

Implications of climate change for Western Toads on the southwest coast of BC

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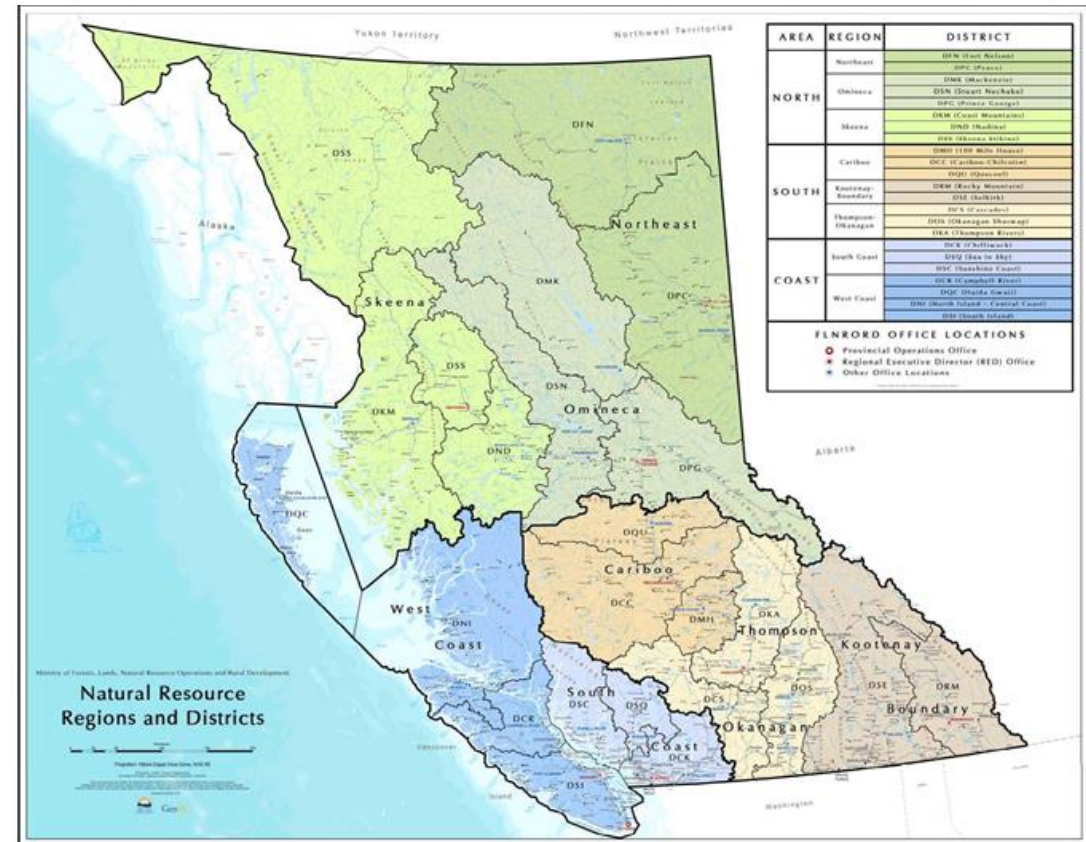


Climate Change

Distribution

Disturbance

Drought



Drought frequency and intensity have increased in recent years along the west coast of North America as two major climate patterns - El Niño and the Pacific Decadal Oscillation – exert their influence (Pacific Climate Impacts Consortium 2013).

This weather trend has persisted and is likely to persist in the coming years as winters warm and snow pack declines; overlaps with hot, dry spring and summer conditions will produce coastal drought (Pacific Climate Impacts Consortium 2013; Province of BC 2016).

Wildlife Response to Drought in Coastal Ecosystems

Food Distribution



Refuge Habitats



Surface Water



Photo: F. Doyle

Beautiful

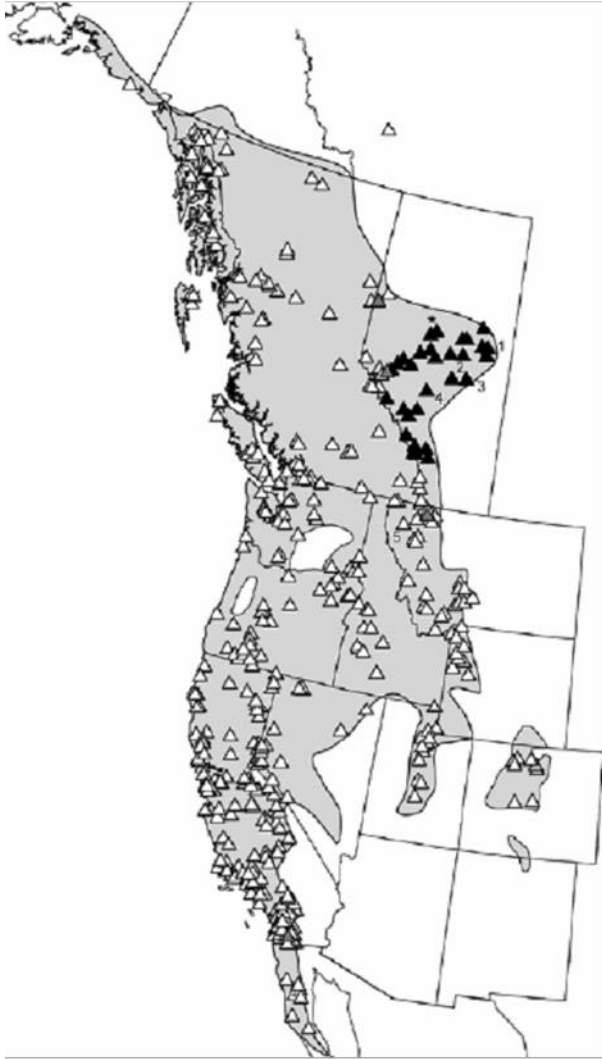
Hardy

Tolerant

Mobile

Opportunistic





Environment and Climate Change Canada 2016



Breeding, Rearing and Emergence

Overwintering



Status of Western
Toads on southwest
coast ... decline?

Spatial distribution of
breeding populations?

Connectivity

Core and Satellite

Dispersal

Philopatric



What makes good breeding and rearing habitat?

Warm temperature

Low flow

Emergent and submergent vegetation

What will drought do?

Habitat Quantity

Spatial and temporal availability

Fragmentation and isolation

Habitat Quality

Water quality

Larval food

Competition and Predation

Native predators

Invasive species

What will drought do on the south coast?



Adaptive capacity of toad populations on the southwest coast?

- Resilient populations that can absorb stress and persist
- Genetic diversity and phenotypic plasticity
- Maintained through productive and connected populations



Are breeding toad populations naturally more isolated on the coast or are we seeing the results of human-induced habitat loss and fragmentation or are we just seeing what's in front of us?



The challenge of surveys for breeding locations ...

... adults ... eggs ... tadpoles ... emerging metas ...



THE RESEARCH

Genetic Differentiation and Gene Flow

Objective 1.

Genetic differentiation

How isolated are coastal toad populations?

Objective 2.

Gene flow

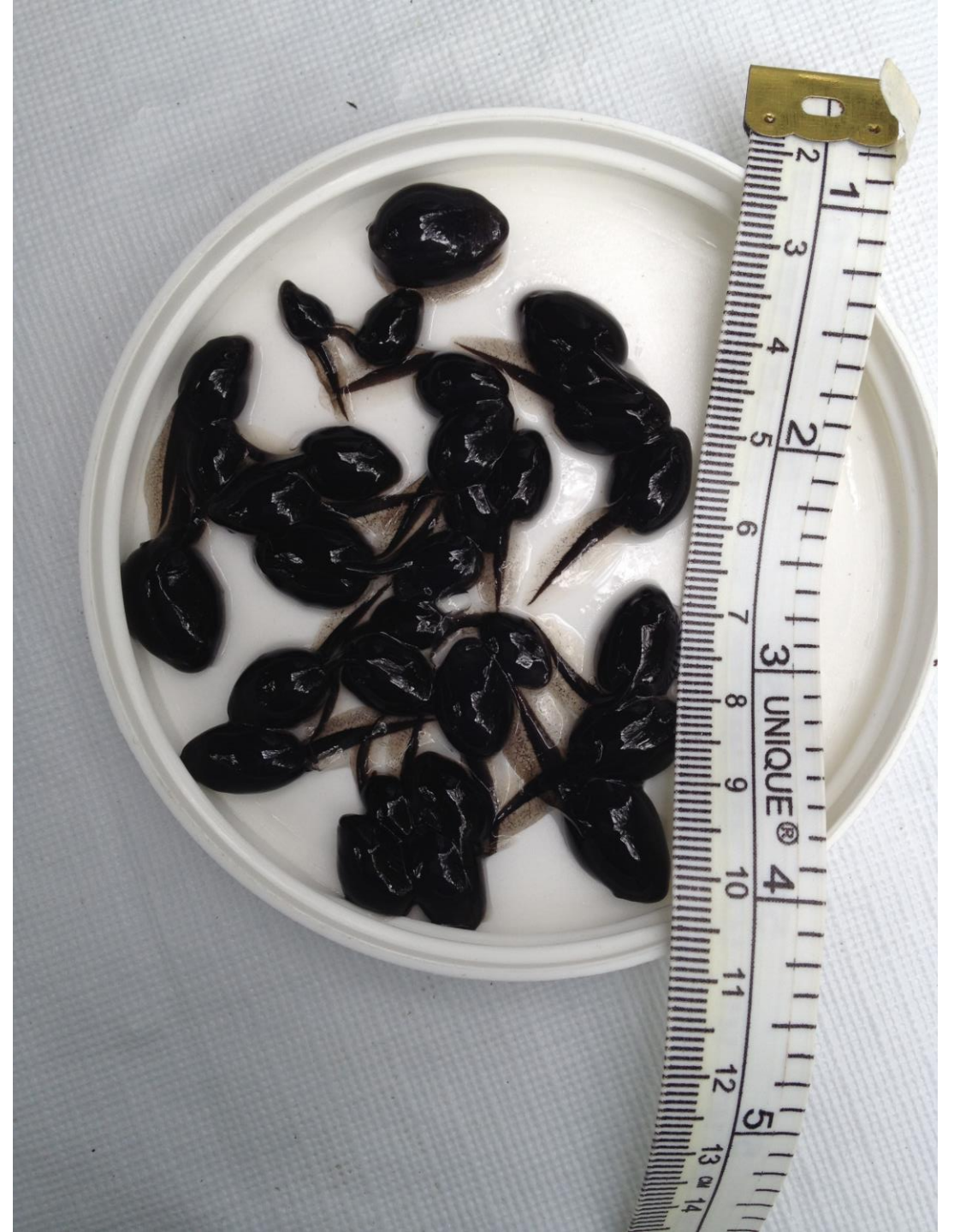
How isolated are breeding populations of toads within coastal landscapes?

2018-2019 Field Sampling

Haida Gwaii, Vancouver Island, South Coast

2020 Field Sampling

North Coast, North, Central and South Interior



DO YOU HAVE ANY
QUESTIONS?



Photo: E. Wind