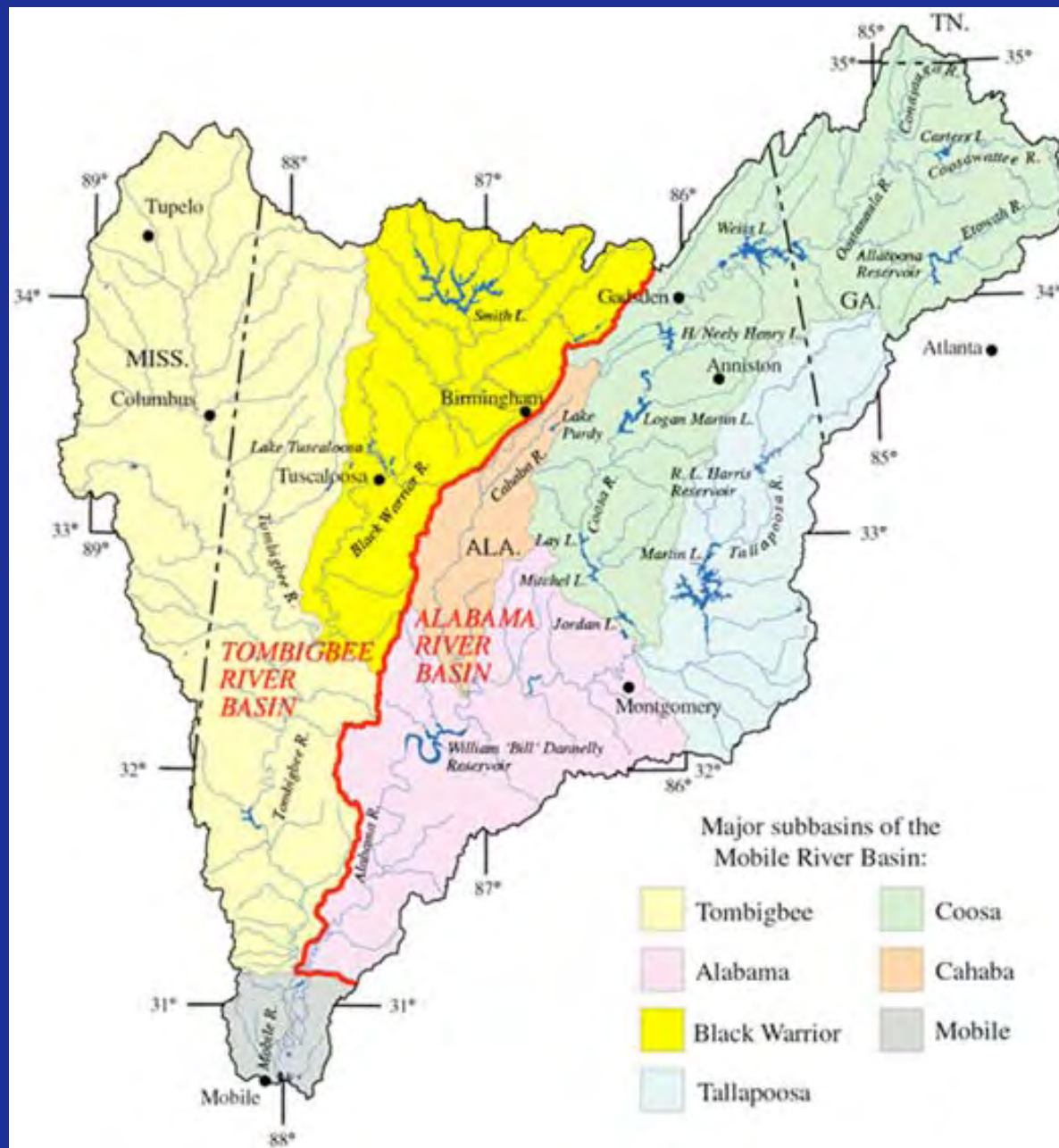


Regional Meeting of GA, FL, AL SWCS May 18, 2007



Etowah Aquatic Habitat Conservation Plan

Laurie Fowler, Bud Freeman, Mary
Freeman, Seth Wenger, Tim Carter



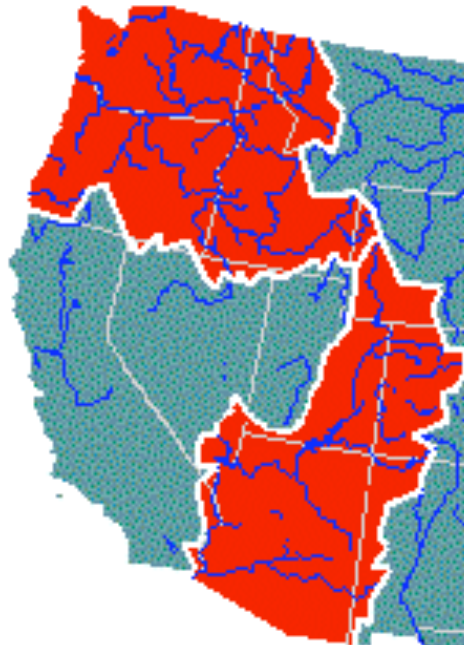
Etowah Watershed



Fish Diversity of the Etowah Watershed Compared to Much Larger Watersheds

Columbia Watershed

33 Native Fish

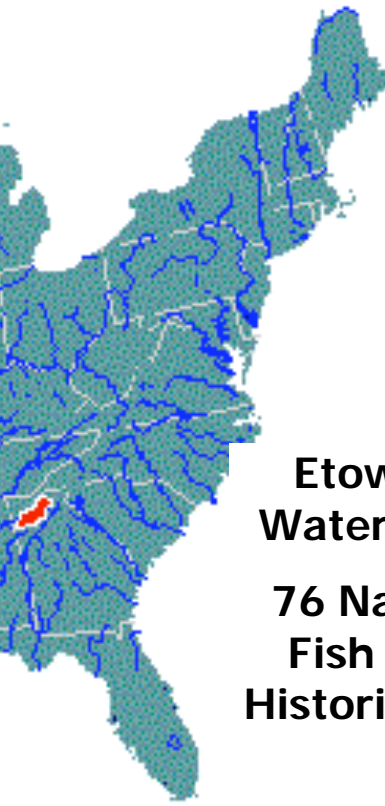


Colorado Watershed

25 Native Fish

Etowah Watershed

76 Native Fish (91 Historically)





Etowah Darter (*Etheostoma etowahae*)



Amber Darter (*Percina Antesella*)



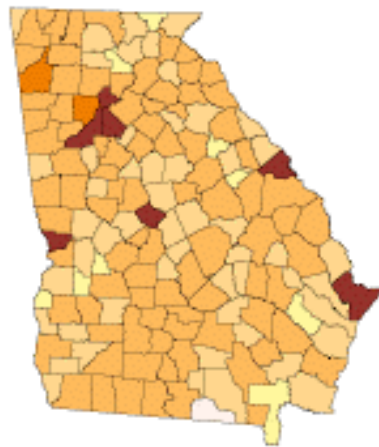
Cherokee Darter (*Etheostoma scotti*)

91 Native
4 Endemic
15 Extirpated

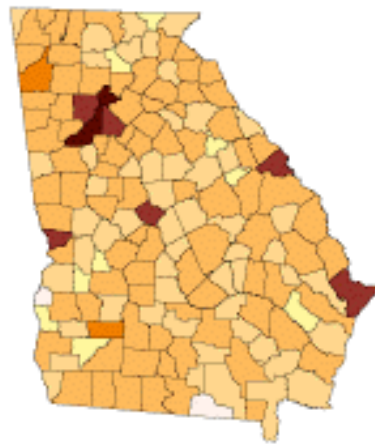


Holiday Darter (*Etheostoma* sp. cf. *brevirostrum*)

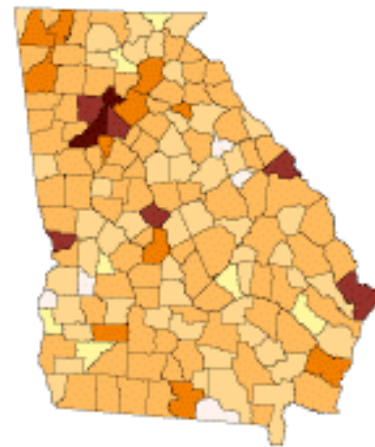
Population Change in Georgia by County 1950 to 2010



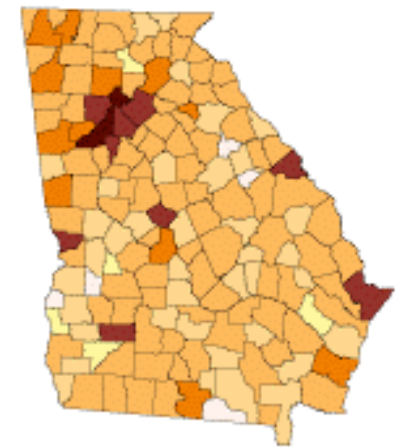
1950 Census



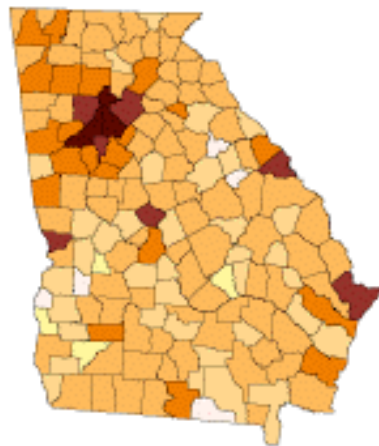
1960 Census



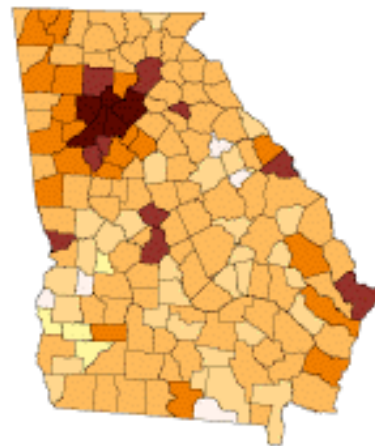
1970 Census



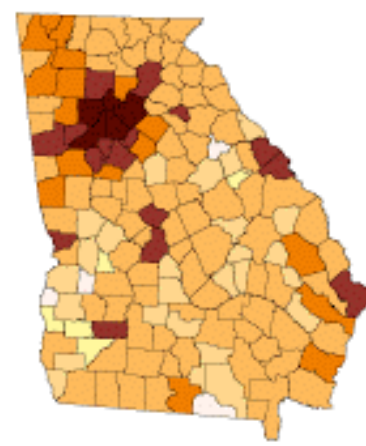
1980 Census



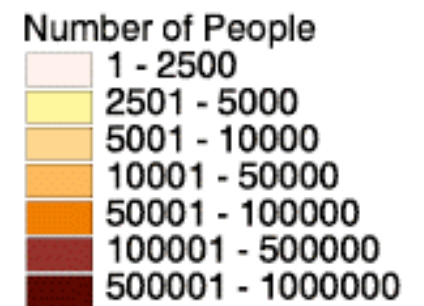
1990 Census



2000 Projected



2010 Projected



Map Prepared By



The University of Georgia

INSTITUTE OF ECOLOGY

Geographic Information System Laboratory

Research Efforts to Address Linkages between Land-use Activities and Fish Assemblages



Seth Wenger (from left), David Walters, Mike Merrill and Bud Freeman take samples from the Etowah River. Photo by Peter Frey

Culverts

Studies on Hydrologic Alteration

Streambank Stability

Sediment Runoff

Estimates of Impervious Surface

Fish Community Structure

Persistence of Imperiled Species

Instream Habitat

What's in the HCP?

- Fragmentation
 - Road stream crossing policy
- Sedimentation
 - E&S SOP
 - Grading policy
 - Utility stream crossing policy
- Changes in hydrology
 - Stormwater ordinance
- Pollutants
 - Stormwater ordinance
- Habitat Protection
 - Stormwater ordinance
 - Stream buffer policy
- Others
 - Adaptive management

Fragmentation: Road stream crossings

The problem:

Road stream crossings
divide habitat and
prevent fish movement



The Etowah Initiative

Habitat Conservation Plan for the Etowah



Tracey Harton, Audrey Baggett, Erica Chiao.

Habitat Conservation Plan for the Upper Etowah Crossings - Effects and Recommendations

Chiao, Tracey Harton (PDF file).
Recommendations for bridge and culvert design in the Upper Etowah watershed: part of a watershed-



[Etowah Initiative](#)

[Faculty 2002](#)

[Spring 2002](#)

[Fall 2001](#)

Projects 2002

[Habitat Conservation Plan](#)

[Regional Greenspace Plan](#)

[TMDL](#)

Projects 2001

[Demonstration Sites](#)

[Greenspace Plan](#)

[Habitat](#)

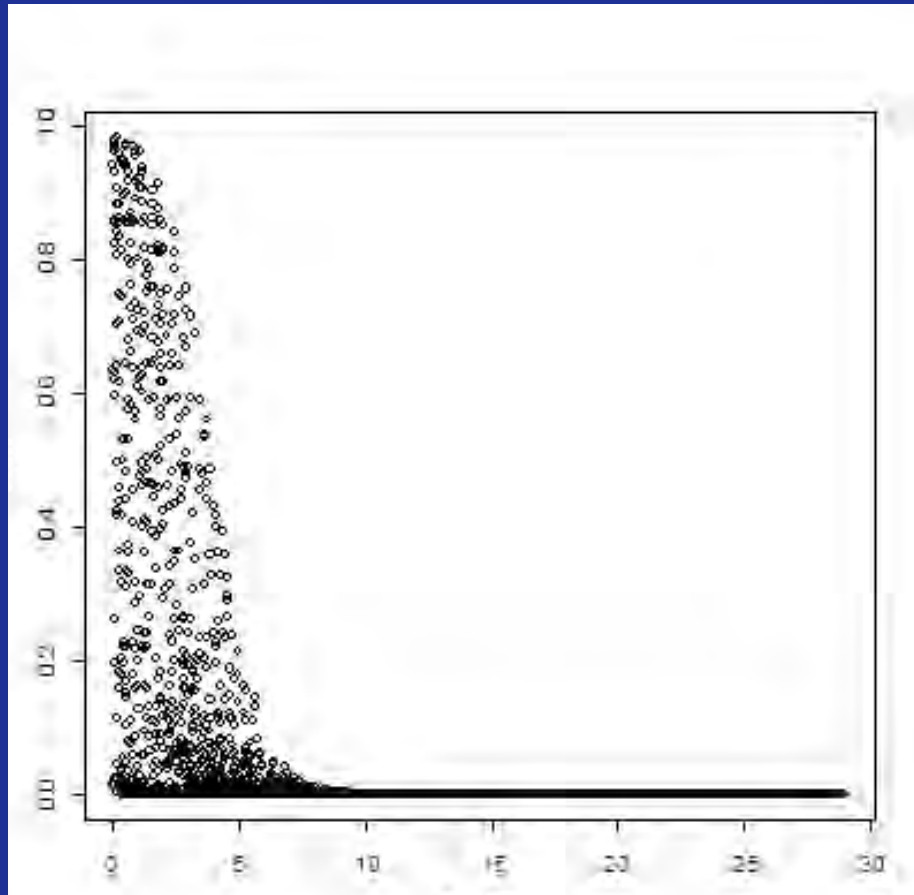
Fragmentation: Road stream crossings

HCP Policy:

- Bridge larger streams & rivers
 - 20mi² drainage area
- Embed culverts
- Size at 1.2X stream width
 - Could* reduce mitigation fees
 - Cost share from GDOT



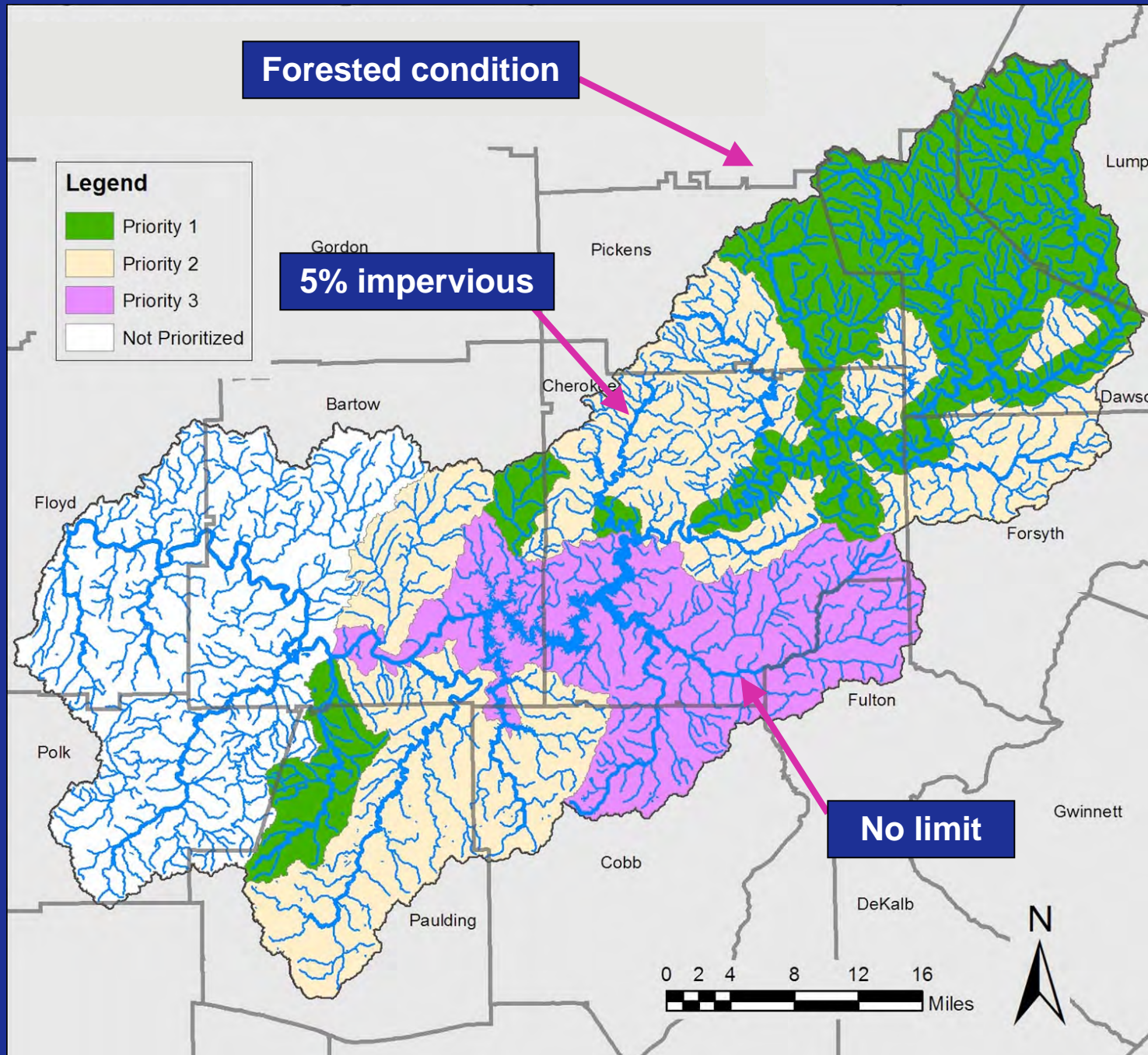
Cyprinella trichroistia



Best model: Historic+Current

Estimated limit: 4-5% TIA

Model accuracy:



Meeting runoff limits w/ curve number method (2 year storm)



Pre-development Curve number = 55
Runoff volume = 103,482 cubic feet



Post-development Curve number = 71
Runoff volume = 265,533 cubic feet

$265,533 - 103,482 = 162,051$ cubic feet

162,051 cubic feet = volume to be retained on site

Examples of infiltration BMPs



Etowah Water & Sewer, Dawson Co.



Butler Park common area, Cherokee Co.

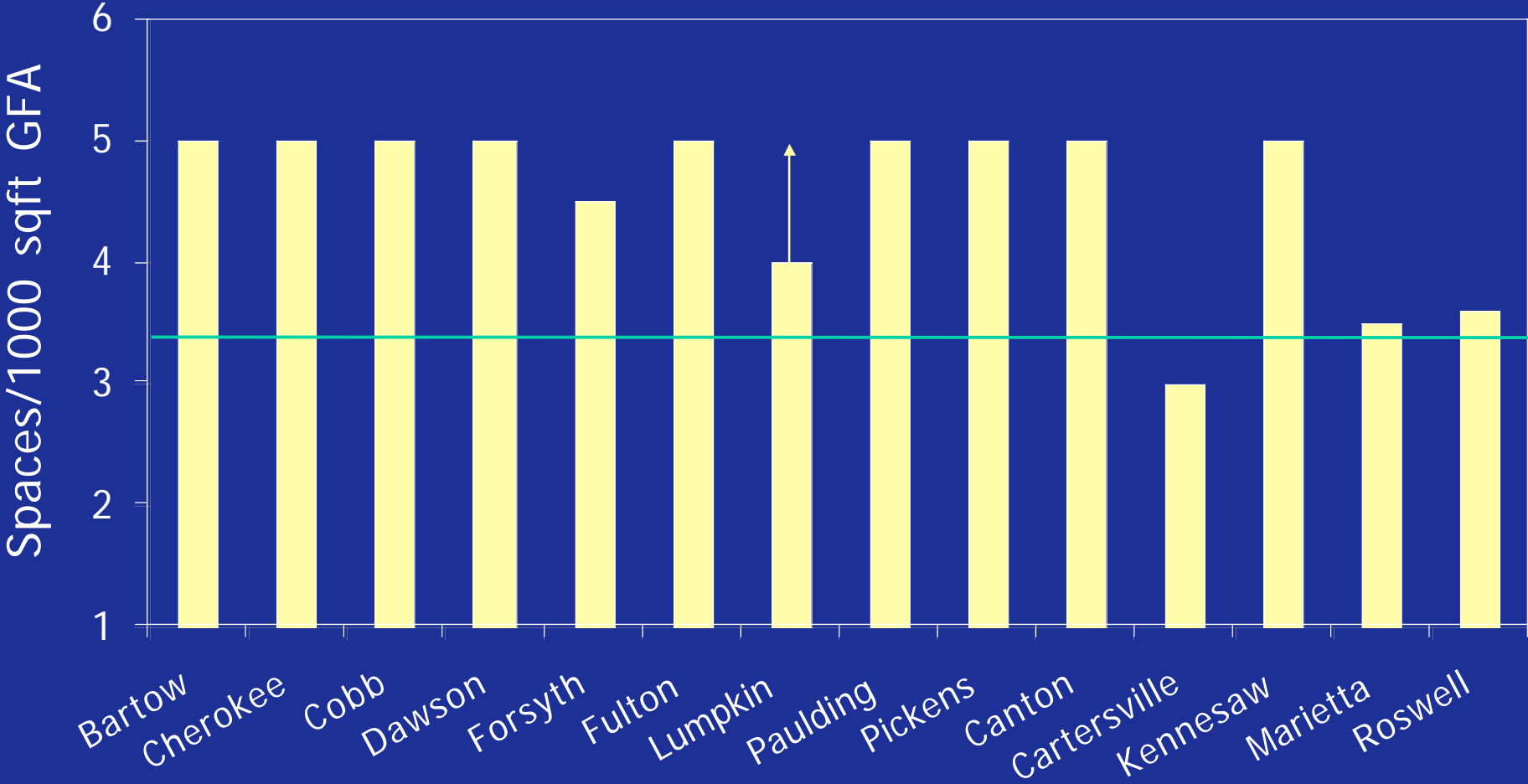


Doraville residence

Examples of stormwater BMPs & Better Site Design

- No curb & gutter
- Drain water to swale
- Small raingardens per lot
- Larger systems serve multiple lots
- Underground storage
- Reduce street widths
- Compact design
- Reduce parking req.
- HCP encourages jurisdictions to allow these BMPs
- Use others w/ variance

Parking Ratios



Runoff limits

- Development nodes are for commercial, industrial and higher density residential
- Node locations are selected by counties and municipalities
- Relaxed runoff limit
 - 80% impervious acts like 40%



Adaptive Management

Allows review and modification of HCP if ineffective:

- Biological monitoring
 - How are fish/habitat doing?
- Compliance monitoring
 - Are local governments doing their job?
 - Development industry ombudsperson

Timeline

- December 2006
 - HCP Steering Committee submits plan to USFWS for ITP
- October 2006-September 2007
 - HCP training
 - USFWS review/NEPA
- Fall 2007
 - Receive ITP from USFWS



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Going to court for fish

Habitat protection sought for two endangered species

Stacy Shelton - Staff
Saturday, September 4, 2004

Four environmental groups sued federal regulators this week for failure to protect two species of endangered fish found in northwest Georgia.

Traditional foes develop Etowah watershed plan

Christopher Quinn - Staff
Monday, September 6, 2004

Environmentalists and developers are often at odds, but they are working together to develop regional ordinances to protect water quality and endangered species in the Etowah River watershed.

Builders, scientists, environmentalists, engineers and county planners all have their say as members of the Etowah Regional Aquatic Habitat Conservation Plan. Working with the year-old group, they hope to come up with laws that will allow continued development in the fast-growing region while avoiding running afoul of the Endangered Species Act.

The Etowah River watershed contains eight federally endangered or threatened species of fish and mussels, and more may be added.

The local governments that take part in the program will be allowed to develop areas even if the developments degrade habitat critical to the endangered species. Those that don't participate will be subject to the requirements of the Endangered Species Act.

Conservation plan members' first recommendations, aimed at improving stormwater runoff, erosion and stream buffer ordinances, were handed out this month to North Georgia cities and counties in the watershed from Dahlonega to Dallas.

Curt Gerlich, a spokesman for the plan, said its members hope the local governments will begin adopting their recommendations by the end of the year.

"Some said they will try. Others said they will review them," Gerlich said.

Georgia ForestWatch and the U.S. Fish and Wildlife Service and goldline darter. Under the designated the habitat in 1992 status, according to the lawsuit.

provide added protection of the

It's been neglected and it needs to Georgia chapter of the Sierra Club.

ached for comment.

on construction of roads or it could require landowners to keep with rocks and vegetation.

g due to mud flowing into their water draining off farms, roads and

o, the four-inch blue shiner can no geosawtee rivers. It can still be er.

watee, Cartecay and Ellijay rivers.



www.rivercenter.uga.edu

www.etowahHCP.org