



# **Central Texas Freshwater Mussel Program**

Meghan Hope, Economic Growth and  
Endangered Species Management

# Mussels in Texas

Mussel Species	Package Name and Grouping	Historical Range in Texas River Basin	Federal ESA Listing Status
<b>False Spike</b>	Central Texas Mussels (2018)	Brazos, Colorado, Guadalupe	Petitioned
<b>Texas Fatmucket</b>		Colorado, Guadalupe	Candidate
<b>Texas Pimpleback</b>		Colorado, Guadalupe	Candidate
<b>Texas Fawnsfoot</b>		Brazos, Colorado	Candidate
<b>Triangle Pigtoe</b>	East Texas Mussels (2019)	Neches, San Jacinto	Petitioned
<b>Louisiana Pigtoe</b>		San Jacinto, Trinity, Neches, Sabine	Petitioned
<b>Texas Heelsplitter</b>		Neches, Trinity, Sabine	Petitioned
<b>Golden Orb</b>	Texas Quadrula Species (2020)	Guadalupe, San Antonio, Nueces-Frio	Candidates
<b>Smooth Pimpleback</b>		Brazos, Colorado	Candidate
<b>Mexican Fawnsfoot</b>	Rio Grande Mussels (2022)	Rio Grande, Pecos, Rio Salado	Petitioned
<b>Salina</b>		Rio Grande	Petitioned
<b>Texas Hornshell</b>	-	Rio Grande	Proposed Endangered

# U.S. Fish and Wildlife Service (FWS) 12-Month Finding

All mussels likely face the same or very similar threats

Decline of mussels in Texas and throughout the U.S. is mainly due to habitat loss and degradation primarily caused by:

- Impoundments
- Sedimentation
- Dewatering
- Sand and gravel mining
- Chemical contaminants

# Chemical Contaminants

- Chemical spills
- Industrial and municipal waste
- Animal feedlots
- Fertilizer use
- Pesticide use
- Emerging contaminants
- Degraded water quality
- Excessive algae and plant growth
- Reduced filtration efficiency
- Reduced growth
- Decreased reproduction
- Changes in enzyme activity

# Impoundments

- Eliminated or reduced flow
- Fluctuation in flow regime
- Scouring and erosion
- Impaired water quality
- Changes in reproductive cycle
- Blocked movement of host fish
- Changes in fish community
- Decreased DO and temperature
- Isolated mussel populations
- Short, isolated patches of habitat
- Increased sedimentation

# Sedimentation

- Livestock access, grazing
- Removal of vegetation
- Urbanization, population growth
  - Increased impervious surface
  - Construction
  - Road crossings
- Reduced feeding and respiratory efficiency
- Reduced growth
- Limited burrowing
- Smothering
- Reduced juvenile habitat
- Substrate instability

# Dewatering

- Surface water diversions
- Groundwater pumping
- Hydropower facilities
- Construction
- Drought

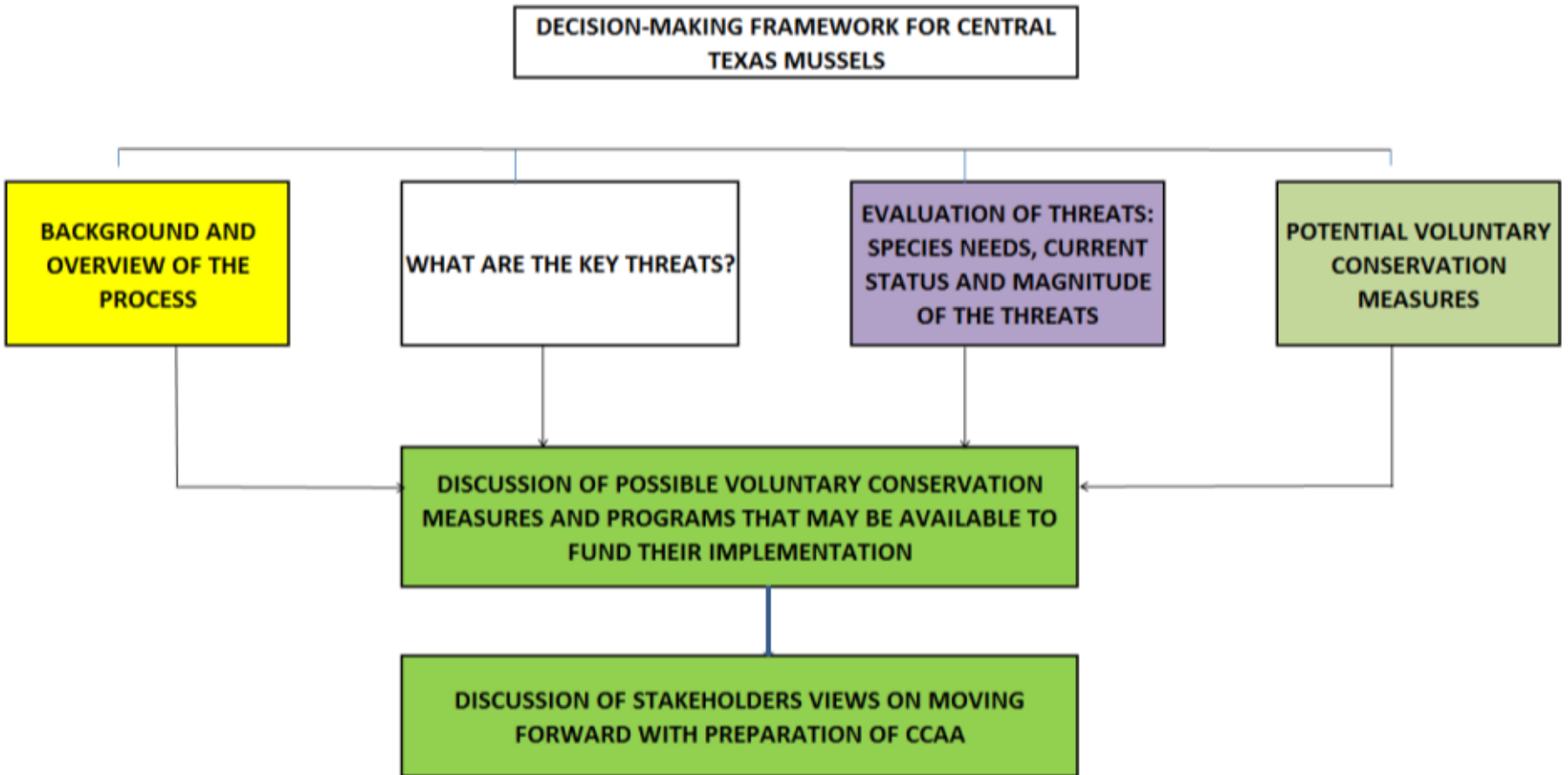
# Instream Sand and Gravel Mining

- Channel degradation and erosion, turbidity, bank and stream instability
- Changes in water flow, temperature, quality
- Increased fine sediment, suspended sediment
- Alters streams resulting in large-scale changes to mussels, fish and other aquatic species



# CPA-Funded Research Conducted by Texas State University

- Surveys in Brazos, Colorado and Guadalupe
- Applied research
  - Temperature
  - Dissolved oxygen
  - Nitrogenous compounds
  - Salinity
  - Turbidity
  - Desiccation
- Mark and recapture and environmental flow analysis
- Captive Propagation



# Water Quality Topics

- Agricultural activities
- Sand and gravel activities
- Wastewater and return flows
- Wildlife and invasives
- Impervious cover
- Sedimentation
- Contaminants
- Examples of conservation measures and programs

## Program Contacts:

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### **Upcoming Meetings**

- May 16, 2017
- June 20, 2017
- July 19, 2017
- August TBD 2017

Questions?