Where are Long-Toed Salamanders Found in a Game of Hide-And-Seek With Trout?

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In many alpine lakes, trout have been introduced for recreational fishing and have replaced native amphibians as top predators. In these systems, trout are associated with reducing the abundance of amphibians and have extirpated populations of long-toed salamanders (*Ambystoma macrodactylum*) from many lakes. Although rare, salamander coexistence with trout may occur in some lakes where habitat characteristics such as emergent vegetation and physical barriers are present, as these environments can provide refugia from predation. We sought to identify what key habitat features might allow this co-occurrence. We sampled seven lakes with salamanders and fish and seven with only salamanders in northwestern Montana between July and August 2012. We used minnow traps to capture salamander larvae and we quantified habitat characteristics (e.g., vegetation density, structural complexity) where salamanders were captured. We compared capture rates and habitat characteristics to determine whether lakes with and without fish differed. Preliminary results suggest that salamander capture rates were higher in lakes with fish (33%, 95% CI = 13-84%), but salamanders were smaller, as larvae had 68 percent shorter tails (51-91%) in lakes with fish. Despite these differences, we did not detect any differences in habitat characteristics. Unless minnow traps were used as refugia, our findings suggest that salamanders utilize similar habitat in these lakes regardless of the presence of fish. Future work will examine factors influencing salamander growth and tail length and determine whether adding habitat complexity is an effective strategy to facilitate coexistence of salamanders and fish.