



*Rhyacotriton kezeri*



# Amphibians Update



Adaptive Management Program  
Committee (AMPC) Meeting

16 March 2026





# Overview of Today

- Summary of what was learned & knowledge gaps from Literature Review
- Introduce potential research directions with examples; Formal research recommendations target is June 2026
- Discussion of IRST clarifying questions for AMPC Question 3.





# 5 HCP Amphibian Species



**Cope's giant salamander**  
*(Dicamptodon copei)*



**Columbia torrent salamander**  
*(Rhyacotriton kezeri)*



**coastal giant salamander**  
*(Dicamptodon tenebrosus)*



**southern torrent salamander**  
*(Rhyacotriton variegatus)*



**coastal tailed frog**  
*(Ascaphus truei)*



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Question 1 	<p><b>Distribution</b> (geographic range &amp; distribution, elevation range)</p> <p><b>Population Diversity</b> (abundance &amp; spatial heterogeneity, demographic variation, genetics)</p> <p><b>Habitat Associations</b> (stream characteristics, microhabitat, riparian forest context)</p>
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Question 2 	<p><b>Population status &amp; trends of Columbia &amp; southern torrent salamanders</b></p>



# Question 1. What We Know

## Question 1

## Distribution, Population Diversity, Habitat Associations



- Broad geographic range boundaries are well established for all 5 species
- Species are consistently associated with cold, perennial, headwater stream systems
- Presence is confirmed in numerous watersheds within the recognized range
- Detection-corrected occupancy methods are established and have been applied at localized watershed scales, but these studies are few
- Species demonstrate strong habitat specialization linked to channel gradient, substrate stability, and thermal regime
- Coastal giant salamander has a somewhat greater habitat flexibility\*



# Question 1. Knowledge Gaps

## Question 1

### Distribution, Population Diversity, Habitat Associations



- Fine-scale occupancy within headwater networks largely unknown
- Population continuity among adjacent watersheds
- Degree of functional population connectivity across the landscape
- Detection-corrected occupancy at rangewide scale\*
- Relative abundance or density across watersheds
- Distributional change over time (expansion or contraction)
- Genetic structure or metapopulation dynamics across Oregon
- How variable are habitat associations across species ranges\*



## Question 2. What We Know

### Question 2

### Population status & trends of torrent salamanders



- Observed occupancy in managed headwater streams is often moderate to high
- Local relative abundance varies widely among streams and watersheds
- Occupancy is higher where perennial flow and riparian shading are retained
- Detection-corrected occupancy methods are feasible and have been applied at watershed scales (not species-specific, not repeated through time)
- Habitat-suitability models provide spatially consistent occurrence predictions



## Question 2. Knowledge Gaps

### Question 2

### Population status & trends of torrent salamanders



- Rangewide population size estimates unknown
- Watershed-scale population size estimates unknown
- Species-specific detection-corrected trend estimates unknown
- Population trend over time unknown (on FPA-regulated lands or otherwise)
- Extinction or recolonization rates unknown
- Demographic rates (survival, recruitment, turnover) largely unknown
- Whether observed occupancy reflects stable, declining, or recovering populations
- How forest practices relate to population, density, & persistence across spp. ranges\*

# **Potential Research Options**

## **AMPC Questions 1 & 2**



# Question 1-A: Range & Distribution Data

## □ Option Q1-A1: Targeted Sampling to Refine Species Range Limits

- Sampling directed toward edges of known species ranges or regions with historically limited survey coverage
- May include surveys near eastern distribution margins or other areas with uncertain range boundaries.

### **Potential Outcomes**

- Refine range boundaries
- Clarify distribution gaps
- Improve understanding of environmental gradients where species presence changes across the landscape

### **Considerations**

- Field effort focused on specific areas of uncertainty rather than surveying entire species ranges.



# Question 1-A: Range & Distribution Data

## □ Option Q1-A2: No Action Alternative: Use Existing Distribution Data

- No additional synthesis or field sampling
- Continue relying on existing range maps and occurrence records derived from published studies, agency records, museum collections, and biodiversity databases.

### **Potential Outcomes**

- Existing datasets continue to inform planning and management.

### **Considerations**

- Does not improve resolution of uncertain range boundaries.
- Does not address gaps in distribution data where survey effort has historically been limited.
- Avoids additional research costs.



# Question 2-A: Torrent salamander population trends

## □ Option Q2-A1: Establish a New Long-Term Monitoring Network

- Use data collected during the initial study as a baseline for monitoring.
- Select a subset of watersheds where torrent salamanders are known or expected to occur for repeated sampling.
- Monitoring would occur for 5–10 years
  - Core monitoring sites sampled annually to detect population trends
  - Additional rotating sites sampled once every 3–5 years to track broader changes in distribution

### **Potential Outcomes**

- Provide a framework for evaluating population trends.
- Improve understanding of distribution across watersheds and forest management.

### **Considerations**

- Detecting trends in populations typically requires repeated sampling over multiple years.
- Monitoring design must balance temporal replication and spatial coverage across watersheds.



# Question 2-A: Torrent salamander population trends

## □ Option Q2-A2: Expand Monitoring Using Existing Datasets

- Compile pre-PFA datasets (e.g., OSU / NCASI studies & other efforts).
- Use those data as a starting point for expanded monitoring across the known range of torrent salamanders in Oregon
  - Annual or biennial surveys at core monitoring locations
  - Rotating surveys across a broader set of sites

### **Potential Outcomes**

- Build on existing work while extending monitoring across a larger portion of the species' range.

### **Considerations**

- Need to identify where prior or ongoing sampling occurred.
- Determine which studies used methods suitable for long-term monitoring.



## AMPC Question 3

- **AMPC Question 3** and sub-questions (3.1–3.3) focus on effects of forest practice rules on habitat conditions and population persistence for torrent salamanders. 
- These questions are **not addressed** in the current amphibian literature review, which is scoped to Questions 1–2. The potential research options do not directly involve Question 3.
- AMPC Question 3 will be addressed following clarification of scope and objectives.