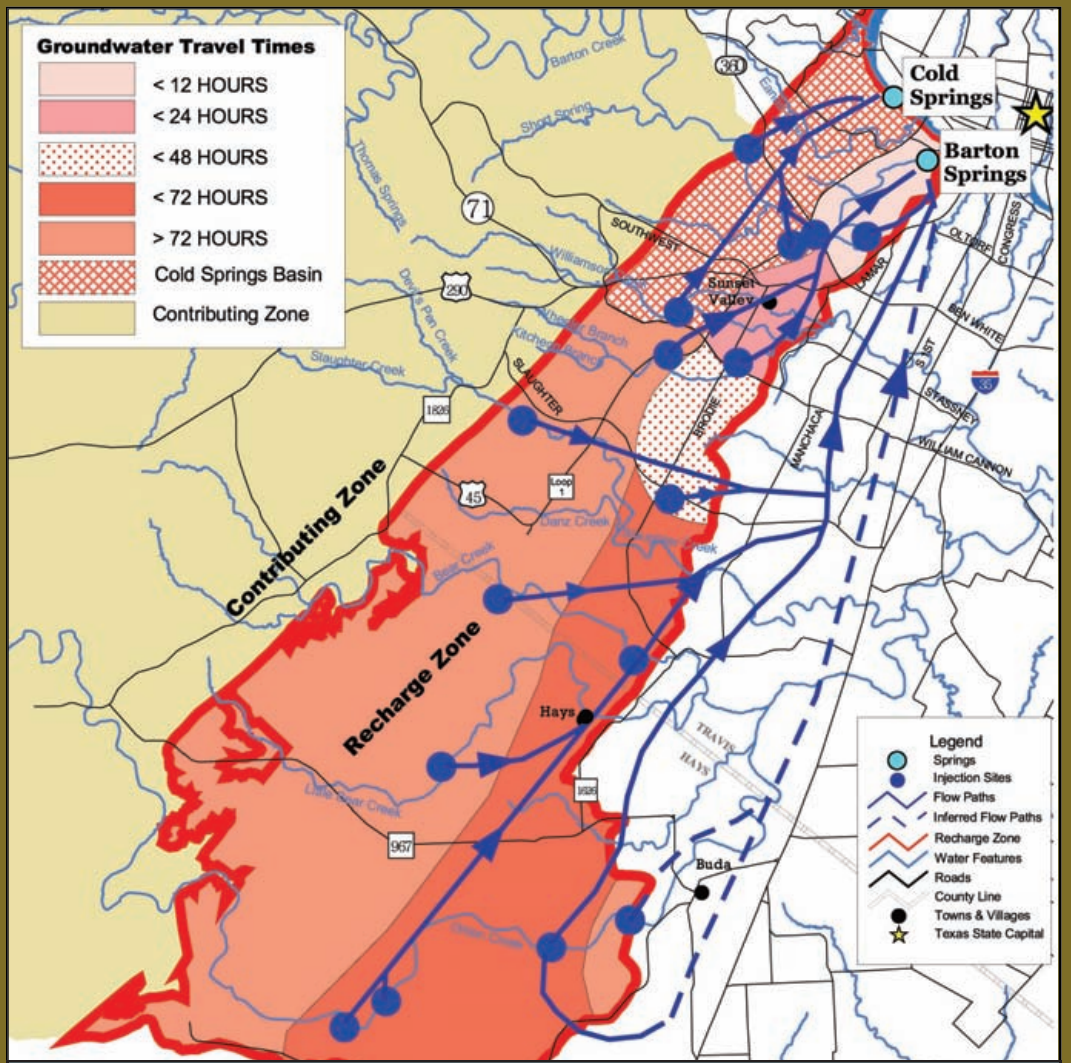


All paths flow north...

To study the flow rates and flow paths of underground water, scientists placed non-toxic dye in caves and sinkholes throughout the recharge zone. They put receptors in various wells and springs throughout the area to detect the dye. They found that water flows through its underground passages surprisingly quickly. For example, water traveled the nearly twenty miles from Onion Creek near Buda to Barton Springs in as little as three days. Travel times from other dye traces are noted on the map below. Most water re-emerged at the four Barton Springs outlets, but some pathways in the aquifer flowed to Cold Springs on Town Lake. On average, more than 32 million gallons of water a day resurfaces from the aquifer at Barton Springs.



Trace injections: A joint study between the City of Austin and the Barton Springs/ Edwards Aquifer Conservation District



**Watershed Protection
Development Review**

**For more information
call 512-974-2550 or visit**

www.cityofaustin.org/watershed/bartonsprings.htm



Water washes pollutants from the land into the limestone caves and faults that recharge the Edwards Aquifer to re-emerge at distant wells and springs

The Fragile World of Austin Underground

The Edwards Aquifer

What is an Aquifer?

An aquifer is an underground layer of porous rock, sand or dirt that stores water. Austin's aquifer, the Edwards, is made up of hard limestone. Underground water has eroded honeycomb-like passageways in the stone. This honeycombed limestone is called "karst".

Where is the Edwards Aquifer?

The three segments of the Edwards Aquifer stretch from Temple to Del Rio. Most important to Austinites is the Barton Springs segment which runs along Loop 1, south of the Colorado River. Most of the water from this segment emerges at Barton Springs in Zilker Park. (below)



Karst Limestone

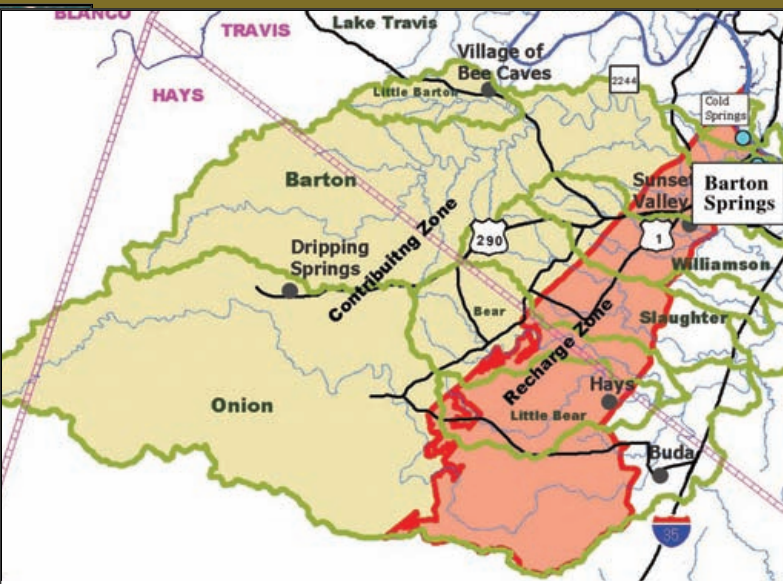
How does water enter the Barton Springs segment of the aquifer?

Rainwater flows over land in the Hill Country into creeks that run east toward Austin. This is called the contributing zone since it "contributes" water to the aquifer. Here the limestone is covered with clay and soil. Millions of years ago, earthquakes shifted the rocks so that east of the contributing zone, karst limestone is found on the surface of the land. Throughout this area called the recharge zone, caves, sinkholes and faults are common. Water flows through these openings to fill or "recharge" the aquifer.

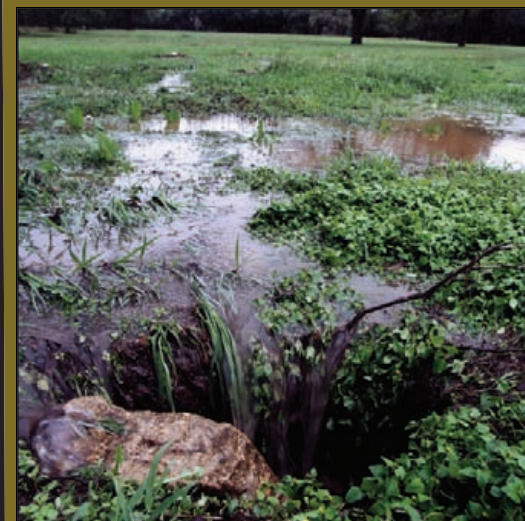
This whirlpool forms when water enters the aquifer via a cave in Onion Creek



The Barton Springs Zone



Barton Springs Recharge and Contributing Zones



Water travels over land to enter the aquifer through this sinkhole



Water flows through cracks and fissures in this creek bed.

Why is the aquifer environmentally-sensitive?

In the recharge zone, the karst limestone is on the surface of the land. There is little soil to filter out pollutants. Water flows through openings in the limestone rocks into the aquifer, carrying pollutants from yards, roadways and construction sites directly into the underground water supply. The aquifer provides drinking water for more than 50,000 people on wells, a portion of Austin's drinking water, and habitat for the endangered Barton Springs Salamander.