

# Identifying Washington's amphibians and their egg masses



**LAMEACE HUSSAIN**

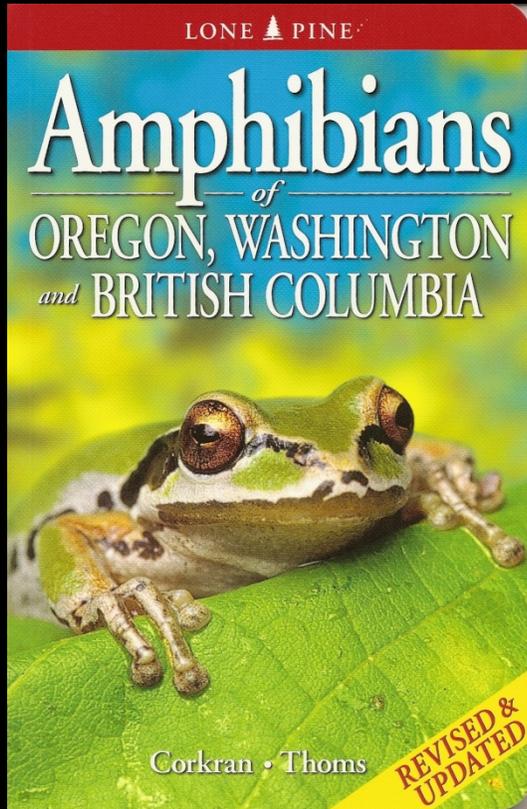
**MARC HAYES**

and many contributors

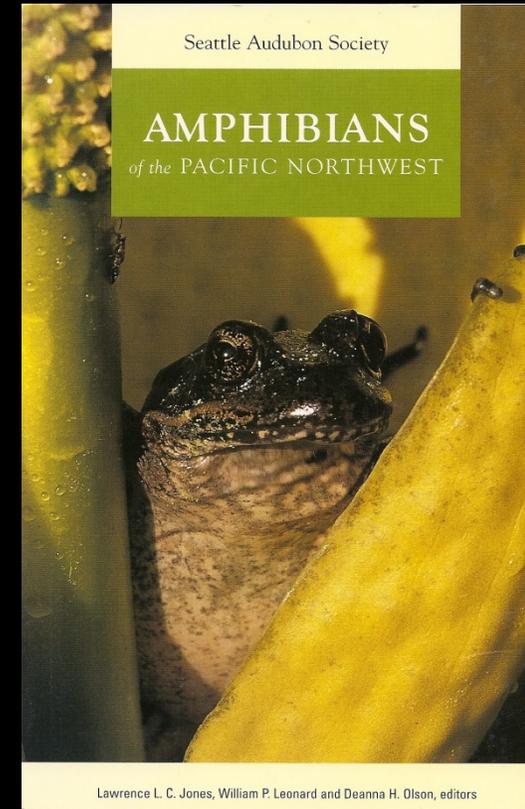


Washington  
Department of  
**FISH and  
WILDLIFE**

# 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.



Lameace Hussain



Lameace Hussain



Lameace Hussain

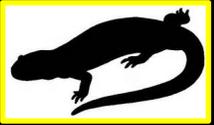


Lameace Hussain

# Long-toed salamander

*(Ambystoma macrodactylum)*

# Long-toed Salamander (*Ambystoma macrodactylum*)



Salamander:

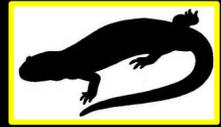
- Stripe down back
  - Gold, yellow, or green
  - Splotchy or broken, like mustard spilled on them
- 4<sup>th</sup> hindlimb toes are long, which is why they're called long-toed salamanders.
- They are our earliest breeding amphibian.



Noll Steinweg



St. John ©



# Long-toed Salamander (*Ambystoma macrodactylum*)



© Klaus Richter 1998



© Mark Thompson

- Eggs are initially brown and cream colored; colors blend together as egg develops.
- Eggs laid in shallow waters that will dry up
  - Small packets (< 2 inches long)
  - 1-25 eggs per packet
  - Egg surrounded by two protective layers
  - Attached to brace like soft vegetation
- Soft jelly egg packet
  - Breaks down after 2 months
  - Will jiggle if you move the nearby water
- Eggs laid in cool water
  - Begin laying eggs as early as January!
  - Water temperatures of 41-43°F



# Long-toed Salamander (*Ambystoma macrodactylum*)

As the egg develops, the embryos transform into tiny salamanders.

Can you see the double protective layer around the egg?



© Henk Wallays





Northern  
Red-legged  
frog  
*(Rana aurora)*





# Northern Red-legged frog (*Rana aurora*)



- Red or pink wash beneath
- There is a little ridge or “fold” that runs down their back.
- Adults can have some spotting, but it’s not usually in a pattern.
- Because these frogs spend a lot of time on land, their feet don’t have a lot of webbing between the toes.

Once the eggs hatch, little tadpoles pop out!



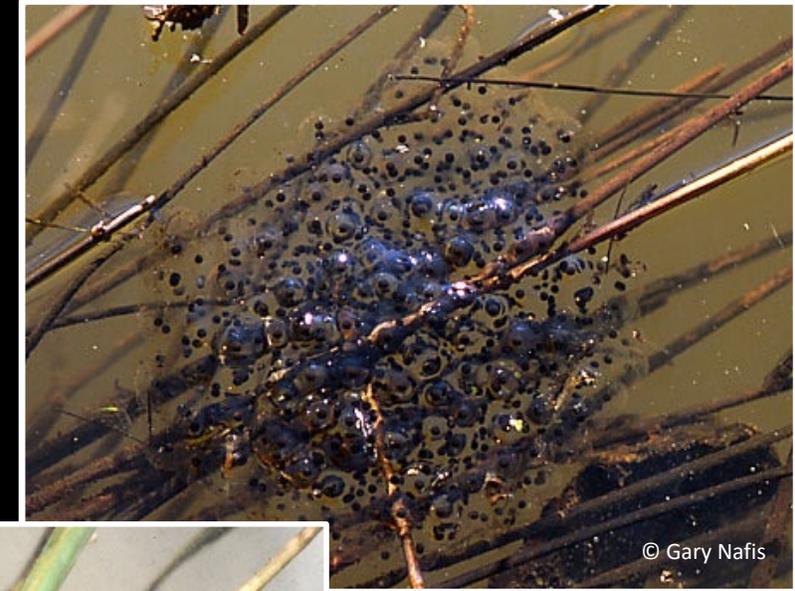


# Northern Red-legged Frog

*(Rana aurora)*

## Egg masses:

- Softball-sized
- Soft jelly: if you try and pick one of these up, it will fall through your fingers
- Laid on vegetation, but will often fall off and float to the middle of a pond
- Moderate egg numbers: several hundred to over 1,000
- Often submerged, laying begins at 43°F water temperatures
- Tolerate deep water and water that contains fish and other amphibians



© Gary Nafis



© Kristiina Ovaska

Egg masses look like grape clusters!



© Klaus Richter 1998



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

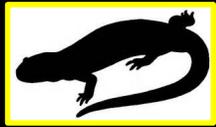
Northern red-legged frog egg masses can be hard to see even when viewed at short distances. Often they get covered with algae or other debris.

# Northwestern salamander

(*Ambystoma gracile*)



# Northwestern Salamander (*Ambystoma gracile*)



- Large brown salamanders
- Because they are slightly toxic, they can be found in ponds that have fish and other predators.
- They have large glands on their heads that secrete poison.
- The poison can also come out of glands down the back and tail.



When they hatch from the egg, they have bushy gills to help them breathe underwater!





# Northwestern Salamander (*Ambystoma gracile*)



Their egg masses are  
easy to identify!



© Klaus Richter 1998

## Eggs:

- Orange- to grapefruit-sized egg mass
- Firm jelly that lasts 7-10 months
  - If you were to hold one of these in your hand, it would keep its shape!
- Because the egg mass is usually heavy, they can be found on a sturdy brace.



# Northwestern Salamander (*Ambystoma gracile*)

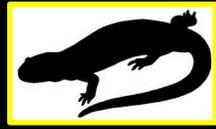


Unlike the Northern red-legged frog egg masses that looked like grapes, these egg masses look more like little brains!



Look closely to see the double protective layer on these eggs too.

That double layer is a good way to determine if something is a frog or a salamander egg mass!



# Northwestern Salamander (*Ambystoma gracile*)

- As the egg mass develops, it often turns green due to algae living inside the egg.
- Masses often submerged.



© M. Hayes 1994



© M. Hayes

## Symbiotic relationship with algae:

- Algae takes up nitrogenous waste and *Carbon Dioxide*
- Releases *Oxygen*

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



Northern red-legged frog egg mass (top) compared to a Northwestern salamander egg mass (bottom).

Notice how the Northwestern salamander egg mass (bottom) is much more firm and round.



# Northwestern Salamander (*Ambystoma gracile*)



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



Pacific Tree Frog  
(*Pseudacris regilla*)

---



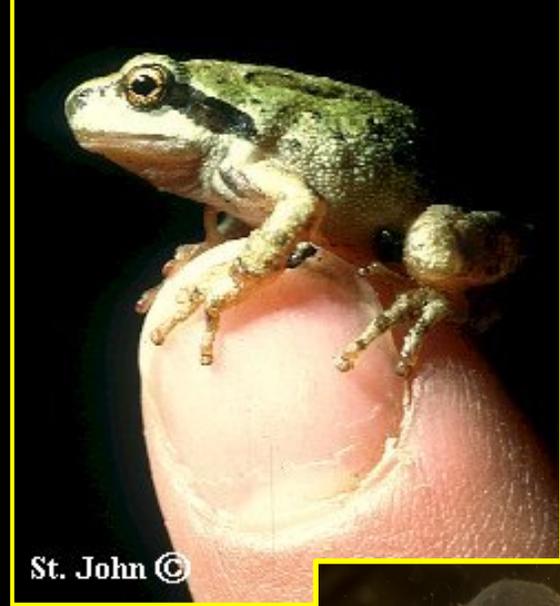
# Pacific Tree Frog (*Pseudacris regilla*)

## Frog:

- Small size with dark eye stripe
- Many color morphs: green, brown, etc.
- Tips of toes are round, which is a good way to tell a tree frog from other frogs in Washington.
- Loud, high pitched call, the loudest frog in Washington!

## Egg masses:

- Eggs laid in packets like long-toed salamander, but with more eggs per packet
- Prefer shallow water
- Eggs are often smaller than long-toed salamander eggs
- Tadpoles are small with eyes on the side of their heads





## Pacific Tree Frog (*Pseudacris regilla*)

These frogs don't have a double protective layer around the eggs, which is another good way to distinguish them from long-toed salamander eggs.



LIVING  
CULTURES

← Long-toed salamander eggs

Pacific tree frog eggs →





Pacific tree frog



Northern red-legged frog



What differences can you spot between these two frogs?



Western Toad  
*(Anaxyrus boreas)*

---

# Western Toad (*Anaxyrus boreas*)

Toad:

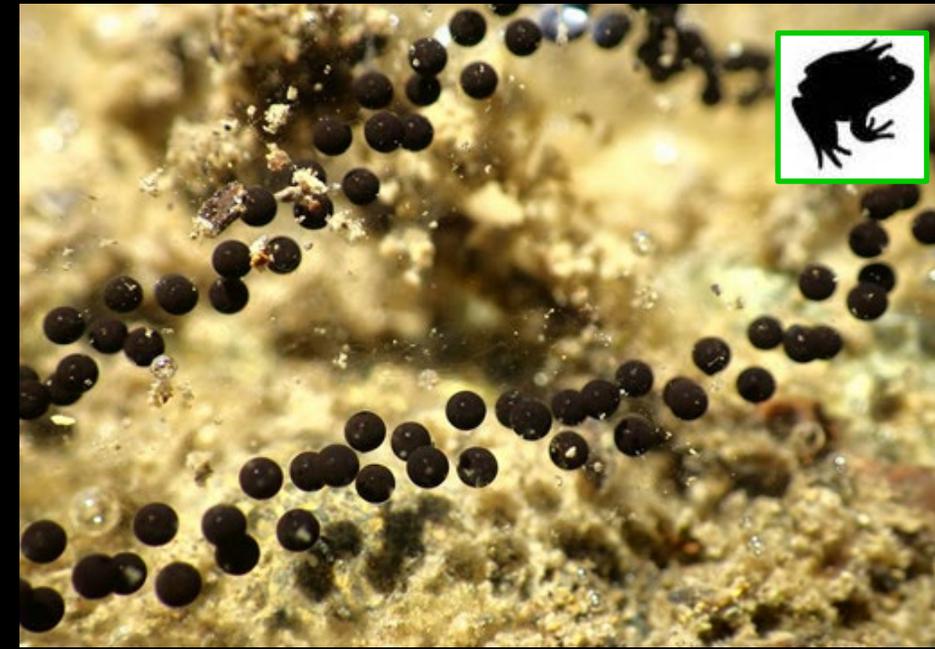
- Large glands behind eyes
- Warty upper skin
- Short legs and clumsy
- Pale mid-dorsal stripe
- Not many predators
  - Least toxic when they newly metamorph
- Tadpoles are completely black, and school together



# Western Toad (*Anaxyrus boreas*)

## Eggs:

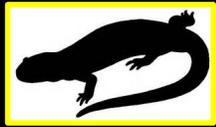
- Eggs laid in long narrow strings that look like spaghetti noodles!
- Don't attach eggs to a brace.
- Lay eggs in shallow water, often in slow parts of streams
- Begin breeding in late spring-early summer
- Egg masses may contain thousands of eggs, with some having over 20,000 eggs!



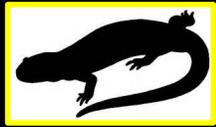
Western Toad  
(*Anaxyrus boreas*)



Look at all those tadpoles!



Rough-skinned newt  
(*Taricha granulosa*)



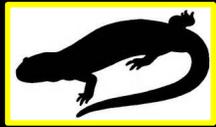
# Rough-Skinned Newt

*(Taricha granulosa)*

Newt:

- Skin is brown above, orange on the underside
- Skin is thick, granular or smooth (season or sex)
- Live in a variety of aquatic habitats
- Eat other amphibian eggs!
- **HIGHLY TOXIC—DO NOT EAT**
- Because they are so poisonous, the only thing that can eat them are garter snakes!





# Rough-Skinned Newt (*Taricha granulosa*)



## Eggs:

- Brown above, pale yellow to orange belly (coloration matches juvenile and adult newts)
- Egg laid singly, not close together
- Like other salamanders, eggs have a double protective layer, but it's much tighter than other salamander eggs.
- Typically laid on flexible, soft leafy vegetation. Female will wrap the egg in a leaf to hide it.
- Eggs develop rapidly; hatch in 3-4 weeks



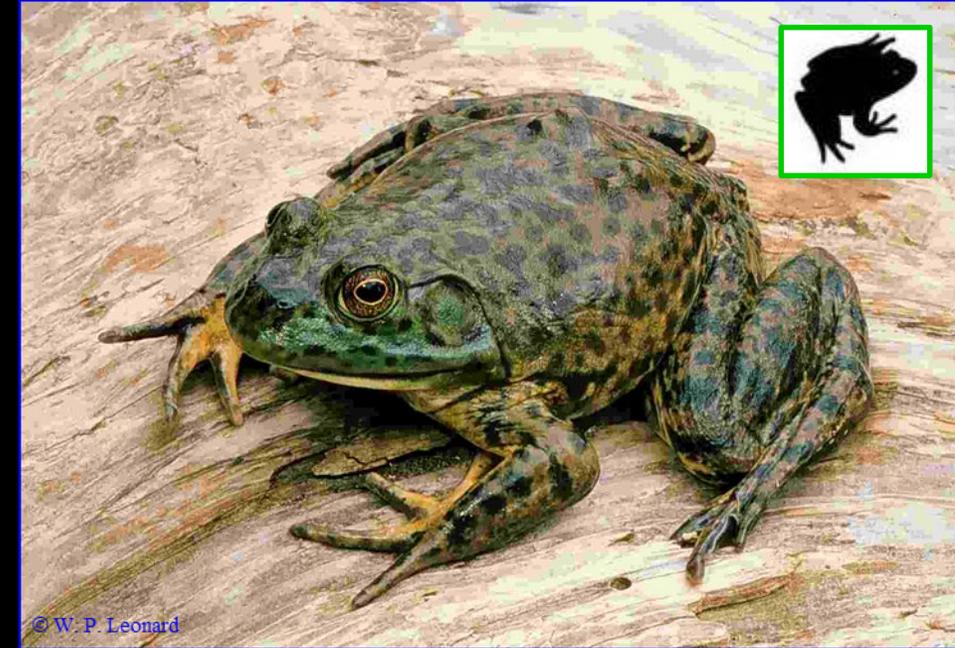
WASHINGTON'S MOST WANTED  
INVASIVE SPECIES

American Bullfrog  
(*Rana catesbeianus*)

# American Bullfrog (*Lithobates catesbeinus*)

## Bullfrog:

- “Classic” green coloration, VERY large
- Tympanum (ear) is large
- No folds along body
- Eats anything that fits into its mouth
- Tadpoles can grow very large
  - 2 to 4 years to become a frog



# American Bullfrog

(*Lithobates catesbeinus*)

## Eggs:

- Tiny eggs in thin, soft jelly
- Laid in floating sheets
- Often stick to upright vegetation
- Large egg masses: 8,000 to 120,000 eggs per mass
- In Pacific Northwest, egg laying typically begins in June

Because these egg masses are in sheets, not big masses, and because the eggs inside are so tiny, they can be difficult to spot in a pond!





# American Bullfrog (*Lithobates catesbeinus*)

Like other egg masses, these can be covered by algae and other vegetation as the eggs start to develop, making them even more difficult to spot!



© M. Hayes

Look how small these eggs are. There are thousands of them in this egg mass!



ARKive  
www.arkive.org

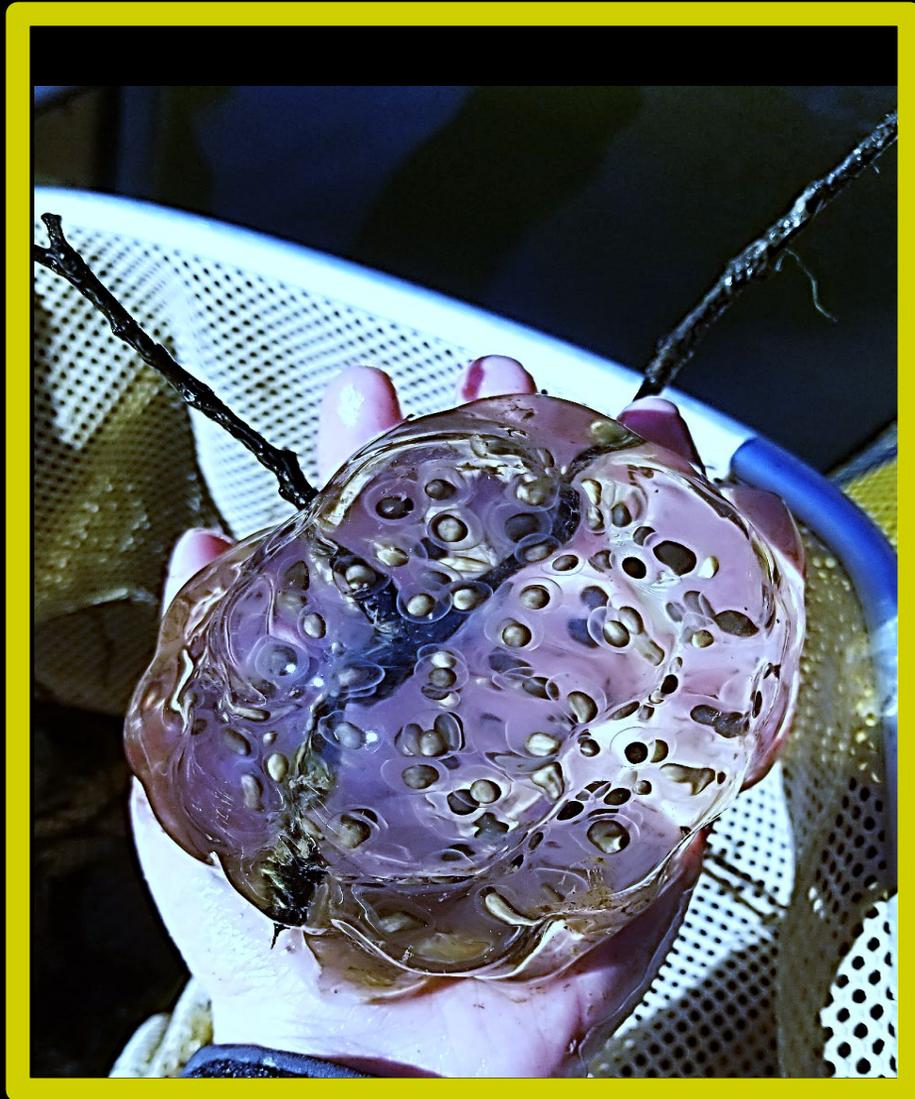
© Breck P. Kent / Animals Animals

Now...

**a short**

*(hopefully fun)*

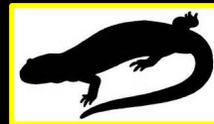
**QUIZ**



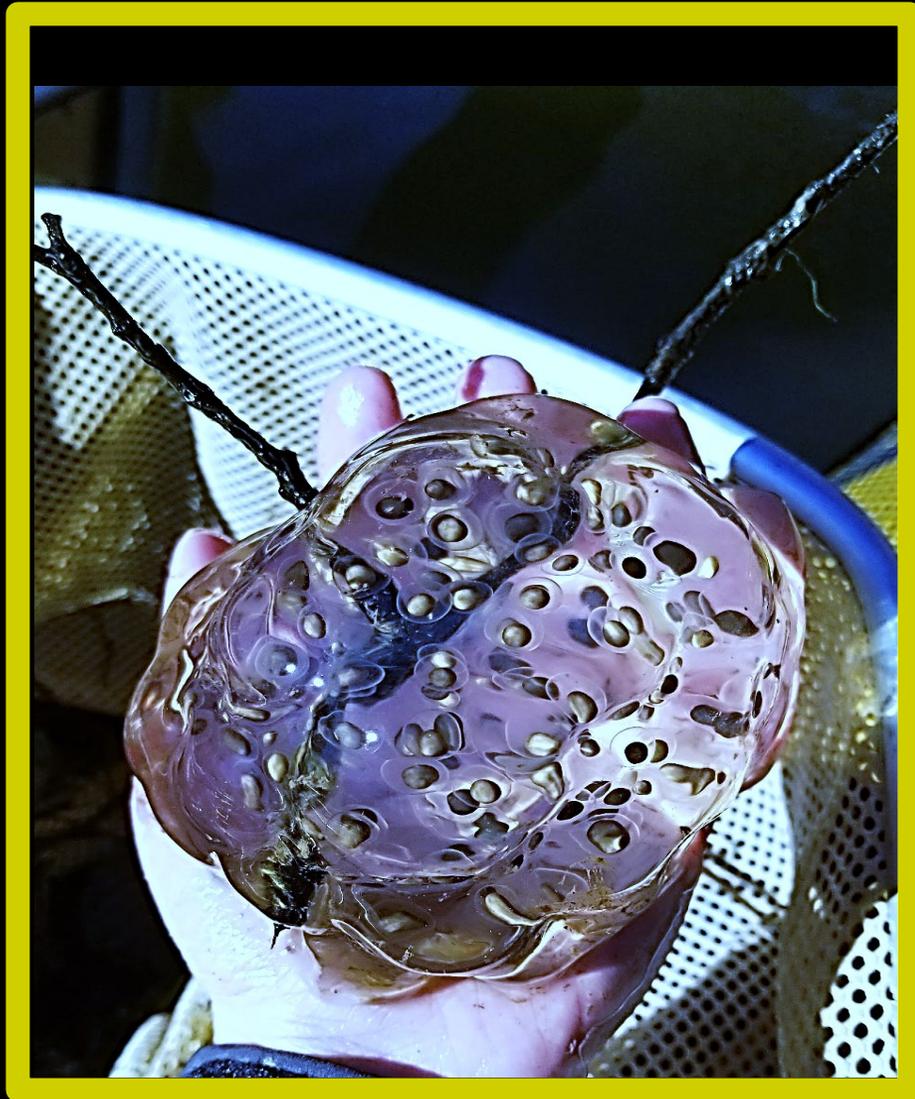
Hint:  
Notice how firm  
and large this egg  
mass is.



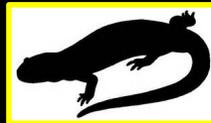
or



?



Northwestern  
salamander!

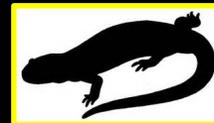




Hint:  
The eggs  
themselves  
are very small,  
but the egg  
mass is a giant  
sheet.



or

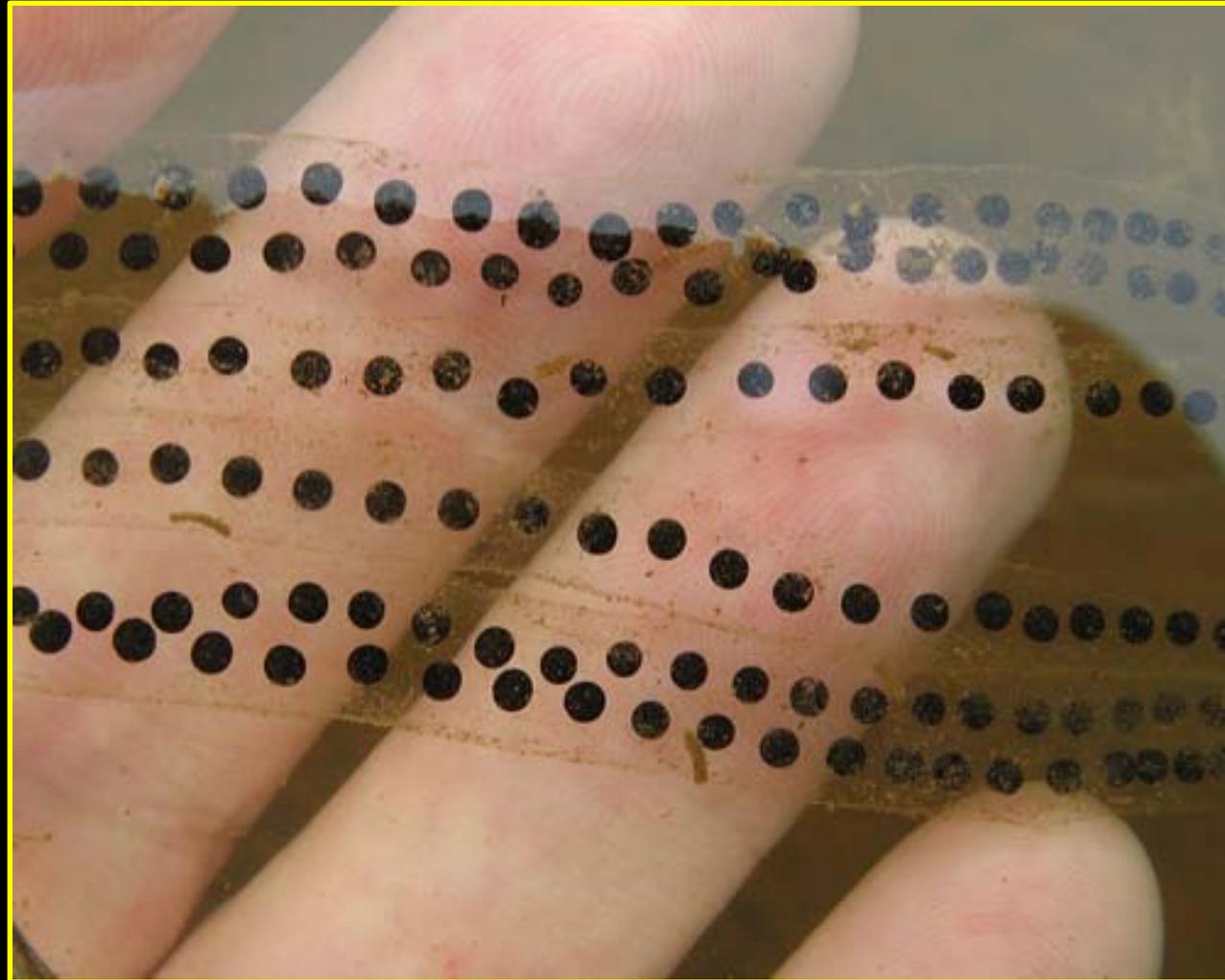


?



American  
Bullfrog  
egg mass

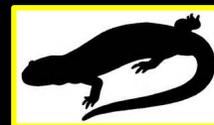




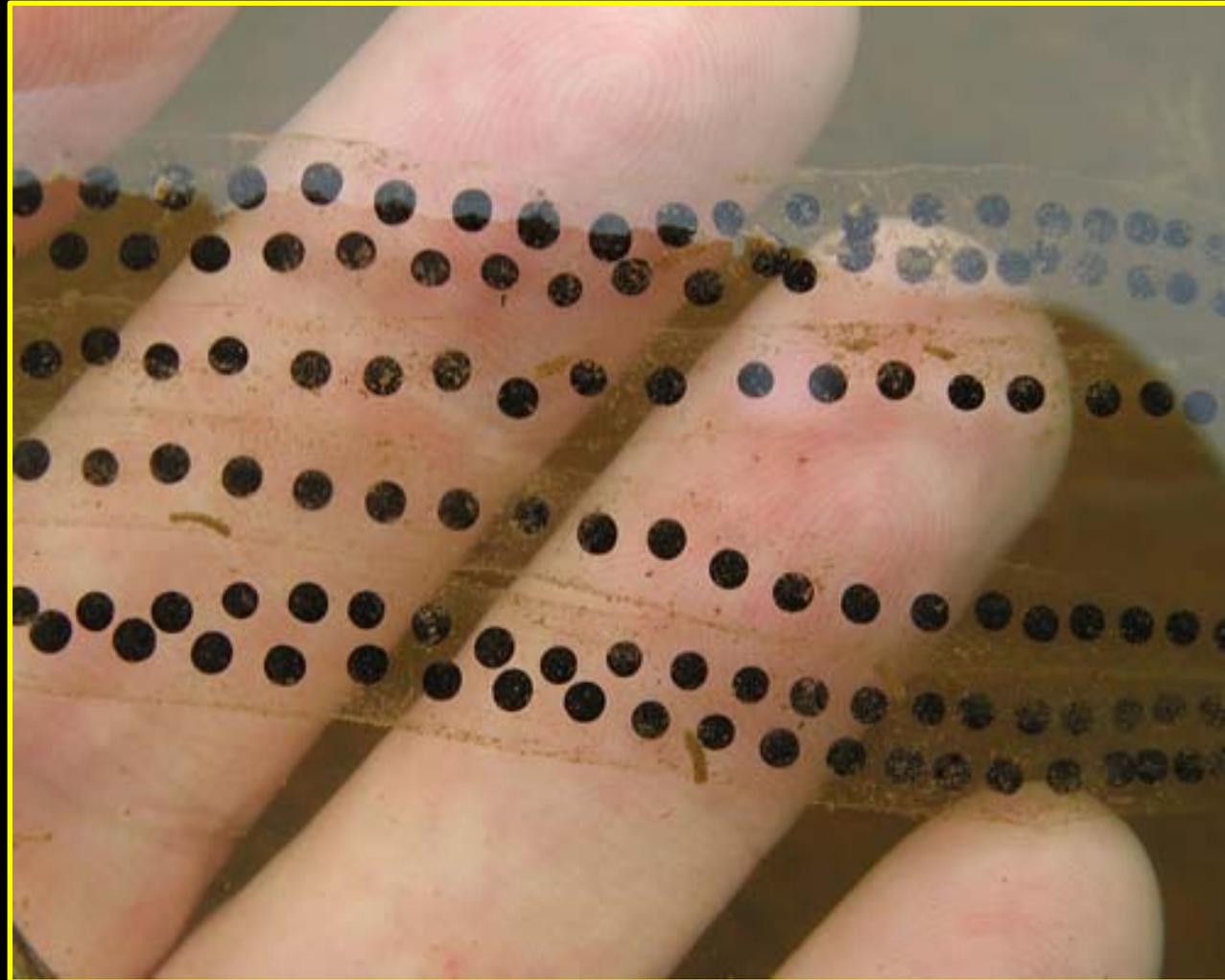
Hint:  
Notice the  
string shape of  
the egg mass.



or

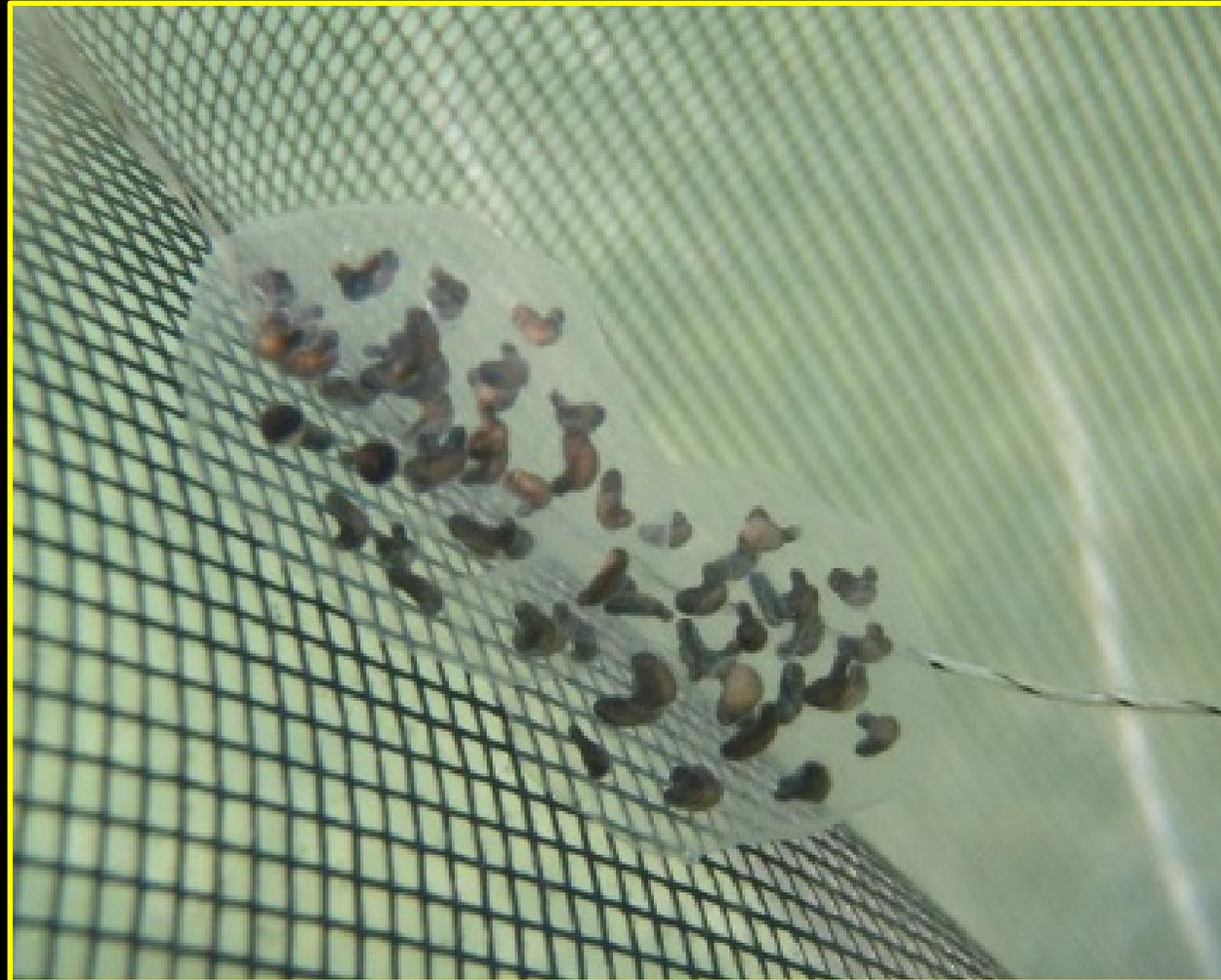


?



Western  
Toad!





This one is a little tricky!

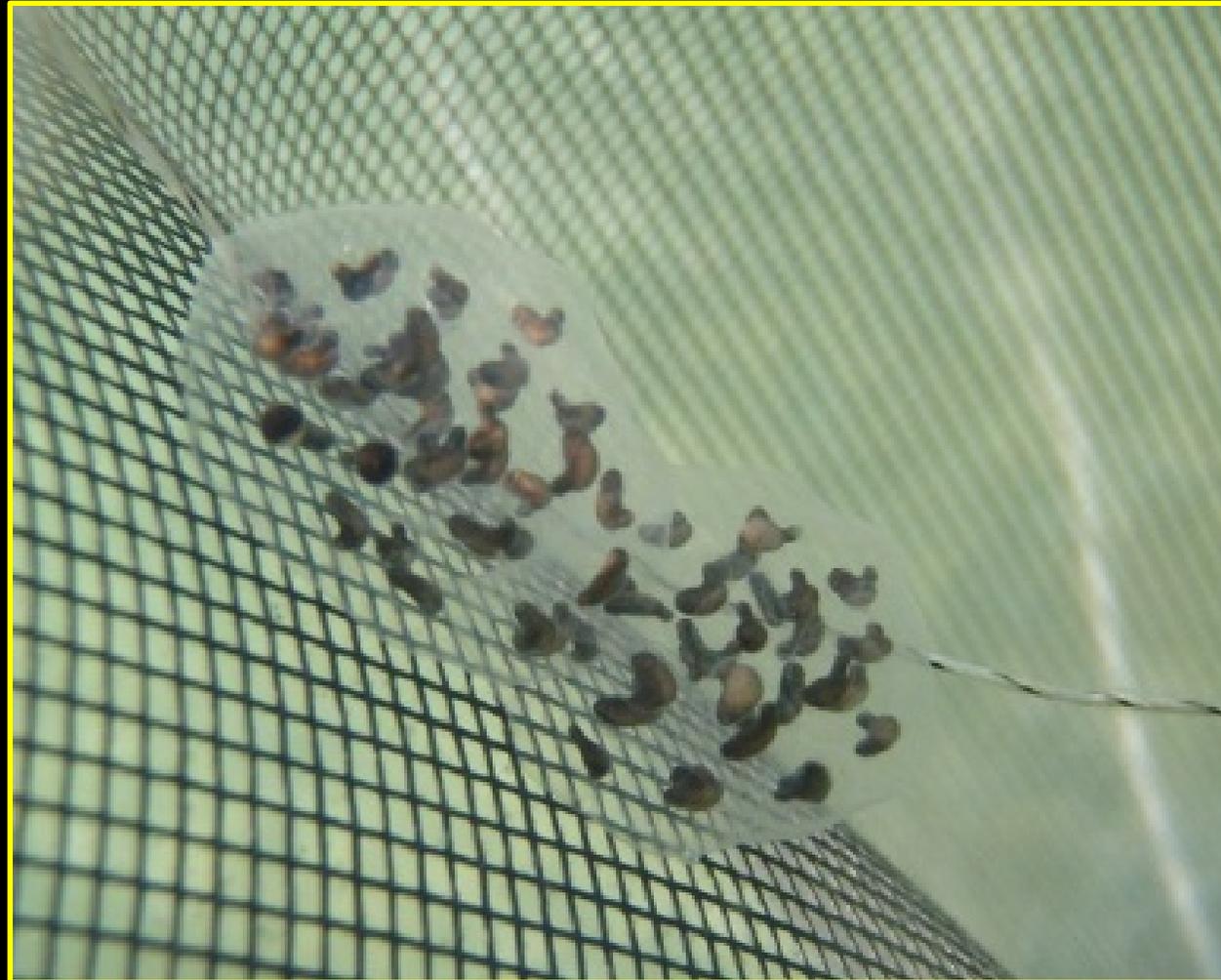
Hint:  
Notice how many there are in the packet! There is also NO double protective layer around the eggs.



or



?

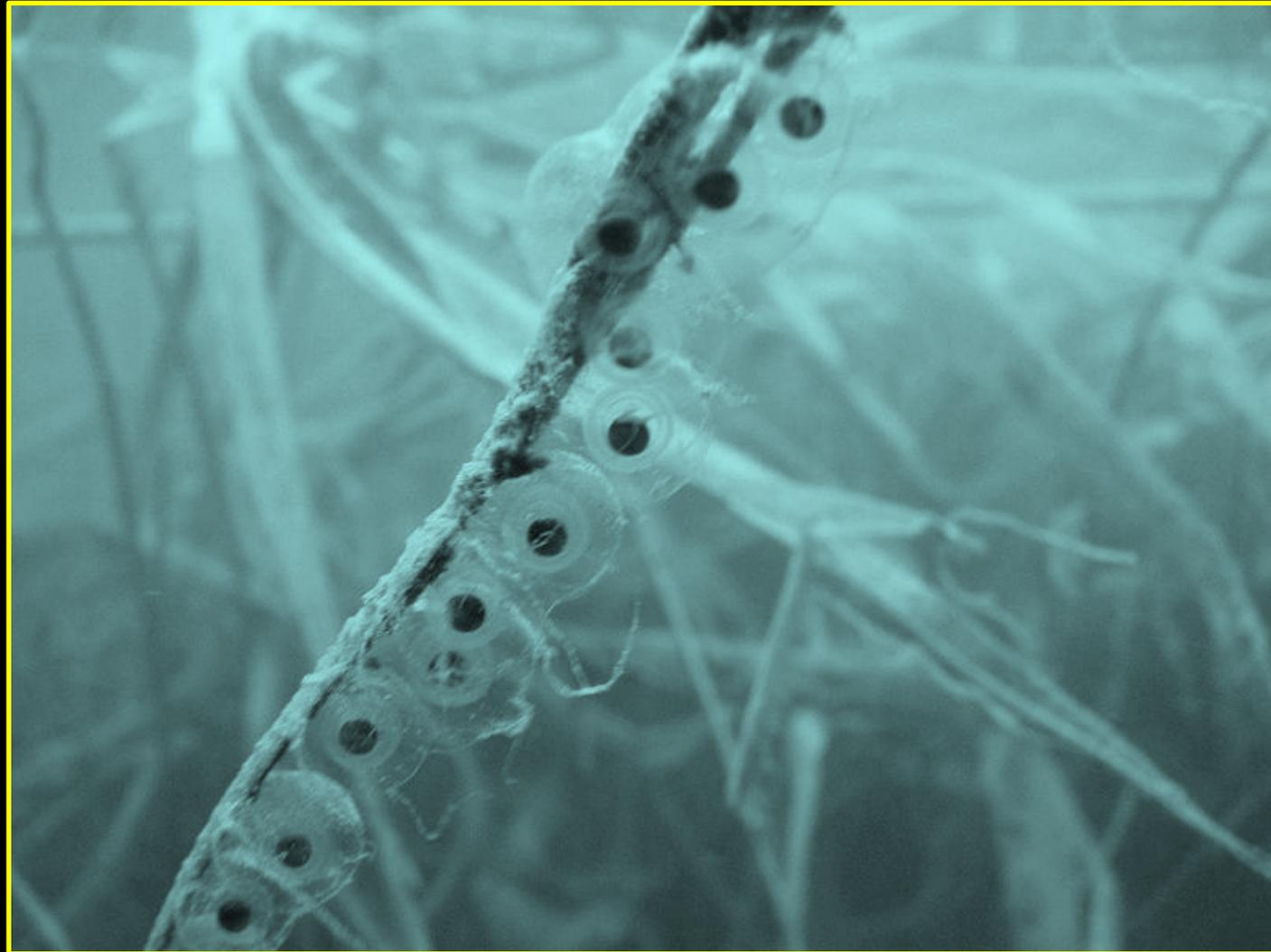


## Pacific tree frog egg packet!

These eggs are very small and pretty far along in development.

It may look like a long-toed salamander egg packet, but the number of eggs and lack of a double layer should give you a heads up.



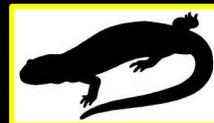


Hint:  
These eggs  
were laid in  
January.

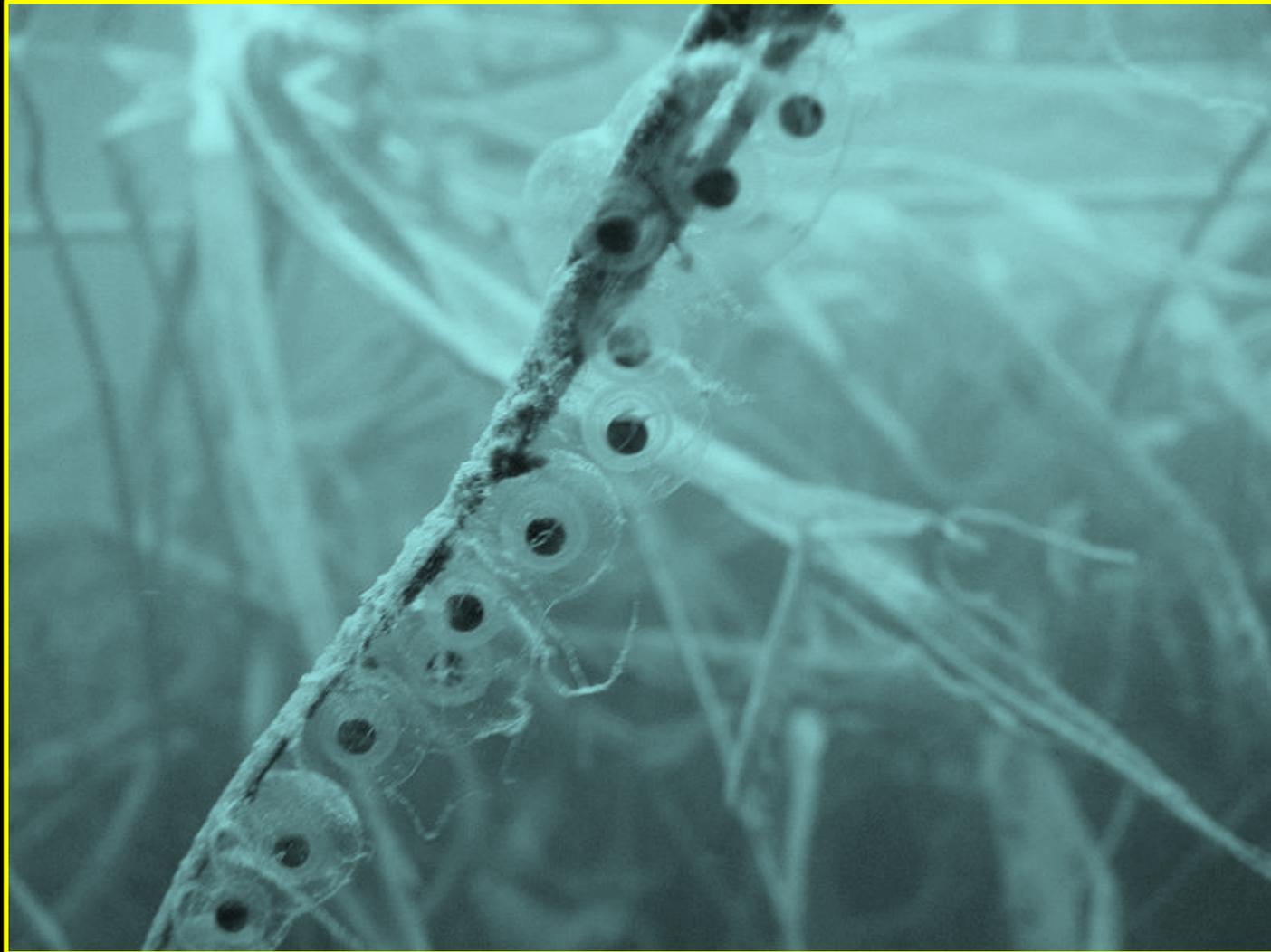
Also, see that  
double  
protective  
layer on these  
eggs?



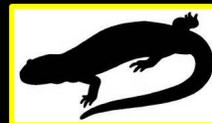
or



?



Long-toed  
salamander!



© 2004 William Leonard

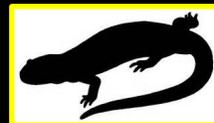


Hint:  
Look at that  
little belly!

Also, notice  
that double  
layer and how  
tight it is  
around the  
embryo.



or

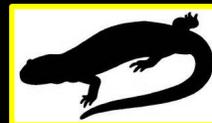


?

© 2004 William Leonard



Rough-skinned  
newt



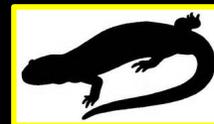


Hint:  
Notice the  
grape-like  
shape of this  
egg mass.

If you were to  
hold this, it  
would slip  
right through  
your fingers.



or



?



Northern  
red-legged  
frog



# The Decline

There are about 7,000 known amphibian species.

- About 1,900 of those species are threatened!

In the last two decades:

- Nearly 168 species are believed to have gone extinct.
- At least 2,500 have populations that are declining rapidly.

# This is where you can help!

**Citizen scientists, like you, allow us to gather essential data on Washington's amphibian populations that help us with conservation efforts!**

Remember.....

“What you do makes a difference, and you have to decide what kind of difference you want to make.”

– Dr. Jane Goodall



Lameace Hussain