

# Effectiveness of Experimental Riparian Buffers on Perennial Non-fish-bearing Streams on Competent Lithologies in Western Washington – Phase 3 (Fifteen Years after Harvest)

Landscape and Wildlife Scientific Advisory Group  
(LWAG)

Project Team:

**Aimee McIntyre, Reed Ojala-Barbour**, WDFW

**Jay Jones**, Weyerhaeuser

**Andrew J. Kroll**, Technical Contractor, WFPA

**Jenny Schofield**, Project Manager, DNR



# Type N Experimental Buffer Study Objectives

Evaluate effectiveness of clearcut harvest with *alternative riparian buffers* on non-fish-bearing perennial streams

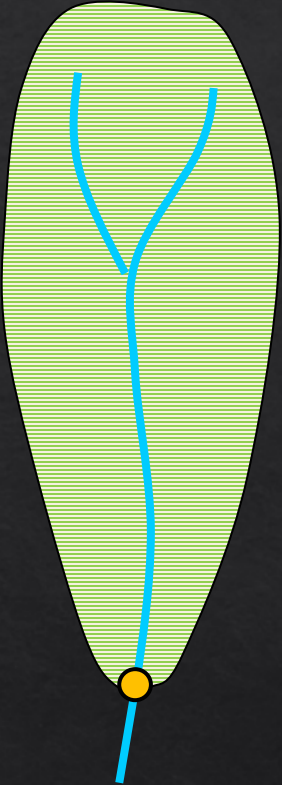
## Companion Studies:

- Buffer Characteristics, Integrity and Function Study (BCIF)
- Type N Experimental Buffer Study in Soft Rock Lithologies (Soft Rock)

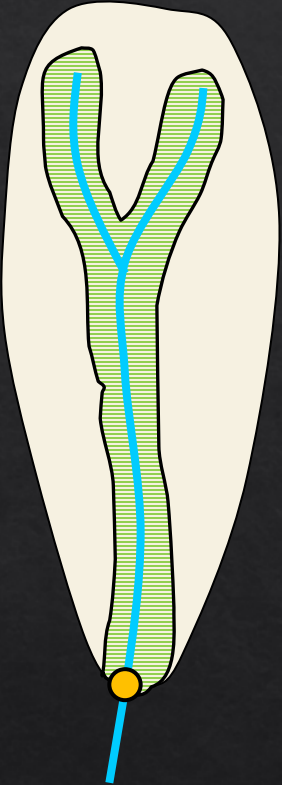


# Hard Rock Experimental Treatments

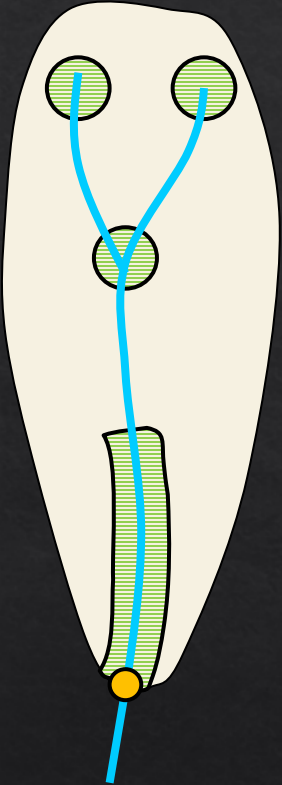
Reference



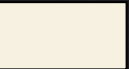
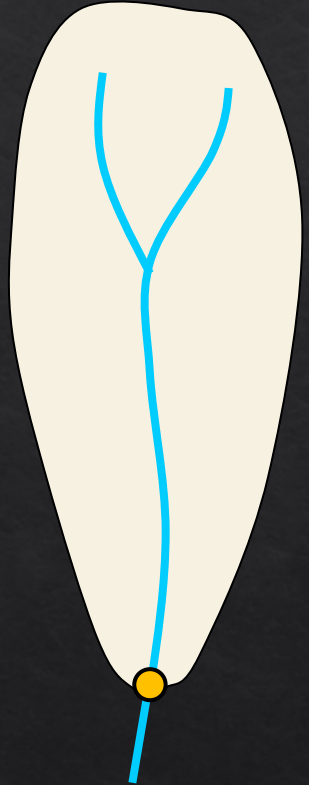
100%



FP



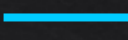
0%



= non-fish basin



= unharvested / 50-ft buffer



= stream



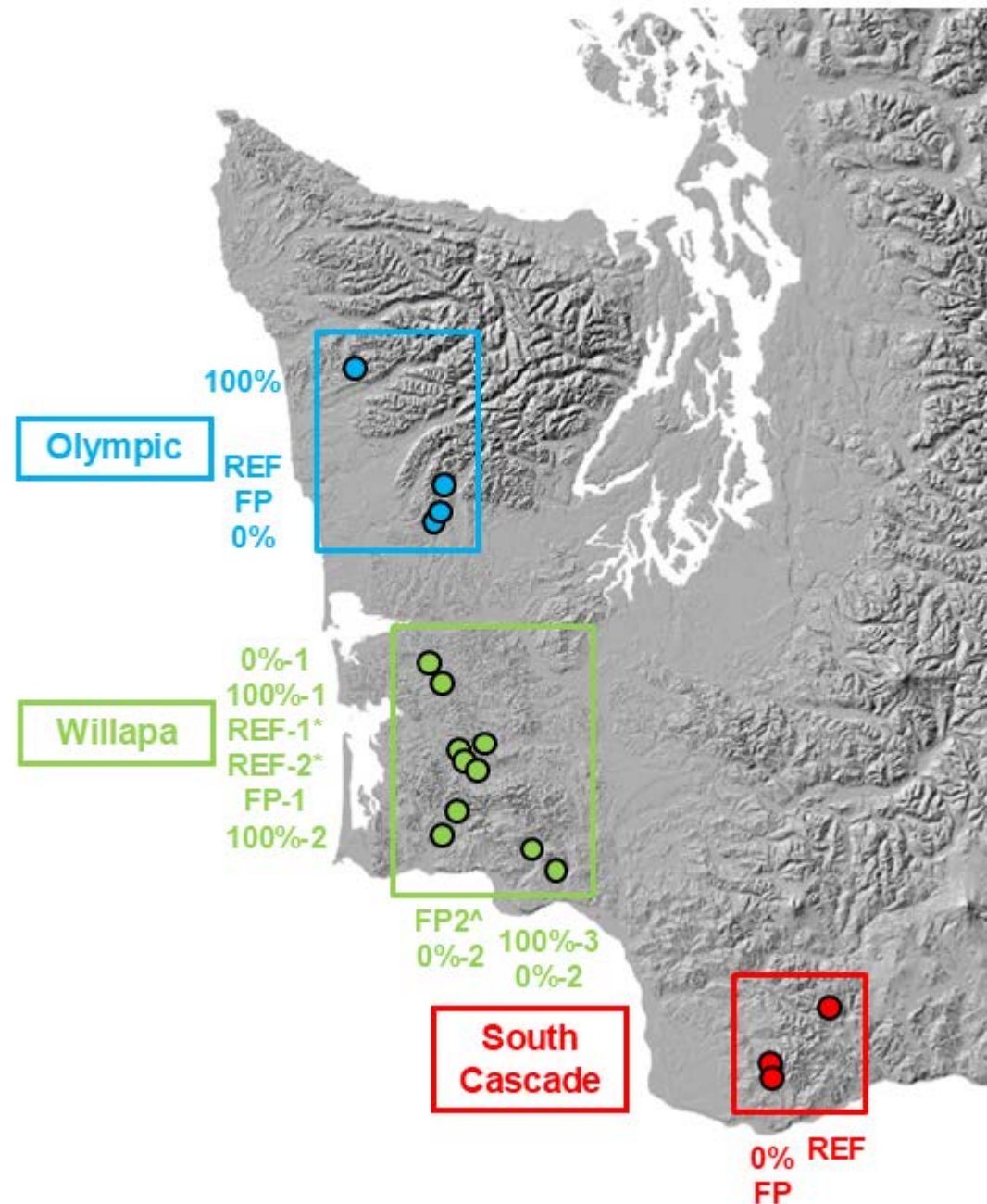
= fish end point

# Study Timeline

Site Code	2006	2007	2008	2009	2010	2015	2016	2022	2023									
Period	Pre-harvest Period			Phase I		Phase II		Phase III										
OLYM-REF	Pre-harvest			Post 1 & Post 2		Post 7 & Post 8		Post 14 & Post 15										
WIL-REF-1*								- Harvested*										
WIL-REF-2*																		
WIL-REF-3																		
CASC-REF																		
OLYM-100%										Post 14 & Post 15								
WIL-100%-1																		
WIL-100%-2																		
WIL-100%-3																		
OLYM-FP				Pre-harvest			Post 1 & Post 2		Post 7 & Post 8									
WIL-FP-1																		
WIL-FP-2^											Post 1	Post 7 & Post 8						
CASC-FP																		
OLYM-0%	Pre-harvest						Post 1 & Post 2		Post 7 & Post 8									
WIL-0%-1																	Post 14 & Post 15	
WIL-0%-2																		
CASC-0%																		

# Study Site Distribution

- ✓ Perennial, non-fish streams
- ✓ Managed 2<sup>nd</sup>-growth forests
- ✓ Private/state/federal
- ✓ 30-80 year old stands
- ✓ 30-133 acre basins



# Stream-associated Amphibians



Coastal Tailed Frog  
(*Ascaphus truei*)



Torrent Salamanders  
(3 *Rhyacotriton* species)

Giant Salamanders  
(2 *Dicamptodon* species)



# Resource Objectives: Stream-associated Amphibians

## Schedule L1 Overall Performance Goal:

- *...not significantly impair the capacity of aquatic habitat to... support long-term viability of other covered species*

## CMER Work Plan:

- Provide conditions that sustain stream-associated amphibian population viability within occupied sub-basins



# Results

- ✓ 26,021 amphibian observations
- ✓ 98% were focal taxa



2,474

0 – 4.5 lar

0 – 2.5 post



15,940

0 – 171

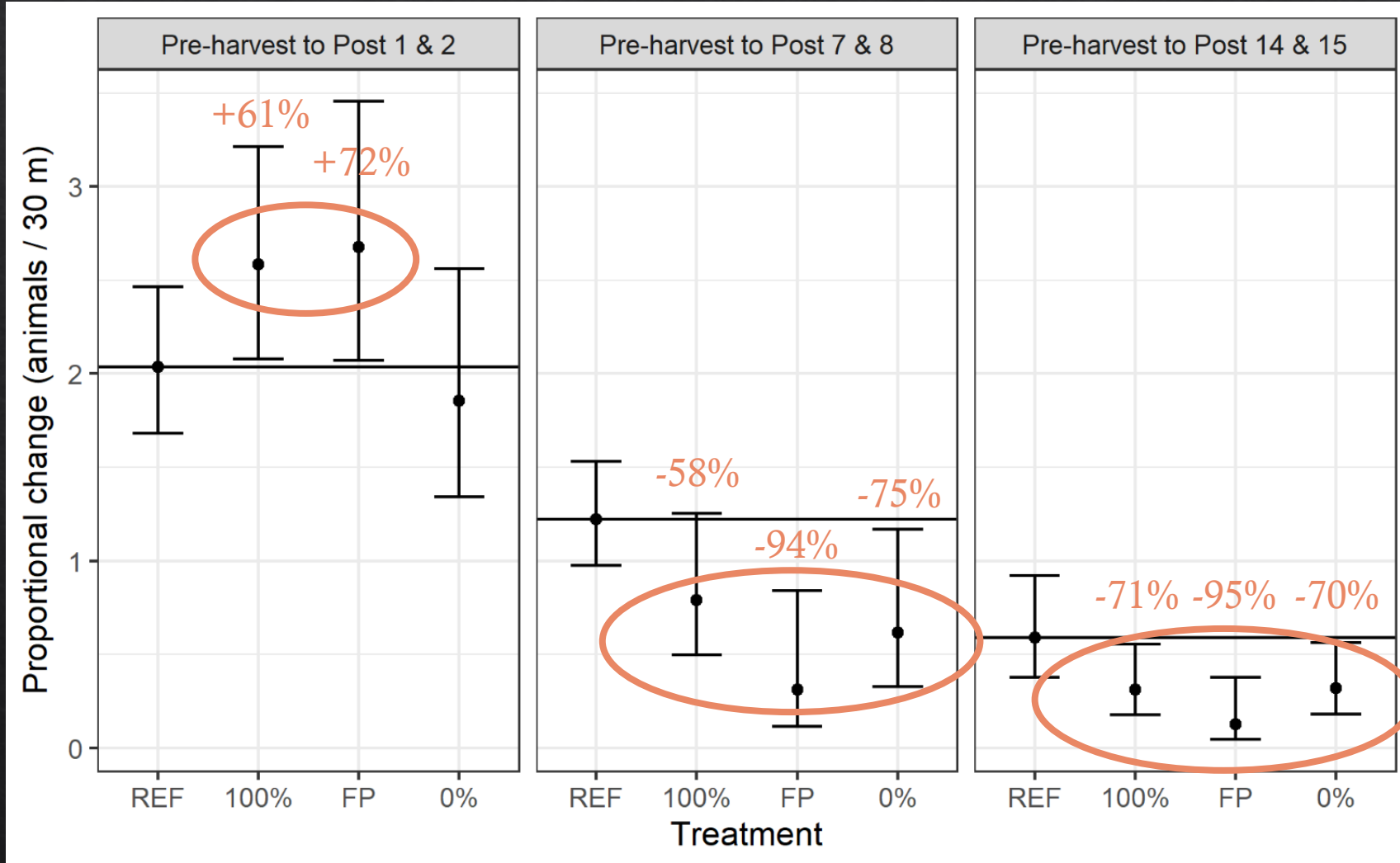


7,114

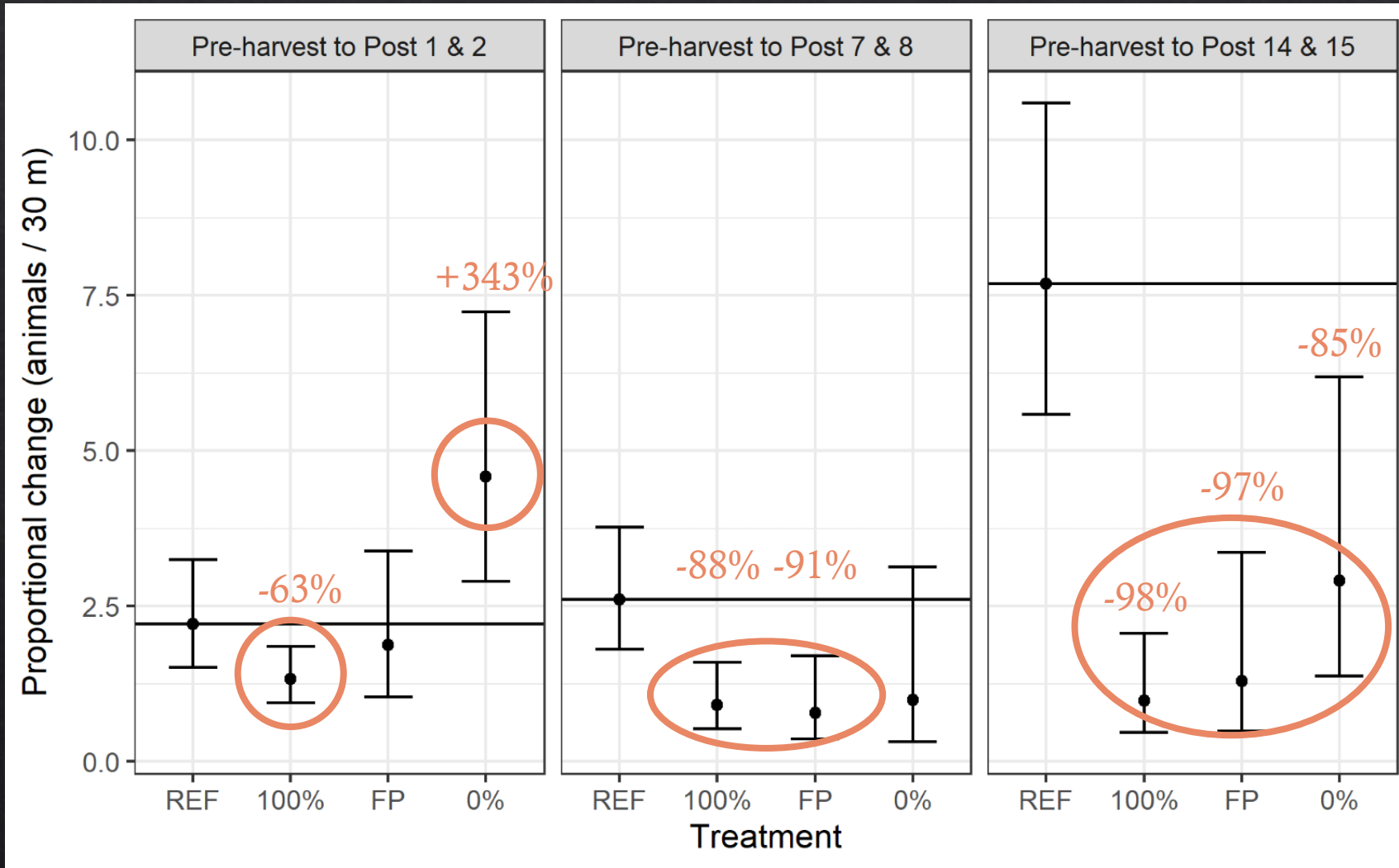
0 – 54



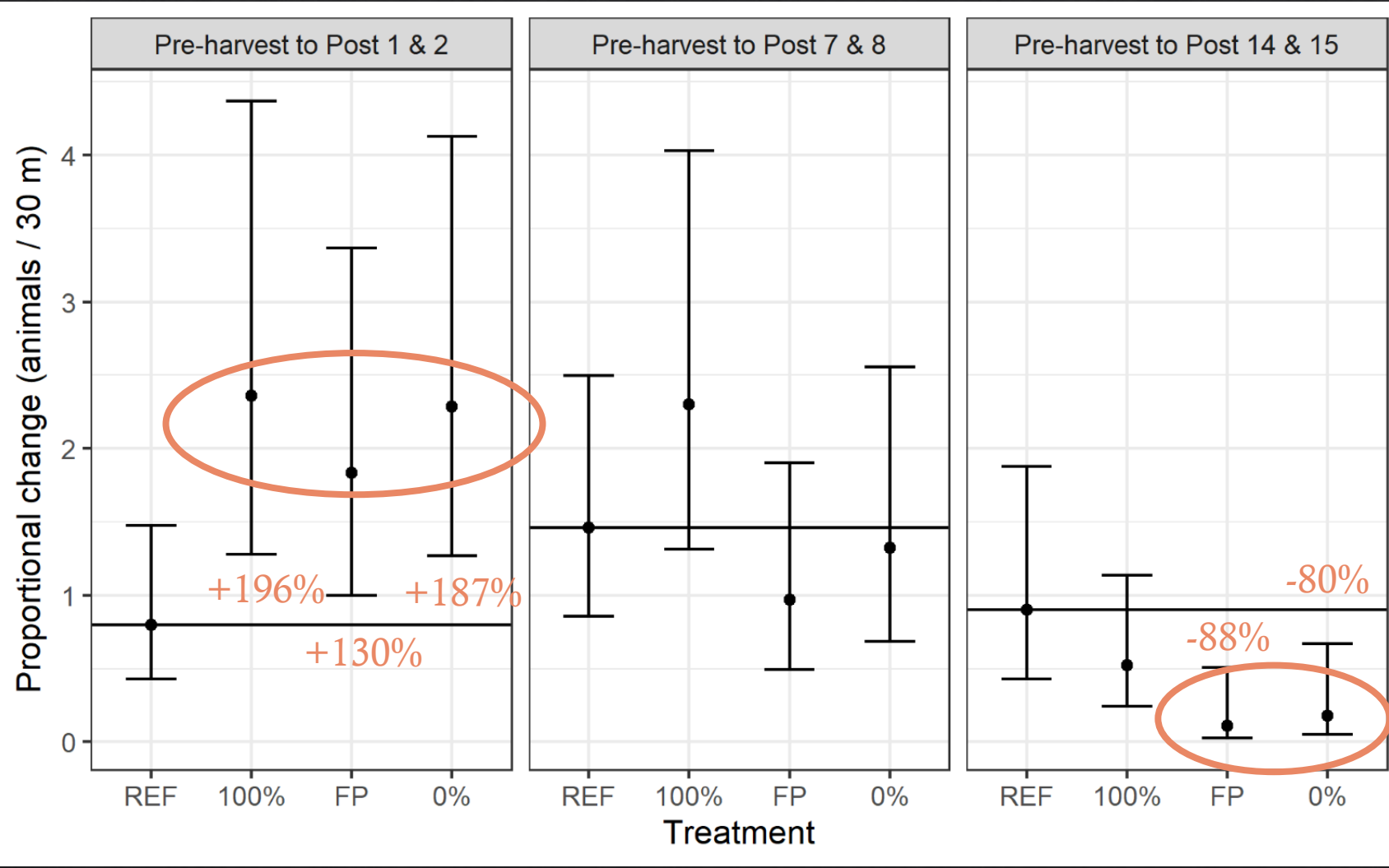
# Results: Larval Coastal Tailed Frog Density



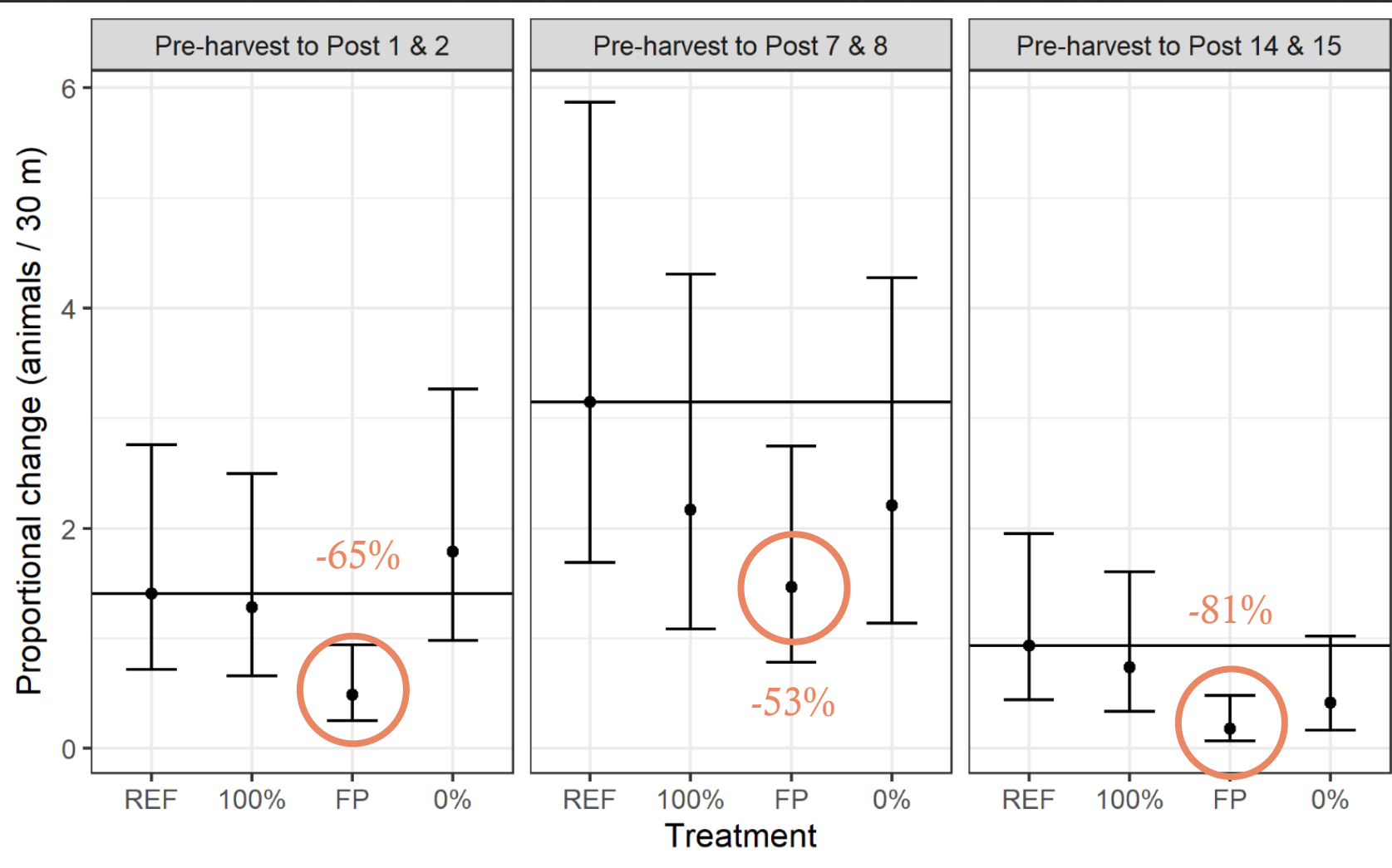
# Results: Post-metamorphic Coastal Tailed Frog Density



# Results: Torrent Salamander Density



# Results: Giant Salamander Density



# Conclusions

- Post 1 & 2 response was inconsistent
- Negative response was delayed (Post 7 & 8)
- Post 14 & 15 declines of tailed frog larvae and post in all buffer treatments; decline of torrents in FP and 0%, and giants in FP
- Likely takes time to negatively affect populations through impacts to survival and reproductive success





# Conclusions

- Retention of riparian buffers did not moderate the effects of harvest, particularly for Coastal Tailed Frogs
- Amphibian response appears related to harvest but not necessarily buffer length
- Study results inform the Performance Goal to *not significantly impair the capacity of aquatic habitat to support the long-term viability of other covered species* (Schedule L-1)



# Recommendations

- Genetic evaluation implies landscape connectivity, specifically for tailed frog
- Current study limited to evaluation of within basin response
- A landscape evaluation of status and trends is warranted
- Possible add on to Extensive Monitoring *or* “Coastal Tailed Frog Extensive Status Project” (CMER Work Plan)



# Acknowledgements

**Landowners:** Fruit Growers Supply Company, Gifford Pinchot National Forest, Green Crow, Manulife Investment Management, Longview Timber, Olympic National Forest, Rayonier, The Nature Conservancy, Washington Department of Natural Resources, Weyerhaeuser

**WA State Adaptive Management Program:**

Charlene Andrade, Hans Berge, Lori Clark, Darin Cramer, Heather Gibbs, Howard Haemmerle, Jim Hotvedt, Saboor Jawad, Amy Kurtenbach, Jeff McNaughton, Teresa Miskovic, Jenny Schofield

**LWAG!**

**Field Staff!**







Questions?