

Human-Amphibian Interactions in the North: a detriment or an opportunity for Alaska's native species?

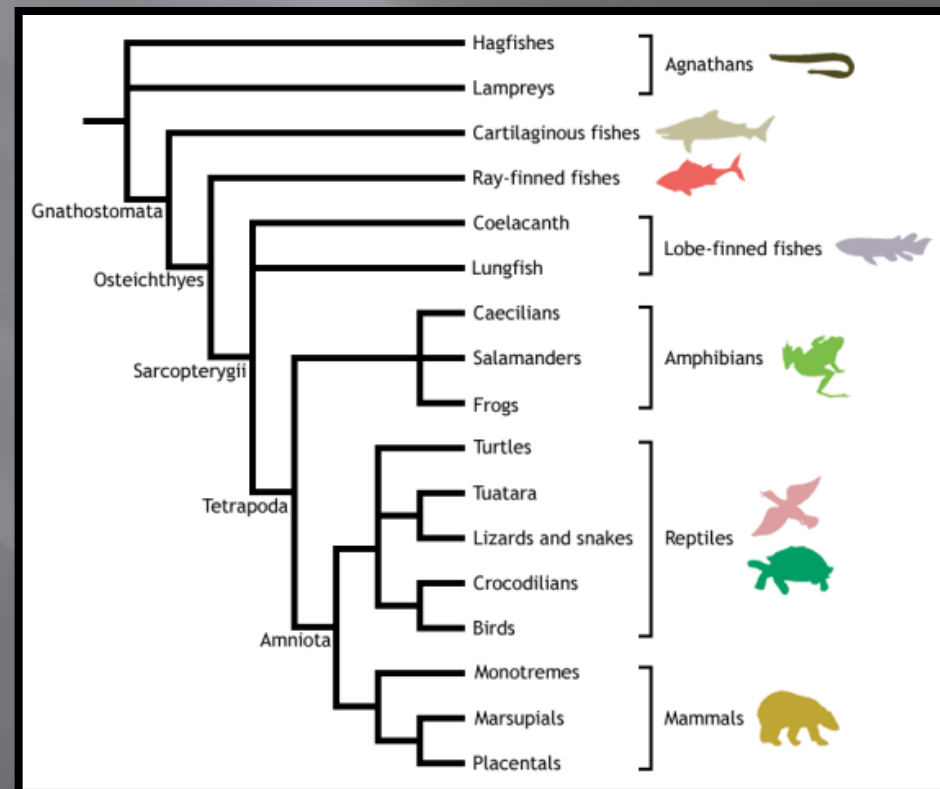
Joshua T. Ream
(Xíxch'i Toowóo)



Definition of a Frog

AS 16.05.940

"fish" means any species of aquatic finfish, invertebrate, or amphibian, in any stage of its life cycle, found in or introduced into the state, and includes any part of such aquatic finfish, invertebrate, or amphibian;



Who Cares?!

- Food Source
- Insect Consumption
- Algae Control
- Indicators / Canaries
- Mosquito Repellents
- Pharmaceuticals
- Medical Research (Diabetes)
- Cultural Ecosystem Services



Historical Introductions?

- Bullfrogs



Bullfrogs to Fight Alaska Mosquitoes

Seattle, Wash.—Alaska's mosquitoes, notorious as the enemy of the "sourdough," will have a new foe next spring—the large Oregon bull frog.

This web footed creature will be introduced into the territory by the Alaska division of the United States bureau of education in an effort to aid miners and others to combat the pest. The big green and brown frog long has been noted in Oregon as the natural enemy of mosquitoes.

With the start of warm weather frogs will be shipped from Oregon to small islands of southeastern Alaska and planted in the deeper ponds. Small islands were chosen because results can be ascertained better.

If the experiment proves successful a general importation will follow. It is believed frogs can survive even the cold winter of northern Alaska.

Historical Introductions?

- Red-legged Frogs



Photo By C. Brown, USGS Western
Ecological Research Center

Historical Introductions?

- Pacific Chorus Frogs



Historical Translocations

- Northwestern Salamander

Pelican, Chichagof Island, 2001-2003



Photo By Blain Anderson, Amphibians
of Alaska's National Parks

Mary Island, 1895



Photo By Jeremy Jacobs, United States
Natural History Museum

Historical Translocations

- Long-toed Salamander

Revillagigedo Island, 2010



Stikine River, 2012



Historical Translocations

- Wood Frogs
- Rough-skinned Newts



Contemporary Introductions



Photo by Joshua Ream



Photo by Kelly Bunness



Contemporary Introductions



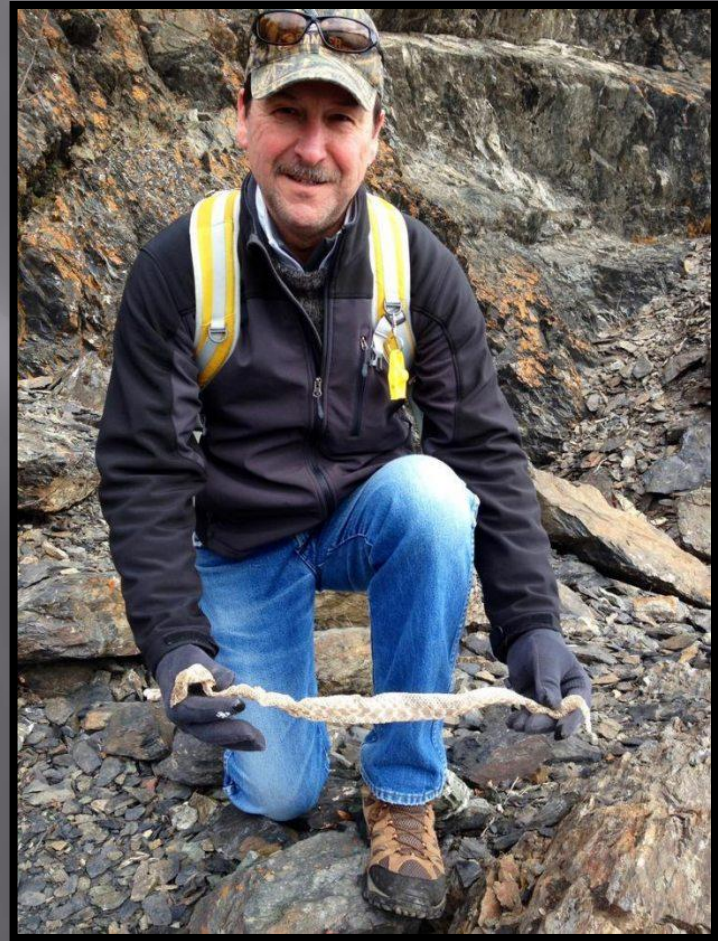
Contemporary Introductions



www.juneauempire.com



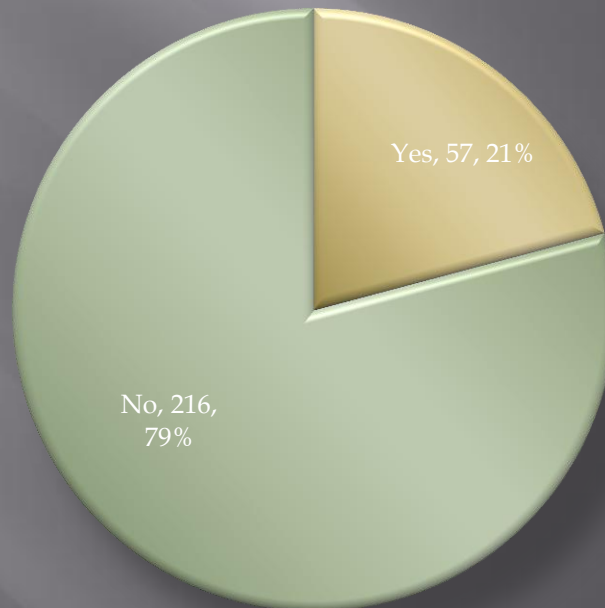
www.peninsulaclarion.com



www.adn.com

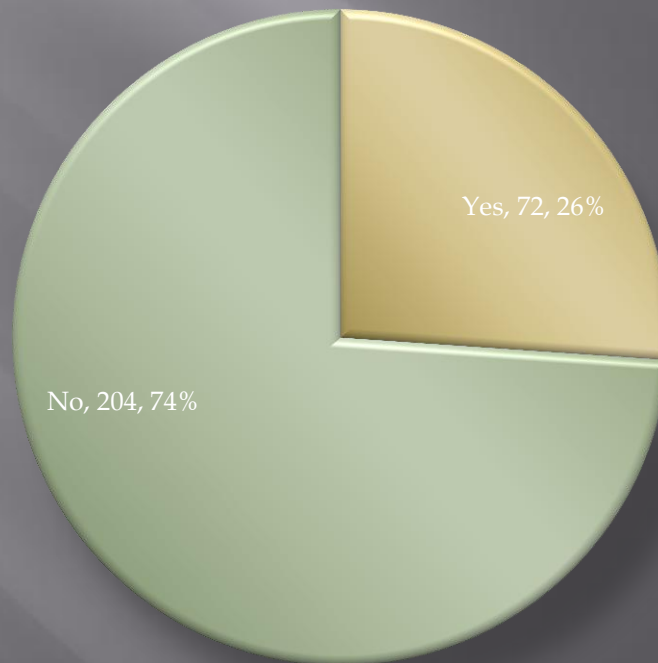
Contemporary Translocations

Have you or a member of your household ever moved WILD amphibians from one area to another, either intentionally or unintentionally?



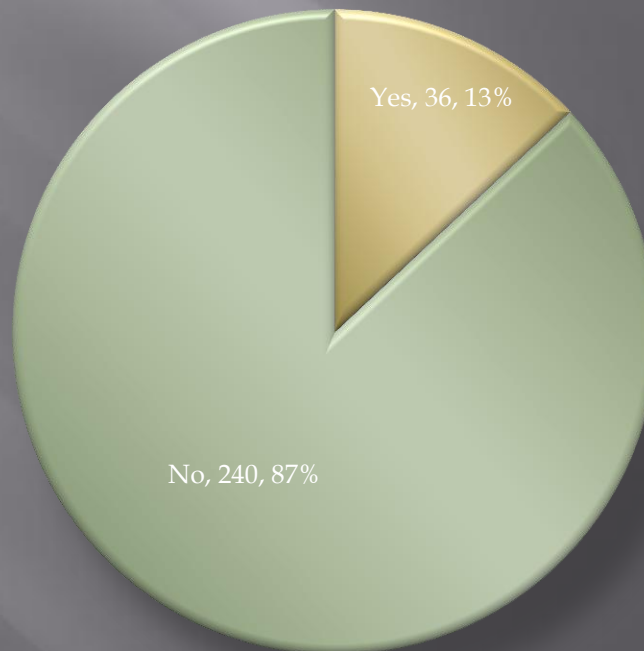
Contemporary Translocations

Have you or a member of your household ever brought a local WILD amphibian home as a pet or to view temporarily in captivity?



Contemporary Translocations

Have you or a member of your household ever brought local WILD tadpoles home to watch them change into frogs?



What's the big deal?

Ecology, 87(7), 2006, pp. 1671–1683
© 2006 by the Ecological Society of America

EMERGING INFECTIOUS DISEASE AS A PROXIMATE CAUSE OF AMPHIBIAN MASS MORTALITY

LARA J. RACHOWICZ,^{1,5} ROLAND A. KNAPP,² JESS A. T. MORGAN,³ MARY J. STICE,¹ VANCE T. VREDENBURG,¹
JOHN M. PARKER,^{1,4} AND CHERYL J. BRIGGS¹

NORTHWESTERN NATURALIST 91:99–101

SPRING 2010

BULLFROG PREDATION ON A JUVENILE COHO SALMON IN HUMBOLDT COUNTY, CALIFORNIA

JUSTIN M GARWOOD, COLIN W ANDERSON, AND SETH J RICKER

Biol Lett. Sep 22, 2006; 2(3): 455–459.

PMCID: PMC1686185

Published online May 24, 2006. doi: [10.1098/rsbl.2006.0494](https://doi.org/10.1098/rsbl.2006.0494)

The emerging amphibian pathogen *Batrachochytrium dendrobatidis* globally infects introduced populations of the North American bullfrog, *Rana catesbeiana*

[Trenton W.J. Garner](#),^{1,*} [Matthew W. Perkins](#),¹ [Purnima Govindarajulu](#),² [Daniele Seglie](#),³ [Susan Walker](#),^{1,4} [Andrew A. Cunningham](#),¹ and [Matthew C. Fisher](#)⁴

Evidence for Multiple Recent Host Species Shifts among the Ranaviruses (Family *Iridoviridae*)[†]

[James K. Jancovich](#)¹, [Michel Bremont](#)², [Jeffrey W. Touchman](#)³ and
[Bertram L. Jacobs](#)^{1,3,*}

What's the big deal?

“Our results indicate that Alaskan wood frogs are highly susceptible to ranavirus, and the greatest threat of the pathogen is at warmer water temperatures. These data also indicate that live amphibians that are imported into Alaska should be declared as ranavirus-free to reduce risk of novel strain introduction. The World Organization for Animal Health (OIE) provides protocols on screening amphibians for ranavirus for importation.”

Matthew Gray, Ph.D.
Center for Wildlife health
University of Tennessee

Possible Solutions

- Public Education and Outreach



Possible Solutions

- Enforcement of Importation Laws



Possible Solutions

- Pet Trade Restrictions

Aquatic Invasive Species

WAC 220-12-090 Classification - Nonnative aquatic animal species.

(1) Prohibited aquatic animal species. RCW 77.12.020

These species are considered by the commission to have a high risk of becoming an invasive species and may not be possessed, imported, purchased, sold, propagated, transported, or released into state waters except as provided in RCW 77.15.253. The unlawful use of a prohibited aquatic animal species is a gross misdemeanor. A second violation within five years is a class C felony.

The following species are classified as prohibited animal species:

(a) AMPHIBIANS



Rana iberica



Rana italica



Rana japonica



Rana latastei



Rana macrocnemis



Rana nigrolineata



Rana nigromaculata



Rana okinavana



Rana porosa



Rana pyrenaica



Rana ridibunda



Rana rugosa



Ambystoma laterale



Ambystoma opacum



Ambystoma rosaceum



Ambystoma tigrinum (except *A. tigrinum mavortium*; *A. tigrinum melanostictum*)

Possible Solutions

- Long-term monitoring of introduced populations



Possible Solutions

- Dedicated Resources
 - Herpetologist, amphibian-specific statutes, monitoring budget



Questions?

