



# Kootenay - Boundary Bullies: Protecting Northern Leopard Frogs Through Bullfrog Eradication

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# PROJECT BACKGROUND



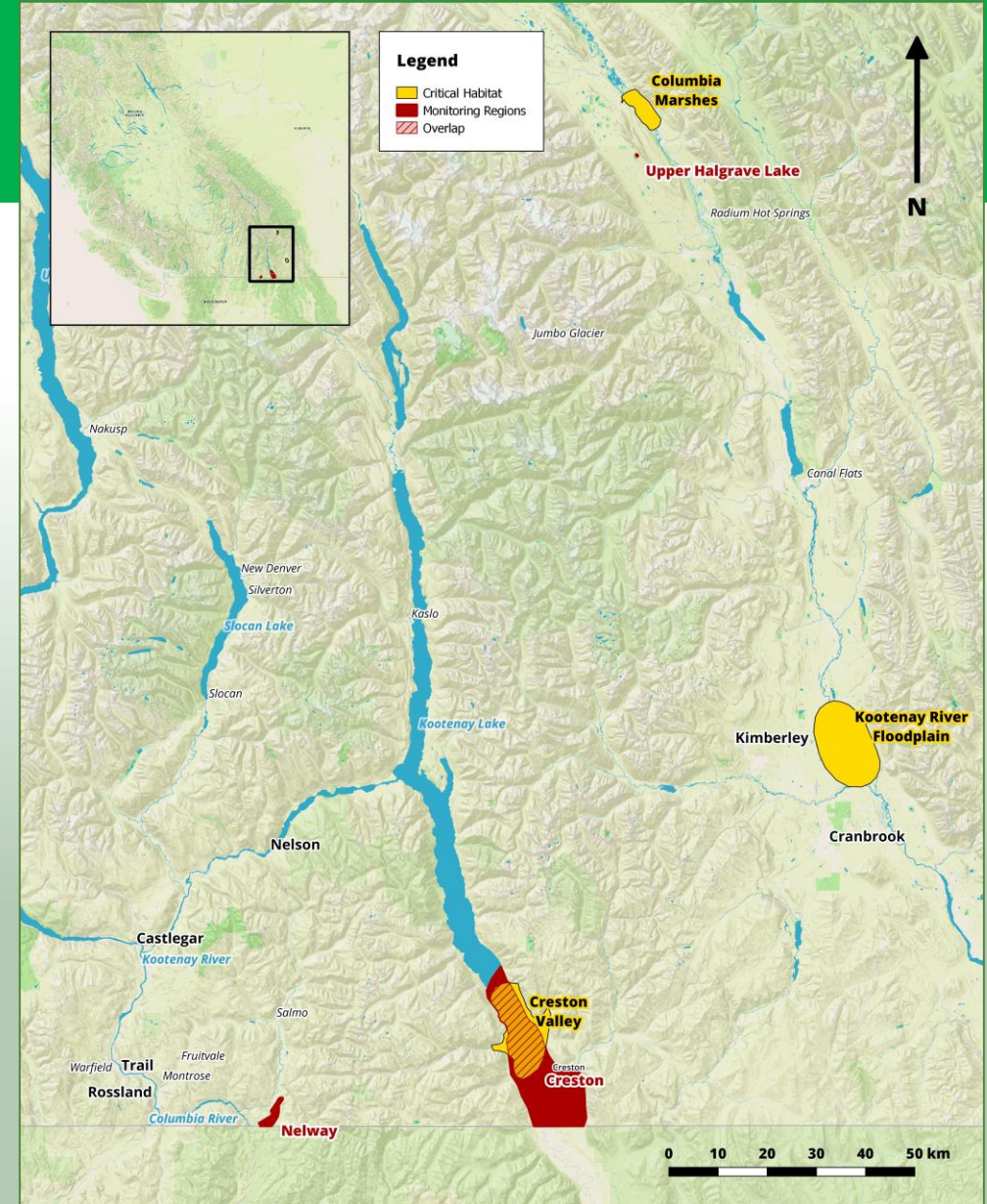
*Lithobates catesbeiana*



*Lithobates pipiens*

- Three known populations left in BC
- SARA Schedule 1 – Endangered
- Critical habitat threats: bullfrog

- 100 Worst Invasive Species
- 2015: First reported in KB area
- Threat to native amphibians:
  1. Disease transfer
  2. Competition exclusion
  3. Direct predation



# APPROACH

## PREVENTION



Education & Outreach

## EARLY DETECTION



Song Meter



eDNA



Eye Shine & Call Play-back

## RAPID RESPONSE



Eradication

# PRELIMINARY RESULTS – *Early Detection*

		Detection	Number of Detects	Triggered Eradication
2015	Song Meter	NO	0	NO
	eDNA	N/A	N/A	N/A
	Eye Shine & Call Play-Back	N/A	N/A	N/A
2016	Song Meter	NO	0	NO
	eDNA	YES	10	NO
2017	Eye Shine & Call Play-Back	YES	109	YES
	Song Meter	N/A	N/A	N/A
	eDNA	N/A	N/A	N/A
	Eye Shine & Call Play-Back	YES	5	YES

DNA (ug/L)	Idaho State SPEC Detection Frequency (n=25)	Vancouver Island SPEC Detection Frequency (n=25)
5	1.00	1.00
1	1.00	0.96
0.2	0.57	0.52
0.04	0.09	0.16
0.008	0.04	0.08
0	0.00	0.00

# PRELIMINARY RESULTS – *Rapid Response*

		Number Eradicated
2015	Electro-frogger	94
	Fyke Net/Net	N/A
	Rifle	28
2016	Electro-frogger	36
	Fyke Net/Net	400
	Rifle	2
2017	Electro-frogger	9
	Fyke Net/Net	N/A
	Rifle	N/A
<b>TOTAL ERADICATED</b>		<b>569</b>



# DISCUSSION

- Early detection capabilities?
  - Song meter & eye shine, call play-back
  - eDNA
    - Primer validation checks out
    - Field application hinges on turn-around time
- Majority bullfrogs eliminated from Nelway (i.e. not near priority habitat)
  - However – 3 eliminated near priority northern leopard frog habitat
- Electro-frogging and fyke-netting most effective eradication means
- Complete eradication from known positive sites  $\approx$  5 years

# LINGERING QUESTIONS

- How can we improve early detection methods to inform rapid response more quickly?
- How sustainable is local control if cross-border incursions are prolific?





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