Amphibians and Forestry

A growing body of research supports the importance of amphibians for forest health. Amphibians play a distinctive role in forest ecosystems, as they are centrally positioned in food webs as both key predators and prey. Their unique life history also functions to move energy between aquatic and terrestrial ecosystems. Here we help forest landowners and operators understand where stream-associated amphibians are found and how to support them through forest management.

Understanding how to incorporate management strategies for stream-associated amphibians into riparian areas and surrounding forests contributes to wildlife conservation and is an important component of forest sustainability.

More than 30 amphibian species can be found in Oregon's forests, occurring across wet and dry forested areas. Five of these species — all of which are stream-obligates during their early development — influenced the adoption of new forest practice rules in 2022. For detailed species accounts, refer to the *Forest Amphibians* publication. These species are:

- Columbia torrent salamander
- southern torrent salamander
- coastal giant salamander
- Cope's giant salamander
- coastal tailed frog

Columbia torrent salamander. Photo by Matt D'Angrosa. CC-BY.

Southern torrent salamander. Photo by Todd Pierson. CC-BY-NC.

WHERE ARE THESE SPECIES FOUND?

Small streams in forested headwaters provide cold water and substrates habitat for stream-breeding amphibians such as coastal giant salamanders, torrent salamanders and tailed frogs. Torrent salamanders can occur in intermittent or ephemeral headwater streams with small substrates, whereas giant salamanders and tailed frogs can use large and small perennial streams and prefer larger substrates. After metamorphosis, these species disperse to stream banks and nearby forested habitats. Down wood and other habitat elements, such as rocky stream edges, leaf litter, habitat piles and root wads, are essential refugia for these species and maintain a stable, moist microclimate.

Coastal giant salamander. Photo by Hilary Rose Dawson. CC-BY.

WHAT ARE SOME THREATS TO AMPHIBIANS?

- habitat loss, degradation and fragmentation, particularly from land use change
- altered water levels, flow or temperature
- loss of clean water sources
- environmental contaminants
- disease

BEST MANAGEMENT PRACTICES FOR AMPHIBIANS?

Managing riparian areas with amphibians in mind will benefit stream-obligate species such as the Columbia torrent salamander and the southern torrent salamander for breeding, rearing, and foraging. Other stream-dwelling species such as the Cope's giant salamander, coastal giant salamander, and coastal tailed frog will also benefit, as they require cold, clear, fast-moving streams for breeding.

- limit equipment use near streams
- retain vegetation in riparian zones
- create connectivity to forested uplands and over ridgelines by providing a mosaic of down wood
- retain down wood in and out of riparian zones
- minimize movement of down wood
- minimize damage to down wood
- maintain canopy cover
- minimize disturbance to stream-side vegetation and microhabitats
- retain forested corridors

Cope's giant salamander. Photo by Tom Field. CC-BY.

Coastal tailed frog. Photo by Ken-ichi Ueda. CC-BY.

AMPHIBIAN MANAGEMENT CHECKLIST

Pre-harvest planning

- ☐ Do I have riparian areas in my planned management area?
- ☐ Am I within the range of torrent or giant salamanders, or tailed frogs?
- ☐ Are there other amphibians I should be thinking about?
- ☐ Do I know which forest practice rules apply?
- ☐ What habitat elements are present for amphibians?
- ☐ Have I communicated my management expectations with my operator?
- ☐ Can I provide connectivity?

During harvest

- ☐ Monitor to make sure expectations are being met.

Post-harvest

- ☐ Evaluate management action – did I provide for amphibians?
- ☐ Monitor the site for amphibians.

SOURCES & MORE INFORMATION

Oregon Forest Resources Institute - Oregon's Forest Protection Laws: An Illustrated Manual 2025

Wildlife in Managed Forests: Forest Amphibians

Inventory and Monitoring: recommended techniques for reptiles and amphibians
Partners in Amphibian and Reptile Conservation

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