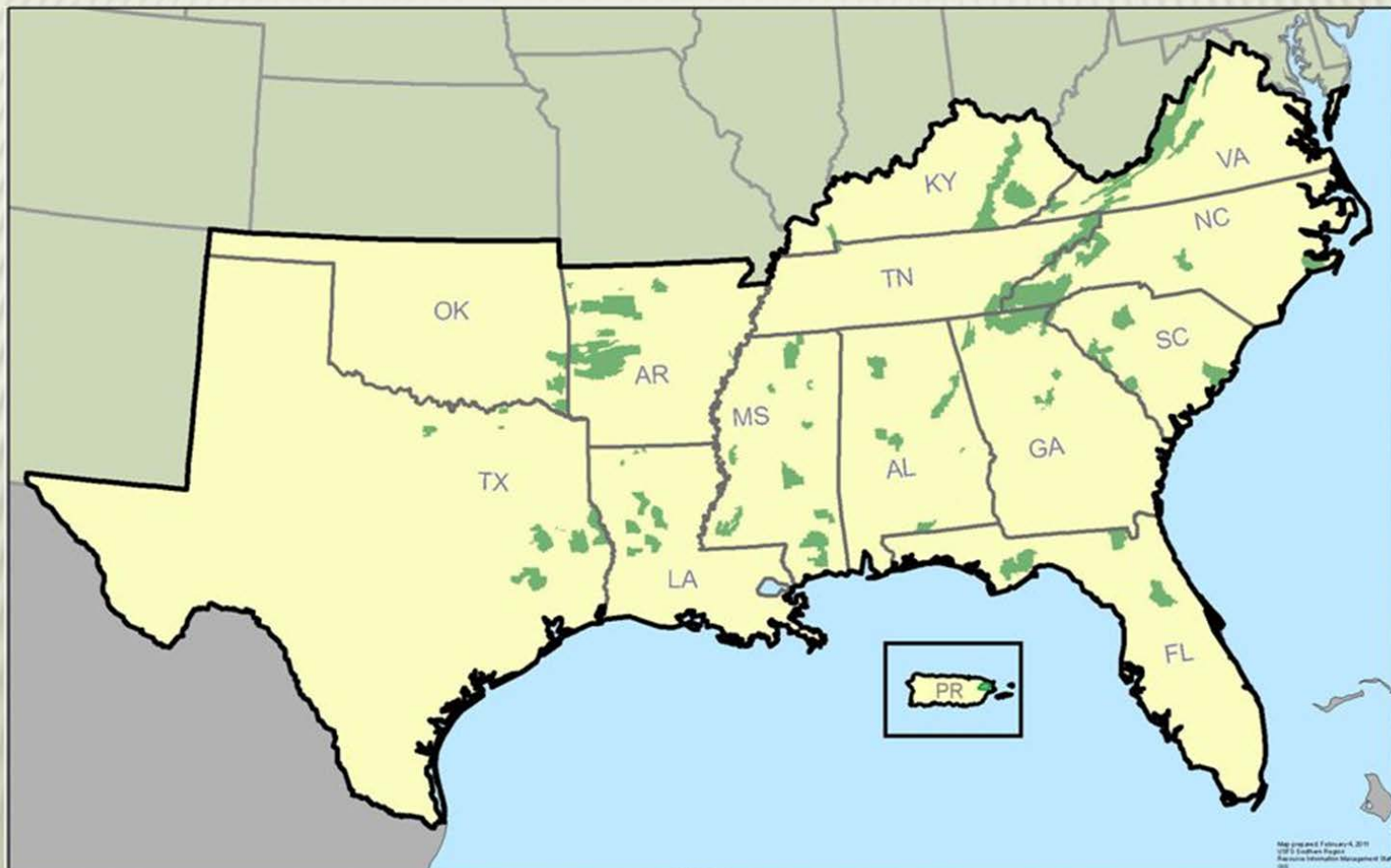


US Forest Service - Southern Region

THE SOUTHERN REGION



Aquatic Nuisance Species Strategy

Aquatic Animals



USDA Forest Service, Southern Region

August, 2013



Aquatic Nuisance Species Strategy

- Did not include aquatic plants
- Program Elements
 1. Prevention
 2. Detection
 3. Control and Management
 4. Rehabilitation and Restoration



Fish

Common Name	Species Name	National Forest
Asian Swamp Eel	<i>Monopterus albus</i>	None: a concern in GA and FL
Bighead Carp	<i>Hypophthalmichthys nobilis</i>	Ozark – St. Francis, NFs in Mississippi
Black Carp	<i>Mylopharyngodon piceus</i>	Daniel Boone
Blueback Herring	<i>Alosa aestivalis</i>	NF North Carolina
Blue Tilapia	<i>Oreochromis aureus</i>	NFs in Florida
Brook Stickleback	<i>Culaea inconstans</i>	Daniel Boone
Brown Hoplo	<i>Hoplosternum littorale</i>	NFs in Florida
Common Carp	<i>Cyprinus carpio</i>	All
Fathead Minnow	<i>Pimephales promelas</i>	Cherokee
Golden Shiner	<i>Notemigonus crysoleucas</i>	Cherokee



Fish - Continued

Common Name	Species Name	National Forest
Goldfish	<i>Carassius auratus</i>	NFs in Florida, Daniel Boone, Ozark-St. Francis
Grass Carp	<i>Ctenopharyngodon idella</i>	NFs in Florida, Ozark-St. Francis
Green Swordtail	<i>Xiphophorus hellerii</i>	El Yunque
Guppy	<i>Poecilia reticulata</i>	El Yunque
Orinoco Sailfin Catfish	<i>Pterygoplichthys multiradiatus</i>	NFs in Florida
Red Shiner	<i>Cyprinella lutrensis</i>	Cherokee, Chattahoochee-Oconee , NF&G Texas
Rudd	<i>Scardinius erythrophthalmus</i>	Ozark-St. Francis
Silver Carp	<i>Hypophthalmichthys molitrix</i>	Ozark-St. Francis
Northern Snakehead	<i>Channa argus</i>	Ozark-St. Francis
Southern Sailfin Catfish	<i>Pterygoplichthys anisitsi</i>	NFs in Florida
Vermiculated Sailfin Catfish	<i>Pterygoplichthys disjunctivus</i>	NFs in Florida



Gastropods

Common Name	Species Name	National Forest
Asiatic Clam	<i>Corbicula fluminea</i>	All
Island Applesnail	<i>Pomacea insula</i>	NFs in Florida
Quilted Melania	<i>Tarebia granifera</i>	NFs in Florida
Red-rimmed Melania	<i>Melanoides tuberculata</i>	NFs in Florida
Spiketopped Applesnail	<i>Pomacea diffusa</i>	NFs in Florida
Zebra Mussel	<i>Dreissena polymorpha</i>	Ozark- St. Francis, Ouachita, NF&G Texas

Other

Common Name	Species Name	National Forest
Freshwater Jellyfish	<i>Craspedacusta sowerbyi</i>	Ozark-St. Francis



National Forest of Florida

Partners

- Florida Fish and Wildlife Conservation Commission
- US Army Corp of Engineers
- Florida Department of Environmental Protection – Division of Recreation and Parks
- Treatments of hydrilla, hyacinth, and water lettuce

“Florida is a mess with aquatic NNIS and unfortunately we’re only getting worse. There is no way we could hope to maintain our waters without these partners and I’m sure we’ll need even more help in the future.” Clay Coates – Aquatic Ecologist



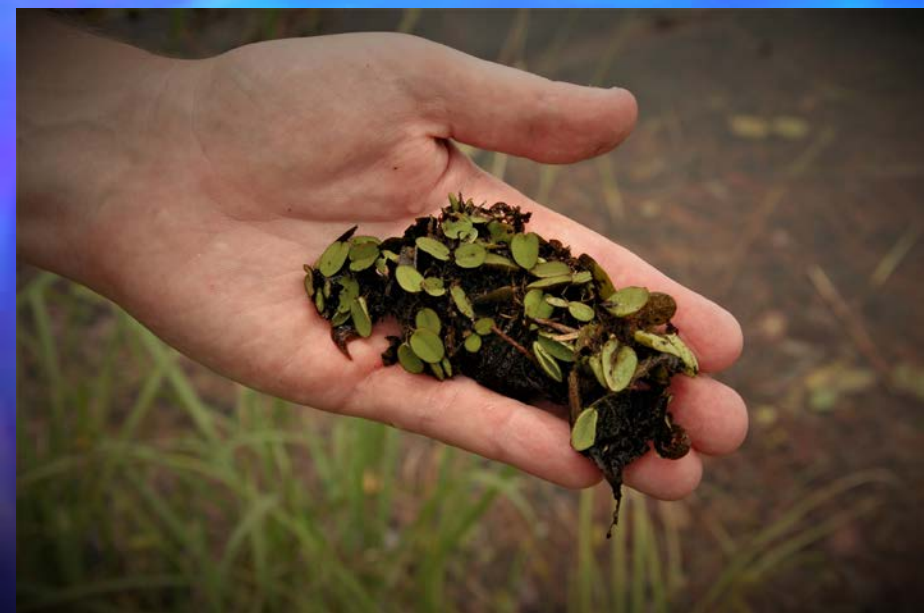
NF of Mississippi –spraying recent infestation of giant salvinia on Okhissa Lake on Homochitto National Forest



Triploid Grass Carp – Hydrilla (Kisatchie NF in LA)



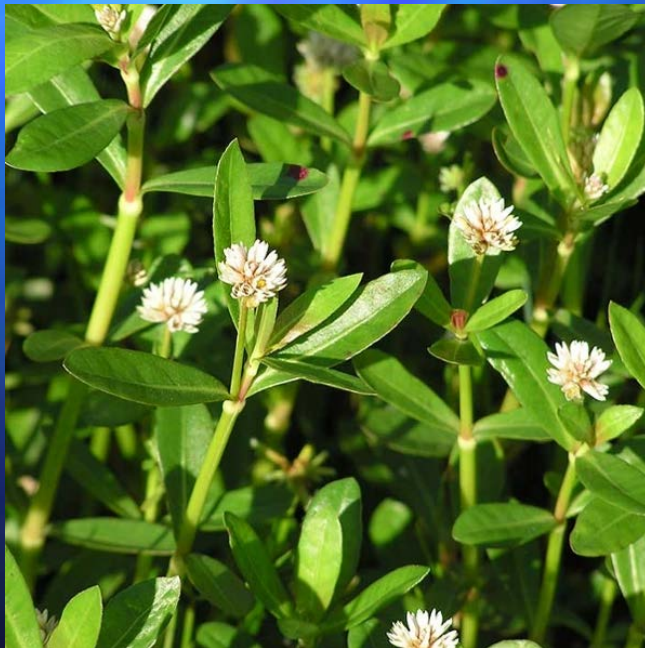
Giant salvinia herbicide treatment on the Kisatchie National Forest in Louisiana



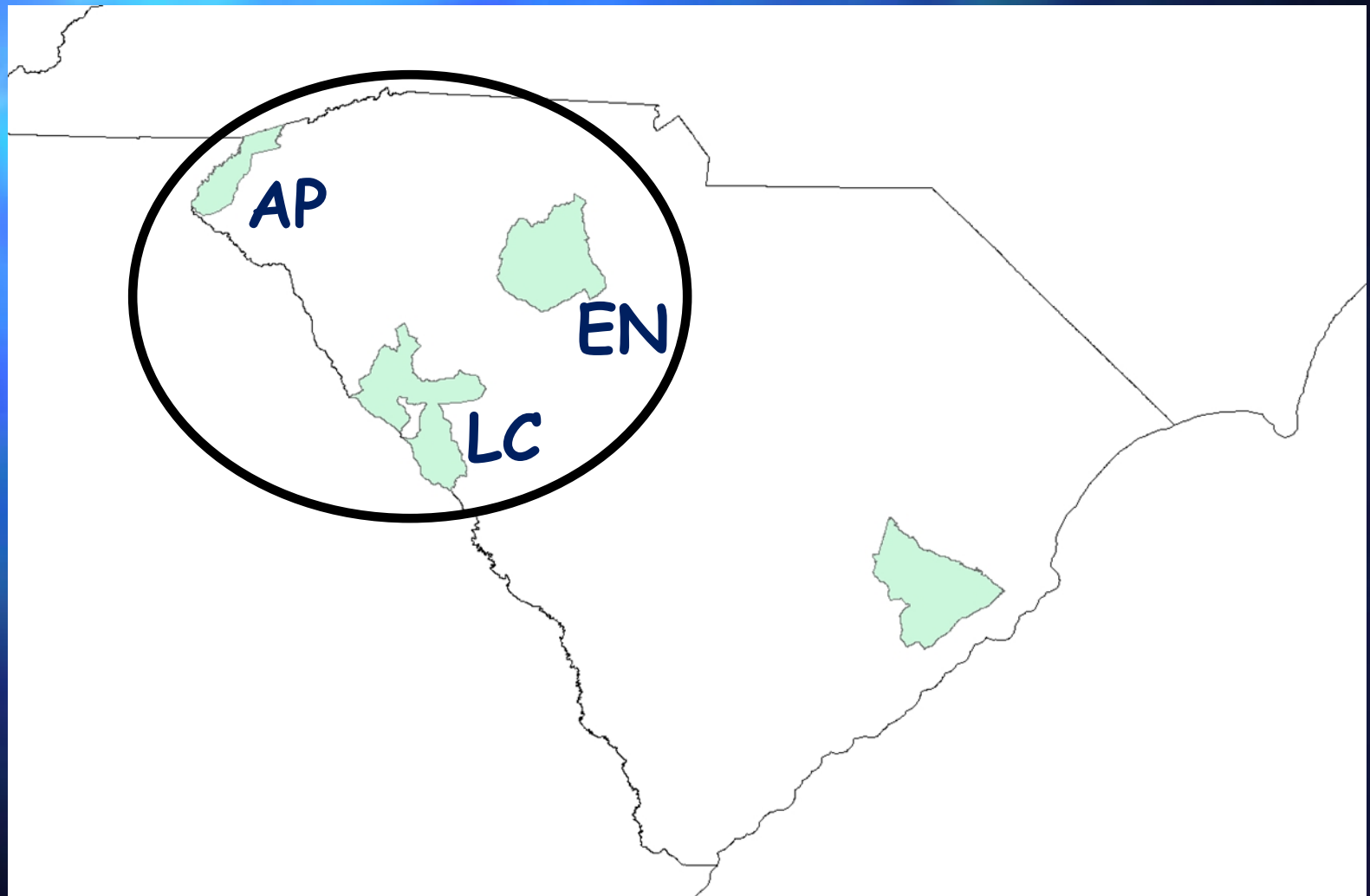
National Forest in Alabama

Pond Management

- Alligator Weed
- Torpedo Grass



Environmental Analysis on Sumter NF in South Carolina



Sumter NNIS Plant EA - Aquatic

Scientific Name	Common Name	Sumter NF Priority	Regional Priority	Known Distribution on Sumter NF
<i>Eichhornia crassipes</i>	water hyacinth	High	High	LC
<i>Hydrilla verticillata</i>	hydrilla	High	High	LC
<i>Nymphoides peltata</i>	yellow floating-heart	High	NR	AP
<i>Myriophyllum aquaticum</i>	parrot feather	Medium	High	LC
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	Medium	High	LC



Sumter NNIS Plant EA - Aquatic

Scientific Name	Common Name	Sumter NF Priority	Regional Priority	Known Distribution on Sumter NF
<i>Alternanthera philoxeroides</i>	alligatorweed	EDRR	Medium	Not Known
<i>Egeria densa</i>	Brazilian waterweed	EDRR	High	Not Known
<i>Hygrophilia polysperma</i>	hygro	EDRR	NR	Not Known
<i>Ipomoea aquatica</i>	water spinach	EDRR	NR	Not Known
<i>Lagarosiphon major</i>	African oxygen weed	EDRR	NR	Not Known
<i>Ludwigia grandiflora</i>	large-flower primrose-willow	EDRR	NR	Not Known
<i>Ludwigia hexapetala</i>	six petal water primrose	EDRR	EDRR	Not Known
<i>Lythrum salicaria</i>	purple loosestrife	EDRR	NR	Not Known
<i>Murdannia keisak</i>	Asian spiderwort	EDRR	NR	Not Known
<i>Najas minor</i>	brittle waternymph	EDRR	High	Not Known
<i>Nymphoides cristata</i>	crested floating heart	EDRR	NR	Not Known
<i>Phragmites australis</i>	common reed	EDRR	High	Not Known
<i>Salvinia molesta</i>	giant savinia	EDRR	NR	Not Known
<i>Solanum tampicense</i>	wetland nightshade	EDRR	NR	Not Known



Sumter NNIS Plant EA - Aquatic

Scientific Name	Common Name	Sumter NF Priority	Regional Priority	Known Distribution on Sumter NF
<i>Acorus calamus</i>	single-vein sweetflag	Watch	NR	Not Known
<i>Eichhornia azurea</i>	rooted water hyacinth	Watch	NR	Not Known
<i>Landoltia punctata</i>	dotted duckweed	Watch	NR	Not Known
<i>Ludwigia uruguayensis</i>	water primrose	Watch	NR	Not Known
<i>Melaleuca quinquenervia</i>	melaleuca	Watch	NR	Not Known
<i>Murdannia keisak</i>	wart removing herb	Watch	NR	Not Known
<i>Nasturtium officinale</i>	watercress	Watch	NR	Not Known
<i>Nelumbo nucifera</i>	sacred lotus	Watch	NR	Not Known
<i>Panicum repens</i>	torpedo grass	Watch	High	Not Known
<i>Philydrum lanuginosum</i>	woolly frog's mouth	Watch	NR	Not Known
<i>Pistia stratiotes</i>	water lettuce	Watch	NR	Not Known
<i>Potamogeton crispus</i>	curly pondweed	Watch	NR	Not Known
<i>Sagittaria montevidensis</i>	long lobed arrowhead	Watch	NR	Not Known
<i>Salvinia minima</i>	water spangles	Watch	NR	Not Known
<i>Salvinia molesta</i>	giant salvinia	Watch	Medium	Not Known
<i>Selaginella uncinata</i>	peacock spikemoss	Watch	NR	Not Known
<i>Sparganium erectum</i>	exotic bur reed	Watch	NR	Not Known
<i>Trapa natans</i>	water chestnut	Watch	NR	Not Known
<i>Urochloa (Brachiaria) mutica</i>	Para grass	Watch	NR	Not Known



South Carolina – Brook Trout Restoration



Alabama

Crayfish - Research

- Lewis Smith Reservoir Area - Kentucky River Crayfish (*Faxonius juvenilis*) (possible 2 others)
- Cahaba River Drainage - Virile Crayfish (*Faxonius virilis*)
 - Impact of dams on native crayfish genetic structure vs. non-native



Mussel Research - Rockcastle River system KY

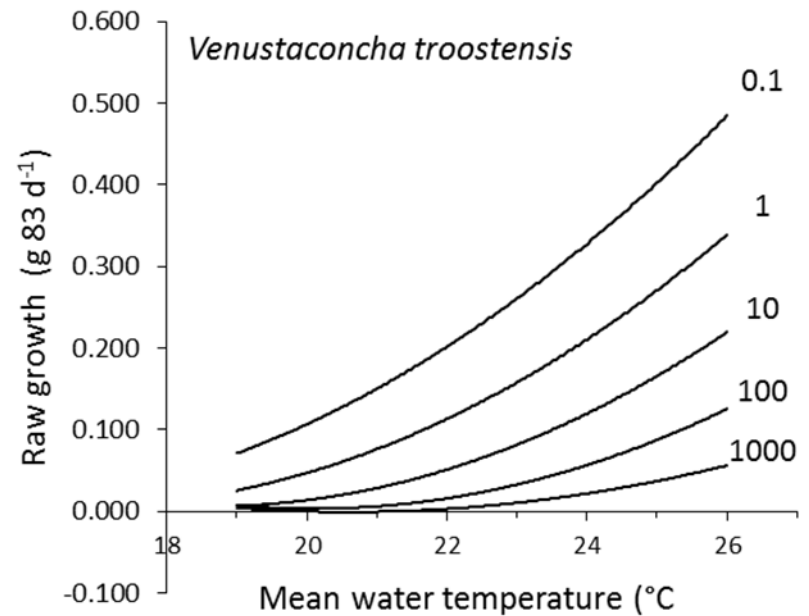
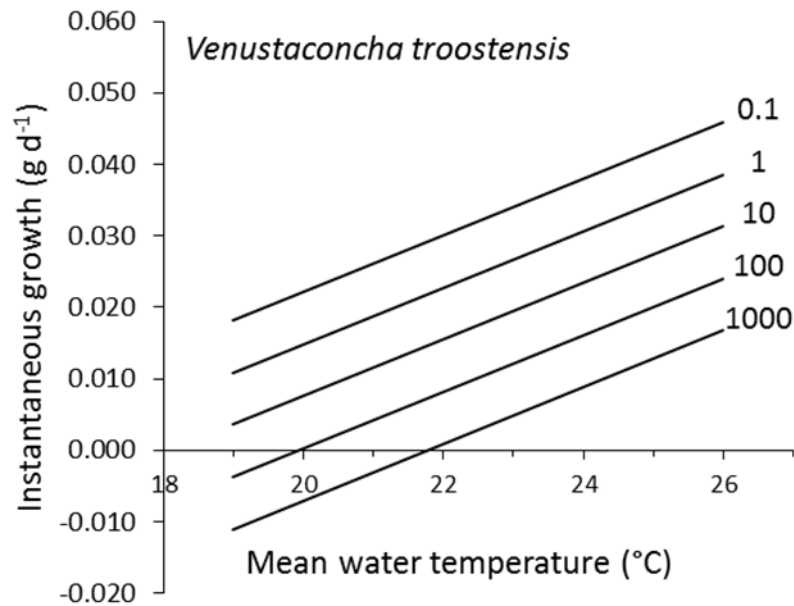
Corbicula



Cumberland bean



Model predictions



Summary

- No evidence of serious coal mine pollution or other water quality issues in the Rockcastle River system; little relationship between growth and water chemistry factors
- Juvenile mussel growth was predicted well by water temperature and *Corbicula* abundance
- *Corbicula* could be an explanation for low growth in streams that have lost their mussel fauna, and could explain faunal losses
- Mechanism unknown; may be simple food competition
- *Corbicula* has been largely ignored as a factor in mussel declines; needs a fresh look in other contexts (e.g., productive streams)



Questions

