Little Bayou Pierre Survey

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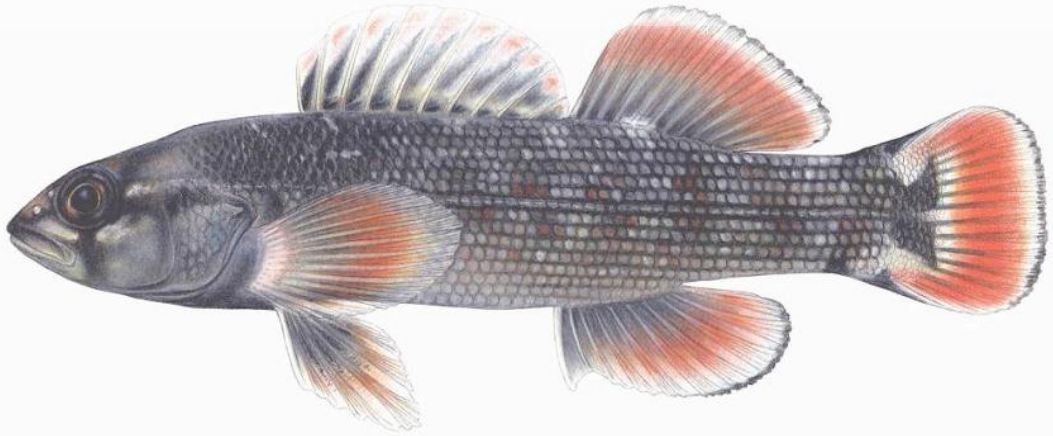


Bayou Darter Research

Slack, W. T., Summers, J. A., Rooney, A. P. & Taylor, C. M. 2010 Conservation Genetics of the Threatened Bayou Darter (Percidae: *Etheostoma rubrum*) in the Bayou Pierre System of Southwestern Mississippi. *Copeia* **2010**, 176–180.

Ross, S. T., O'Connell, M., Patrick, D. M., Latorre, C. A., Slack, W. T., Knight, J. G. & Wilkins, S. D. 2001 Stream Erosion and Densities of *Etheostoma rubrum* (Percidae) and Associated Riffle-Inhabiting Fishes: Biotic Stability in a Variable Habitat. *Copeia* **2001**, 916–927.

Suttkus, R. D. & Clemmer, G. H. 1977 A status report on the bayou darter, *Etheostoma rubrum*, and the Bayou Pierre system. *Southeastern Fishes Council Proceedings* **1**, 1–2.

Ross, S. T., Knight, J. G. & Wilkins, S. D. 1992 Distribution and Microhabitat Dynamics of the Threatened Bayou Darter, *Etheostoma rubrum*. *Copeia* **1992**, 658–671.

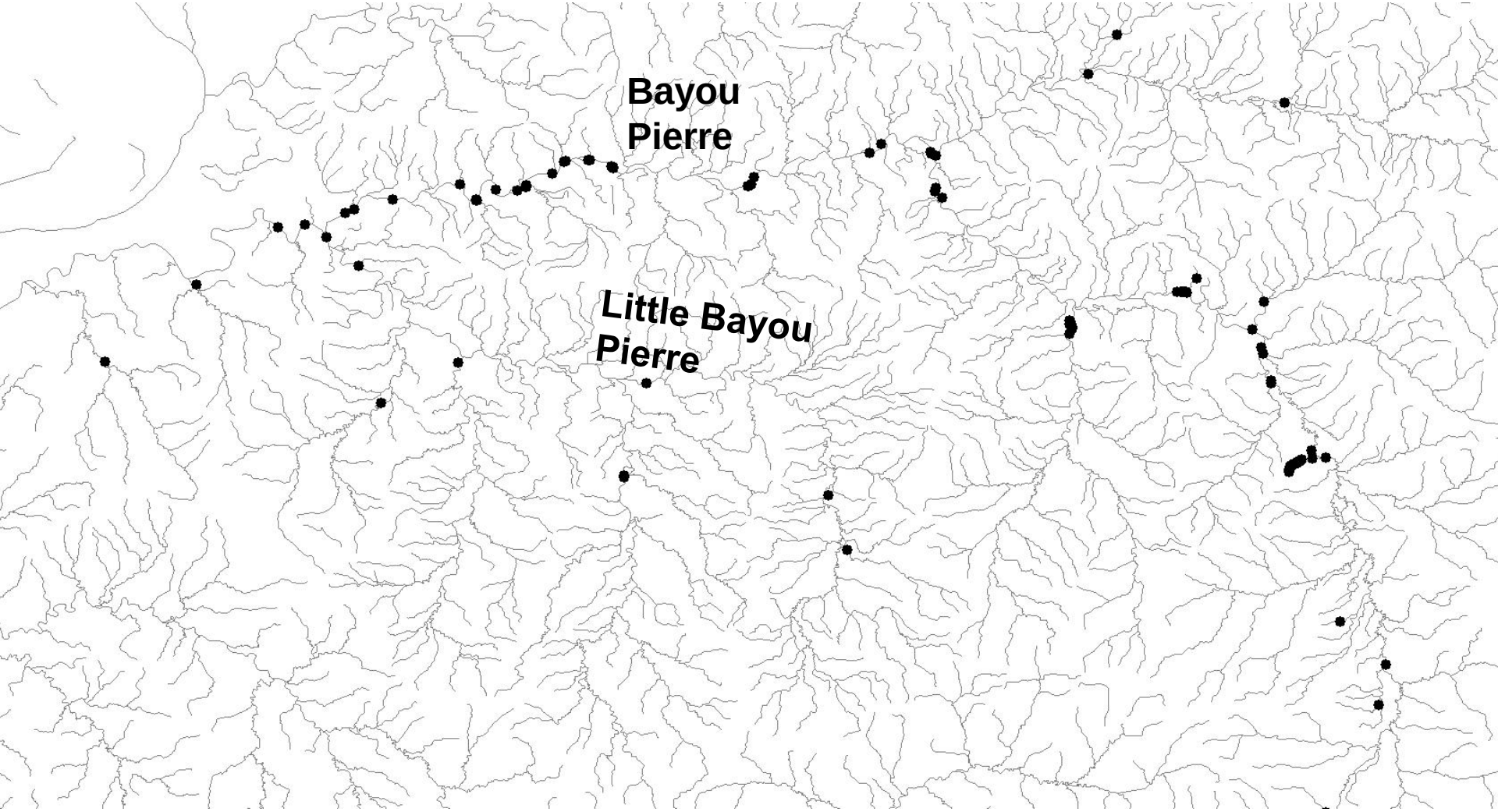
Knight, J. G. & Ross, S. T. 1992 Reproduction, Age and Growth of the Bayou Darter *Etheostoma rubrum* (Pisces, Percidae): An Endemic of Bayou Pierre. *Am Mid Nat* **127**, 91–105.

Knight, J. G. & Ross, S. T. 1994 Feeding Habits of the Bayou Darter. *Trans Am Fish Soc* **123**, 794–802.

Ross, S. T. & Wilkins, S. D. 1993 Reproductive Behavior and Larval Characteristics of the Threatened Bayou Darter (*Etheostoma rubrum*) in Mississippi. *Copeia* **1993**, 1127–1132.

Slack, W. T., Ross, S. T. & Ewing, J. A. 2004 Ecology and population structure of the bayou darter, *Etheostoma rubrum*: disjunct riffle habitats and downstream transport of larvae. *Eniv Bio Fish* **71**, 151–164.

Bayou Darter Surveys 1986-1989



Fish Assemblage in Bayou Pierre

- Earlier work documented 67 species (>24,000 individuals) in 202 samples

- Work focused on Bayou Pierre, 12 samples in Little Bayou Pierre

Cyprinella venusta

Cyprinella camura

Etheostoma lynceum

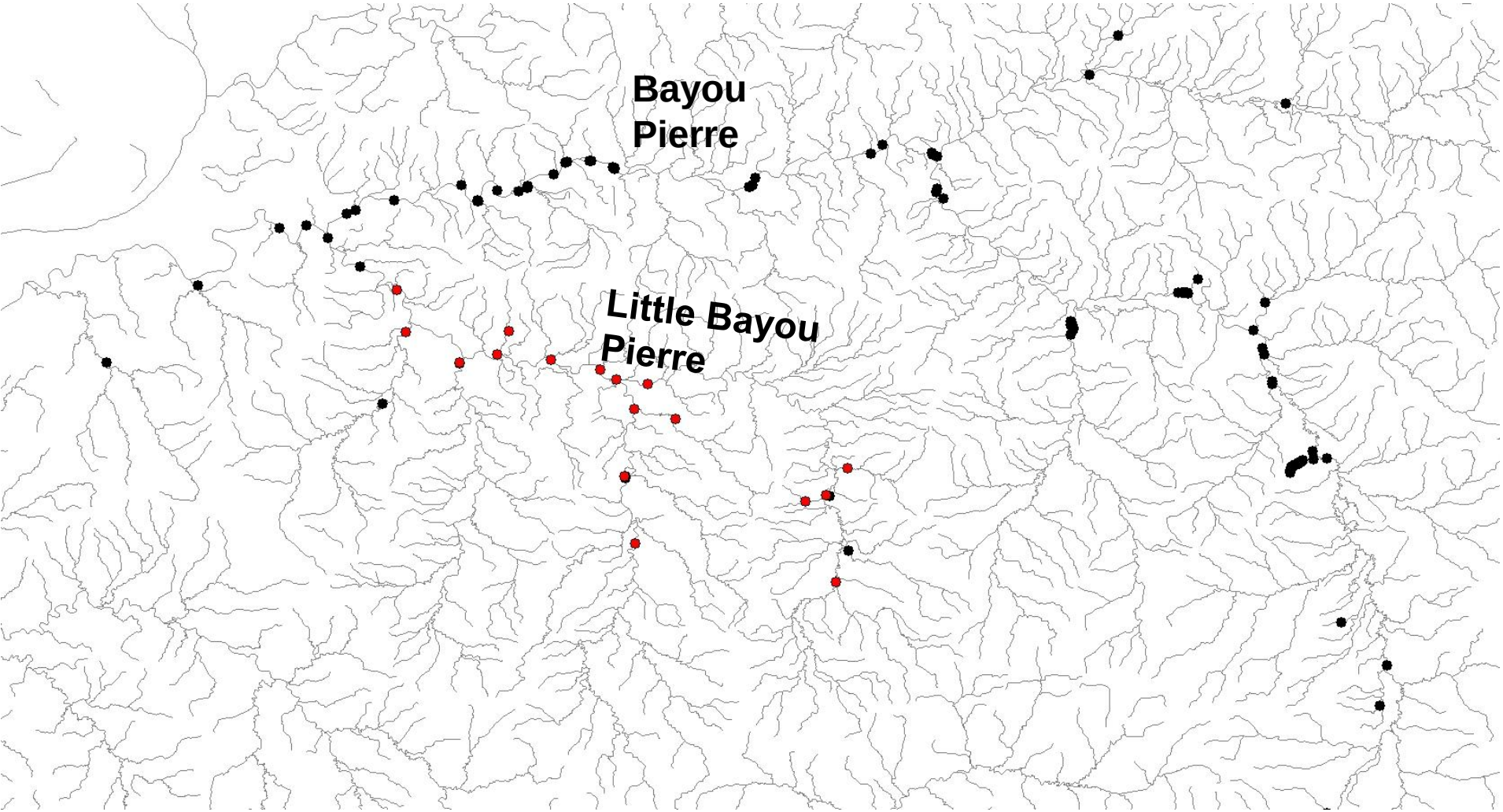
Noturus hildebrandi

Notropis longirostris

Fish Assemblage in Bayou Pierre

- Objectives
  - Resample Little Bayou Pierre
  - Is the Bayou Darter there?
  - If not, why?

Current Sampling



- Historical Surveys (1986-1989)
- Current Surveys (2010)

Approach

- Are there other species found only in Bayou Pierre or Little Bayou Pierre?

- What species commonly occur with Bayou Darters? Are those species also found in Little Bayou Pierre?

- **Indicator species analysis** – What species are indicators of 1) Bayou Pierre, 2) Little Bayou Pierre and 3) samples with Bayou Darters

- Bayou Pierre Indicators
  - *Etheostoma rubrum*
  - *Etheostoma lynceum*
  - *Noturus hildebrandi*
- Little Bayou Pierre Indicators
  - *Micropterus punctulatus*
  - *Fundulus olivaceus*
  - *Luxilus chrysocephalus*
  - *Notropis longirostris*

Within Bayou Pierre:

- Samples with Bayou Darters
  - *Etheostoma lynceum*

  - *Noturus hildebrandi*

- Samples without Bayou Darters
  - *Fundulus olivaceus*

  - *Notropis longirostris*

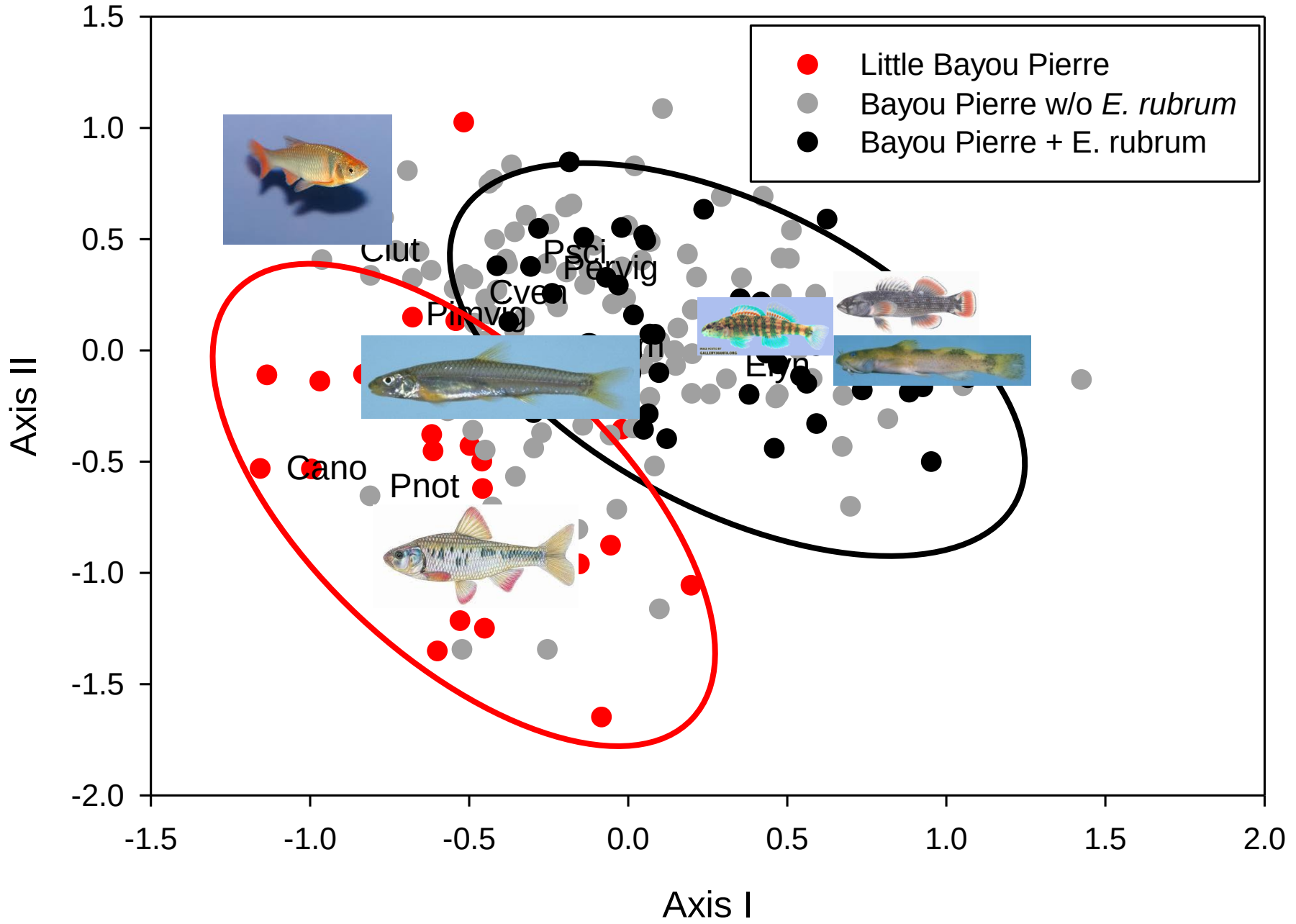
  - *Cyprinella lutrensis*

Indicator Species Analysis

- Species found with Bayou Darters in Bayou Pierre tend to be more common in Bayou Pierre
  - *Noturus hildebrandi*
  - *Etheostoma lynceum*

- Species characteristic of Little Bayou Pierre tend not to be found with Bayou Darters
  - *Fundulus olivaceus*
  - *Luxilus chrsocephalus*
  - *Micropterus puctulatus*
  - *Campostoma anomalum*

Ordination Analysis



Conclusions

- Fish assemblages in Bayou Pierre and Little Bayou Pierre are more distinct than expected given their close proximity.

- Seems unlikely there was ever a Bayou Darter Population in Little Bayou Pierre. There was likely not any colonization resulting from upstream movements.

- Conservation of Bayou Darter lies in preserving populations in Bayou Pierre.

- Control of erosion, headcutting and channel modifications are key.