

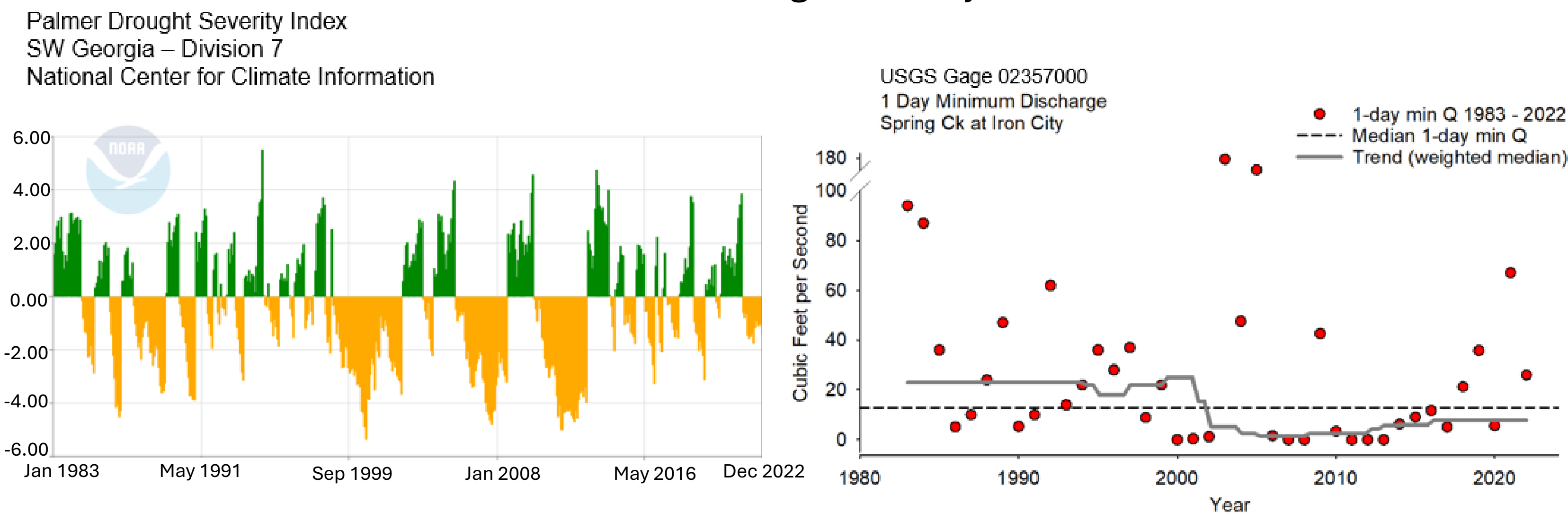
Background

- *Hamiota subangulata* or Shinyrayed Pocketbooks were Federally listed in 1998 due to declines throughout their historic range
 - This species is vulnerable to low dissolved oxygen and predation
- Between 2000 and 2012 the Lower Flint River Basin (LFRB) experienced three multi-year droughts
 - These droughts caused catastrophic loss to Shinyrayed Pocketbook populations
- In 2013, drought stresses relaxed allowing for an extended period for population recovery
- In 2023, habitat conservation planning began, allowing us to assess responses of Shinyrayed Pocketbook populations
 - We are exploring the use of relic shells to learn important information about age, growth, and recruitment dynamics
 - Shinyrayed Pocketbooks are well suited to this study as they are seemingly short-lived and have potential for rapid reproduction



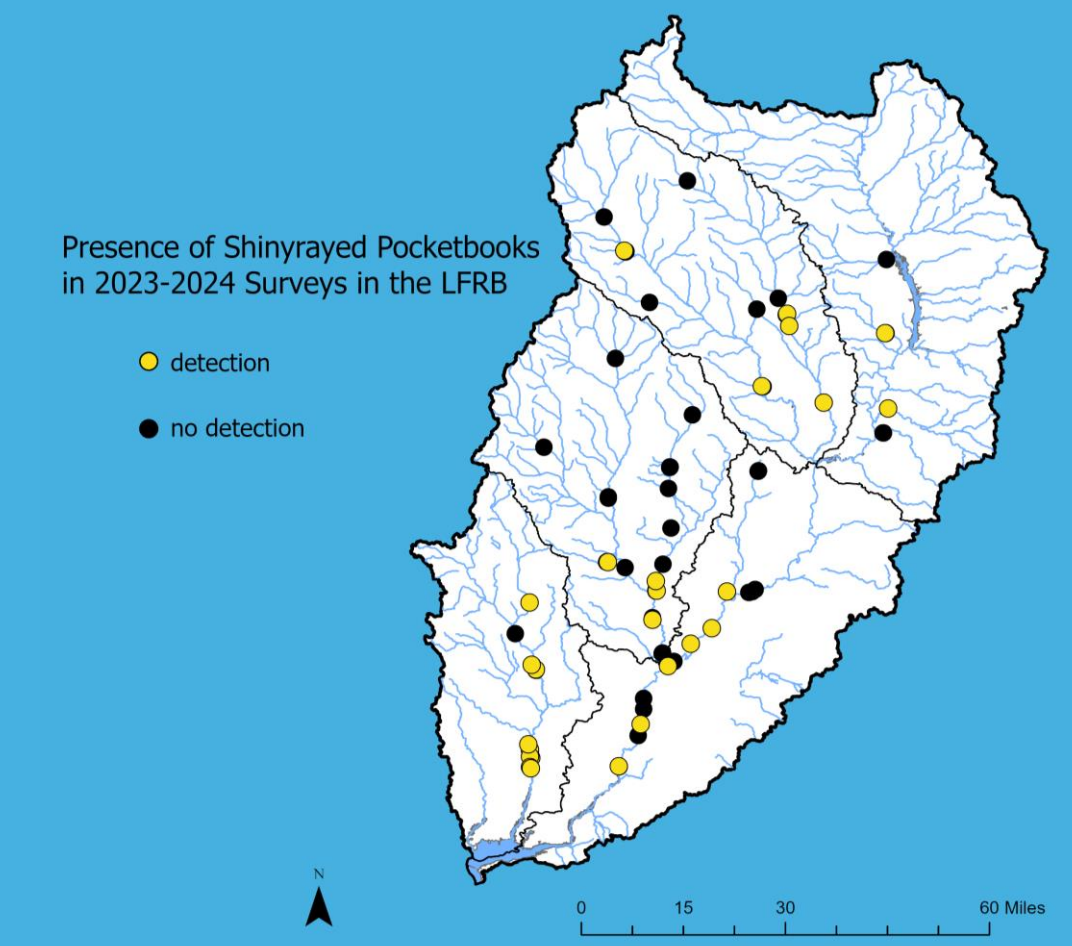
Different Size Classes of Relic Shinyrayed Pocketbook Shells

Climatological (left) and Hydrological (right) Conditions During the Study

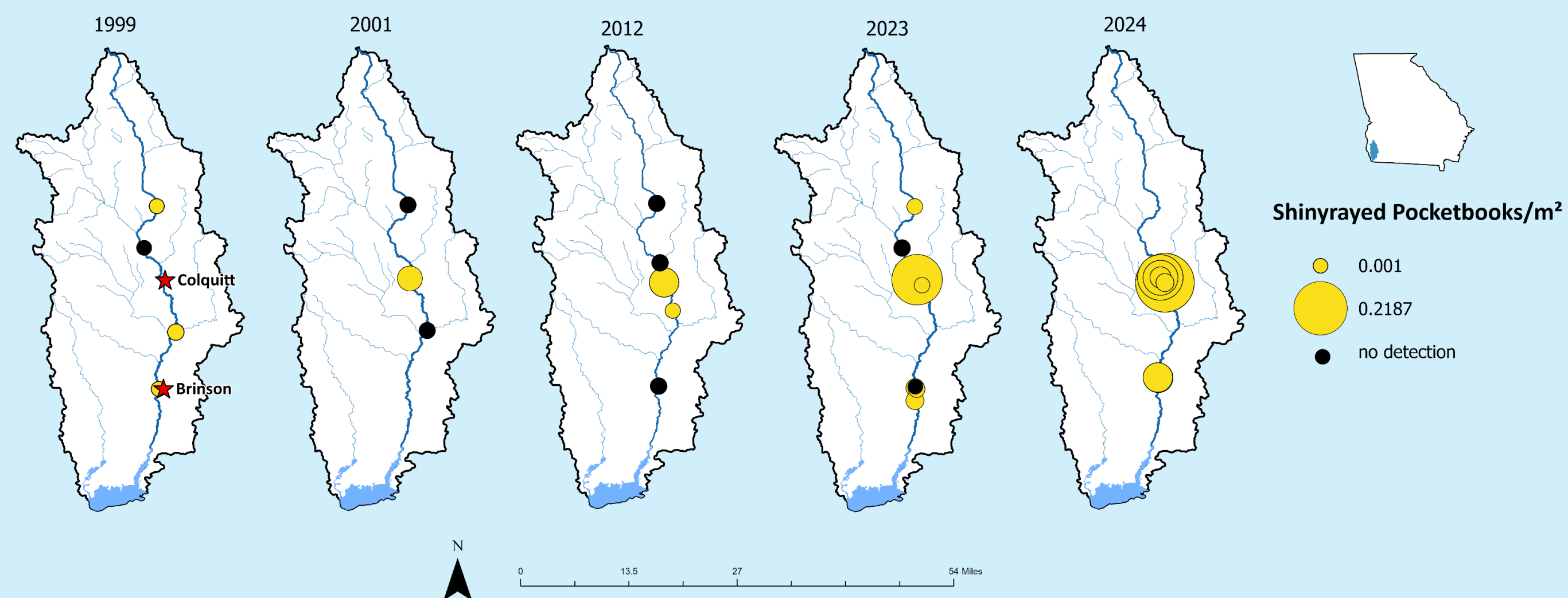


Research Goals

- Inform the Habitat Conservation Plan
 - Increase knowledge of natural history of the LFRB's listed species
 - Develop recCater future management decisions to specific populations of interest
 - Over expectations for different species
 - Determine characteristics of recruitment years
 - Create growth curves and link to USGS flow data



Change in Abundance of Shinyrayed Pocketbooks in Spring Creek



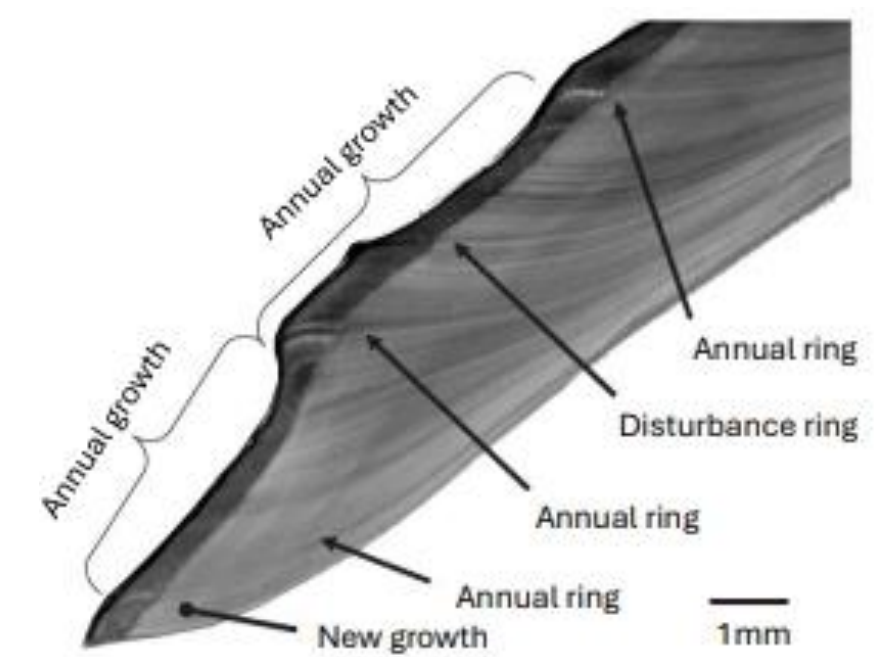
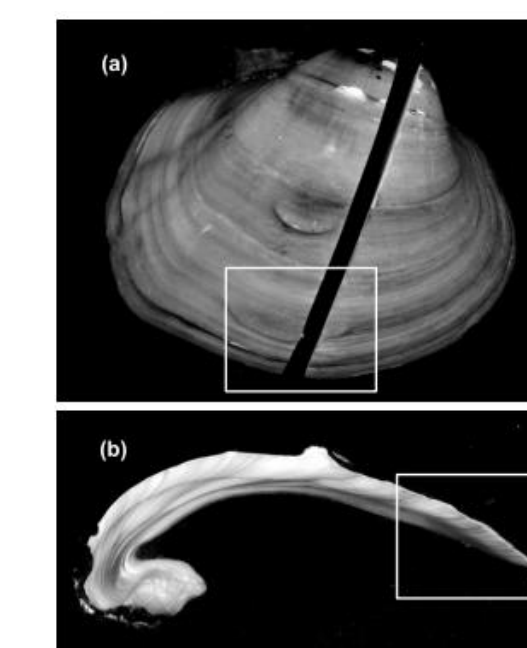
A superconglutinate from a female Shinyrayed Pocketbook in the Flint River near Newton, GA

Acknowledgements

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Methods

- Collect 15-20 recently dead shells of common and listed species in the LFRB
- Cut a thin section of each shell using a low-speed saw and diamond impregnated blade
- Sand one half of the cut shell and mount to microscope slide
- Count annual rings using a microscope and transmitted light
- Estimate life spans for about 10 species including *Hamiota subangulata*



Haag, Wendell R. and Amy M. Commens-Carson. 2008. Testing the assumption of annual shell ring deposition in freshwater mussels. *Can. J. Fish. Aquat. Sci.*, Vol. 65: 493-508.