
S.O.S.
SAVE OUR SPRINGS
ALLIANCE
The Time is RIPE
to Save Our Springs

An Introduction to
Save Our Springs Alliance, a
non-profit, 501c (3) organization,
and
an Introduction to the Geology,
Hydrology, Biodiversity, and
Vulnerability of the Edwards
Aquifer and Barton Springs

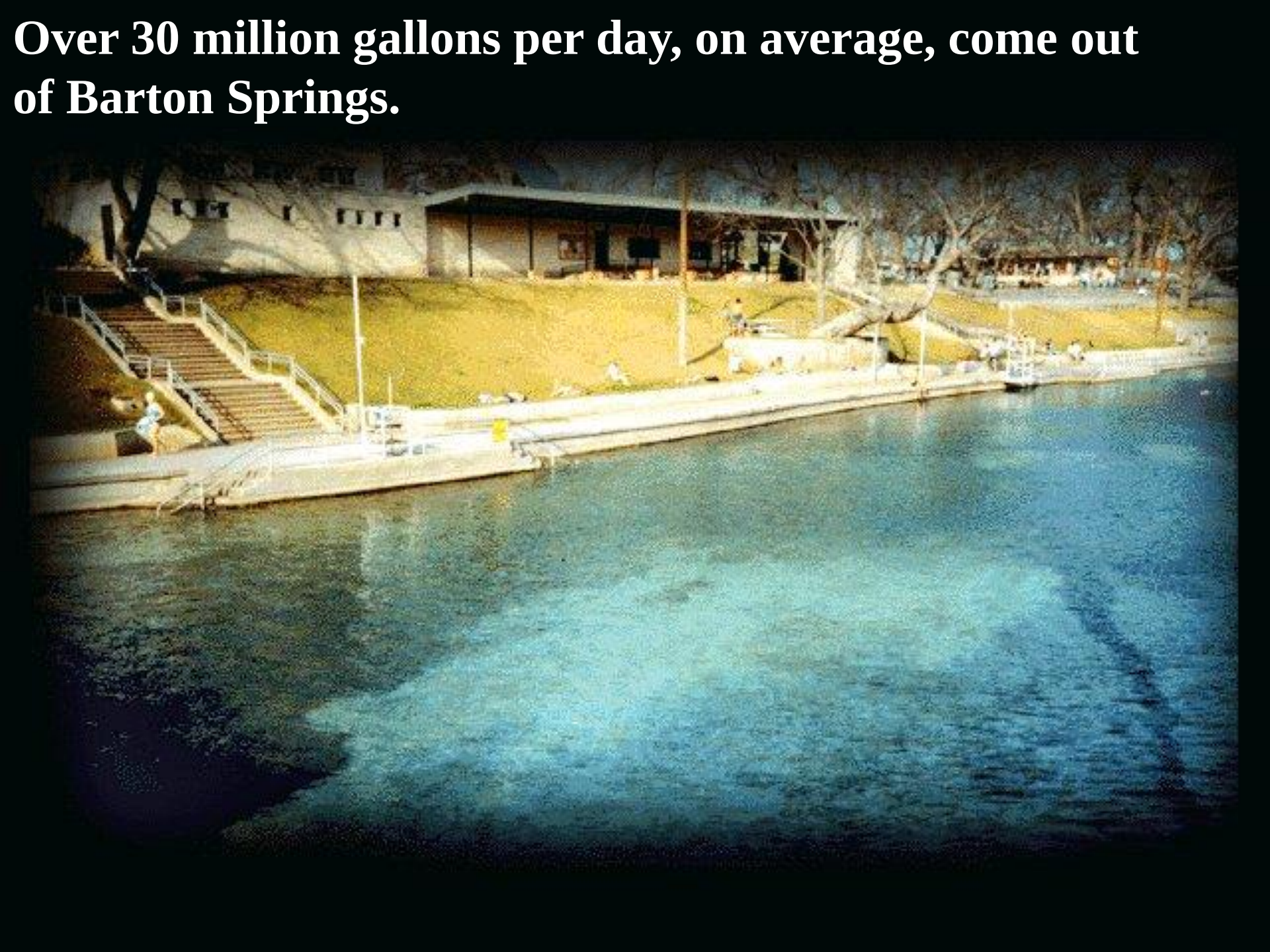
Barton Springs Pool in Zilker Park, the *Soul of Our City*

The *Three Philosophers* statue in at the front entrance to Barton Springs. From left to right, Roy Bedichek, J. Frank Dobie, and Walter Prescott Webb. All men were writers who loved Barton Springs. All have Austin schools named after them.

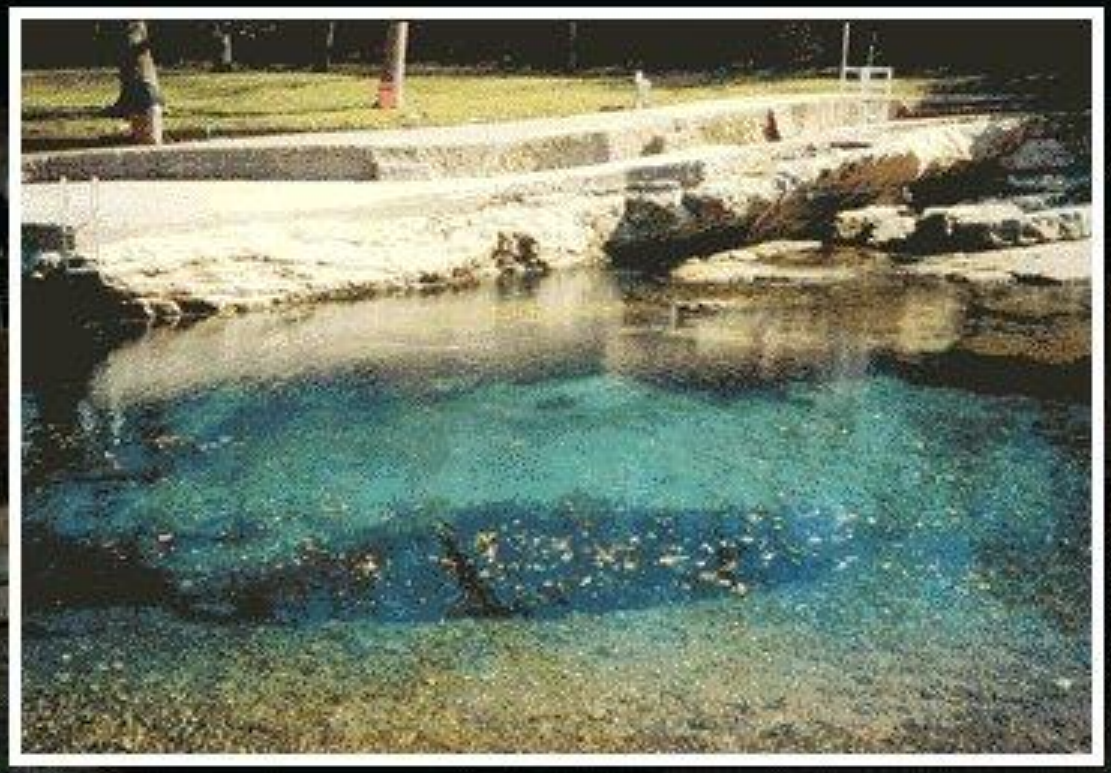
"If people are to enjoy their own lives,
they must be aware of the
significances of their own environment."

J. Frank Dobie.

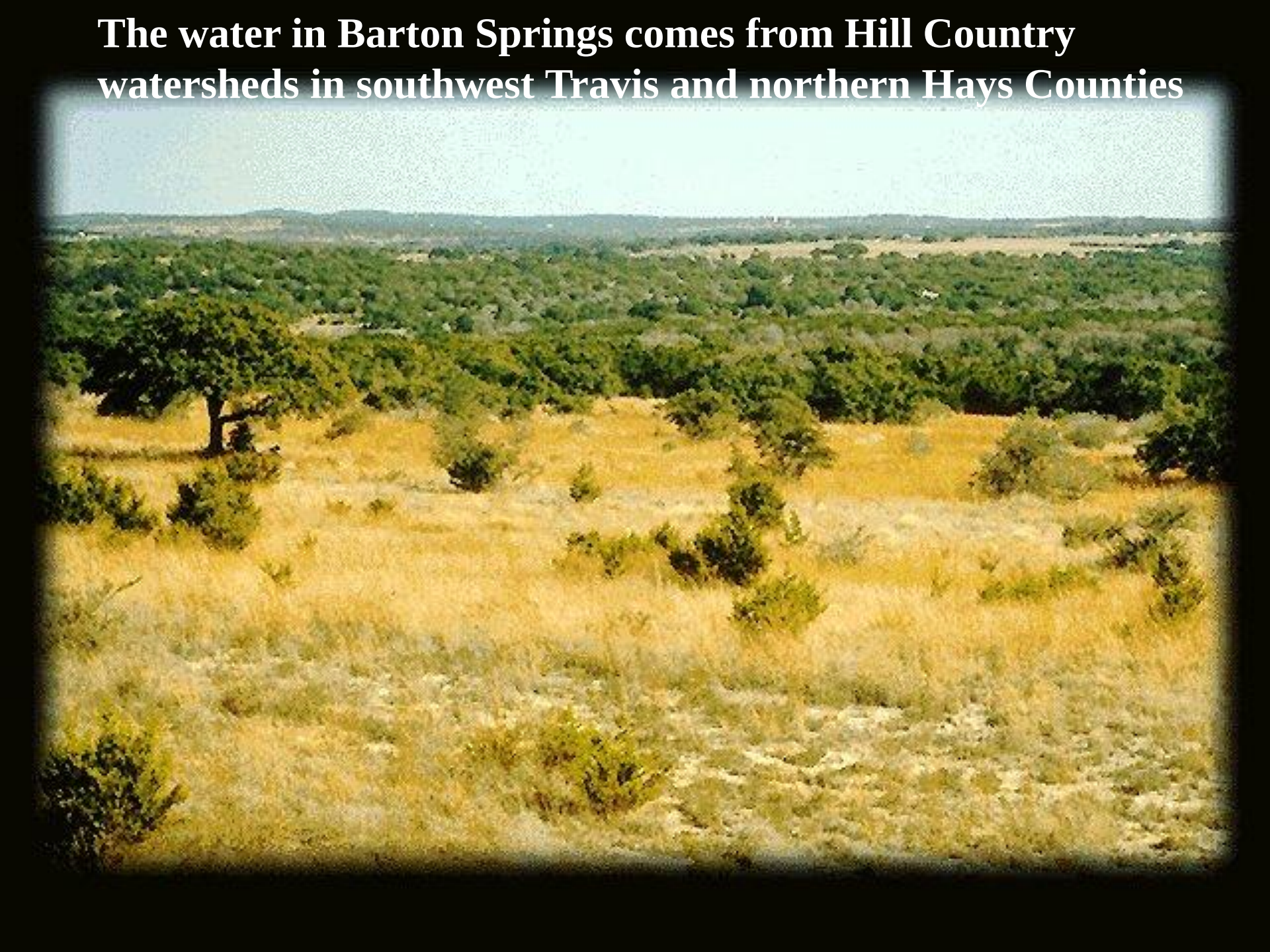
Over 30 million gallons per day, on average, come out of Barton Springs.



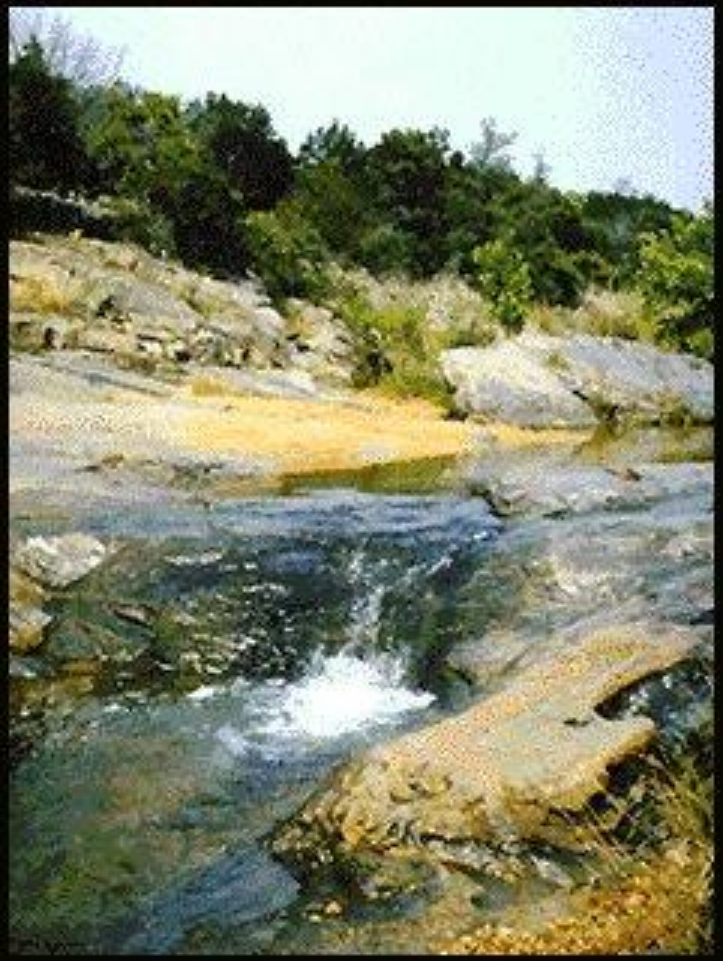
The cool, clear water is a constant 68-70 (F) degrees year round



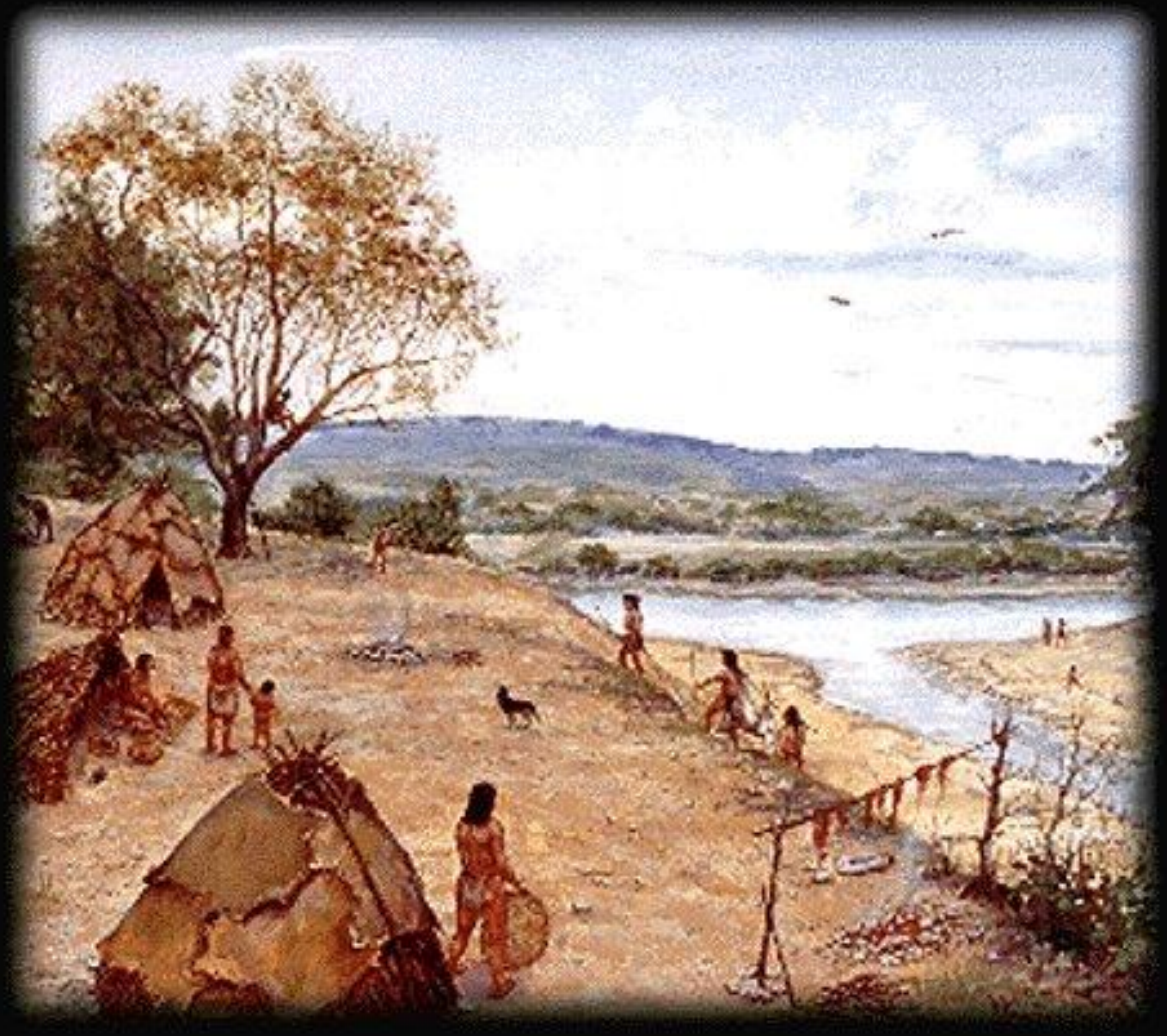
The water in Barton Springs comes from Hill Country watersheds in southwest Travis and northern Hays Counties



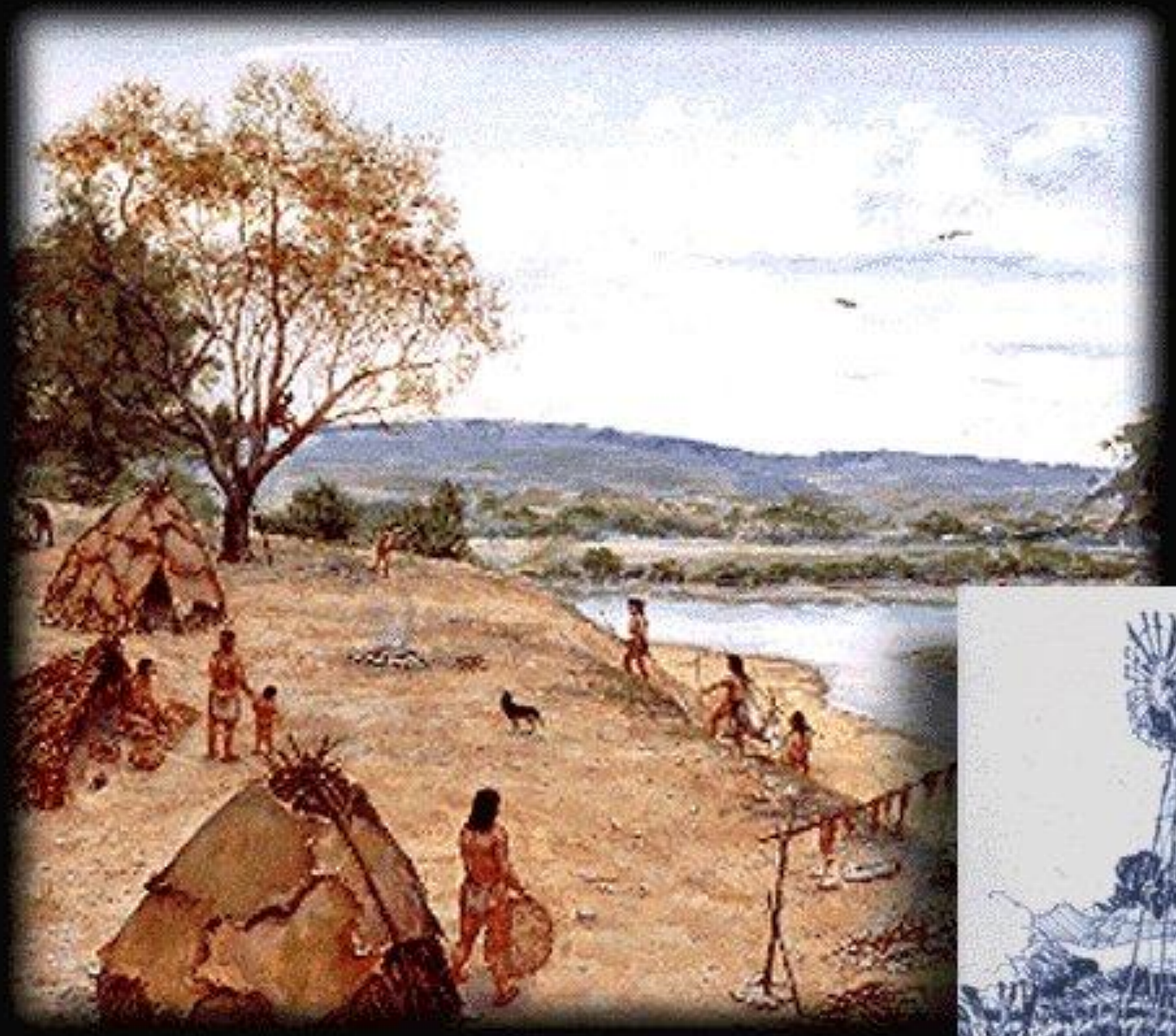
Limestone hills and wildflower blooms characterize the Texas Hill Country



Waterfall on Onion Creek

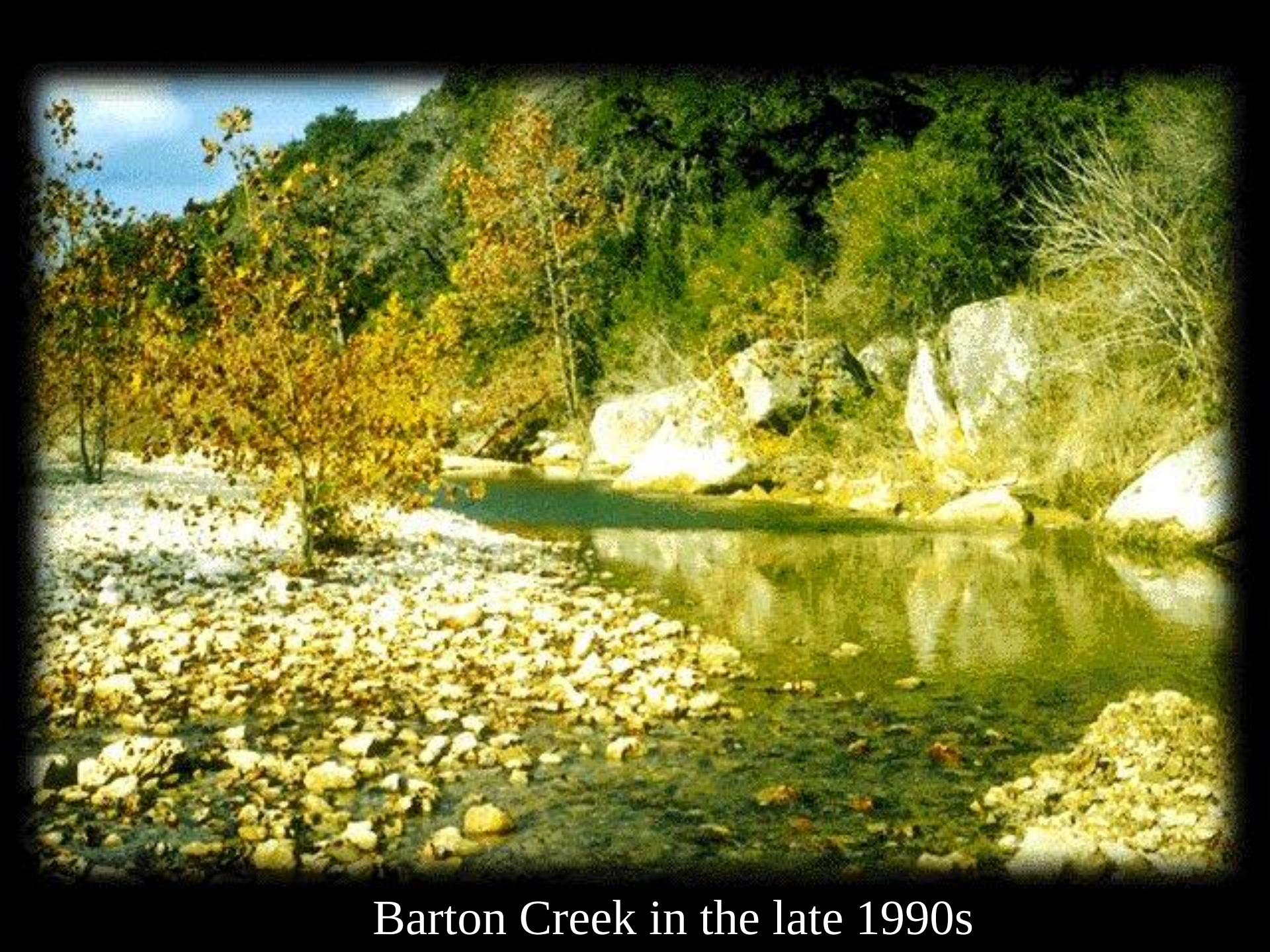


Native Americans camping along Barton Creek



European settlers established mills at Barton Springs

Baptismal ceremony in Barton Springs in 1925



Barton Creek in the late 1990s

Endangered Black-capped vireo

Endangered Black-capped vireo

Endangered Golden-cheeked warbler

Endangered Barton Springs salamander (*Eurcyea sosorum)*

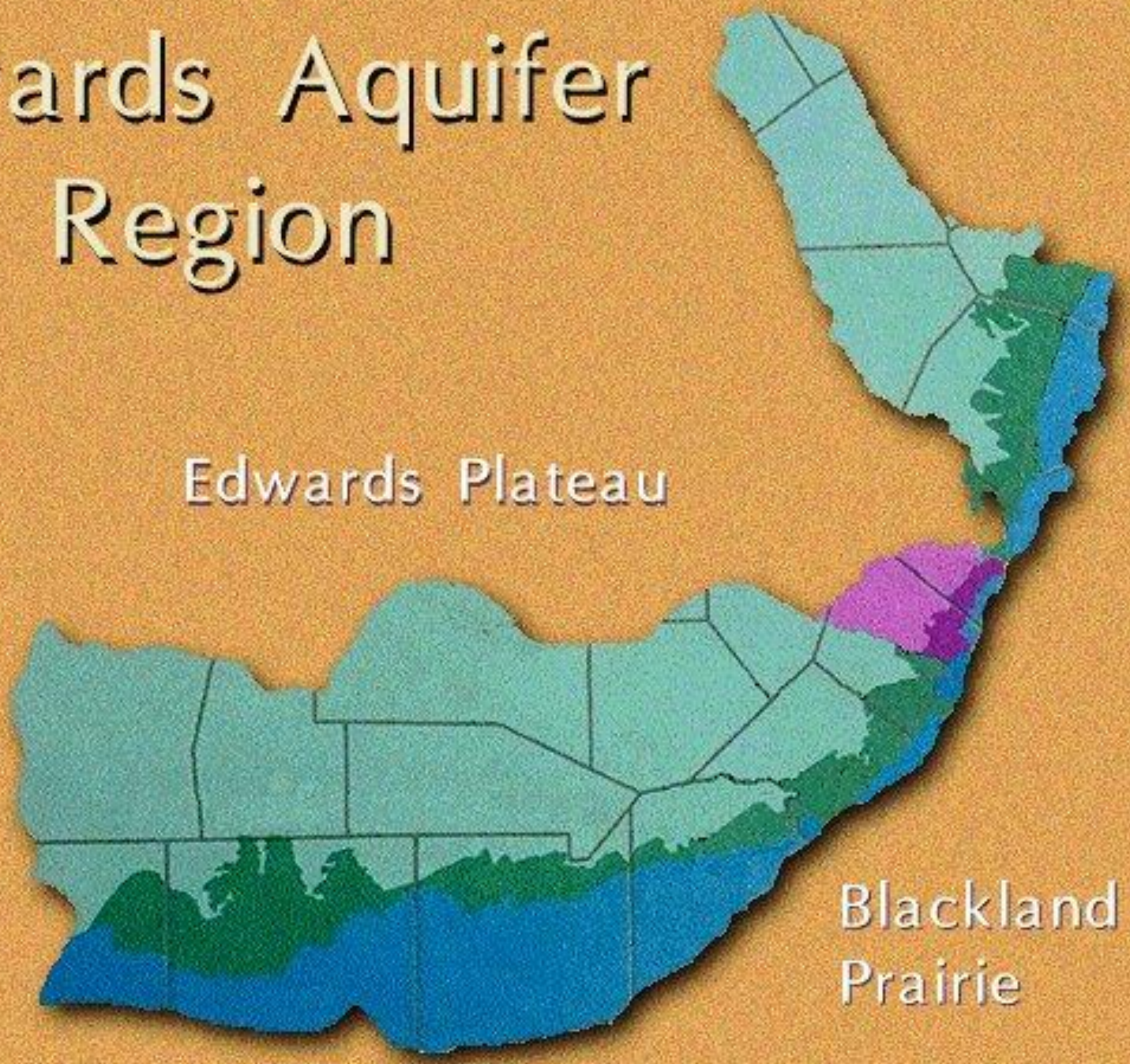
The salamander lives only in Barton Springs and nowhere else on Earth. SOS Alliance forced the Federal government to list the species as endangered, based on sound science. The salamander's scientific name (sosorum) reflects the movement to Save Our Springs.

Endangered Texas Blind salamander (*Eurcyea rathbuni)*
This salamander is known only from spring outlets in the Southern Edwards Aquifer

Austin Blind salamander (*Eurcyea waterlooensis*). *This salamander was only recently discovered and lives in the caves underneath Barton Springs. It's scientific name reflects Austin's prior name – Waterloo.*


The Edwards Aquifer:
The Hidden Heart of Texas

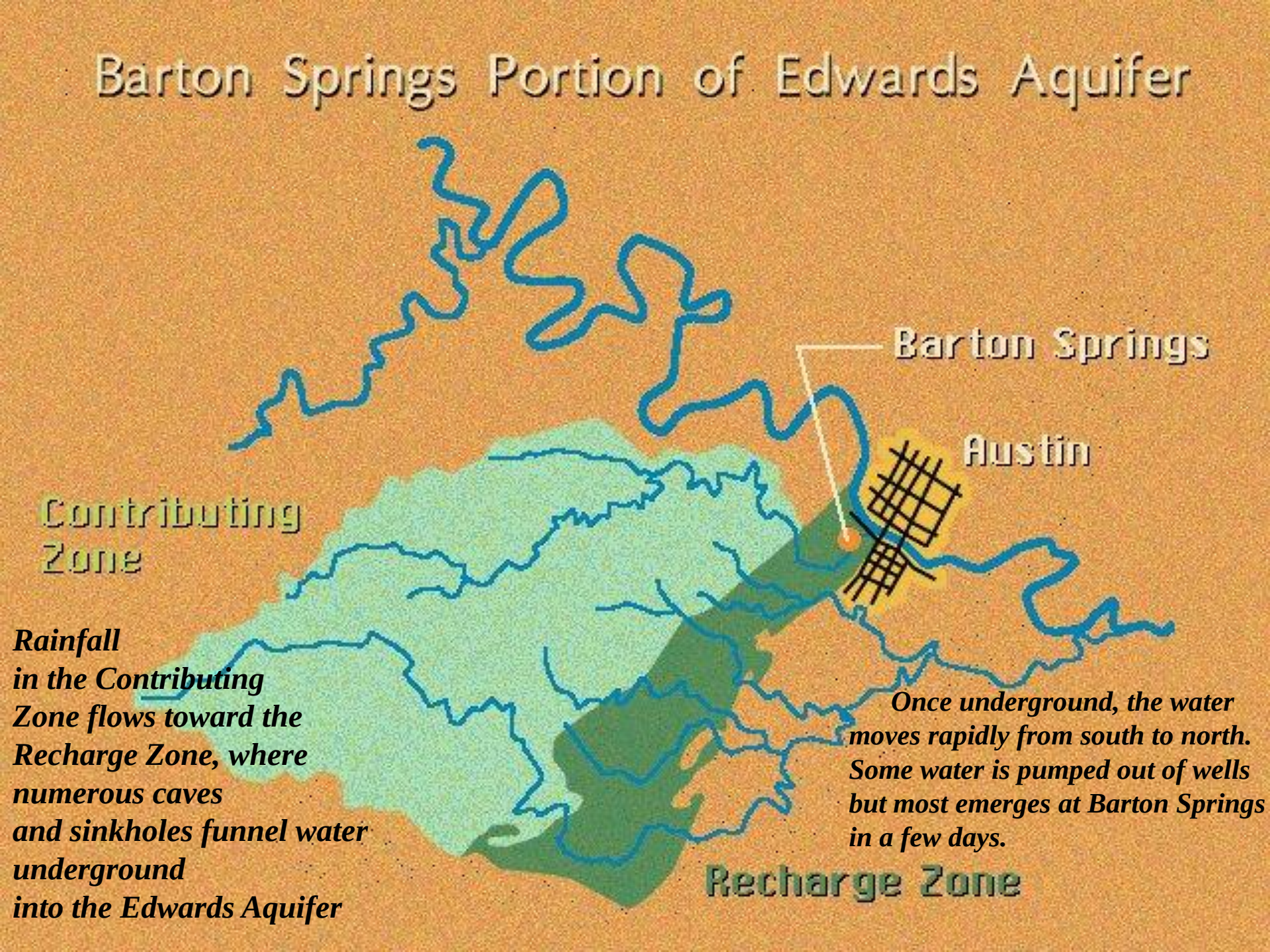
Edwards Aquifer Region



Edwards Aquifer Region

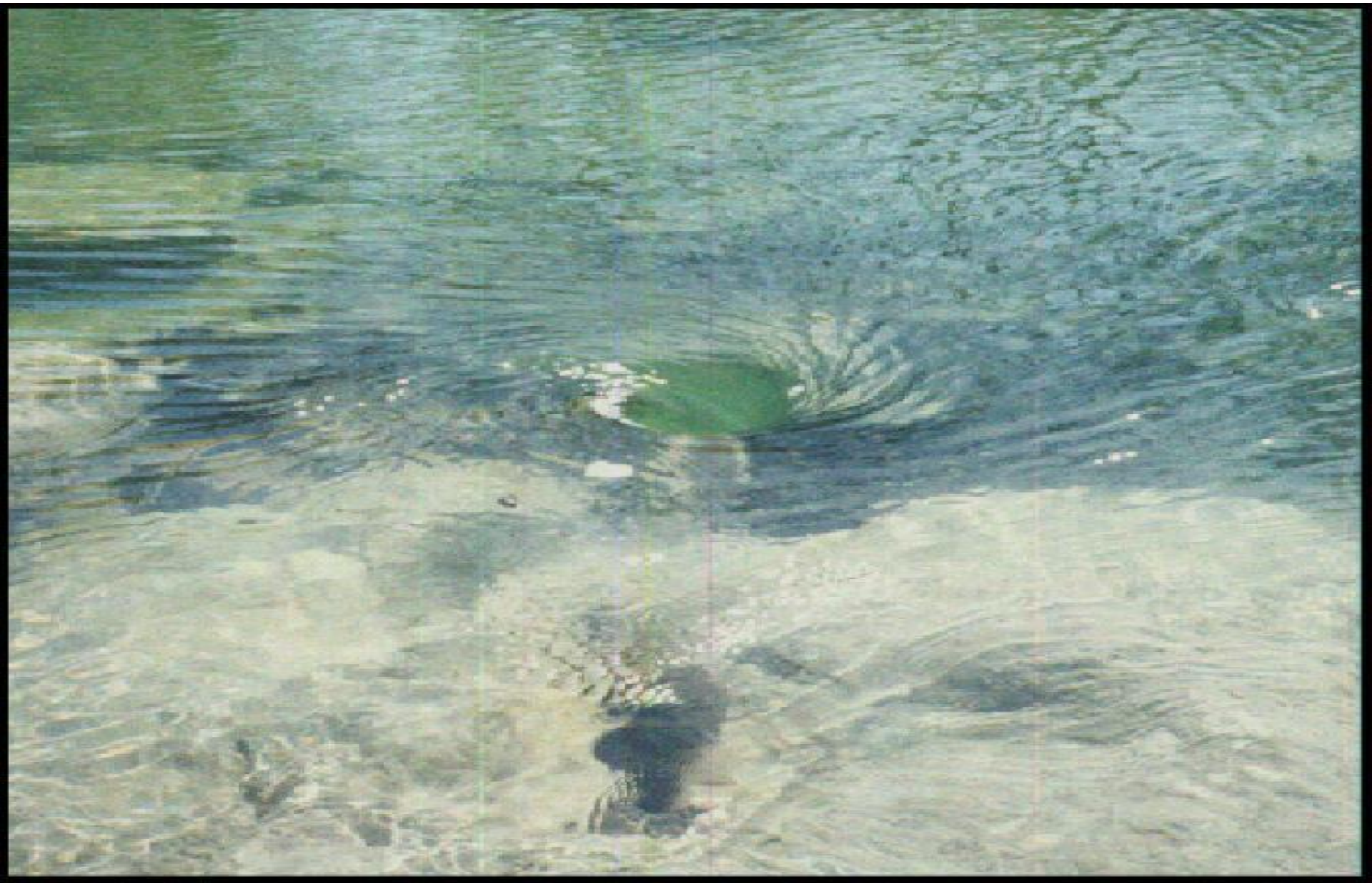
- Largest Springs in Texas

Edwards Aquifer Region

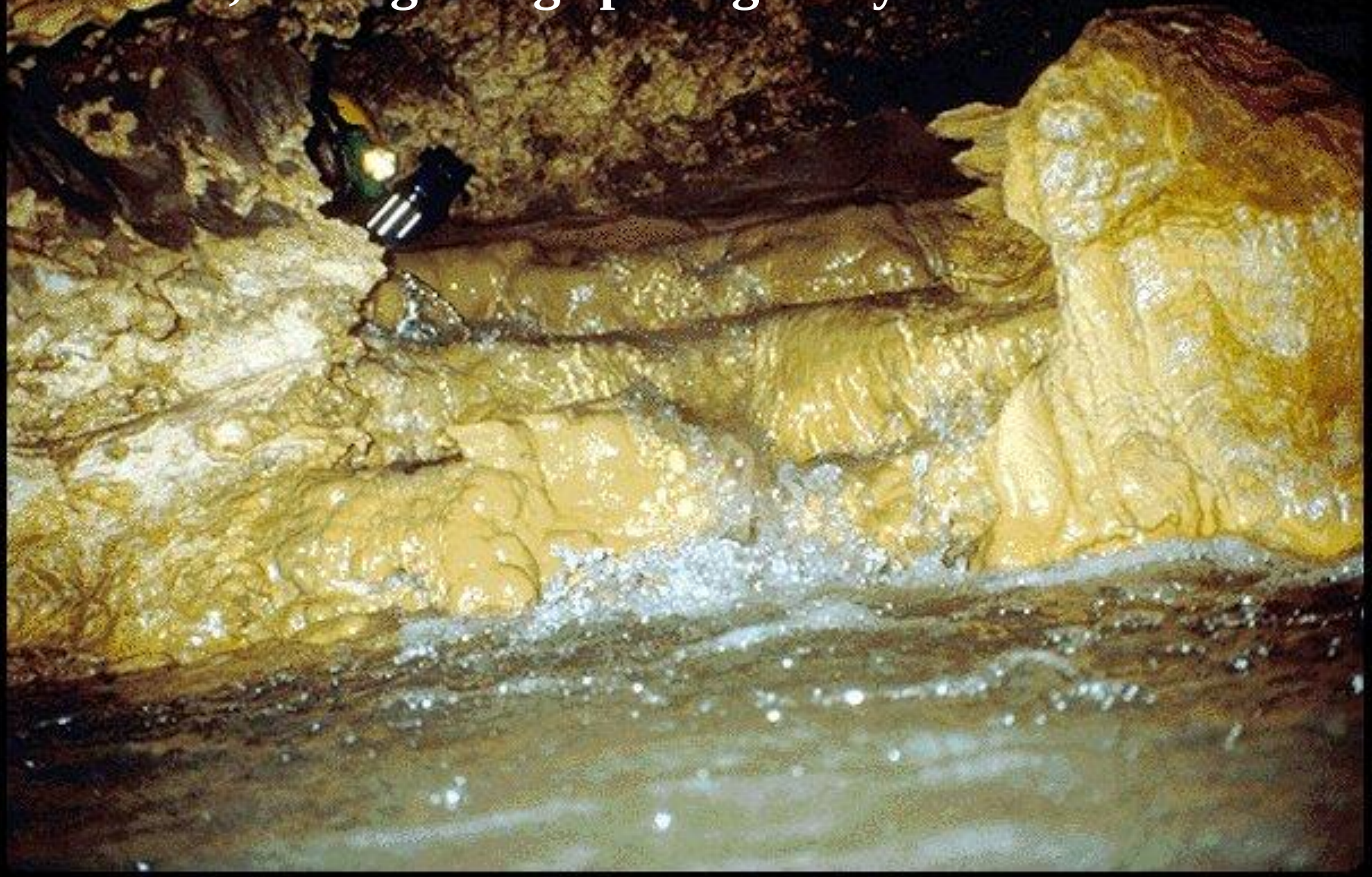

Barton Springs Portion of Edwards Aquifer
Barton Springs
Austin
Contributing Zone
Recharge Zone
Rainfall in the Contributing Zone flows toward the Recharge Zone, where numerous caves and sinkholes funnel water underground into the Edwards Aquifer
Once underground, the water moves rapidly from south to north. Some water is pumped out of wells but most emerges at Barton Springs in a few days.

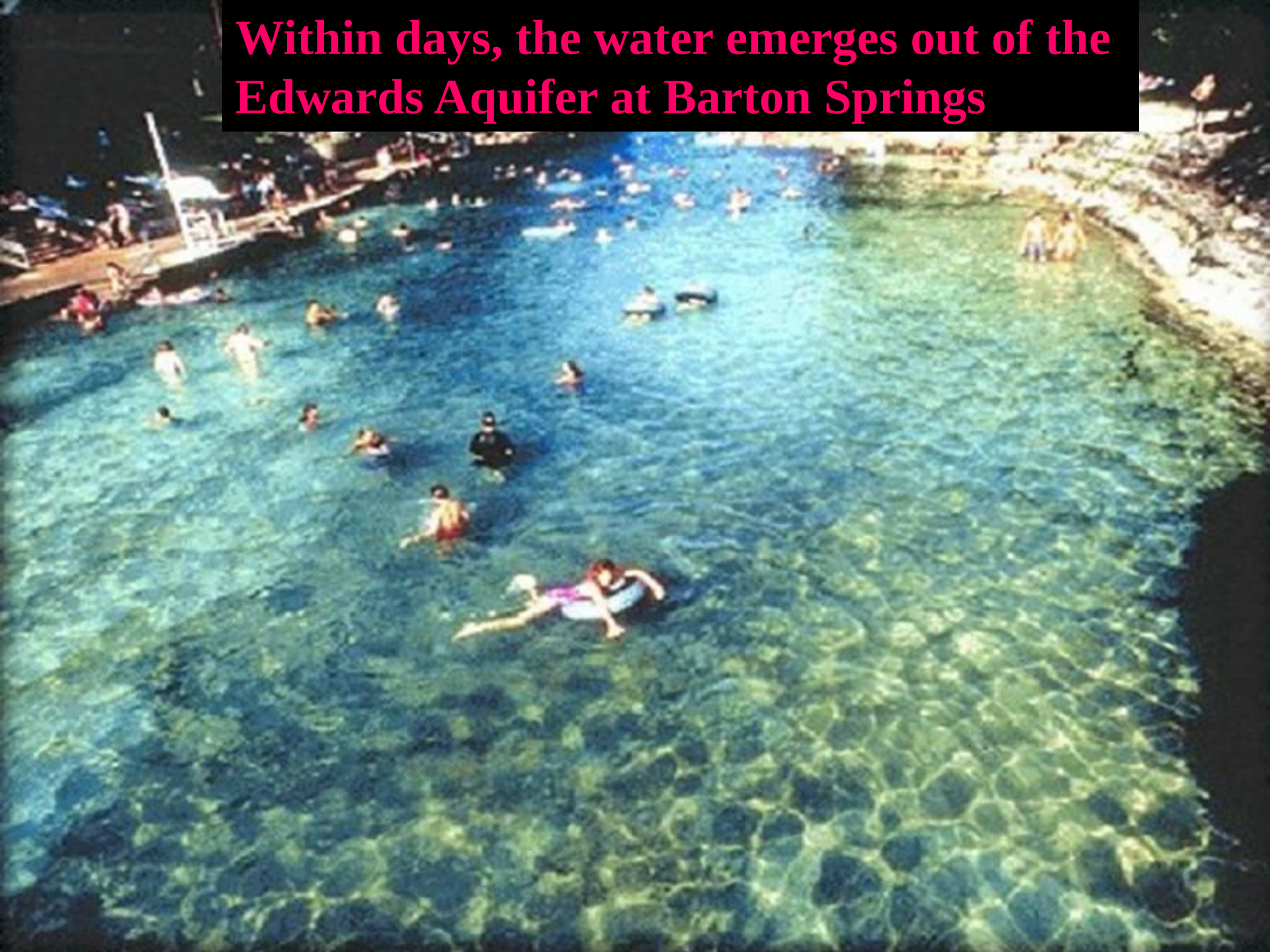
Runoff entering a large sinkhole

Water entering the aquifer (and creating a whirlpool) in a sinkhole in the bottom of Onion Creek in the Recharge Zone



Once underground, water moves rapidly, with minimal filtration, through large passage-ways in the limestone.

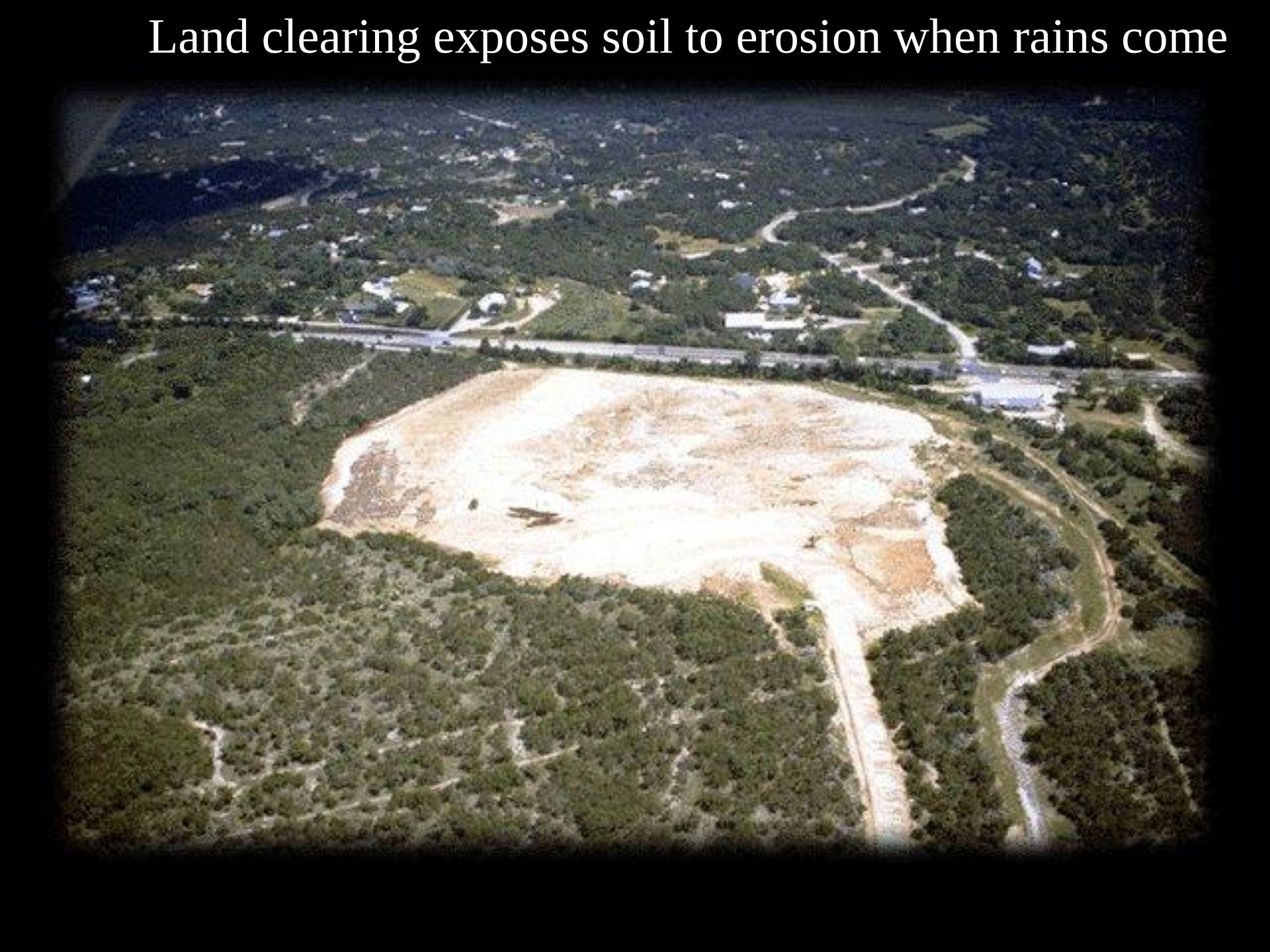



Within days, the water emerges out of the Edwards Aquifer at Barton Springs

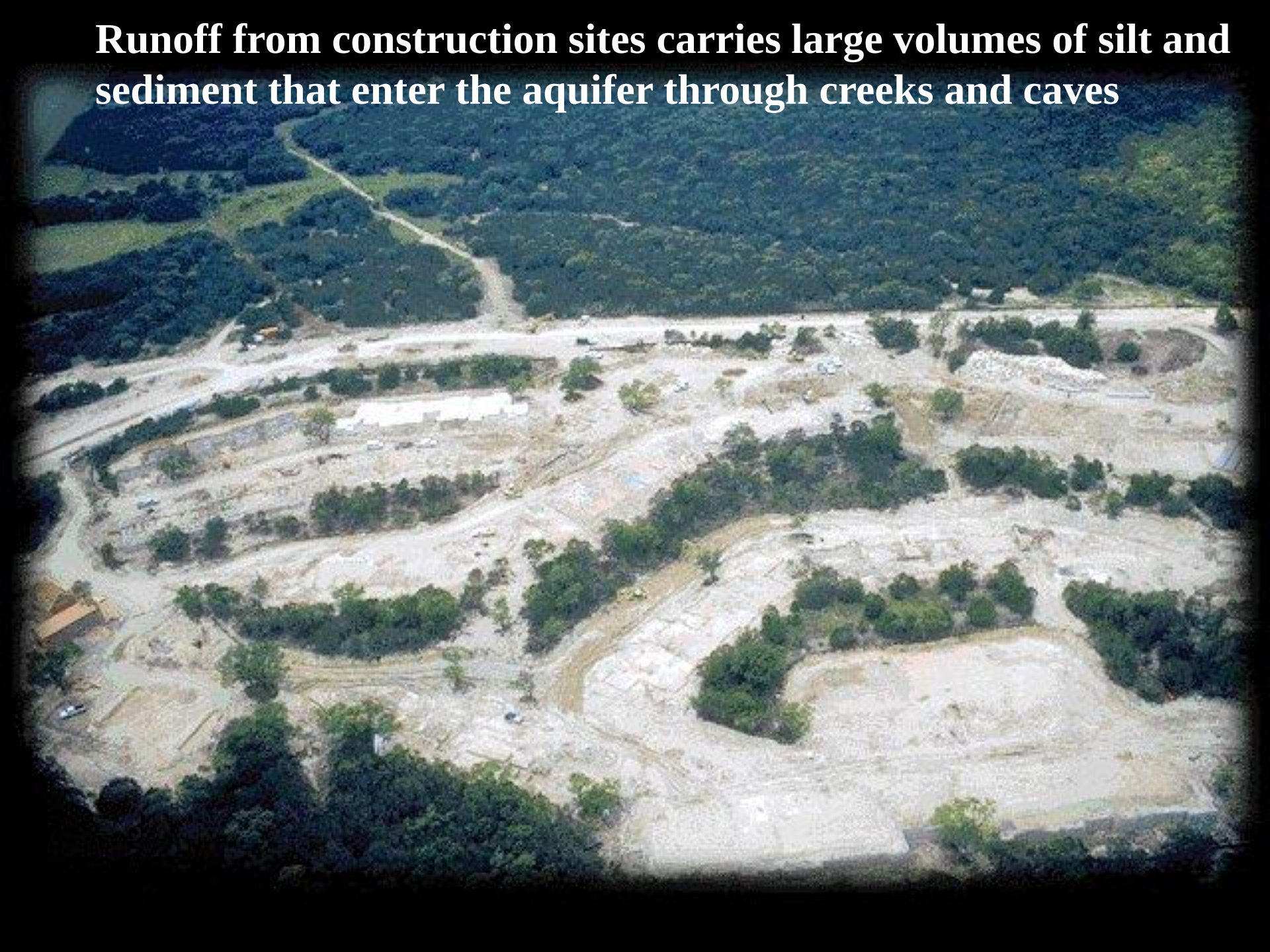
How do the Edwards Aquifer and Barton Springs get polluted?

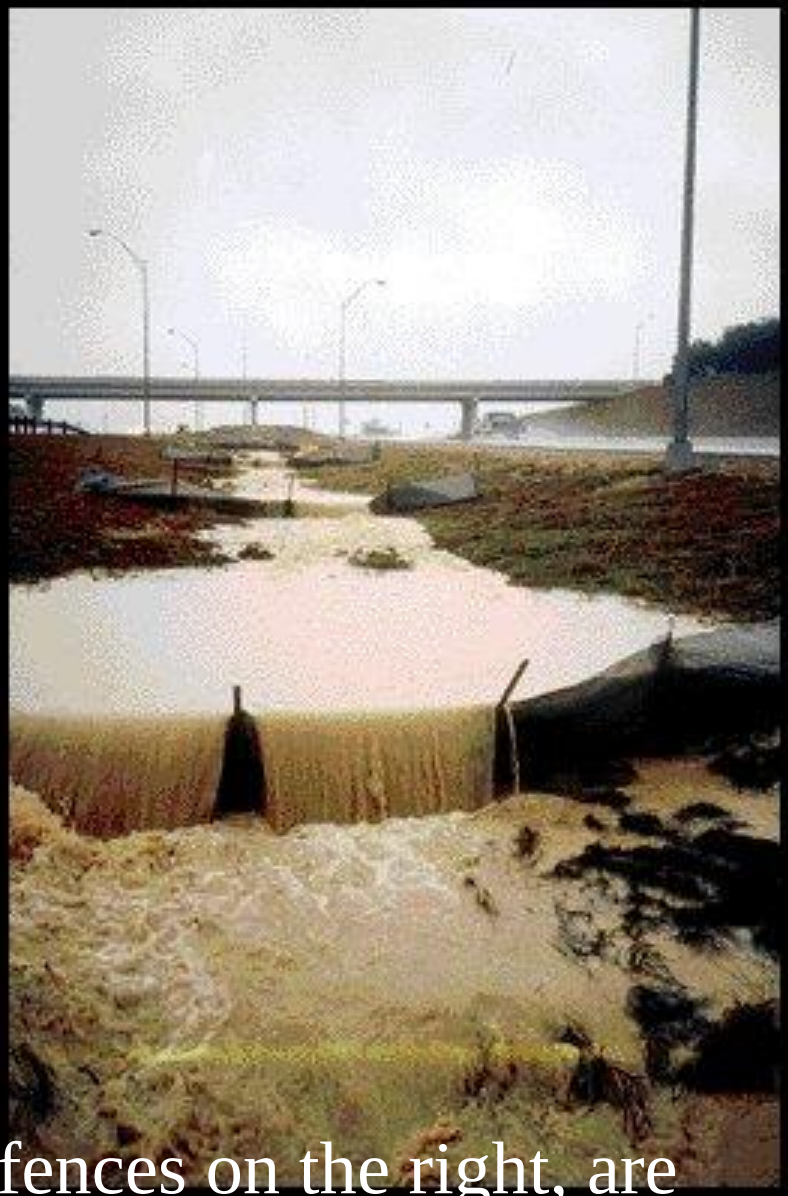

ENTERING
EDWARDS AQUIFER
ENVIRONMENTALLY
SENSITIVE
RECHARGE ZONE

Land clearing exposes soil to erosion when rains come



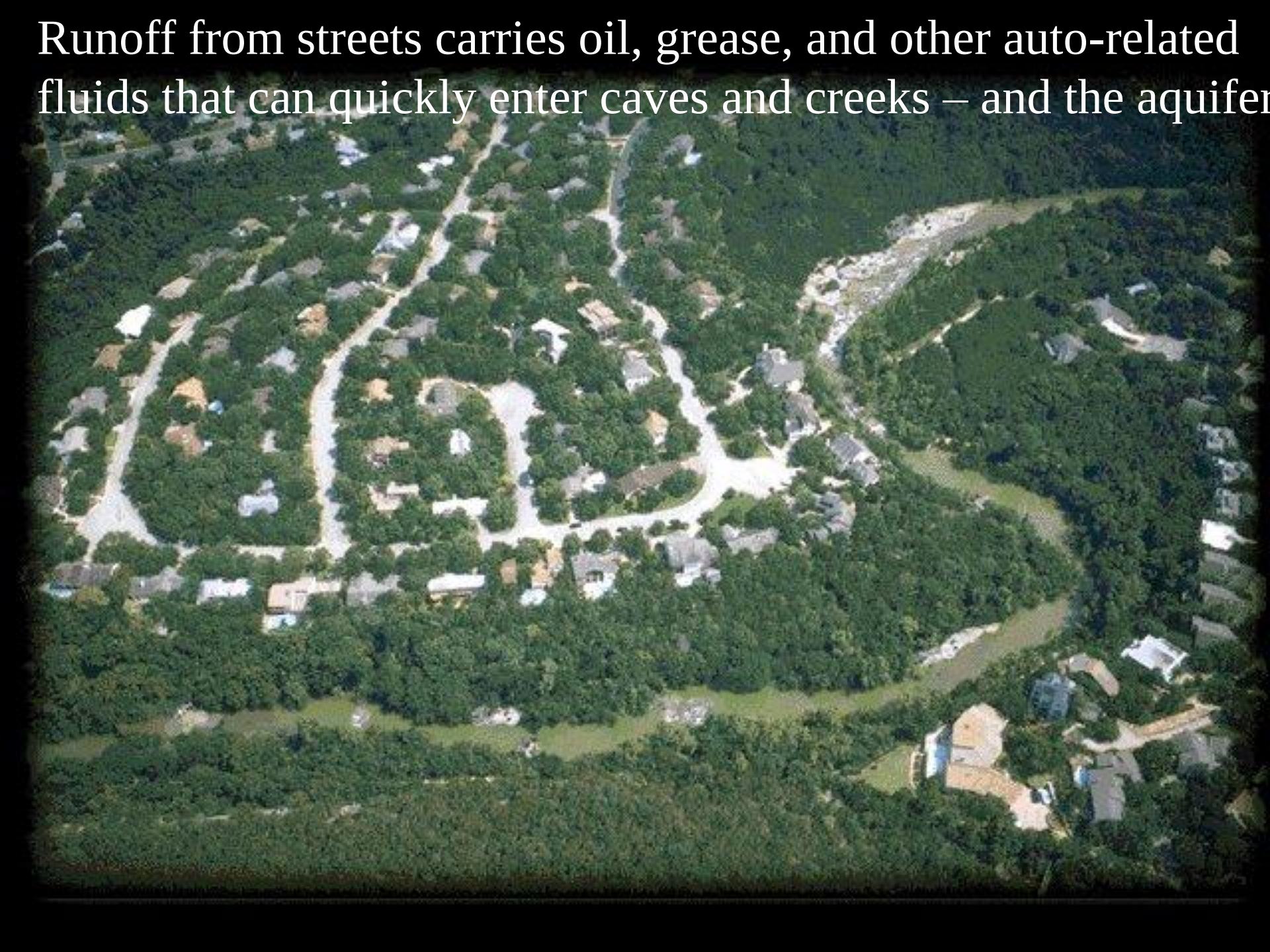
Runoff from construction sites carries large volumes of silt and sediment that enter the aquifer through creeks and caves





Structural controls, such as the silt fences on the right, are often not effective at preventing silt loads from entering creeks

Runoff from streets carries oil, grease, and other auto-related fluids that can quickly enter caves and creeks – and the aquifer




Golf courses require large applications of fertilizers and pesticides, which wash off during rains and enter the aquifer

Pesticides and fertilizers are commonly applied to residential and commercial lawns.


Pollutants found in Barton Springs
or Contributing Stream Sediments Above Levels
which are Toxic to Aquatic Life
All of the pollution sources add up.
ORTHO
Malathion 50
Insect Spray
Hi-Yield
Chlordane
Spray
ORTHO
Diazinon PLUS
Insect Spray

Pollutants found in Barton Springs or Contributing Stream Sediments Above Levels which are Toxic to Aquatic Life

Heavy Metals

- Arsenic
- Cadmium
- Copper
- Lead
- Mercury
- Silver

Pollutants found in Barton Springs or Contributing Stream Sediments Above Levels which are Toxic to Aquatic Life

Heavy Metals	Pesticides
Arsenic	P-P'-DDD
Cadmium	P-P'-DDE
Copper	P-P'-DDT
Lead	Aldrin
Mercury	Endrin
Silver	Heptachlor Epoxide
	Beta-BHC
	Delta-BHC
	Gamma-BHC (lindane)
	PCD

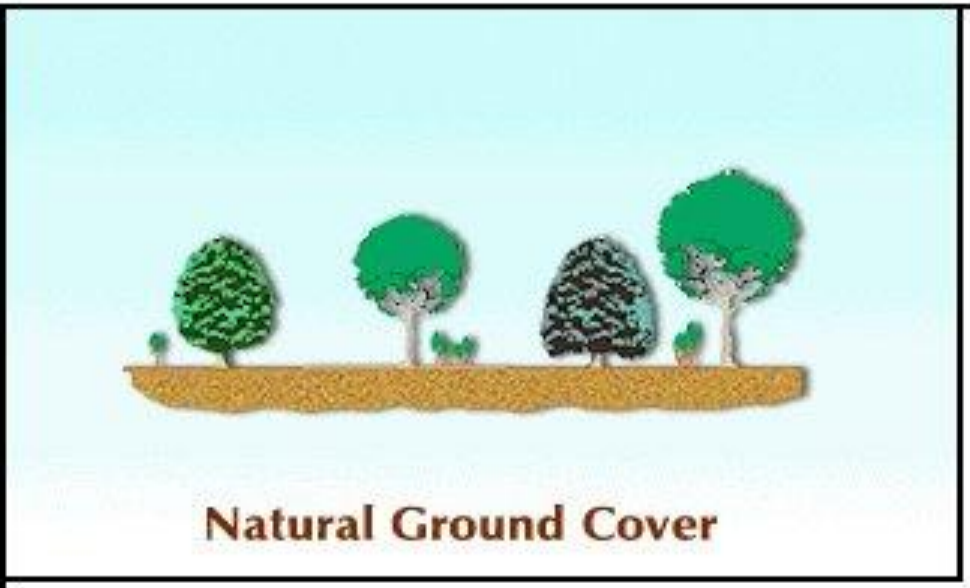
Pollutants found in Barton Springs or Contributing Stream Sediments Above Levels which are Toxic to Aquatic Life

Heavy Metals	Pesticides	Polyaromatic hydrocarbons
Arsenic	P-P'-DDD	Benzo(A)anthrocene
Cadmium	P-P'-DDE	Benzo(B)fluoranthene
Copper	P-P'-DDT	Benzo(K)fluoranthene
Lead	Aldrin	Benzo(A)pyrene
Mercury	Endrin	Chrysene
Silver	Heptachlor Epoxide	Dibenz(AH)anthracene
	Beta-BHC	Fluoranthene
	Delta-BHC	Phenanthrene
	Gamma-BHC (lindane)	Pyrene
	PCD	

Barton Springs, once crystal clear, is now frequently closed after heavy rains because of high bacteria levels.

An Introduction to the impact of impervious cover

The Impact of Impervious Surface Changes on the Annual Water Balance (PGDER, 1997)



Natural Ground Cover

The Impact of Impervious Surface Changes on the Annual Water Balance (PGDER, 1997)

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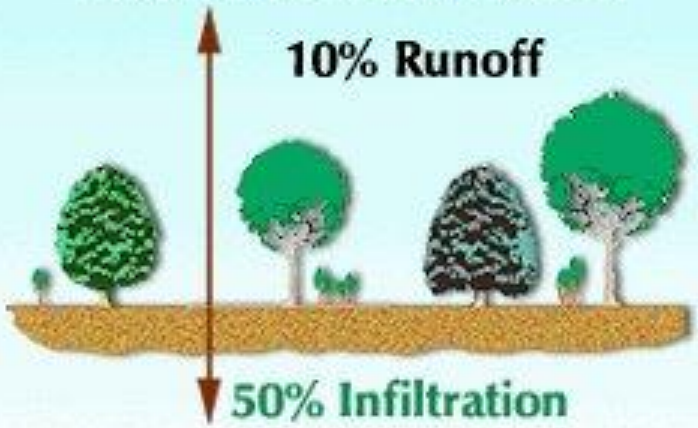
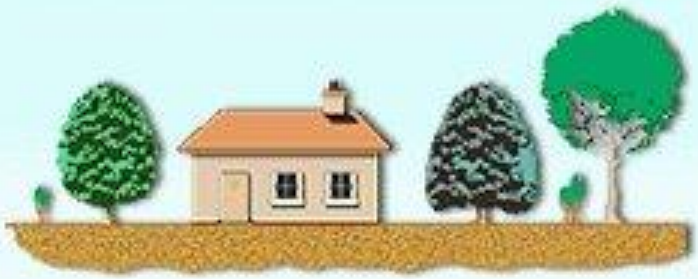
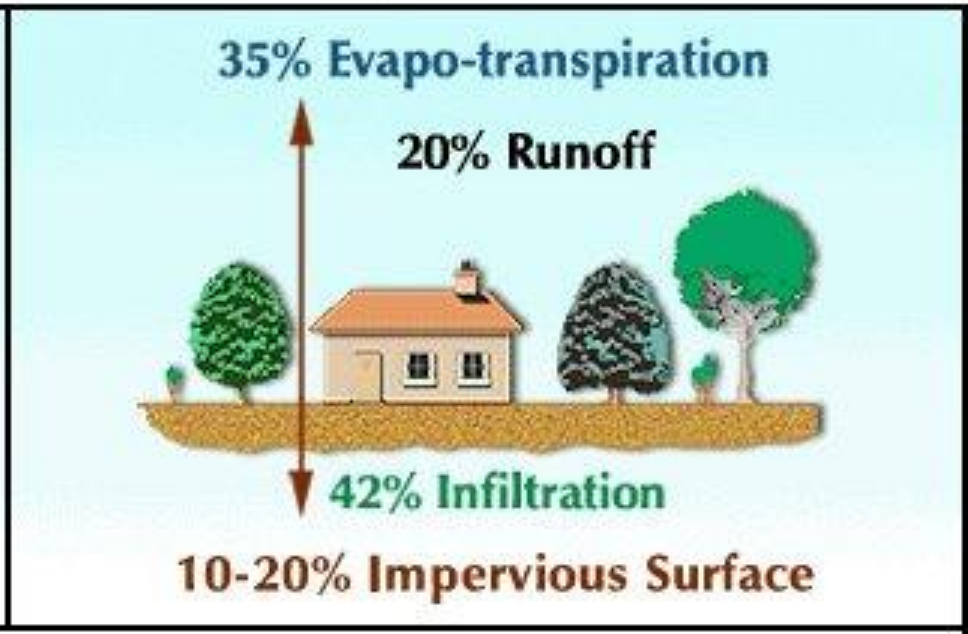


Natural Ground Cover



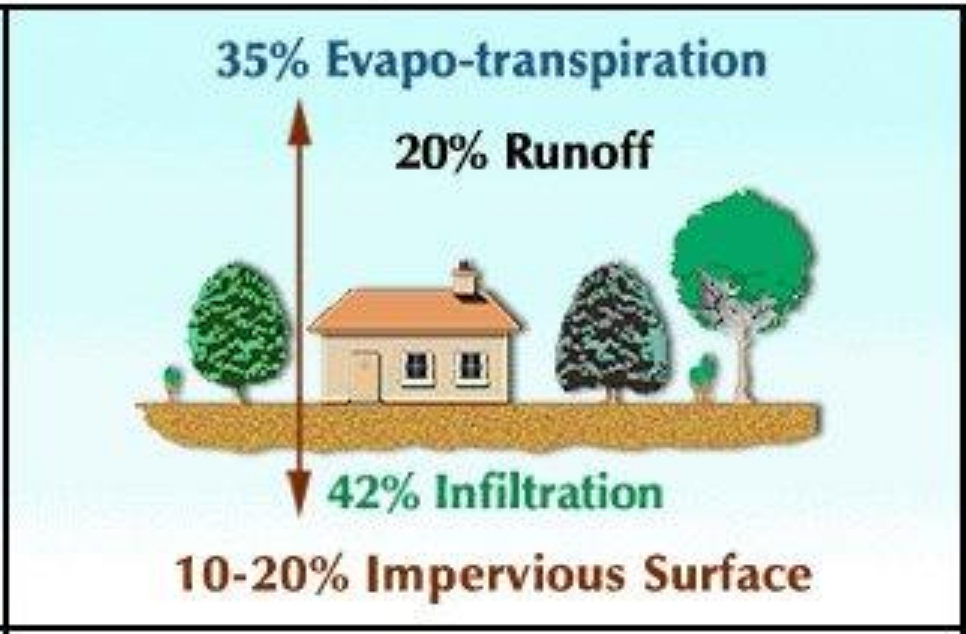
10-20% Impervious Surface

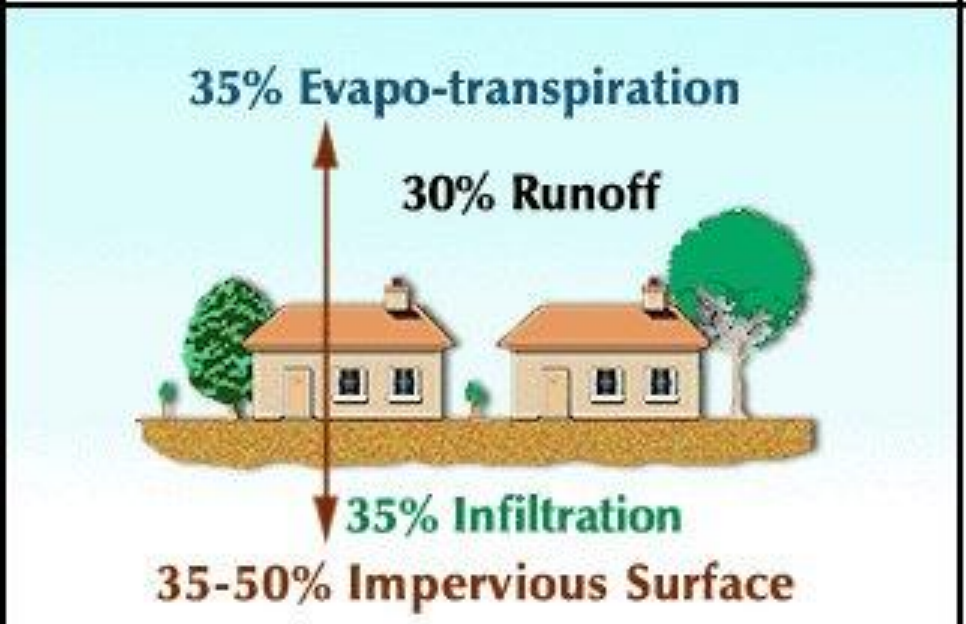
The Impact of Impervious Surface Changes on the Annual Water Balance (PGDER, 1997)



A small increase in impervious cover resulted in a dramatic increase in the percentage of rainfall that becomes runoff.

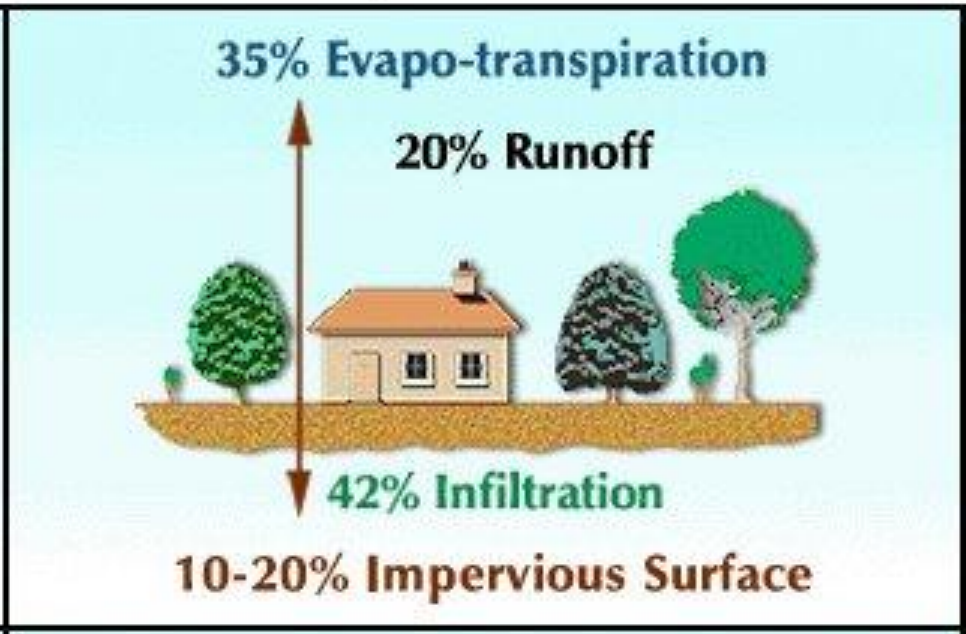
The Impact of Impervious Surface Changes on the Annual Water Balance (PGDER, 1997)

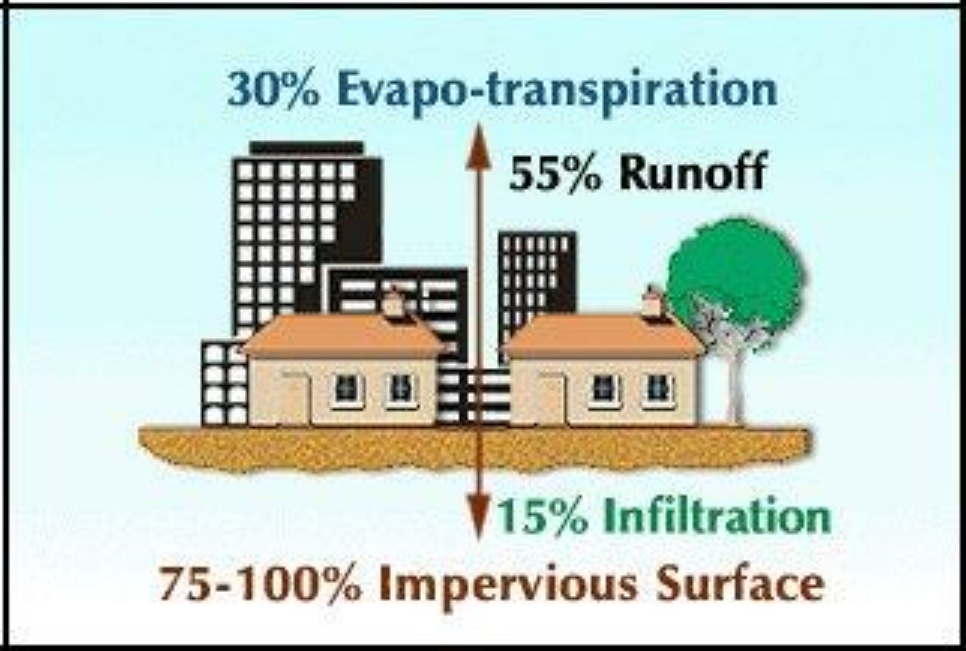




More impervious cover equals more runoff, which means more erosion of creek banks and more pollutants entering waterways.

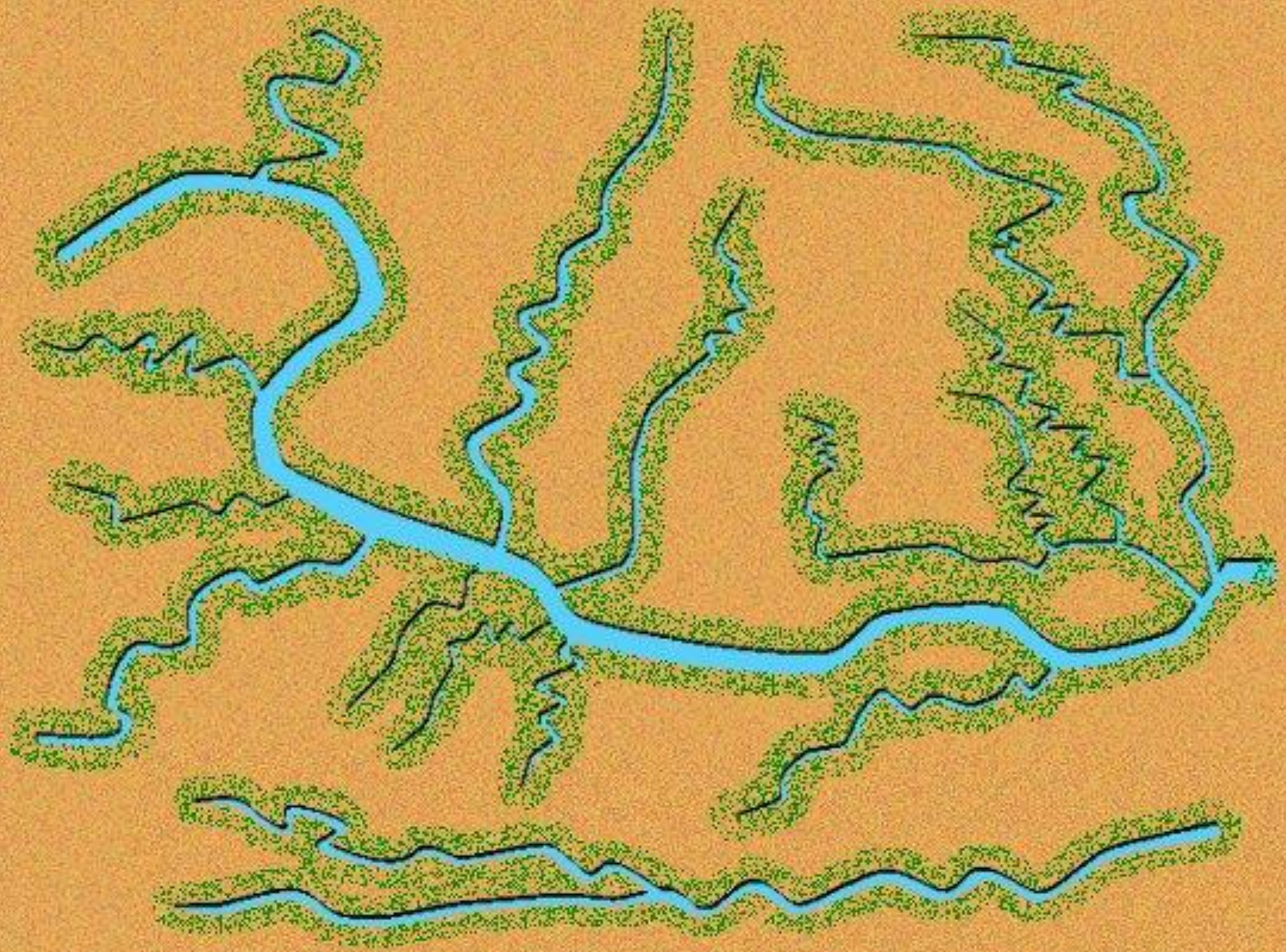
The Impact of Impervious Surface Changes on the Annual Water Balance (PGDER, 1997)





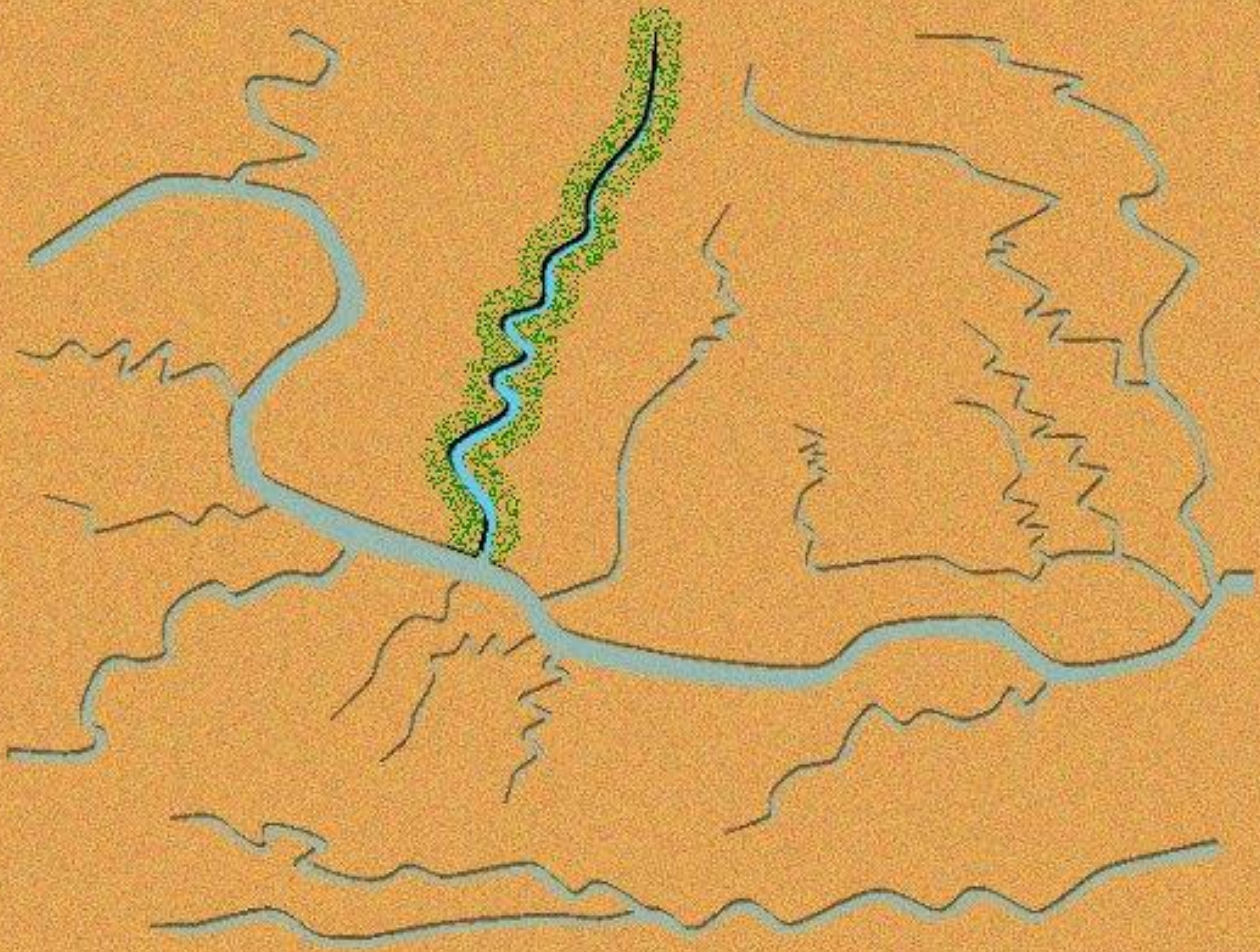
Impervious Cover and Shoal Creek

Austin Area Creek System

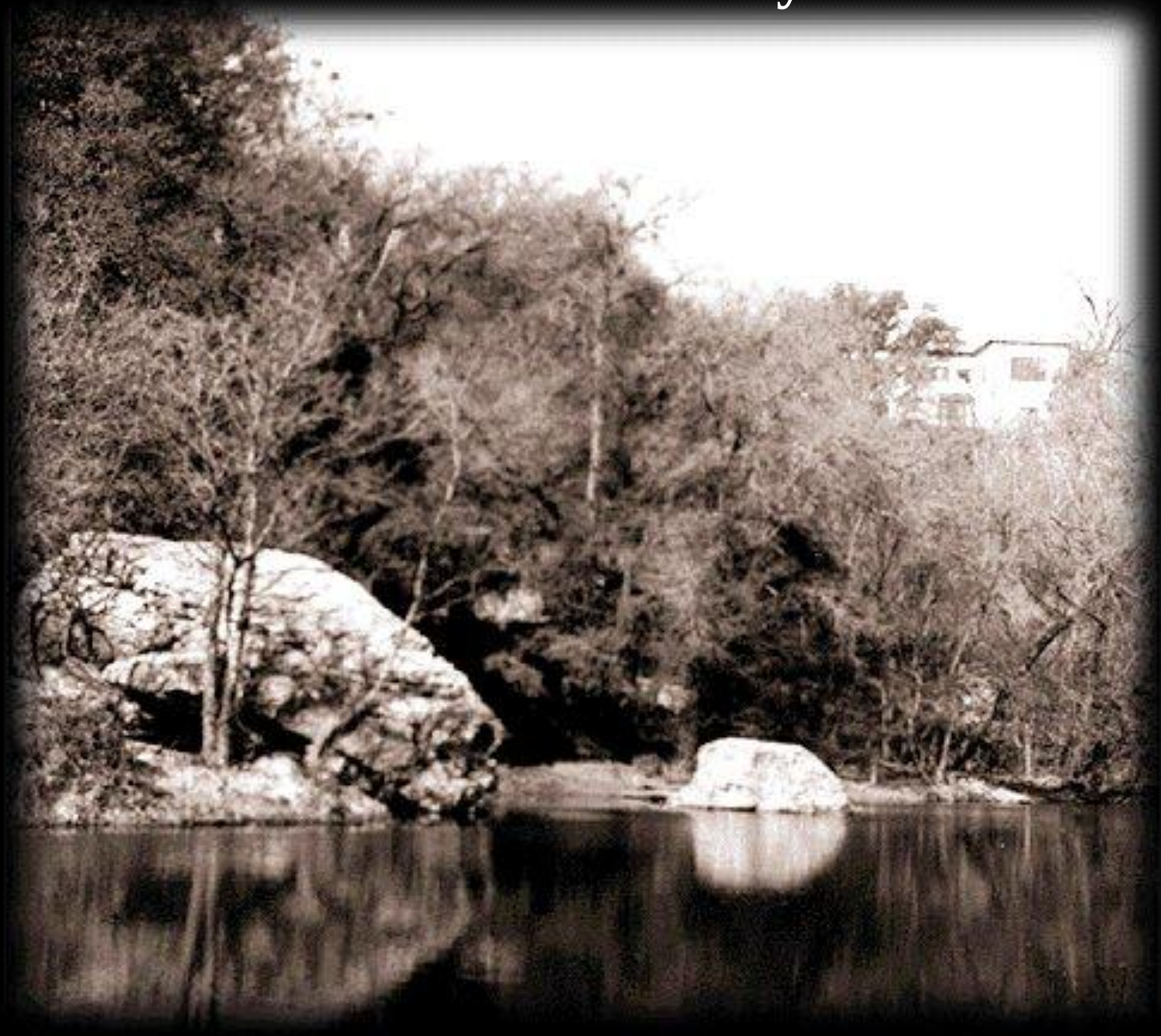


Austin Area Creek System

Shoal Creek

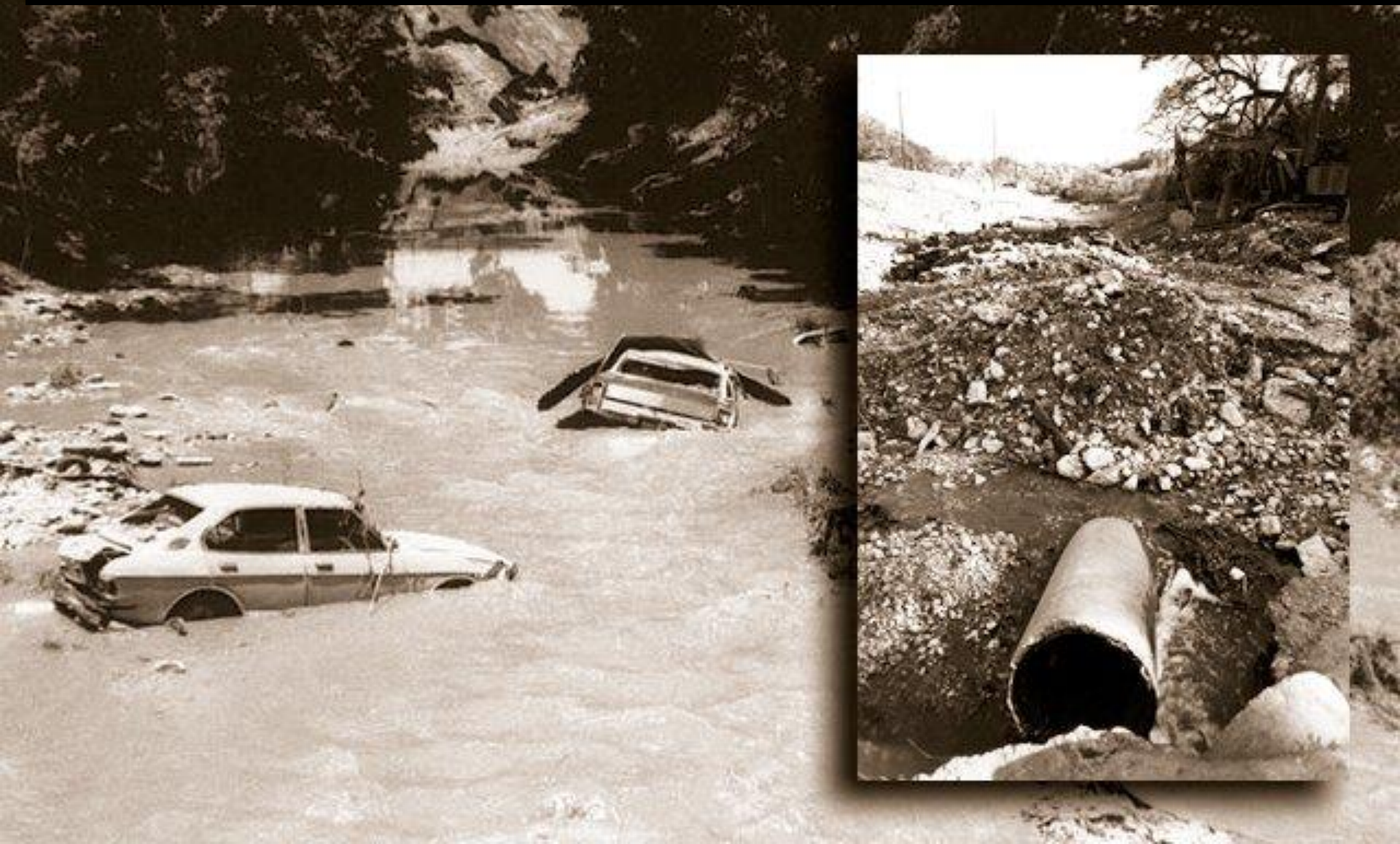


Shoal Creek once flowed year 'round



Today, Shoal Creek is often bone dry, with some pools of stagnant water.

During heavy rains, Shoal Creek frequently floods because the impervious cover in the Shoal Creek watershed generates high volumes of runoff that go directly to the creek.



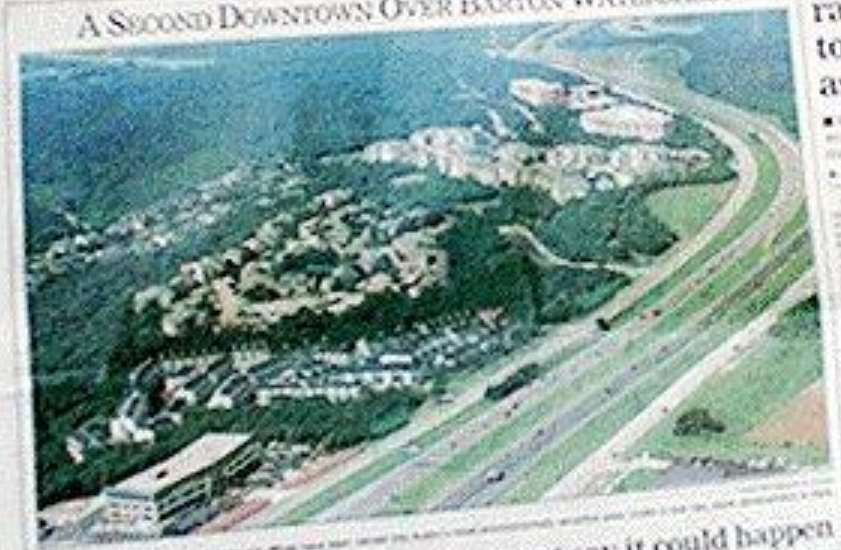
Be direct

Mowed down

Low-cash bash

Austin American-Statesman

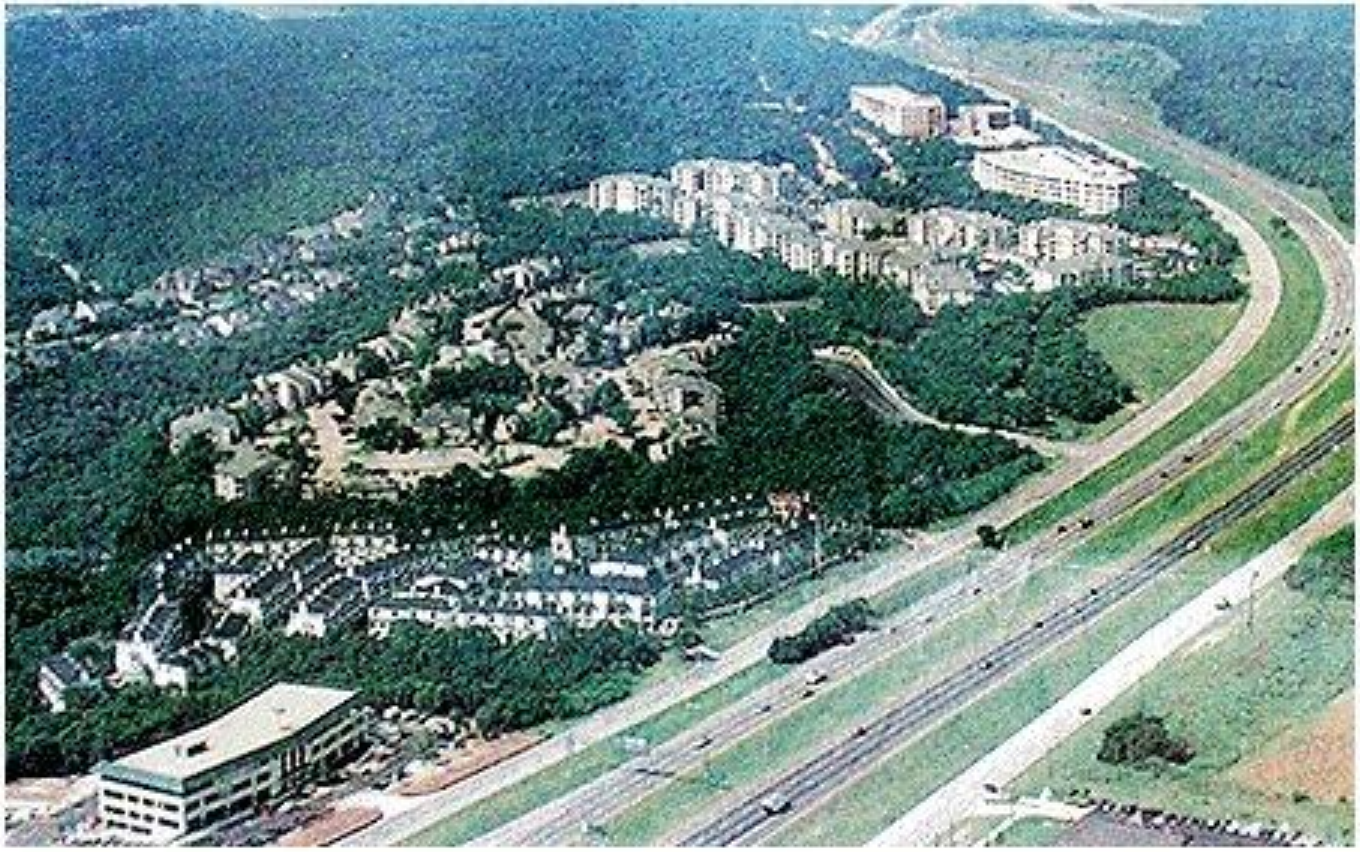
A Second Downtown Over Barton Watershed?



Justices raise bar to qualify as disabled

Estimates of permitted development say it could happen

A SECOND DOWNTOWN OVER BARTON WATERSHED?



On South MoPac Boulevard, apartments and offices have been carved into Austin's most environmentally sensitive area. Under a new law, more development is likely

Estimates of permitted development say it could happen


S.O.S.
SAVE OUR SPRINGS
ALLIANCE

Our Mission is to protect the Edwards Aquifer,
its springs and contributing streams,
and the natural and cultural heritage
of its Hill Country watersheds,
with special emphasis
on the Barton Springs Edwards Aquifer.

Consensus for Directing Growth Downstream and Protecting the Hill Country Watersheds

Public Consensus

1977 to Present:

- Austin Tomorrow Plan, 1977 and 1979.
- SOS election, 1992.
- Council Elections, 1993 to 1999.
- Smart Growth bond packages, May and October 1998.

Consensus for Directing Growth Downstream and Protecting the Hill Country Watersheds

Economic Consensus

- 1998, Chamber of Commerce's New Century Economy Report.
- Alpha360 and Intelliquest polling.

All confirm that high quality environment necessary for healthy economy.

Consensus for Directing Growth Downstream and Protecting the Hill Country Watersheds

Scientific Consensus

Key consensus recommendations included:

- "Governments, private corporations and citizens should act promptly to direct urban development away from the Edwards Aquifer through control of infrastructure investment . . ."

- "Restrict impervious cover to levels that will sustain existing water quality" (less than 10-12 percent)

R.I.P.E.

Reasonable Regulation

Infrastructure and Investments

Permanent Protection

Environmental Education

Reasonable Regulation

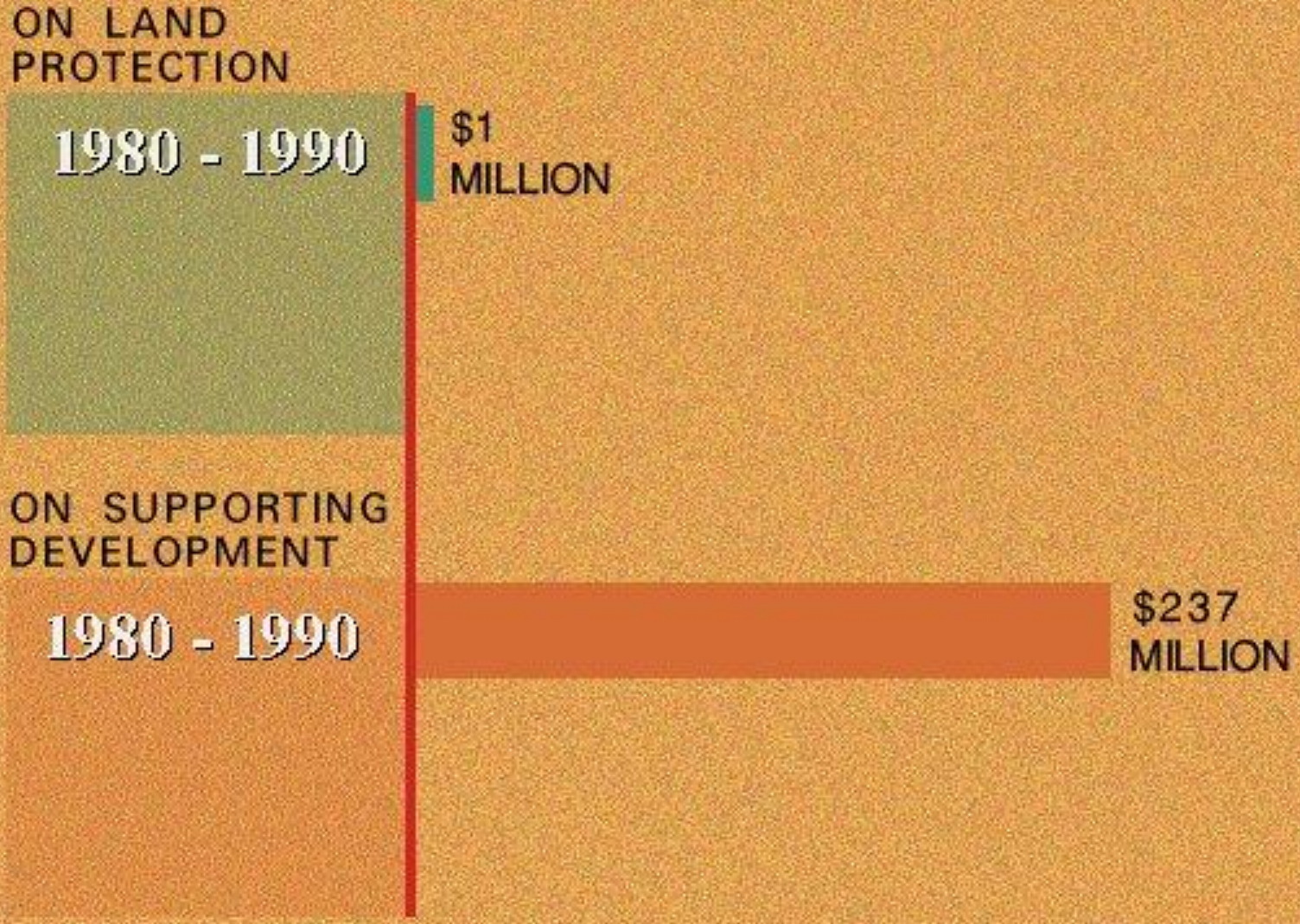
- Advocate for reasonable regulation to prevent pollution.
- Act as a watchdog to achieve compliance with the law.


HONK
for
BARTON
SPRINGS
NO MORE
DELAY
PROTECT
BARTON
SPRINGS

Infrastructure and Investments

- Encourage public bodies to direct infrastructure spending downstream.
- Communicate directly with business leaders to locate their facilities downstream.

Public spending in Barton Springs zone since Austin Tomorrow Plan adopted in 1979



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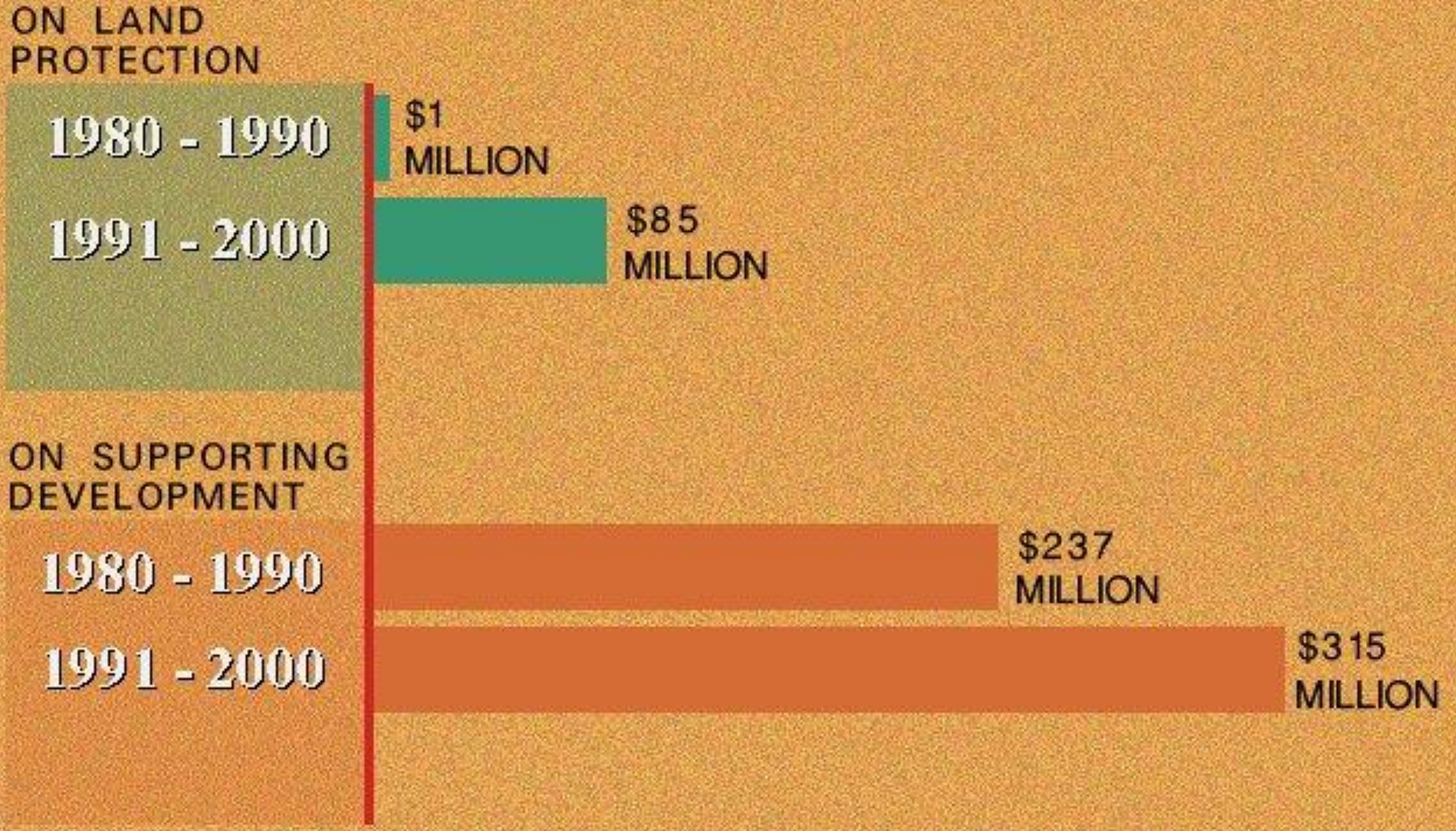
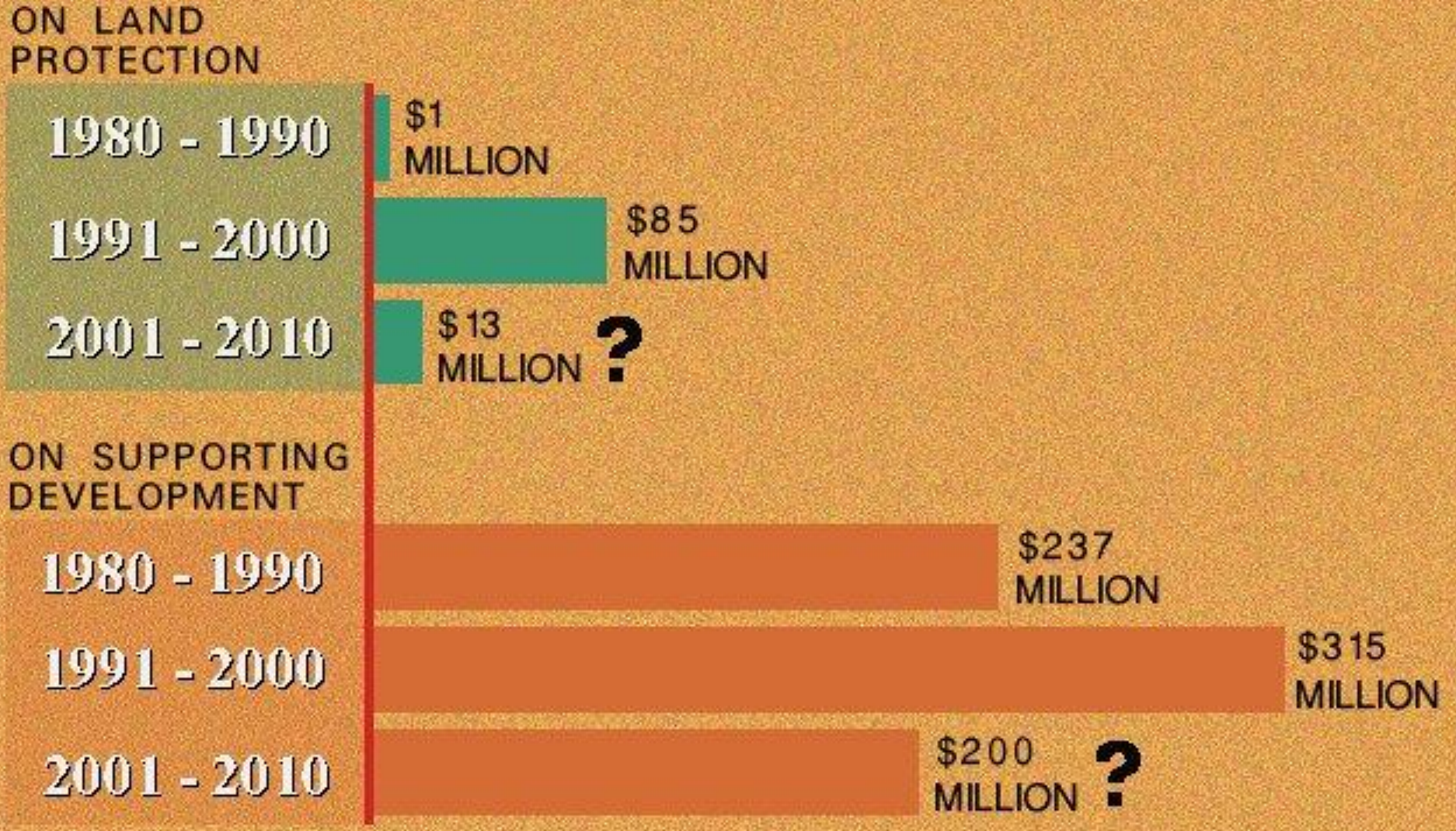


Public spending in Barton Springs zone since Austin Tomorrow Plan adopted in 1979

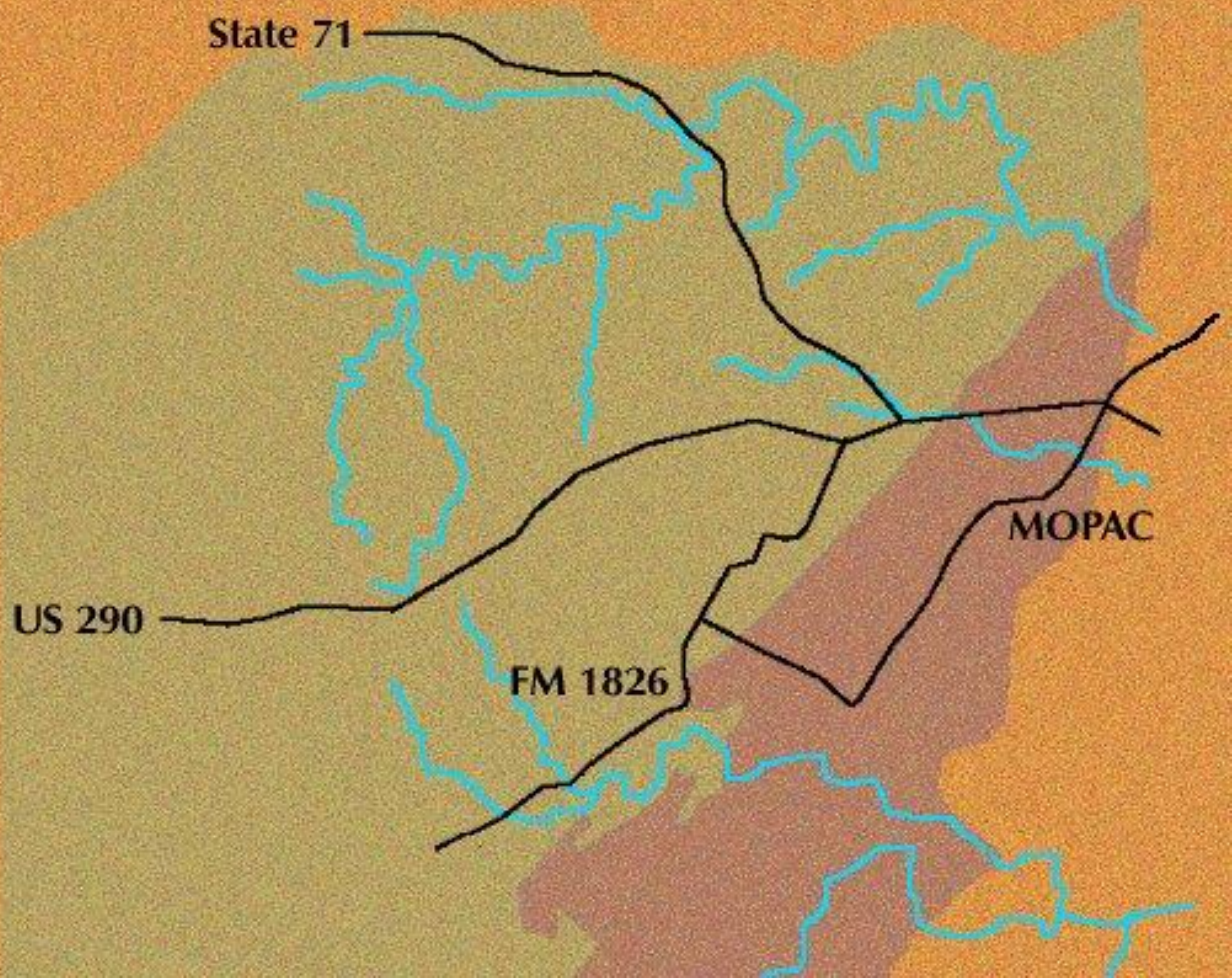


Permanent Protection

- Create and launch public initiatives to buy land for parks and preserves.
- Encourage private land stewardship through donation or sale of conservation easements.

Proposition 2

City Council Approved Easements and Acquisition



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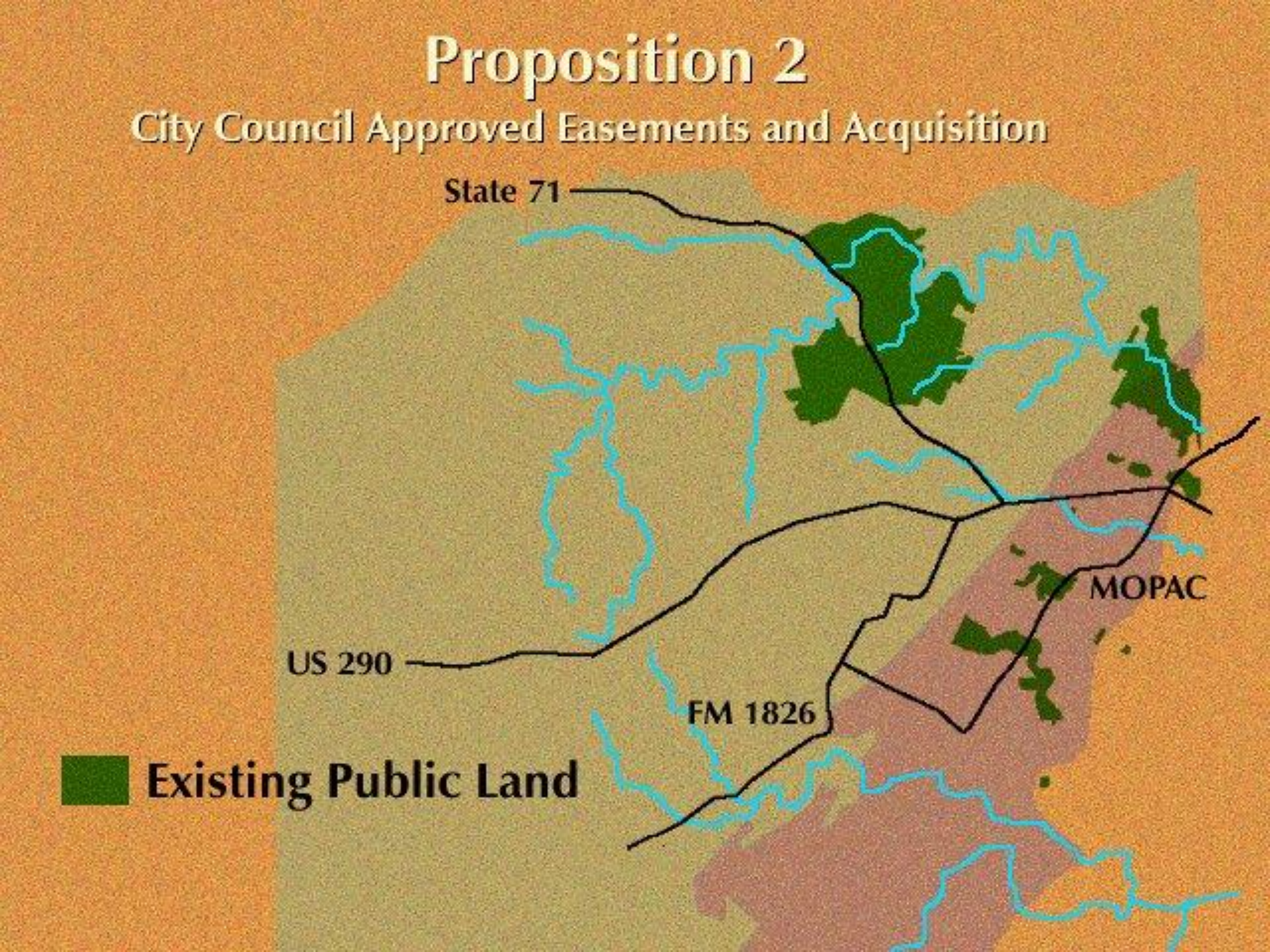

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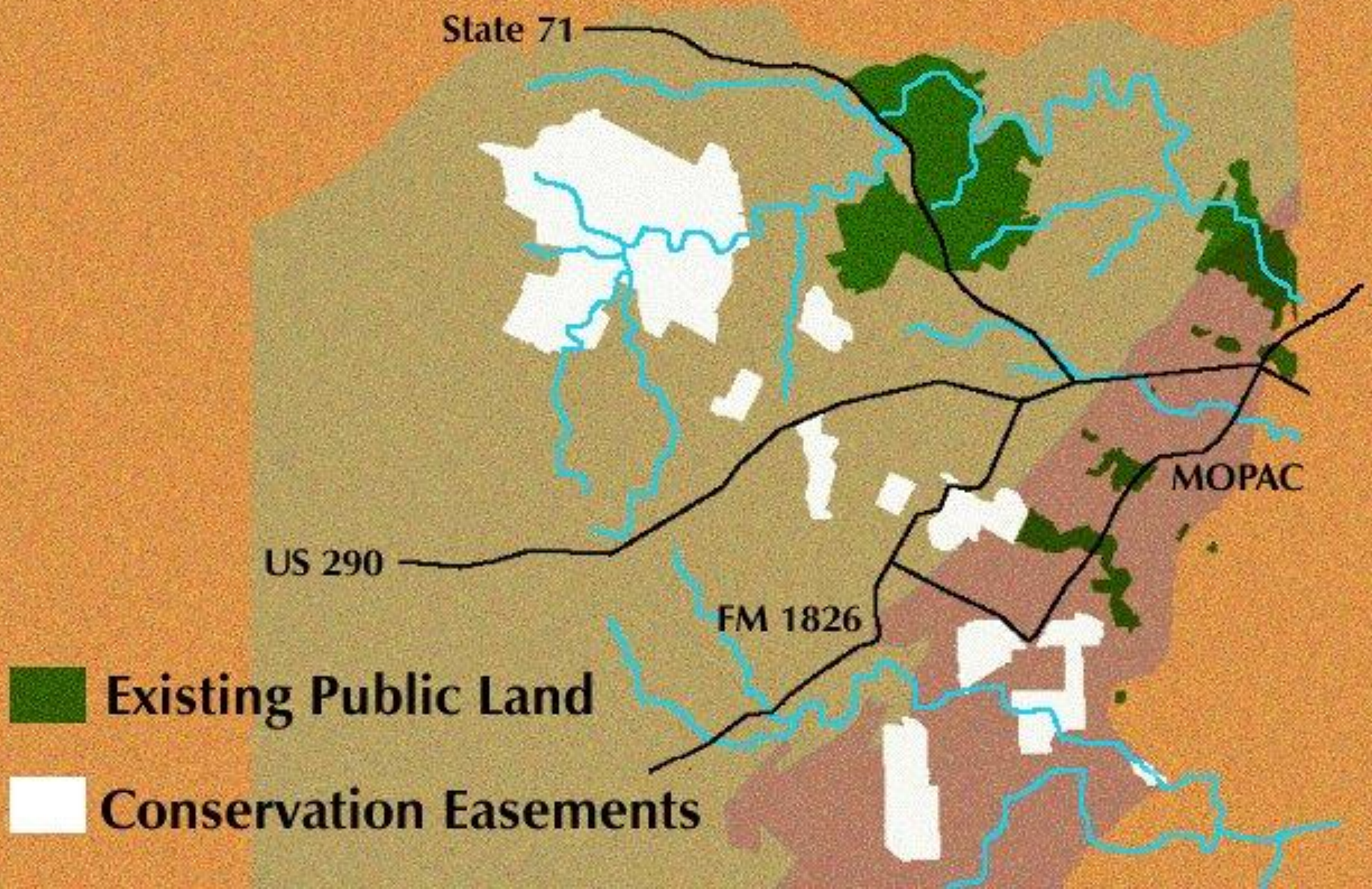

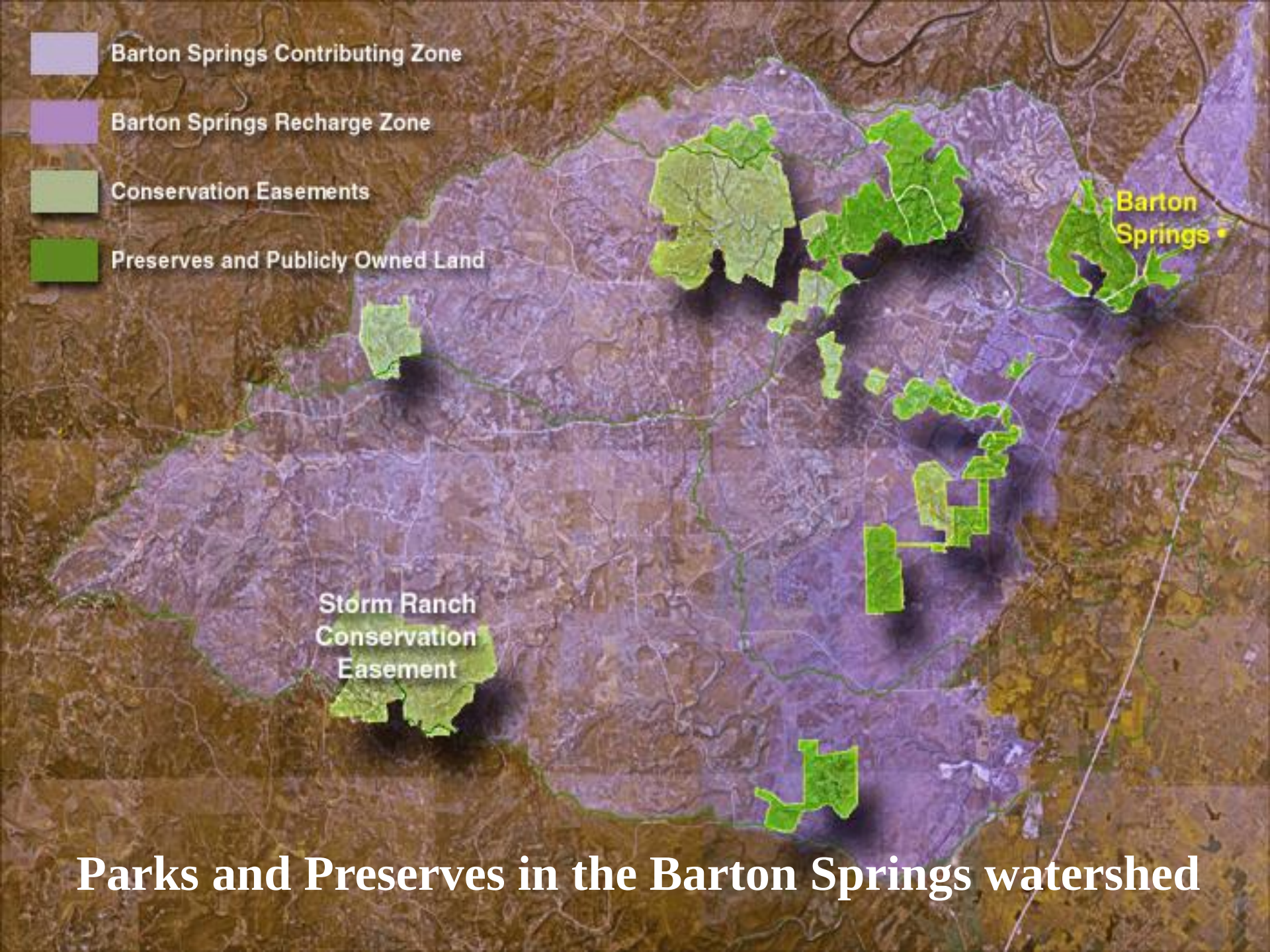

Parks and Preserves in the Barton Springs watershed

Environmental Education

- Educate public and private decision-makers on the importance of building downstream.

Environmental Education

- Educate public and private decision-makers on the importance of building downstream.
- Create awareness through a variety of outreach programs, including:

  Newsletters, E-mail,
  Web page, Guided tours and outings,
  Presentations to schools, civic groups
  and in the workplace.

What You can do to Help Save the Springs

What You can do to Help Save the Springs

- Enjoy the Springs. Swim Year Round.

What You can do to Help Save the Springs

- Enjoy the Springs. Swim Year Round.
- Join the Save Our Springs Alliance

What You can do to Help Save the Springs

- Enjoy the Springs. Swim Year Round.
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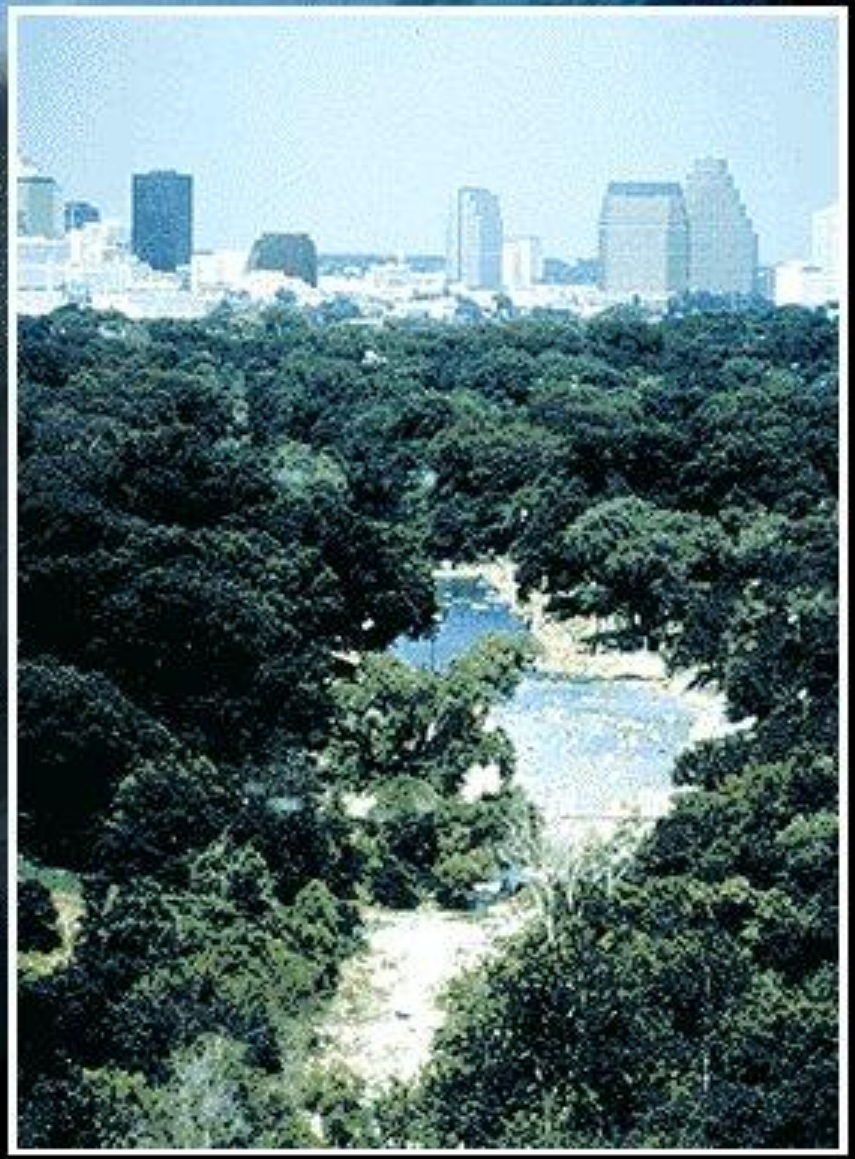
- Vote with Your Dollars

What You can do to Help Save the Springs

- Enjoy the Springs. Swim Year Round.
- Join the Save Our Springs Alliance
- Vote with Your Dollars
- Stay Informed and Participate



Acknowledgments

Ayres Family

Barton Spring/Edwards Aquifer Conservation District

Steve Beers

Eric Beggs, photographer

The Center for American History

City of Austin