THE **HEAT** IS **ON**

Species feeling the effects of climate change

NPS/JACOB W. FRANK

Blotched Tiger Salamander

Ambystoma mavortium melanostictum

Region:
Rocky Mountains

Area affected:
Yellowstone National Park

Climatic change:
Increased incidence of drought

Impact:
Loss of breeding habitat

ABOUT THIS SPECIES

The blotched tiger salamander, a subspecies of the western tiger salamander, is the only salamander found in Yellowstone National Park. These salamanders are olive in color with dark blotches across their backs. Adults are terrestrial, living beneath fallen logs or rocks, and feeding on a variety of insects and other small invertebrates. In late spring, adults migrate to small seasonal ponds to breed and lay their eggs. These small temporary ponds, called vernal pools, form in spring when rain and snowmelt collect in low areas and dry out in late summer. The salamanders evolved to use these provisional habitats rather than perennial ponds and lakes that support populations of fish that would devour salamander eggs and larvae. However, if the vernal pools dry out too quickly—before the larvae complete their development and can breathe air—the young salamanders will die.

DESCRIPTION OF IMPACT

Yellowstone National Park is one of the nation's largest and oldest nature preserves, and thus protected from many threats to salamanders, like habitat conversion and water diversion. But even Yellowstone cannot escape the effects of climate change. The region has been subject to a warming and drying trend in recent decades, including the most prolonged severe drought of the past century between 2000 and 2007. Researchers observed that 19 out of 49 vernal pools that had been present in 1992 dried out in this time period, and that eight of these remained dry even after a wet year in 2008. **The number of salamander populations declined by nearly half during this period.** Since the 1950s, the number of vernal pools that have permanently dried up in northern Yellowstone has increased four-fold. Altering precipitation patterns can shift the life cycles and hydrology of these pools more quickly than species are able to adapt. In 2008, researchers found hundreds of dead juvenile salamanders at several of the pools that had dried out over the course of their study, indicating that drying had outpaced larval development. As global warming continues to change the park, events like this will, unfortunately, likely become more common.

References

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