

**S.O.S.**

**SAVE OUR SPRINGS  
ALLIANCE**

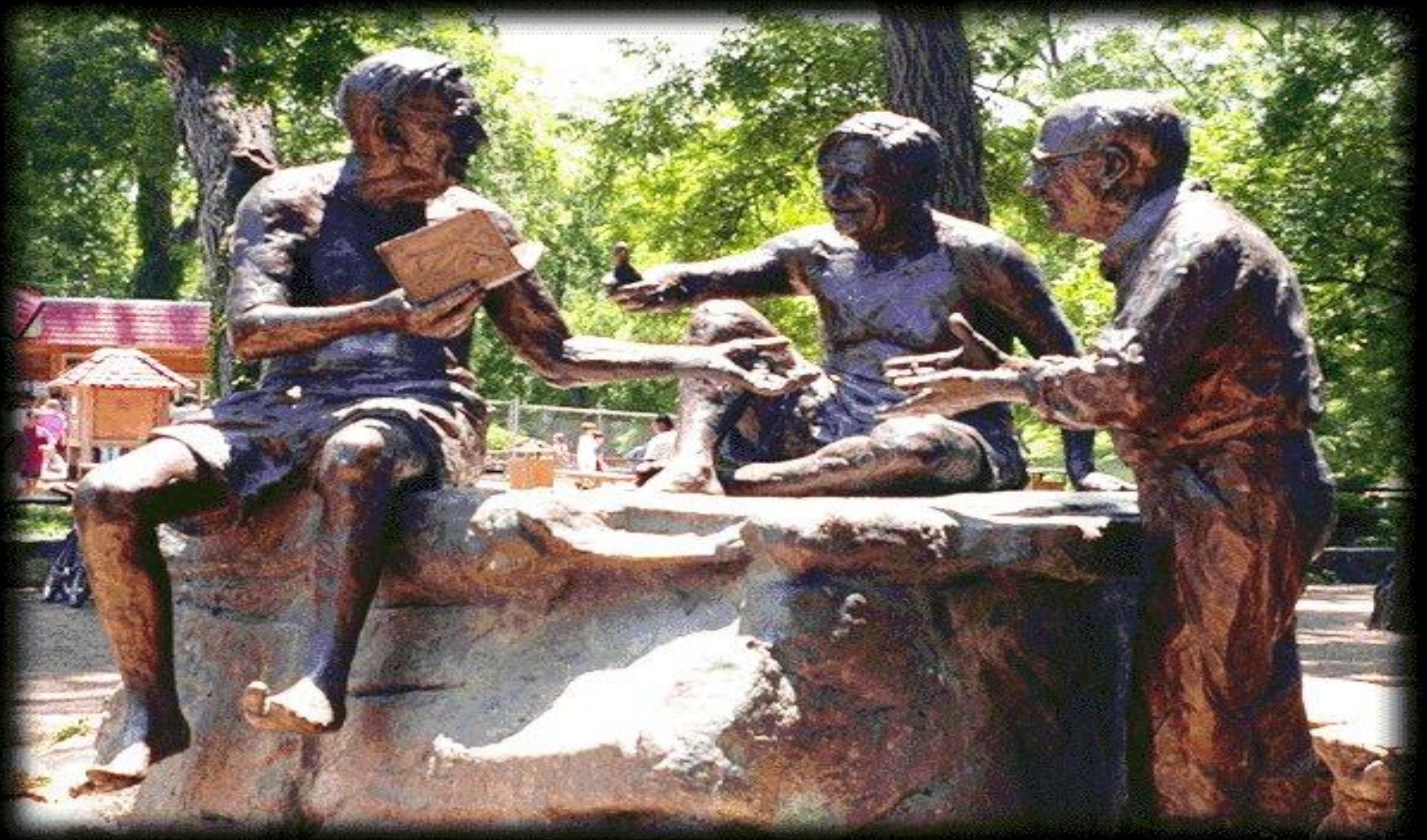
**The Time is RIPE  
to Save Our Springs**

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.**





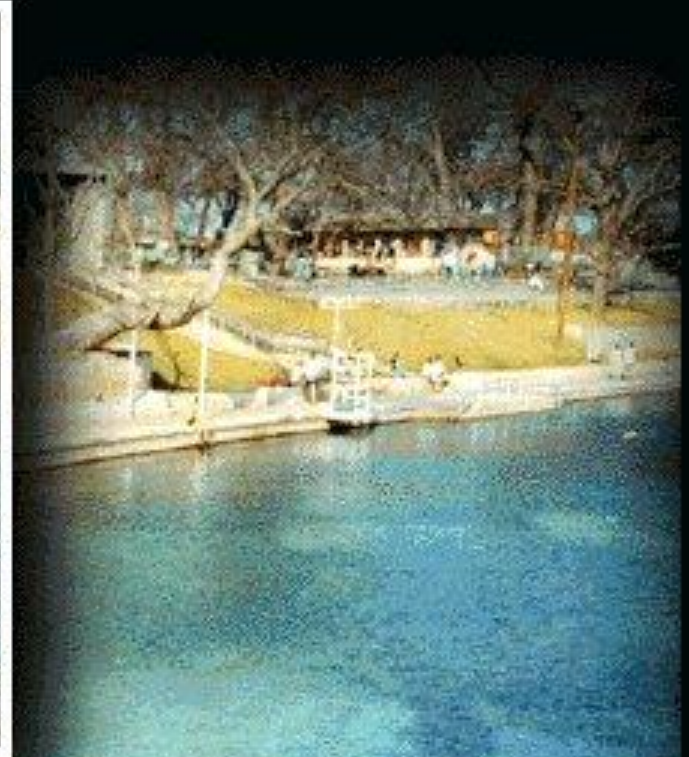
"If people are to enjoy their own lives,  
they must be aware of the  
significances of their own environment."

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

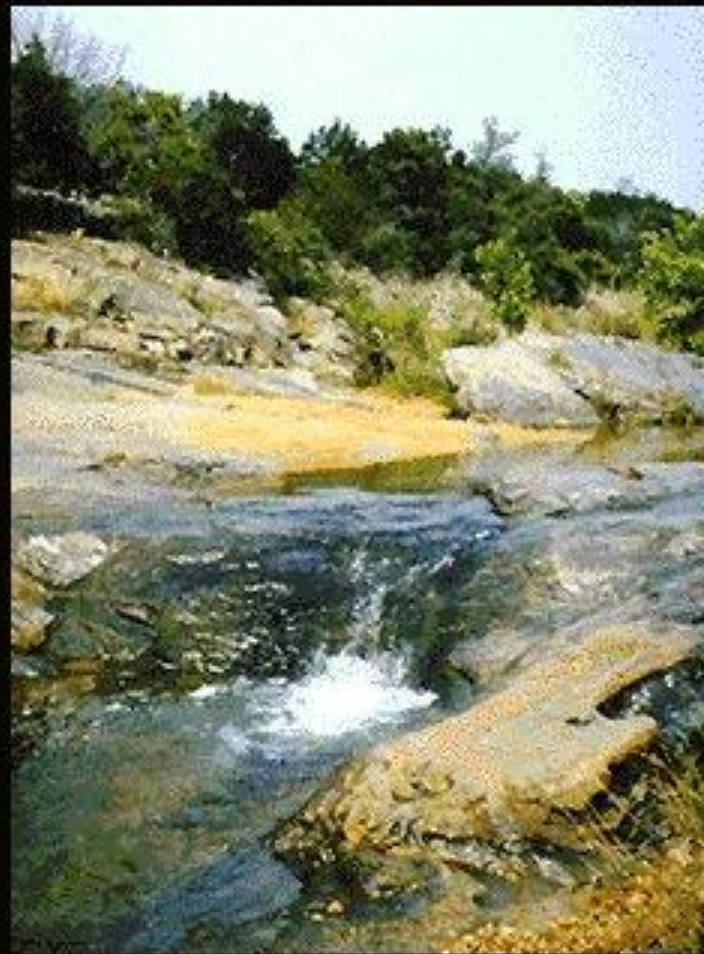


**The water in Barton Springs comes from Hill Country watersheds in southwest Travis and northern Hays Counties**



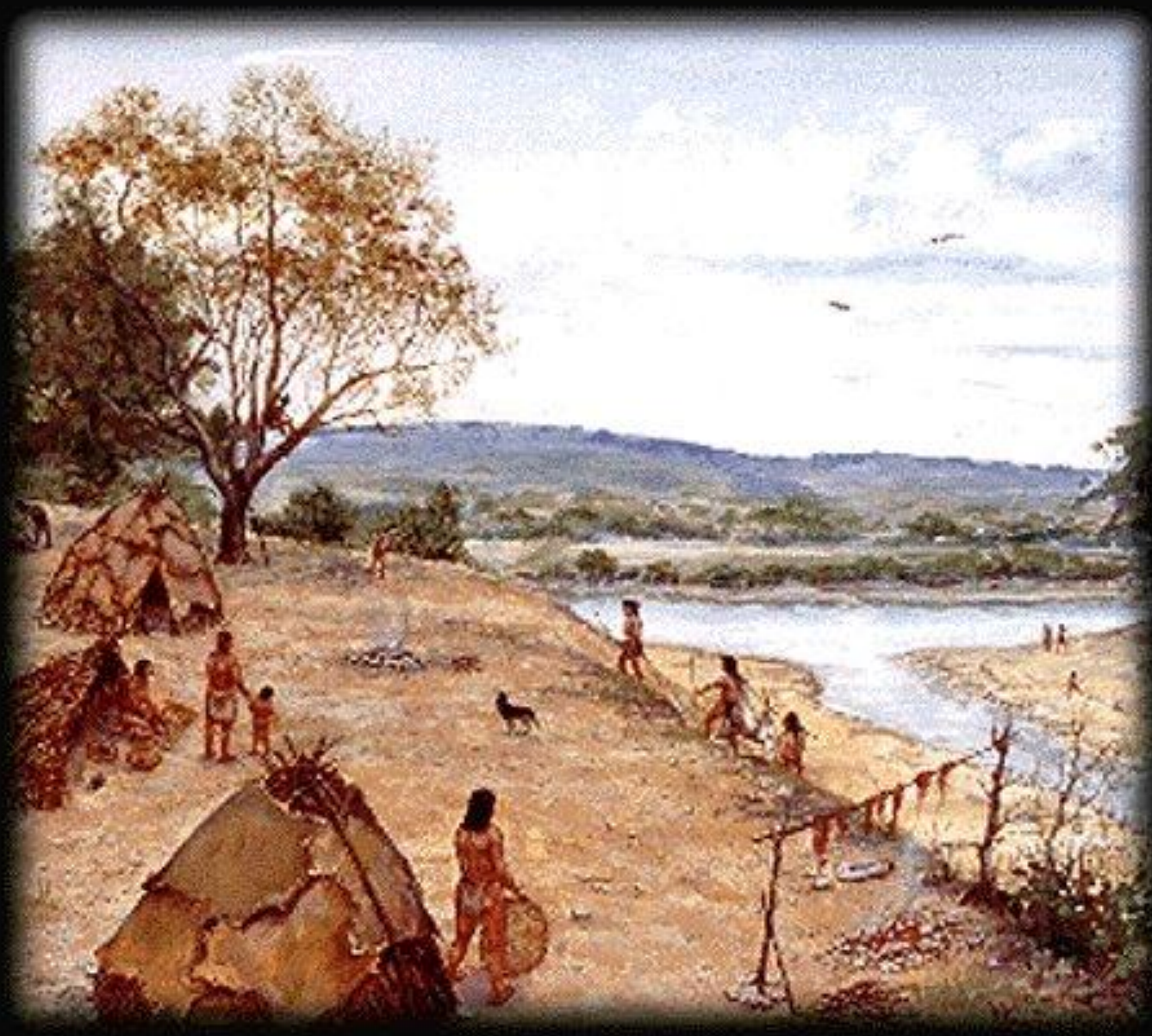


# Limestone hills and wildflower blooms characterize the Texas Hill Country

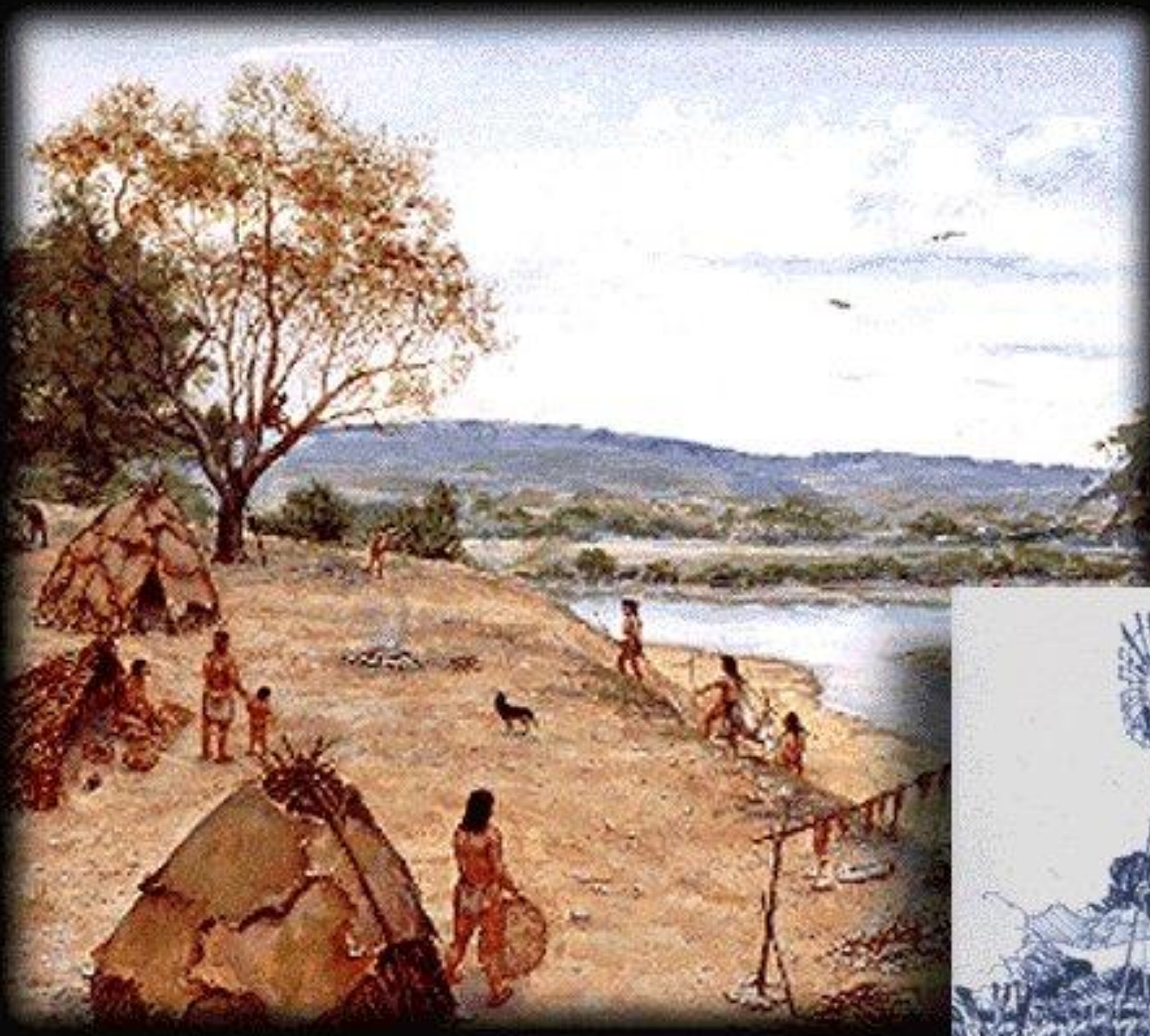




*Waterfall on Onion Creek*



Native Americans camping along Barton Creek



European settlers established mills at Barton Springs



*South Austin Baptist Church - Baptismal Service - Barton Springs - July 5, 1925.*

Baptismal ceremony in Barton Springs in 1925



Barton Creek in the late 1990s



**Endangered Black-capped vireo**





Endangered Golden-cheeked warbler

Endangered Black-capped vireo





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.

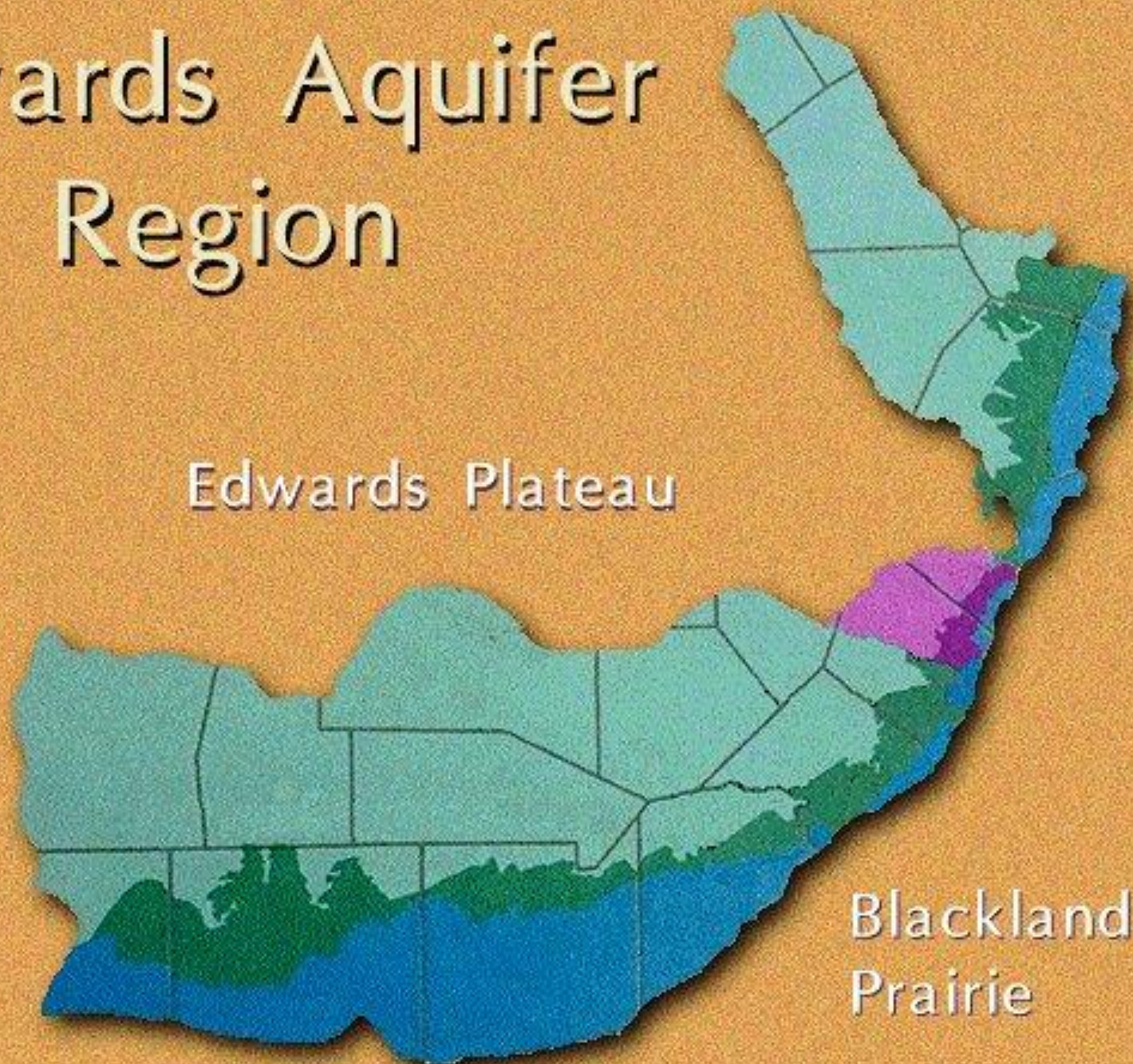


***The Edwards Aquifer:***  
***The Hidden Heart of Texas***



# Edwards Aquifer Region

Edwards Plateau



Blackland  
Prairie

# Edwards Aquifer Region

- Largest Springs in Texas



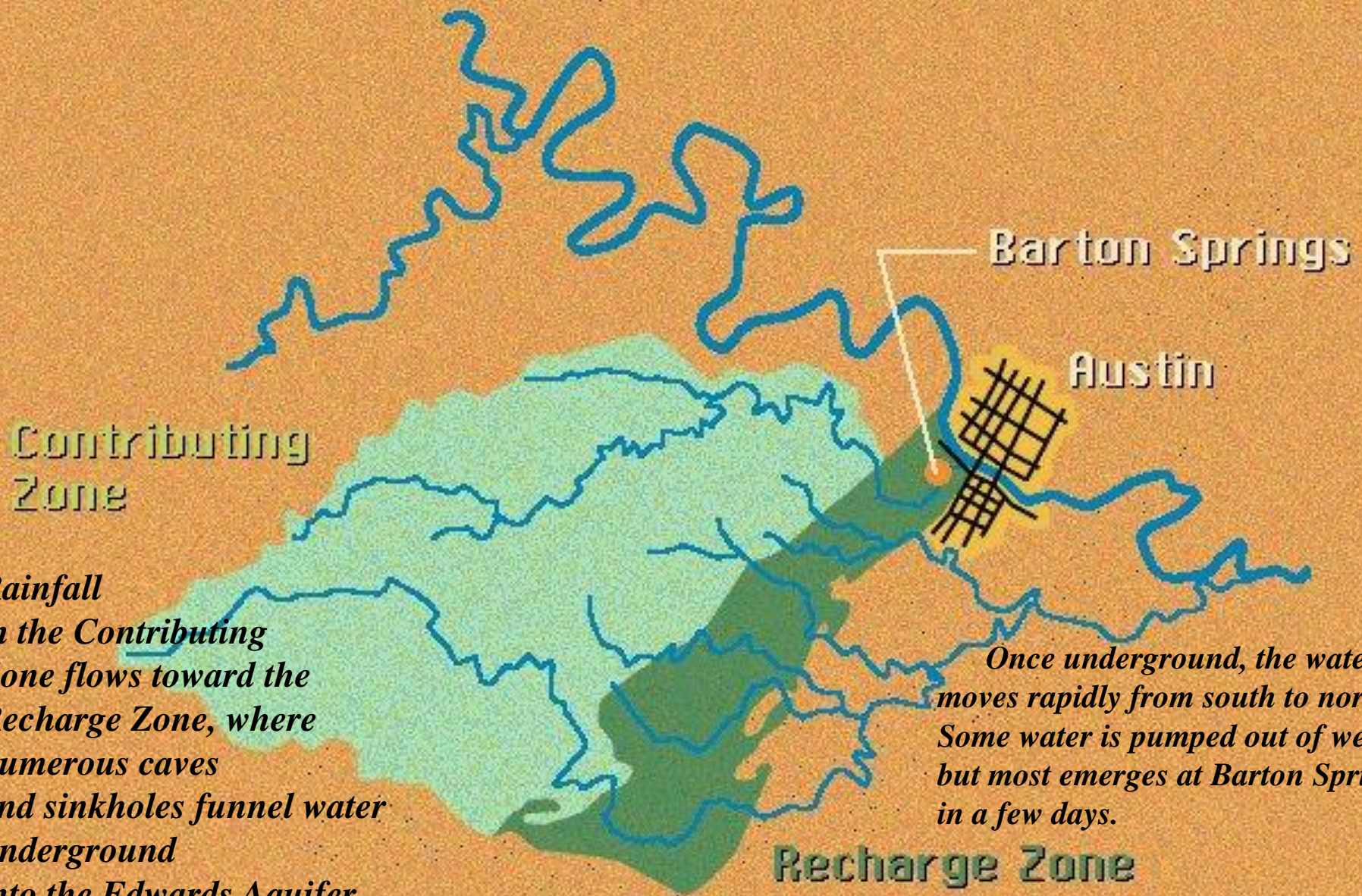
# Edwards Aquifer Region

● Largest Springs in Texas

■ Cities and Towns



# Barton Springs Portion of Edwards Aquifer



Contributing  
Zone

Barton Springs

Austin

*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.*

Recharge Zone



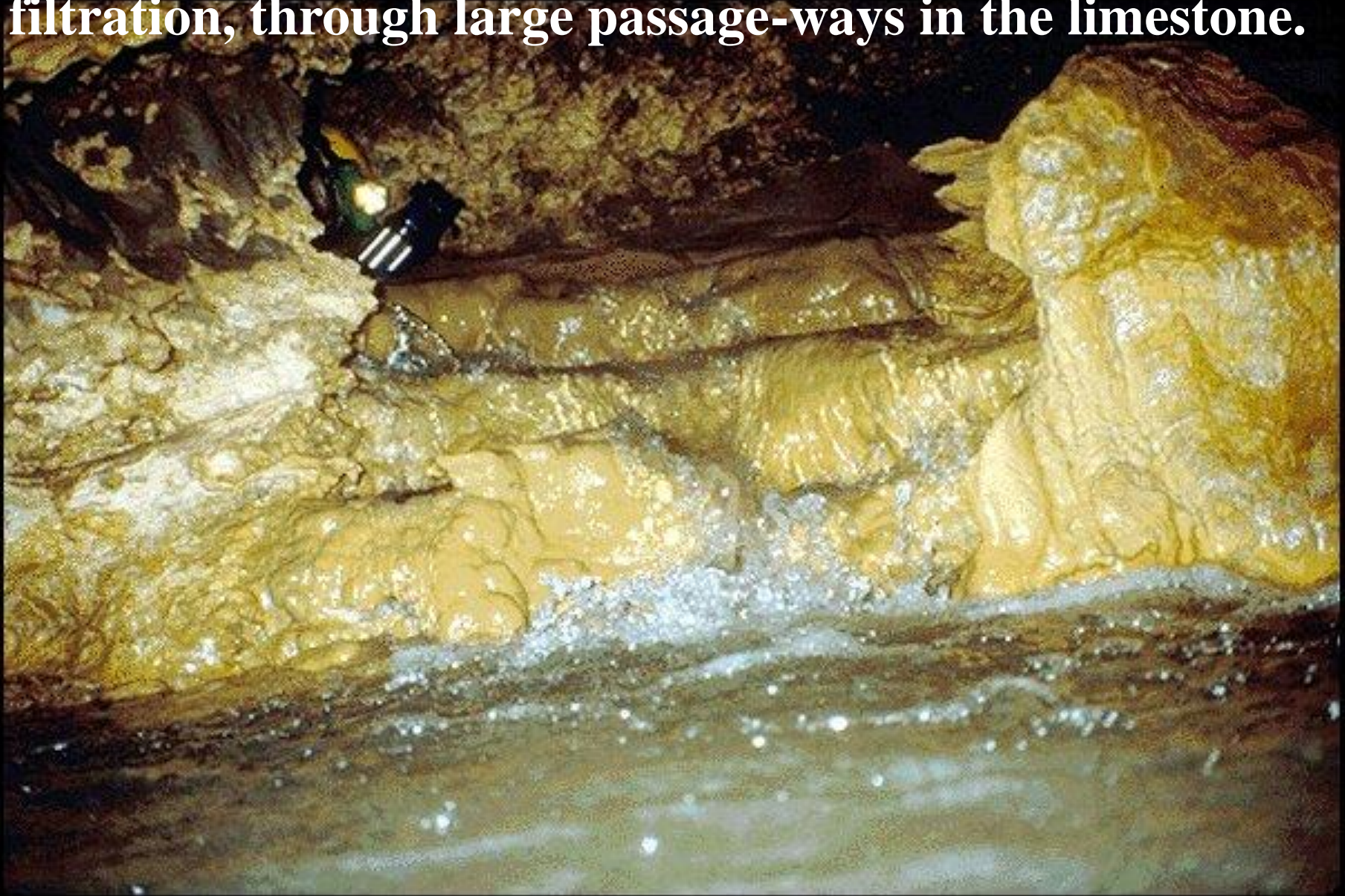
# Runoff entering a large sinkhole



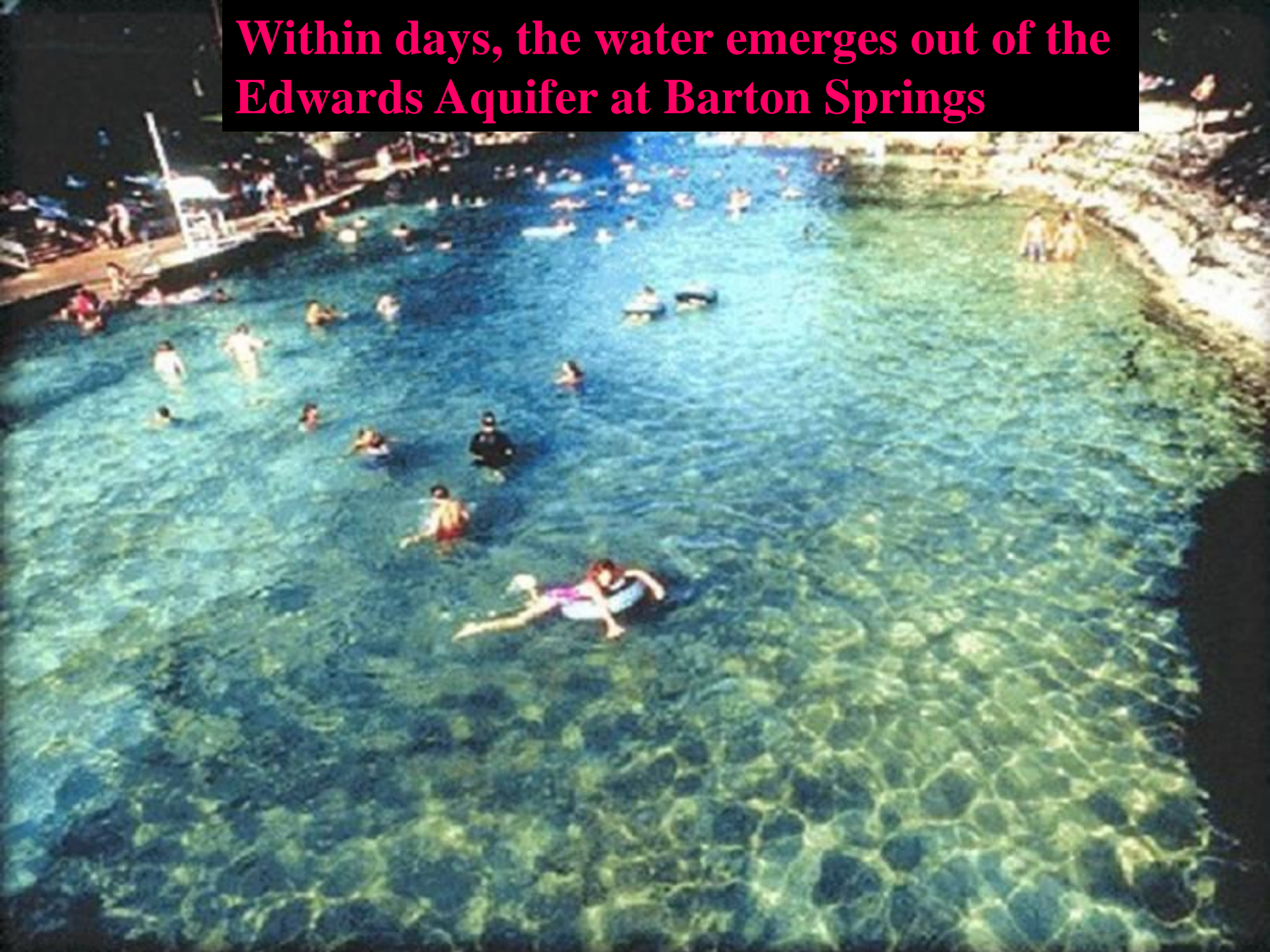
Water entering the aquifer (and creating a whirlpool) in a sinkhole in the bottom of Onion Creek in the Recharge Zone



**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?

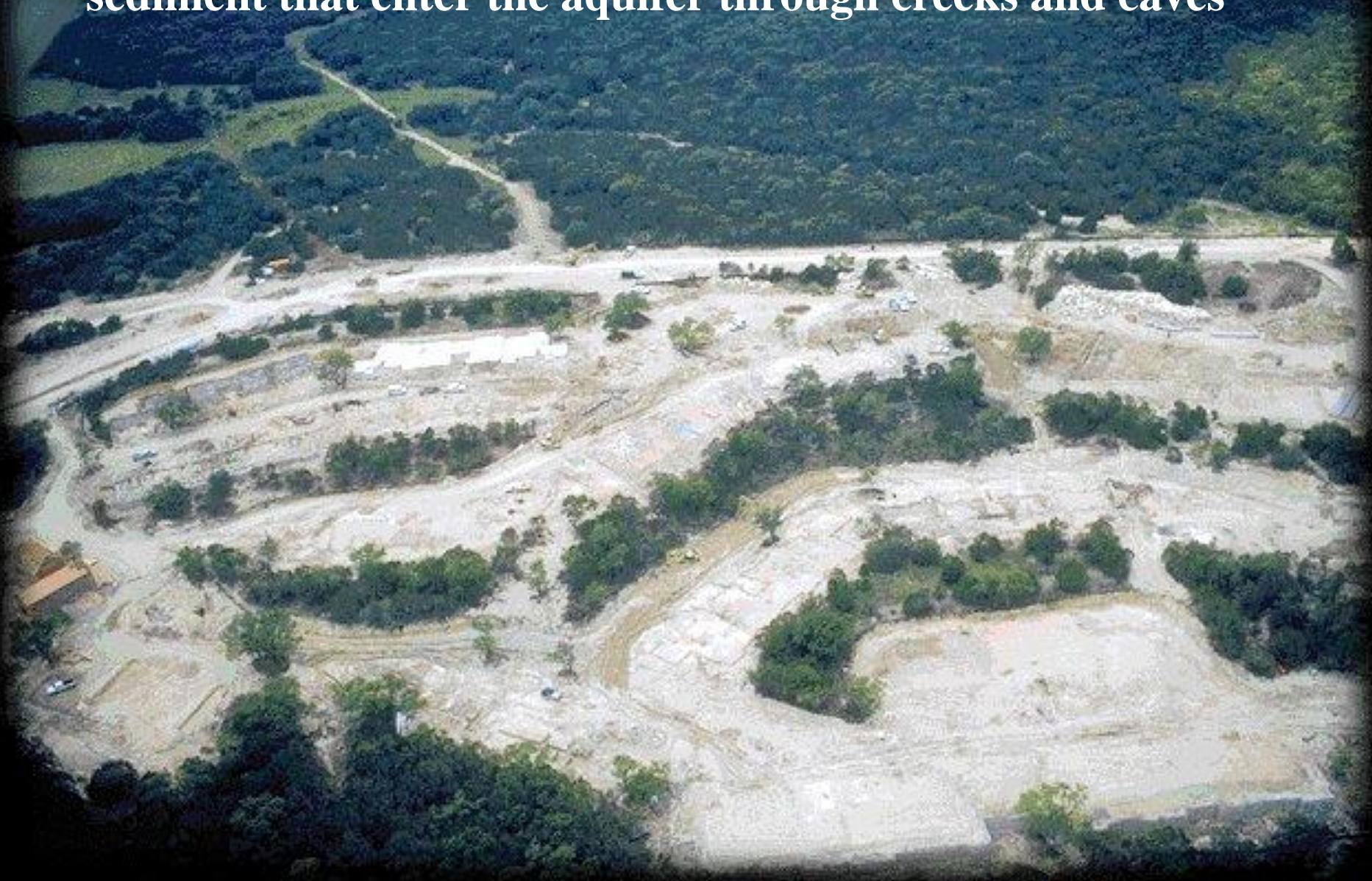
A photograph of a highway overpass with a sign. The sign is rectangular and black with white text. Above the sign is a street light pole with two arms. The background shows a highway with traffic, a utility pole, and a blue sky with white clouds. The foreground is a grassy area.

ENTERING  
EDWARDS AQUIFER  
ENVIRONMENTALLY  
SENSITIVE  
RECHARGE ZONE

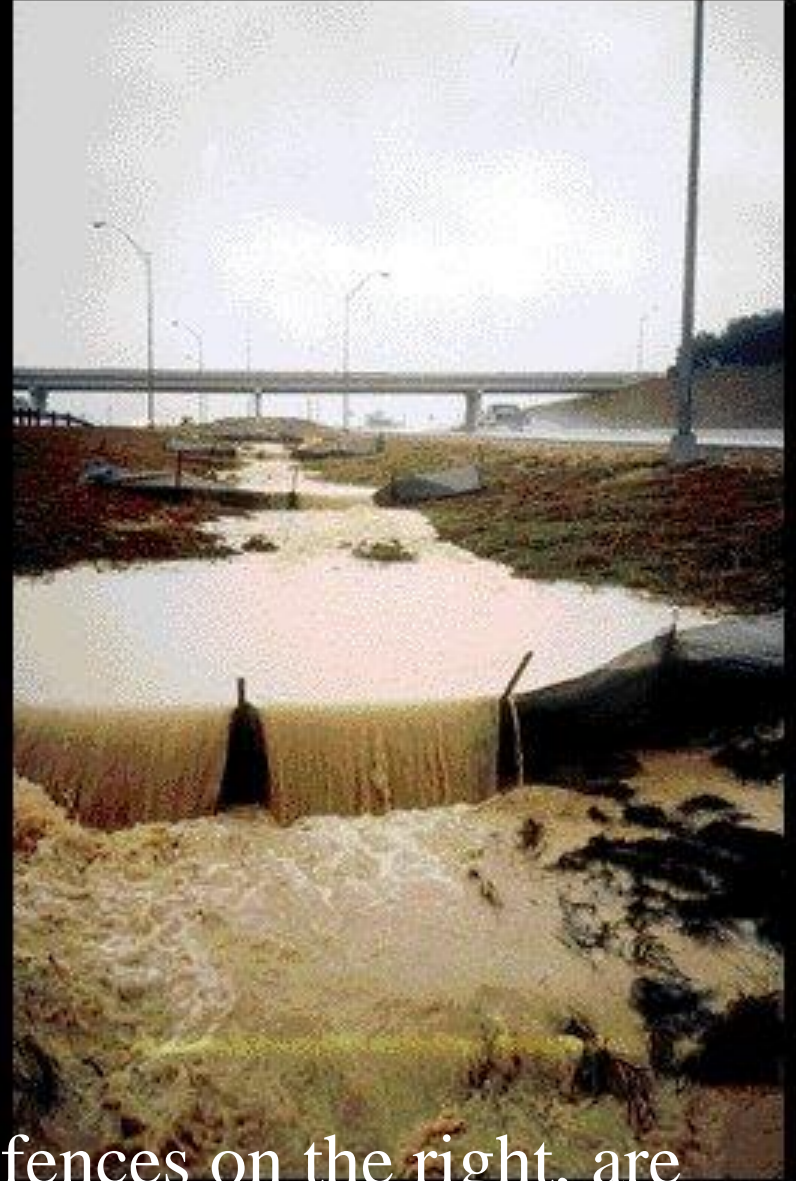
Land clearing exposes soil to erosion when rains come



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

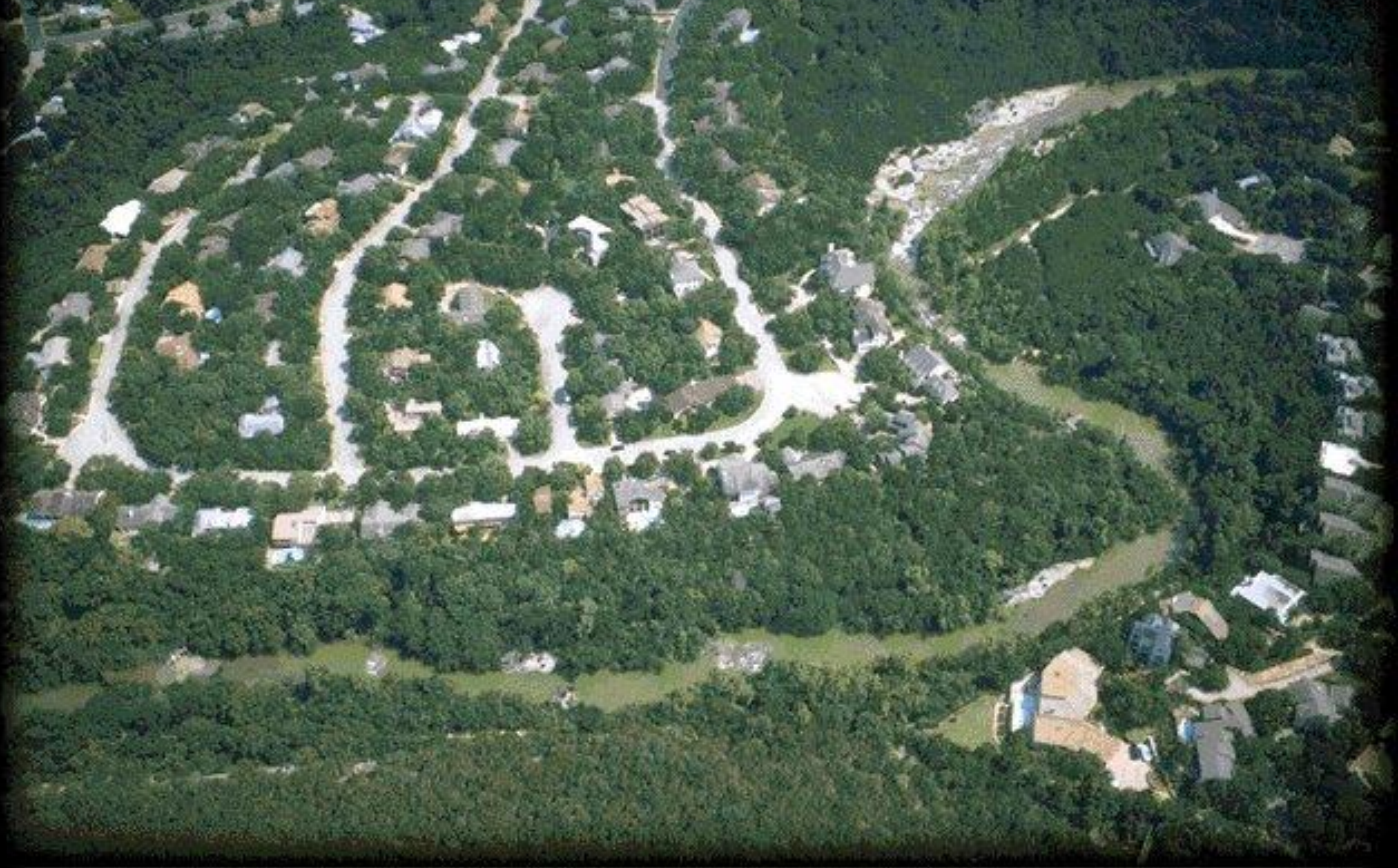






Structural controls, such as the silt fences on the right, are often not effective at preventing silt loads from entering creeks

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.**



**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

Arsenic  
Cadmium  
Copper  
Lead  
Mercury  
Silver

## Pesticides

P-P'-DDD  
P-P'-DDE  
P-P'-DDT  
Aldrin  
Endrin  
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

Arsenic  
Cadmium  
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PCD

## Polyaromatic hydrocarbons

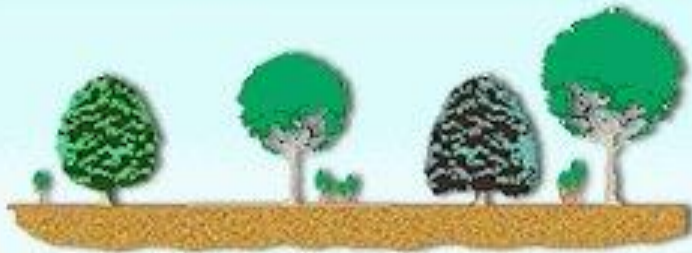
Benzo(A)anthrocene  
Benzo(B)fluoranthene  
Benzo(K)fluoranthene  
Benzo(A)pyrene  
Chrysene  
Dibenz(AH)anthracene  
Fluoranthene  
Phenanthrene  
Pyrene

**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**

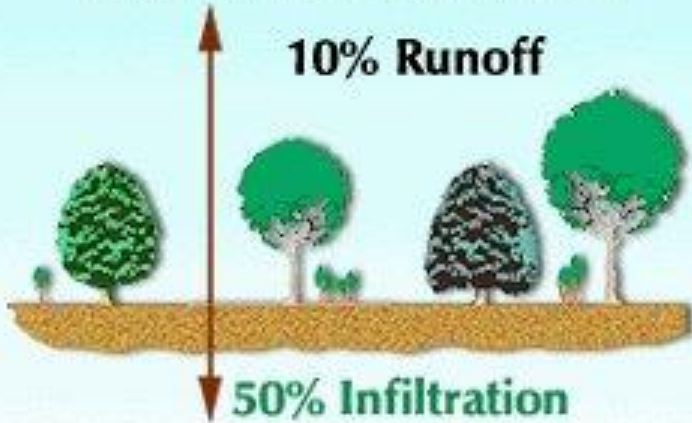
## The Impact of Impervious Surface Changes on the Annual Water Balance (PGDER, 1997)



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

**40% Evapo-transpiration**

**10% Runoff**

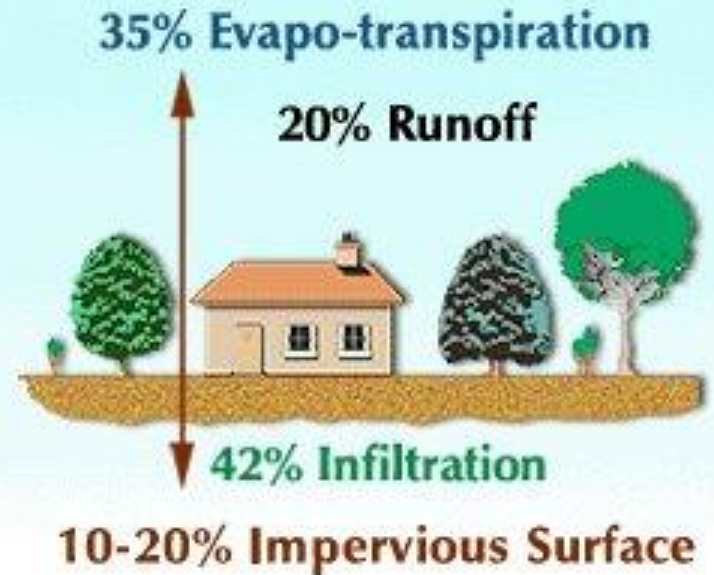


**Natural Ground Cover**



**10-20% Impervious Surface**

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

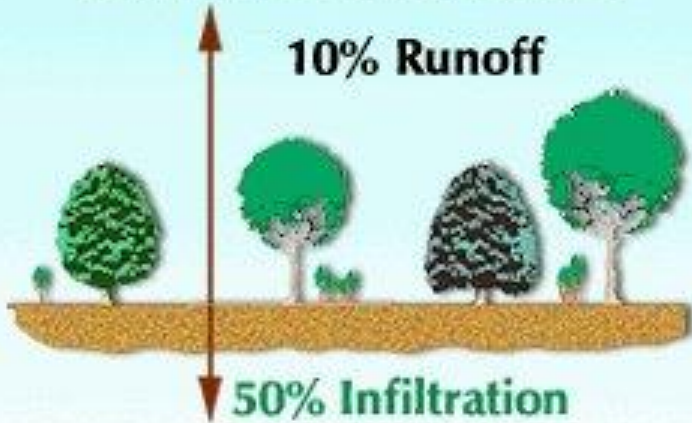


A small increase in impervious cover resulted in a dramatic increase in the percentage of rainfall that becomes runoff.

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

40% Evapo-transpiration

10% Runoff



50% Infiltration

Natural Ground Cover

35% Evapo-transpiration

20% Runoff



42% Infiltration

10-20% Impervious Surface

35% Evapo-transpiration

30% Runoff



35% Infiltration

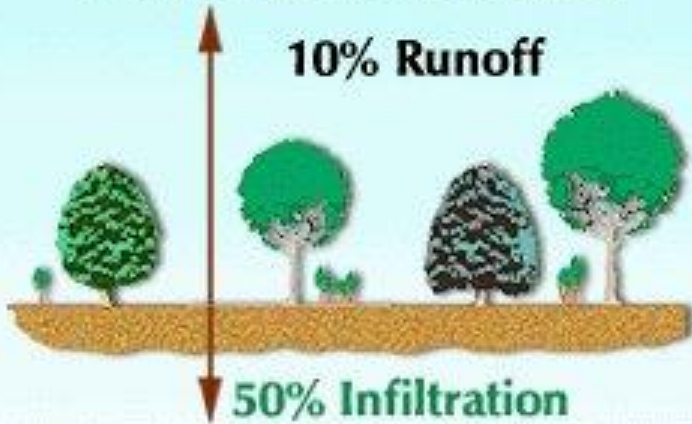
35-50% Impervious Surface

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)

**40% Evapo-transpiration**

**10% Runoff**



**50% Infiltration**

**Natural Ground Cover**

**35% Evapo-transpiration**

**20% Runoff**

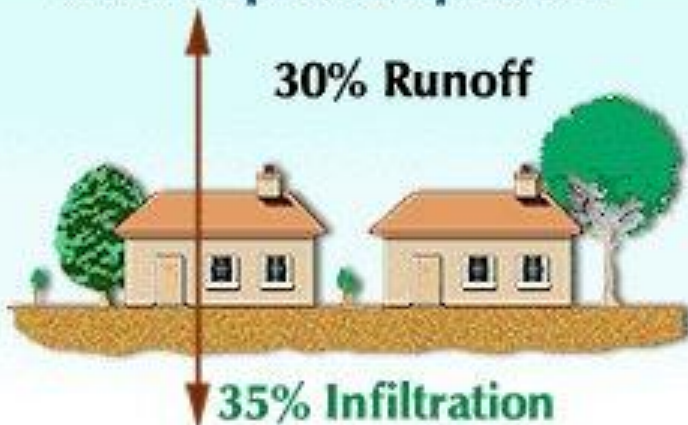


**42% Infiltration**

**10-20% Impervious Surface**

**35% Evapo-transpiration**

**30% Runoff**

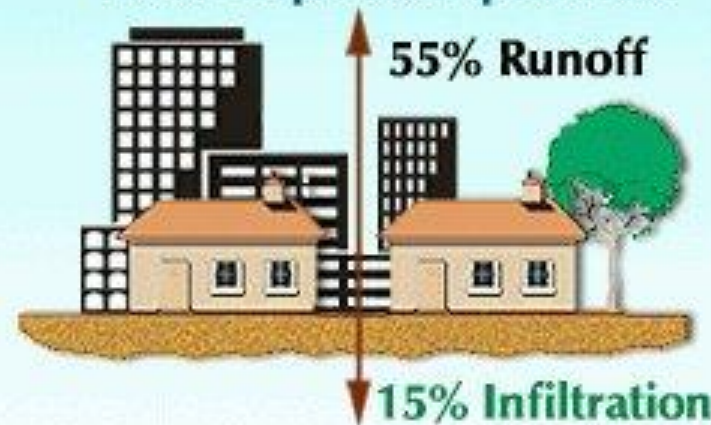


**35% Infiltration**

**35-50% Impervious Surface**

**30% Evapo-transpiration**

**55% Runoff**



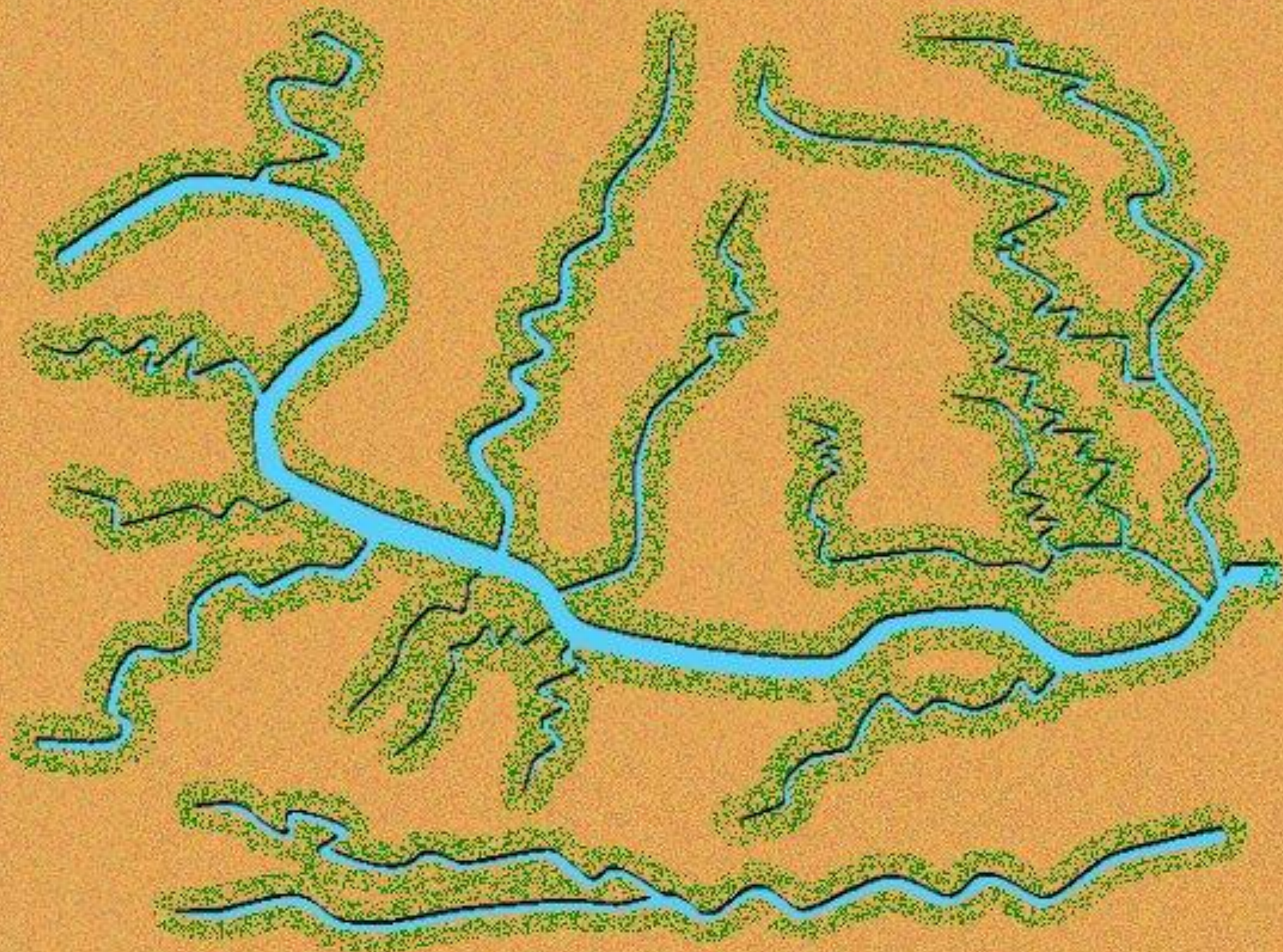
**15% Infiltration**

**75-100% Impervious Surface**

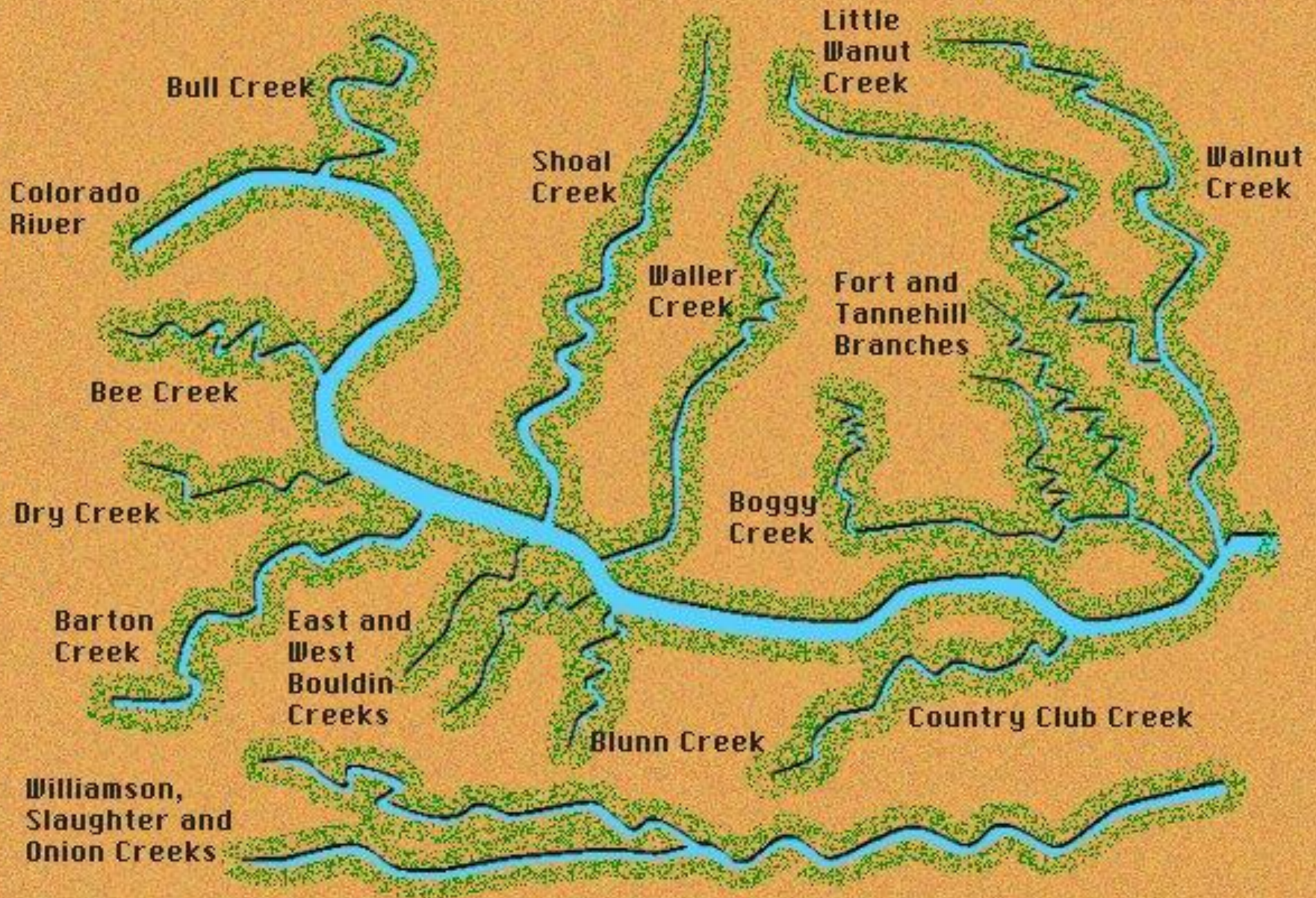


# Impervious Cover and Shoal Creek

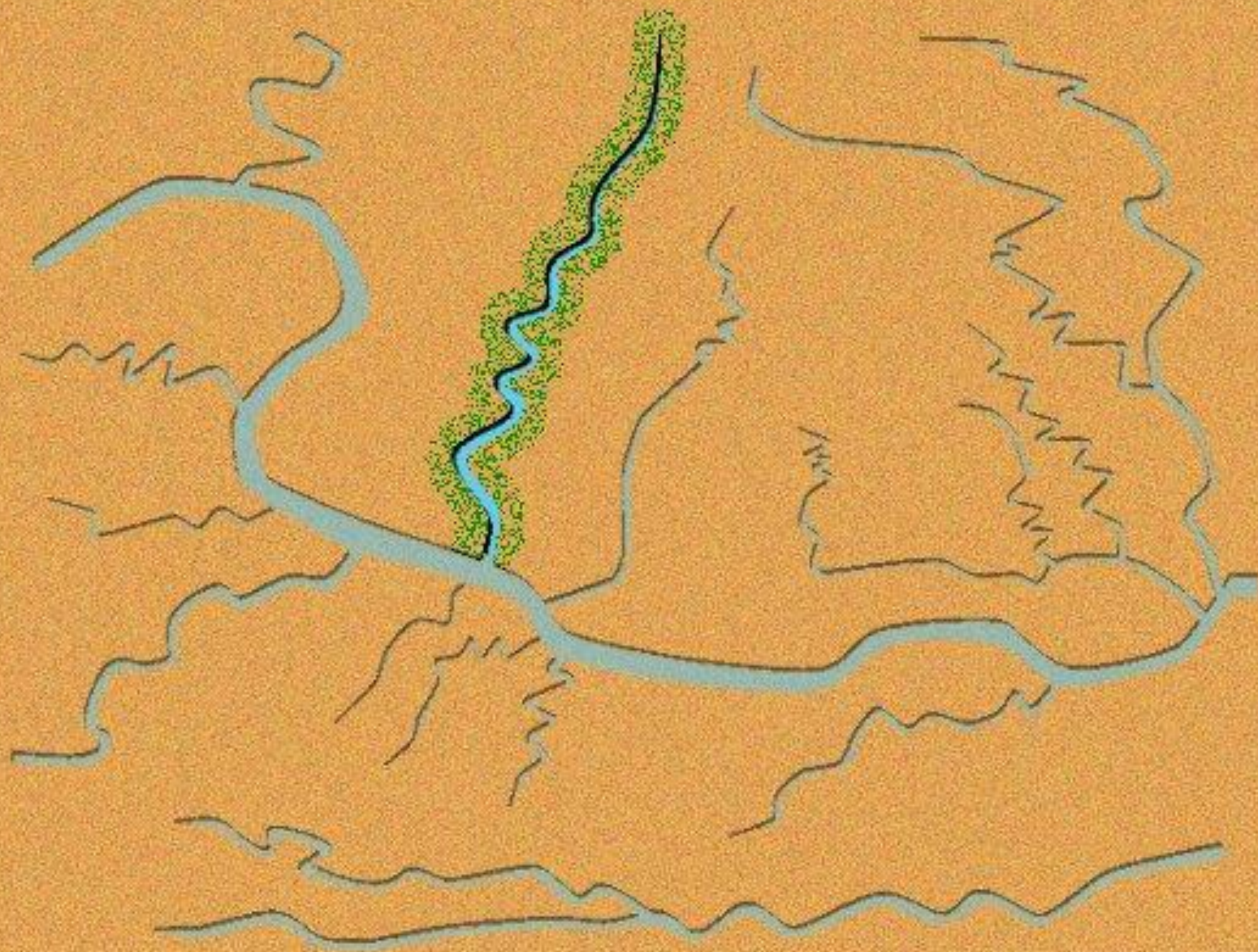
# Austin Area Creek System



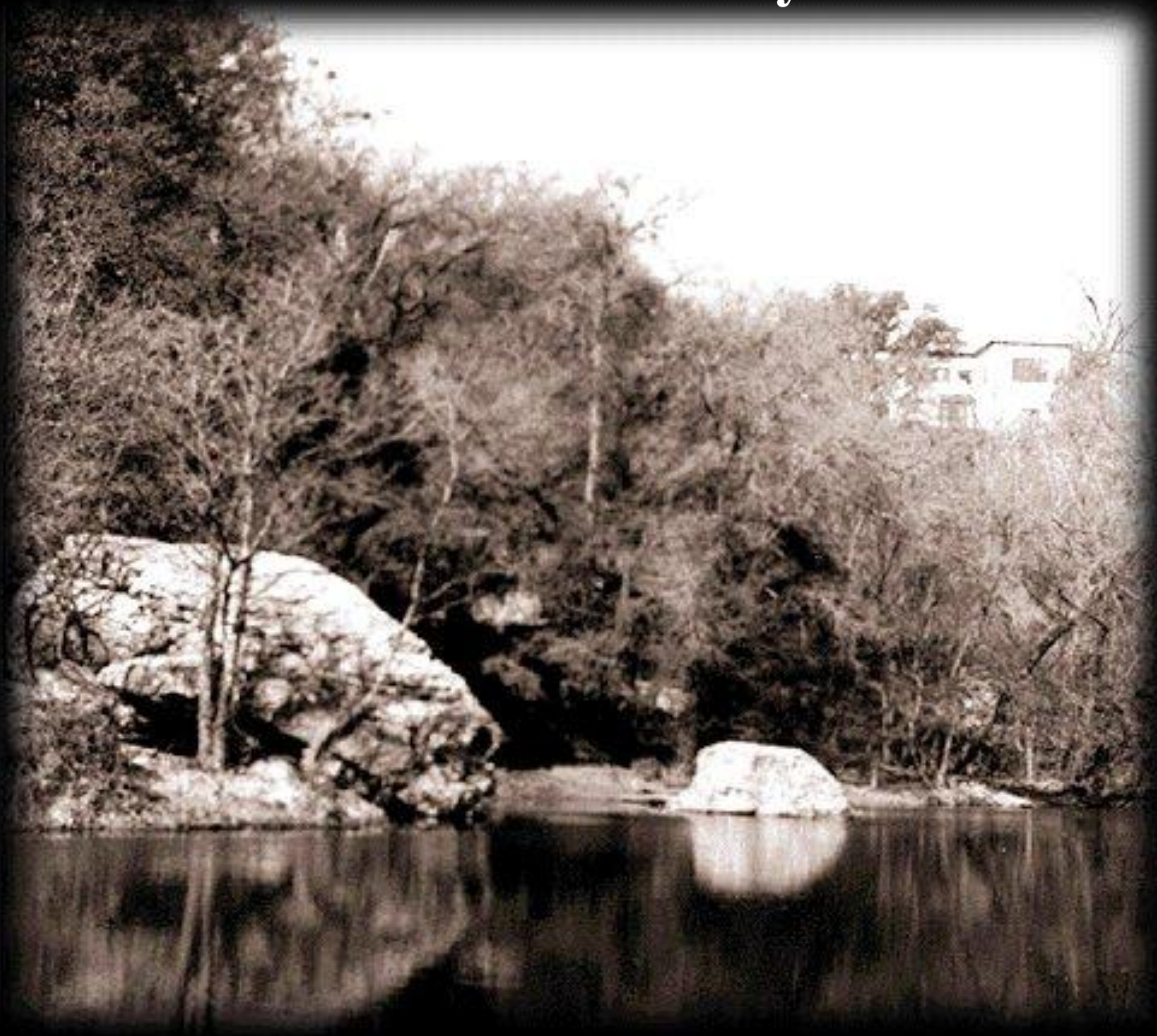
# Austin Area Creek System

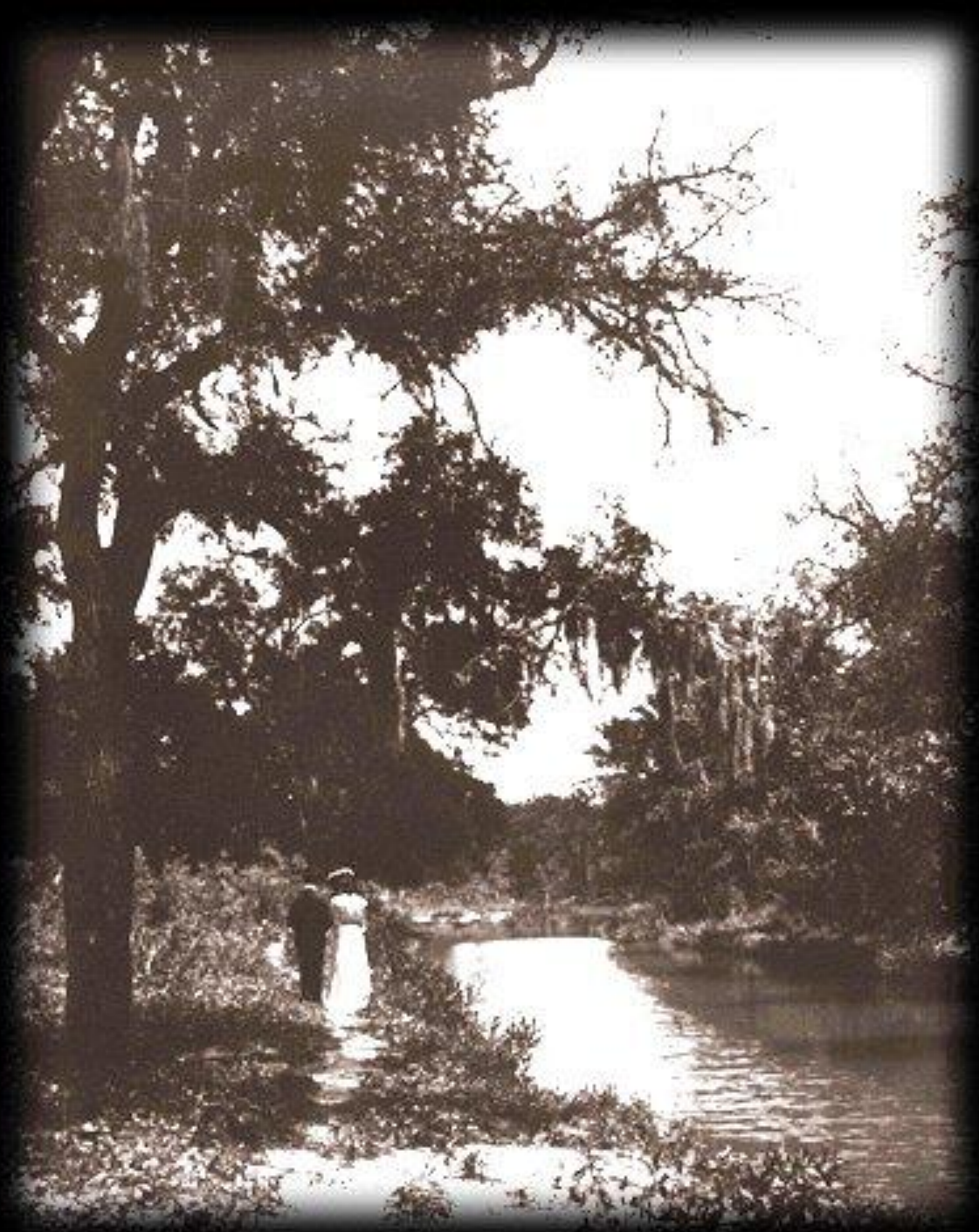


# Shoal Creek

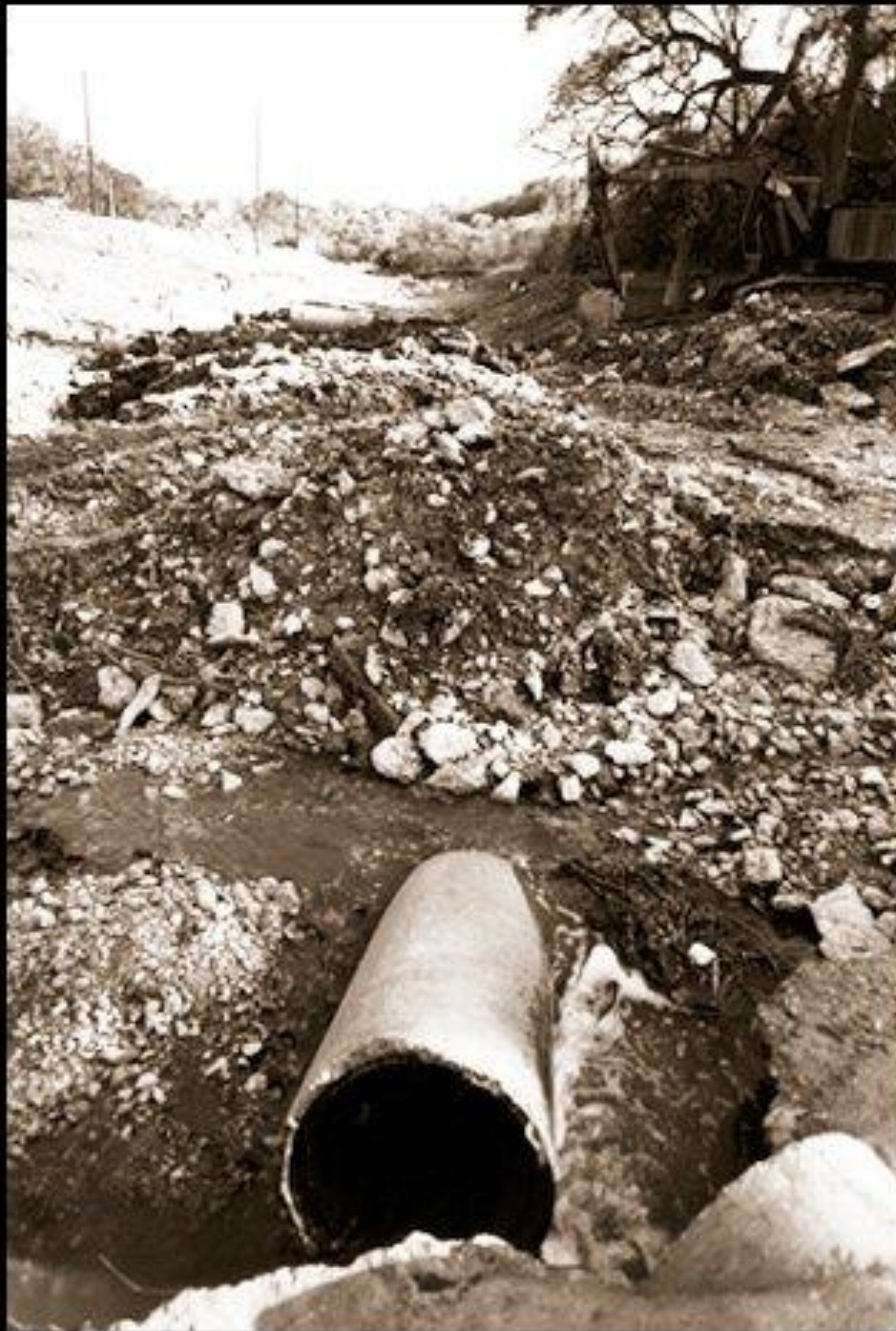


# Shoal Creek once flowed year 'round

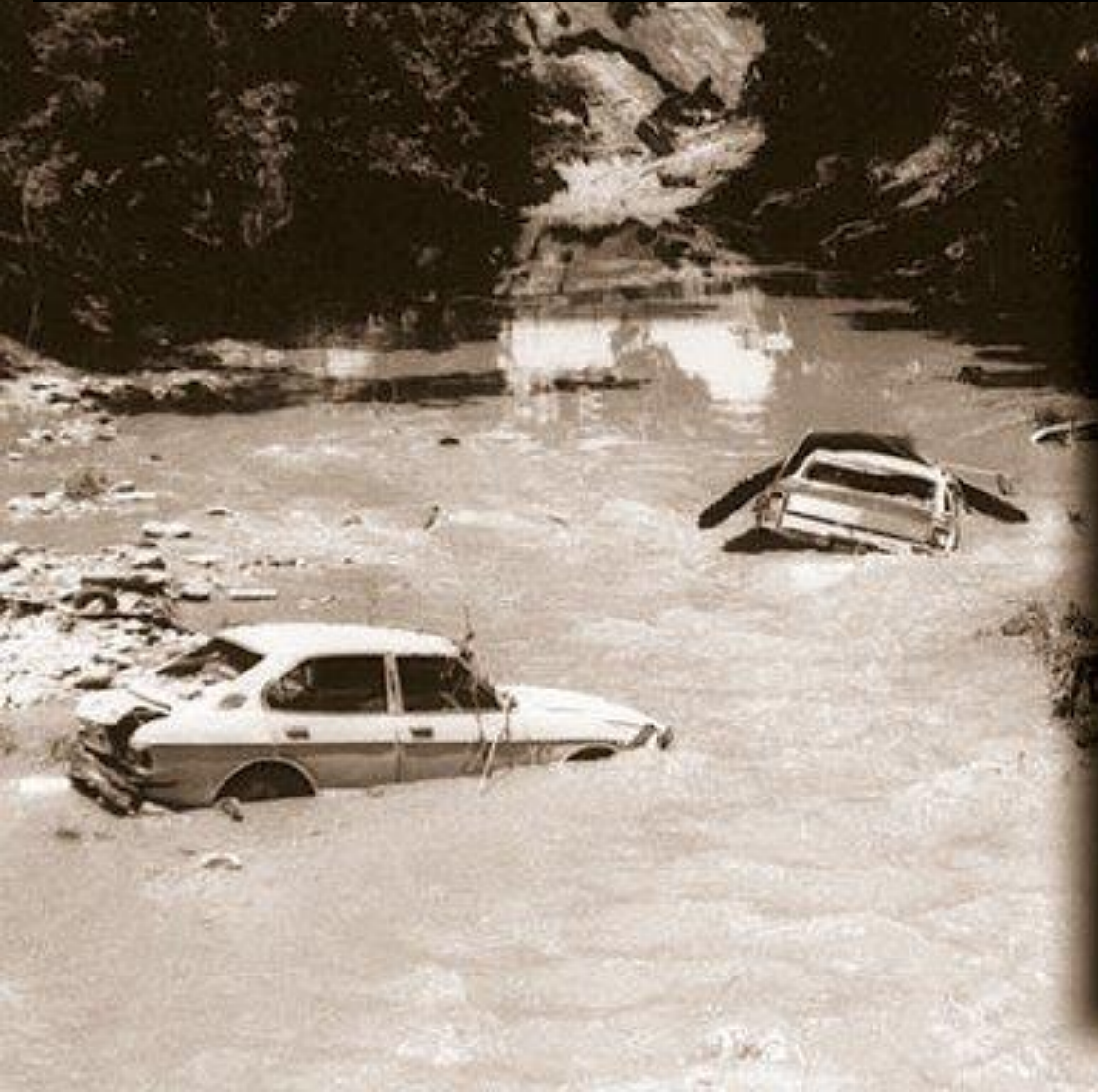




Today, Shoal Creek is often bone dry, with some pools of stagnant water.



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

Don't openly lobby  
State of Congress  
Baltimore, MD



### Mowed down

In a shocker  
No. 1 range  
Tide in coastal



### Low-cash bash

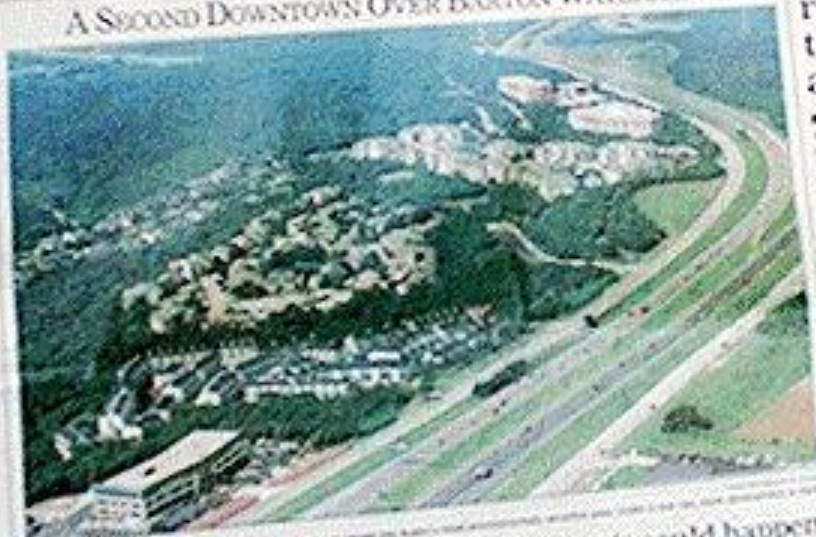
Star is only driver partner  
in a 10-year's budget  
Los Angeles, CA

### Forecast

High 68  
Low 72  
Baltimore, MD

# Austin American-Statesman

## A SECOND DOWNTOWN OVER BALTON WATERSHED?



## Justices raise bar to qualify as disabled

■ Federal Circuit has set high bar for workers with permanent disabilities

■ Law Review

By [Name]

The Supreme Court's decision in *Brady v. Robertson*, 553 U.S. 184 (2008), has raised the bar for workers with permanent disabilities to qualify for Social Security disability benefits. The Court held that a worker must be unable to perform any substantial gainful activity (SGA) to be considered disabled. This is a higher standard than the one used in *Brady v. Robertson*, which required only that the worker be unable to perform his or her own work.

The Court's decision in *Brady* is a significant departure from the standard used in *Brady v. Robertson*, which required only that the worker be unable to perform his or her own work. The Court's decision in *Brady* is a significant departure from the standard used in *Brady v. Robertson*, which required only that the worker be unable to perform his or her own work.

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## Estimates of permitted development say it could happen

Growth in  
springs

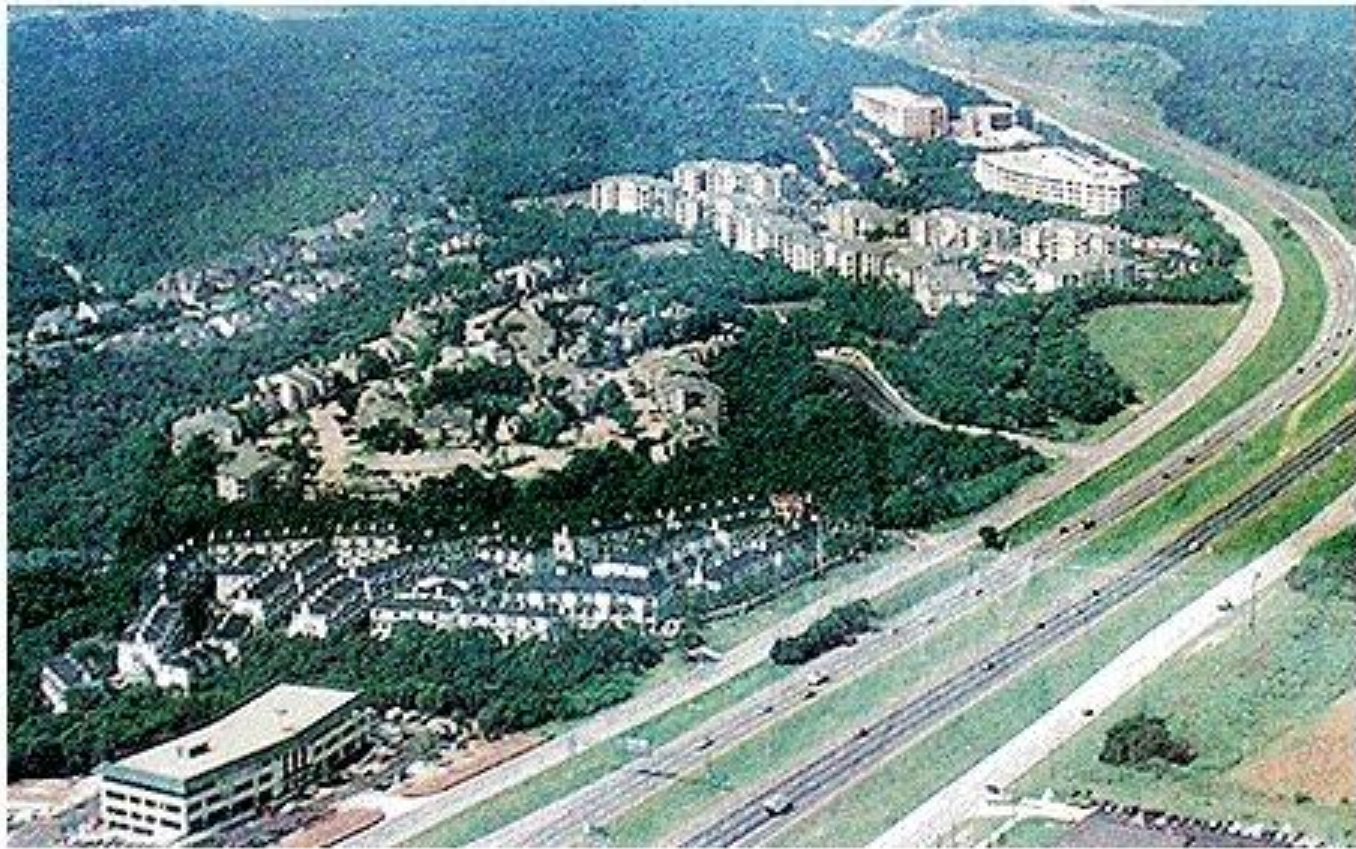
By [Name]

The Texas Department of Transportation (TxDOT) has estimated that the amount of permitted development in the Balton Watershed could increase significantly in the next few years. This is due to the fact that the watershed is currently underdeveloped and has a large amount of open space. The TxDOT estimates that the amount of permitted development could increase by as much as 50% in the next few years. This is a significant increase and could have a major impact on the watershed's environment and economy.




The sign is a promotional message for Parson's progress in the area.

## 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.



**R**easonable Regulation

**I**nfrastucture and Investments

**P**ermanent Protection

**E**nvironmental Education

# Reasonable Regulation

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

A man with short dark hair, wearing a light-colored button-down shirt, is smiling and holding two large white protest signs. He is standing on a city street. To his left is the rear of a dark blue car. In the background, there are city buildings, trees, and a traffic light. The sky is clear and blue.

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

ON LAND  
PROTECTION

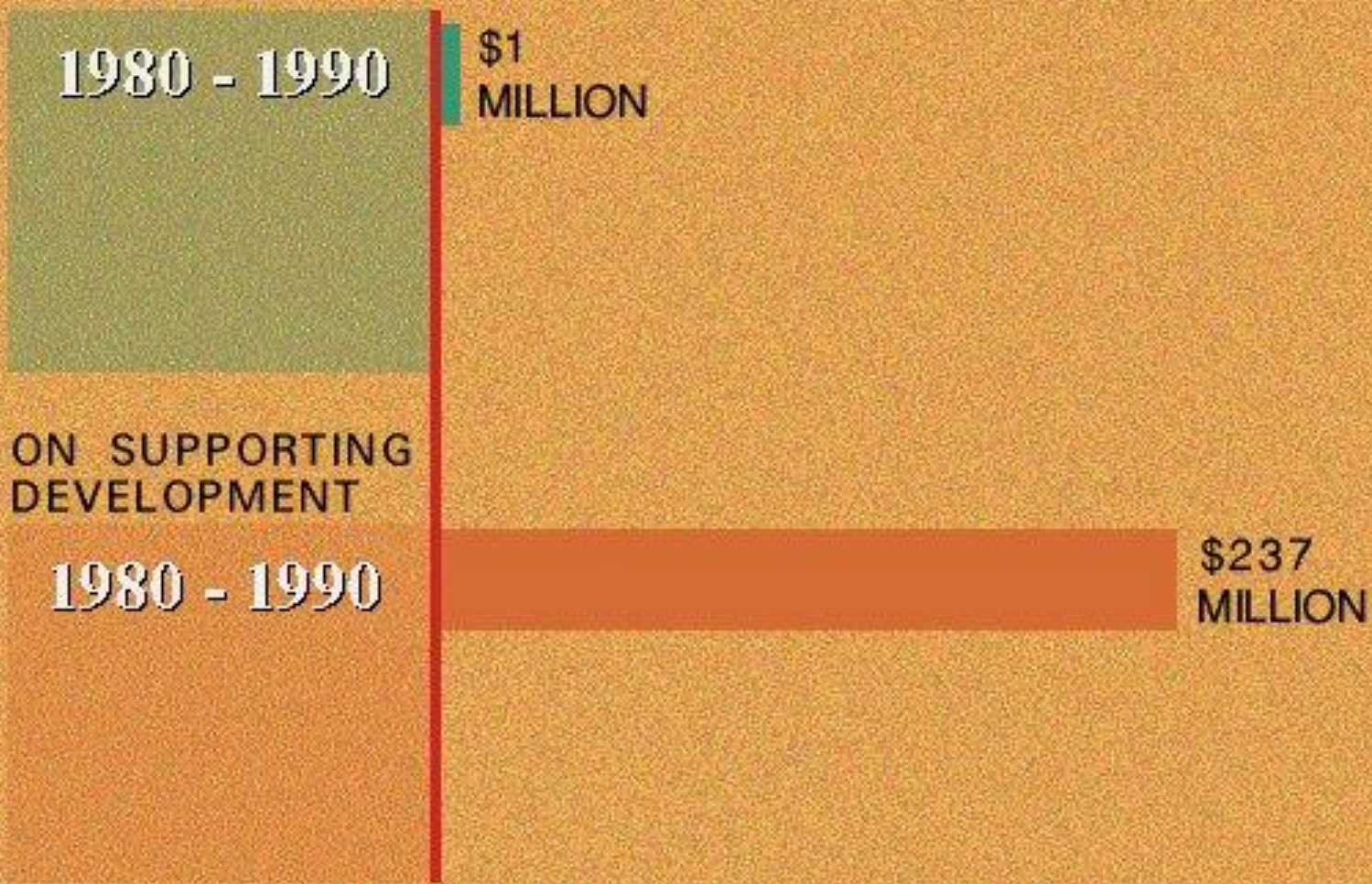
1980 - 1990

\$1  
MILLION

ON SUPPORTING  
DEVELOPMENT

1980 - 1990

\$237  
MILLION



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

## ON LAND PROTECTION

1980 - 1990

\$1  
MILLION

1991 - 2000

\$85  
MILLION

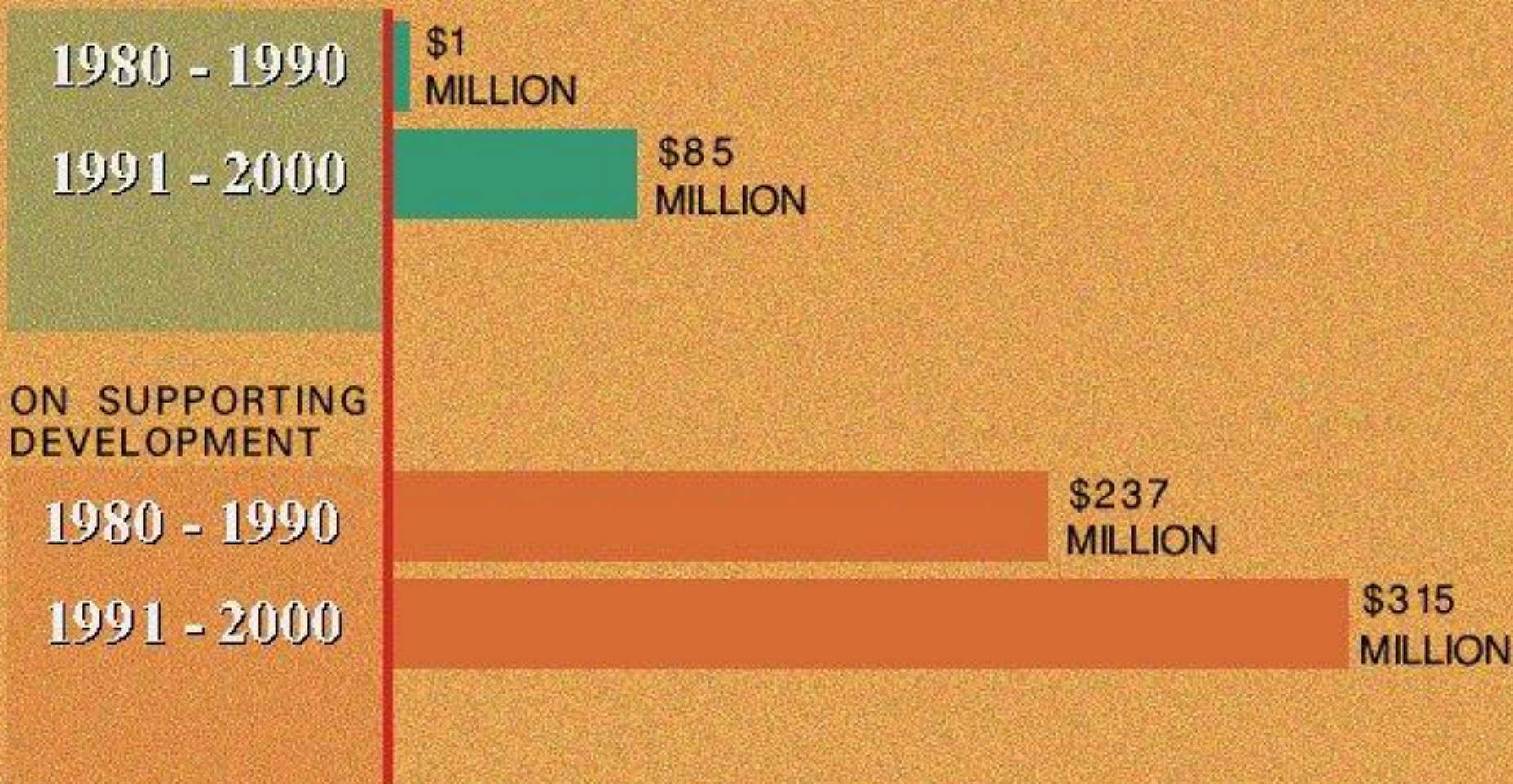
## ON SUPPORTING DEVELOPMENT

1980 - 1990

\$237  
MILLION

1991 - 2000

\$315  
MILLION



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

## ON LAND PROTECTION

1980 - 1990

\$1  
MILLION

1991 - 2000

\$85  
MILLION

2001 - 2010

\$13  
MILLION ?

## ON SUPPORTING DEVELOPMENT

1980 - 1990

\$237  
MILLION

1991 - 2000

\$315  
MILLION

2001 - 2010

\$200  
MILLION ?

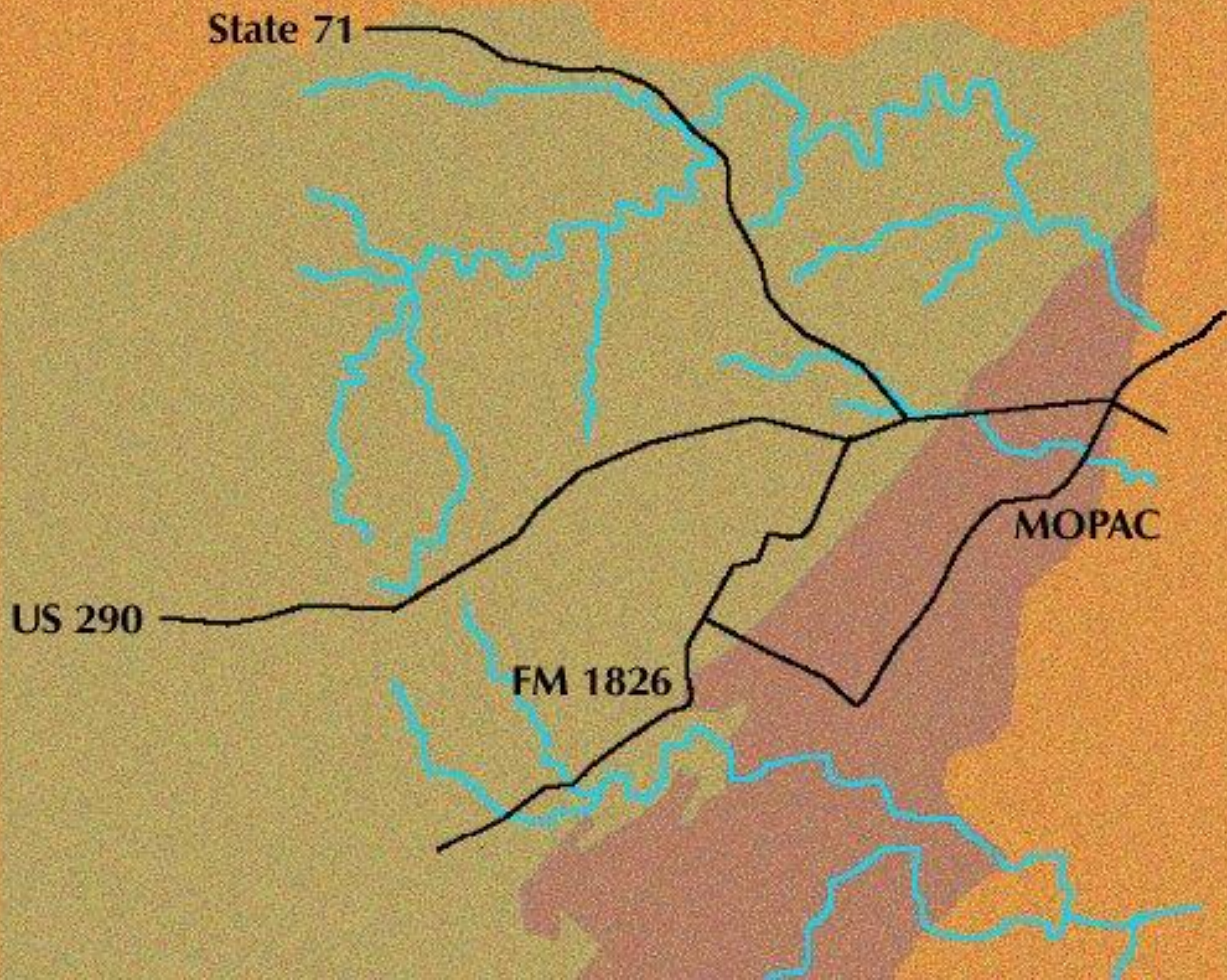
# Permanent Protection

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



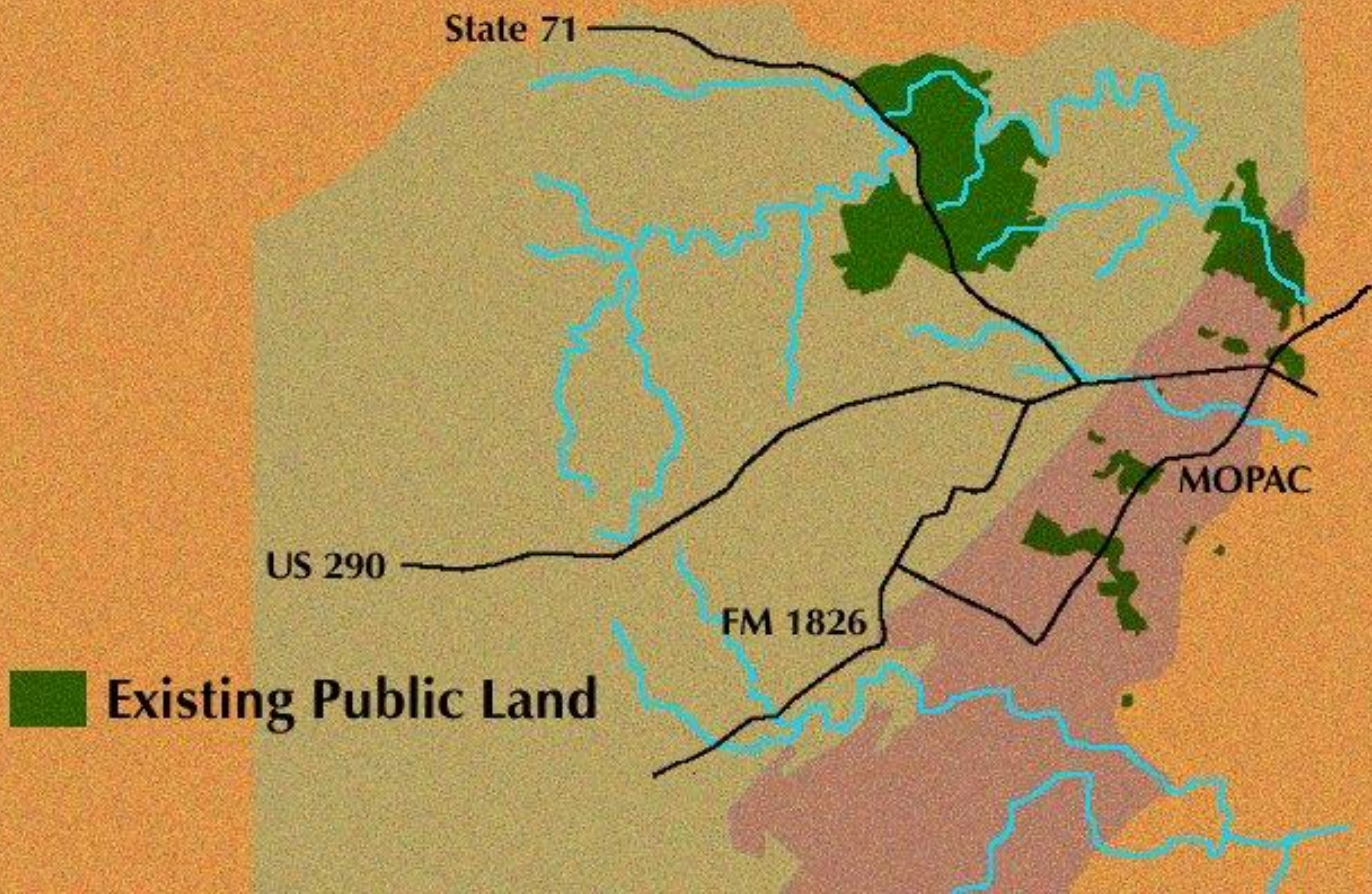
# Proposition 2

City Council Approved Easements and Acquisition



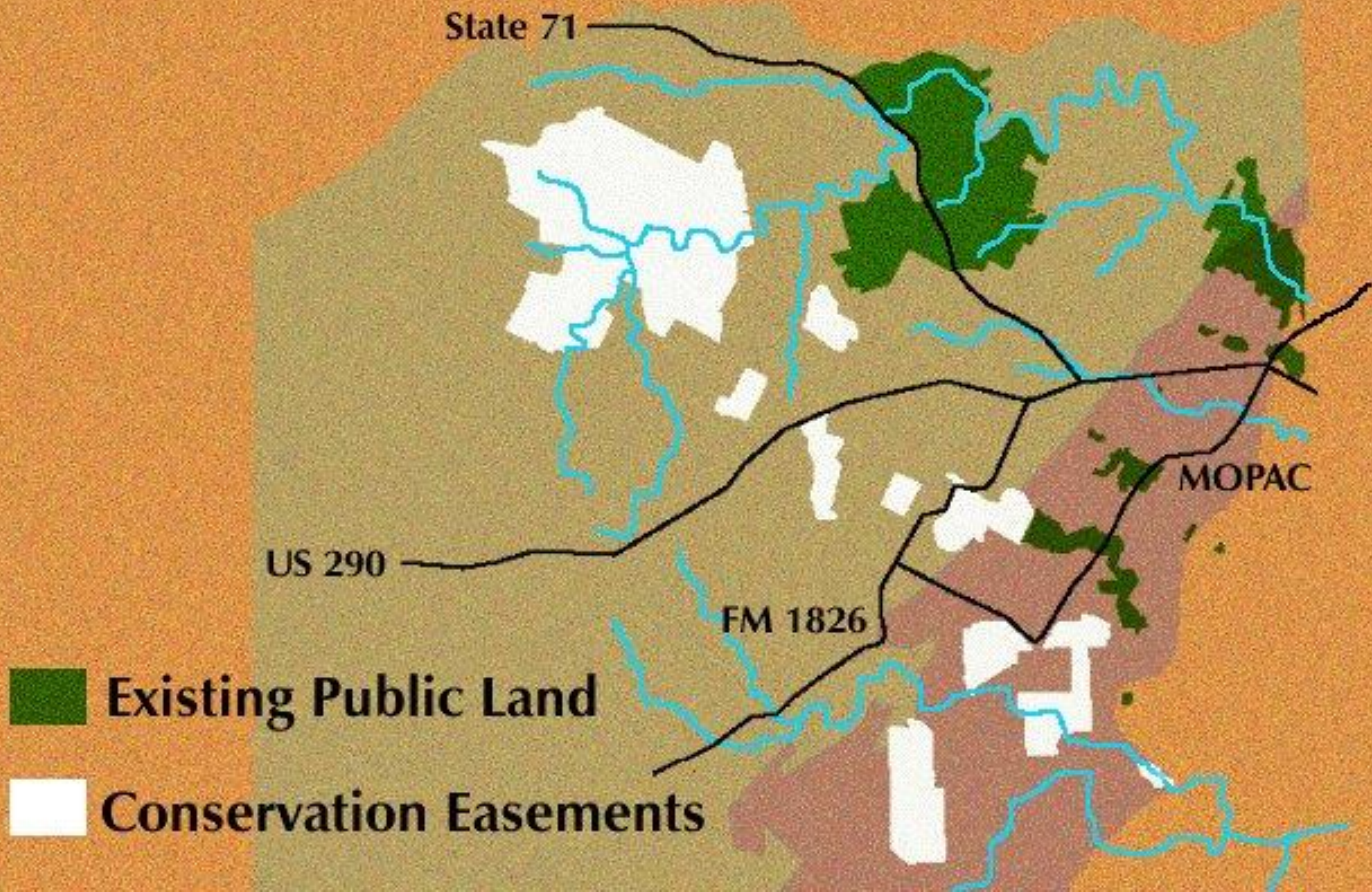
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City Council Approved Easements and Acquisition



# Proposition 2

## City Council Approved Easements and Acquisition

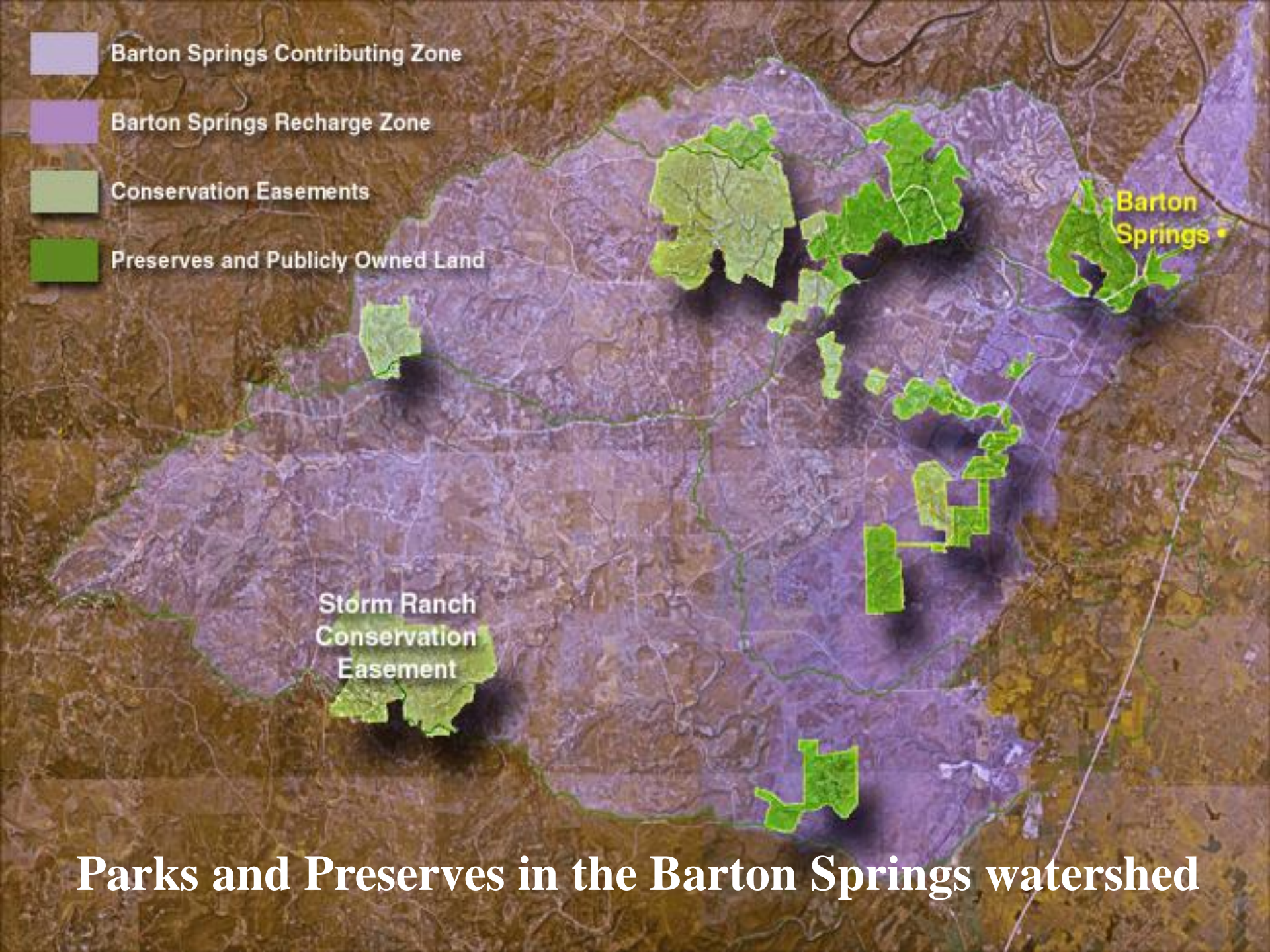


-  Barton Springs Contributing Zone
-  Barton Springs Recharge Zone
-  Conservation Easements
-  Preserves and Publicly Owned Land

Barton Springs

Storm Ranch  
Conservation  
Easement

# 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**

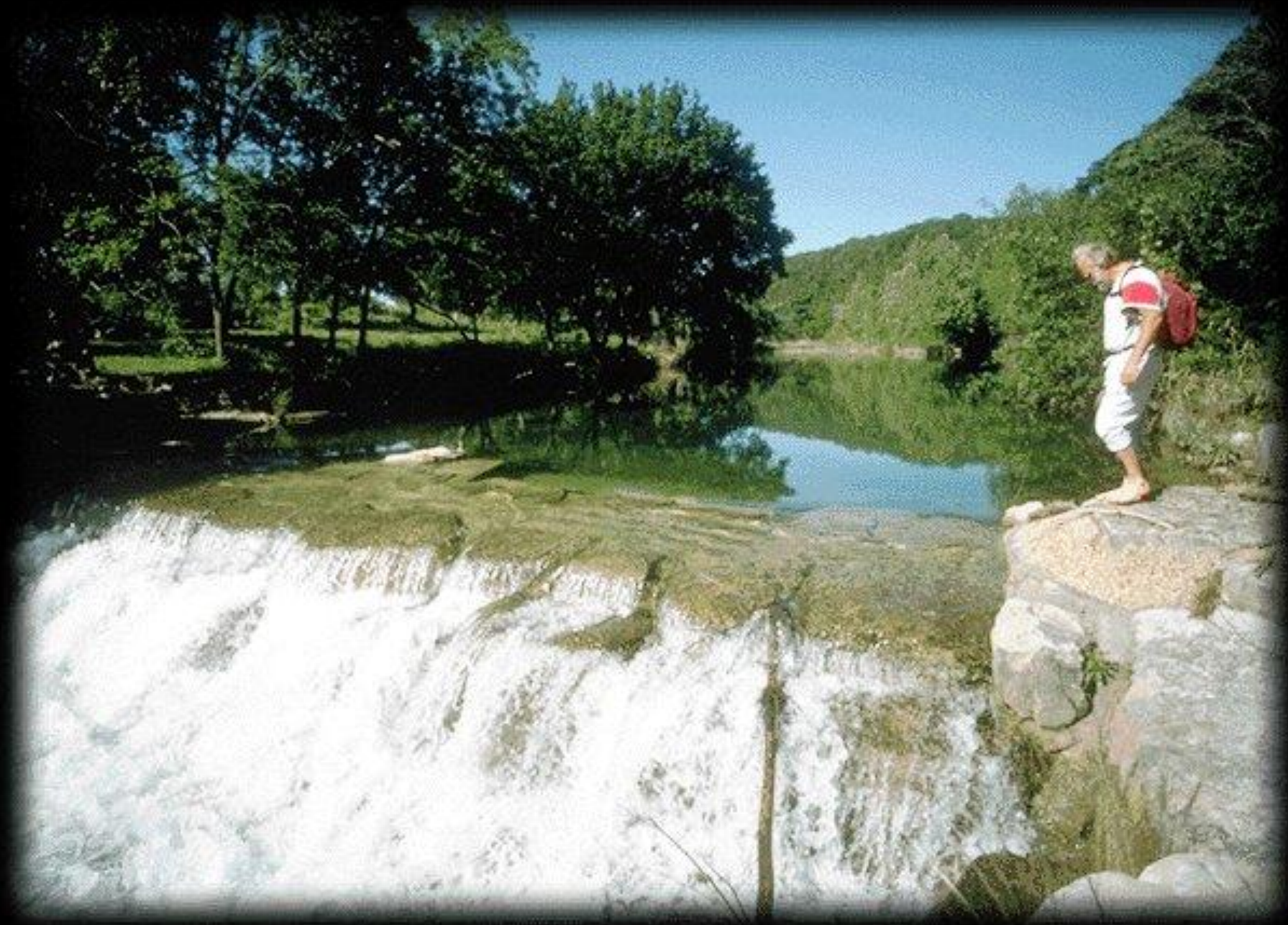
- **Enjoy the Springs. Swim Year Round.**
- **Join the Save Our Springs Alliance**

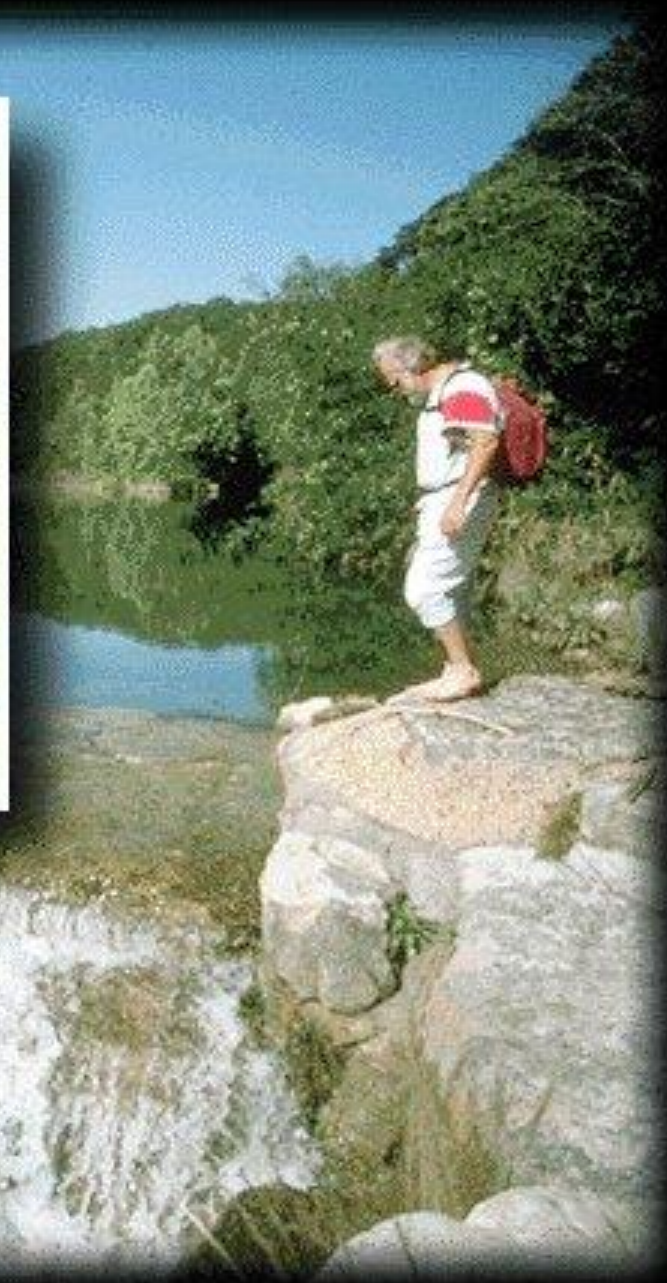
## **What You can do to Help Save the Springs**

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





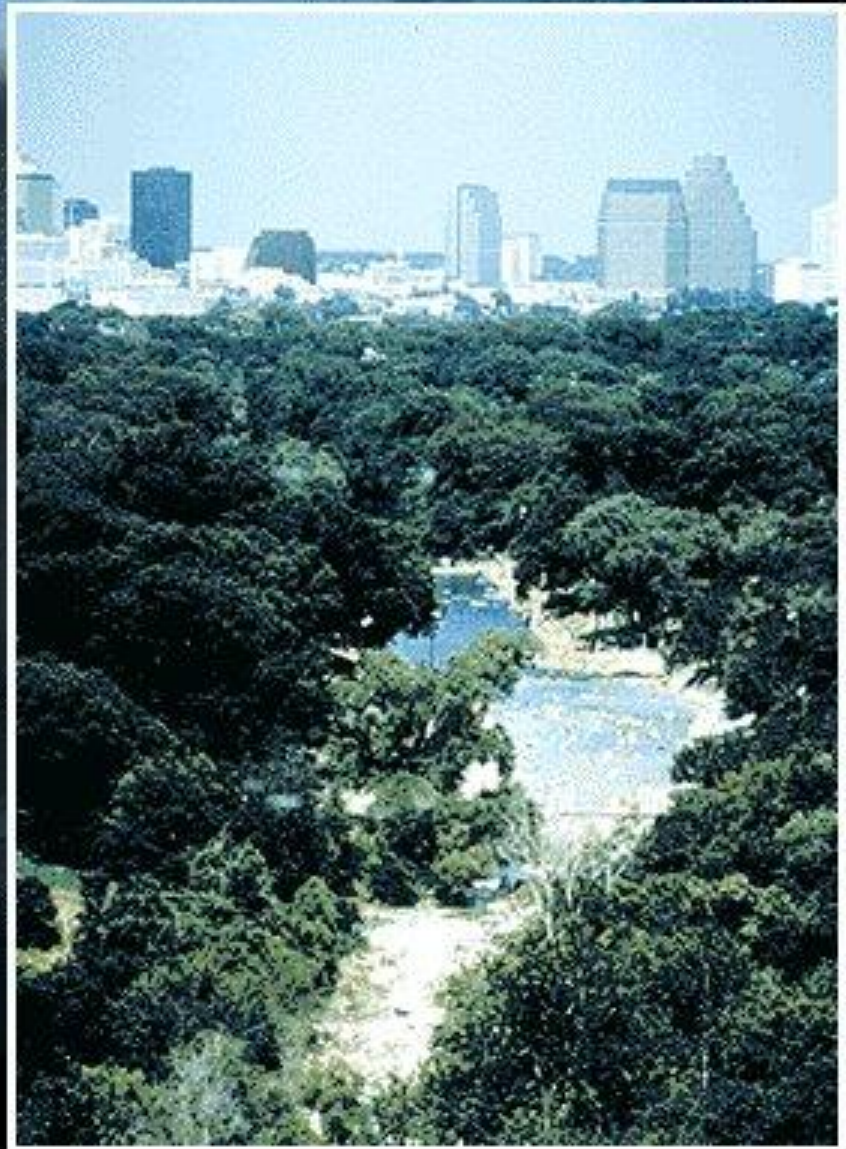














# Acknowledgments

Ayres Family

Barton Spring/Edwards Aquifer Conservation District

Steve Beers

Eric Beggs, photographer

The Center for American History

City of Austin