The Edwards Aquifer Ecosystem

The Heart of Texas
Edwards Aquifer Region

- Largest springs in Texas
- Cities and towns
Edwards Aquifer Region
Edwards Aquifer Region

Original Proposal for Capital City, 1839
Edwards Aquifer Ecosystem

Home to over 50 plant and animal species that live nowhere else in the world.

- Black capped Vireo
- Golden cheeked Warbler
Edwards Aquifer Ecosystem

Home to over 50 plant and animal species that live nowhere else on the planet

Barton Springs salamander
(*Eurycea sosorum*)

Texas Blind salamander
(*Eurycea rathbuni*)
Edwards Aquifer Ecosystem

Home to over 50 plant and animal species that live nowhere else on the planet
Edwards Aquifer Ecosystem

Providing the sole source of drinking water for over 1.5 million citizens.

Del Rio’s municipal water supply
Edwards Aquifer Ecosystem

Sustaining essential freshwater flows to bays and estuaries during times of drought

Guadalupe Estuary – San Antonio Bay
Edwards Aquifer Ecosystem

A Treasure at Risk

Major Faults of the Edwards Aquifer

- Contributing Zone
- Recharge Zone
- Transition / Artesian Zone
- Artesian Zone

Adapted from Collins and Havorka, 1997
Edwards Aquifer Area Cross-Section
Edwards Aquifer Ecosystem

A Treasure at Risk

Thin to non-existent Hill Country soils . . .
Edwards Aquifer Ecosystem

A Treasure at Risk

... rapid, groundwater recharge. . .
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A Treasure at Risk

... rapid open channel flow ...
Edwards Aquifer Ecosystem
A Treasure at Risk

... provides minimal filtration of pollutants that enter the aquifer...
Edwards Aquifer Ecosystem

A Treasure at Risk

... combine to make the Edwards Aquifer more vulnerable to pollution than any other major aquifer in Texas.
Edwards Aquifer Ecosystem

A Treasure at Risk

Rapid, unsustainable urbanization threatens pollution of the Great Springs of Texas.
US 281 on the Edwards Aquifer Recharge Zone in San Antonio, Texas
Bexar County
Public Supply Wells Found to Contain Chlorinated Solvents
Carbaryl and Diazinon in Barton Springs

Graph showing the concentration (ug/L) over time (hours after May 1) for Carbaryl and Diazinon in Barton Springs.
Edwards Aquifer Ecosystem
A Treasure at Risk

Rapid, unsustainable urbanization threatens to overpump the aquifer.

[Graph showing minimum spring flow vs. total pumpage (thousand acre-ft/year).]
Edwards Aquifer Ecosystem

A Treasure at Risk

Rapid, unsustainable urbanization is pushing aquatic species to the brink of extinction.
A Need for Action

• Rapid regional population and urban growth predicted to continue.

• Multiple jurisdictions with no coherent plan or vision for the region

• TxDOT and River Authorities building infrastructure without local accountability
A Need for Action

Based on regional scientific consensus

“Government, private corporations and citizens should act promptly to direct urban development away from the aquifer through control of infrastructure investment....”

“Restrict impervious cover to levels to levels that will sustain existing water quality.” (<12%)
Edwards Aquifer Sustainability Initiative

A Need for Action

Based on regional economic consensus

Chamber of Commerce’s “New Century Economic Report” confirms that a high quality environment is necessary for a healthy economy
Current measures are inadequate: Structural controls often fail to prevent pollution.
A Need for Action

Current measures are inadequate:
Increased impervious cover increases stormwater flows, erosion, and flooding.
Pollutants found in Barton Springs or Contributing Stream Sediments Above Levels which are Toxic to Aquatic Life

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<th>Heavy Metals</th>
<th>Pesticides</th>
<th>Polyaromatic hydrocarbons</th>
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<tr>
<td>Arsenic</td>
<td>P-P′-DDD</td>
<td>Benzo(A)anthracene</td>
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<td>Cadmium</td>
<td>P-P′-DDE</td>
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<td>Silver</td>
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hill country FOREVER

by JOHN GRAVES, SUZY BANKS, and KINKY FRIEDMAN
Nurture the "Hidden Heart of Texas"

*The Edwards Aquifer*

and the Texas Hill Country

Join GEAA’s

**Texans for Every Drop Business Campaign**

at

www.AquiferAlliance.org
Local GEAA Member Groups

- AGUA
- Boerne Together
- Cibolo Nature Center
- Friends of Government Canyon
- Hill Country Planning Association
- Helotes Heritage Association
- Kendall County Well Owners Association
- San Geronimo Valley Alliance
- Scenic Loop/Boerne Stage Alliance
- And more...visit our groups at www.AquiferAlliance.org
Join GEAA as a Business Member

According to a San Antonio Business Journal Poll (Jan. 08)

55% said they are more likely to buy products if a business goes “green”

To Join Visit www.AquiferAlliance.org

• Artisan $50
• Small Business $100
• Large Business $200

Recognition of you business by GEAA members
Parties, Tours and Social Events