

# Chehalis Basin Strategy

*Stream-associated  
Amphibian Surveys*

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# Target Species

- Survey focus – Dunn’s and Van Dyke’s salamanders
- Both terrestrial-breeding stream-associated salamanders
- Both Forests and Fish Agreement sensitive species
- Both found along stream networks in conifer landscapes



Dunn's Salamander



Van Dyke's Salamander

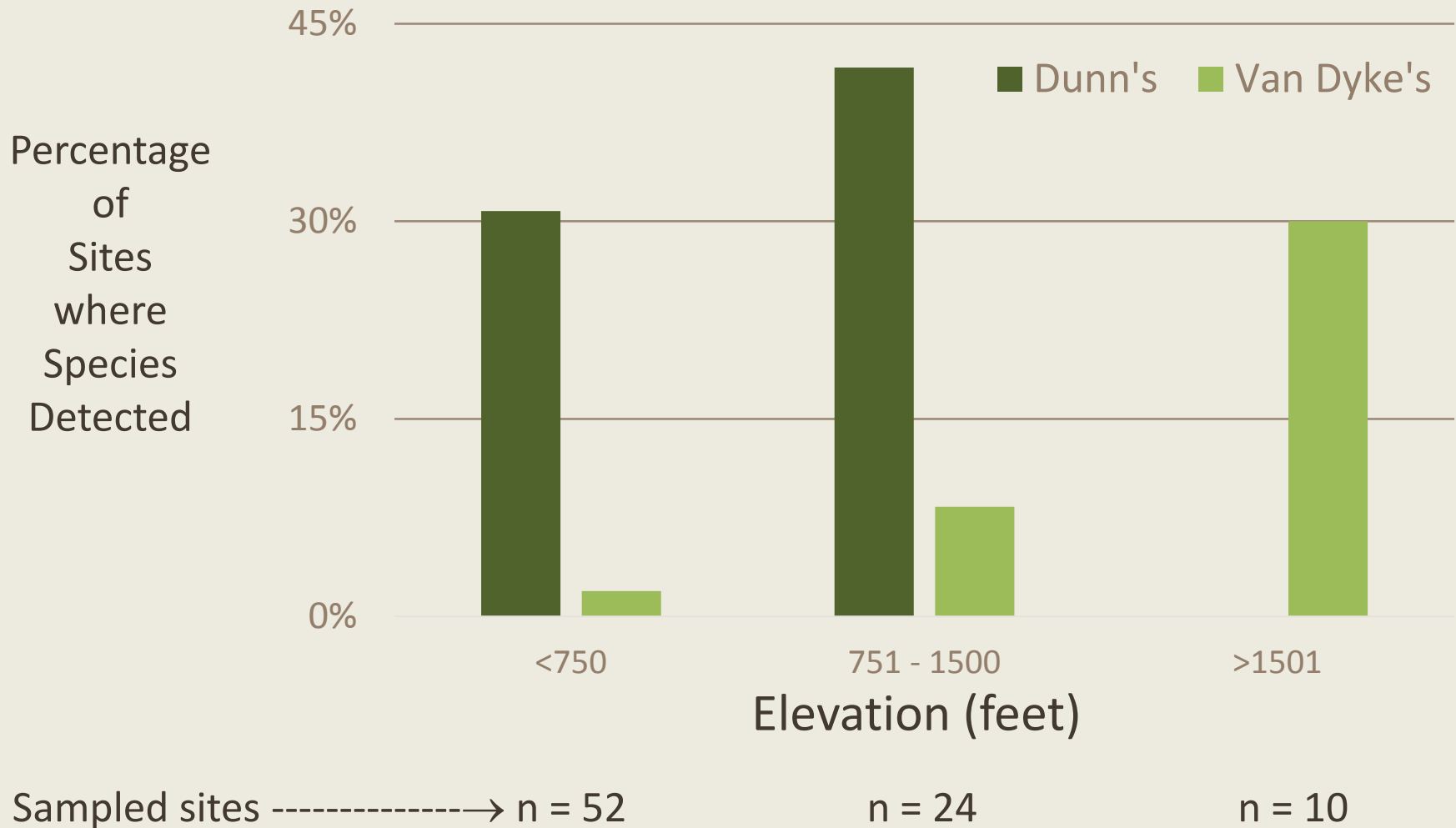
# Site Selection and Sampling

- Random selection from a 170-site pool
- Sites located along stream network with minimum distance of 400 m (approx. 1,300 feet) between sites
- Selection stratified relative to position of potential dam and reservoir - 60% within footprint and 40% above and below
- Nine 3x5 m plots 5-10 m apart sampled at each site
- Plots on wetted stream edge on their short axes
- Sampling - raking through litter, rock and soil substrate with a potato rake, overturning movable surface objects and dismantling decayed wood debris
- Sampling - spring window with non-freezing temperatures and adequate surface moisture

# Target Species Distribution

Species	Number (Percent) of Sites where Species Detected – X (X)			
	Location Relative to Proposed Dam & Reservoir Footprint			Totals (Percent)
	Below N = 7	In N = 49	Above N = 30	
Dunn's Salamander ( <i>Plethodon dunni</i> )	2 (29)	16 (33)	7 (23)	25 (29)
Van Dyke's Salamander ( <i>Plethodon vandykei</i> )	0 (0)	1 (2)	4 (13)	5 (6)

# Target Species Patterns



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- Dunn's and Van Dyke's both in proposed reservoir footprint
- Dunn's at roughly one third of sites in proposed reservoir footprint and nearly same proportion of sites below and above footprint
- Van Dyke's at few sites, only one in reservoir footprint
- Van Dyke's seems more frequent with elevation, whereas Dunn's not detected at high elevations



# Other Amphibians

Species		Number (Percent) of Sites where Species Detected – X (X)			
		Location Relative to Proposed Dam & Reservoir			Totals n = 86
		Below n = 7	In n = 49	Above n = 30	
1	Coastal Tailed Frog	0 (0)	6 (33)	8 (23)	14 (16)
2	Columbia Torrent Salamander	1 (14)	7 (14)	11 (37)	19 (22)
3	Giant Salamanders	0 (0)	0 (0)	5 (17)	5 (6)
4	Ensatina (salamander)	2 (29)	8 (16)	10 (33)	20 (23)
5	Northern Red-legged Frog	1 (14)	1 (2)	1 (3)	3 (3)
6	Pacific Treefrog	1 (14)	8 (16)	1 (3)	10 (12)
7	Roughskin Newt	1 (14)	3 (6)	1 (3)	5 (6)
8	Western Toad	1 (14)	13 (27)	3 (10)	17 (20)
9	Western Red-backed Salamander	6 (86)	31 (63)	26 (87)	63 (73)

# Summary

- Despite surveys focused on stream-associated amphibians, at least 10 amphibian species found within proposed reservoir footprint
  - **Amphibian-rich Chehalis headwaters – more than half of possible species in basin in headwaters**
- Two riparian stream-associated species, Dunn's and Van Dyke's have roughly inverse distributions with elevation
  - **Translates to significant loss for Dunn's and limited loss for Van Dyke's with reservoir implementation**
- All species detected found above proposed reservoir footprint
  - **Restoration efforts that include managed land acquisitions above footprint would capture detected species**
- Key **caveats** to last statement are: 1) **temporal** effects of species retention unknown; and 2) **loss asymmetry** (within vs. outside) proposed reservoir unknown for non-stream associated species



# Questions/Discussion

