

Blanco River Recharge Study

Nico M. Hauwert, Ph.D, PG., Hydrogeologist

City of Austin Watershed Protection Department

September 15, 2010



Purpose of Study

- In 1962 a Texas Water Development Board report by Sergio Garza hypothesized that under low groundwater flow conditions, the Blanco River was the southern groundwater divide for Barton Springs, although a majority of studies believed that Onion Creek was the southern divide, primarily based on water level elevations.
- The only direct method to establish source-water connections is through groundwater tracing. No tracing from the Blanco River to Barton Springs has been successful.

Study

Completed stage of cooperative research with:

- **City of Austin Watershed Protection Dept.**
- **Edwards Aquifer Authority**
- **Barton Springs/Edwards Aquifer Conservation District**
- **Zara Environmental**

Blanco River Study started in 2007 and included dye tracing, river-flow measurements, and geological mapping. Two reports are being prepared for release this fall.

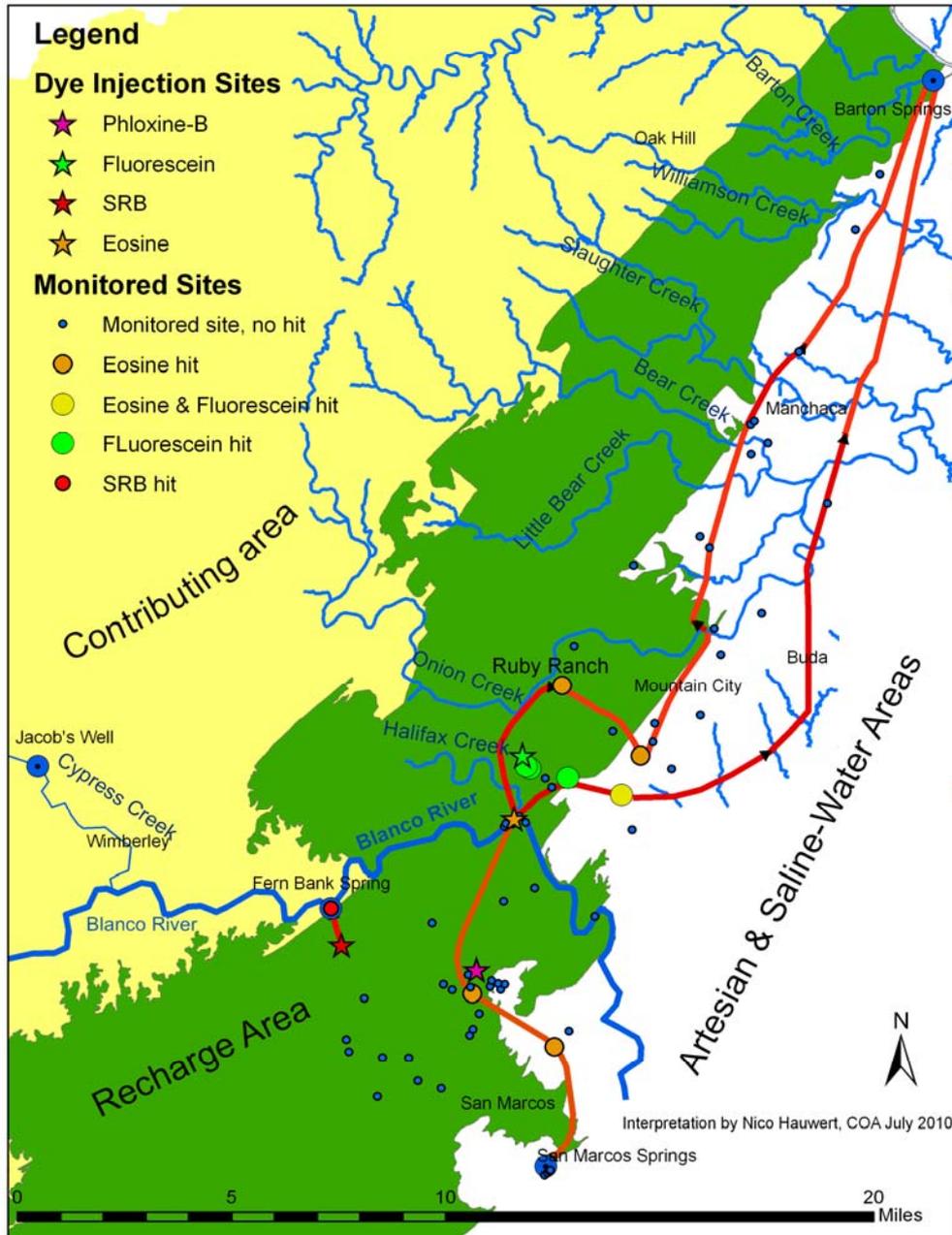
Johnson
Swallet visibly
and audibly
recharging river
flow along
south bank

Dye Tracing



Marcus Gary of
Zara
Environmental
and Justin Camp
of CoA injecting
dye

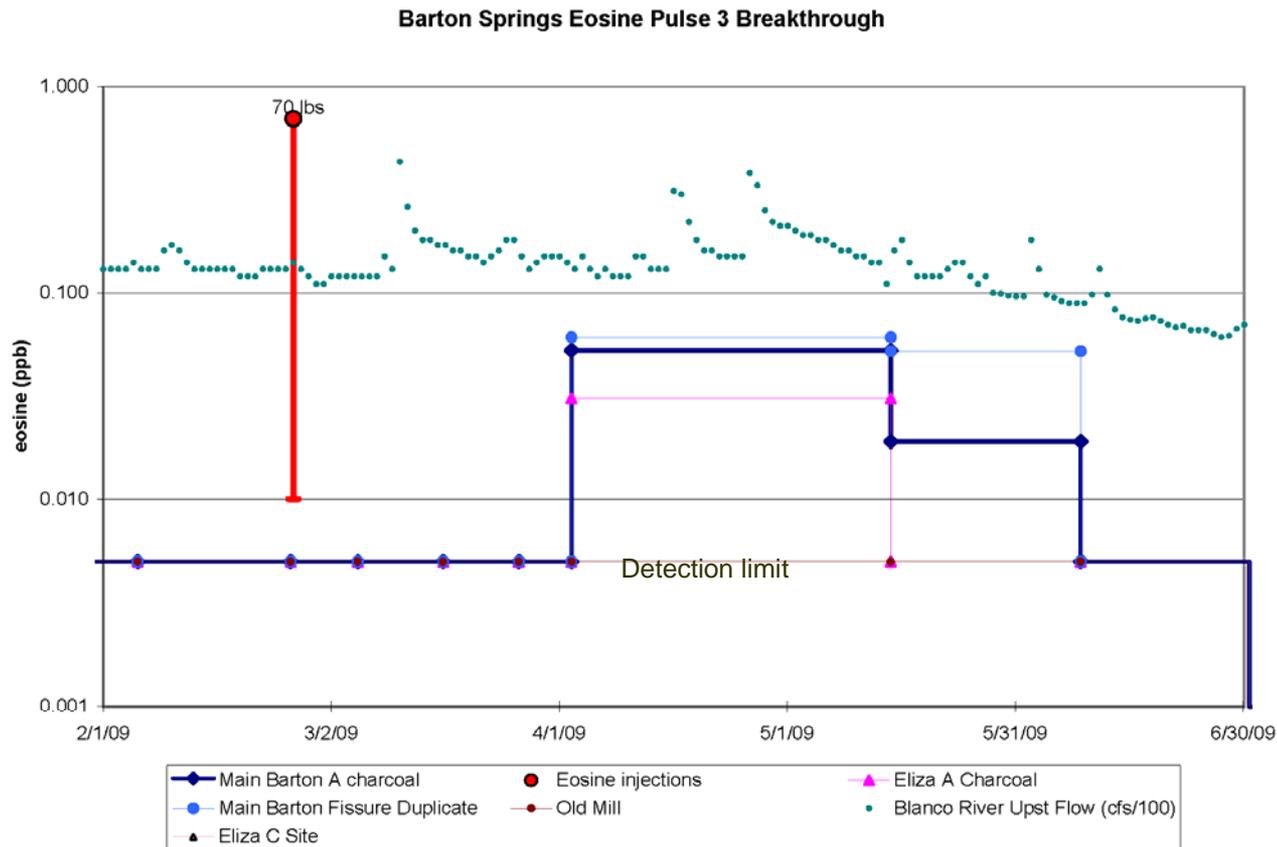
Blanco River Groundwater Tracing 2008-2009

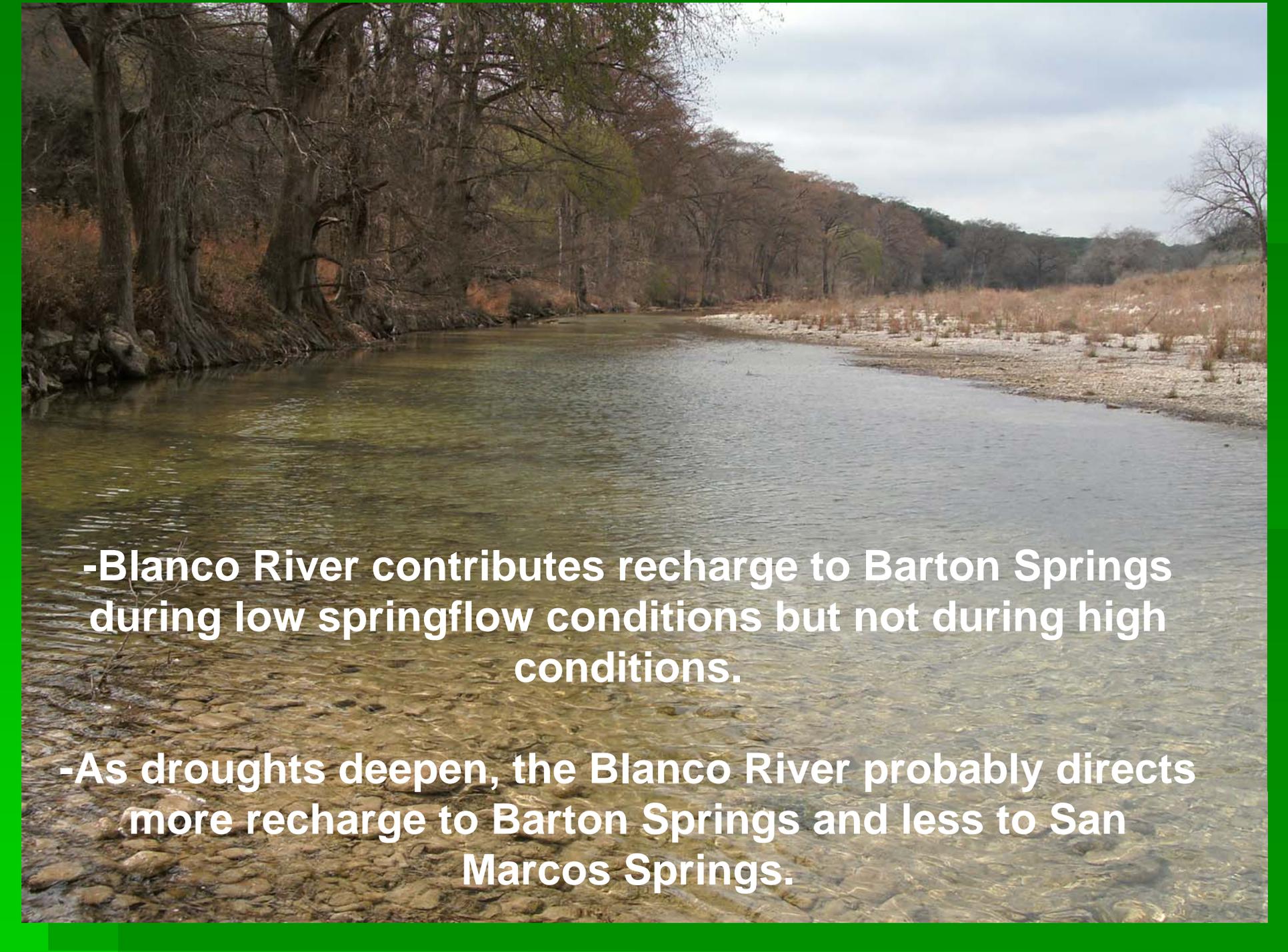


Groundwater Flow Paths Traced from Blanco River

Tracers from Blanco River area generally took 3 months to arrive at Barton Springs during 2008-2009 drought conditions

Arrival of Johnson Swallet Dye at Barton Springs

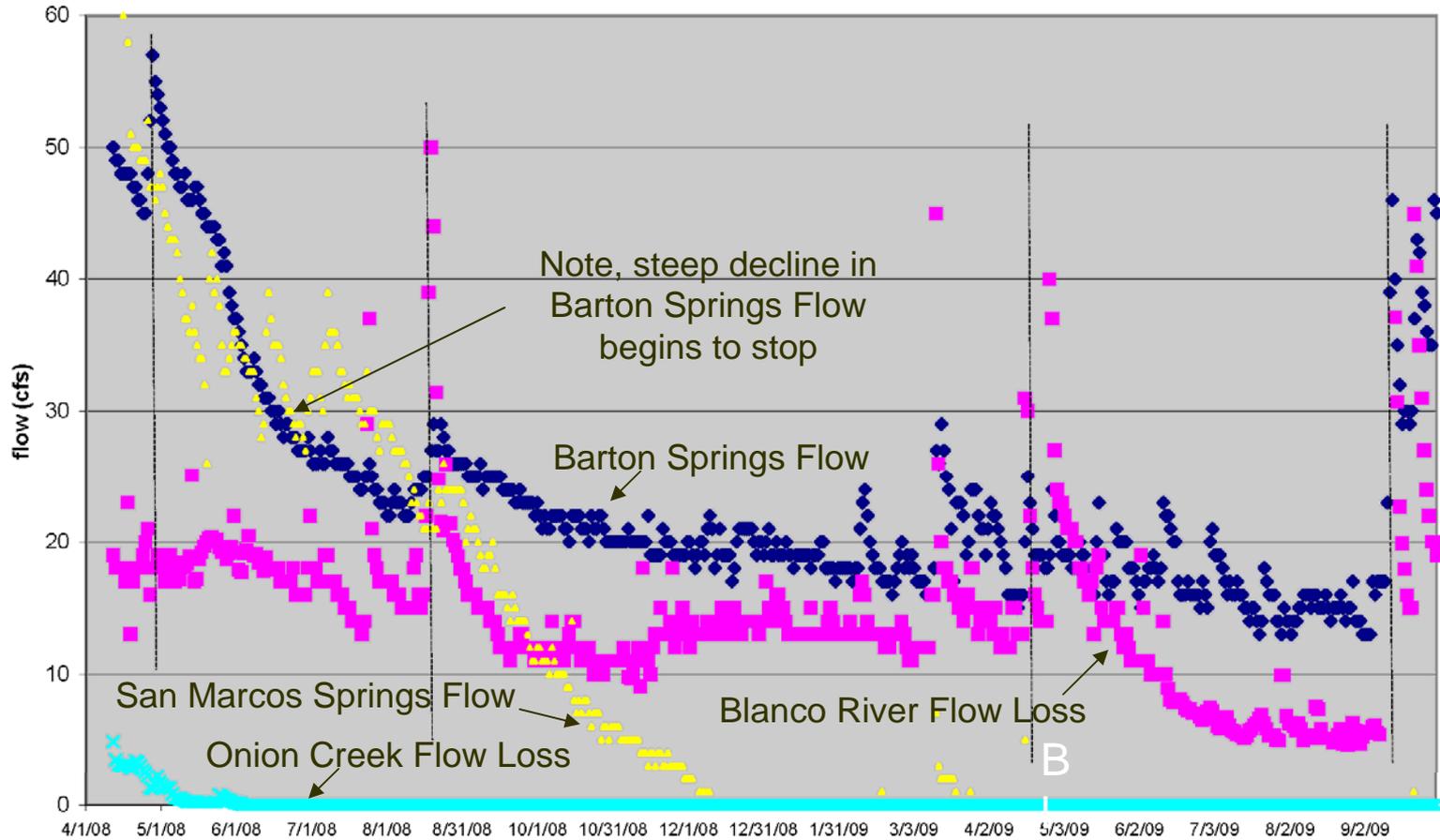




-Blanco River contributes recharge to Barton Springs during low springflow conditions but not during high conditions.

-As droughts deepen, the Blanco River probably directs more recharge to Barton Springs and less to San Marcos Springs.

2008-2009 Blanco River Flow loss



-During low groundwater flow conditions, the six major creeks are typically dry and the Blanco River may be the largest source of recharge during those conditions, perhaps contributing about half of Barton Springs flow and possibly more.

Blanco River Recharge

- Overall the Blanco River is estimated to supply roughly 4% of Barton Springs flow.
- During baseflow conditions, the Blanco River typically recharges about 10 to 18 cubic feet per second, which about the lowest flow of Barton Springs during droughts.

Conclusions

- Recharge on the Blanco River appears to play an important role in sustaining Barton Springs flow during drought conditions.