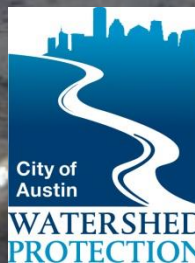
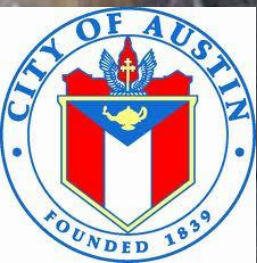
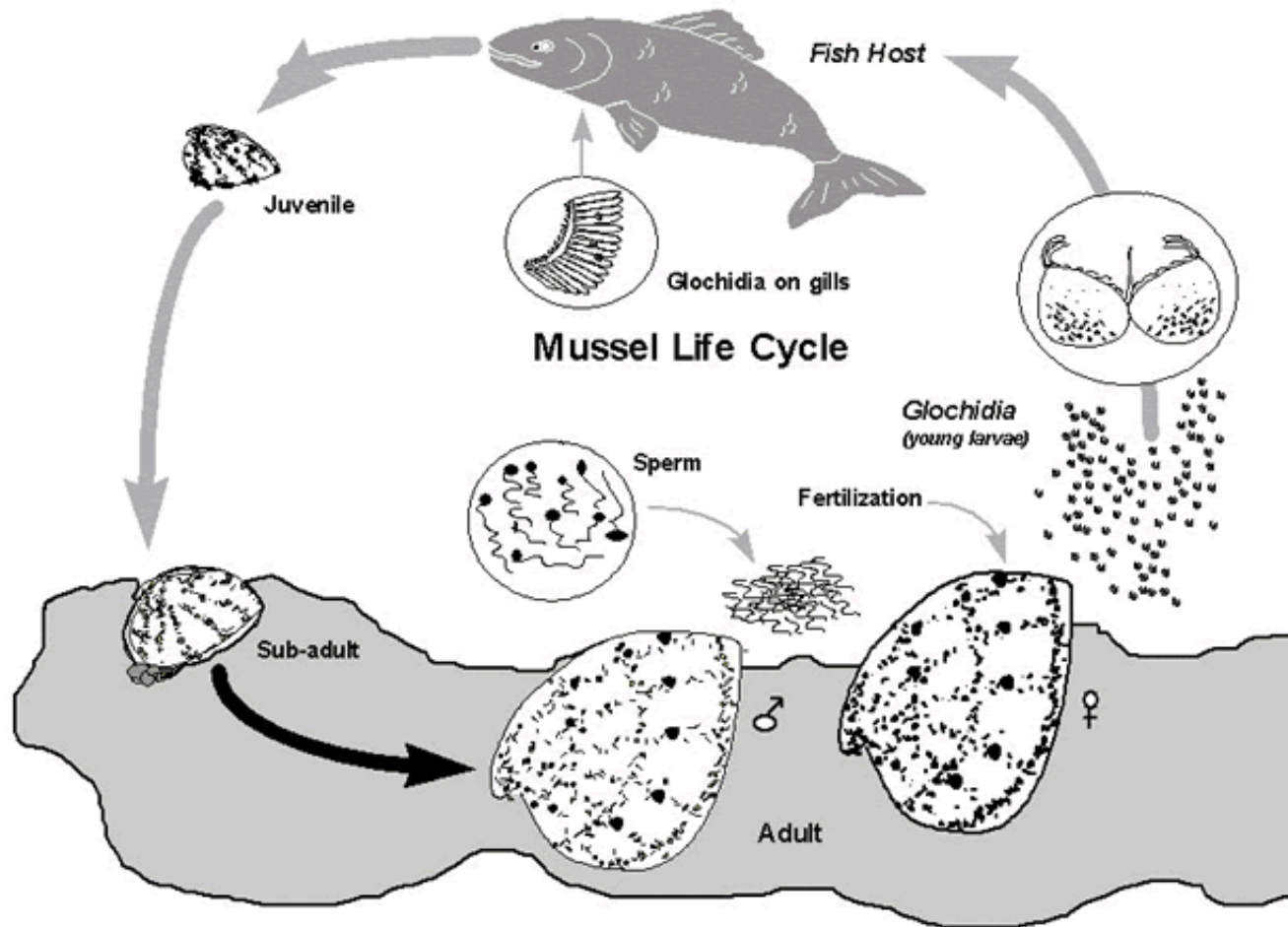


LAKE AUSTIN 2017 DRAWDOWN MUSSEL SURVEY

Liz Johnston, ERM
Presented to Environmental Commission
August 2, 2017



FRESHWATER MUSSELS



Fragile papershell



Paper pondshell



LAKE AUSTIN DRAWDOWNS



STUDY PURPOSE & METHODS

- Verify previous mussel study
- Assess numbers, species, and locations of mussels
- Sediment type: Silt, Sand, Gravel
- Habitat type: Backwater, Delta, Main Channel
- Approximate survey area (GIS)



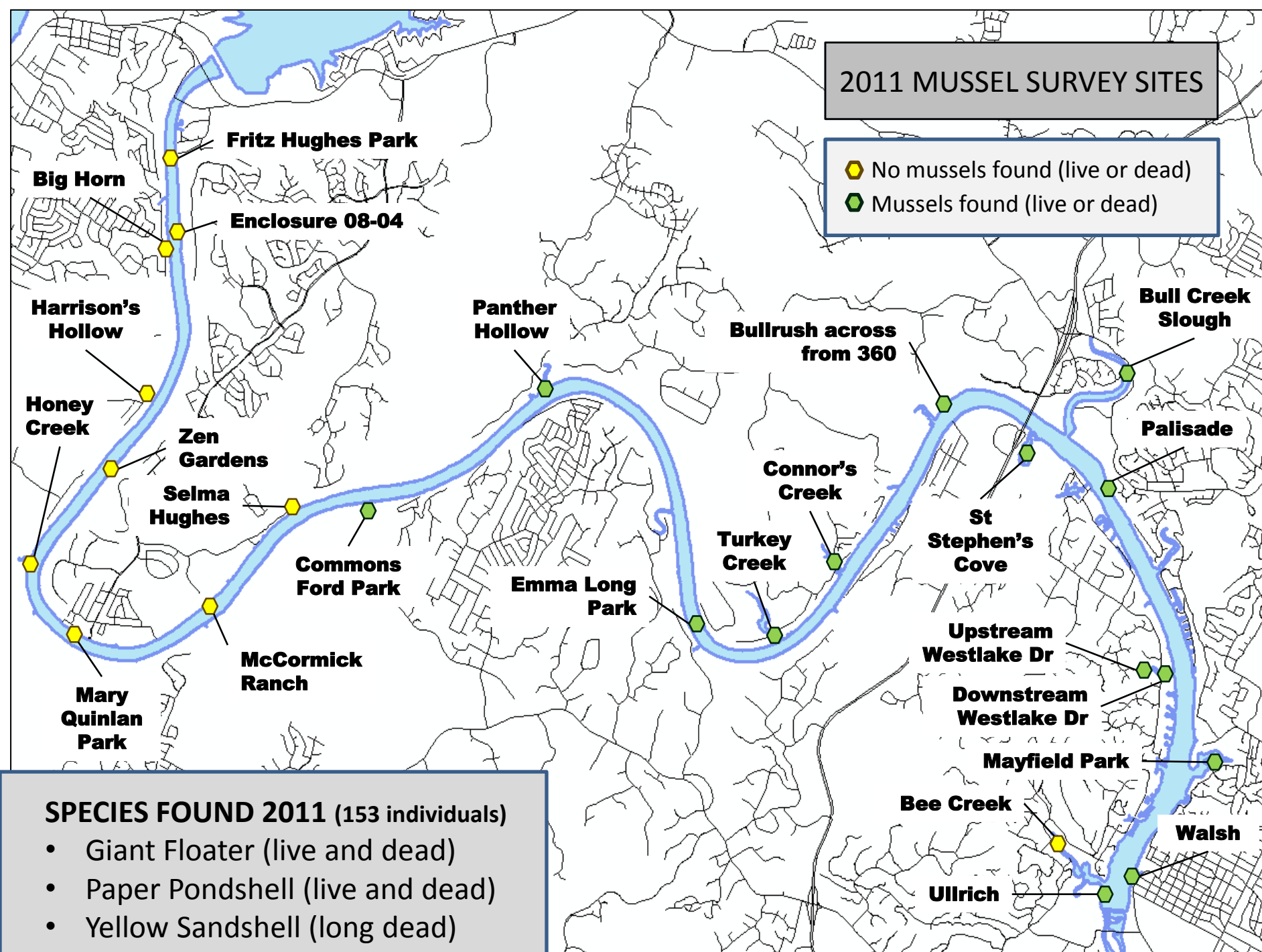
Giant floater



Southern mapleleaf

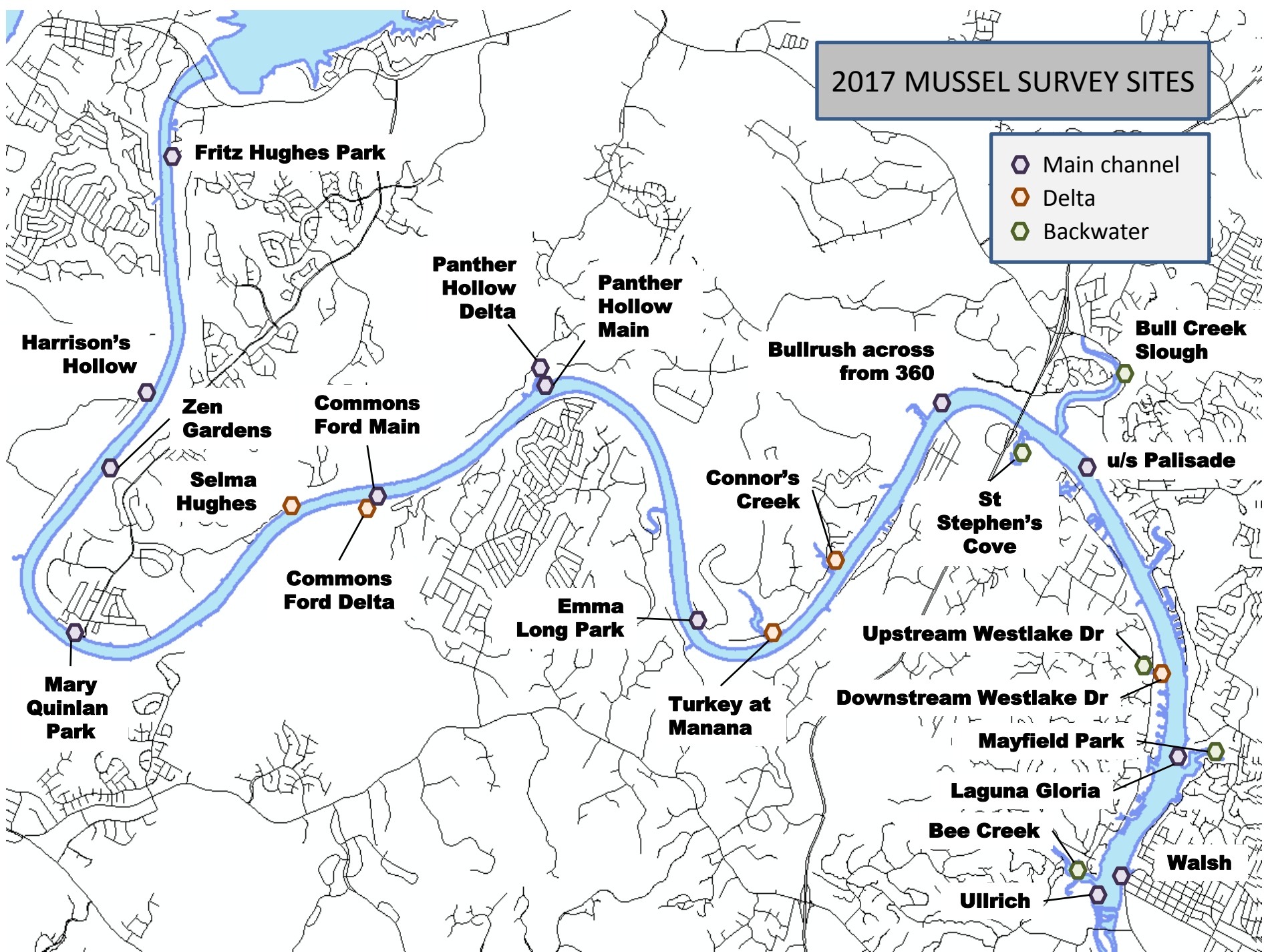
2011 MUSSEL SURVEY SITES

- Yellow hexagon: No mussels found (live or dead)
- Green hexagon: Mussels found (live or dead)



2017 MUSSEL SURVEY SITES

- Main channel
- Delta
- Backwater



BACKWATER HABITAT TYPES



Bee Creek



Upstream Westlake Bridge (Michael's Cove)



Bull Creek Slough



Mayfield (Taylor Slough)

DELTA HABITAT TYPES



Commons Ford



Connor Creek



Panther Hollow



Turkey Creek

MAIN CHANNEL HABITAT TYPES



Bullrush across from 360 ramp



Mary Quinlan



Ullrich



Zen Gardens

Results

LIVE OR RECENTLY DEAD

- 1. **Giant Floater (*Pyganodon grandis*)***
- 2. **Paper Pondshell (*Utterbackia imbecilis*)***
- 3. Lilliput (*Toxolasma texasiensis*)
- 4. Fragile Papershell (*Leptodea fragilis*)
- 5. Southern Mapleleaf (*Quadrula apiculata*)
- 6. Tampico Pearlymussels (*Cyrtonaias tampicoensis*)

LONG DEAD/SUBFOSSIL

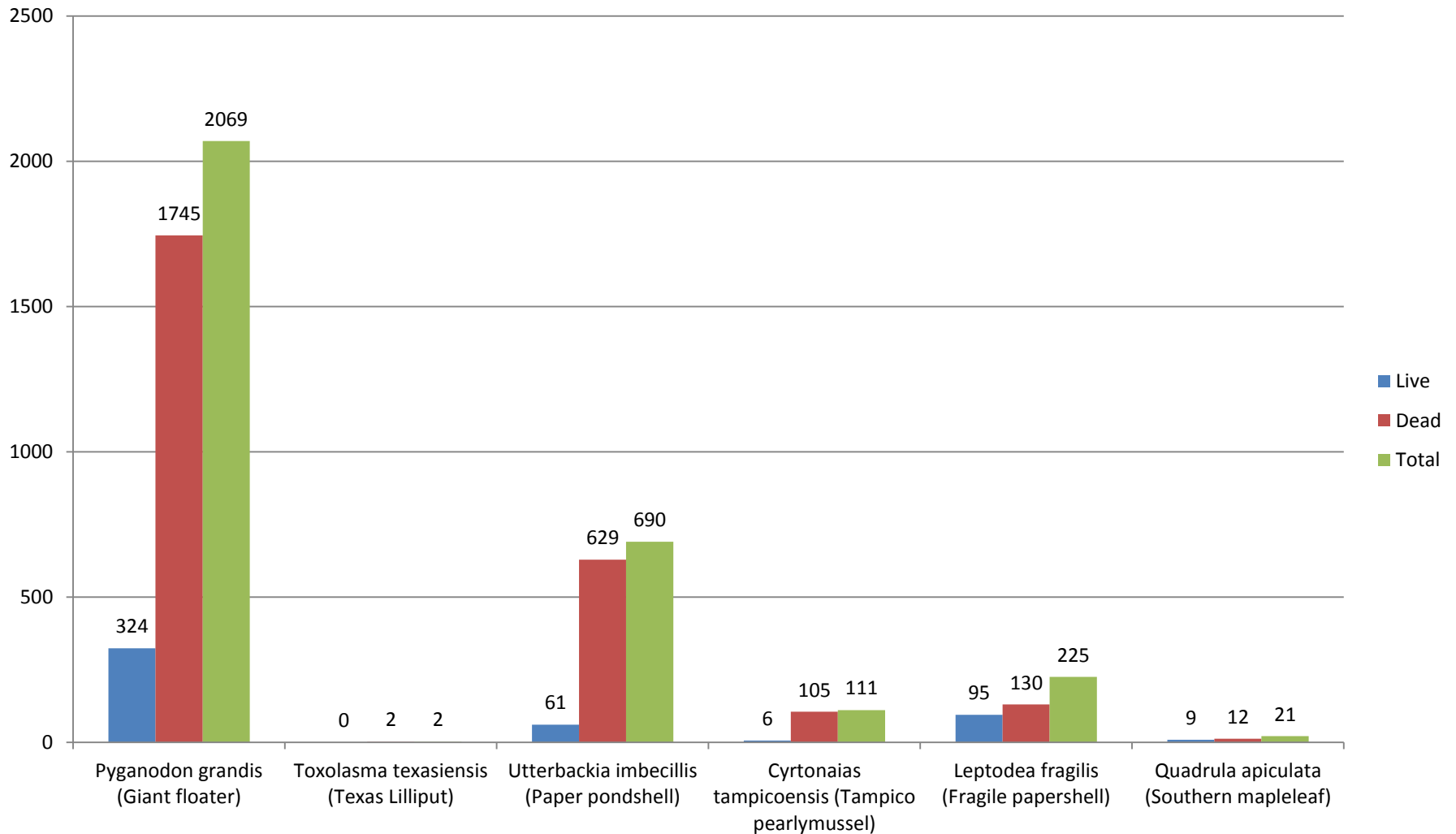
- (not pictured) **Yellow Sandshell (*Lampsilis teres*)***
- (not pictured) Bleufer (*Potamilus purpuratus*)
- 7. Smooth Pimpleback (*Quadrula houstonensis*)

***encountered in 2011**



RESULTS BY SPECIES

(excludes long dead species)



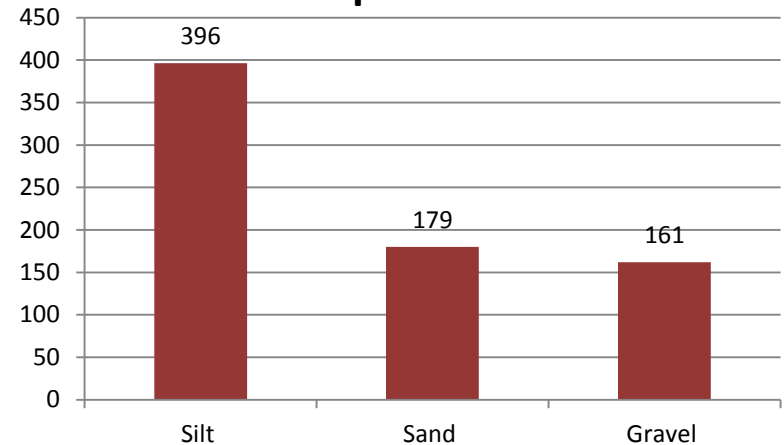
RESULTS

(excludes long dead species)

Substrate Type

	SILT	SAND	GRAVEL
TOTAL EXTANT INDIVIDUALS	798	2192	132
INDIVIDUALS/ AREA (acres)	396	198	162
INDIVIDUALS/TIME (minutes)	1.02	1.09	.83

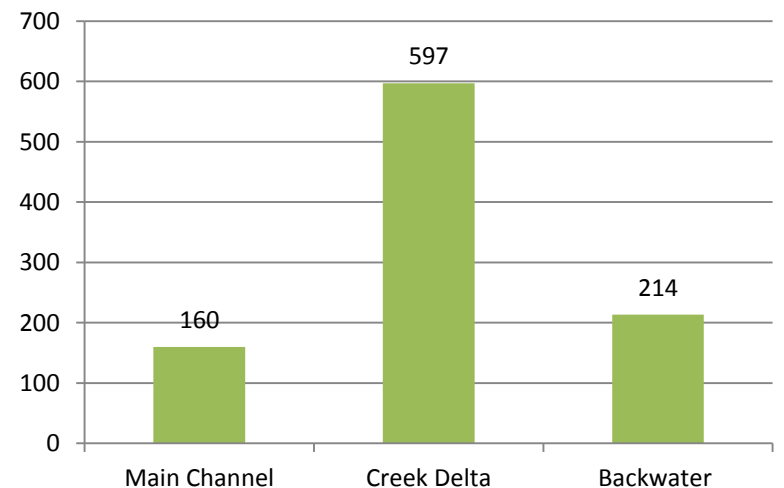
Individuals per Substrate Acre



Habitat Type

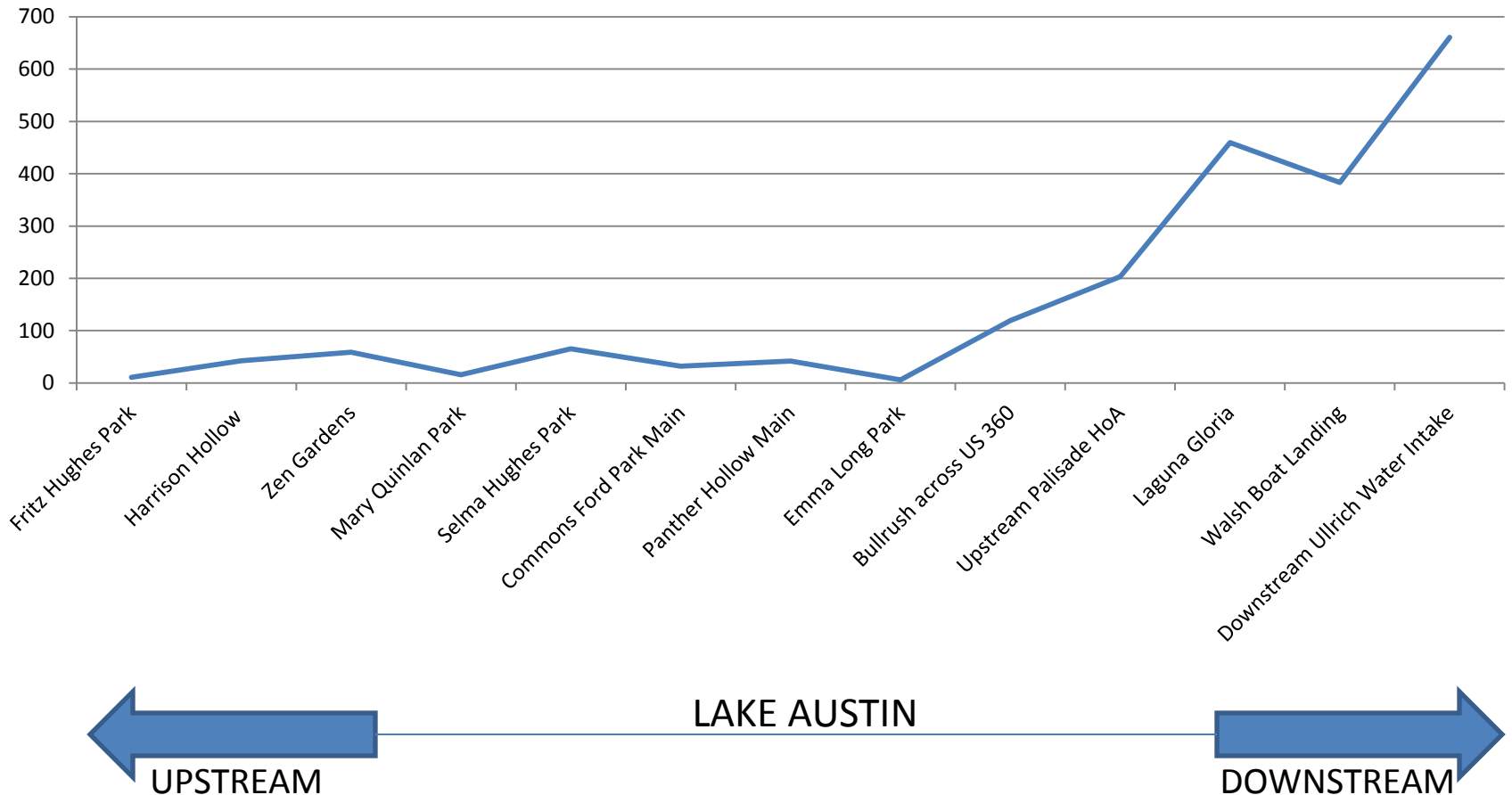
	MAIN	DELTA	BACK WATER
TOTAL EXTANT INDIVIDUALS	1791	804	527
INDIVIDUALS/AREA (acres)	160	596	214
INDIVIDUALS/TIME (minutes)	1.01	1.27	.99

Individuals per Habitat Acre



DENSITY BY LOCATION

Individuals per Acre
Main Channel Survey Sites



POLICY CONSIDERATIONS

- **Consider mussel impacts**
- **Drawdown strategies**
 - Less frequent
 - Not as deep (8'-10')
 - Slower rate of lowering
- **Additional surveys**
- **Zebra Mussels**

