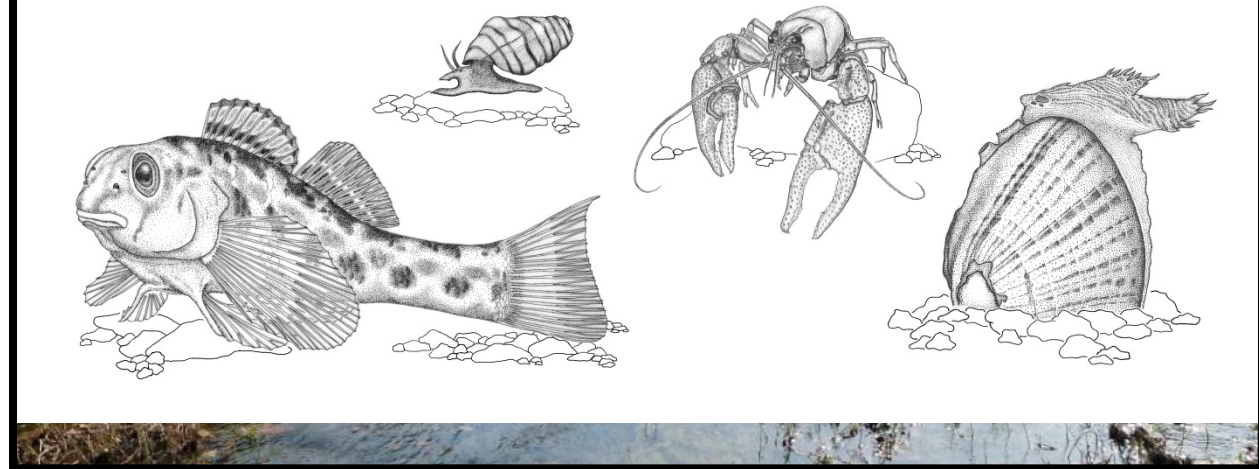




Alabama Aquatic Biodiversity Center



Cahaba River, Shelby Co., AL

- Alabama Aquatic Biodiversity Center (AABC)
- Established October 2005
- Division of Wildlife and Freshwater Fisheries
- Department of Conservation and Natural Resources
- Primary funding state wildlife grants and other external funds
- <http://www.outdooralabama.com>

Mission Statement:

The mission of the Wildlife and Freshwater Fisheries Division is to manage, protect, conserve, and enhance the wildlife and aquatic resources of Alabama for the sustainable benefit of the people of Alabama

Alabama Freshwater Species Summary



310 Species
2 Extinctions ?
16 federally listed



185 Species
26 Extinctions ?
66 federally listed




➤ **97 Species**
0 Extinctions ?
0 federally listed




205 Historical
37 Extinctions ?
13 federally listed

AABC 2010 - 2017 Mollusk Reintroductions


Tennessee Basin:

-  Alabama Lampmussel - E
Paint Rock – lower – 7,345
Bear Creek – 11,152
Elk River, TN – 12,855
Sequatchie River, TN – 4,258
- Cumberland Bean - E
Paint Rock – 378
- Pale Lilliput - E
Duck River, TN – 1,700
Paint Rock – 2,287
- Rabbitsfoot - T
Limestone Creek - 270
- Painted Creekshell
Limestone Creek – 430
- Oyster Mussel – E
Paint Rock – 1,007
- Cumberland Moccasinshell
Bear Creek - 301


Coosa Basin:

-  Alabama Rainbow
Chocolocco Creek – 7,362
Coosa River – 2,000
Little River – 2,000
- Southern Rainbow
Little River – 183
- Spindle Elimia
Coosa River – 2,886
- Fine-lined Pocketbook - T
Little River - 184
- Interrupted Rocksnail – E
Weiss Bypass - 2,034
- Alabama Creekmussel
Chocolocco Creek – 303
Coosa River – 250
Little River – 250

Cahaba Basin:

-  Southern Combshell - E
Cahaba River - 287
- Coosa Moccasinshell - E
Little Cahaba River - 59
- Spotted Rocksnail
Cahaba River – 42,146
- Oblong Rocksnail
Little Cahaba River – 3,768


Alabama Basin:

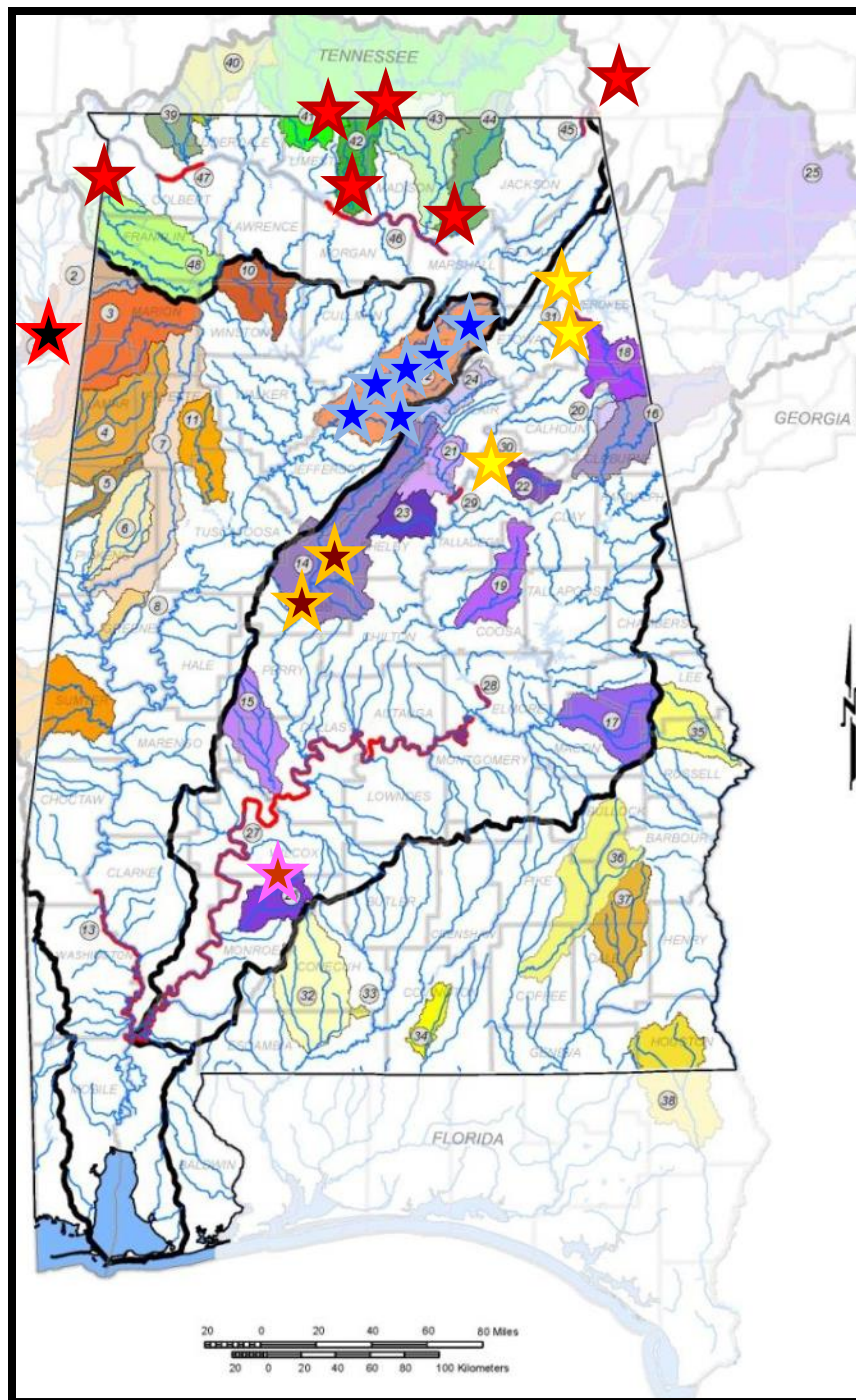
-  Orangenacre Mucket - T
Tallatchee Creek - 330

Tombigbee Basin:

-  Southern Combshell - E
Bull Mountain Creek, MS - 205

Warrior Basin:

-  Plicate Rocksnail - E
Locust Fork – 18,483
- Orangenacre Mucket - T
Locust Fork – 2,976
- Alabama Rainbow
Locust Fork – 15,100



Tennessee River Basin Reintroductions

Species	Localities / SHU's	Number
Alabama Lampmussel – E	Bear Creek, Elk River, Sequatchie River, Paint Rock	35,610
Oyster Mussel - E	Paint Rock River	1,007
Cumberland Moccasinshell P1	Bear Creek	301
Pale Lilliput - E	Paint Rock River, Duck River	3,987
Cumberland Bean - E	Paint Rock River	387
Rabbitsfoot - T	Limestone Creek	270
Painted Creekshell – P2	Limestone Creek	470
Total Releases		42,032



Alabama Lampmussel, *Lamprolaima virescens*



Alabama River Basin Reintroductions

Species	Localities / SHU's	Number
Alabama Rainbow – P2	Choccolocco Creek, Little River, Coosa River	11,362
Southern Rainbow	Little River	183
Fine-lined Pocketbook – T	Little River	184
Alabama Creekmussel	Choccolocco Creek, Little River, Coosa River	803
Interrupted Rocksnail – E	Coosa River	2,034
Spindle Elimia	Coosa River	2,886
Total Coosa Releases		17,452

Species	Localities / SHU's	Number
Southern Combshell - E	Cahaba River	287
Coosa Mocassinshell – E	Little Cahaba River	59
Spotted Rocksnail – P2	Cahaba River	42,186
Oblong Rocksnail – P1	Little Cahaba River	3,768
Total Cahaba Releases		46,300

Species	Localities / SHU's	Number
Orangenacre Mucket - T	Tallatchee Creek (Alabama River)	330
Total Releases		64,082

Tombigbee River Basin Reintroductions

Species	Localities / SHU's	Number
Orangenacre Mucket – T	Locust Fork	2,976
Alabama Rainbow – P2	Locust Fork, Turkey Creek,	15,100
Plicate Rocksnail - E	Locust Fork	18,483
Locust Fork Releases		36,559

Species	Localities / SHU's	Number
Southern Combshell - E	Bull Mountain Creek (Tombigbee)	205
Total Releases		36,764



18 Species Released
Total Animals Released 179,437
2010-2017



Hamiota perovalis, Orangenacre Mucket
 Locust Fork Reintroduction October 2014



- Ó Foighil, D., J. Li, T. Lee, P. Johnson, R. Evans, and J. Burch. 2011. Conservation genetics of a critically endangered limpet genus and the rediscovery of an extinct species. *PLoS ONE* 6(5): e20496. doi:10.1371/journal.pone.0020496.
- Whelan, N.V., P.D. Johnson, and P.M. Harris. 2012. Presence or absence of carinae in closely related populations of *Leptoxis ampla* (Anthony, 1855) (Gastropoda: Cerithioidea: Pleuroceridae) is not the result of ecophenotypic variation. *Journal of Molluscan Studies*. 78(2):231-233.
- Whelan, N.V., P.D. Johnson, and P.M. Harris. 2012. Rediscovery of *Leptoxis compacta* (Anthony, 1854) (Gastropoda: Cerithioidea: Pleuroceridae). *PLoS ONE* 7(8):e42499. doi:10.1371/journal.pone.0042499.
- Ahlstedt, S.A., J.R. Powell, R.S. Butler, M.T. Fagg, D.W. Hubbs, S.F. Novak, S.R. Palmer and P.D. Johnson. Historical and current examination of freshwater mussels (*Bivalvia*: Margaritiferidae: Unionidae) in the Duck River Basin Tennessee, U.S.A. *Malacological Review*.
- Johnson, P.D., A.E. Bogan, K.M. Brown, N.M. Burkhead, J.R. Cordeiro, J.T. Garner, P.D. Hartfield, D.A.W. Lepitzki, G.R. Mackie, E. Pip, T.A. Tarpley, J.S. Tiemann, N.V. Whelan, and E.E. Strong. 2013. Conservation Status of Freshwater Gastropods of Canada and the United States. *Fisheries*: 38(6):247-282.
- Fobian, T.B., M.L. Buntin, J.T. Holifield, T.A. Tarpley, J.T. Garner, and P.D. Johnson. 2014. Freshwater Mussels (Unionidae) in the Paint Rock River (Jackson, Madison, and Marshall Counties), Alabama. *Southeastern Naturalist*. 13(2):347-366.
- Leonard, J.A., W.G. Cope, M.C. Barnhart, and R.G. Bringolf. 2014. Mtabolomic, behavioral, and reproductive effects of the synthetic estrogen 17 α -ethinylestradiol on the unionid mussel *Lampsilis fasciola*. *Aquatic Toxicology* 150:103-116.
- Whelan, N.V., P.D. Johnson, and P.M. Harris. 2015. Life-history traits and shell morphology in the genus *Leptoxis* Rafinesque, 1819 (Gastropoda: Cerithioidea: Pleuroceridae). *Journal of Molluscan Studies*. 81: 85-95. DOI: 10.1093/mollus/EYU058
- Niraula, B.B., J.M. Hyde, J.M. Miller, P.D. Johnson and P.M. Stewart. 2015. Microhabitat associates among three federally threatened and a common freshwater species. *American Malacological Bulletin*. 33(2):1-9.
- Gibson, K.J., P.D. Johnson, J.M. Miller, and P.M. Stewart. 2016. Toxicity of Sodium Dodecyl Sulfate to Mobile River Basin Freshwater Mollusks Using Federally Threatened and Petitioned Species. *Freshwater Mollusk Biology and Conservation*. 19(1):29-35.
- Payton, S.M., P.D. Johnson, and M.J. Jenny. 2016. Comparative physiological, biochemical, and molecular thermal stress response profiles for two unionid freshwater mussel species. *Journal of Experimental Biology*. 219: 3562-3574.
- Garner, J.T., M.L. Buntin, T.B. Fobian, J.T. Holifield, T.A. Tarpley, and P.D. Johnson. 2016. Use of side-scan sonar to locate *Tulotoma magnifica* (Conrad, 1834) (Gastropoda: Viviparidae) in the Alabama River. *Freshwater Mollusk Biology and Conservation*. 19(2):51-55.
- Whelan, N.V., P.D. Johnson, J.T. Garner, and E.E. Strong. 2017. On the identity of *Leptoxis taeniata* – a misapplied name for the threatened Painted Rocksnail (Cerithioidea, Pleuroceridae). *Zookeys* 697:21-36.
- Aceves, A.K., P.D. Johnson, S.A. Bullard, S. LaFrentz, and C.R. Arias. 2018. Description and characterization of the digestive gland microbiome in the freshwater mussel *Villosa nebulosa* (*Bivalvia*: Unionidae). In Press. *Journal of Molluscan Studies*.
- Gibson, K.J., J.M. Miller, P.D. Johnson, and P.M. Stewart. 2018. Acute Toxicity of Chloride, Potassium, Nickel and Zinc to Federally Threatened and Petitioned Mollusk Species. In Press. *Southeastern Naturalist*.

Research Partnerships



Smithsonian
Institution

- Species reviews for Periwinkles and Pebblesnails
- Review of Periwinkle Specimens



- Species reviews for Periwinkles and Pebblesnails
- Status reviews and recovery efforts
- Host fish reviews



- Mussel histological atlas
- Microbial symbionts and function
- Fish DO requirements

THE UNIVERSITY OF
ALABAMA

- Transcriptome / thermal modeling
- Respiration, metabolism, feeding
- Feeding and respiration
- Rocksnail species reviews



- Mollusk toxicology
- Mussel microhabitat association

NC STATE
UNIVERSITY

- Long term monitoring
- Host fishes
- Big river mussel projects



34.38 mm



44.52 mm



44.96 mm



40.73 mm