

Phenomenon:

Barton Spring's Salamander Population

Guiding Question:

What has caused the drop in Barton Spring's Salamander population over the last 20 years?



Barton Spring Salamanders in Eliza Springs

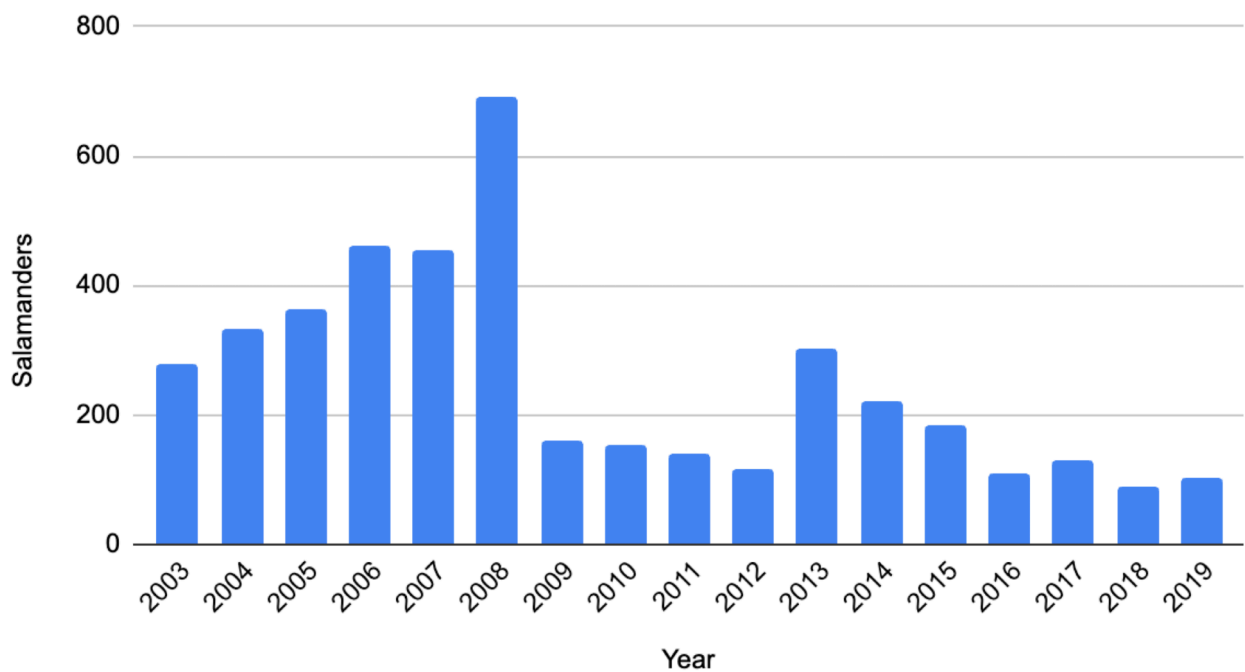


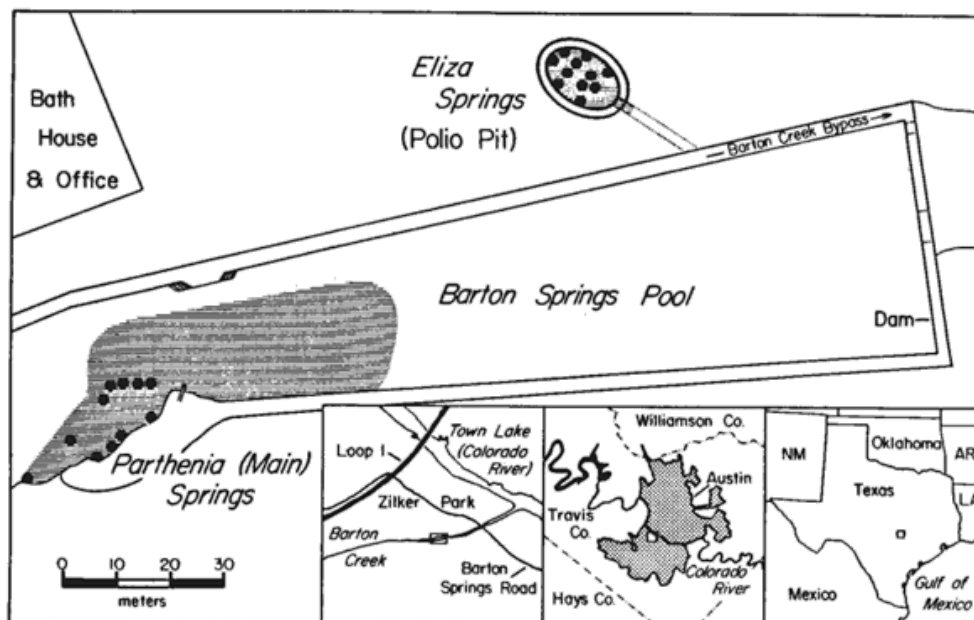
Table of Contents

Table of Contents	2
Evidence 1: Barton Springs Salamander: Challenges	3
Evidence 2: Barton Springs Water Flow	4
Evidence 3: Barton Springs History	5
Evidence 4: Chytrid Fungus	6
Evidence 5: Pool Maintenance	7
Sources:	8

Evidence 1: Barton Springs Salamander: Challenges



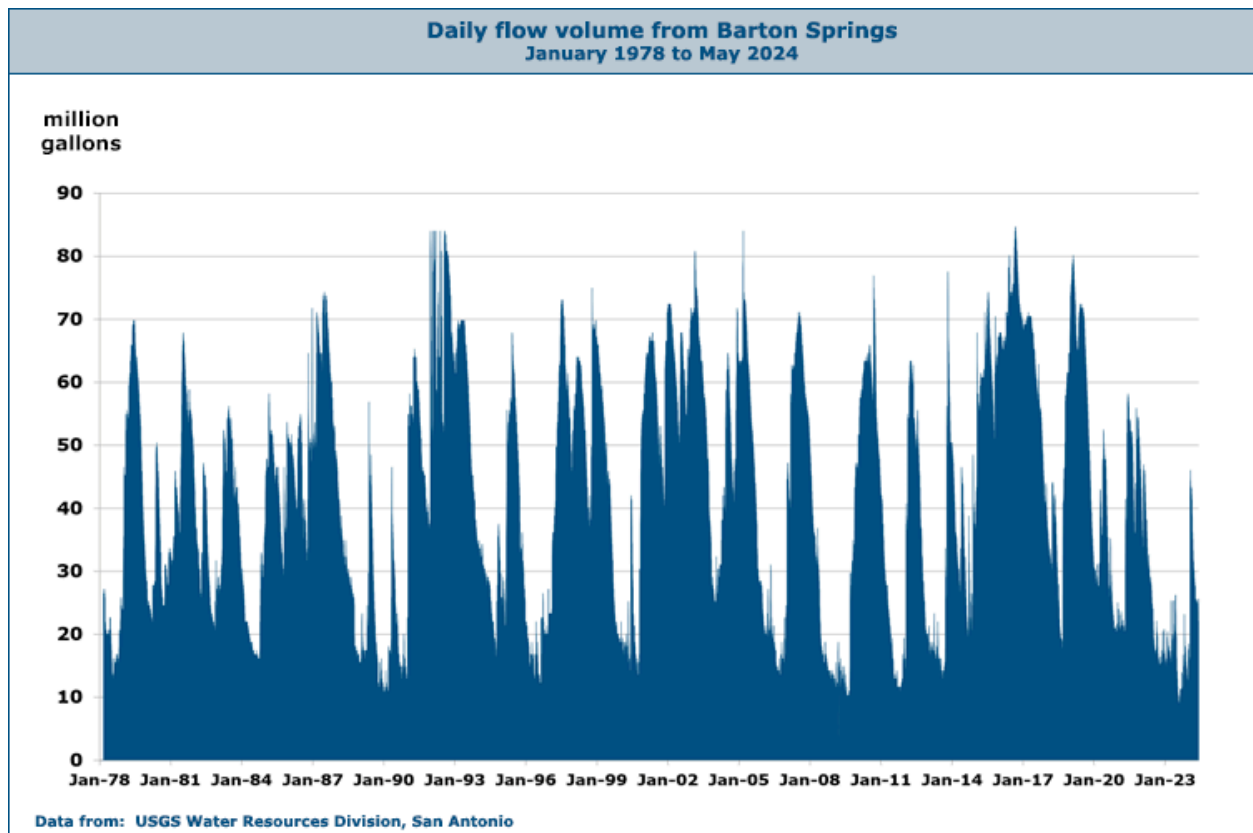
The Barton Springs Salamander faces several threats to its survival because it relies on clean, clear water from the Barton Springs Aquifer. Urban development in the Barton Creek watershed leads to runoff, which can pollute the water. There is also the risk of toxic chemical spills or sewer line breaks in the area. Additionally, as cities grow, more water is used by people, reducing the groundwater supplies that the salamander depends on.



Known distribution of the Barton Springs Salamander. Solid dots mark spring outflows.

Evidence 2: Barton Springs Water Flow

Barton Springs in Austin, Texas, gets its water from the Edwards Aquifer, which is recharged by streams like Barton Creek and Onion Creek. These streams carry rainwater into the aquifer through sinkholes and cracks in the limestone rock. When it rains, especially during storms, more water flows into the aquifer, which helps fill it up and keeps the springs flowing. This process makes the springs dependent on steady rainfall and clean water entering the aquifer.



The Edwards Aquifer acts like an underground storage system, holding water in its network of caves, cracks, and tunnels. Water moves through the aquifer and eventually flows out at places like Barton Springs. The springs are the main outlet for this part of the aquifer, making them an important part of the local ecosystem. Protecting the streams and the aquifer helps ensure Barton Springs keeps flowing with clean water.

Evidence 3: Barton Springs History

Barton Springs Pool, located within Austin's Zilker Park, spans three acres and is fed by underground springs, maintaining a consistent temperature of 68-70°F, making it ideal for year-round swimming. The pool has a rich history, with human activity at the springs dating back at least 10,000 years. In the 1920s, the City of Austin transformed the area into a public swimming facility by damming the springs and constructing sidewalks. The current limestone bathhouse was built in 1946 after the original wooden structure was destroyed by flooding in 1935

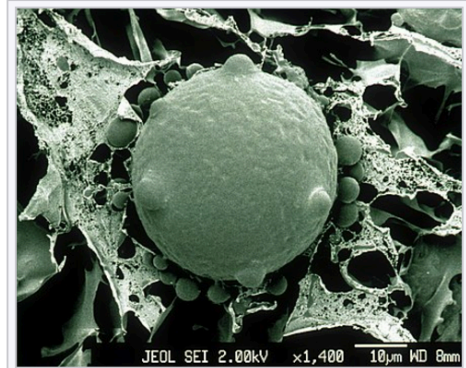


Adjacent to the bathhouse is the Splash! exhibit, an educational display where visitors can learn about the history and biology of Barton Springs and the Edwards Aquifer that feeds it. The pool is also home to the endangered Barton Springs Salamander, leading to conservation efforts to protect its habitat. Despite these environmental considerations, Barton Springs Pool remains a popular recreational spot, balancing public enjoyment with ecological preservation.



Evidence 4: Chytrid Fungus

The Barton Springs salamander, an endangered species native to Austin, Texas, faces significant threats due to urban development and environmental changes. The expansion of urban areas leads to increased runoff and pollution, which degrade the water quality of Barton Springs—the salamander's sole habitat. Additionally, the species is vulnerable to diseases like chytridiomycosis, caused by the chytrid fungus (*Batrachochytrium dendrobatidis*), which has been linked to amphibian declines worldwide.



Scanning electron micrograph of a frozen intact zoospore and sporangia of the chytrid fungus (*Batrachochytrium dendrobatidis*), CSIRO



Chytrid-induced morphological changes in salamander species.

Evidence 5: Pool Maintenance

In the past, harmful maintenance practices at Barton Springs Pool, such as using chemicals, hot water, and high-pressure hoses, damaged the plants and habitats the salamander needs to survive. These actions caused a sharp decline in the salamander's population between 1970 and 1992. Fortunately, new pool maintenance methods have been put in place to protect the salamander's habitat, and efforts to restore aquatic plants are helping the salamander recover. However, it has not yet returned to the population levels it had before 1970.



Sources:

NOTE: DO NOT READ THESE ARTICLES WHILE DOING ARGUMENTATION. That's cheating !! :)

Texas Parks and Wildlife Department. (n.d.). *Barton Springs Salamander (Eurycea sosorum)*. Retrieved December 3, 2024, from <https://tpwd.texas.gov/huntwild/wild/species/bartonspringssalamander/>

Mace, R. E., & Sammons, T. (n.d.). *The Edwards Aquifer: Barton Springs Segment*. EdwardsAquifer.net. Retrieved December 3, 2024, from <https://www.edwardsaquifer.net/barton.html>

City of Austin. (n.d.). *Barton Springs Pool*. Retrieved December 3, 2024, from <https://www.austintexas.gov/department/barton-springs-pool>