



Adaptive Management Program Committee

October 20, 2026

Attendance





Public Comment

Agenda for today

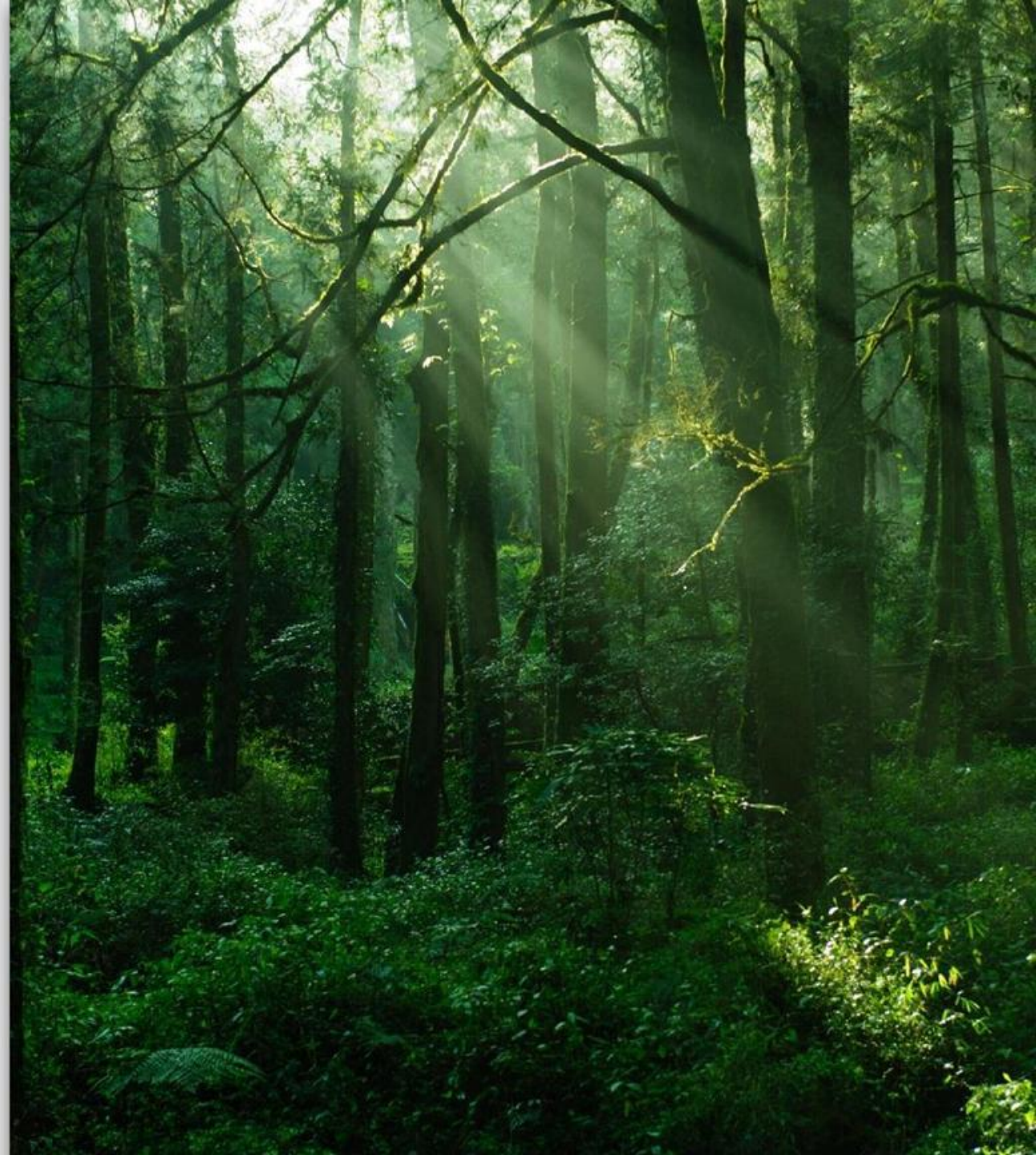
- **Effectiveness Monitoring subcommittee report**
- **Process, timeline for addressing Amphibians questions 3.1 – 3.3**
- **Discussion & vote: Adding Amphibians Q1 and/or Q2 to research agenda**





Updates

- Gov. releases \$2.6M for AMP projects**
- New ODF rep on AMPC: Thomas Whittington**
- AMPC Effectiveness Monitoring subcommittee report**



What's ahead

Dec. 7, 2026

in person meeting, wrap up year, plans for 2027, work on Amphibians questions 3.1 – 3.3



Amphibians Research Question Development Timeline

- **April 2025:** Voted to approve [research question package](#) (Questions 1-3)
- **October 2025:** AMPC approves modified questions in response to IRST questions (Q1 and Q2B)
- **November 2025 – July 2026:** IRST develops scoping proposal for Q1 and Q2, sent to AMPC in July
- **March 2026:** AMPC discussed IRST clarifying questions for Q3 and directed Terry to draft response for 3.1.
- **September 2026:** AMPC discussed scoping proposal for Q1 and Q2.



Amphibians: Research Question Package (Q1 – Q3)

April 2025: AMPC voted to approve research question package that included Questions 1, 2, and 3

“...as part of a discussion of how to meet the requirements of the Private Forest Accord (PFA) Report Section 7.3.4 relating to effectiveness monitoring, and the relationship between forest management and covered amphibian species.”

The three AMPC-approved preliminary research questions were developed as part of a discussion of how to meet the requirements of the Private Forest Accord (PFA) Report Section 7.3.4 relating to effectiveness monitoring, and the relationship between forest management and covered amphibian species.

The AMPC requests IRST provide scoping proposals for Questions 1 and 2 as soon as possible with the goal of including them in the research agenda in 2025. They also ask that Question 3 have its own scoping proposal to be addressed later. Question 3 is included in this package to highlight the importance of its subject matter and indicate the direction of future amphibian research. The AMPC looks forward to supporting and guiding the IRST regarding Question 3 and the specific rules being addressed.

Amphibians: Research Question Package (Q1 – Q3)

AMPC Question 1:



For each of the covered amphibian species, what is the distribution (including genetics) within Oregon, and what factors (e.g., stream gradient, stream size, fish presence/absence, slope, aspect, temperature, seasonality, micro-habitat conditions) determine this distribution at a smaller spatial scale (e.g., watershed)?

AMPC Question 2:



What is the population trend of the Columbia and Southern torrent salamanders over time on lands subject to the Forest Practices Act (FPA) rules? This question is informed by the following overarching biological goal as stated in the draft PFA HCP: “Forest practices that support the survival and recovery of the covered species by providing clean, cool, connected, and complex habitats.”

AMPC Question 3:



- How do rules for no-harvest RMAs affect Columbia and Southern torrent salamanders' habitat?
- How do rules for Type N streams affect Columbia and Southern torrent salamanders' habitat?
- How do rules for steep / unstable slopes affect Columbia and Southern torrent salamanders' habitat?

Basic Research Ecosystem Process

All five species

Scoping Proposal Complete

Status and Trends

Two torrent salamander species

Scoping Proposal Complete

Effectiveness Monitoring

Two torrent salamander species

Scoping Proposal not started

How did we get there?

PFA Report

- “A robust effectiveness monitoring plan as part of an adaptive management program will be used to better understand the relationship between forest management and covered amphibian species...”
- “...it is recommended that \$1.5 million be initially applied to research through the first funding cycle of the adaptive management program **to better understand how riparian and unstable slope protections of at least the current and proposed rules for private forestland impact persistence of populations...**”
- “The priority species for monitoring will be the Columbia and Southern torrent salamanders...”
- PFA Report, P. 120-121

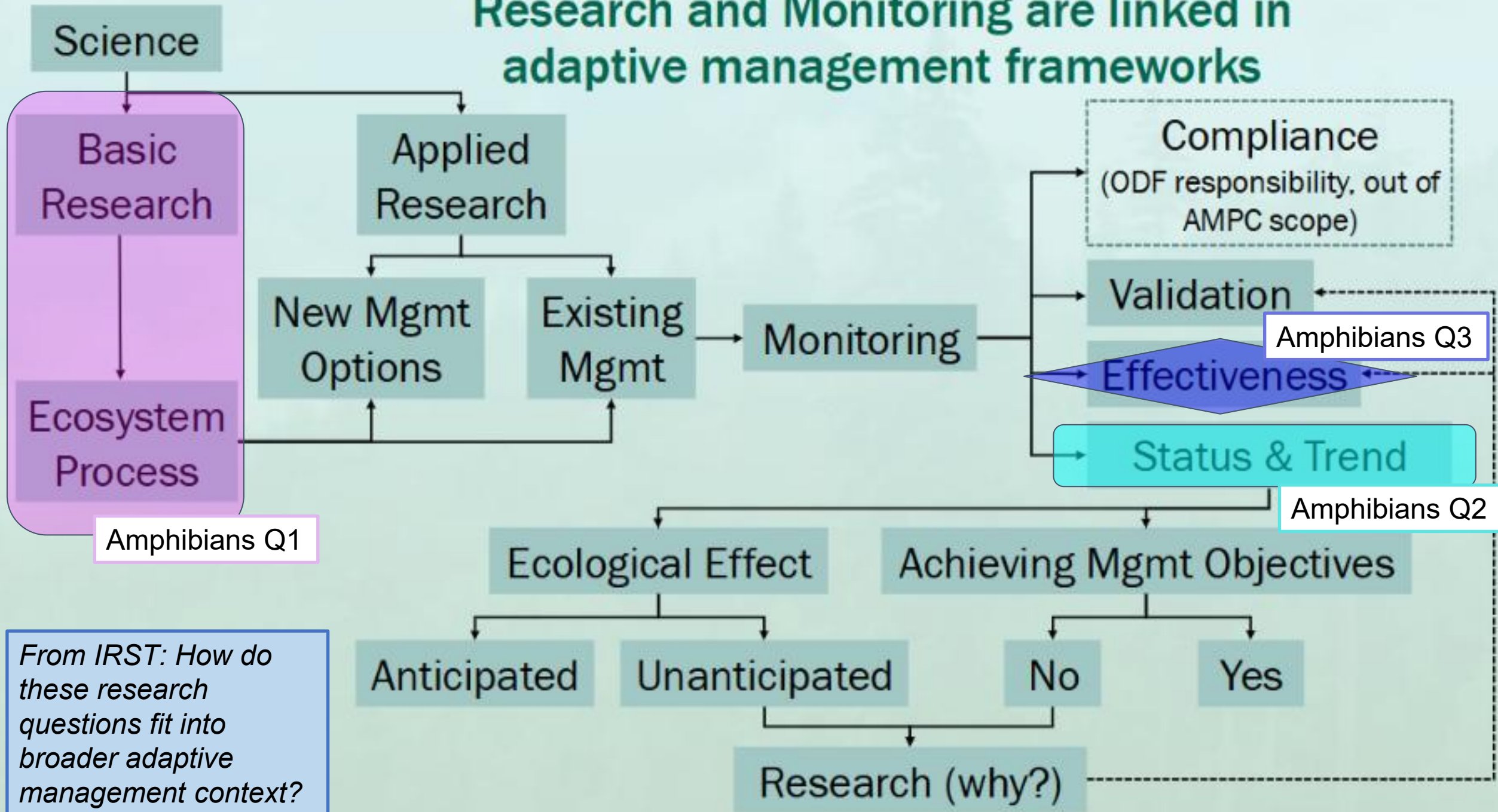
Statute and Rules

- **SB 1501(2022): Section 34** (1) It is the policy of the State of Oregon that regulation of forest practices for the protection of aquatic species shall, in addition to other statutory requirements, be subject to a process of adaptive management, whereby goals and objectives are validated, and modified if necessary, and forest practice rules are monitored for effectiveness relative to the goals and objectives.
- **OAR 629-630-0100(1)** The adaptive management program must:
- (a) Conduct effectiveness monitoring by assessing the degree to which the rules facilitating particular forest conditions and ecological processes achieve the biological goals and objectives...

Research Questions

- “**The three AMPC-approved preliminary research questions were developed as part of a discussion of how to meet the requirements of the Private Forest Accord (PFA) Report Section 7.3.4** relating to effectiveness monitoring, and the relationship between forest management and covered amphibian species. The AMPC requests IRST provide scoping proposals for Questions 1 and 2 as soon as possible with the goal of including them in the research agenda in 2025. They also ask that Question 3 have its own scoping proposal to be addressed later...”
- April 2025 Research Question Package

Research and Monitoring are linked in adaptive management frameworks



Scoping Proposal: Questions 1 and 2

AMPC Question 1:

For each of the covered amphibian species, what is the distribution (including genetics) within Oregon, and what factors (e.g., stream gradient, stream size, fish presence/absence, slope, aspect, temperature, seasonality, micro-habitat conditions) determine this distribution at a smaller spatial scale (e.g., watershed)?

AMPC Question 2:

What is the population trend of the Columbia and Southern torrent salamanders over time on lands subject to the Forest Practices Act (FPA) rules? This question is informed by the following overarching biological goal as stated in the draft PFA HCP: “Forest practices that support the survival and recovery of the covered species by providing clean, cool, connected, and complex habitats.”

Option	Name	Timeframe	Total Estimated Cost	Annual Estimated Cost
Option 1	No Action	—	\$0	—
Q1- Option 2	Targeted Geographic Range & Distribution Refinement	1–2 yr	\$130k–\$400k	\$130k–\$200k/yr
Q1-Option 3	Among Watershed Habitat Associations	2–3 yr	\$700k–\$1.7m	\$350k–\$575k/yr
Q1-Option 4	Within Watershed Habitat Associations - stream network	3–5 yr	\$1.1m–\$2.5m	\$375k–\$500k/yr
Q1-Option 5	Population Diversity — Genetics & Demography	3–5+ yr	\$625k–\$1.7m	\$200k–\$275k/yr
Q2-Option 1	Broad-Scale Torrent Salamander Monitoring Network	5–10 yr	\$2.3m–\$7.4m	\$450k–\$700k/yr
Q2-Option 2	Intensive Torrent Salamander Monitoring + Demography	7–10+ yr	\$3.4k–\$7.1k	\$475k–\$700k/yr

Scoping Proposal: Question 1

Basic Research | Ecosystem Process
All five species

AMPC Question 1:
For each of the covered amphibian species, what is the distribution (including genetics) within Oregon, and what factors (e.g., stream gradient, stream size, fish presence/absence, slope, aspect, temperature, seasonality, micro-habitat conditions) determine this distribution at a smaller spatial scale (e.g., watershed)?

Q1-2	Targeted Range & Distribution <i>1–2 years</i>	\$130,000–\$400,000 \$130k–\$200k/yr	Contributes: New presence/absence records; refined range boundaries; foundation for future studies	Limitations: Non-probabilistic; no detection correction; no habitat/trend data
Q1-3	Among Watershed Habitat Associations Broad Sampling <i>2–3 years</i>	\$700,000–\$1,700,000 \$350k–\$575k/yr	Contributes: Range-wide watershed occurrence; landscape/watershed habitat associations; ~80–120 HUC12s	Limitations: Repeat visits unlikely; apparent absences uncertain; no stream network inference
Q1-4	Within Watershed Habitat Associations Intensive Sampling <i>3–5 years</i>	\$1,100,000–\$2,500,000 \$375k–\$500k/yr	Contributes: Detection-corrected occupancy more feasible; reach-scale habitat inference; strongest alongside Q1-3; ~20–35 HUC12s	Limitations: Limited spatial inference beyond sampled watersheds; no diversity/trend data
Q1-5	Population Diversity (Genetic & Demography) <i>3–5+ years</i>	Standalone: \$625,000–\$1,675,000 \$200k–\$275k/yr Added to Op. 3 or 4 +\$248k genetics (one-time) \$100k–\$150k/yr	Contributes: Genetic connectivity & structure; demographic rates; best as add-on to Q1-3 or Q1-4	Limitations: Partial view from each sub-approach independently; does not address watershed-scale distribution, habitat associations, or population trends

Q1 Options 3 and 4 had some support from September 2026 meeting

Scoping Proposal: Question 2

Status and Trends

Two species (Columbia and Southern torrent salamanders)

AMPC Question 2:

What is the population trend of the Columbia and Southern torrent salamanders over time on lands subject to the Forest Practices Act (FPA) rules? This question is informed by the following overarching biological goal as stated in the draft PFA HCP: “Forest practices that support the survival and recovery of the covered species by providing clean, cool, connected, and complex habitats.”

Q2 focuses only on Columbia and Southern torrent salamanders on FPA lands.

Q2-1

Broad-Scale Torrent Salamander Monitoring Network

5–10 years

\$2,225,000–\$7,375,000

\$450k–\$700k/yr

+\$414k genetics (one-time)

Contributes:

Detection-corrected occupancy trends across broad FPA landscape; first standardized long-term torrent time-series; optional eDNA; ~50–100 HUC12s

Limitations:

Does not explain demographic drivers of trends; requires Q2-2 for mechanistic understanding

Q2-2

Intensive Torrent Salamander Monitoring + Demography Components

7–10+ years

\$3,350,000–\$7,075,000

\$475k–\$700k/yr

+\$62k genetics (one-time)

Contributes:

Occupancy trends + optional abundance estimation + demographic rates within intensively monitored watersheds; insight into whether and why populations are changing; ~5–15 HUC12s

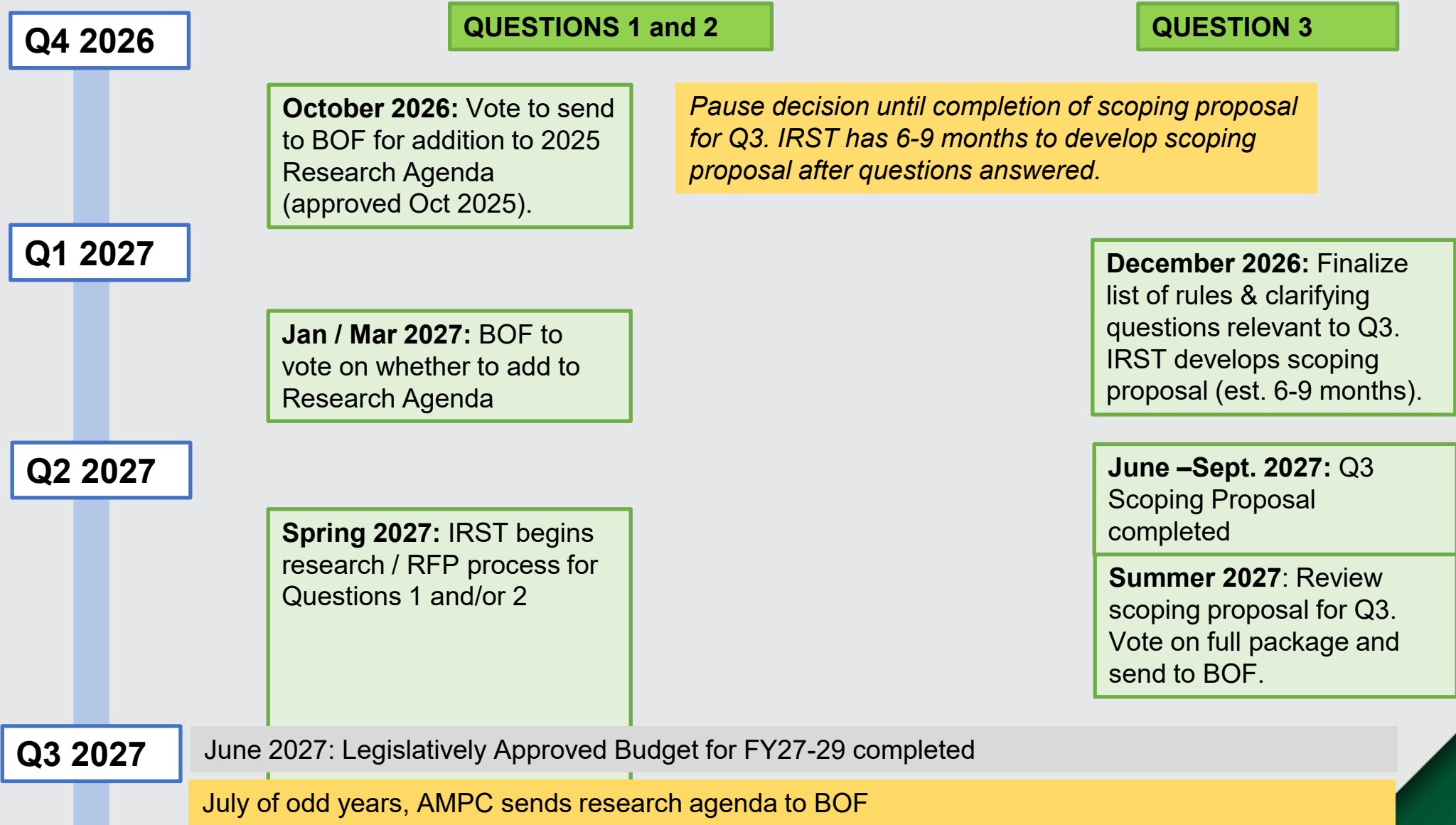
Limitations:

Limited landscape inference (fewer watersheds); requires Q2-1 for range-wide trend signal; highest cost and complexity

Discussion in September:

- Relationship between Questions 1, 2, and 3
- Understanding of current knowledge base / state of the science for five amphibian species
- How can Questions 1 and 2 inform future effectiveness monitoring studies?
- Funding situation
- Timeline to understand trends that could inform effectiveness monitoring?
- Urgency of advancing amphibians research question
- How much baseline / status and trends information do we need before we design Question 3 research?
- Need to understand USFWS protocol and existing work

Options for Next Steps



DISCUSSION



Q1: Knowledge Contributions and Limitations

Option	Knowledge Contribution	Limitations
Q1, Option 1: No Action No cost	- Maintains current understanding of 5 amphibian species	- Watershed-scale distribution is incomplete for all 5 species - Wouldn't address Q2 at all
Q1, Option 2 1-2 years \$130-\$400k total	- Generates new presence/absence observations - Improves confidence in statewide distribution maps	- Results can't support statistical inference about occurrence patterns across broader landscape - Does not address habitat associations, demographic responses, population diversity, or population trends
Q1, Option 3 2-3 years \$700k-\$1.7M	- Generates presence/absence data across statistically valid sample of watersheds - Results can support landscape- and watershed-scale habitat association analyses - Can be combined with Option 4 or 5	- Doesn't estimate detection probabilities - Doesn't support reach-scale inference about how species use stream networks in individual watersheds - Does not address population diversity, demographic rates, or population trends

Q1: Knowledge Contributions and Limitations

Option	Knowledge Contribution	Limitations
Q1, Option 4 3-5 years \$1.1M - \$2.5M	- Generate detection-corrected species occupancy estimates within smaller # of watersheds with more precision - Fewer watersheds than Option 3, but concentrates efforts within those selected - Potential to combine Option 3 + 4, or 4 + 5	- If watersheds are selected using a probabilistic design, could support range-wide habitat association but confidence, statistical power, and precision would be less than Q1 Option 3 - Does not directly address population diversity, demographic rates, or population trends
Q1, Option 5 3-5+ years Stand-alone: \$625k - \$1.675 M. In combination with 3 or 4: \$300k - \$700k	- Generates insight into population persistence by evaluating connectivity and diversity across watersheds - Uses genetic data (tissue sampling) to describe population connectivity and structure; uses demographic data (repeated sampling of individuals) to evaluate life-stage structure, survival, and movement	- Independently, this option provides partial information and would be of greatest value in combination with Option 3 or 4 - Genetic data doesn't provide direct estimates of survival or reproduction - Demographic data is only feasible in a limited number of locations

Q2: Knowledge Contributions and Limitations

Option	Knowledge Contribution	Limitations
Q2, Option 1 5-10 years \$2.25M - \$7.375M Can be done in combination with Option 2	- Generates systematic, detection-corrected estimates of population trends for Columbia and southern torrent salamanders - Monitoring across 50-100 HUC 12 subwatersheds (FPA lands) - Supports inferences about whether populations are increasing, decreasing, or stable; allows assessment of variability in trends among watersheds, regions, and conditions	- Prioritizes broad spatial coverage over sampling intensity, so it is designed to detect regional signals in population change rather than explain demographic mechanisms that drive that change - Most informative when implemented with Q2 Option 2
Q2, Option Min 5 years, 7-10+ years \$3.35M - \$7.075M	- Generates detection-corrected occupancy estimates, and in certain cases, abundance estimates within a smaller # of watersheds - Concentrates sampling effort within fewer watersheds to support stronger inference about processes driving population change at watershed and reach scale - Target 5-15 HUC12 subwatersheds	- Concentrates sampling in fewer watersheds, which means that results are less suited for broad inference about range-wide population trends - Most informative in combination with Q2 Option 1

FUNDING



Research Funds for 25-27 Biennium

Funds Allocated to Research

- 23-25 funds: \$3.05 million (current available funds)
- 25-27 funds: \$2.58 million (note: \$500,000 Eboard request; Governor's letter releasing funds)
- **Total Allocated Funds: \$5.6 million**

Topic	AMPC Research Agenda			PFA report	Options: Current Available Funds for 25-27 biennium			
	Budget/yr	Budget for the 25-27 biennium	Not to exceed budget	Recommended	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>	<u>Option 4</u>
Steep slopes	\$80,000	\$80,000	\$80,000		\$80,000	\$80,000	\$80,000	\$80,000
Road-stream&	\$1,400,000 [#]	\$2,700,000 [#]	\$5,400,000		\$2,700,000	\$2,200,000	\$2,000,000	\$1,404,936
Amphibians				\$1,500,000*	\$124,936	\$624,936	\$824,936	\$1,500,000
Effectiveness Monitoring								
<i>Total</i>	<i>\$1,480,000</i>	<i>\$2,780,000</i>	<i>\$5,480,000</i>	<i>\$1,500,000</i>	<i>\$2,904,936</i>	<i>\$2,904,936</i>	<i>\$2,904,936</i>	<i>\$2,904,936</i>

& These budget numbers are for the baseline study per Question 1; subsequent rounds of sampling to develop the trends per Question 2 will be completed in the future.

[#] Since there is insufficient information in the scoping proposals to determine these figures, a constant-rate expenditure is assumed.

* The amount in the Private Forest Accord Report that should be allocated to amphibians in the first cycle to fund an initial study



Board-approved Research Agenda Budget (Sept. 2025)

Project	Budget for 2025-2027 biennium	Total budget^
Road-Stream Hydrologic Connectivity (4+ years)	\$2.7 M*	\$5.4 M
Eastern Oregon Steep Slopes	\$80,000	\$80,000
Amphibians/other	TBD	TBD
TOTAL		\$5.48 M

^Not to exceed

****Note: Roads spending likely less than \$1.5M during this biennium***



FOR REFERENCE



PFA Report – Feb 2022



John P. Clare
amphibianphotos.com



“Uncertainty exists around amphibian population characteristics, distribution, productivity, survival, and abundance. A robust effectiveness monitoring plan as part of an adaptive management program will be used to **better understand the relationship between forest management and covered amphibian species.**

To support this program, it is recommended that \$1.5 million be initially applied to research through the first funding cycle of the adaptive management program **to better understand how riparian and unstable slope protections of at least the current and proposed rules for private forestland impact persistence of populations.**

The Authors agree that the \$1.5 million will be used to fund an initial study and that ongoing research over appropriate intervals of time beyond this initial study will be necessary to understand research outcomes over long periods of time. **The priority species for monitoring will be the Columbia and Southern torrent salamanders...**”

-- PFA Report, p. 120-121

Statute and Rules

SB 1501 (2022) -- SECTION 34.

- (1) It is the policy of the State of Oregon that regulation of forest practices for the protection of aquatic species shall, in addition to other statutory requirements, be subject to a process of adaptive management, whereby goals and objectives are validated, and modified if necessary, and forest practice rules are monitored for effectiveness relative to the goals and objectives.
- (2) The State Board of Forestry shall establish by rule an adaptive management program to accomplish the policy described in subsection (1) of this section, consistent with the adaptive management framework set forth in the Private Forest Accord Report dated February 2, 2022, and published by the State Forestry Department on February 7, 2022.
- (3) The adaptive management program must:
- (a) Ensure effective change as needed to meet resource objectives.
 - (b) Increase the predictability and stability of the process of changing regulation so landowners, regulators and interested members of the public can understand and anticipate change.
 - (c) Apply best available science to decision-making.
 - (d) Effectively meet resource objectives with less operationally expensive prescriptions when feasible.

OAR 629-603-0100 -- Adaptive Management Program Overview

- (1) The adaptive management program must:
- (a) Conduct effectiveness monitoring by assessing the degree to which the rules facilitating particular forest conditions and ecological processes achieve the biological goals and objectives. This assessment may include evaluation of cumulative effects.
 - (b) Conduct research inquiry and validation monitoring to:
 - (A) Determine if additional scientific inquiry is needed to fill knowledge gaps related to biological goals and objectives; and
 - (B) Test and improve existing and new models and methodologies used to design and implement forest practice rules intended to meet the biological goals and objectives.
- ...
- (8) The following topics shall be prioritized in the initial phase of the adaptive management program:
- (a) Literature review for eastern Oregon steep slopes;
 - (b) Requirements of baseline and trend monitoring of road rules; and
 - (c) Amphibians.

Amphibians: Research Question Package (Q1 – Q3)

April 2025: AMPC voted to approve research question package that included Questions 1, 2, and 3

“...as part of a discussion of how to meet the requirements of the Private Forest Accord (PFA) Report Section 7.3.4 relating to effectiveness monitoring, and the relationship between forest management and covered amphibian species.”

The three AMPC-approved preliminary research questions were developed as part of a discussion of how to meet the requirements of the Private Forest Accord (PFA) Report Section 7.3.4 relating to effectiveness monitoring, and the relationship between forest management and covered amphibian species.

The AMPC requests IRST provide scoping proposals for Questions 1 and 2 as soon as possible with the goal of including them in the research agenda in 2025. They also ask that Question 3 have its own scoping proposal to be addressed later. Question 3 is included in this package to highlight the importance of its subject matter and indicate the direction of future amphibian research. The AMPC looks forward to supporting and guiding the IRST regarding Question 3 and the specific rules being addressed.

Question 1. For each of the covered amphibian species, what is the distribution (including genetics) within Oregon, and what factors (e.g., stream gradient, stream size, fish presence/absence, slope, aspect, temperature, seasonality, micro-habitat conditions) determine this distribution at a smaller spatial scale (e.g., watershed)?

Question 2. What is the population trend of the Columbia and Southern torrent salamanders over time on lands subject to the Forest Practices Act (FPA) rules? This question is informed by the following overarching biological goal as stated in the draft PFA HCP: “Forest practices that support the survival and recovery of the covered species by providing clean, cool, connected, and complex habitats.”⁶

Question 3. The following sub-questions are informed by direction from the PFA Report to “...better understand how riparian and unstable slope protections of at least the current and proposed rules for private forestland impact persistence of populations.”⁷

*highlighted gray text is language from another source (PFA Report or draft HCP BGOs)

Question 3. The following sub-questions are informed by direction from the PFA Report to “...better understand how riparian and unstable slope protections of at least the current and proposed rules for private forestland impact persistence of populations.”⁷

Question 3.1. How do rules for no-harvest RMAs affect Columbia and Southern torrent salamanders’ habitat?

BGO from Draft PFA HCP:

Goal 2: Shade and watershed processes controlling stream temperature provide cool water compatible with the needs of the covered species.

Objective 2.2 – No-harvest RMAs maintain stream shade sufficient to support desired cool water temperatures for covered amphibians.

Question 3.2. How do rules for Type N streams affect Columbia and Southern torrent salamanders’ habitat?

BGO from Draft PFA HCP:

Goal 3: Stream network connectivity satisfies freshwater habitat needs for covered species.

Objective 3.3 – Timber harvest maintains stream-associated connectivity in riparian areas along non-fish streams sufficient to support covered amphibians.

Question 3.3. How do rules for steep/unstable slope protections affect Columbia and Southern torrent salamanders’ habitat?

BGO from Draft PFA HCP:

Goal 4: Riparian areas function to support complex habitats for the covered species.

Objective 4.3 – Designated Debris Flow Traversal Areas function to deliver large wood to fish-bearing streams.

Objective 4.4 – Forest practices maintain stream-associated wetlands and stream-adjacent seep and spring habitat for amphibians.

How do rules for **no-harvest RMAs** affect Columbia and Southern torrent salamanders’ habitat?

How do rules for **Type N streams** affect Columbia and Southern torrent salamanders’ habitat?

How do rules for **steep / unstable slopes** affect Columbia and Southern torrent salamanders’ habitat?



Possible Decision Pathways

Vote to add Q1 / Q2 to 2025 Research Agenda

Vote to pause until scoping proposal for Q3 complete. Include Amphibians in 2027 Research Agenda.

Jan / Mar 2027: BOF to vote on whether to add to Research Agenda

December 2026: AMPC finalizes list of rules relevant to Q3 and clarifying question responses.

Jan – June/Sept. 2027: IRST develops scoping proposal for Q3 (6--9 months)

June – Sept 2027: IRST begins research / RFP process for Questions 1 and/or 2

June-Sept. 2027: IRST sends Q3 scoping proposal to AMPC

June 2027: Legislatively Adopted Budget for FY27-29

July 2027: AMPC sends 2027 Research Agenda to BOF

July 15, 2027: AMPC sends Research Agenda to BOF for 2027 Research Agenda

Sept – December 2027: IRST begins research / RFP process for Amphibians Research Questions 1 / 2 / 3



IRST Clarifying Questions:

Amphibians Question 3

AMPC Question 3:

- How do rules for no-harvest RMAs affect Columbia and Southern torrent salamanders' habitat?
- How do rules for Type N streams affect Columbia and Southern torrent salamanders' habitat?
- How do rules for steep / unstable slopes affect Columbia and Southern torrent salamanders' habitat?

A. Is the AMPC interested in how the rules for no-harvest RMAs affect only stream shade and water temperatures related to the habitat requirements of the torrent salamanders? Or, is the AMPC interested in how the species respond (changes to populations, individuals, etc.) to changes in the habitat features of stream shade and water temperature as influenced by the rules for no-harvest RMAs? Other habitat factors may be identified as important to the torrent salamanders through answering Research Question 1 and also could be included in a scoping proposal.

B. In addition, could the AMPC identify the specific rules related to no-harvest RMAs that are of interest to the AMPC in this context?

C. Is the AMPC interested in how the rules for Type N streams affect only connectivity of the stream network for Columbia and Southern torrent salamanders or also including other specific habitat features? The habitat factors important to describing occupancy, abundance, or habitat suitability for Columbia and Southern torrent salamanders may be identified through answering Research Question 1.

D. And, is the AMPC interested in understanding how connectivity affects species' responses (changes to populations or individuals) in addition to habitat metrics?

E. Finally, could the AMPC identify the specific rules related to Type N streams that are of interest to the AMPC in this context?

F. Is the AMPC interested in improved understanding of these species' responses (changes to populations, individuals, etc.) to steep/unstable slope protection changes associated with the PFA, or to changes to specific habitat characteristics that are important to Columbia and Southern Torrent Salamanders, such as large wood that may be provided through debris flows? Habitat factors important to describing occupancy, abundance, or habitat suitability for the torrent salamanders including large wood or presence of stream-associated wetlands, seeps, and springs, may be identified through answering Research Question 1.

G. In addition, could AMPC identify the specific rules related to steep/unstable slope protections that are of interest to the AMPC in this context?

IRST Clarifying Questions:

Amphibians Question 3

Question 3.1: How do rules for no-harvest RMAs affect Columbia and Southern torrent salamanders' habitat?

- A. Is the AMPC interested in how the rules for no-harvest RMAs affect only stream shade and water temperatures related to the habitat requirements of the torrent salamanders? Or, is the AMPC interested in how the species respond (changes to populations, individuals, etc.) to changes in the habitat features of stream shade and water temperature as influenced by the rules for no-harvest RMAs? Other habitat factors may be identified as important to the torrent salamanders through answering Research Question 1 and also could be included in a scoping proposal.
- B. In addition, could the AMPC identify the specific rules related to no-harvest RMAs that are of interest to the AMPC in this context?

AMPC Question 3:

- How do rules for no-harvest RMAs affect Columbia and Southern torrent salamanders' habitat?
- How do rules for Type N streams affect Columbia and Southern torrent salamanders' habitat?
- How do rules for steep / unstable slopes affect Columbia and Southern torrent salamanders' habitat?

Direction from AMPC (March 2026) – Drafted by Terry:

“The AMPC is interested in species responses to changes in habitat features due to implementation of rules to the extent it’s needed to help clarify the species’ habitat needs. The AMPC would appreciate separate cost estimates from the IRST for scoping proposals that assess habitat only vs. habitat plus species responses.”

Amphibians subquestions 3 – which rules?

Refine list of applicable rules for each question (per March 16, 2026 AMPC meeting):

1. ODF develops initial rules list, and then consult with IRST to narrow the list
2. AMPC subcommittee (Seth, Julie, Wendy, Amanda) weighs in on list before sending to full AMPC

Prioritizing rules for each subquestion

Process TBD



To Discuss: No Harvest RMAs

3.1: How do rules for **no-harvest RMAs** affect Columbia and Southern torrent salamanders' habitat?

A. Is the AMPC interested in how the rules for no-harvest RMAs affect only stream shade and water temperatures related to the habitat requirements of the torrent salamanders? Or is the AMPC interested in how the species respond (changes to populations, individuals, etc.) to changes in the habitat features of stream shade and water temperature as influenced by the rules for no-harvest RMAs?



Considerations:

- Direction in PFA Report, SB 1501 (statute), and OARs
- BGOs in HCP (current draft)
- Others?

How the rules affect habitat requirements?
(HABITAT)

OR

How species respond to changes in habitat features as impacted by rules?
(HABITAT + SPECIES)



To Discuss: Type N Streams

3.2: How do rules for **Type N streams** affect **Columbia and Southern torrent salamanders' habitat**?

C. Is the AMPC interested in how the rules for Type N streams affect only connectivity of the stream network for Columbia and Southern torrent salamanders or also including other specific habitat features? The habitat factors important to describing occupancy, abundance, or habitat suitability for Columbia and Southern torrent salamanders may be identified through answering Research Question 1.

D. And, is the AMPC interested in understanding how connectivity affects species' responses (changes to populations or individuals) in addition to habitat metrics?

Considerations:

- Direction in PFA Report, SB 1501 (statute), and OARs
- BGOs in HCP (current draft)
- Others?

How the rules affect only connectivity of stream network or other habitat factors?

How does connectivity affect species responses, in addition to habitat metrics?
(HABITAT + SPECIES)



To Discuss: Steep Slopes

3.3: How do rules for **steep/unstable slope protections** affect Columbia and Southern torrent salamanders' habitat?

F. Is the AMPC interested in improved understanding of these species' responses (changes to populations, individuals, etc.) to steep/unstable slope protection changes associated with the PFA, or to changes to specific habitat characteristics that are important to Columbia and Southern Torrent Salamanders, such as large wood that may be provided through debris flows? Habitat factors important to describing occupancy, abundance, or habitat suitability for the torrent salamanders including large wood or presence of stream-associated wetlands, seeps, and springs, may be identified through answering Research Question 1.



Considerations:

- Direction in PFA Report, SB 1501 (statute), and OARs
- BGOs in HCP (current draft)
- Others?

Understanding species' responses to steep slope rules?

(SPECIES)

OR

Understanding changes to specific habitat characteristics important to the species?

(HABITAT)



Review material for Amphibians questions 1 & 2



Riparian Forest Conditions, Not a Regulatory Boundary for Q1 & Q2

Question: *“Could you clarify how you would go about defining what “riparian” means for these studies?”*

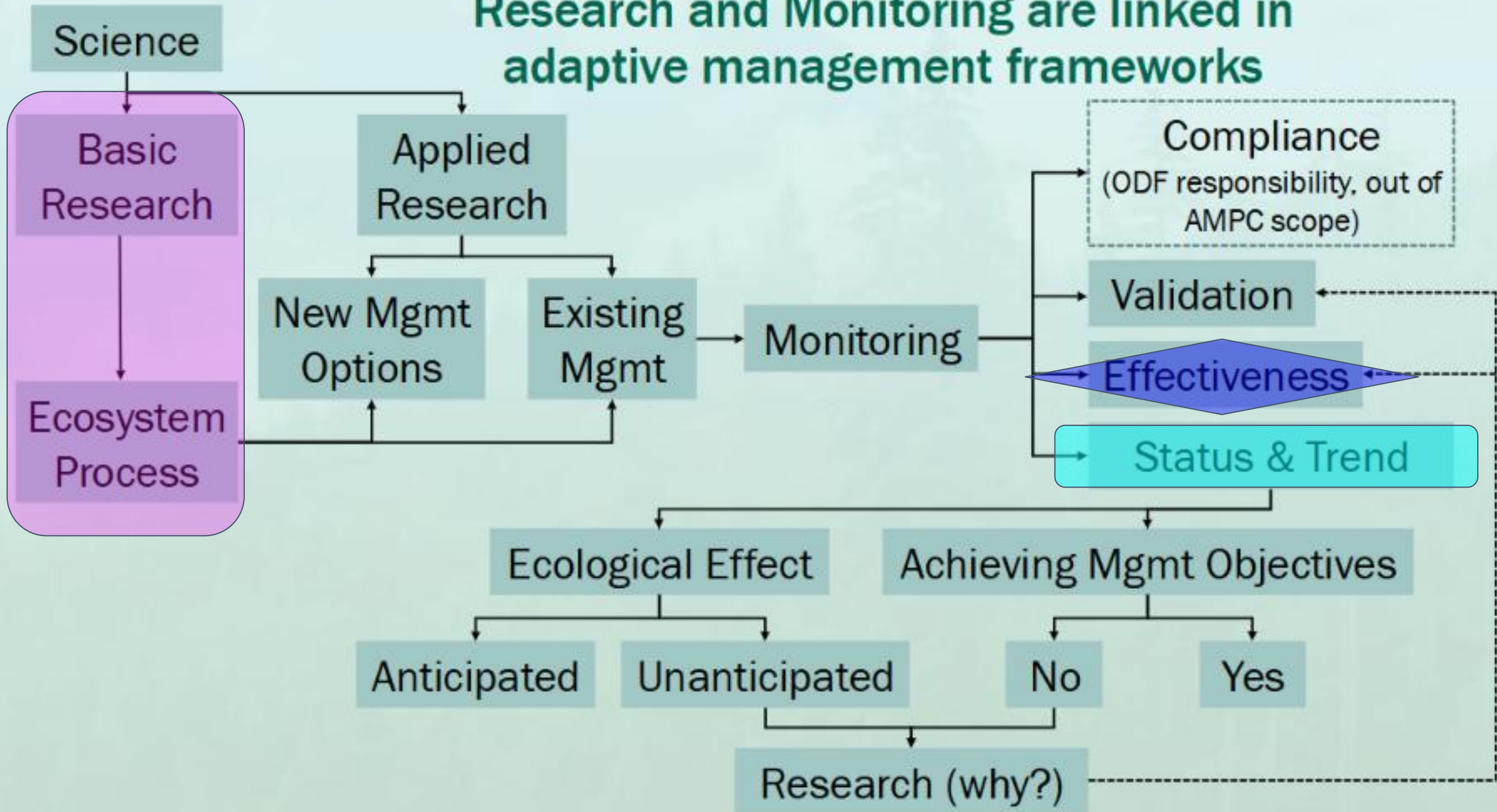
How the Scoping Proposal Uses the Term

- Q1 and Q2 are a basic research question and a monitoring question about distribution and population trends, not evaluations of specific forest practice rules.
- **Riparian:** is a general ecological definition that refers to the transition zone between the uplands and a stream, where vegetation, soils, and microclimate are shaped by, and in turn shape, the adjacent water body.
- In the scoping proposal, riparian forest conditions are one of several reach-scale variables that could be collected, alongside stream gradient, temperature, substrate, and flow permanence (Sec. 3.2).

Q3 Would Use a Regulatory Definition

- Q3 is not addressed in this scoping proposal. Q3 focusses on forest practice rules.
- The rule-based riparian definition tied to RMAs falls under Q3 in the AMPC question package

Research and Monitoring are linked in adaptive management frameworks



How Options Inform Future Effectiveness Monitoring

Question: *“How might results from the different options inform future effectiveness monitoring studies? Or, how likely the results from various options would be used in effectiveness monitoring studies?”*

Options for Question 1

- Q1-Opt 2 Refining the range: Can inform locations of future effectiveness monitoring studies
- Q1-Opt 3 Among Watershed-Scale Habitat Associations:
 - Refines the distribution of species among watersheds. Although not every watershed would be sampled, this option can help identify the watersheds in which effectiveness monitoring studies could be located.
 - Develops relationships between species presence & watershed characteristics that could inform which variables to consider in designing subsequent effectiveness monitoring studies.

Options for Question 1 (cont.)

- Q1-Opt 4 Within Watershed Habitat Associations:
 - Determines the distribution of species within stream networks to help locate sample sites for effectiveness monitoring studies.
 - Develops relationships between species presence habitat characteristics that could inform which variables to consider when designing subsequent effectiveness monitoring studies.
- Q1-Opt 5 Characterizing Population Diversity
 - If combined with Opt 3 or 4, could identify any among- population differences in habitat associations to inform study design for effectiveness monitoring.

How Options Inform Future Effectiveness Monitoring

Question: *“How might results from the different options inform future effectiveness monitoring studies? Or, how likely the results from various options would be used in effectiveness monitoring studies?”*

Options for Question 2

- Q2-Opt 1 Among-watershed Status and Trend monitoring:
 - Could suggest the need for effectiveness monitoring studies if undesired trends in monitored variables are observed
 - Would not directly inform the design of studies characterizing the effectiveness of specific management prescriptions
- Q1-Opt 2 Within-watershed Status and Trend with Demographic characterization:
 - Could suggest the need for effectiveness monitoring studies if undesired trends are observed
 - Could identify variables related to life-stage structure, survival, and movement for use in designing effectiveness monitoring studies

Considerations Among Options

Question: *“In the current extremely budget-limited situation, which options seem the most important to fund? Do you have insight on how best to phase the options to address changing budget situations?”*

Potential for Combining Options

- Q1 - Opt 3 and 4
 - Together provide cost savings and the most complete picture across spatial scales of species distribution and habitat associations, as well as the most direct foundation for effectiveness monitoring
 - Could use methods of and augment similar in-progress studies for the 5 species
 - If appropriately designed, data collected could be the baseline for subsequent Q2-Opt 1 trend monitoring
- Q1-Opt 5
 - With animals in hand from Q1-Opt 3 or 4, would provide information on connectivity and help identify any population structure

Potential for Combining Options (cont.)

- Q2 - Opt 1
 - USFWS -
 - has not yet listed either torrent salamander
 - is developing a “Surveillance & Monitoring” protocol for torrent salamanders
 - has plans and funding to apply the protocol
 - Could use their methods to augment USFWS efforts
 - Unlikely to inform effectiveness monitoring for at least a decade.

Additional Considerations

- Status of Q3
- Relative importance of Q1, Q2, and Q3 to implementing the HCP
- Funding situation

**Amphibians
Scoping Proposal**

Independent Research and Science Team
Institute for Natural Resources – Oregon State University

Scoping Proposal

Submitted to
The Oregon Department of Forestry
Adaptive Management Program Committee
17 July 2026

AMPC Discussion: **Amphibians scoping proposal Q1 and Q2**



Reminder: Amphibians Q1 & Q2 Pre-survey results



Pre-survey results re: Amphibians questions

Amphibians Question 1: For each of the covered amphibian species, what is the **distribution** (including population diversity) within Oregon, and what **factors** (e.g., stream gradient, stream size, fish presence/absence, slope, aspect, temperature, seasonality, micro-habitat conditions) determine this distribution at a smaller spatial scale (e.g., watershed)?

Option	Ranking (1 = high, 5 = low)	Average
1. No action	5 4 5 5 5 3	4.5
2. Targeted Geographic Range & Distribution Refinement	2 2 3 4 4 5	3.3
3. Among Watershed Habitat Associations	1 1 1 2 3 2	1.7
4. Within Watershed Habitat Associations - stream network	3 3 2 1 2 1	2
5. Population Diversity — Genetics & Demography	4 5 4 3 1 2/4	3.5

On a scale of 1-10, how solid are you on your ranking above? (1 is least solid, 10 is most solid)

5 (6 or 7) 4 7 5 9 (average: 6.1)



Pre-survey results re: Amphibians questions

Amphibians Question 2: What is the **population trend of the Columbia and Southern torrent salamanders over time** on lands subject to the Forest Practices Act (FPA) rules?

Option	Ranking (1 = high, 2 = low)						Average
1. Broad-Scale Torrent Salamander Monitoring Network	1	1	1	2	1	1	1.2
2. Intensive Torrent Salamander Monitoring + Demography	2	2	2	1	2	2	1.8

On a scale of 1 to 10, how solid are you on your ranking above? (1 is least solid, 10 is most solid)

5 (6 or 7) 5 - 5 6 (average: 5.5)



Pre-survey results re: Amphibians questions – additional comments

“It appears to me, from reading the descriptions of the options, that some are not at the same level as others. For example, Q1O5 appears to be a recommendation to be implemented alongside Q1O3 or O4. This is why I selected Options 1, 2, 3, and 4 over Option 5. Similar for the Question 2 options. Therefore, it would seem best to combine Q1O3 with Q1O5 and Q2O1 with Q2O2, but these combinations do not seem financially realistic.”



Pre-survey results re: Amphibians questions – additional comments

“I feel strongly that our research investments should help answer the fundamental management question we were tasked with addressing: Are the current rules sufficient to support amphibian population persistence? Some of the topics above could potentially be adapted to address rule effectiveness, but as currently described, I don’t see a direct connection between the proposed studies and that question. For that reason, I do not support funding any of the studies as currently described.

To help think through this, I reached out to a USGS colleague who studies amphibians and their habitat use. She provided a literature review and summary of her thoughts, which I found very informative. Her assessment was that even though there are some knowledge gaps, there was enough information about the ecology of the focal amphibians to formulate and research the effectiveness of the harvest rules.

Given our mandate, I think we should prioritize research that tests management- and rule-relevant hypotheses and helps us evaluate whether the current protections are achieving their intended outcomes, rather than investing in broad basic research that does not have a clear connection to rule effectiveness.”



Funding situation



Funding situation

New funding in 25-27 biennium:

\$3.1M for next round of research projects, BUT \$0.5M removed
(June 2026 EBoard request) -> **\$2.6M**

23-25 Funding carried forward to 25-27:

\$3M to IRST housed at INR

Total funding available for AMP: \$5.6M



Board-approved Research Agenda Budget (Sept. 2025)

Project	Budget for 2025-2027 biennium	Total budget^
Road-Stream Hydrologic Connectivity (4+ years)	\$2.7 M*	\$5.4 M
Eastern Oregon Steep Slopes	\$80,000	\$80,000
Amphibians/other	TBD	TBD
TOTAL		\$5.48 M

^Not to exceed

****Note: Roads spending likely less than \$1.5M during this biennium***



What Funds Are Available?

Available funds: \$5.6M available to AMP for research

Obligated funds in 25-27:

- \$2.7M allocated to Roads research (25-27)* [likely less than \$1.5M needed for 25-27]
- \$0.1M allocated to Steep Slopes research (25-27)

Available funds minus obligated funds:

\$5.6M - \$2.7M - \$0.1M = \$2.8M available in 25-27*

Additional funds in 27-29 biennium? Unknown

**NOTE: BOF has approved a total of \$5.4M for Roads research (not to exceed).
\$2.6M is not currently available due to signing letter.*



BOF approved budget includes multi-year research for Roads beyond 25-27 biennium, so any balance (\$2.8M) would likely be allocated to this research under current approach.

Implementation Status of 2025 Research Agenda

Steep Slopes: study in progress, both reports to AMPC early 2027

Roads: RFP closed Aug. 31, this fall for contract (~4 years length)

Note: effectiveness monitoring strategy will require IRST, AMPC time



Proposed Next Steps: Amphibians

Amphibians Questions 1 & 2:

- A. Decide on Research Agenda addendum (using IRST scoping proposal)
- B. **Board decision on budget (Jan. or March 2027?)**
- C. IRST implement studies

Amphibians Question 3*:

- 1. IRST hones list of relevant rules from ODF, AMPC subcommittee reviews, AMPC review & finalize
- 2. AMPC answers IRST questions (preliminary convo March 2026)
- 3. IRST develops scoping proposal

** Delayed to focus on components of effectiveness monitoring, amphibians questions 1 & 2*



Amphibians Question 1

For each of the covered amphibian species, what is the **distribution** (including population diversity) within Oregon, and what **factors** (e.g., stream gradient, stream size, fish presence/absence, slope, aspect, temperature, seasonality, micro-habitat conditions) determine this distribution at a smaller spatial scale (e.g., watershed)?



Amphibians Question 2

What is the **population trend of the Columbia and Southern torrent salamanders over time** on lands subject to the Forest Practices Act (FPA) rules?

This question is informed by the following overarching biological goal as stated in the draft PFA HCP: “Forest practices that support the survival and recovery of the covered species by providing clean, cool, connected, and complex habitats.”



Questions for Consideration

- **What funding is available now, or likely to be available over next 5 years?**
- **What are the priorities for AMPC for research related to effectiveness monitoring strategy, HCP needs?**
- **Best investment in basic science given FPA, HCP structures?**
- **What is a reasonable timeframe to conduct research given funding and HCP constraints?**

“To support this program, it is recommended that \$1.5 million be initially applied to research through the first funding cycle of the adaptive management program to better understand how riparian and unstable slope protections of at least the current and proposed rules for private forestland impact persistence of populations..”

– PFA Report, p. 120-121

Amphibians Q1: Discussion

Option	Est. Time Frame	Est. Cost	Notes / Considerations
Option 1: No Action	0 months	\$0	
Option 2: Targeted Geographic Range and Distribution	1-2 years	\$130k - \$400k	
Option 3: Watershed-scale Habitat Associations	2-3 years	\$700k - \$1.7M	
Option 4: Reach-scale Habitat Associations	3-5 years	\$1.1M - \$2.5M	
Option 5: Population Diversity – Genetic and Demographic Approaches	3-5+ years	\$625k - \$1.675M	

Amphibians Q2: Discussion

Option	Est. Time Frame	Est. Cost	Notes / Considerations
Option 1: Broad-scale Torrent Salamander Monitoring Network for Trend Detection	5-10 years	\$2.225M - \$7.375M	
Option 2: Intensive Torrent Salamander Monitoring Network with Demographic Components	7-10+ years	\$3.35M - \$7.075M	

Review of Options: For Reference



Amphibians Question 1: Options 1-5

Option	Timeframe	Cost	Knowledge Contribution
Option 1	None	\$0	No Action: Maintains current understanding from existing data; does not generate new information on watershed-scale distribution, habitat associations, population diversity, or population trends.
Q1- Option 2	1-2 years	\$130k–\$400k (\$130k–\$200k/year)	Targeted Range & Distribution Refinement: Limited new presence/absence records to refine range boundaries and reduce distributional uncertainty. Provides foundation for designing future field studies.
Q1 Option 3	2-3 years	\$700k–\$1.7m (\$350k–\$575k/year)	Watershed-Scale Habitat Associations -- Broad Sampling: Systematic, range-wide characterization of watershed-scale species presence/absence data and landscape- and watershed-scale habitat associations. Does not support reach-scale inference; apparent absences species carry uncertainty.
Q1 Option 4	3-5 years	\$1.1m–\$2.5m (\$375k–\$500k/year)	Reach-Scale Habitat Associations -- Intensive Sampling: Accommodates detection-corrected occupancy methods for species presence/absence at the stream-reach scale within a smaller number of watersheds, supporting more reliable habitat association inference at reach-scales within sampled watersheds. Most informative alongside Q1-3.
Q1 Option 5	3-5+ years	\$625k–\$1.7m (\$200k–\$275k/year)	Population Diversity — Genetic and Demographic Approaches: Population connectivity, genetic structure, and demographic rates. Most valuable as an add-on to Q1-3 or Q1-4. Each approach provides only a partial view independently.

Q1: Knowledge Contributions and Limitations

Option	Knowledge Contribution	Limitations
Q1, Option 1: No Action No cost	- Maintains current understanding of 5 amphibian species	- Watershed-scale distribution is incomplete for all 5 species - Wouldn't address Q2 at all
Q1, Option 2 1-2 years \$130-\$400k total	- Generates new presence/absence observations - Improves confidence in statewide distribution maps	- Results can't support statistical inference about occurrence patterns across broader landscape - Does not address habitat associations, demographic responses, population diversity, or population trends
Q1, Option 3 2-3 years \$700k-\$1.7M	- Generates presence/absence data across statistically valid sample of watersheds - Results can support landscape- and watershed-scale habitat association analyses - Can be combined with Option 4 or 5	- Doesn't estimate detection probabilities - Doesn't support reach-scale inference about how species use stream networks in individual watersheds - Does not address population diversity, demographic rates, or population trends

Q1: Knowledge Contributions and Limitations

Option	Knowledge Contribution	Limitations
Q1, Option 4 3-5 years \$1.1M - \$2.5M	- Generate detection-corrected species occupancy estimates within smaller # of watersheds with more precision - Fewer watersheds than Option 3, but concentrates efforts within those selected - Potential to combine Option 3 + 4, or 4 + 5	- If watersheds are selected using a probabilistic design, could support range-wide habitat association but confidence, statistical power, and precision would be less than Q1 Option 3 - Does not directly address population diversity, demographic rates, or population trends
Q1, Option 5 3-5+ years Stand-alone: \$625k - \$1.675 M. In combination with 3 or 4: \$300k - \$700k	- Generates insight into population persistence by evaluating connectivity and diversity across watersheds - Uses genetic data (tissue sampling) to describe population connectivity and structure; uses demographic data (repeated sampling of individuals) to evaluate life-stage structure, survival, and movement	- Independently, this option provides partial information and would be of greatest value in combination with Option 3 or 4 - Genetic data doesn't provide direct estimates of survival or reproduction - Demographic data is only feasible in a limited number of locations

Amphibians Question 2: Options 1-2

Q2 Option 1	5-10 years	\$2.3m–\$7.4m (\$450k–\$700k/year)	Broad-Scale Torrent Salamander Monitoring Network: Detection-corrected occupancy trends for Columbia and southern torrent salamanders across a broad geographic extent on FPA lands. Trend detection is the primary objective. Does not explain demographic mechanisms driving observed trends.
Q2 Option 2	7-10+ years	\$3.4m–\$7.1m (\$475k–\$700k/year)	Intensive Torrent Salamander Monitoring Network with Demographic Components: Detection-corrected occupancy trends for Columbia and southern torrent salamanders within intensively monitored watersheds on FPA lands; abundance estimation, demographic data collection, and habitat characterization are optional enhancements; most informative when implemented alongside Q2, Option 1.



Q2: Knowledge Contributions and Limitations

Option	Knowledge Contribution	Limitations
Q2, Option 1 5-10 years \$2.25M - \$7.375M Can be done in combination with Option 2	- Generates systematic, detection-corrected estimates of population trends for Columbia and southern torrent salamanders - Monitoring across 50-100 HUC 12 subwatersheds (FPA lands) - Supports inferences about whether populations are increasing, decreasing, or stable; allows assessment of variability in trends among watersheds, regions, and conditions	- Prioritizes broad spatial coverage over sampling intensity, so it is designed to detect regional signals in population change rather than explain demographic mechanisms that drive that change - Most informative when implemented with Q2 Option 2
Q2, Option Min 5 years, 7-10+ years \$3.35M - \$7.075M	- Generates detection-corrected occupancy estimates, and in certain cases, abundance estimates within a smaller # of watersheds - Concentrates sampling effort within fewer watersheds to support stronger inference about processes driving population change at watershed and reach scale - Target 5-15 HUC12 subwatersheds	- Concentrates sampling in fewer watersheds, which means that results are less suited for broad inference about range-wide population trends - Most informative in combination with Q2 Option 1

Integration options

Option Integration Scenario	Options Combined	Per Year — Low	Per Year — High	Total — Low	Total — High
1	Q1 Option 3 + Q2 Option 1	~\$550,000	~\$950,000	~\$2,025,000	~\$6,800,000
2	Q1 Option 4 + Q2 Option 2	~\$600,000	~\$900,000	~\$3,125,000	~\$7,175,000
3	Q1 Option 3 + Q2 Option 1 + Q2 Option 2	~\$875,000	~\$1,475,000	~\$4,375,000	~\$12,100,000

Knowledge Contribution Topic Area	Option 1 No Action	Q1, Option 2 Targeted Surveys	Q1, Option 3 Watershed-Scale Habitat Associations - Broad Sampling	Q1, Option 4 Reach-Scale Habitat Associations - Intensive Sampling	Q1, Option 5 Population Diversity	Q2, Option 1 Broad Torrent Monitoring	Q2, Option 2 Intensive Torrent Monitoring
Timeframe	None	1-2 years	2-3 years	3-5 years	3-5+ years	5-10 years	7-10+ years
Cost	\$0	\$130k–\$400k	\$700k–\$1.7M	\$1.1M–\$2.5M	\$625k–\$1.68M standalone; \$300k–\$700k add-on; +\$248k genetics one-time	\$2.23M–\$7.38M +\$414k genetics one-time	\$3.35M–\$7.08M +\$62k genetics one-time
Subwatersheds sampled	N/A	Targeted	~80–120 HUC12 (~6–9% of 1,288)	~20–35 HUC12 (~2–3% of 1,288)	Varies; add-on to Op. 3 or 4	~50–100 HUC12 (~7–14% of 716)	~5–15 HUC12 (~1–2% of 716)
Geographic range refinement		✓					
Watershed-scale distribution			✓			✓	✓
Landscape-scale habitat associations			✓			✓*	
Watershed-scale habitat associations			✓			✓*	
Reach-scale habitat associations				✓			✓
Population connectivity and genetic structure					✓	✓†	
Population demography					✓		✓§
Population trends (torrents, Q2)						✓	✓
Abundance estimates (torrents, Q2)						✓‡	✓

Knowledge contributions comparisons



Including Amphibians questions 1 & 2 in research agenda

- 1) Vote
- 2) Delay action until clear budget picture (June 2027), send research agenda to Board by July 2027



Thank you for your participation today

