

FRESHWATER MUSSELS OF THE COLORADO RIVER BASIN



Water Quality Advisory Committee Meeting

Lisa Benton

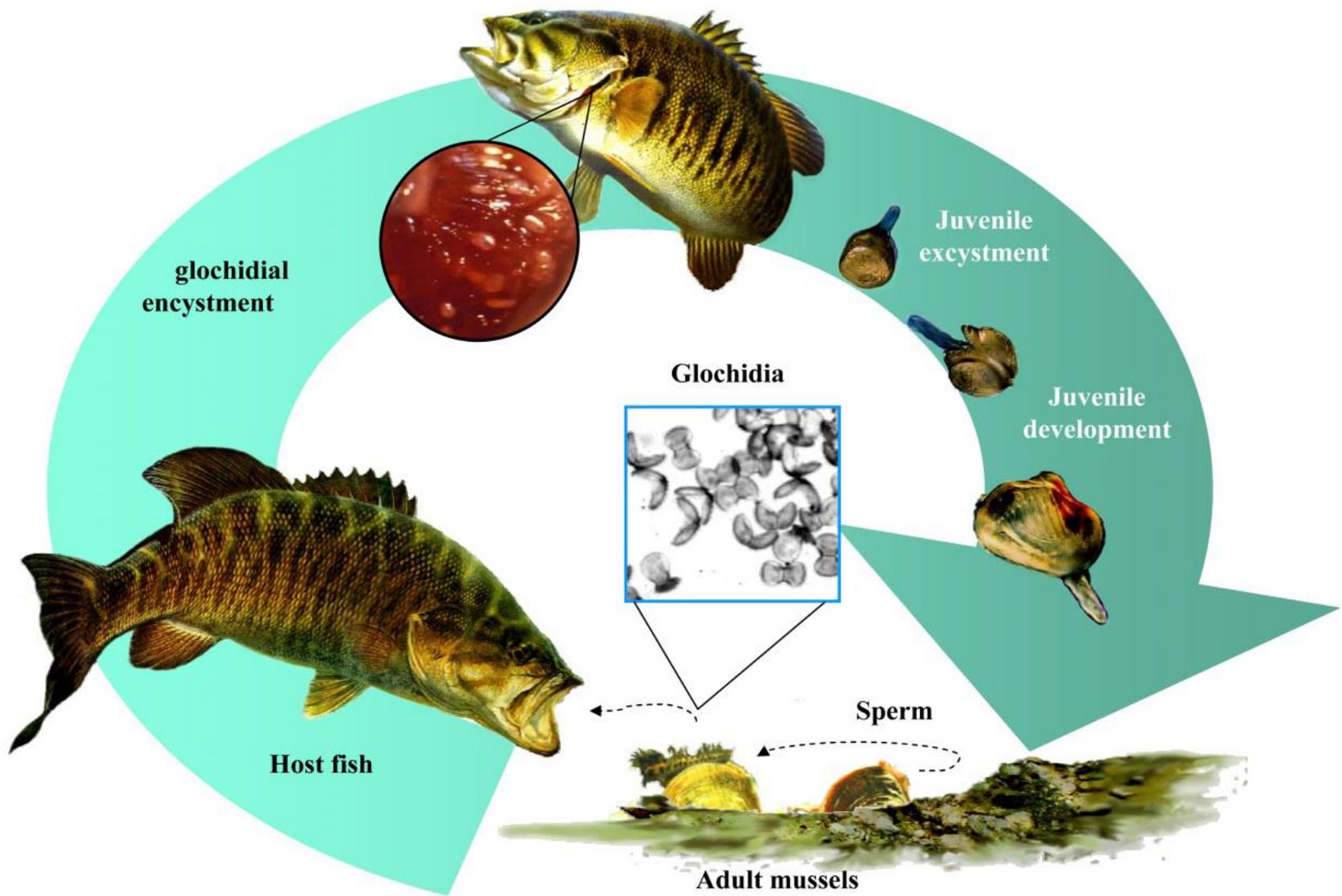
LCRA Water Quality Coordinator

April 21, 2016

Role in Aquatic Ecosystem

- Filter feeders – can filter up to 8 gallons of water per day
- Valuable source of food for wildlife
- Stabilize bottom sediments
- Biodiversity



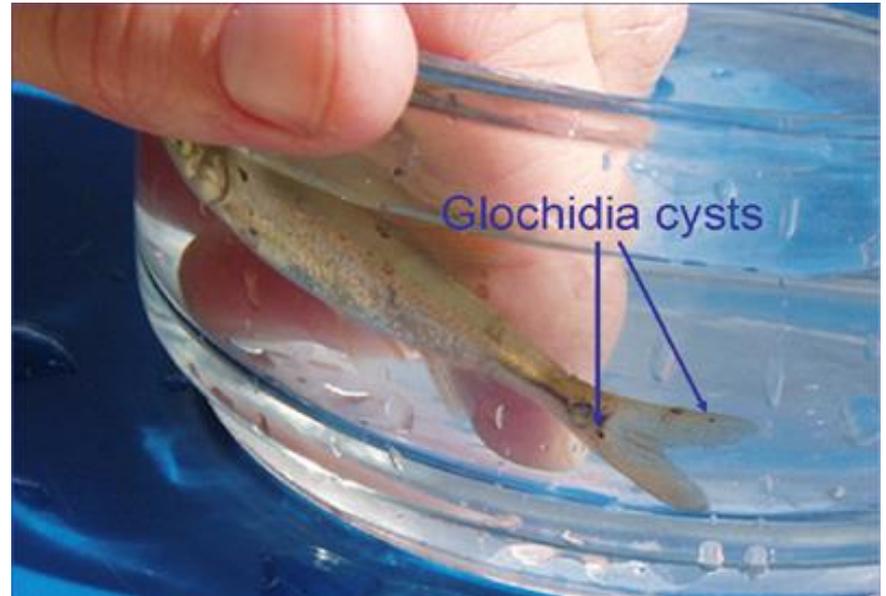


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**Native mussels have elaborate mechanisms to attract host fish,
as demonstrated by the lure of this *Lampsilis* sp.**

Glochidia



Freshwater Mussel Threats

- About 70 percent of the roughly 300 species of North American freshwater mussels are extinct or threatened with extinction.
- Major threats include:
 - Loss of flowing water
 - Siltation
 - Degradation of water quality

Freshwater Mussel Protection

- Four Colorado River species were listed as state-threatened in 2010, federal candidates in 2011:
 - Texas fatmucket
 - Texas fawnsfoot
 - Texas pimpleback
 - Smooth pimpleback
- One additional proposed species:
 - False spike



Texas Fatmucket (*Lampilis bracteata*) female, 58 mm sl, Guadalupe River, Texas - R.G. Howells



Texas Fawnsfoot (*Truncilla macrodon*) 37 mm sl, Brazos River, Texas, R.G. Howells



Texas Pimpleback (*Quadrula petriana*) 63 mm sl, Concho R., Texas, R.G. Howells



Smooth Pimpleback (*Quadrula anostomensis*) 50 mm sl, Colorado R., Texas, R.G. Howells

Timeline for Listing Decision

- U.S. Fish and Wildlife Service (USFWS) has stated the listing decision process for Central Texas mussels will begin no sooner than fall 2017
- Currently, Texas Hornshell (West Texas and New Mexico range) is being evaluated

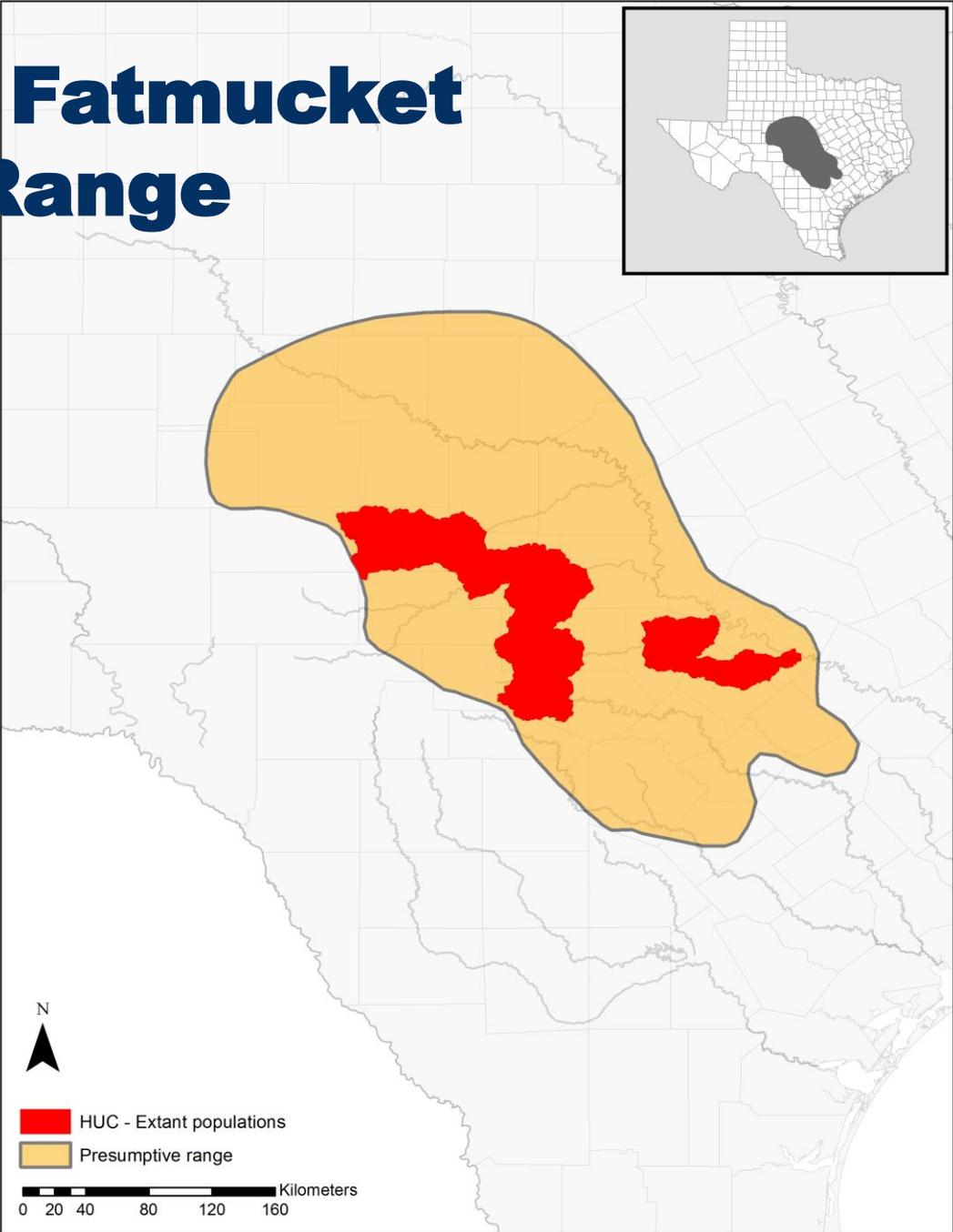
Texas Comptroller Involvement

- Interagency Task Force on Economic Growth and Endangered Species
 - Purpose: Give state agencies a mechanism to provide information and assistance to local and regional governments and their communities to comply with the Endangered Species Act as efficiently and cost effectively as possible.
- Freshwater Mussels Work Group
- keepingtexasfirst.org/task_force/

Texas Fatmucket



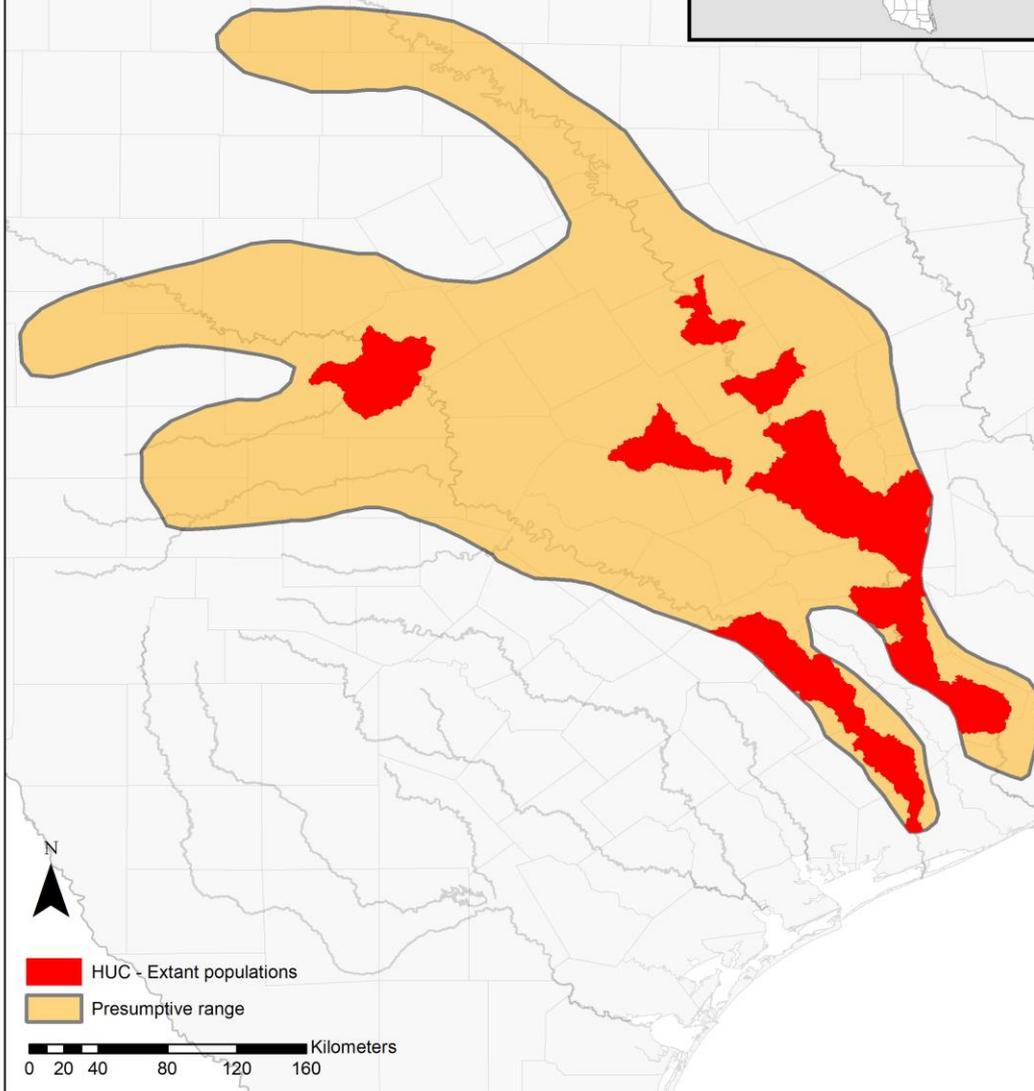
Texas Fatmucket Range



Texas Fawnsfoot



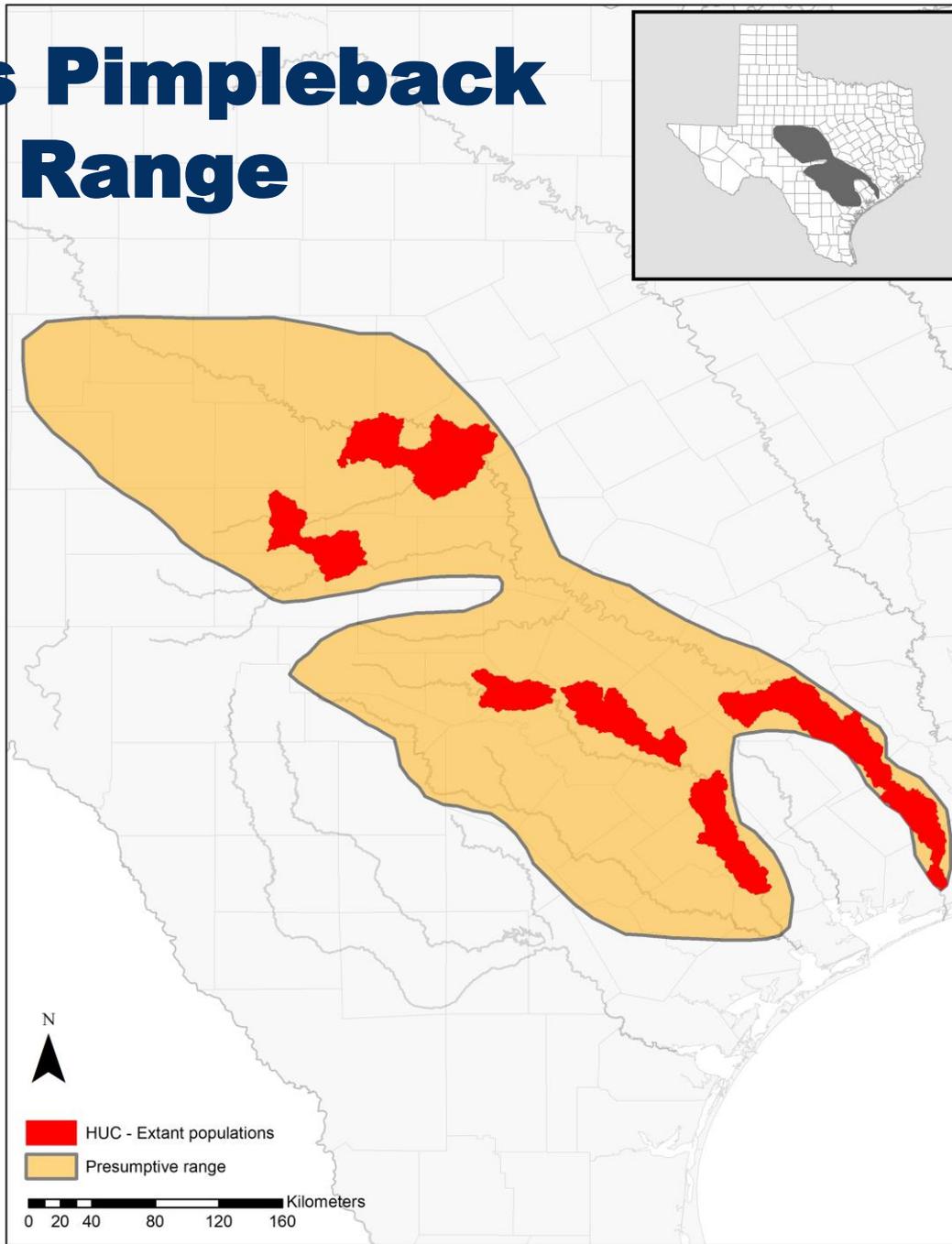
Texas Fawnsfoot Range



Texas Pimpleback



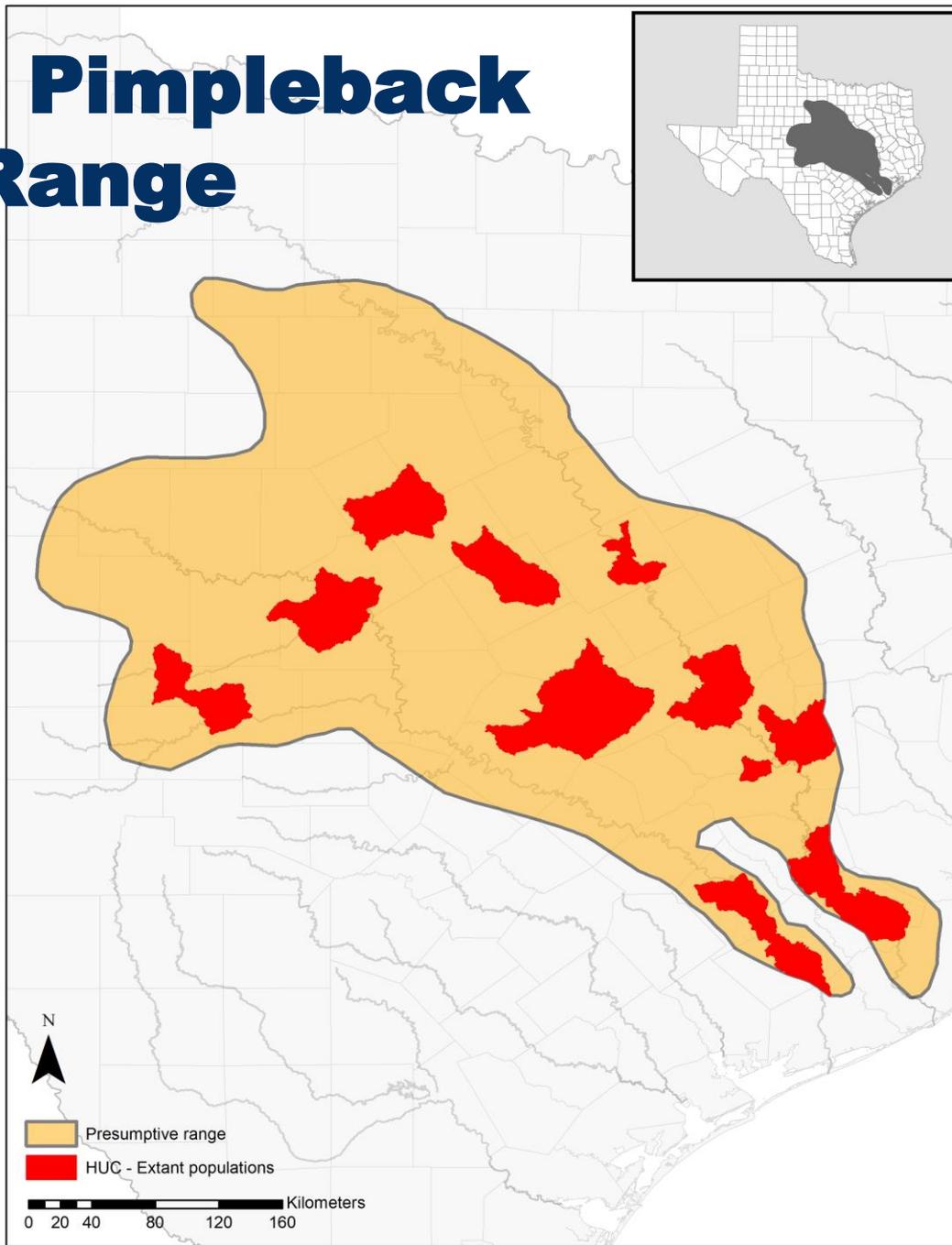
Texas Pimpleback Range



Smooth Pimpleback



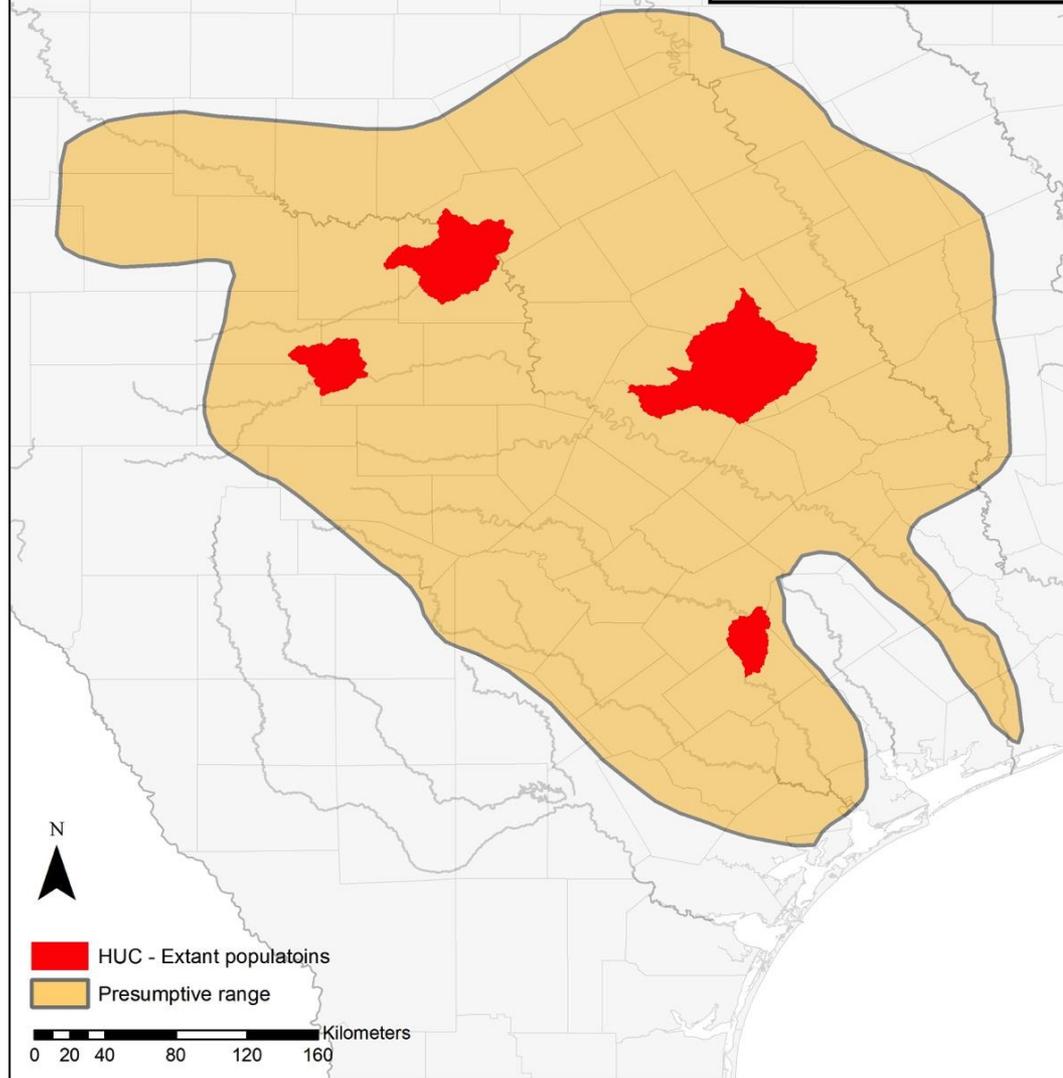
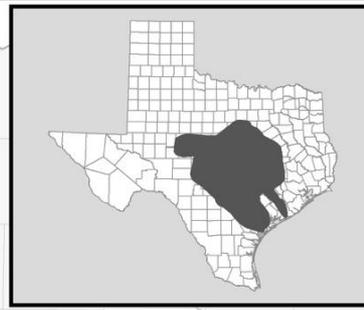
Smooth Pimpleback Range



False Spike



False Spike



 HUC - Extant populations
 Presumptive range

0 20 40 80 120 160 Kilometers

Past and Ongoing Monitoring

- Qualitative informal sampling
- Aquatic resource relocations
- Partnerships with USFWS and Texas State graduate students to collect data in the lower Colorado River basin

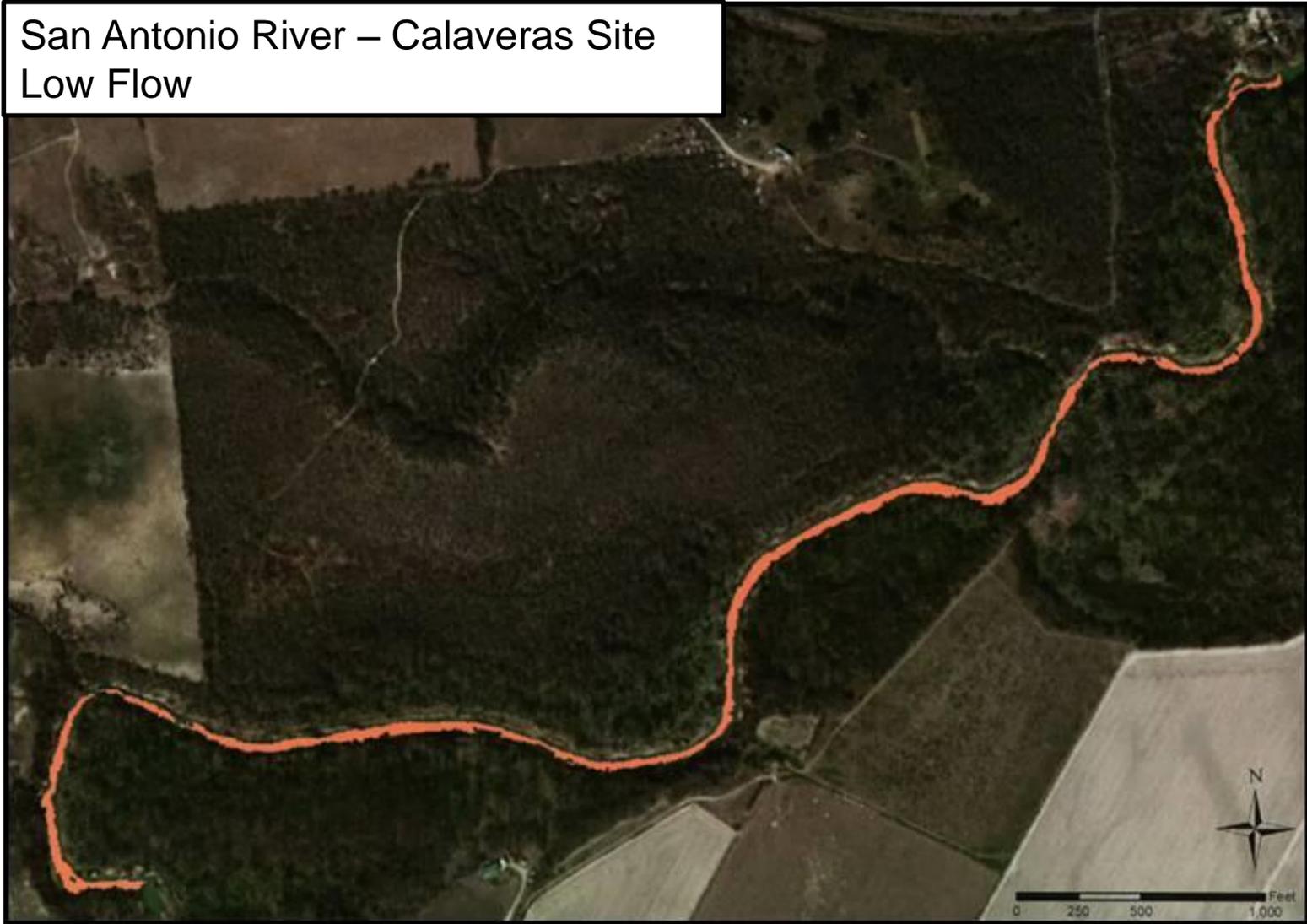


Future Survey Plans

- Location: Colorado River from Longhorn Dam to Bay City Dam (264 river miles)
- Methods: Qualitative and quantitative sampling within meso-habitats of pre-determined segments
- Timeline: Work could begin as early as the summer of this year
 - 2-3 years are needed for completion

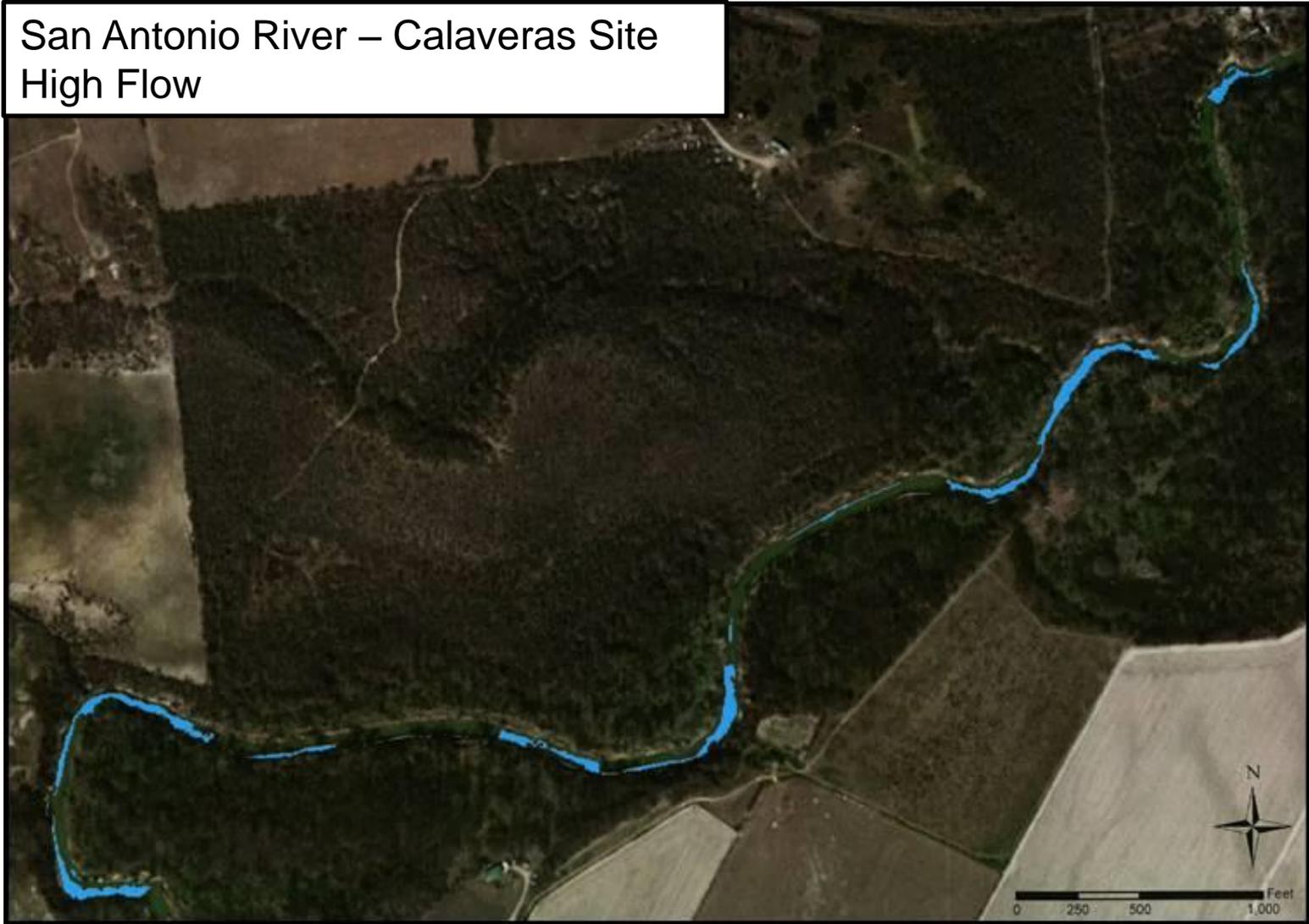
Persistent Mussel Habitat

San Antonio River – Calaveras Site
Low Flow



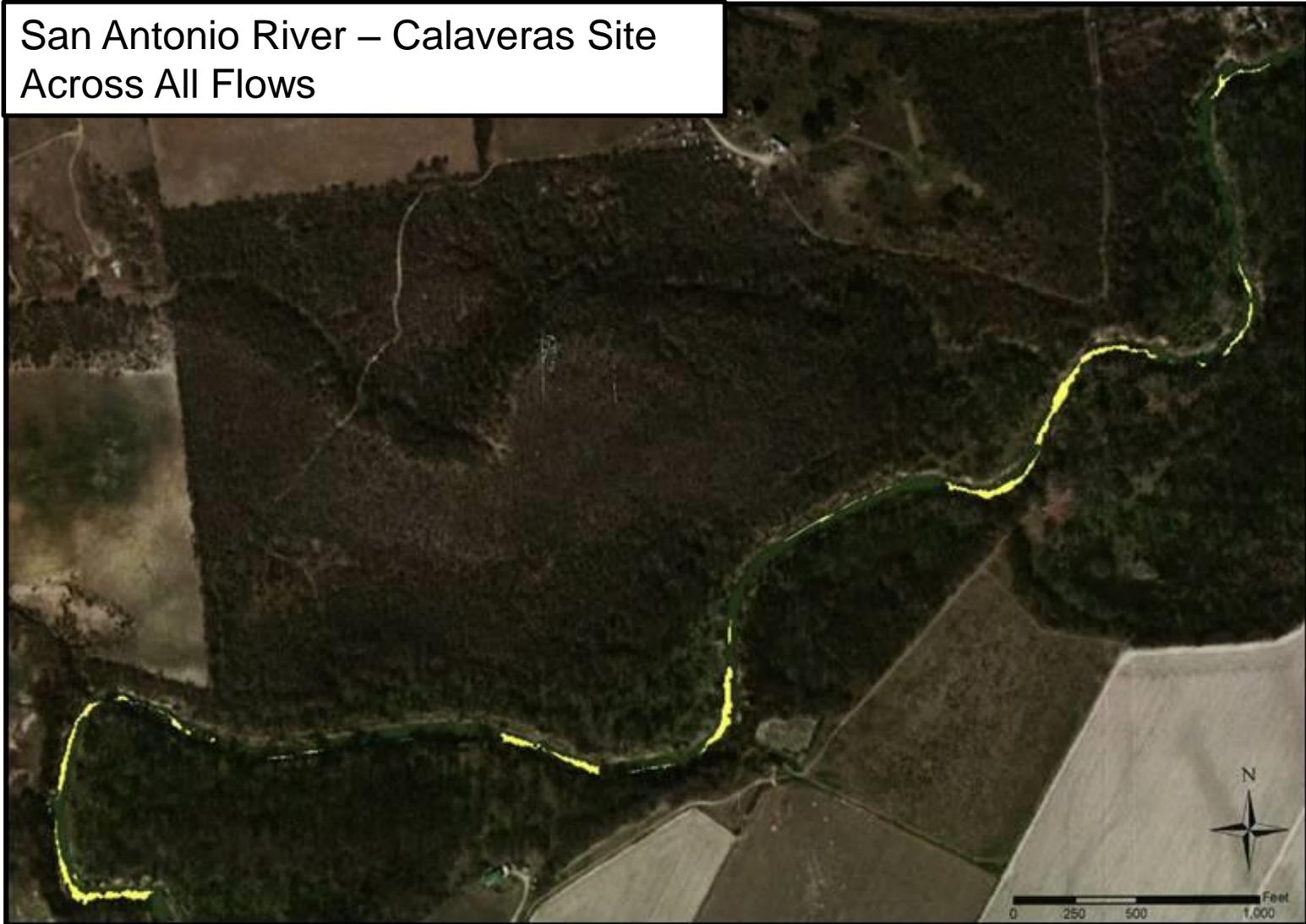
Persistent Mussel Habitat

San Antonio River – Calaveras Site
High Flow



Persistent Mussel Habitat

San Antonio River – Calaveras Site
Across All Flows





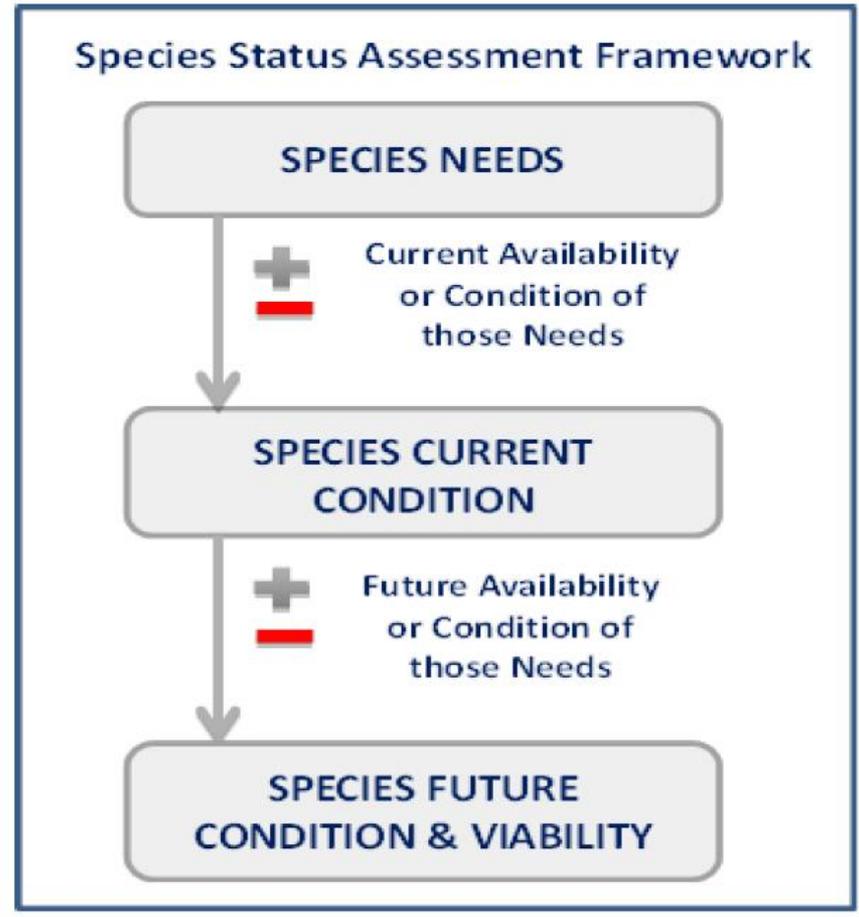
Questions?

lisa.benton@lcra.org
512-578-2151

Extra slides

USFWS Species Status Assessment Process

- “3R’s”: Resiliency, redundancy and representation
- Uses “best available science” to make listing decision



Texas Hornshell Population Ecology

