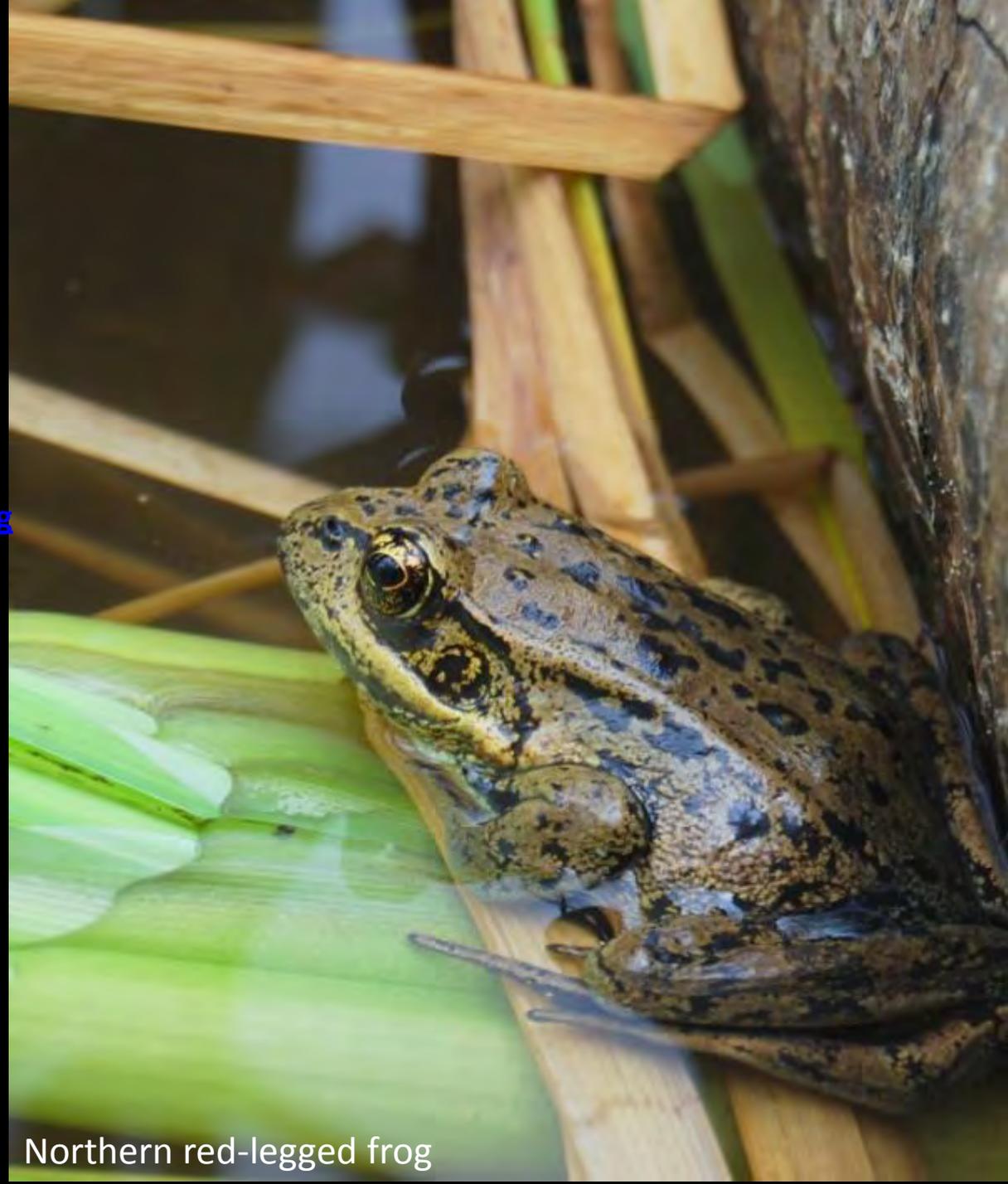


**Building Wetlands
for
Rare Species of Amphibians**

©Thomas R. Biebighauser

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www.wetlandsandstreamrestoration.org



Northern red-legged frog



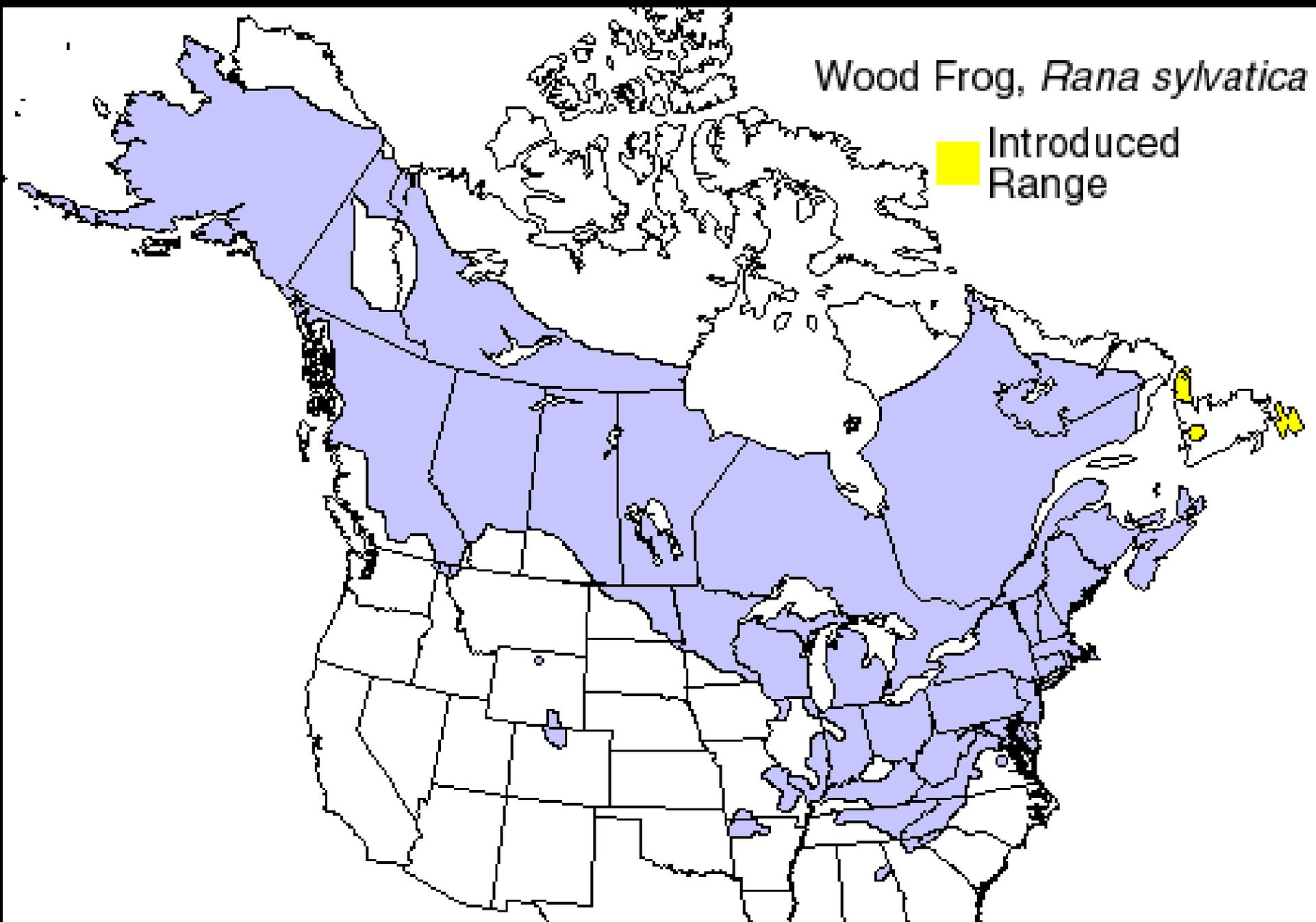
Wood Frog

Lithobates (Rana) sylvatica



Wood Frog, *Rana sylvatica*

■ Introduced Range













Bluegill



Largemouth bass























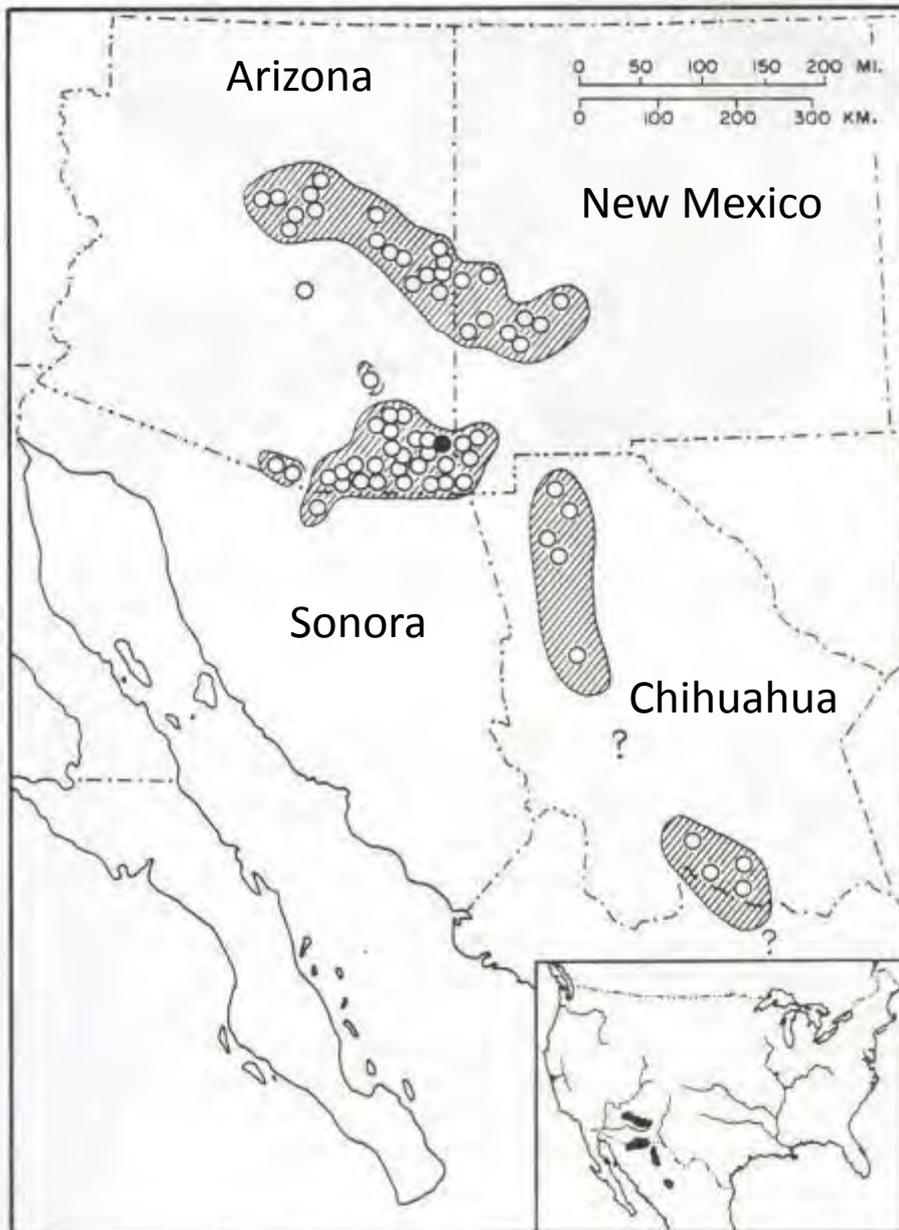




Chiricahua leopard frog
Lithobates [Rana] chiricahuensis





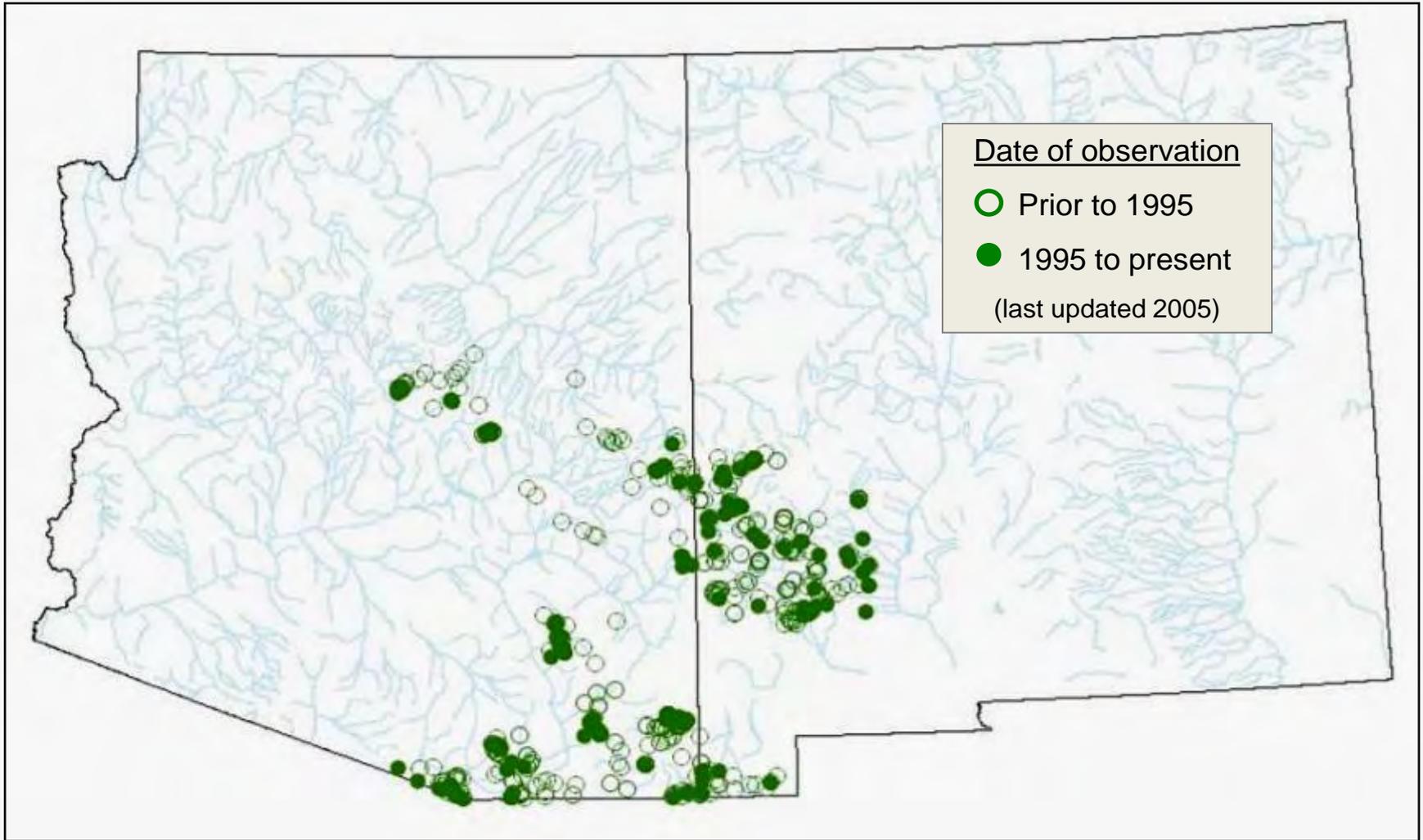


MAP. Solid circle marks the type-locality; open circles indicate other localities.



Chiricahua Leopard frog range

It is estimated that Chiricahua leopard frogs are absent from $>75\%$ of their historical localities.















Adult Home Range

- Male home range
 - Dry season mean = 161.0 m²
 - Wet season mean = 375.7 m²
- Female home range
 - Dry season mean = 57.1 m²
 - Wet season mean = 92.2 m²























Belostomatids
(giant water bugs)



Dytiscids
(predaceous diving beetles)



Notonectids
(backswimmers)



Anisopterans
(dragonflies)



Photo by Doug Goforth



Green sunfish

Largemouth bass



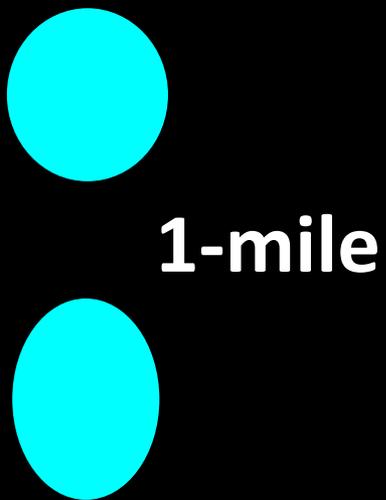


Photo by Tom Brennan

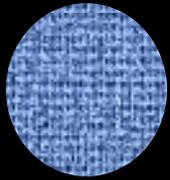
Bullfrog

Crayfish

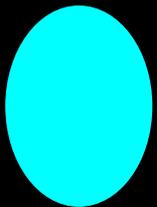




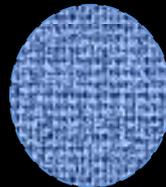
ephemeral



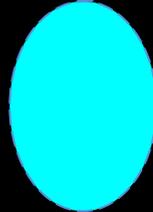
1-mile



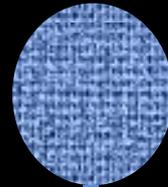
ephemeral



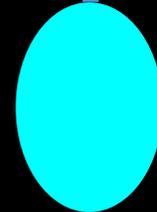
3-miles



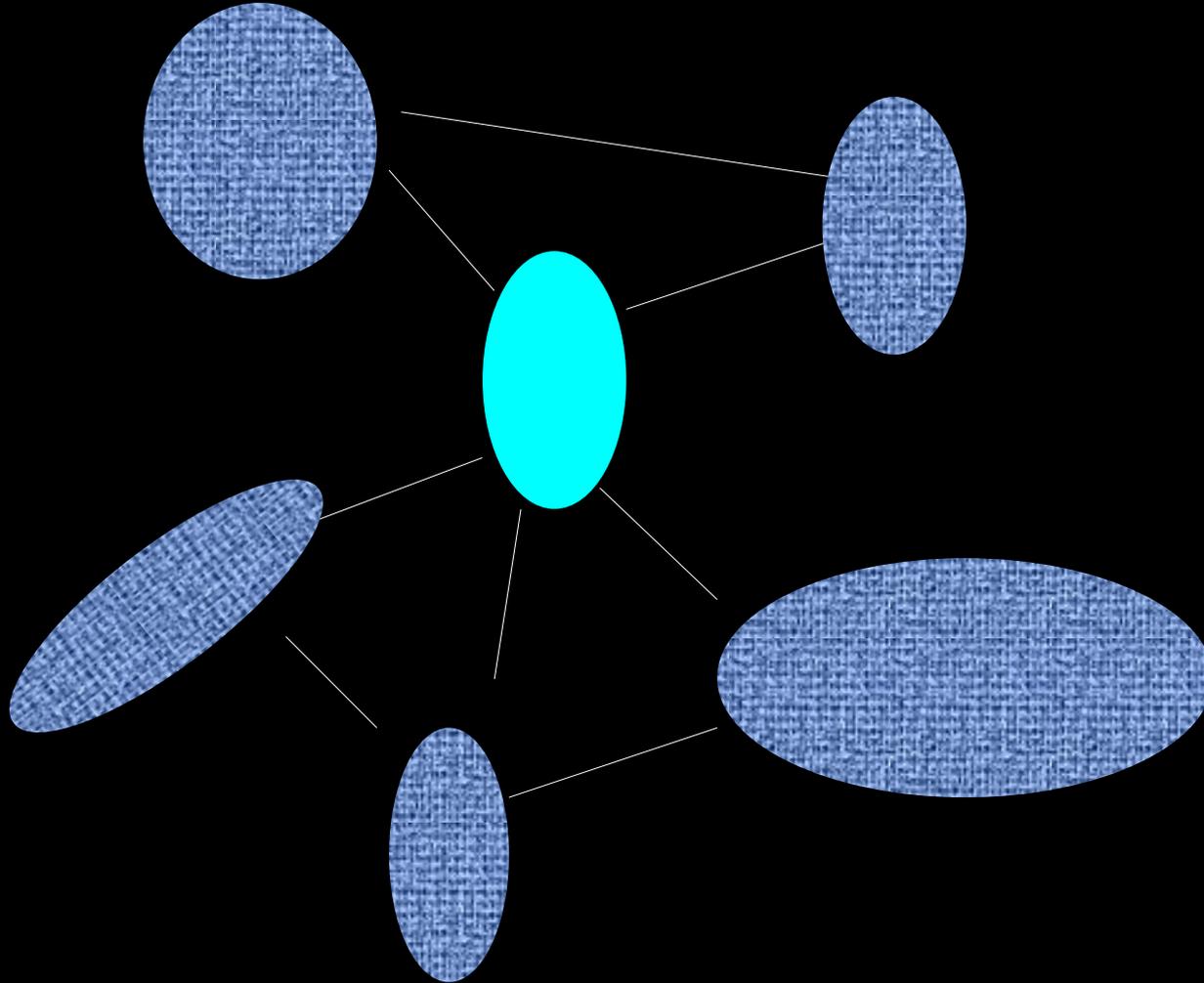
ephemeral



5-miles



Build a variety of wetlands in one area













© *Jamie Bettaso*

Northern Red-legged Frog (Rana aurora)



© E. Wind Consulting

Red-legged Frog *Rana aurora*

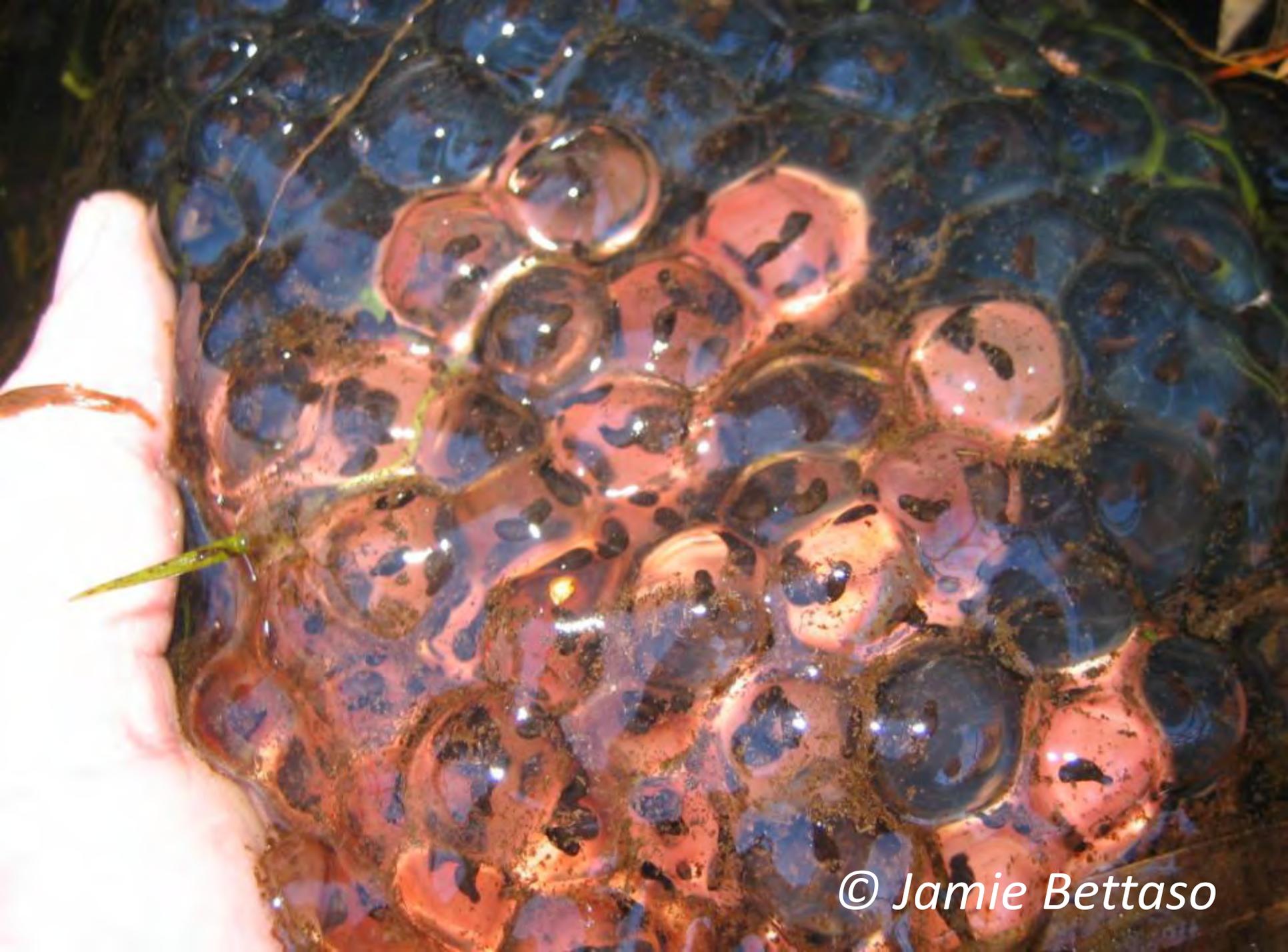


Present range of the
Northern Red-legged Frog
In British Columbia

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L.M. Blackburn, P. Nanjappa, M.J. Lannoo
Last revised 3/29/01







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Bluegill sunfish





**N. Red-legged frog
breeding site on
Vancouver Island**

2640 m² (0.26 ha)

- Low canopy cover
- Relatively shallow (< 1.5 m in early spring)
- Mix of open water and emergent vegetation
- Low amount of large woody debris (< 10%)
- Ephemeral, dries by September
- No fish



**Marginal N.
Red-legged
frog breeding
site**

*153 m² (0.015
ha)*

- Smaller
- Canopy cover





Marginal Red-legged Frog breeding site
371 m² (0.037 ha)
- Hardhack (*Spiraea*) growing into wetland



No Red-legged Frog breeding site
750 m² (0.075 ha)
-Dense hardhack (*Spiraea*) swamp
-Dries quickly









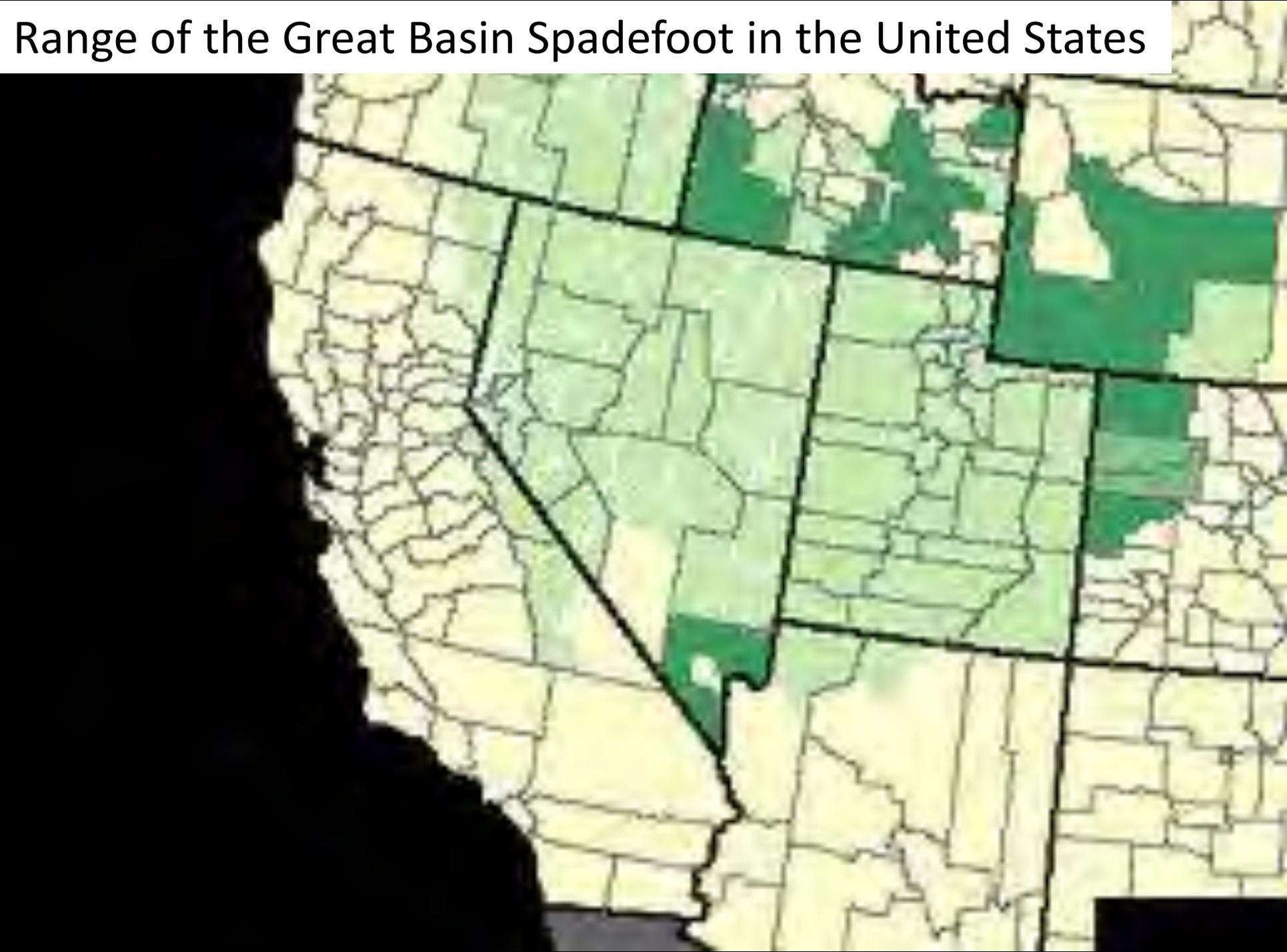


Great Basin Spadefoot
Scaphiopus intermontanus

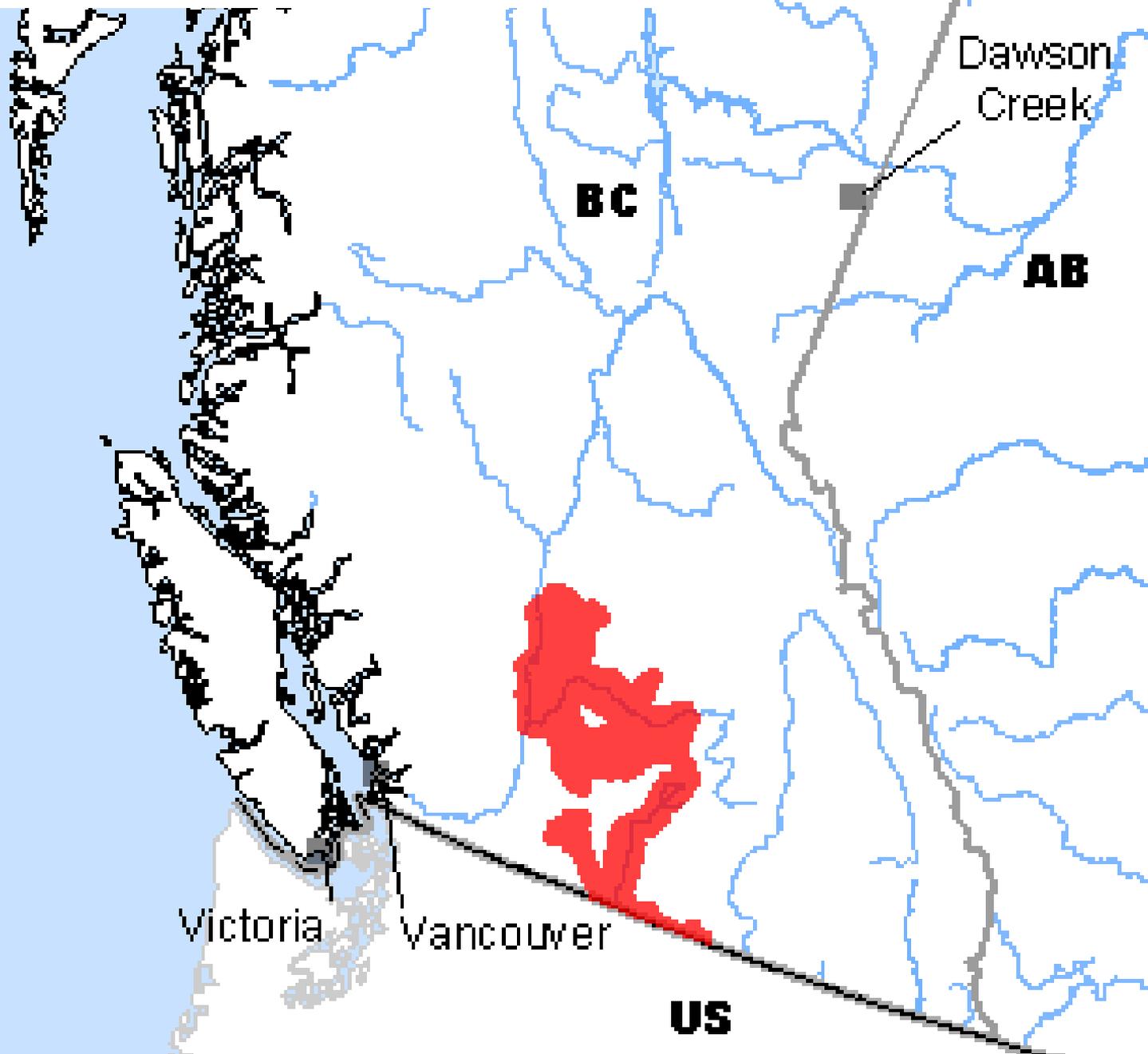


Spade





Range of the Great Basin Spadefoot in Canada









Green sunfish

American bullfrog







































































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**Long Pasture Wildlife Sanctuary
Presents:**

A Hands-On Wetland Restoration Workshop for Professionals



Part of the Long Pasture Wetland Restoration Project

Hosted by: **Mass Audubon**

In collaboration with:

- ❖ Center for Wetlands and Stream Restoration
- ❖ Partners in Amphibian and Reptile Conservation
- ❖ Grassroots Wildlife Conservation
- ❖ USFWS Partners for Fish and Wildlife Program

Dates: June 25-26, 2013

Location: Long Pasture Wildlife Sanctuary, Barnstable, MA

Wetland Restoration and Creation Workshop

June 11 & 12, 2013

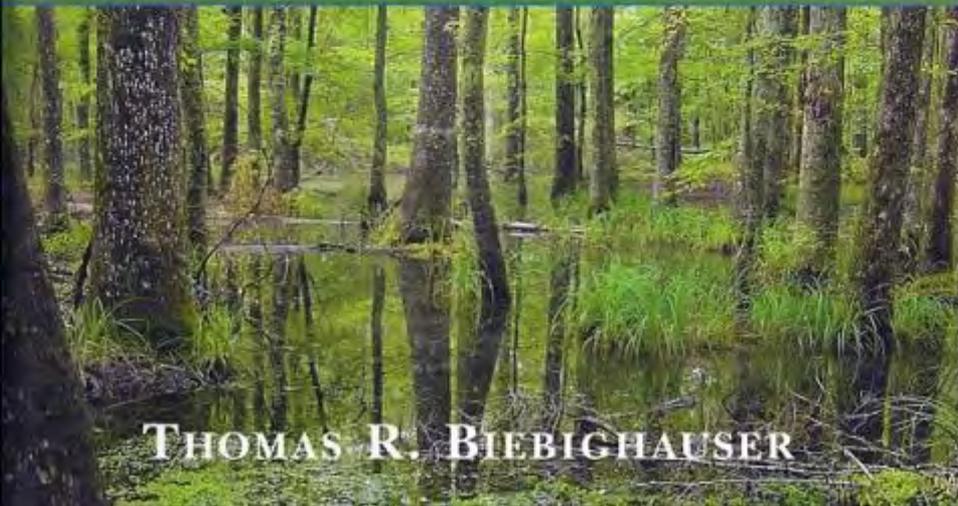
Flagstaff, Arizona

Become involved in the restoration of a wetland from an impacted spring to benefit rare species of wildlife

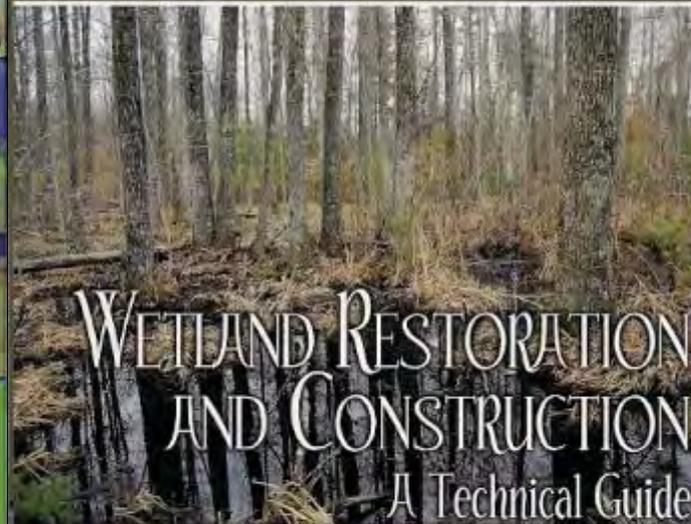
For more information, e-mail: dtaylor@batcon.org



WETLAND DRAINAGE, RESTORATION, AND REPAIR



THOMAS R. BIEBIGHAUSER



WETLAND RESTORATION AND CONSTRUCTION

A Technical Guide



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