

# Freshwater Mussel Conservation Program

FWRI: Freshwater Fisheries Research Section

Resource Assessment Subsection



# Florida's Unionid Fauna

Florida's Freshwater Mussels and Clams brochure



**Chipola Slabshell**  
*Elliptio chipolaensis*



**Purple Bankclimber**  
*Elliptoideus sloatianus*



**Fat Threeridge**  
*Amblema neislerii*



**Shinyrayed Pocketbook**  
*Hamiota subangulata*



**Choctaw Bean**  
*Obovaria choctawensis*



**Tapered Pigtoe**  
*Fusconaia burkei*



**Narrow Pigtoe**  
*Fusconaia escambia*



**Ochlockonee Moccasinshell**  
*Medionidus simpsonianus*



**Alabama Moccasinshell**  
*Medionidus acutissimus*



**Gulf Moccasinshell**  
*Medionidus penicillatus*



**Southern Kidneyshell**  
*Ptychobranthus jonesi*



**Southern Sandshell**  
*Hamiota australis*



**Fuzzy Pigtoe**  
*Pleurobema strodeanum*



**Oval Pigtoe**  
*Pleurobema pyriforme*

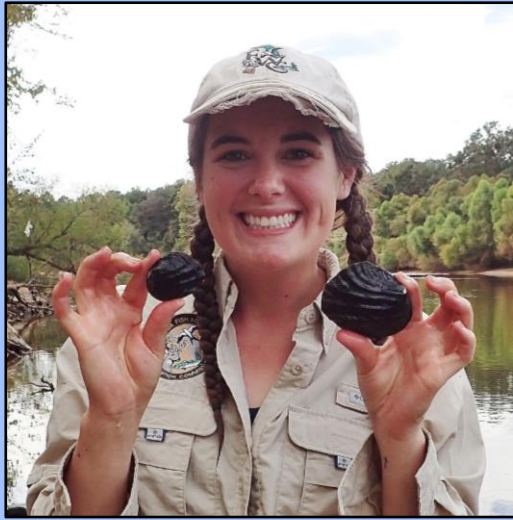


**Round Pearshell**  
*Reginaia rotulata*

**Suwannee Moccasinshell**  
*Medionidus walkeri*

Federally Threatened

Federally Endangered



**Lauren N. Patterson**  
Biological Scientist II



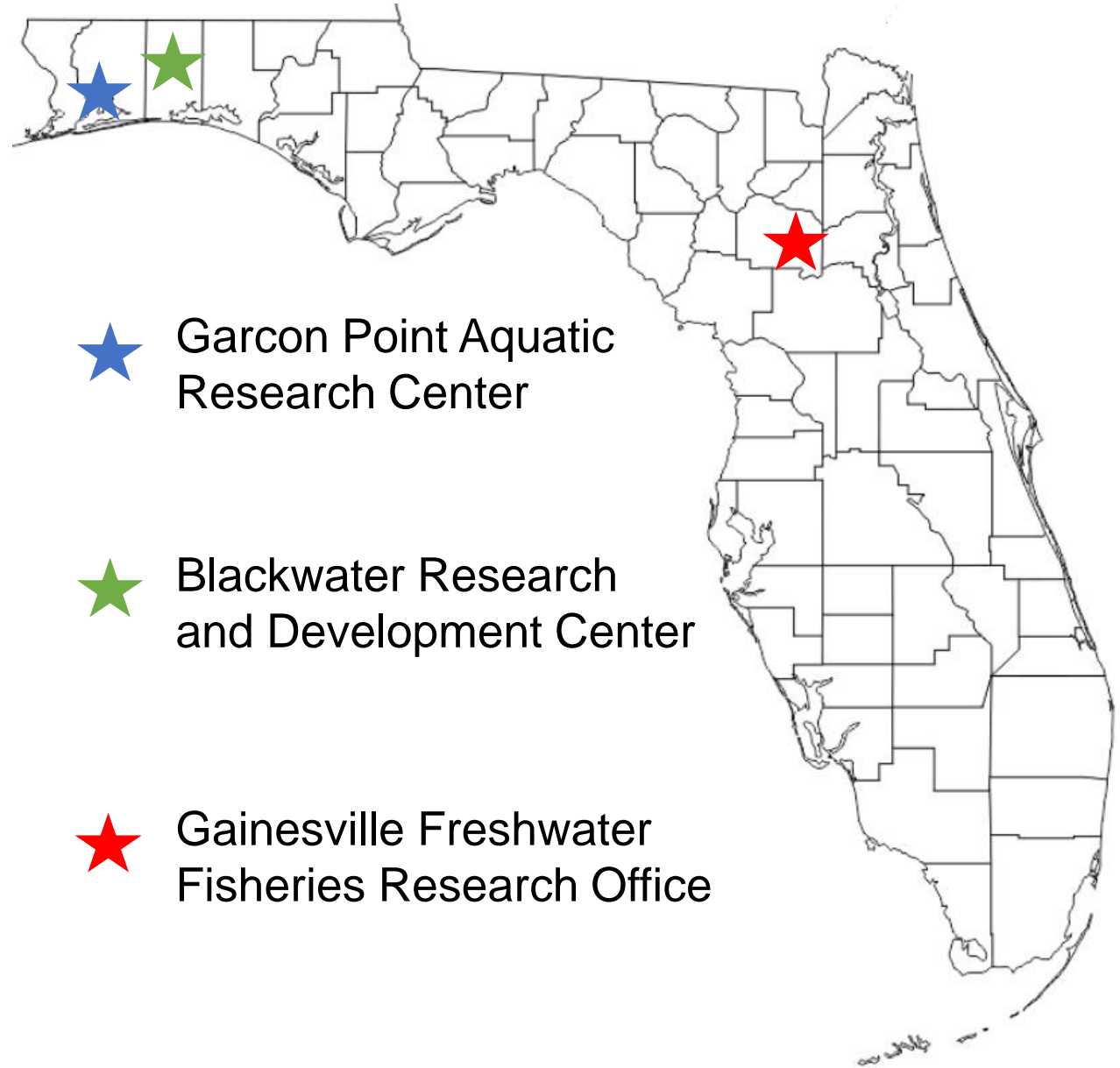
**Amber N. Olson**  
Biological Scientist II



**Jacob S. Lanning**  
Biological Scientist I



**Susan R. Geda**  
Project Leader



**Garcon Point Aquatic  
Research Center**



**Blackwater Research  
and Development Center**



**Gainesville Freshwater  
Fisheries Research Office**

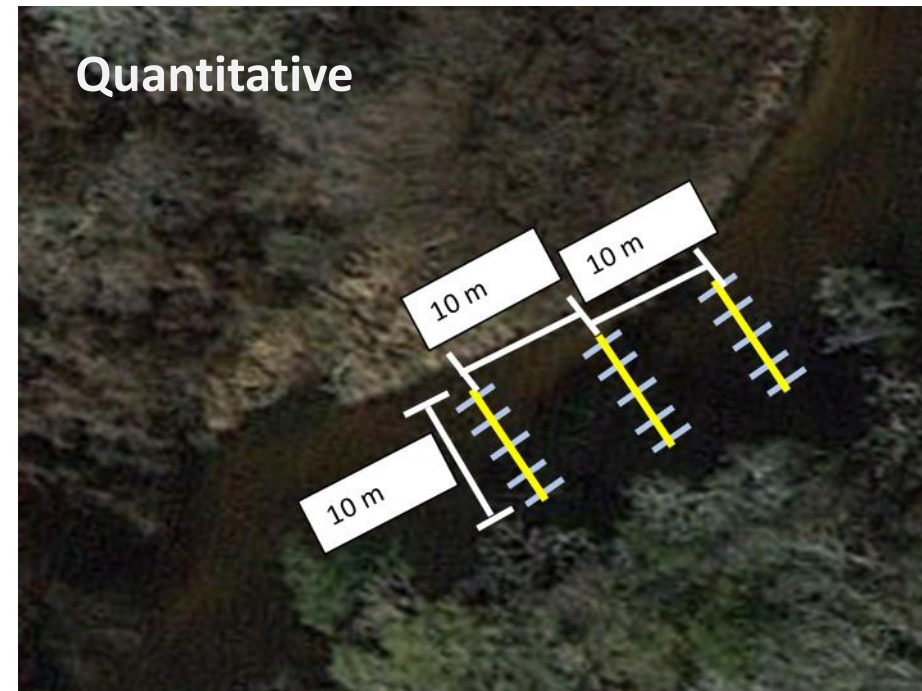
# Program Objectives

1. Document current distributions and population demographics
2. Determine species specific habitat requirements
3. Develop a comprehensive freshwater mussel database for the Greater Floridan Region
4. Conduct and distribute research into the taxonomy and ecology of FL mussel species.



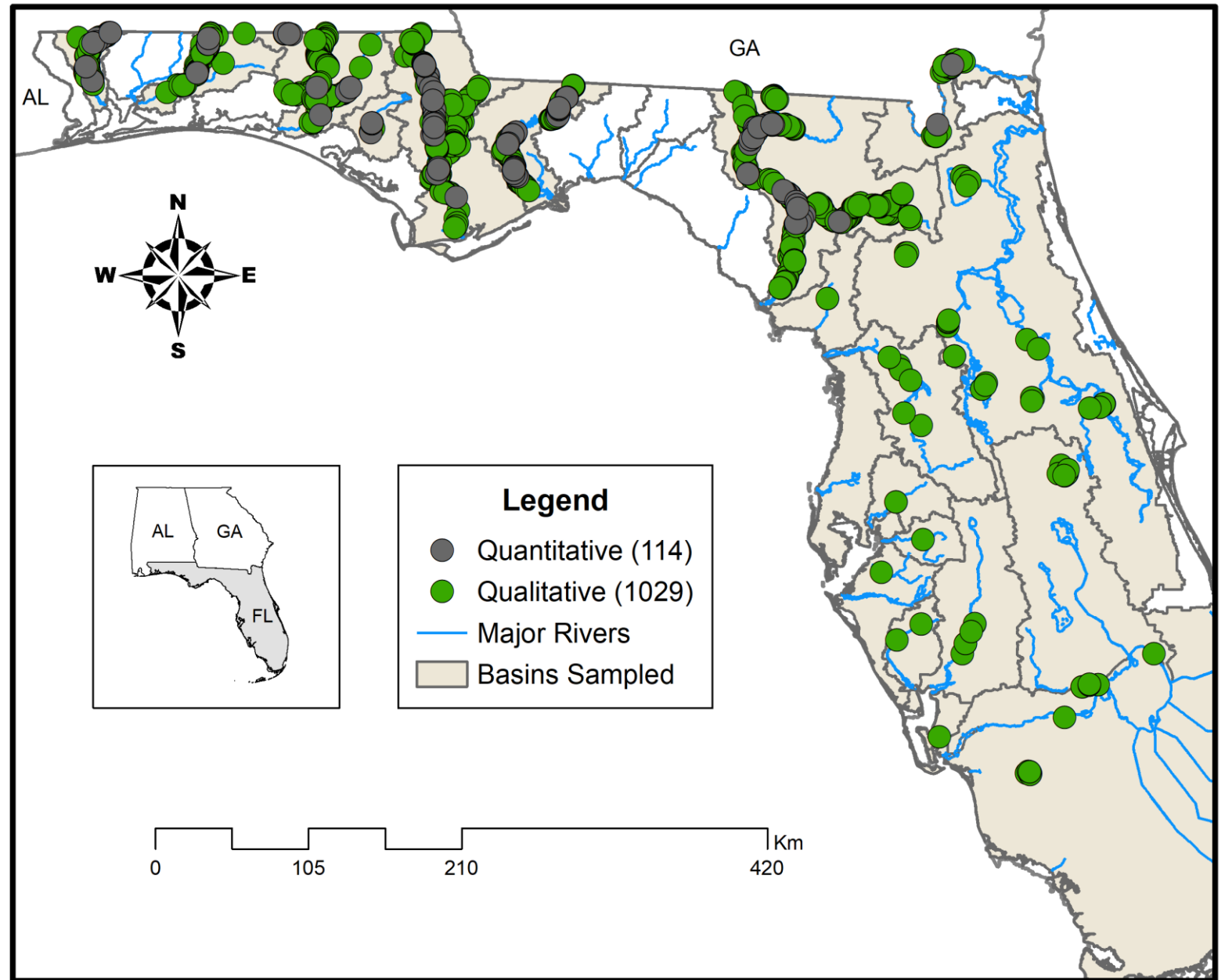
# Sampling Protocols

- Qualitative (Timed Search Survey, TSS)
  - Temporally restricted
  - Timed, free roaming surveys
  - Species inventory
- Quantitative (Long-Term Monitoring, LTM)
  - Spatially restricted
  - Excavate 15 quadrats per site
    - 3 transects spaced 10 m apart
  - Record depth, flow, mussel and substrate composition, and distance to bank of each quadrat
  - Habitat preferences
  - Timed survey to follow

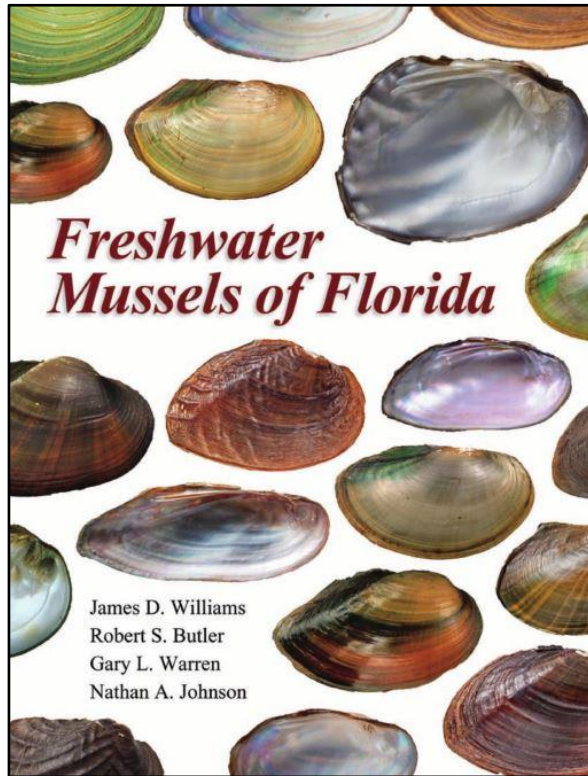


# Current Coverage

- 1,143 sites
  - 1,029 TSS (2013 – p)
  - 114 LTM (2016 – p)
- 137,711 unionids
  - 54 of 61 species
  - 14 of 16 listed species
- 19 drainages
  - Suwannee (291)
  - Apalachicola (240)
  - LTMs in 8 basins
- 44 temperature loggers



# Past Accomplishments



Eagle Hill Institute

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Host-Fish Identifications for Two Gulf Coast-Drainage Freshwater Mussels, *Lampsilis straminea* (Southern Fatmucket) and *Quadrula succissa* (Purple Pigtoe)

Author(s): Kathryn M. Harriger, John R. Knight and Matthew G. Wegener

Source: *Southeastern Naturalist*, Vol. 14, No. 2 (2015), pp. 243-253

Published by: Eagle Hill Institute

Stable URL: <https://www.jstor.org/stable/10.2307/26454485>

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2015

*SOUTHEASTERN NATURALIST*

14(4):714-720

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## **Discovery of the Ochlockonee Moccasinshell, *Medionidus simpsonianus*, in the lower Ochlockonee River, Florida**

Jordan Holcomb<sup>1,\*</sup>, Matthew Rowe<sup>1</sup>, Jim Williams<sup>1</sup>, and Sandra Pursifull<sup>2</sup>

# Past Accomplishments

Vol. 31: 163–175, 2016  
doi: 10.3354/esr00752

ENDANGERED SPECIES RESEARCH  
Endang Species Res

Published October 13



## Early life history and spatiotemporal changes in distribution of the rediscovered Suwannee moccasinshell *Medionidus walkeri* (Bivalvia: Unionidae)

Nathan A. Johnson<sup>1,\*</sup>, John M. McLeod<sup>1</sup>, Jordan Holcomb<sup>2</sup>, Matthew Rowe<sup>2</sup>,  
James D. Williams<sup>2</sup>

### Articles

## Cumulative Spring Discharge and Survey Effort Influence Occupancy and Detection of a Threatened Freshwater Mussel, the Suwannee Moccasinshell

Jordan M. Holcomb,<sup>\*</sup> Colin P. Shea, Nathan A. Johnson

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### *C.P. Shea*

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### *N.A. Johnson*

U.S. Geological Survey Wetland and Aquatic Research Center, 7920 NW 71st Street, Gainesville, Florida 32653

### Articles

## Distribution, Period of Gravidity, and Host Identification for the Narrow Pigtoe Mussel

Kathryn M. Holcomb,<sup>\*</sup> Jordan M. Holcomb, Sandra C. Pursifull, John R. Knight

### *K.M. Holcomb, J.M. Holcomb, J.R. Knight*

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City, Utah 84114


### *S.C. Pursifull*

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# Recent Publications

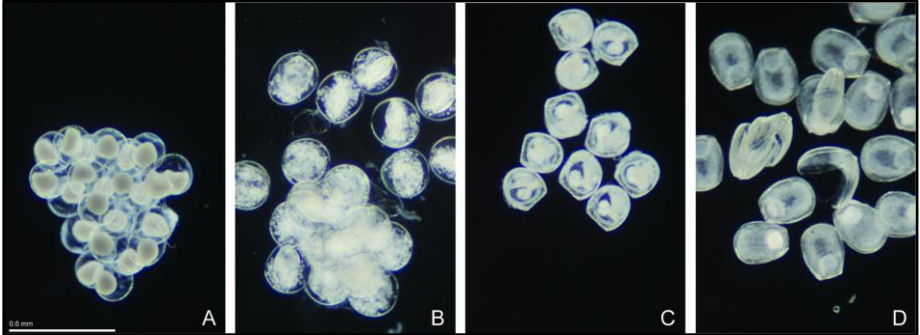
 Journal of Visualized Experiments www.jove.com

**Video Article**  
**Standardizing a Non-Lethal Method for Characterizing the Reproductive Status and Larval Development of Freshwater Mussels (Bivalvia: Unionida)**

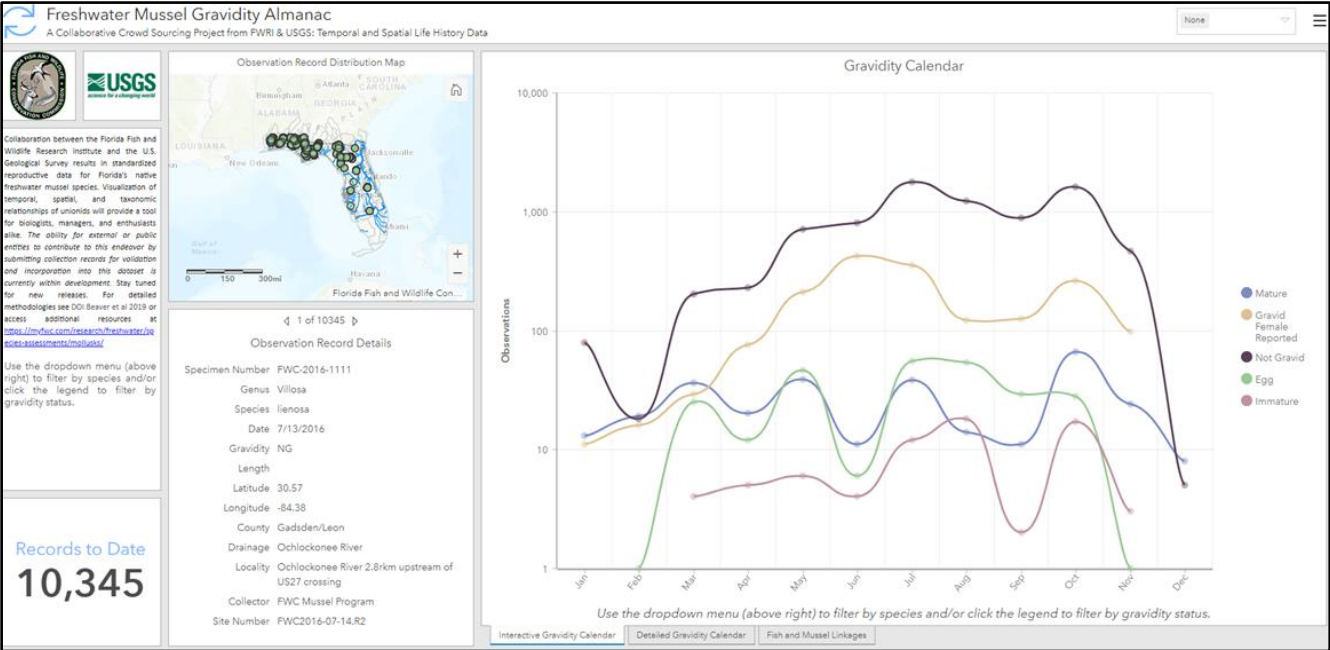
Caitlin E. Beaver<sup>1</sup>, Susan R. Geda<sup>2</sup>, Nathan A. Johnson<sup>1</sup>

<sup>1</sup>Wetland and Aquatic Research Center, United States Geological Survey  
<sup>2</sup>Garcon Point Aquatic Research Center, Florida Fish and Wildlife Conservation Commission

Correspondence to: Caitlin E. Beaver at [cbeaver@usgs.gov](mailto:cbeaver@usgs.gov), Nathan A. Johnson at [najohnson@usgs.gov](mailto:najohnson@usgs.gov)



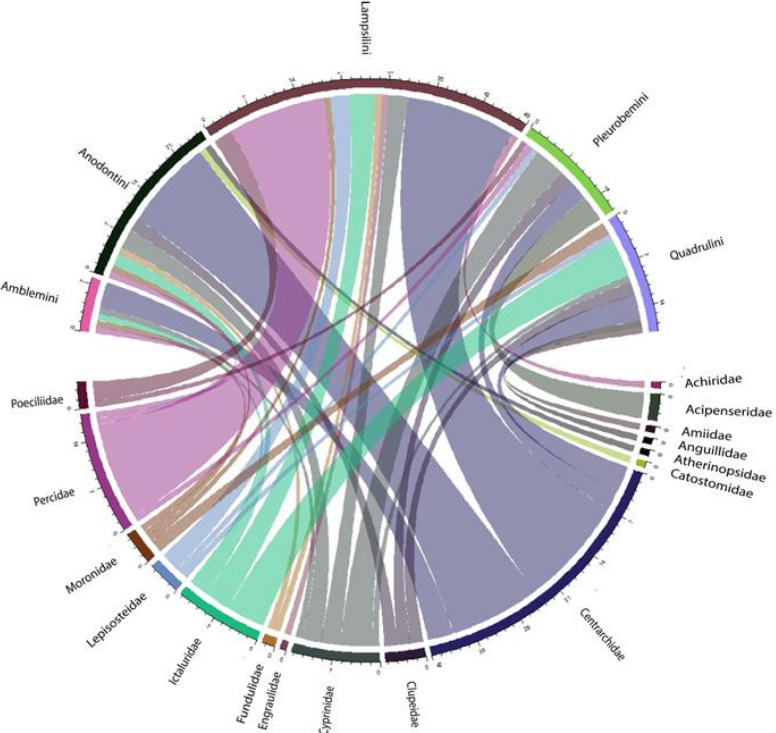
Glochidial stages under microscope. A. Egg B. Immature Glochidia C. Developing Glochidia D. Fully Developed Glochidia



Freshwater Mussel Gravidity Almanac



FMGA Record Submission Form



# Recent Publications



Check List 17 (3): 783–790  
<https://doi.org/10.15560/17.3.783>



NOTES ON GEOGRAPHIC DISTRIBUTION

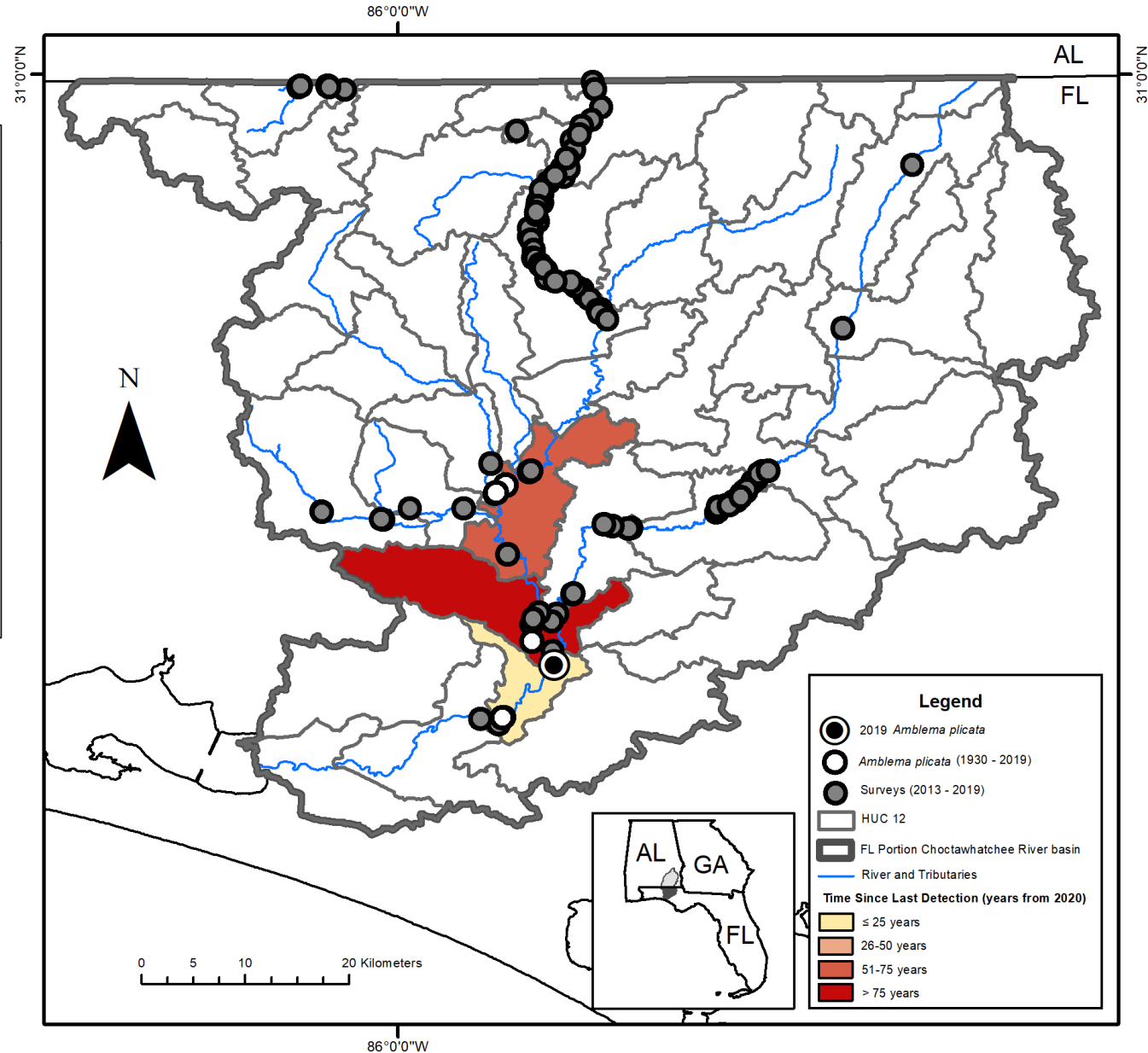
Rediscovery and genetic confirmation of the Threeridge Mussel, *Amblema plicata* (Say, 1817) (Bivalvia, Unionidae), in the Choctawhatchee River, Florida, USA

Lauren N. Patterson<sup>1\*</sup>, Susan R. Geda<sup>1</sup>, Nathan A. Johnson<sup>2</sup>

<sup>1</sup> Florida Fish and Wildlife Conservation Commission, Milton, Florida, USA • LNP: [Lauren.Patterson@MyFWC.com](mailto:Lauren.Patterson@MyFWC.com)  
• SRG: [Susan.Geda@MyFWC.com](mailto:Susan.Geda@MyFWC.com)

<sup>2</sup> U.S. Geological Survey, Gainesville, Florida, USA • [najohnson@usgs.gov](mailto:najohnson@usgs.gov)

\* Corresponding author



# Research Highlights: Host Fish Trials

Received Section 6 funding to ID hosts for 10 species:

- **FE *Obovaria choctawensis*, Choctaw Bean**
- **FT *Elliptio chipolaensis*, Chipola Slabshell**
- *Elliptio ahenea*, Southern Lance
- *Elliptio arctata*, Delicate Spike
- *Elliptio fraterna*, Brother Spike
- *Elliptio monroensis*, St. Johns Elephantear
- *Elliptio purpurella*, Inflated Spike
- *Strophitus radiatus*, Rayed Creekshell
- *Strophitus williamsi*, Flatwoods Creekshell
- *Utterbackiana heardi*, Apalachicola Floater



# Host Trial Research: Protocol

**1.** Determine gravidity period

Freshwater Mussel  
Gravidity Almanac



**2.** Fish collection



Blackwater River  
\*\*assumes no immunity

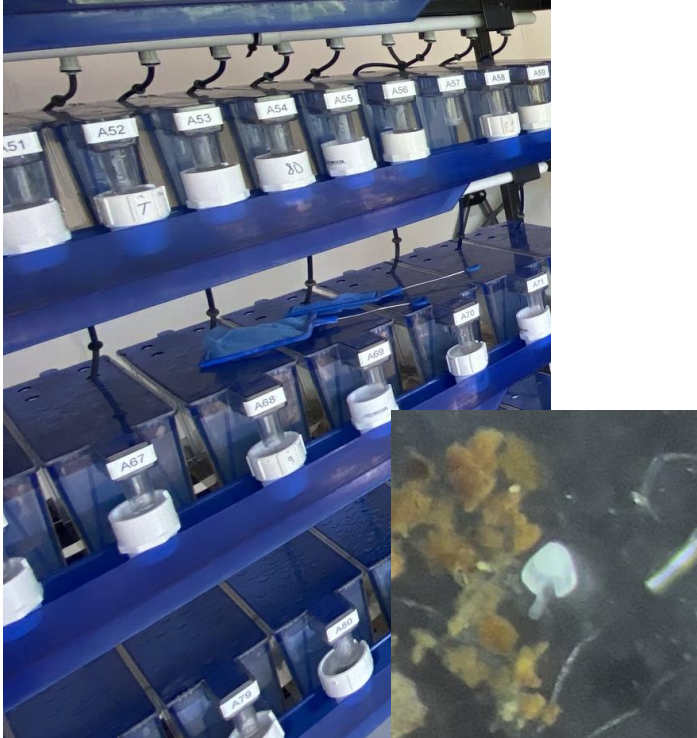
**3.** Broodstock collection



**4.** Inoculation



**5.** Monitoring



# Host Trial Research: Outcomes

- Attempted to find gravid individuals of all 10 species
- Found all but *E. fraterna* and *U. heardi*
  - Not all were at the correct stage of gravidity
  - Tried to hold females of 4 species
- Verification trial with *Lampsilis straminea*, Southern Fatmucket was successful and verified system functionality
- Successfully identified host fish species for the federally endangered Choctaw Bean, *Obovaria choctawensis*
  - Publication in the works with collaborator Nate Johnson, USGS



Choctaw Bean  
*Obovaria choctawensis*

# Future Directions

- Keep on grubbin'!
- Host trial publications
- Continuation of host trial research
- EYC Mussel identification workshop
- Diving for *Reginaia rotulata*
- FMCS 2023
- Occupancy modelling
- On the river annually, willing to help with boat support/manpower
- Contact: [Susan.Geda@MyFWC.com](mailto:Susan.Geda@MyFWC.com)

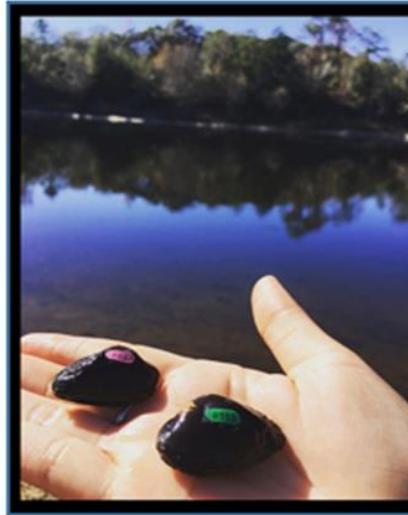
## Florida State Mussel Biologists



What the public thinks we do



What the state thinks we do



What we think we do



What we really do