



Amphibians Like it Wild

Detectives of our Stream Life

To understand and conserve the biological diversity of aquatic amphibians in southern California’s national parks, scientists need to answer two key questions. What species live in these parks? What changes are occurring in their populations over time? They find out through inventory and monitoring.

Every year since 2000, scientists have studied amphibians living in streams within the Santa Monica Mountains National Recreation Area. Repeated visits are important to discover changes that might be harmful to our native wildlife and take action early to help them survive.



Pacific treefrog

What Scientists Have Learned



Wild Streams, More Natives

Scientists now know that as little as 8 to 10 percent urbanization of a watershed spells trouble for our native amphibians. Urban streams tend to support invasive fish and crayfish that devour amphibian eggs and young.



Too much water in urban streams

Naturally, streams in southern California tend to dry out in summer. Native amphibians are adapted to wet and dry spells, but exotic fish and crayfish need year-round water. They find those ideal conditions in urban streams, where stormwater runoff boosts flow.

Some natives faring better than others

When non-native fish and crayfish move into local streams, California treefrog and California newts vanish. Pacific treefrog populations decline, but usually persist in small numbers. Why? The Pacific treefrog can survive under a broader range of conditions than the California treefrog and California newt.

A wild stream (top image) differs from an urban stream (bottom image) in both structure and function.

From Discovery to Action

How Science Informs Management

Prevention: The Best Medicine

One key lesson scientists have learned from monitoring is that the best way to save our native amphibians is to prevent their numbers from declining in the first place. We can do that by keeping streams healthy and free of exotic predators. Once non-native fish and crayfish move into a stream, it's very hard to get rid of them.

Collaboration to Keep Streams Healthy

Resource managers apply the findings from NPS aquatic amphibian research to encourage stream-friendly land use. They work with local communities and developers to identify best practices for limiting stormwater runoff—like installing porous pavement and cisterns and building bioswales to keep runoff out of streams.

Restoration of Native Amphibians

Getting Crayfish Out of Trancas Creek

During their research, scientists discovered that crayfish from nearby golf course ponds had invaded the otherwise wild reaches of Trancas Creek. In 2003, Pepperdine University scientists and community volunteers launched a project to remove crayfish and save the native amphibians.

That first year, they trapped 1,343 crayfish. The next year, 377. The third year, just four. With fewer crayfish, the amphibians rebounded. Since removing all crayfish is next to impossible, the creek will need ongoing attention.

Reintroducing Red-legged Frogs

Red-legged frogs used to be common in many local streams. By 2012, they had disappeared from all but a single stream in the Simi Hills. NPS researchers are reintroducing red-legged frogs to some of the wildest local streams, where they'll have the highest chance of surviving.

Roster of Native Aquatic Amphibians

California newt (*Taricha torosa*)

Pacific treefrog (*Pseudacris regilla*)

California treefrog (*P. cadaverina*)

Western toad (*Bufo boreas halophilus*)

Red-legged frog (*Rana aurora*)

