Western Ecological Research Center http://www.werc.usgs.gov

Hazards and Endangered Species in Southern CA

Southern California is a region of unparalleled natural biodiversity and an enormous human population whose continued growth and expansion threaten many native species and habitats. As human populations expand, once extensive natural communities are reduced to mere remnants increasing the number of threatened and endangered species. Southern California has more endangered and threatened species than any other area in the continental United States.

Drought, fires, debris flows, landslides, and flooding are common occurrences in southern California. As human development expands into the foothills and mountains and native species decline, these once common occurrences become catastrophic events for both humans and wildlife, resulting in human loss and local species extinction.

City Creek, in the San Bernardino Mountains, has recently experienced drought, fire, debris flows, and flooding and supports several native species including the federally endangered mountain yellow-legged frog (MYLF) and the Santa Ana speckled dace, a California Department of Fish and Game species of special concern.

Prior to 2000

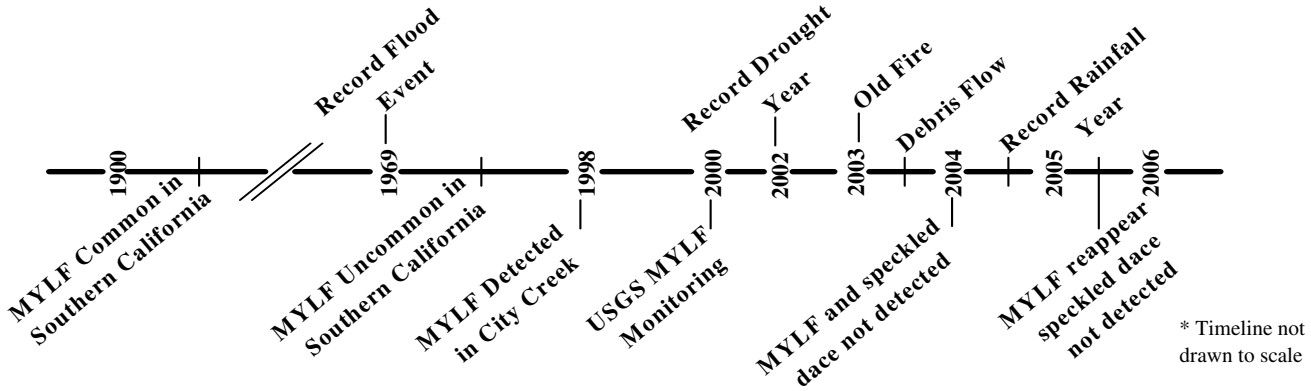
- Between 1900 and 1969 MYLF appeared common.
- In January 1969 over 44 inches of rain fell in 9 days causing flooding and scouring of canyons, resulting in major declines of MYLF in southern California.
- 1998 MYLF detected in City Creek.

2000

- USGS began monitoring City Creek, detecting MYLF, California treefrogs, and Santa Ana speckled dace.

2003

- MYLF population estimate of 100 adult frogs.
- In September the Old Fire burned entire City Creek watershed.
- Winter rains caused landslides and debris flows.



2004

- No MYLF or Santa Ana speckled dace detected.
- California treefrogs population explosion.
- Record winter rains scoured City Creek.

2005

- 1 adult and 11 young MYLF detected.
- California treefrog still abundant.
- No Santa Ana speckled dace detected.

2006

- 2 adults and 17 young MYLF detected.
- California treefrog still abundant.
- No Santa Ana speckled dace detected.

City Creek is only one example in southern California of a natural community that supports threatened and endangered species where hazards have a detrimental affect. Although the physical habitat in the creek appears similar to what is was like before the recent natural disasters, the biological community will take much longer to restore, if at all, without adaptive management. A better understanding of the relationship between natural disasters and endangered species is crucial in managing for these declining native species as national trust resources.

For more information, contact:
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For a list of technical products from this field station, click on the "products" button on our home page at http://www.werc.usgs.gov/

Photos documenting physical and biological change in City Creek, CA, approximately the same location.

2003

City Creek ***before*** fires, debris flows, and flooding. Note the riparian vegetation, alder tree canopy, and plunge pools.

2004

City Creek ***after*** fire and debris flow but ***before*** flooding. Note the lack of riparian vegetation and the sediment filling in the plunge pools.

2005

City Creek ***after*** fires, debris flows, and flooding. Note the lack of riparian vegetation and the sediment has been flushed out by record rainfall and plunge pools forming in the bedrock.