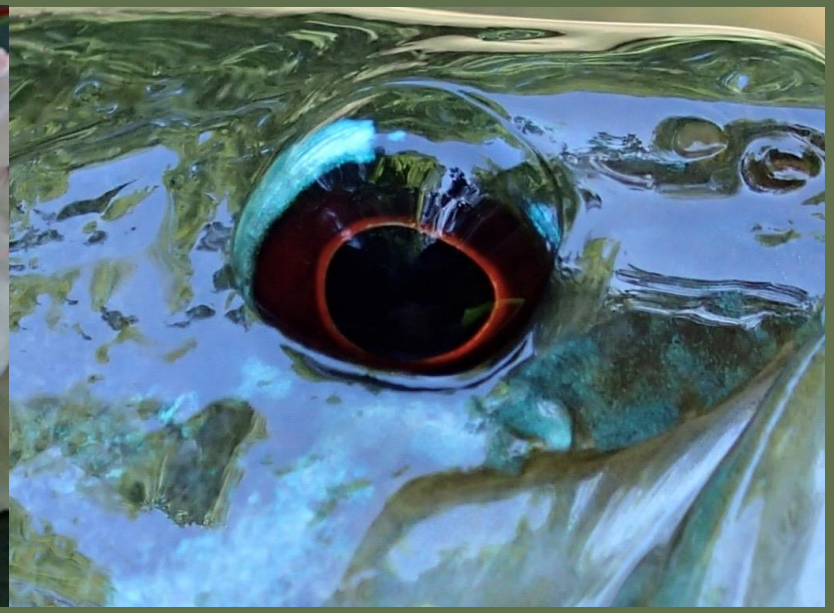
Conserving Alabama's Brook Trout: The Redeye Bass

Matthew R. Lewis

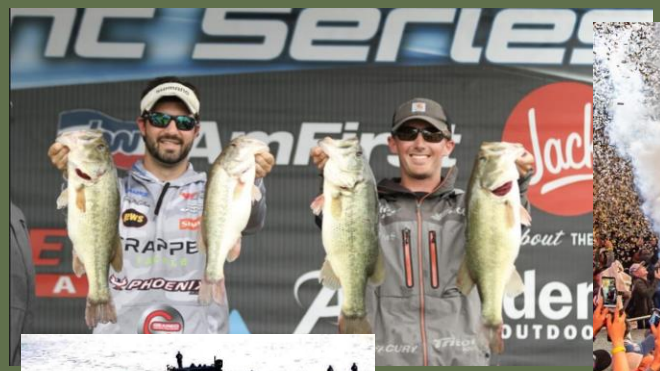
“Good conservation requires ordinary people with extraordinary desire.” – Rex Hancock

objectives

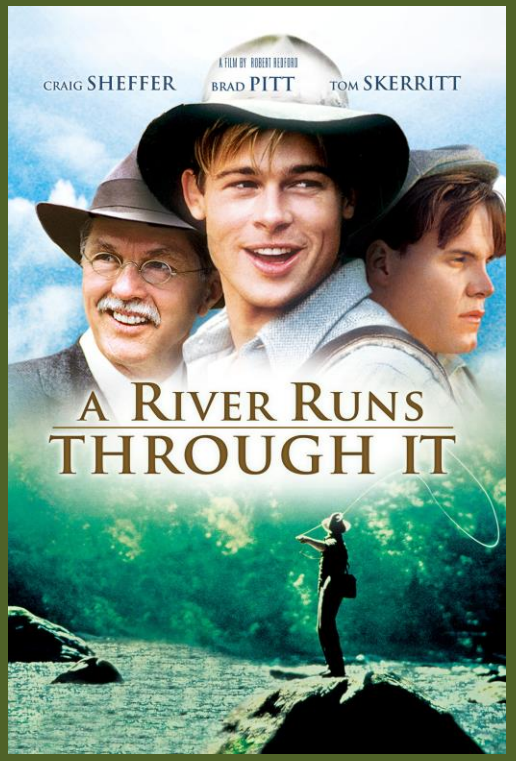
- What are redeye bass?
- Fly fishing for redeye bass
- Conservation efforts



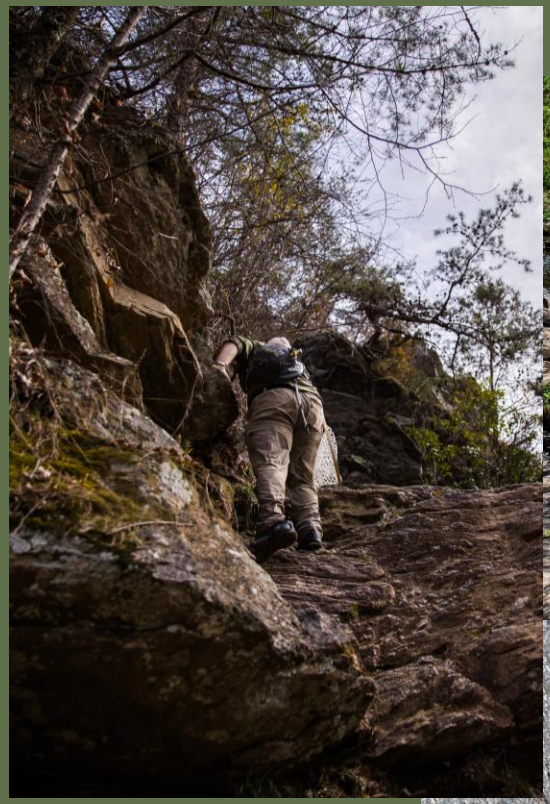
Bass Fishing in the south

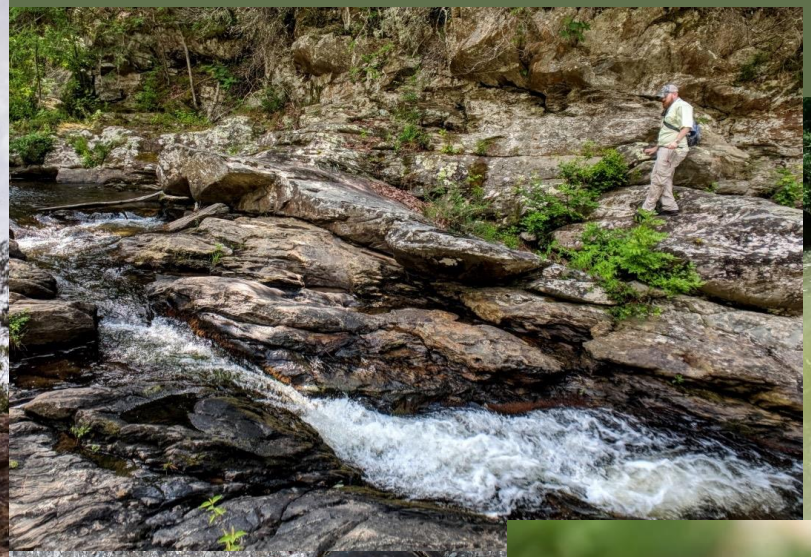


Fly fishing


A FILM BY ROBERT REDFORD
CRAIG SHEFFER
BRAD PITT
TOM SKERRITT
A RIVER RUNS THROUGH IT

Fly Fishing for redeye bass





Alabama's Brook Trout?

- Brook trout fishing
  - Live in higher elevation rocky streams
  - Require moderate flow and pristine water
  - Rarely get over 8" in length
  - Beautiful coloration
  - Getting to them is an adventure

Warmwater Brook Trout?

- Redeye bass fishing
  - Live in higher elevation rocky streams
  - Require moderate flow and pristine water
  - Rarely get over 8” in length
  - Beautiful coloration
  - Getting to them is an adventure

Warmwater Brook Trout?

Warmwater Brook Trout?

What Are Redeye Bass?

- They are **NOT** rock bass

What Are Redeye Bass?

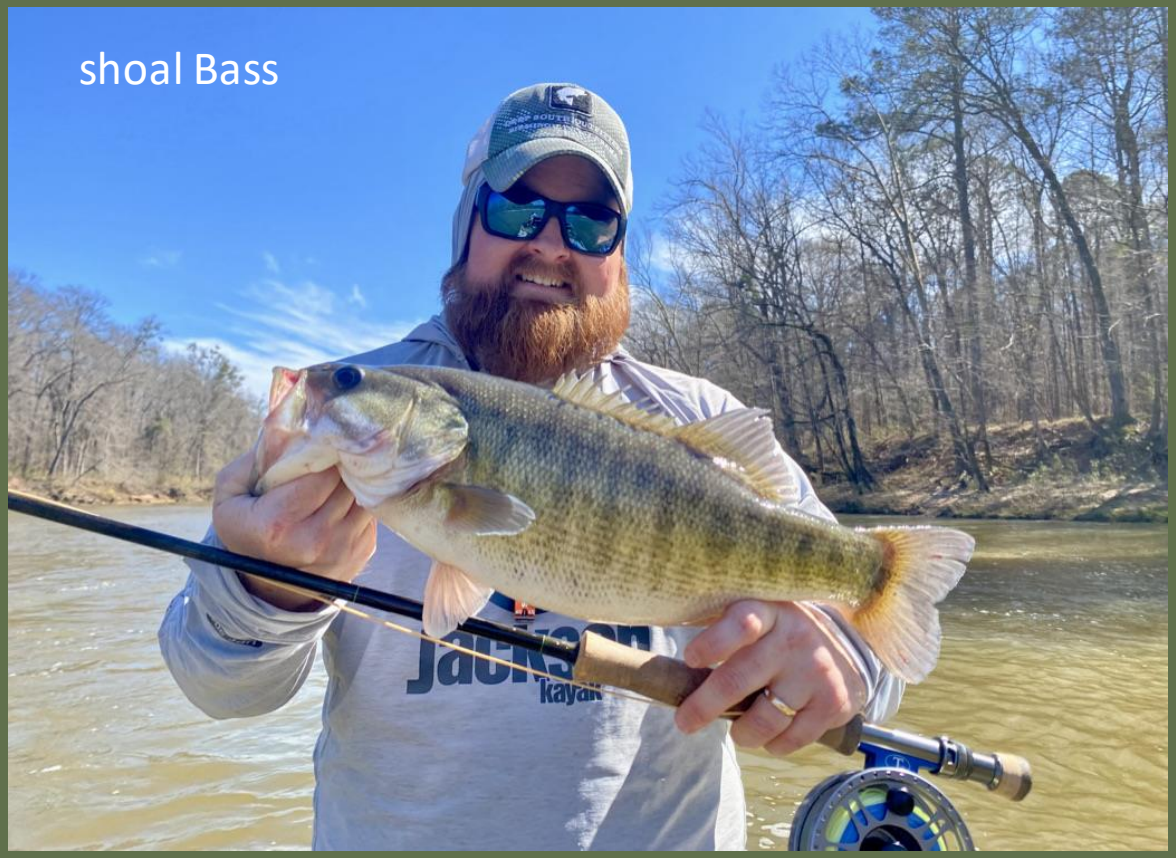
- They are **NOT** smallmouth bass

What Are Redeye Bass?

- They are **NOT** Alabama bass

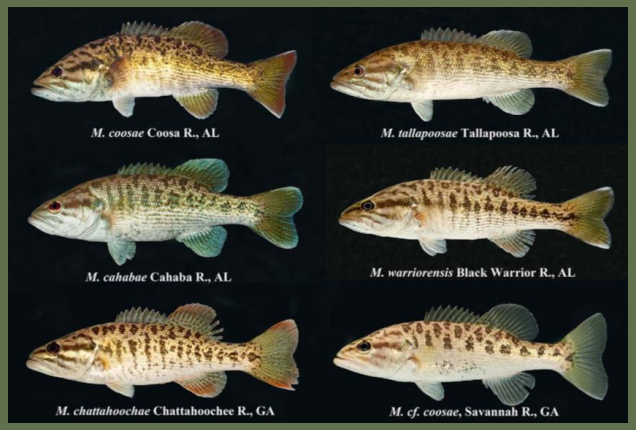
What Are Redeye Bass?

- They are **NOT** shoal bass



Redeye Bass Species Complex

- 1940 - Formally described by Hubbs and Bailey
- 2013 - Baker et al. split into 5 species
- Other studies have supported genetic and morphological distinctions for 7 species (Oswald 2007; Freeman et al. 2015)
- Species status confirmed in 2022 by Kim et al. with most robust dataset to date



Baker et al. 2013

What are Redeye Bass?

Age and growth

- **Very slow growing**
  - 6-9” in most streams
  - 8” fish is ~5 years old
  - Maximum life span of 9-10 years
  - 12” fish is a true trophy
- **Rarely weigh over a pound**
  - Most state record redeye bass are over 3lbs

Distinguishing Characteristics of a Redeye Bass

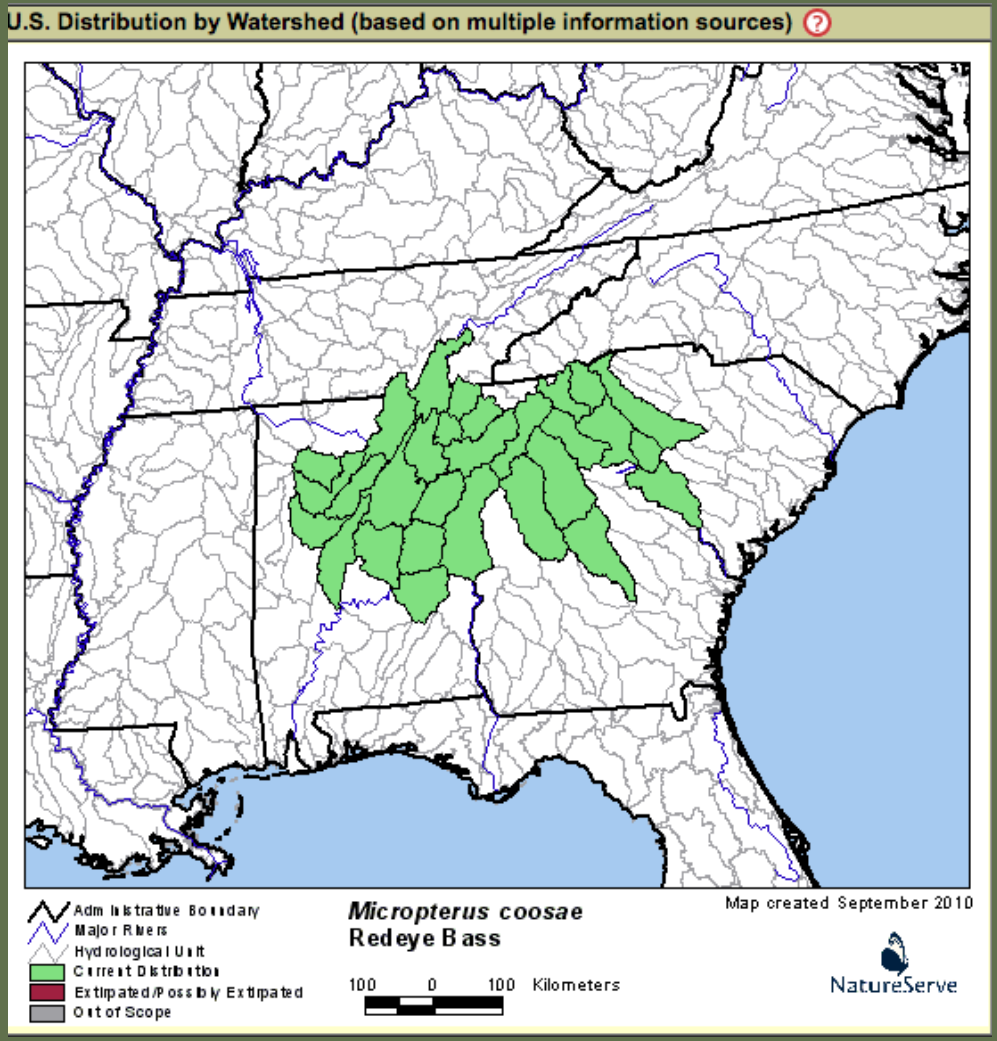
Photo by: Kenneth Boone

Redeye bass

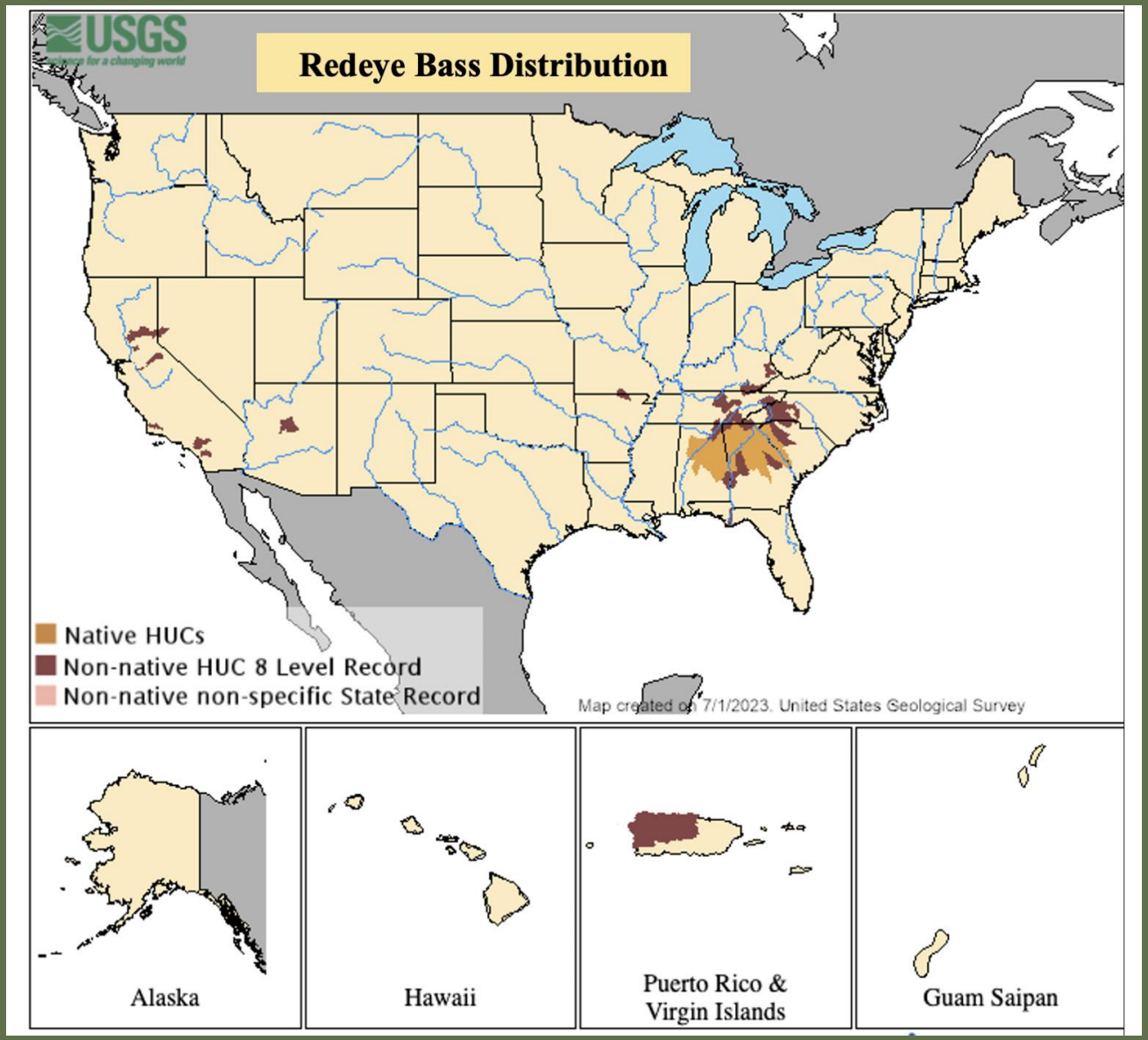
Alabama bass

Where do Redeye Bass live?

- Native rivers:
  - Coosa
  - Tallapoosa
  - Cahaba
  - Black Warrior
  - Chattahoochee
  - Savannah
  - Altamaha



Where do Redeye Bass live?



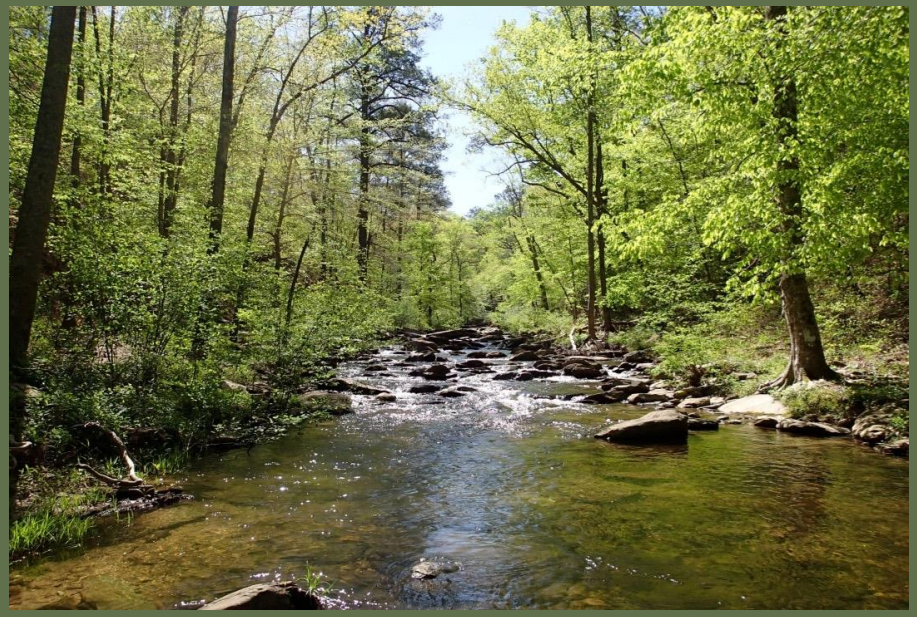
Arizona!?

Locating redeye bass

Locating redeye bass

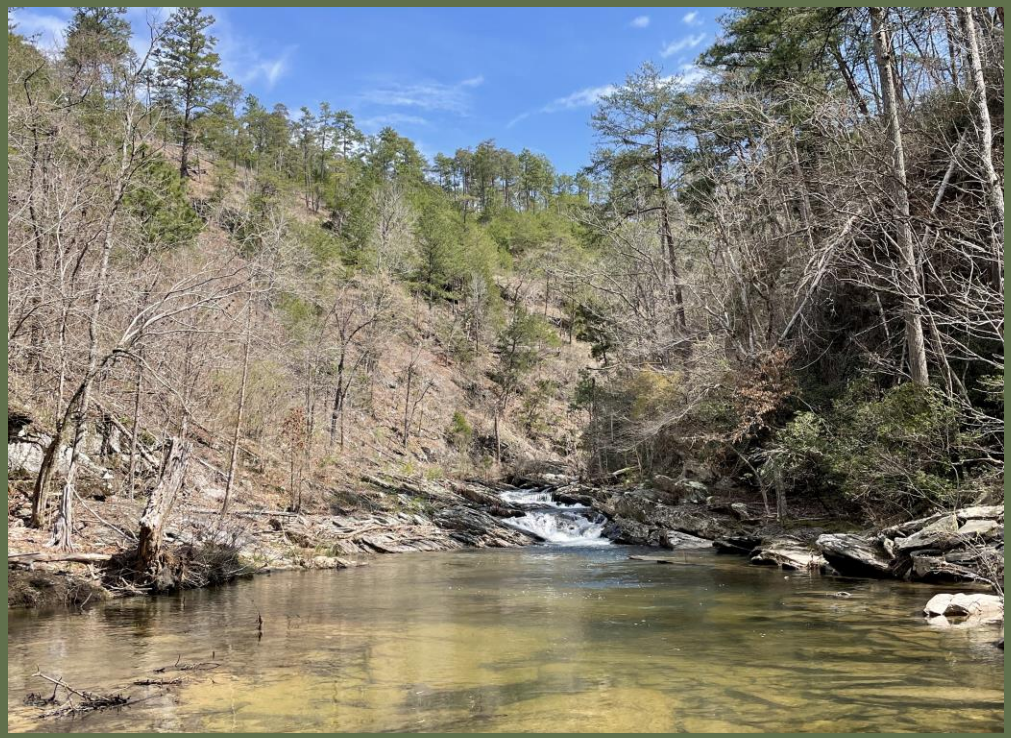
Where to find them?

- Temperature range too warm for trout but too cold for most black bass
- Do not do well in large lakes or reservoirs

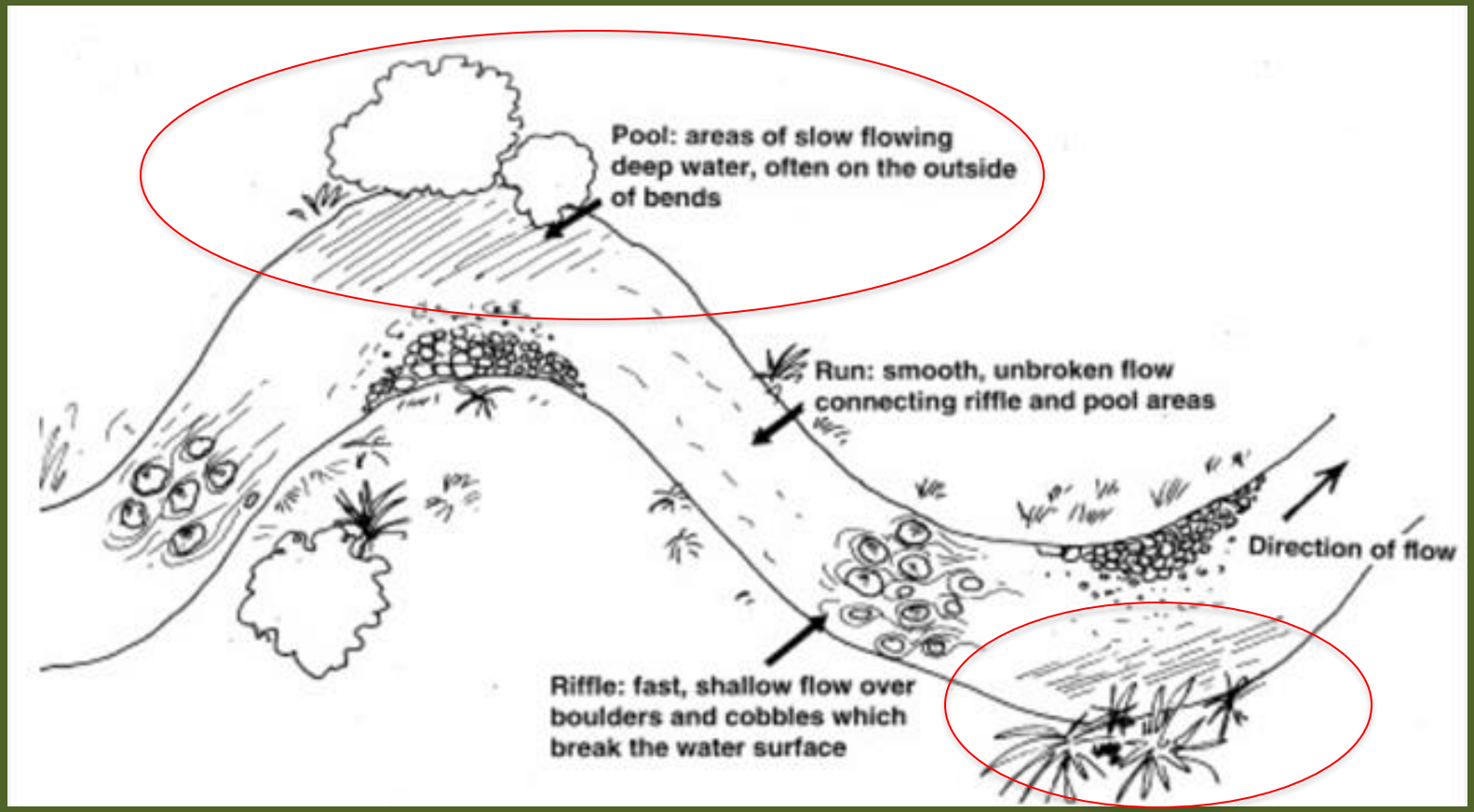


Ideal Habitat Within a River System

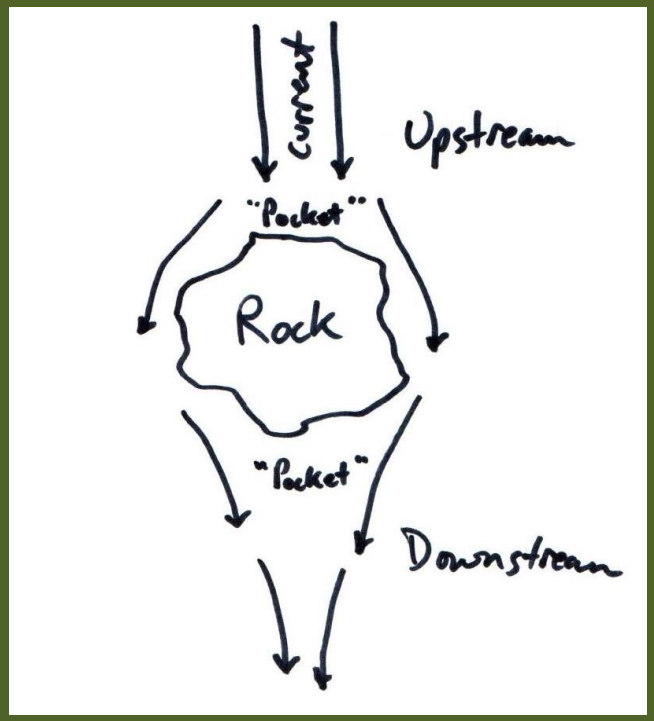
- Fish the upland streams (above the Fall Line) in the drainages where redeye are native
- Overlook areas that are silty and sandy with little to no current
- Canopy cover + moderate, rocky water is ideal



on the water: pools



On the water: Instream cover



gear

What Do Redeye Bass Eat?

- Opportunistic carnivores
  - Variable diet to survive in streams
- Adult aquatic and terrestrial insects

Flies

Flies

- This preference for topwater insects make redeye bass excellent fly rod targets!

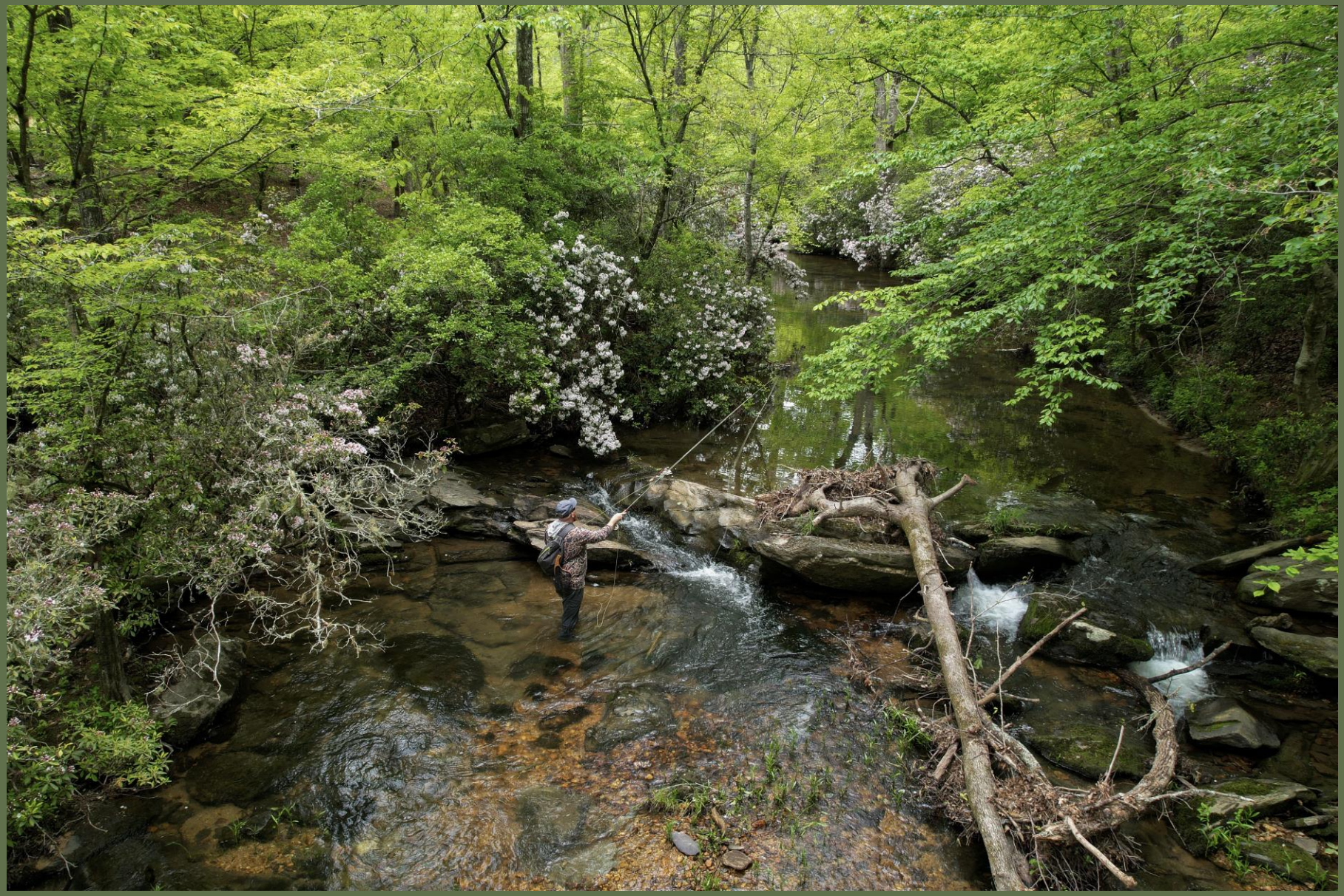
Flies

Flies

Flies

Stealth

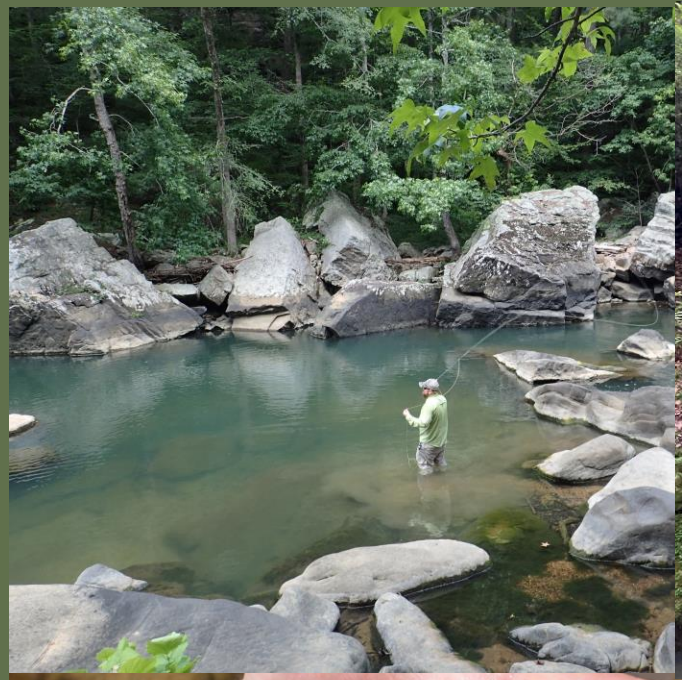
Upstream approach

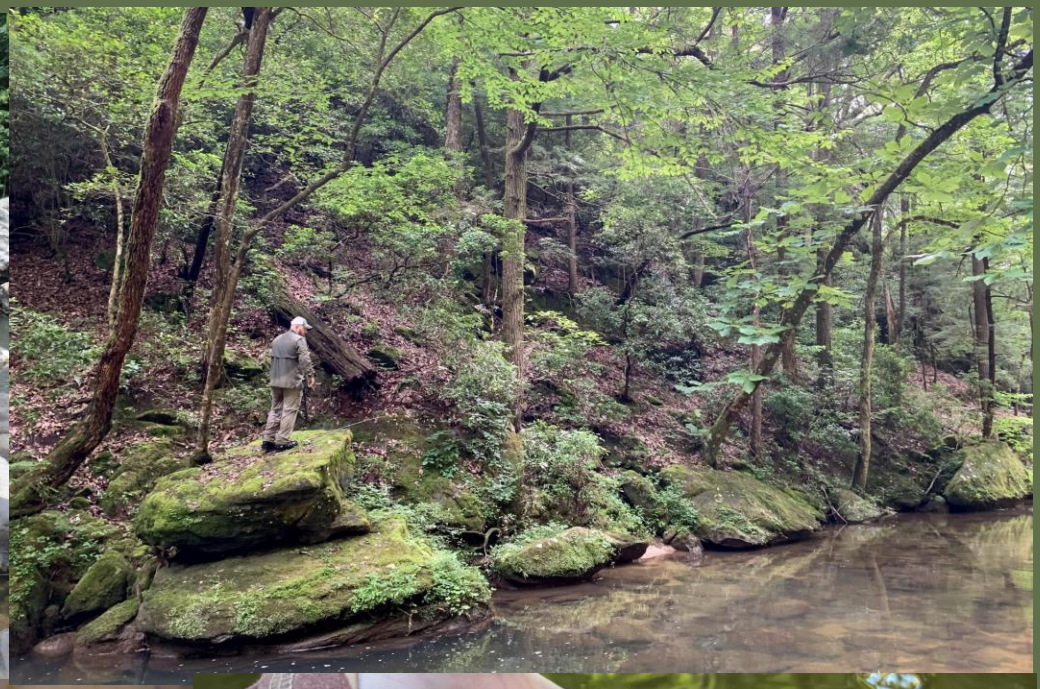


Small streams

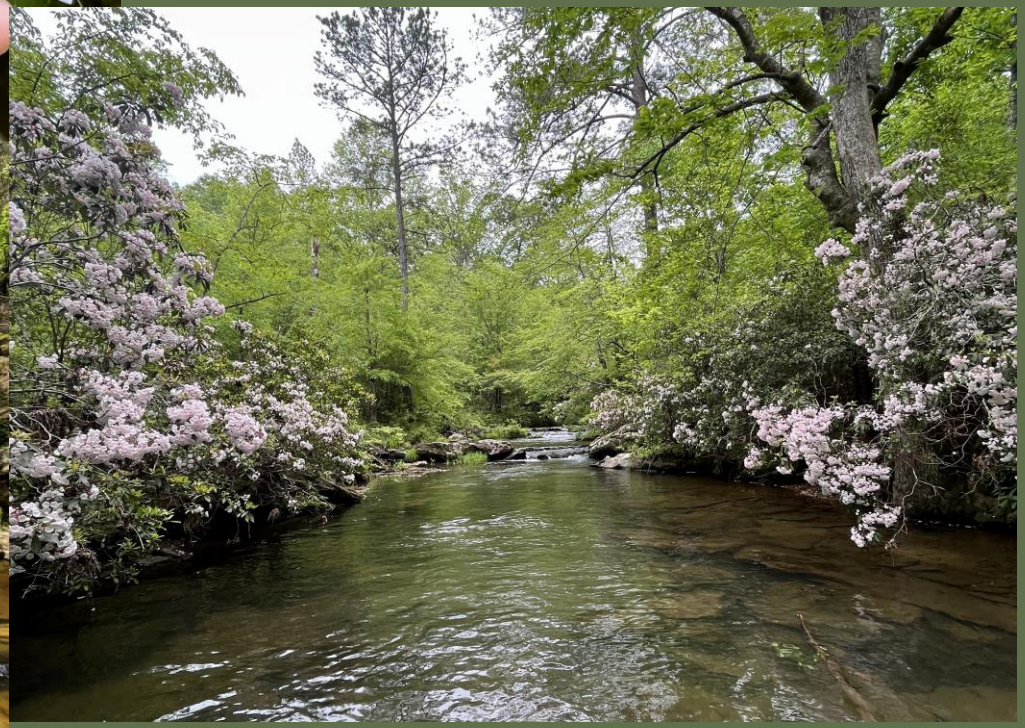
Small streams

Small streams





Small streams



Small streams

Small streams

Larger Rivers

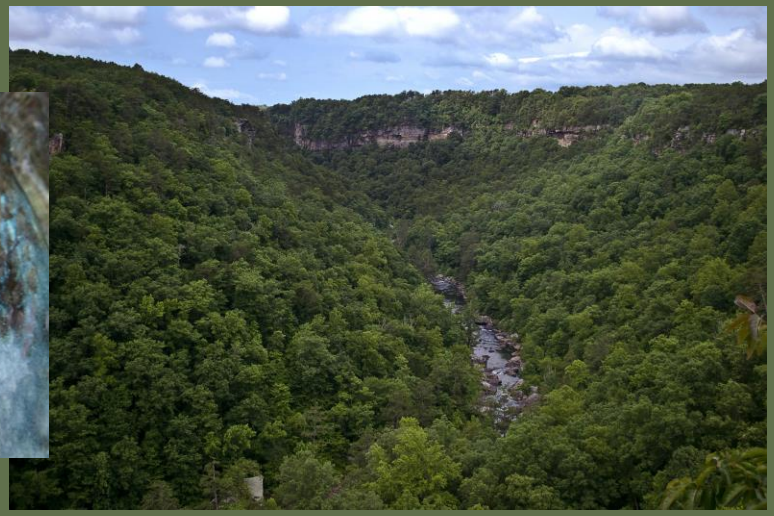
Larger Rivers

Larger Rivers

larger Rivers

Explore Wild Places

- The absolute best thing about fishing for redeye bass is exploring remote and breathtaking waters
- Each river drainage has something unique to offer
  - And unique challenges
- Also gives you a chance to visit some small towns all over the southeast
  - BBQ, fried chicken, local mom and pop joints



Camaraderie

- **“The old man used to say that the best part of hunting and fishing was the thinking about going and the talking about it after you got back.” – Robert Ruark (The Old Man and the Boy)**

Other Sights

Conservation

How do we move people to be better stewards?

Awareness

Understanding

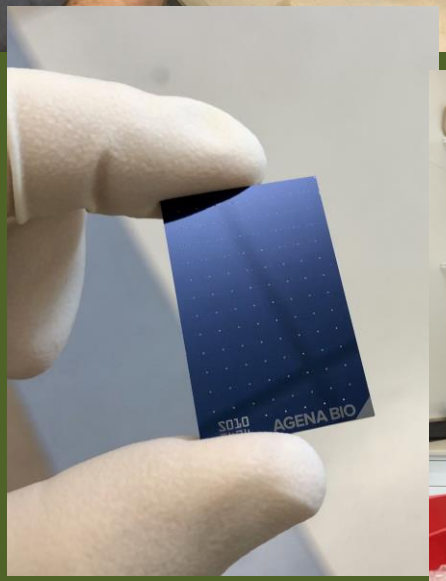
Care About

Care For

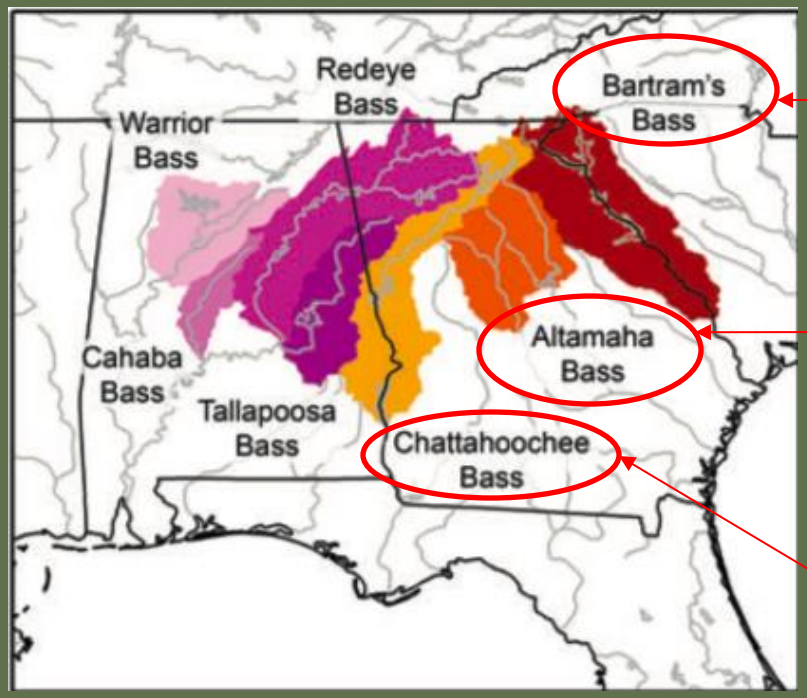
Stewardship

Redeye slam 2024

Research



Redeye Bass Complex



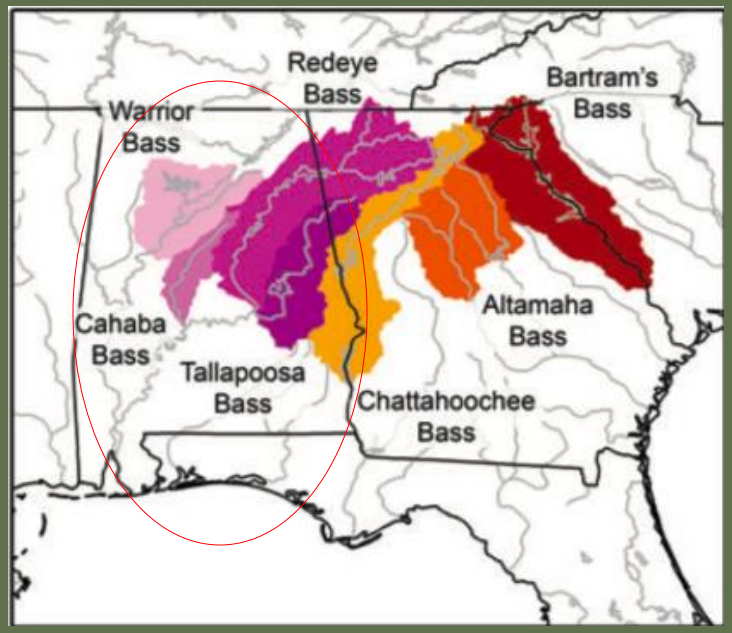
Taylor et al. 2019

X

Non-native

Alabama Bass

Redeye Bass Complex in Mobile Basin of Alabama



Taylor et al. 2019

Alabama Bass

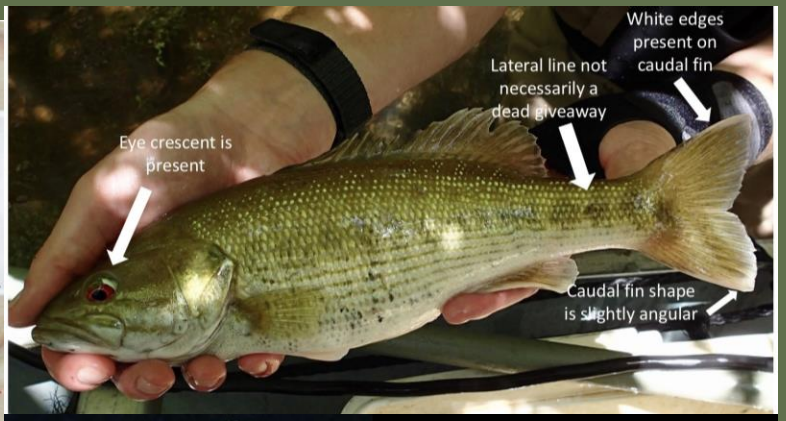
Coosa Bass

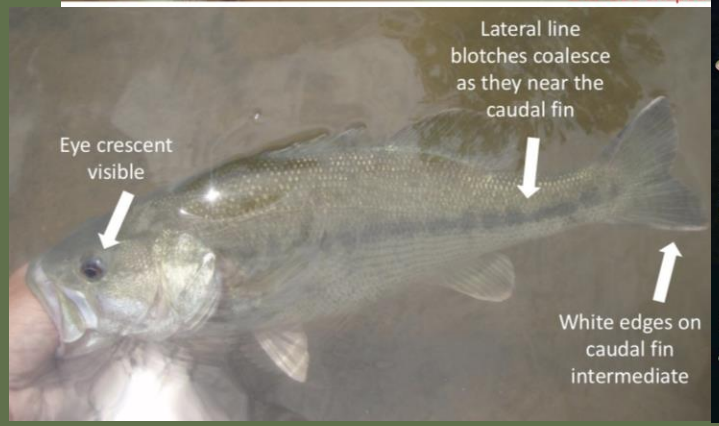
Cahaba Bass

Warrior Bass

Tallapoosa Bass

Hybridization in the Mobile Basin?

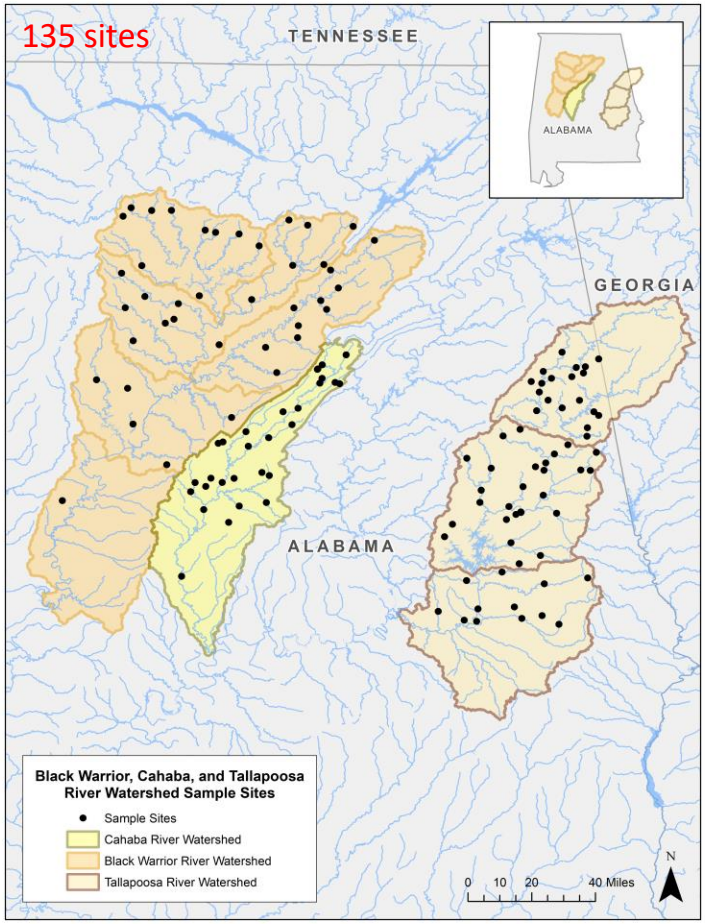




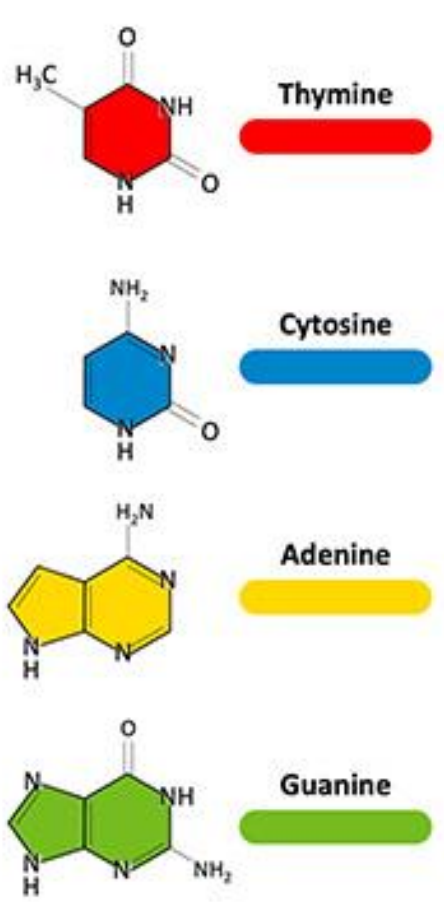
Objective

- Use a diagnostic 64-SNP panel to survey hybridization between Redeye Bass and Alabama Bass in the Mobile Basin to establish a baseline level

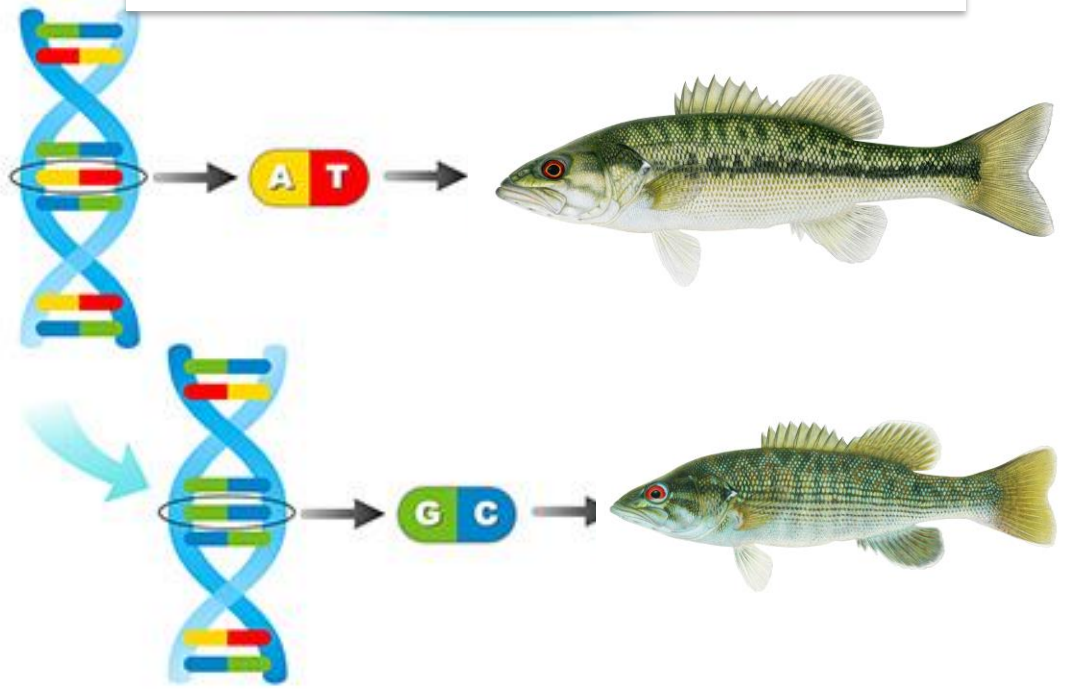
Methods: Sample Collection



Methods: SNP Panel Creation



30,000 SNPs down to ~200



Methods: SNP Genotyping

Fin Clip

DNA Extraction

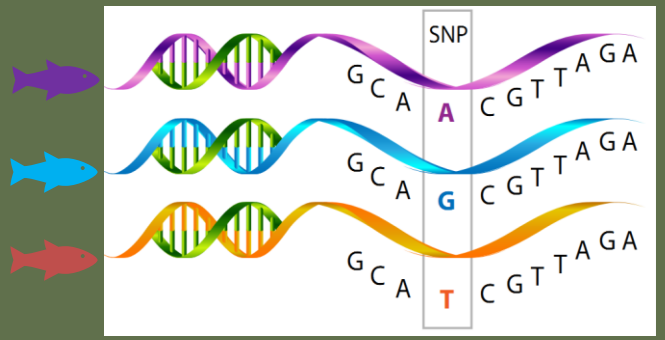
PCR

Amplify specific regions of the genome

Genotype

Agena MassARRAY iPLEX Platform

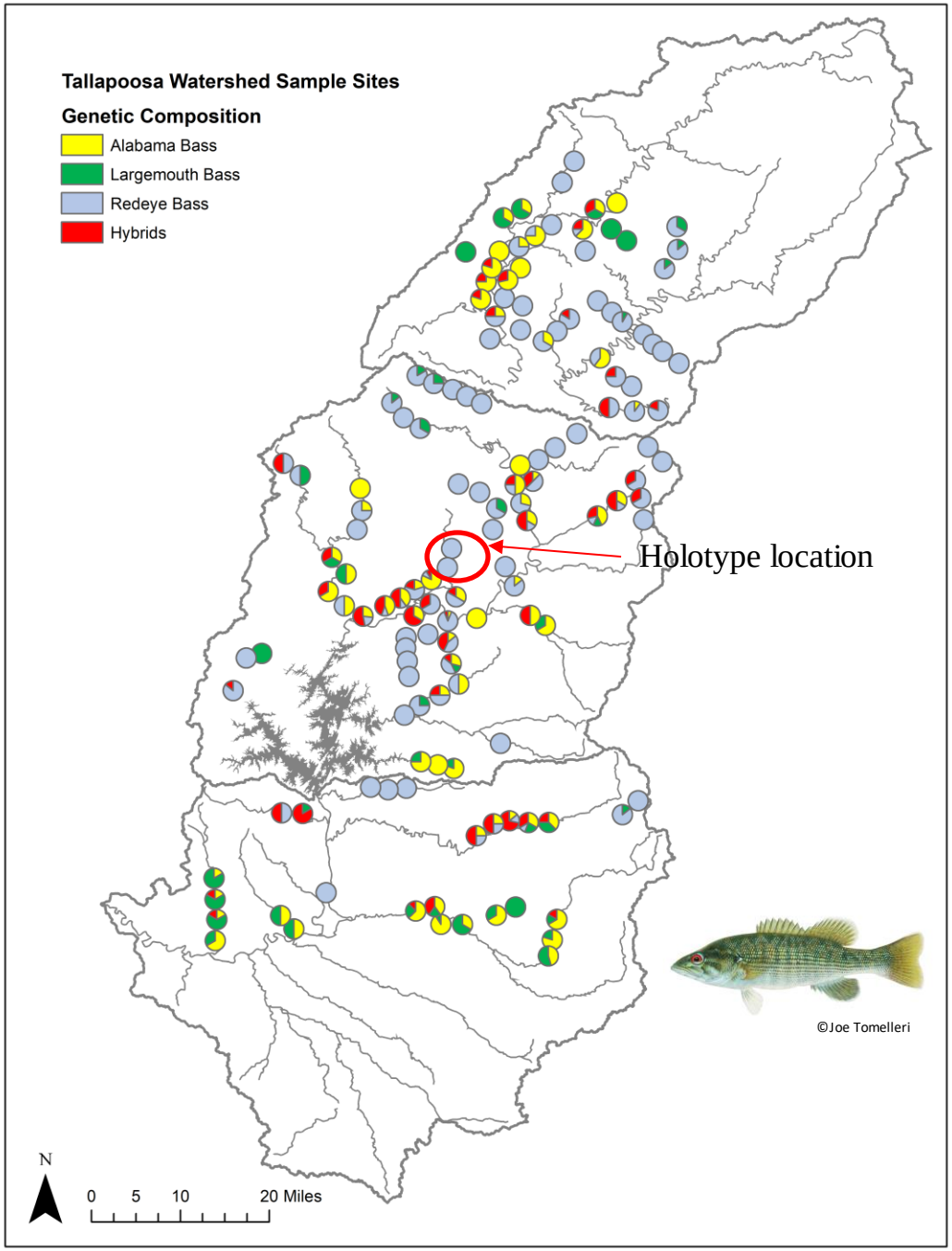
64 SNP markers (Thongda et al. 2019)

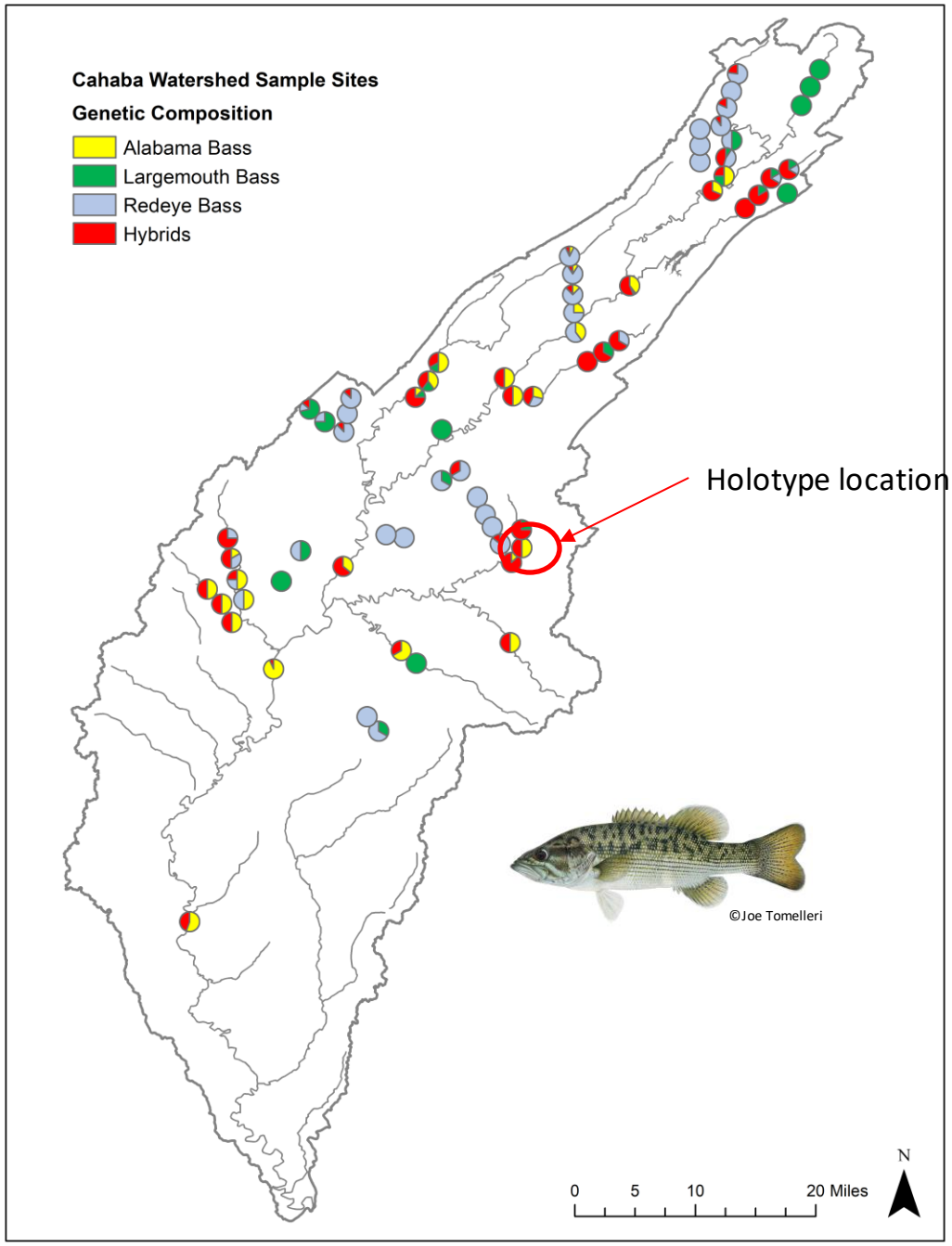


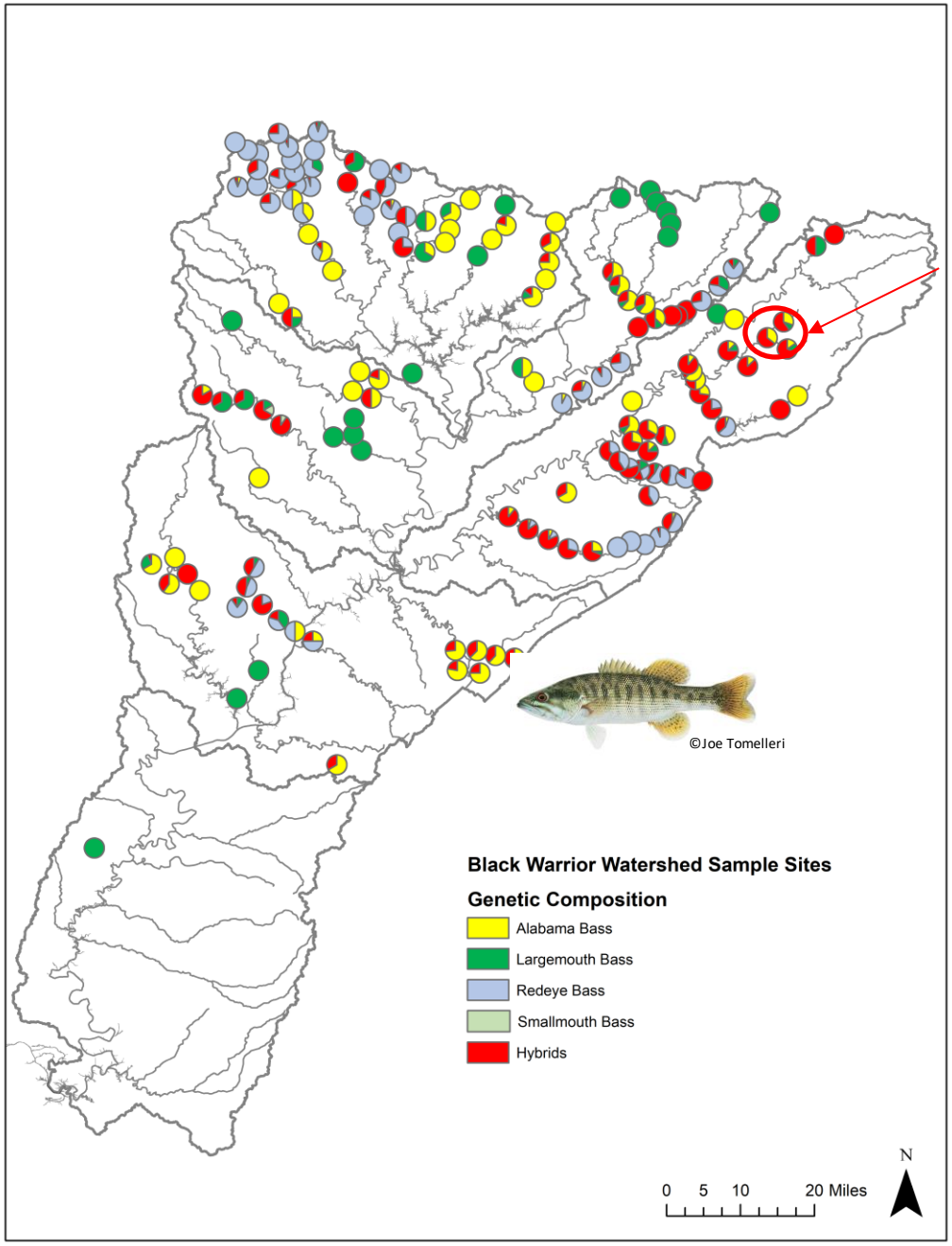
Results: Sample Collection Summary

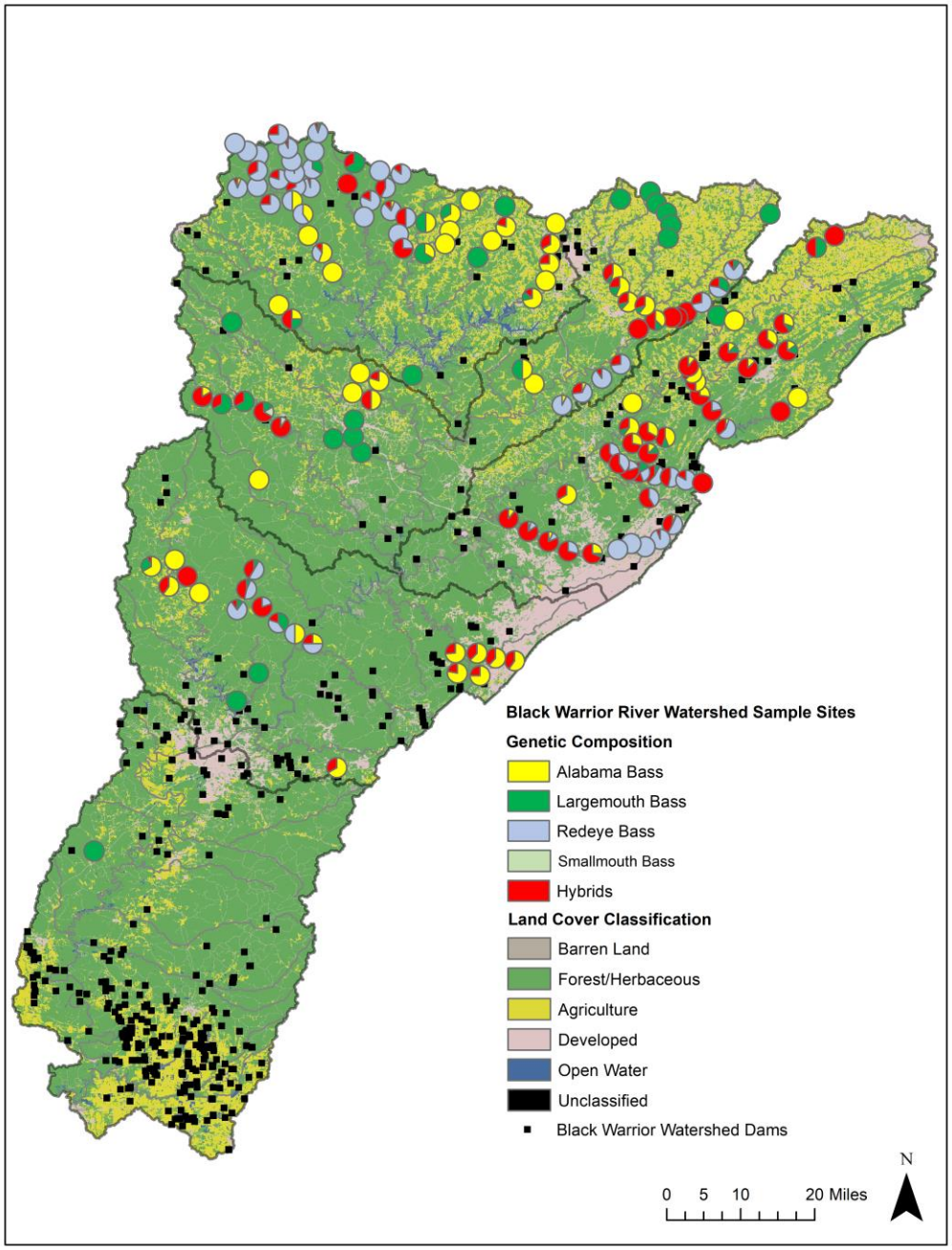
River System	Alabama Bass	Redeye Bass	Largemouth Bass	Smallmouth Bass	Spotted Bass	Hybrids	Total
Tallapoosa River	173	363	77	0	0	95	708
Black Warrior River	245	542	122	2	0	472	1,383
Cahaba River	134	230	41	0	0	183	588
							2,679

Hybrid Category	Tallapoosa River	Black Warrior River	Cahaba River
ALB X LMB	2	12	5
ALB X REB	80	374	117
ALB X SMB	0	5	0
ALB X SPB	9	39	31
LMB X REB	2	3	0
REB X SPB	2	3	2
ALB X SMB X SPB	0	1	3
ALB X REB X SMB	0	4	0
ALB X REB X SPB	2	19	14
ALB X LMB X SPB	0	1	3
ALB X LMB X REB	0	8	0
LMB X REB X SPB	0	1	0
ALB X LMB REB X SPB	0	2	1
ALB X LMB X SMB X SPB	0	0	6
ALB X LMB X REB X SMB X SPB	0	0	0


Tallapoosa Watershed Sample Sites
Genetic Composition
Alabama Bass
Largemouth Bass
Redeye Bass
Hybrids
Holotype location
©Joe Tomelleri
N
0 5 10 20 Miles


Cahaba Watershed Sample Sites
Genetic Composition
Alabama Bass
Largemouth Bass
Redeye Bass
Hybrids
Holotype location
©Joe Tomelleri
0
5
10
20 Miles
N


Holotype location
©Joe Tomelleri
Black Warrior Watershed Sample Sites
Genetic Composition
Alabama Bass
Largemouth Bass
Redeye Bass
Smallmouth Bass
Hybrids
0 5 10 20 Miles
N


Black Warrior River Watershed Sample Sites
Genetic Composition
Alabama Bass
Largemouth Bass
Redeye Bass
Smallmouth Bass
Hybrids
Land Cover Classification
Barren Land
Forest/Herbaceous
Agriculture
Developed
Open Water
Unclassified
Black Warrior Watershed Dams
N
0 5 10 20 Miles

Results: Stream-Level Hybridization

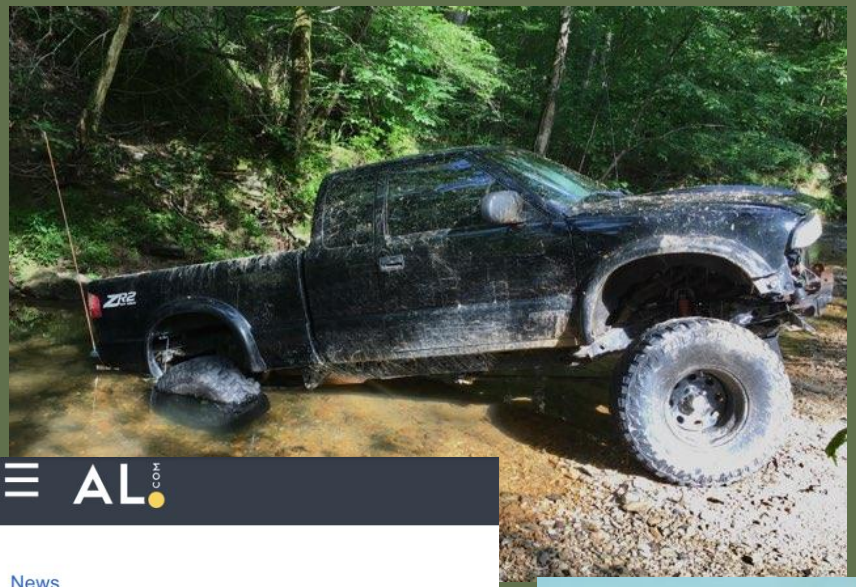
Stream Name	Drainage	Hybridization Rate	N
Sougahatchee Creek	Tallapoosa	42%	31
Calvert Prong	Black Warrior	74%	68
Five Mile Creek	Black Warrior	55%	215
Little Warrior Creek	Black Warrior	65%	65
Lost Creek	Black Warrior	70%	70
Self Creek	Black Warrior	57%	106
Little Cahaba	Cahaba	74%	28
Shades Creek	Cahaba	53%	19
Shoal Creek	Cahaba	75%	16

Conclusions

- Hybridization frequency and amount differed among Tallapoosa River system (13%) and Black Warrior (34%) and Cahaba (31%) river systems
- Most hybrids (76%) were ALB X REB
- Hybridization is likely anthropogenic and linked to disturbance

Habitat disturbance

Habitat disturbance



AL.com

News

Wastewater spill wipes out 175,000 fish north of Birmingham

Updated Jun 17, 2019; Posted Jun 14, 2019

A fish kill on the Mulberry Fork river in Walker County killed an estimated 175,000 fish of all species, according to preliminary estimates from the Alabama Department of Conservation and Natural Resources.

Redeye Bass State Records

PERSPECTIVE

Updating Angling Records to Advance Sport Fish Conservation: A Case Study of IGFA's Black Bass World Records

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Zachary L. Bellapigna | International Game Fish Association, Dania Beach, FL
Bruce G. Pohlot | International Game Fish Association, Dania Beach, FL

As taxonomic studies revise our understanding of biodiversity, both fisheries managers and the angling public must adapt to best conserve fisheries. Unfortunately, communication gaps between scientists and anglers may result in lags and inaccuracies in the taxonomic information available to anglers. We updated the International Game Fish Association (IGFA)'s black bass *Micropterus* spp. world records to current taxonomic consensus. Seven new species were acknowledged for all-tackle world record availability, and four of seven existing species records were revised. Florida Bass *M. salmoides* (formerly *M. floridanus*), Neosho Bass *M. velox*, and four members of the Redeye Bass species complex (*M. cahabae*, *M. chattahoochae*, *M. tallapoosae*, and *M. warriorensis*) are now recognized. Additionally, Alabama Bass *M. henshalli*—an emerging invasive species—is now distinguished from the smaller, broadly distributed Spotted Bass *M. punctulatus*. A misidentified specimen resulted in vacant all-tackle records for Shoal Bass *M. cataractae* and Redeye Bass *M. coosae*. Genetic verification is warranted in the future, but implementation may create accessibility barriers to record submissions. We hope these efforts will encourage anglers to learn more about black bass diversity, to pursue their own world record catches, and to gain awareness of the conservation challenges threatening this iconic group.

INTRODUCTION

Accurate taxonomic identification is fundamental to fisheries science, from data collection to the scientific results used to inform management and conservation actions. When describing and revising species delineations, taxonomists identify phenotypic characteristics like pigmentation patterns, meristics, and body morphology that can be used to distinguish similar species. When changes in taxonomy occur, however, there are often lags and uncertainties in adopting new names and delineations among both scientific and nonscientific audiences.

Modern molecular approaches have brought an era of discovery of formerly cryptic species, including among some of the world's most popular sport fishes (Pickett et al. 2020; Kim

this fish I just caught" posts on social media. There are also typically lag periods between when new species of game fish are described and when angling regulations and records are adjusted to account for taxonomic changes, which could lead to further confusion among the angling public regarding the validity of taxonomic information encountered.

Anglers have long played a role in the appreciation and conservation of fish biodiversity. Within the North American Model of Wildlife Conservation, revenue from sporting licenses and excise tax revenue from Wildlife and Sport Fish Restoration Programs directly fund the management and conservation of game fish species (Organ et al. 2012). Angling organizations such as the International Game Fish Association (IGFA), Trout Unlimited, Flyfishers International, the Native

More info…


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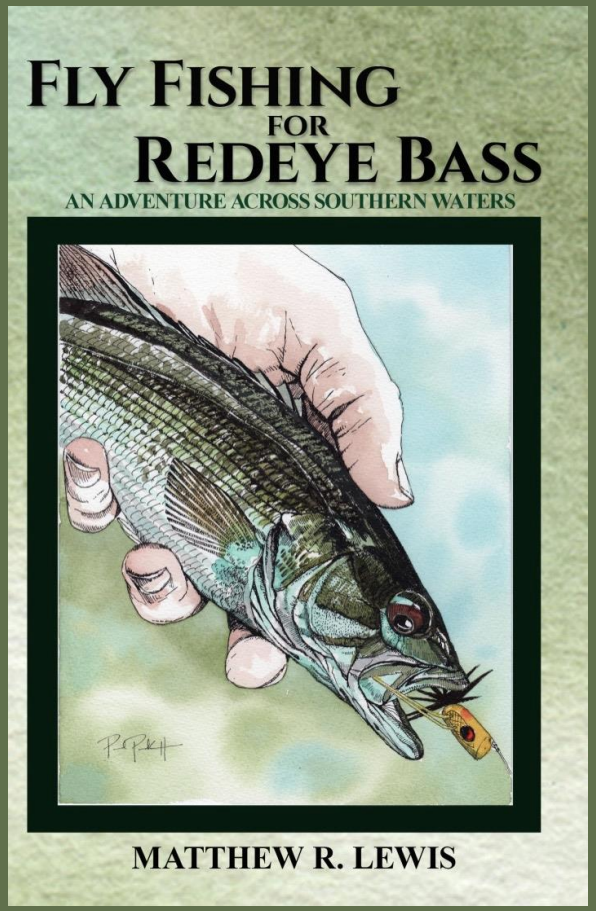
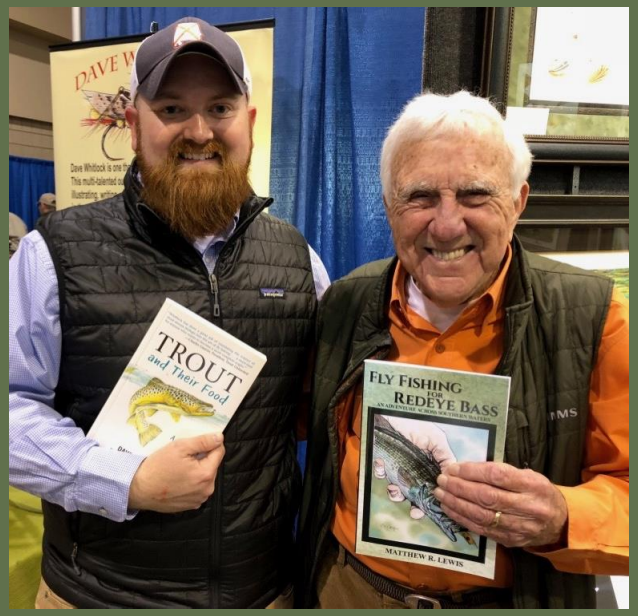

FLY FISHING
FOR
REDEYE BASS
AN ADVENTURE ACROSS SOUTHERN WATERS
MATTHEW R. LEWIS


TROUT
and Their Food
FLY FISHING
FOR
REDEYE BASS
MATTHEW R. LEWIS

More info…

TODAY · 1 HR 34 MIN

Fly Fishing for Redeye Bass, with Matthew Lewis

The Orvis Fly-Fishing Podcast

▶ Play

You may have never heard of redeye bass or seen one. Yet they are a wonderful fly-rod fish. They live in spectacular, clear mountain streams and take a fly very well. They're mainly found in the deep South, particularly in Alabama, so they're a great fly-rod target in places where you would not ordinarily think of fly fishing. They're a native species that deserve more visibility from the fly-fishing community and my guest, Matthew Lewis [44:27], is perhaps the world expert on fly fishing for them.

DORSAL OUTDOORS

DORSAL OUTDOORS

A Slam that Saves

Deep in the foothills of the Appalachians, there are four species of bass found nowhere else on Earth. The Coosa, Cahaba, Warrior, and Tallapoosa bass are all genetically-distinct, environmentally-imperiled bass in dire need of help. And thankfully, a community has rallied around them with a unique idea. Instead of gating off the species, why not champion them? Why not create a new grand slam in fly fishing for the sake of a national treasure? Join Matt Lewis and Mary Beth Meeks as they attempt to catch a "Redeye Slam" in one day. Filmmaker: Dorsal Outdoors

Contact

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