

# THE HEAT IS ON

*Species feeling the effects of climate change*



## Columbia Spotted Frog

*Rana luteiventris*

### Region:

Rocky Mountains

### Area affected:

Yellowstone National Park

### Climatic change:

Increased incidence of drought

### Impact:

Loss of breeding habitat

### ABOUT THIS SPECIES

Found throughout much of the Pacific Northwest, the Columbia spotted frog is also the most abundant amphibian in Yellowstone National Park. Roughly three inches in length, their spots give these frogs a “warty,” toad-like appearance. Adults feed on terrestrial insects, rarely venturing more than 50 feet from water and preferring areas with sheltering vegetation at the water’s edge. They breed in late spring and lay their eggs in water bodies ranging from small pools to lakes, but seasonal ponds without fish that prey on frog eggs and larva are particularly important. Although tadpoles can metamorphose in as little as 60 days, the frogs don’t reach reproductive maturity until four to six years of age.

### DESCRIPTION OF IMPACT

Yellowstone National Park is one of the nation’s largest and oldest nature preserves, and thus has long been free from threats 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 seasonal ponds that had been present in 1992 dried out during this period, and that eight of these remained dry even after a wet year in 2008. **The number of spotted frog populations declined by 68 percent from 1992 to 2008.** In 1992 to 1993, they were found in 22 of 42 ponds surveyed, but only in seven over the period of 2006 to 2008.

### References

McMenamin, S.K., E.A. Hadly, C.K. Wright. 2008. Climatic change and wetland desiccation cause amphibian decline in Yellowstone National Park. *Proceedings of the National Academy of Sciences* 105(44): 16988-16993. <http://www.pnas.org/content/105/44/16988.full>

Montana Field Guide. Columbia Spotted Frog – *Rana luteiventris*. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. <http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=AAABH01290>



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