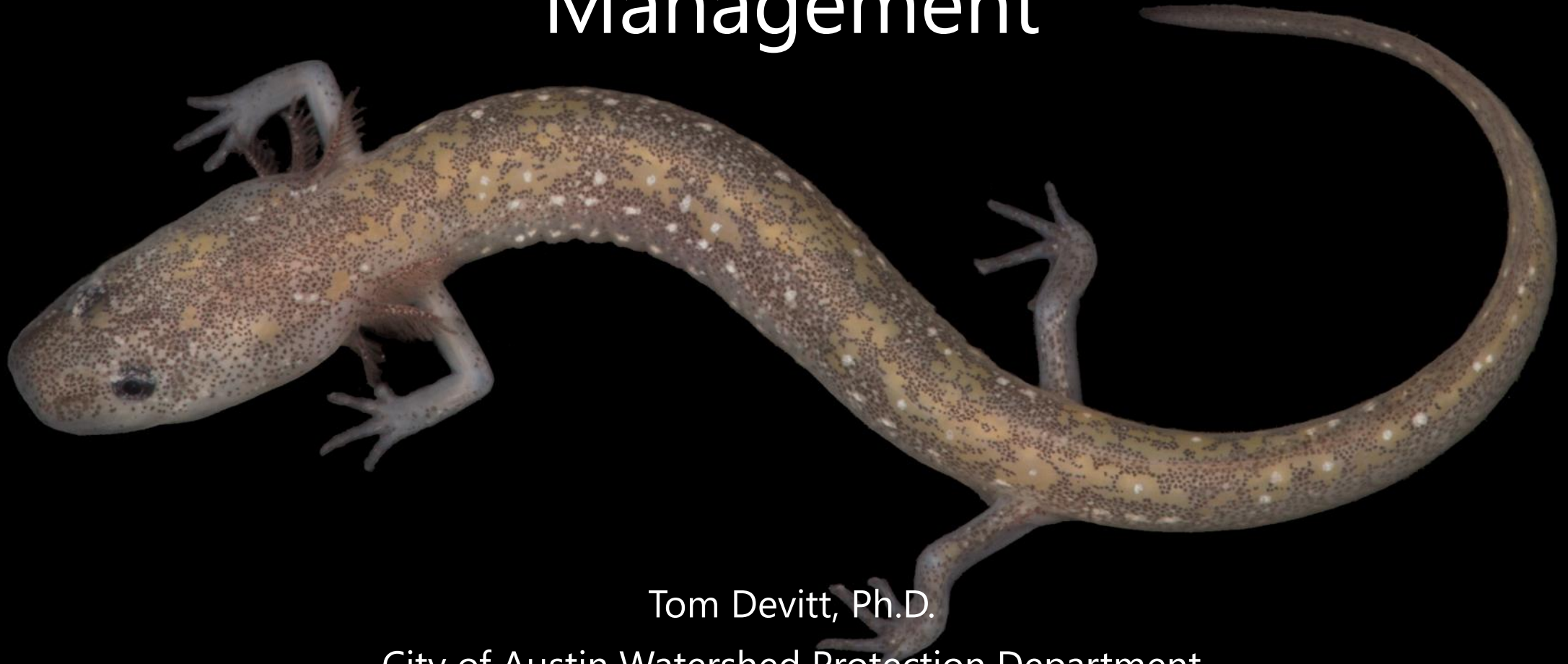


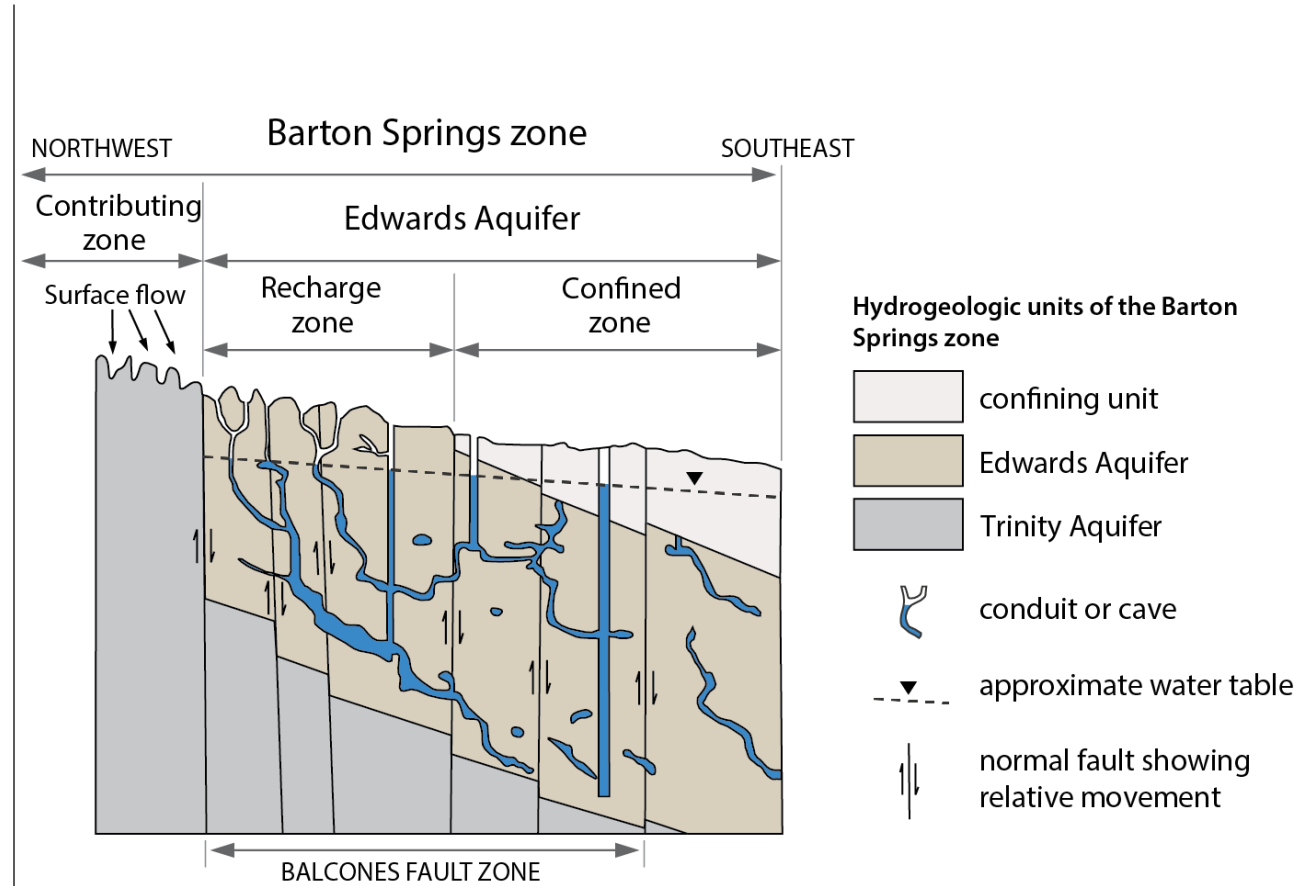
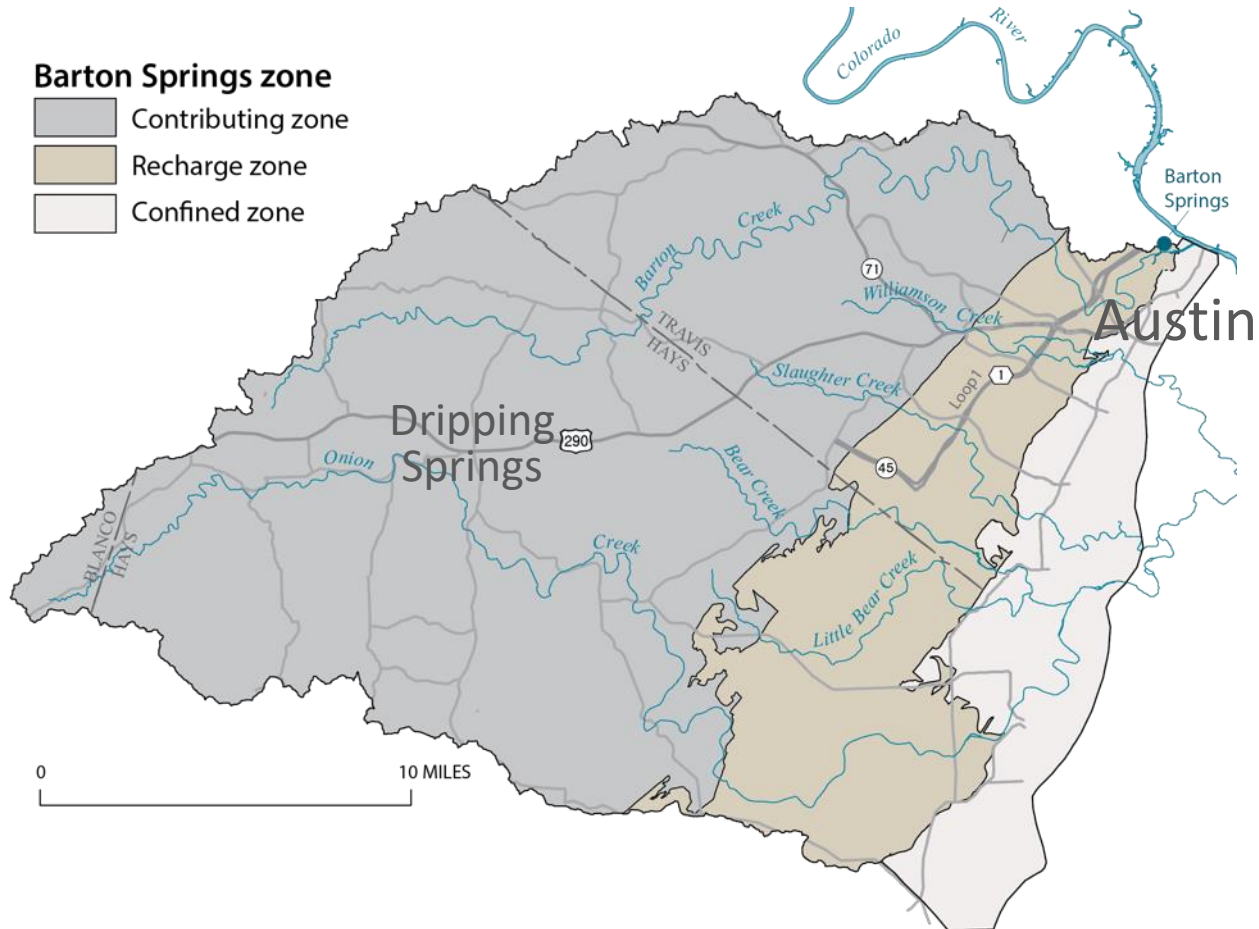
Austin's Endangered Salamanders: An Update on their Conservation and Management



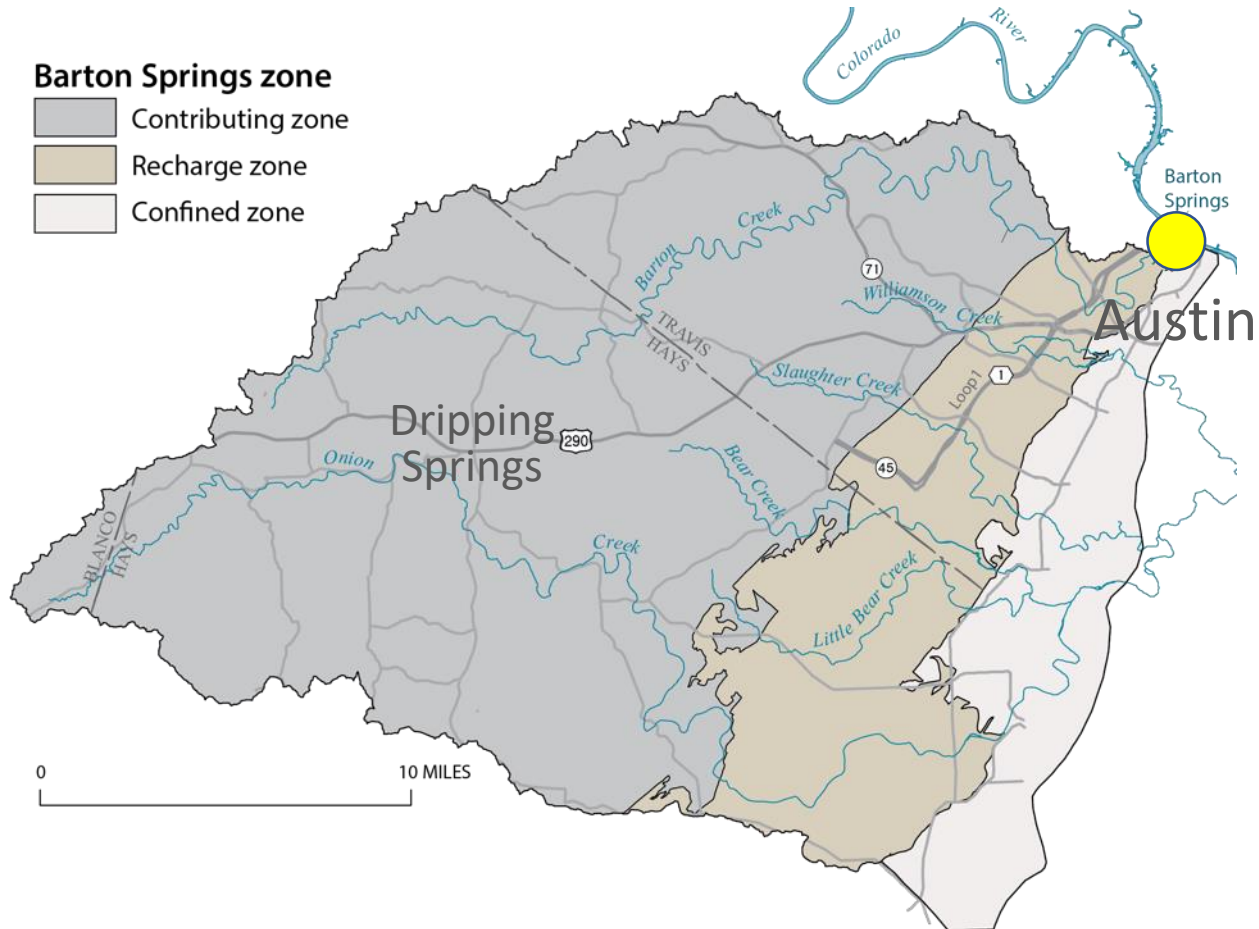
Tom Devitt, Ph.D.

City of Austin Watershed Protection Department

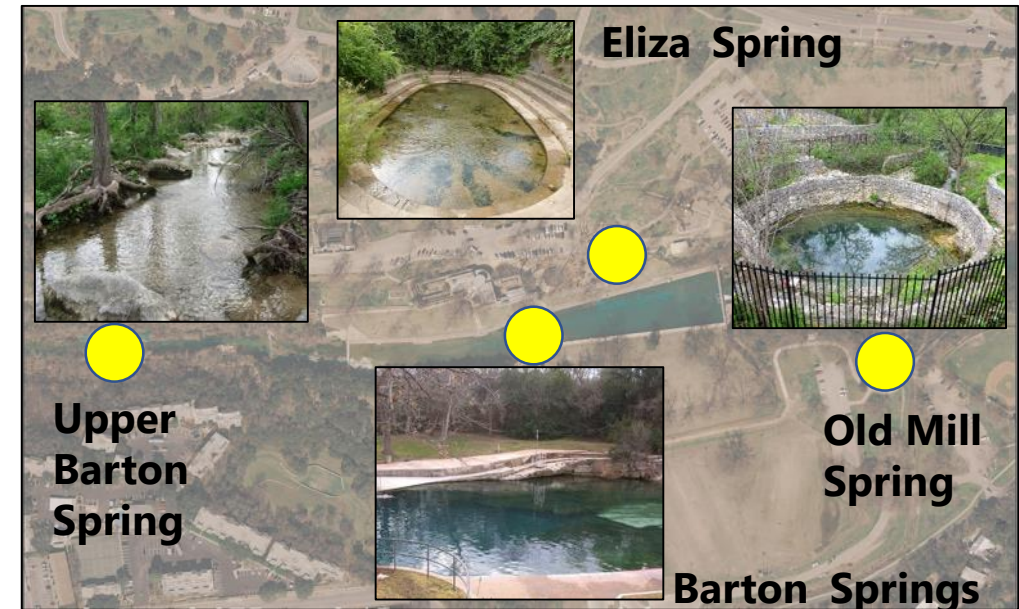
The Barton Springs Zone



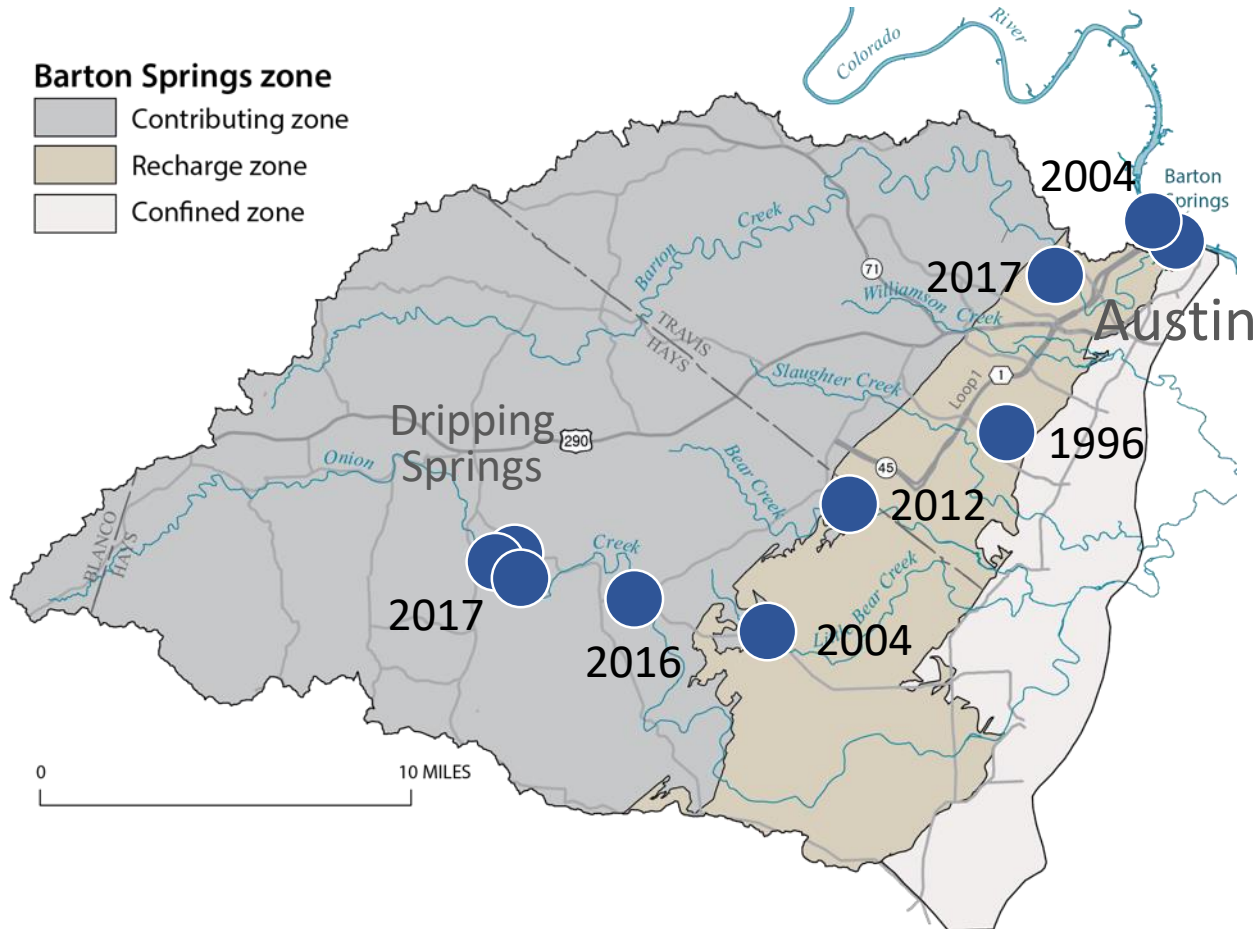
Austin Blind Salamander



Austin Blind Salamander (*Eurycea waterlooensis*) from Upper Barton Spring



Barton Springs Salamander



Barton Springs Salamander (*Eurycea sosorum*) from Main Spring (Barton Springs Pool)

Listed Under the Endangered Species Act

Both species listed as endangered due to:

- 1) Destruction, modification, or curtailment of habitat/range**
- 2) Inadequacy of existing regulatory mechanisms for protecting water quality and quantity**

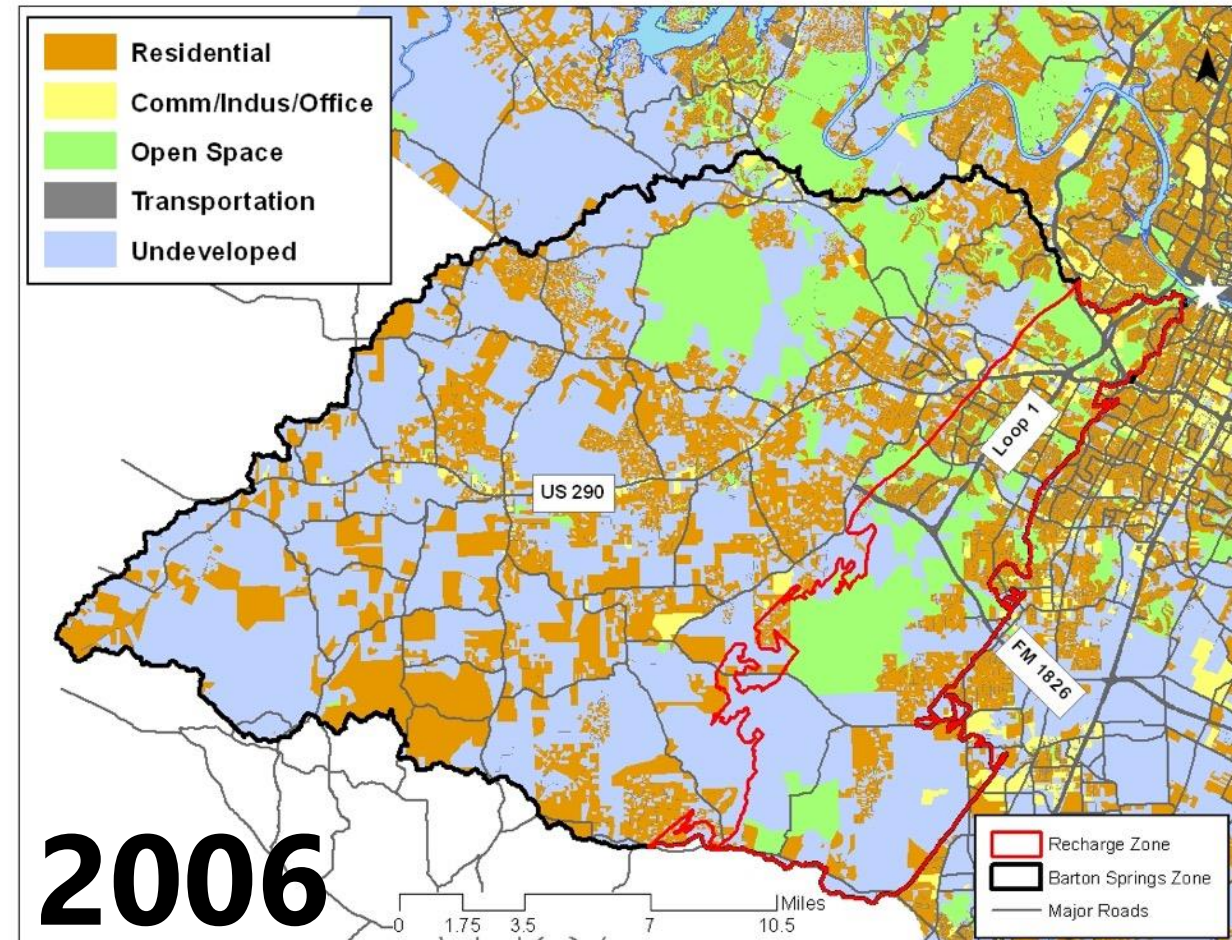
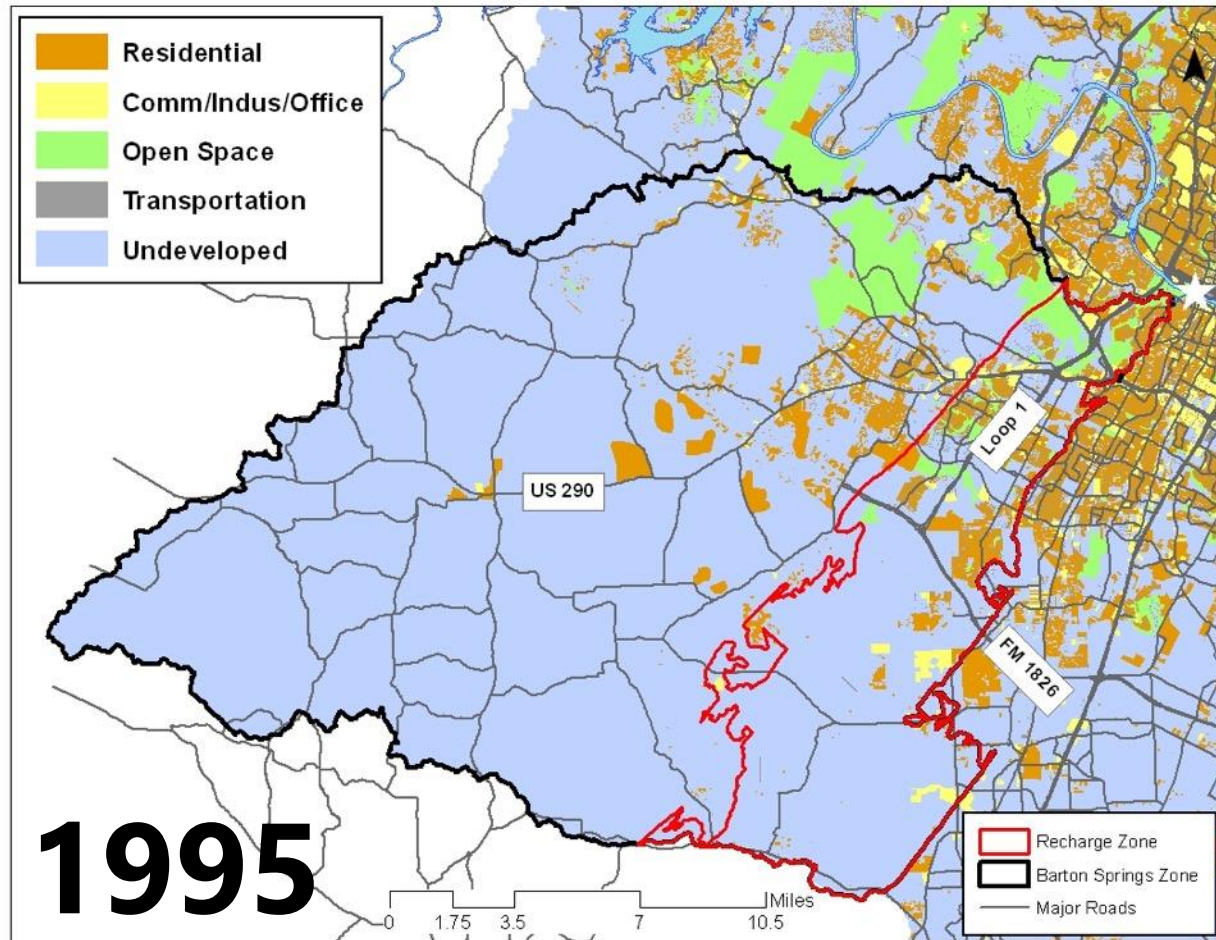


Barton Springs Salamander listed in 1997



Austin Blind Salamander listed in 2013

Urbanization in the Barton Springs Zone





Eliza Spring



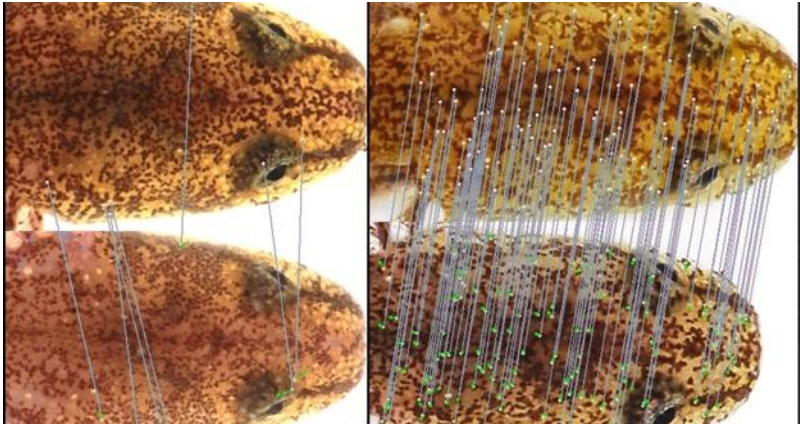
Old Mill Spring



Barton Springs

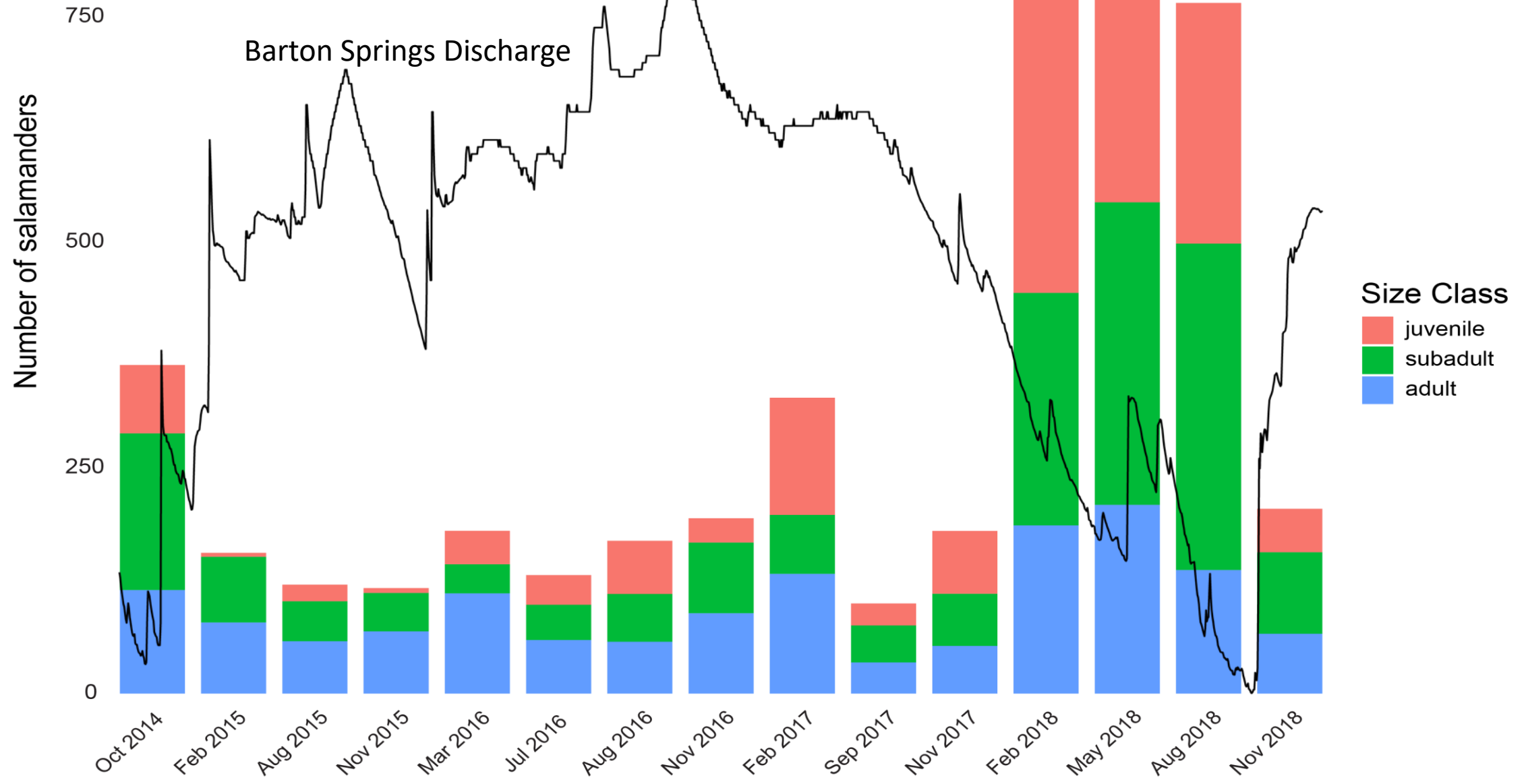


Upper Barton Spring



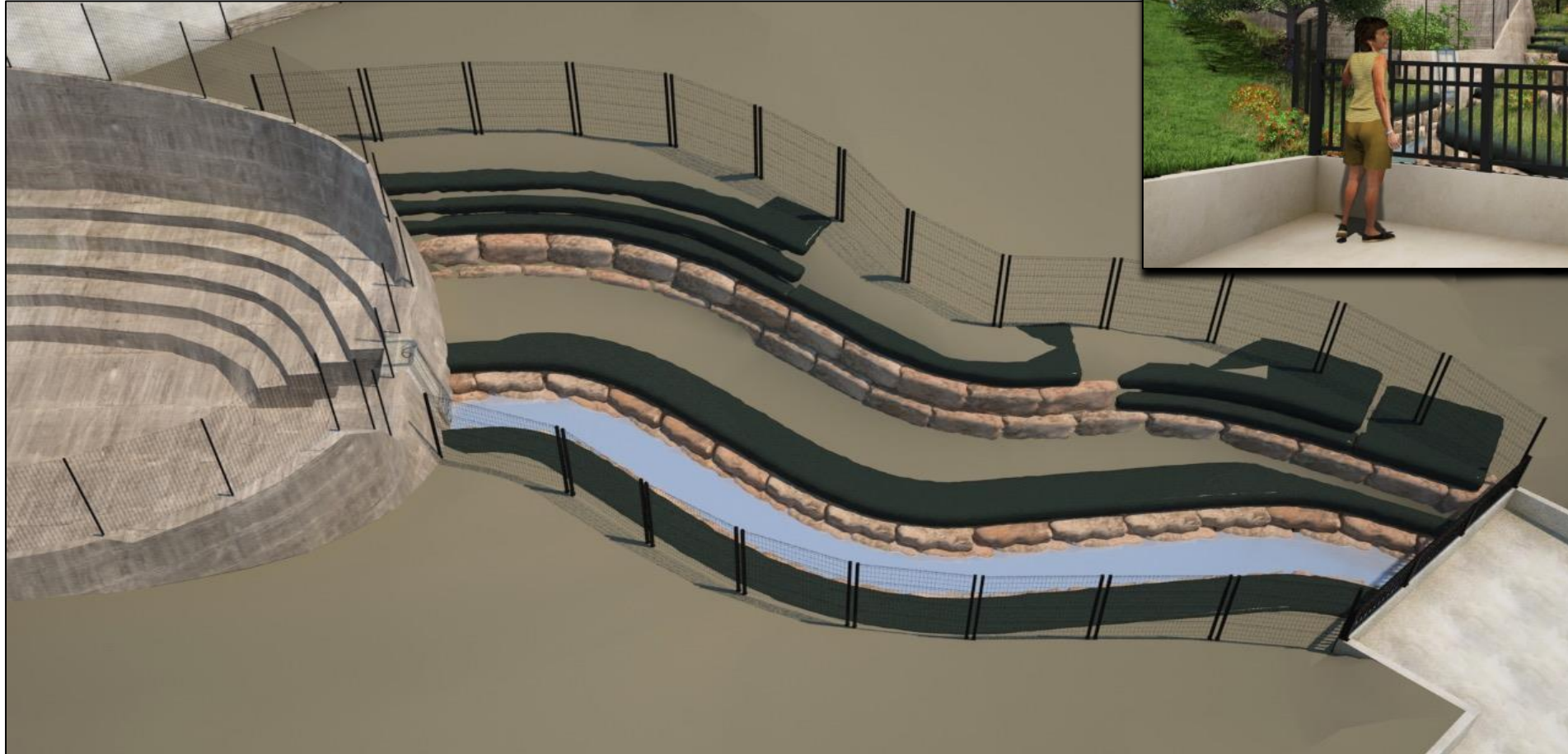
Population Monitoring

Abundance at Eliza Spring



Habitat Restoration

Eliza Spring daylighting project



Digital rendering of stream design



Habitat Restoration

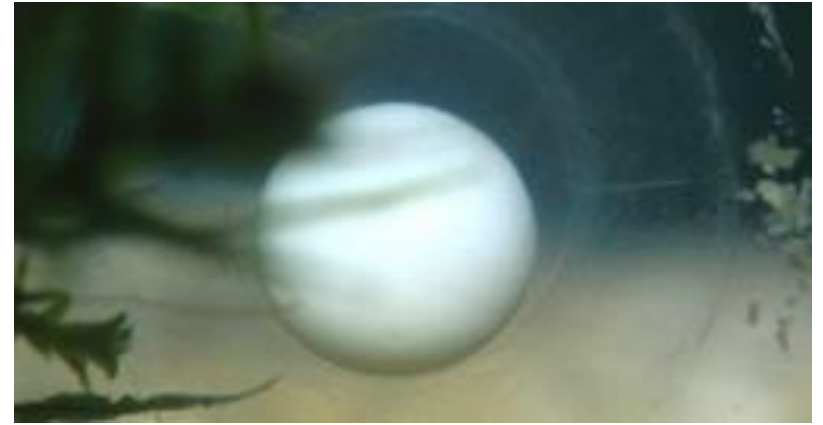
Eliza Spring daylighting project



Habitat Restoration

Eliza Spring daylighting project





Captive Propagation

Other Edwards-Trinity *Eurycea*

surface



subterranean



NEWS

New Salamanders in Our Midst

University of Texas biologists have discovered three new species of groundwater salamander

BY AUSTIN SANDERS, FRI., JAN. 25, 2019

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**New species 1
(Pedernales basin)**



New species 2
(Guadalupe Headwaters)



New species 3
(Devils, Nueces basins)



A

flatworm



C

amphipods



B

isopods



Photos by Jean Krejca

Listing Under the Endangered Species Act

Both species listed as endangered due to:

- 1) **Destruction, modification, or curtailment of habitat/range**
- 2) **Inadequacy of existing regulatory mechanisms for protecting water quality and quantity**



Barton Springs Salamander listed in 1997



Austin Blind Salamander listed in 2013

The Biggest Threat: Direct Wastewater Discharge

THE AUSTIN CHRONICLE

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Hold That Wastewater!

Effluent flows could cripple three local endangered species

BY MICHAEL KING, FRI., MARCH 10, 2017

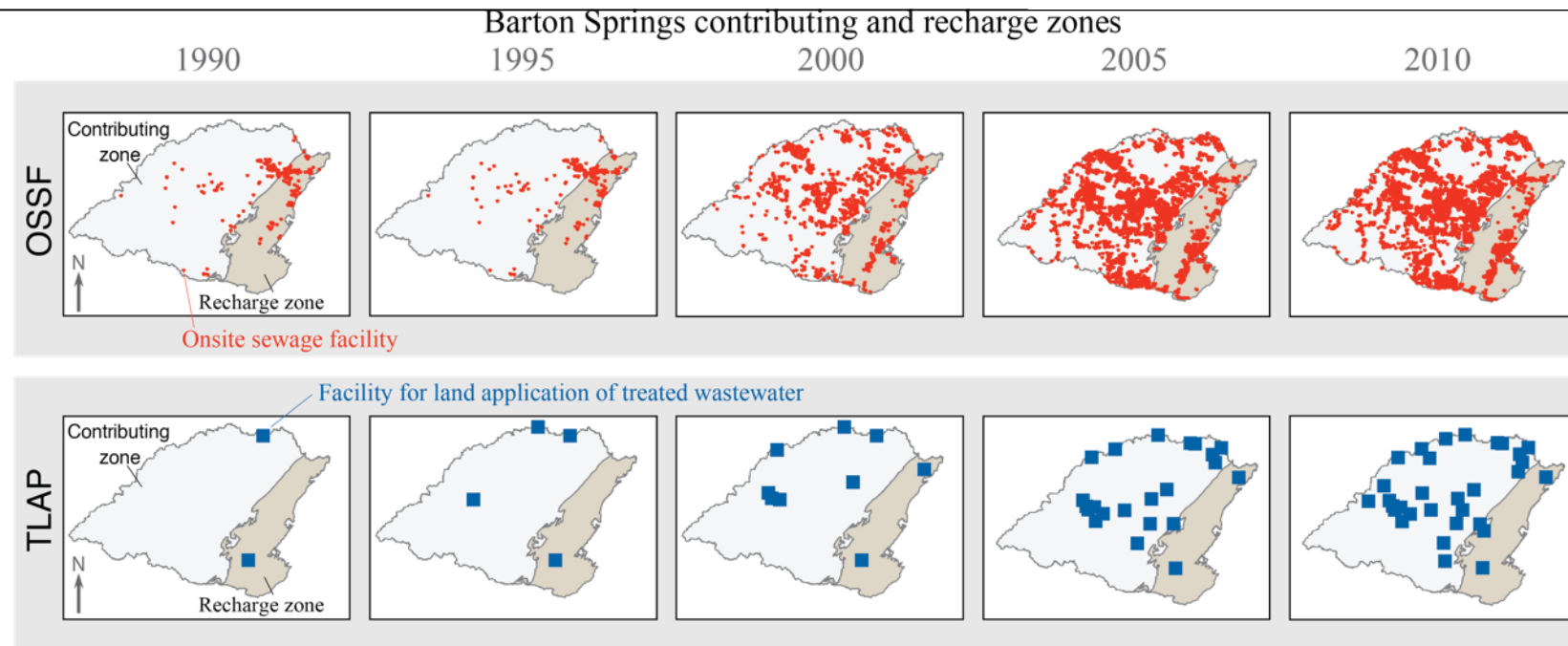


Figure 4. Permits for on-site sewage facilities (OSSFs) (septic systems) and land application of treated wastewater (Texas Land Application Permits [TLAPs]) on the Barton Springs contributing and recharge zones have increased greatly since 1990.

