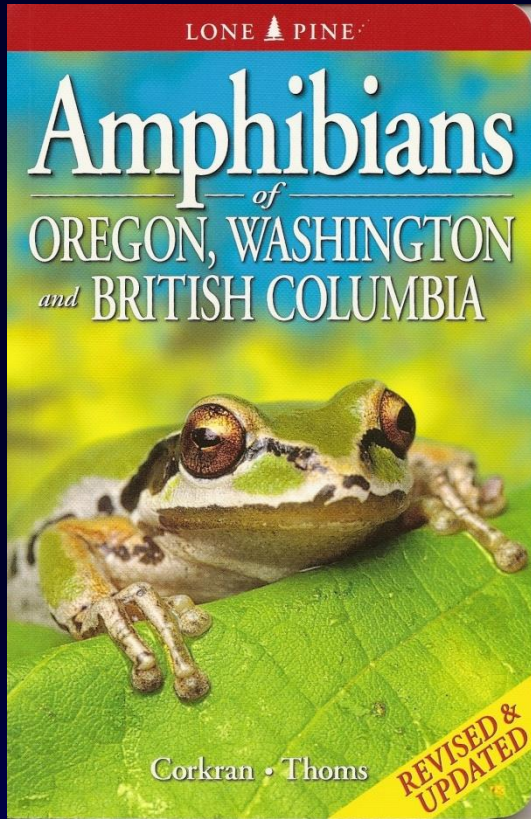
**Guide to Identification  
of  
Amphibians of Thurston County  
Washington State**

**MARC HAYES**



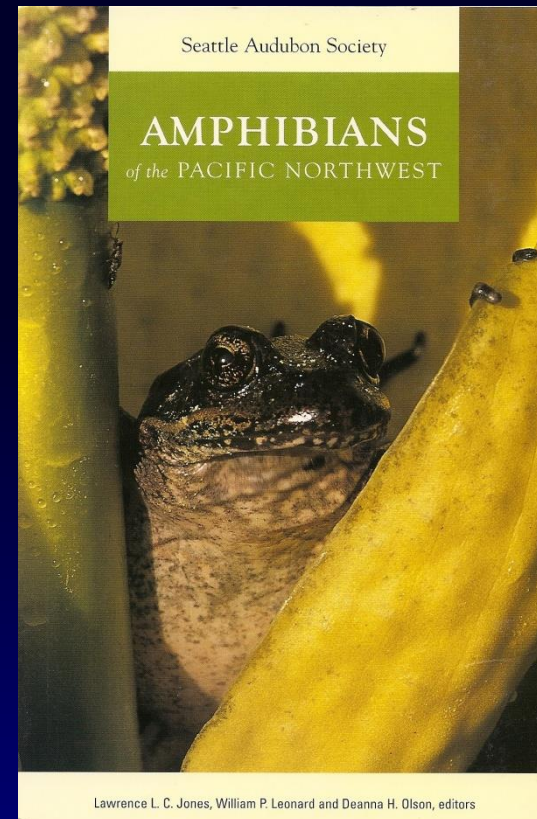
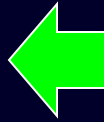
*Washington  
Department of  
FISH AND  
WILDLIFE*

# Regional Amphibian Guides



Corkran & Thoms. 2006.

**Amphibians of Oregon, Washington and British Columbia.** Lone Pine Press.



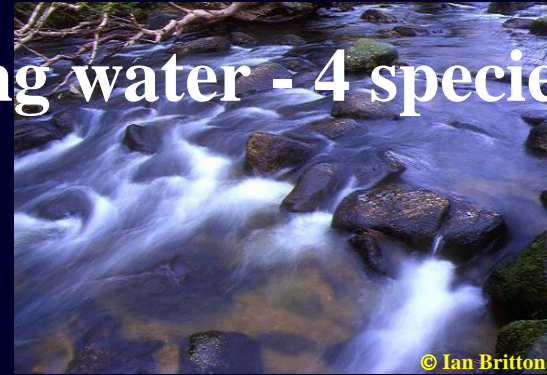
Jones, Leonard & Olson (editors).  
2005. **Amphibians of the PNW.**  
Seattle Audubon Society.



# Amphibian Groupings

Are based on their reproduction in each of:

Flowing water - 4 species



Uplands - 4 species



or Stillwater - 8 species



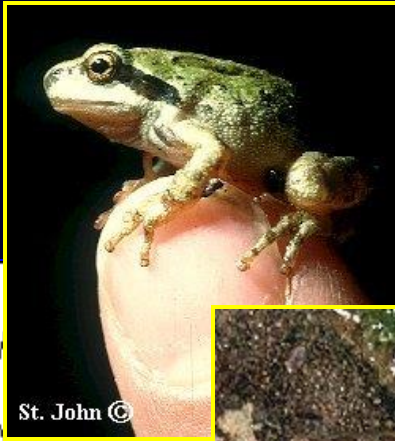
# Stillwater Breeding Amphibians



- eggs laid in exposed locations
- pigmented eggs
- aquatic larval stage
- no parental care
- 3 salamander species and 5 frog and toad species (1 exotic)



# Pacific Tree Frog – *Hyla regilla*



- small size
- loud, high pitched call
- many color morphs: green, brown, etc
- expanded toe tips
- dark eye stripe



- eggs laid in
  - small packets
  - on diverse substrates
  - in shallow water
- larvae with lateral eyes

# Pacific Treefrog

## *Pseudacris (=Hyla) regilla*

- small packets:  
< 2.5 inches long
- few eggs: 10-80
- soft jelly; breaks  
down in 2 months
- attached to brace;  
often soft vegetation
- laid in cool water:  
laying begins at  
water temperatures  
of 6-8°C (43-46°F)



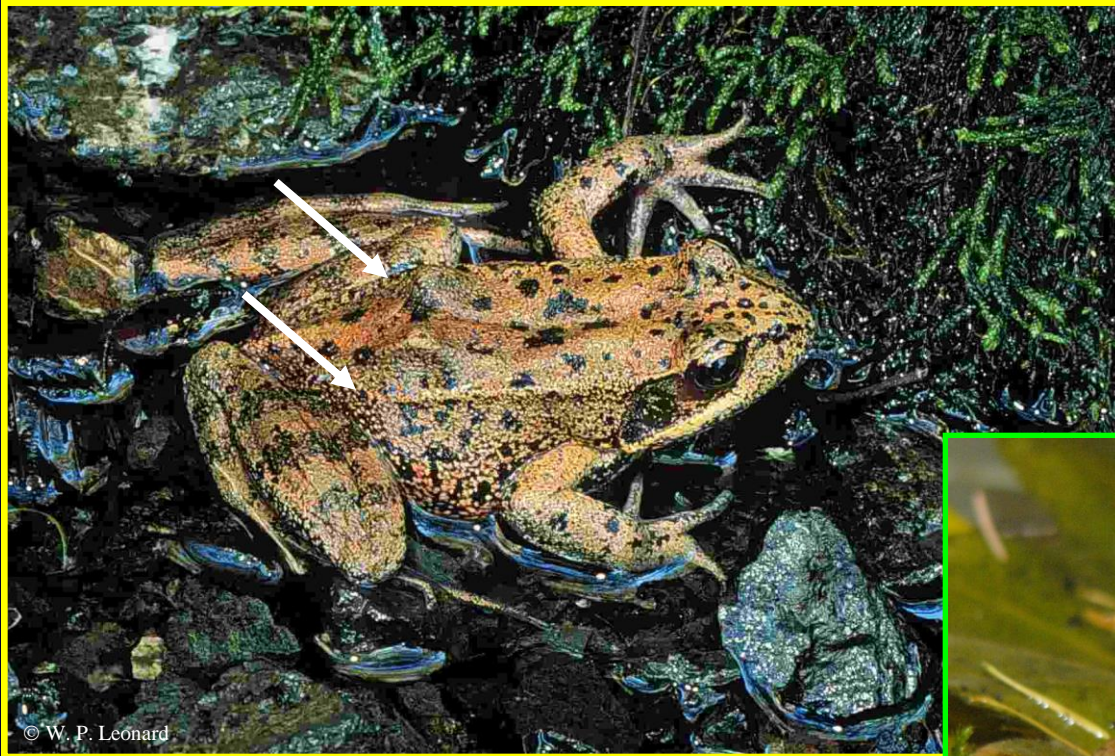
© Klaus Richter 1998

- eggs tiny:  $\leq \frac{1}{16}$  inch in diameter
- eggs indistinctly bicolored (gray above; dingy yellow below)
- developing embryos lose bicoloration becoming light brown

**Pacific Treefrog**  
*Pseudacris (=Hyla) regilla*



# Northern Red-legged Frog – *Rana aurora*



- if spotted, irregular
- red or pink wash beneath
- reduced webbing
- slight interruption on posterior dorsolateral fold



- eggs laid
  - on vegetation brace
  - in grapefruit-sized mass
  - submerged or at water surface
- larvae
  - grow to a large size (90-110 mm)
  - have dorsal eyes





# Northern Red-legged Frog

*Rana aurora*



© Klaus Richter 1998

- Egg Mass:**
  - $\pm$  round
  - softball-sized
  - embryonic capsules prominent: grape cluster appearance
  - soft jelly: breaks down fairly rapidly: ~2 months
  - laid on brace; often upright vegetation
  - moderate egg numbers: several hundred to just over 1,000
  - contains relatively large eggs: usually about  $\frac{1}{8}$  inch in diameter
  - often submerged, laying begins at  $6^{\circ}\text{C}$  ( $43^{\circ}\text{F}$ ) water temperatures

© Klaus Richter 1998



**Northern  
Red-legged  
Frog egg  
masses can  
be hard to  
seen even  
when  
viewed at  
relatively  
short  
distances**

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



© Gary Nafis



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

- ragged-edge dark spots w/ light centers
- red-orange wash beneath
- fully webbing on feet
- eyes rotated at roughly 45° angles

## Oregon Spotted Frog *Rana pretiosa*

- egg masses laid
  - unattached
  - large, orange-to grapefruit-sized
  - in groups



- larvae
  - grow to a large size (90-110 mm)
  - dorsal eyes



# Species ID

## Northern Red-Legged Frogs



←

Close-up showing difference in eye color and pupil orientation of Oregon Spotted Frog (top) and Northern Red-legged Frog (bottom)

→

Groin difference Oregon Spotted Frog (right) and Northern Red-legged Frog (left)

## Oregon Spotted Frogs



© Klaus Richter 1998



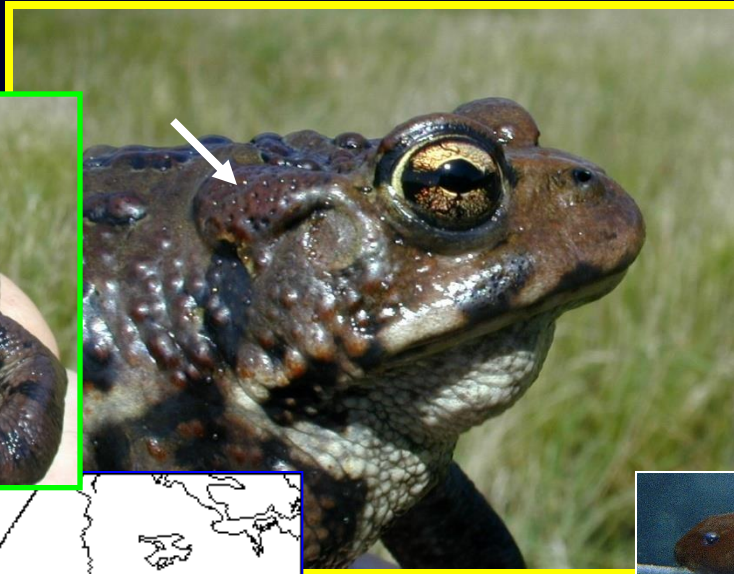
**Oregon Spotted Frog**  
*Rana pretiosa*

- $\pm$  round
  - softball-sized
  - embryonic capsules  
prominent:  
grape cluster appearance
  - moderately soft jelly;  
breaks down  
~2 months
  - no brace
  - masses often in groups
  - laying begins at 8°C (46°F)
- 
- moderate egg numbers: several hundred to over 1,000
  - moderately large eggs: just under  $\frac{1}{8}$  inch in diameter
  - masses usually laid in shallow water (< 6 inches deep)



**Oregon Spotted Frog**  
*Rana pretiosa*

# Western Toad – *Anaxyrus* (formerly *Bufo*) *boreas*

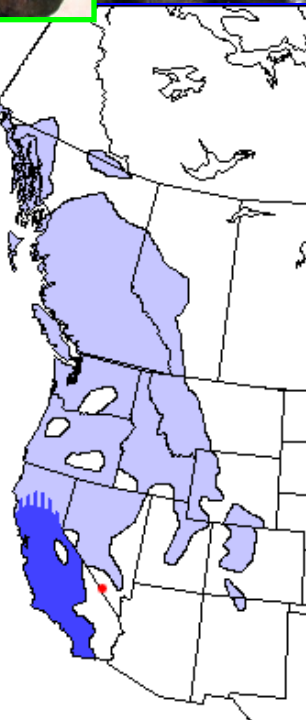


- large glands behind eyes
- warty upper skin
- short legs
- pale mid-dorsal stripe



## Western Toads *Bufo boreas*

- Boreal Toad  
*B. b. boreas*
- California Toad  
*B. b. halophilus*
- Amargosa Toad  
*B. b. nelsoni*



© USGS

- eggs in strings
- tadpoles
- black
- slow-moving
- school





# Life Stages Most Likely To Be Seen



adults  
55-120+ mm



2nd year juvenile  
30-45 mm



young of the year  
8-16 mm



young of the year  
8-16 mm

© Marc Hayes 1994



## Western Toad *Anaxyrus (Bufo) boreas*

- long, narrow strings; roughly pencil width
- soft jelly; breaks down quickly: ~1 month
- jelly catches debris



### Eggs:

- dark above
- medium-sized;  $\frac{1}{16}$  to  $\frac{1}{8}$  inch

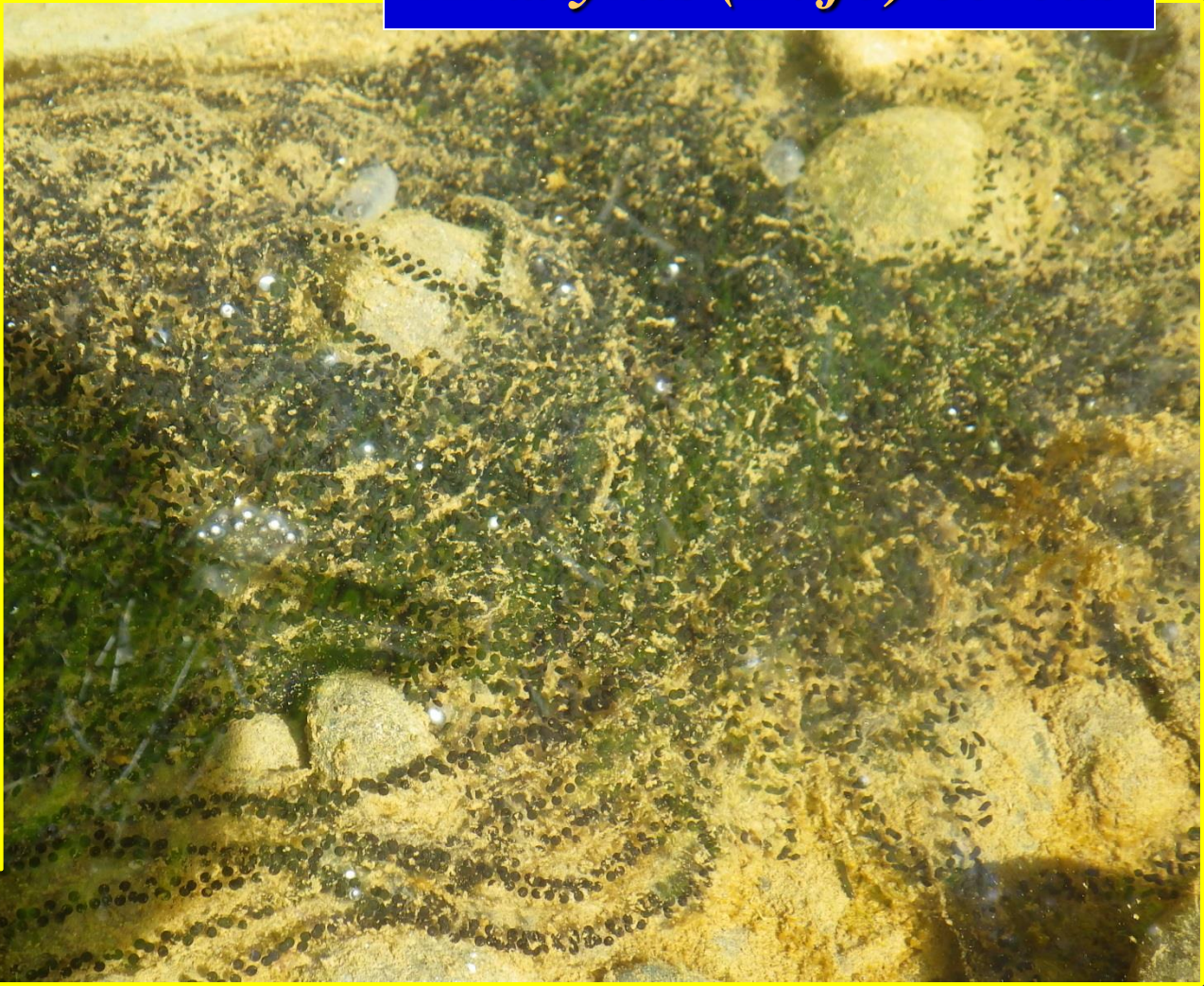


- unattached
- shallow water; < 8 inches deep
- relatively warm ~15°C (59 F)
- many eggs: a few thousand to over 20,000

**Western Toad**  
*Anaxyrus (Bufo) boreas*



**Western Toad**  
*Anaxyrus (Bufo) boreas*

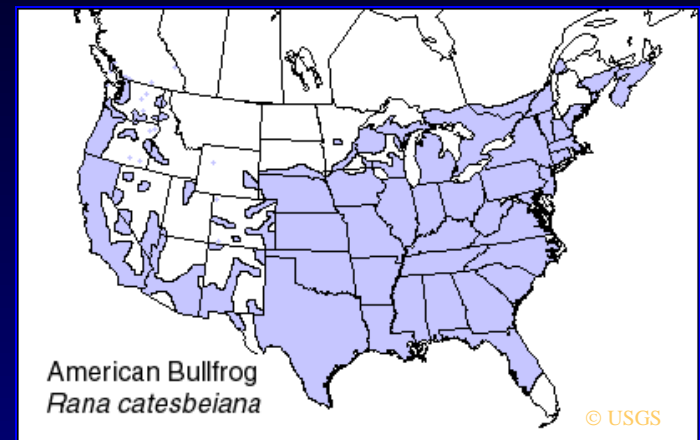


# American Bullfrog – *Lithobates (Rana) catesbeianus*



- green present
- ears large
- large body size
- alarm chirp
- no dorsolateral folds

- egg mass
  - a surface film with tiny eggs
  - draped over/around aquatic vegetation



# American Bullfrog – *Lithobates (Rana) catesbeianus*

large multi-season larva



© Carl W. Richardson

- large larvae khaki green with black spots
- may take 2-4 years to metamorphose



© Ohio Dept. Of Natural Resources

© Charlette C. Corkran & Henry J. Fabian



medium larvae



© R. Altig

small larva

# American Bullfrog

## *Lithobates catesbeianus*



### Egg mass:

- thin soft jelly
- laid in floating sheet
- drapes vegetation with age
- large: covers 1+ square meters
- often sticks to upright vegetation
- many eggs: 8,000 to 120,000 per mass
- capsules around eggs not distinguishable
- tiny eggs: less than 1 millimeter in diameter
- laid at warm water temperatures:  $\geq 20^{\circ}\text{C} = 68^{\circ}\text{F}$
- in Pacific Northwest, egg laying typically begins in June
- breaks down rapidly: within a few weeks

**American Bullfrog**  
*Lithobates catesbeianus*





# American Bullfrog

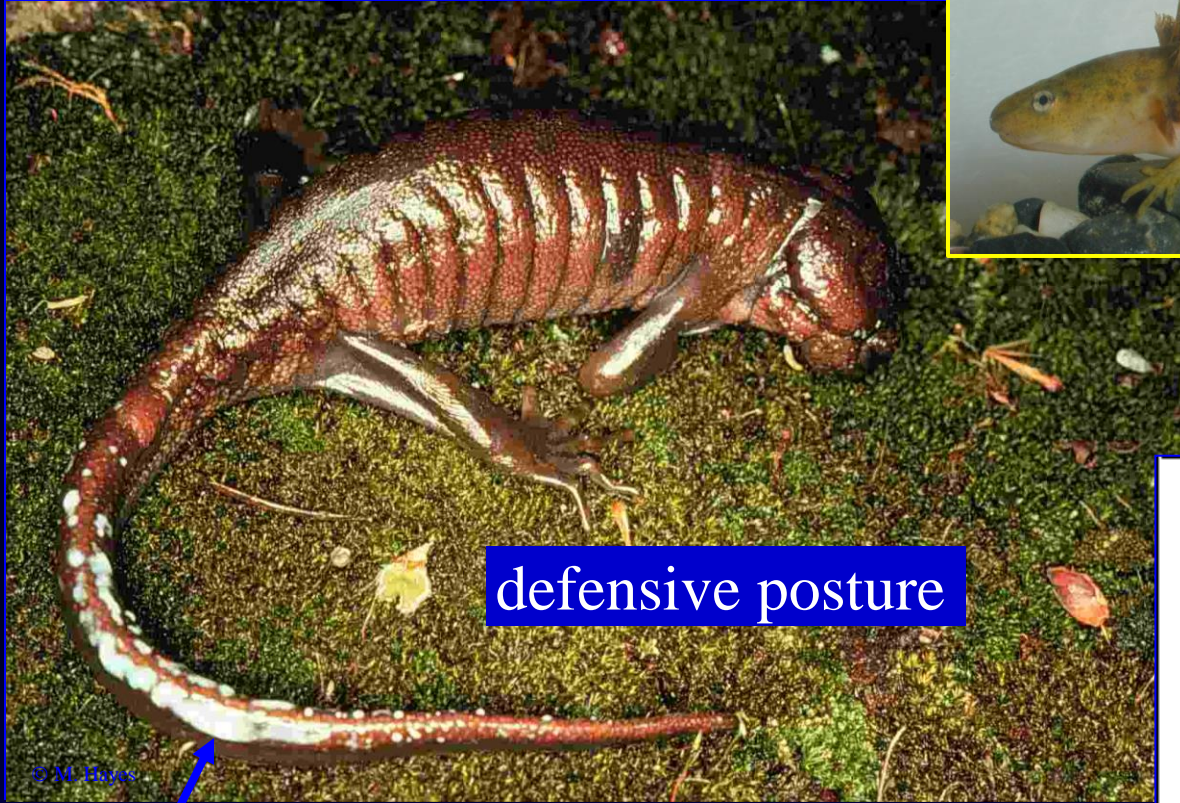
## *Lithobates catesbeianus*



### Egg mass:

- may be entangled at the surface among vegetation
- may settle on underlying vegetation

# Northwestern Salamander – *Ambystoma gracile*



defensive posture

milky toxin



- large
- brown
- poison glands
- adults rarely seen
- permanent water
- tolerates fish



- egg masses
- large
- hard jelly
- on submerged brace



# Life Stages Most Likely To Be Seen

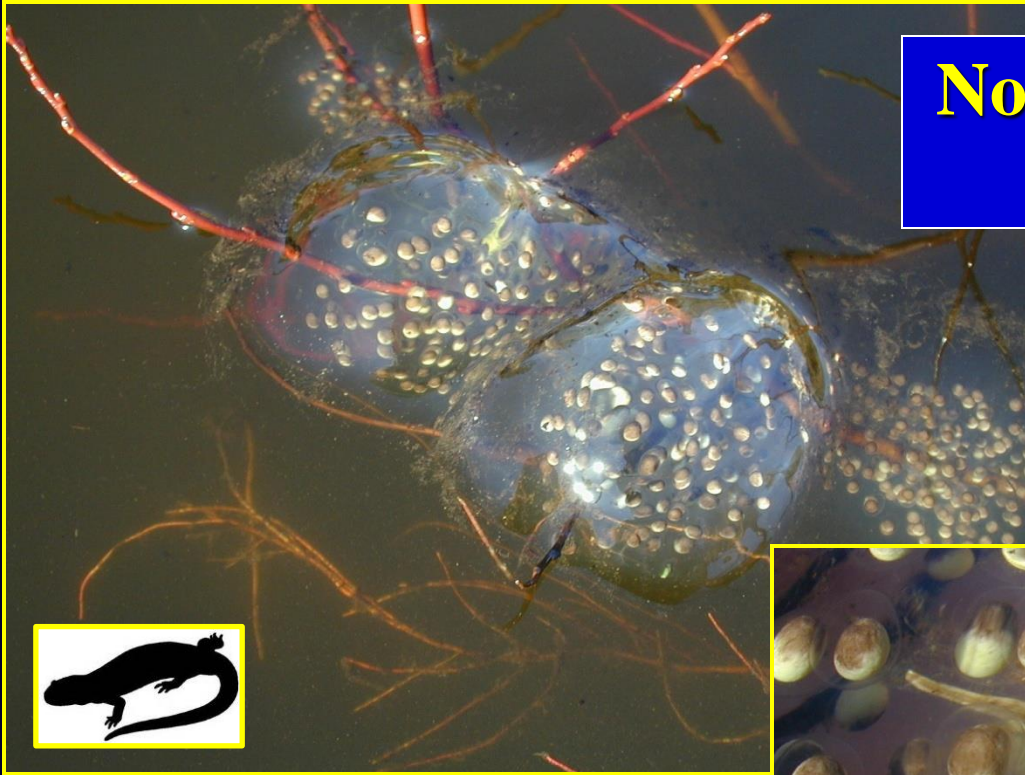


small larvae  
45-105 mm

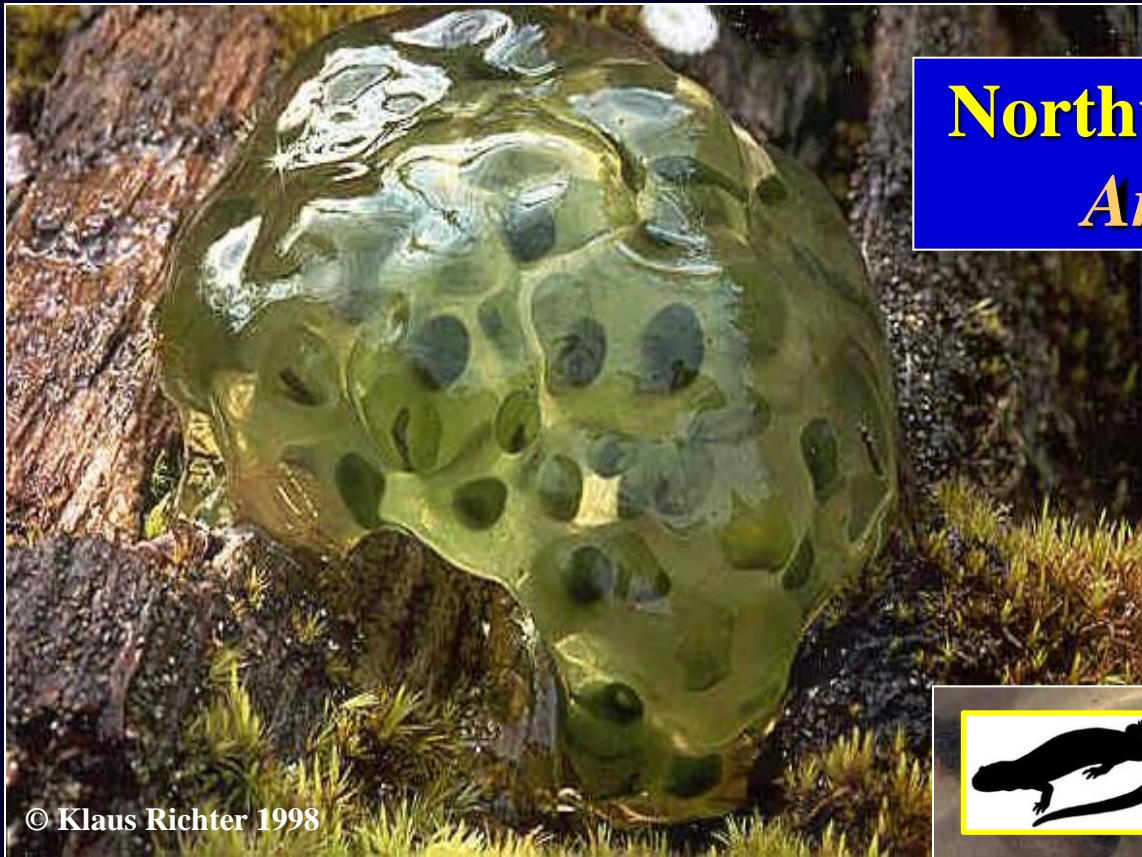


large larvae  
45-105 mm

# Northwestern Salamander *Ambystoma gracile*



- recently laid egg masses not scalloped
- jelly very clear

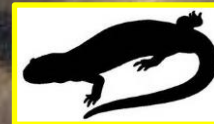


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## Northwestern Salamander *Ambystoma gracile*

- early embryo color smoky gray or brown
- early embryos capsules lack algae

- ± round mass
- orange- to grapefruit-sized
- firm jelly; lasts 7-10 months
- capsules indistinct
- brace present; usually stick
- in water 5-6°C (41-43°F)



© Klaus Richter 1998

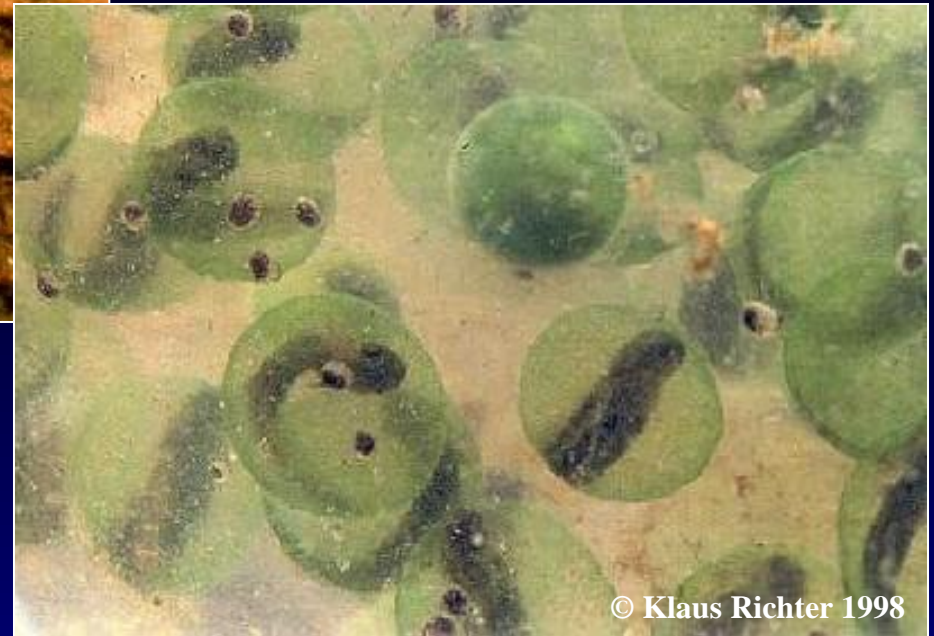


## Northwestern Salamander *Ambystoma gracile*

- algae in late development capsules: has green look
- embryos darken during development
- masses often submerged



© Marc Hayes 1994



© Klaus Richter 1998

- $\pm$  round; firm jelly; orange- to grapefruit-sized
- brace present; capsules indistinct at a distance

# Northwestern Salamander *Ambystoma gracile*



- egg masses w/ all embryos hatched have green capsules in a clear jelly matrix
- old egg mass jelly often' accumulate dirt and debris on the surface

# Northern Red-legged Frog

*Rana aurora*



# Northwestern Salamander

*Ambystoma gracile*

Photo Credit: James Bettaso  
U.S. Fish & Wildlife Service



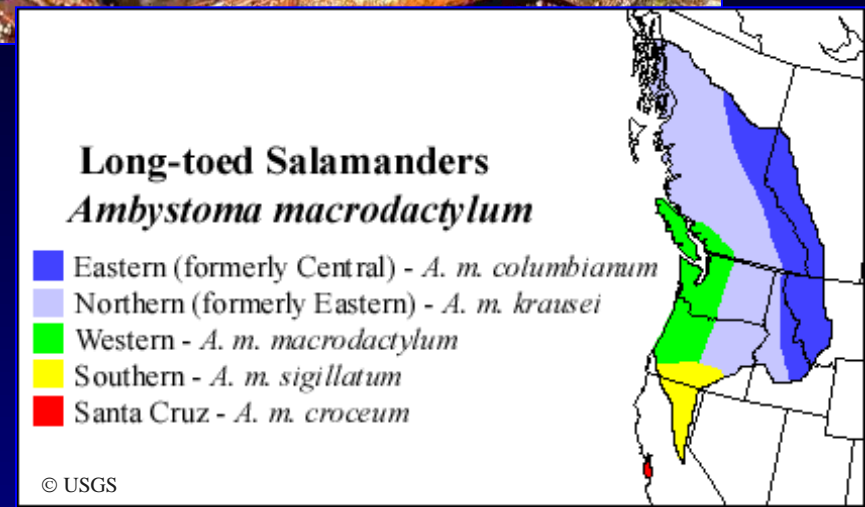
# Long-Toed Salamander – *Ambystoma macrodactylum*

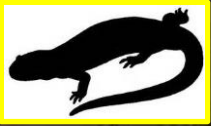


- mid-dorsal stripe
  - gold, yellow, or green
  - irregular or broken
- 4<sup>th</sup> hindlimb toes long



- eggs in small packets or single
- frequent in ephemeral sites
- co-occurrence with fish rare





## Long-toed Salamander *Ambystoma macrodactylum*



© Klaus Richter 1998

- small packets:  
< 2 inches long
- few eggs: 1-25
- soft jelly; breaks  
down in 2 months
- attached to brace;  
often soft vegetation
- laid in cool water:  
laying begins at  
water temperatures  
of 5-6°C (41-43°F)

- eggs moderate sized: between  $\frac{1}{16}$  and  $\frac{1}{8}$  inch in diameter
- eggs distinctly bicolored (brown above; white below) when young
- developing embryos lose bicoloration becoming light brown

# Long-toed Salamander

*Ambystoma macrodactylum*



- sometimes single eggs or small groups of eggs are laid close to one another



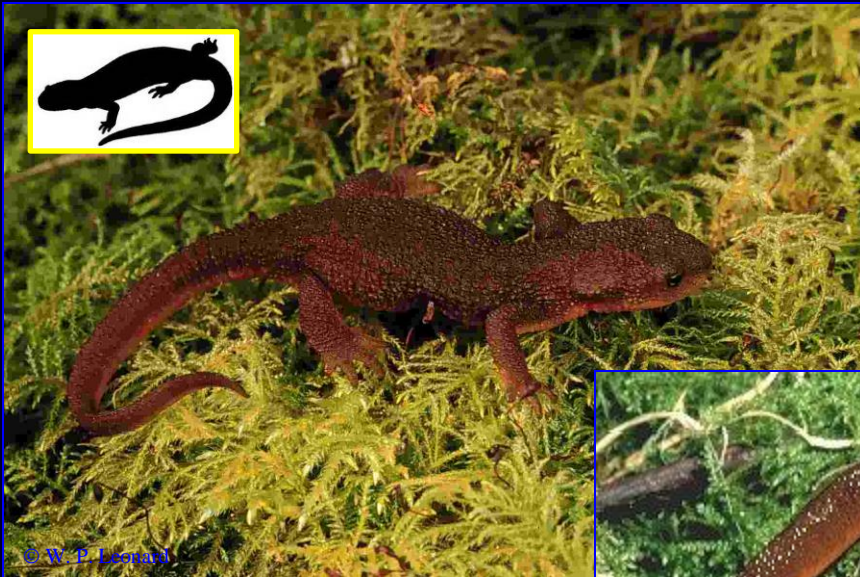


Pacific  
Treefrog  
*Pseudacris*  
(formerly *Hyla*)  
*regilla*

Long-toed  
Salamander  
*Ambystoma*  
*macrodactylum*



# Rough-Skinned Newt – *Taricha granulosa*



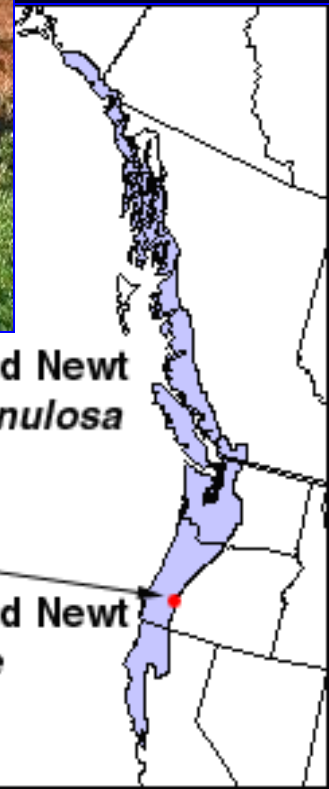
- brown above, orange beneath
- skin
  - thick
  - granular or smooth (season or sex)
  - toxin glands



- eggs
  - laid singly
  - concealed in submerged vegetation
  - brown above, orange or cream beneath
- diverse permanent aquatic habitats
- tolerates significant disturbance

Rough-skinned Newt  
*Taricha g. granulosa*

Crater Lake  
Rough-skinned Newt  
*T. g. mazamae*



## **Roughskin Newt** *Taricha granulosa*



### **Eggs:**

- brown above
  - pale yellow to orange below  
(coloration matches that of juvenile and adult newts)
  - medium-sized; about  $\frac{1}{8}$  inch
- egg laid singly, often not close together
  - typically laid flexible, often soft leafy vegetation
  - individual eggs often leaf wrapped or hidden in dense vegetation
  - in relatively warm water  $\sim 15^{\circ}\text{C}$  ( $59^{\circ}\text{F}$ )
  - develop relatively rapidly; hatch in 3-4 weeks

# Upland Breeding Amphibians

- breed in uplands
- concealed eggs
- unpigmented eggs
- no larval stage
- a few salamander species
- no frogs or toads



© Alfred University

# Western Red-Backed Salamander – *Plethodon vehiculum*



red morph

© W. P. Leonard



yellow morph

© Martin Quéllet

- dorsal stripe
- red and yellow most common
- continuous to tail tip
- even-edged
- upper sides dark; unmarked

- eggs
  - large
  - white (unpigmented)
  - concealed
  - tended by female
- widespread in W WA upland habitats



# Ensatina – *Ensatina eschscholtzii*



- brown on upper surfaces
- protruding, dark eyes
- constriction at tail base
- orange or yellow on upper limbs or limb sockets

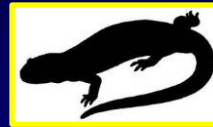
- nest sites
  - terrestrial
  - in LWD, burrows or
  - under surface objects
- uses drier site conditions

Now for...

**a fun quiz**



or



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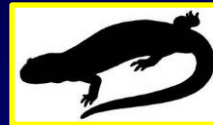
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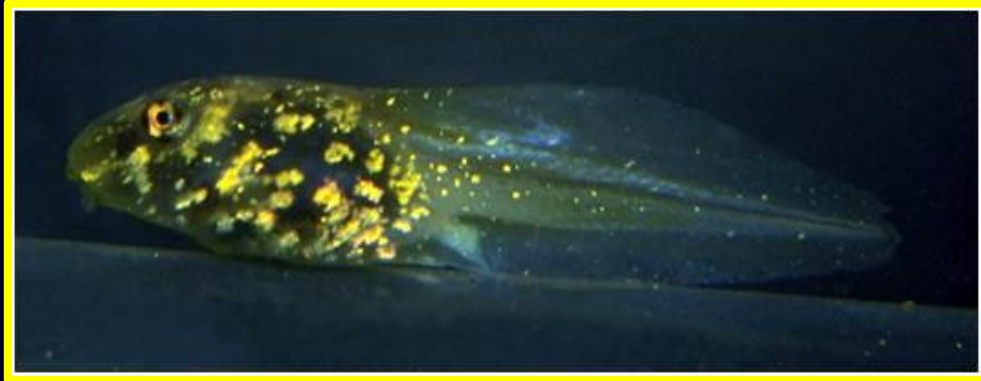


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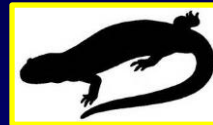


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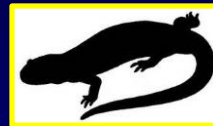
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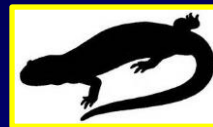
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TODD PIERSON 2013

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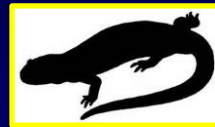
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