

FISHES OF SOUTHEASTERN NATIONAL FORESTS

by
MONTE E. SEEHORN
U. S. Forest Service, Atlanta, Georgia

ABSTRACT

A survey of fish on 33 southeastern National Forests was conducted during the period July 1972 through July 1975. Of the 470 species listed, 442 are recognized in American Fisheries Society Special Publication No. 6. Another 28 species or groups of species, recognized or under study since this publication, are also included. The Shortnose sturgeon, *Acipenser brevirostrum*, is the only fish on the current endangered or threatened register likely found on the Forests, although 20 species of known or probable occurrence on National Forest lands have been recommended for such status.

INTRODUCTION

The 33 National Forests lying in portions of 14 southeastern states (Figure 1) total over 12 million acres available for public use. This acreage includes over 10,000 miles of fishing streams ranging in diversity of habitat from subtropical to north temperate zone fisheries. This range in habitat conditions assures a corresponding diversity in fish or wildlife fauna. Although diversity in habitat and fauna is desirable, it creates special problems for managing agencies. Each separate physiographic province must have its own special set of rules or guidelines in order to properly manage resources. For example, water quality requirements for a coastal plains warmouth fishery would be different than that required for a native brook trout stream in the southern Appalachians. This example, although extreme, applies in principle to many other species of fish. Therefore, it is important to have as complete an inventory of fish as possible before setting up management programs. Such information is especially critical where fishery programs must be coordinated with other resource management such as timber production, recreation development, mining, grazing, etc., on the same lands.

Passage of endangered species legislation in 1969 and 1973 provided authority for protection, necessitating more specific fishery information. Prior to this, surveys were generally limited or oriented toward game fishes, often lumping other fish in general categories such as "suckers", "minnows", "catfish", etc. On some Forests, practically no surveys had been completed prior to 1972, consequently the U. S. Forest Service initiated this survey.

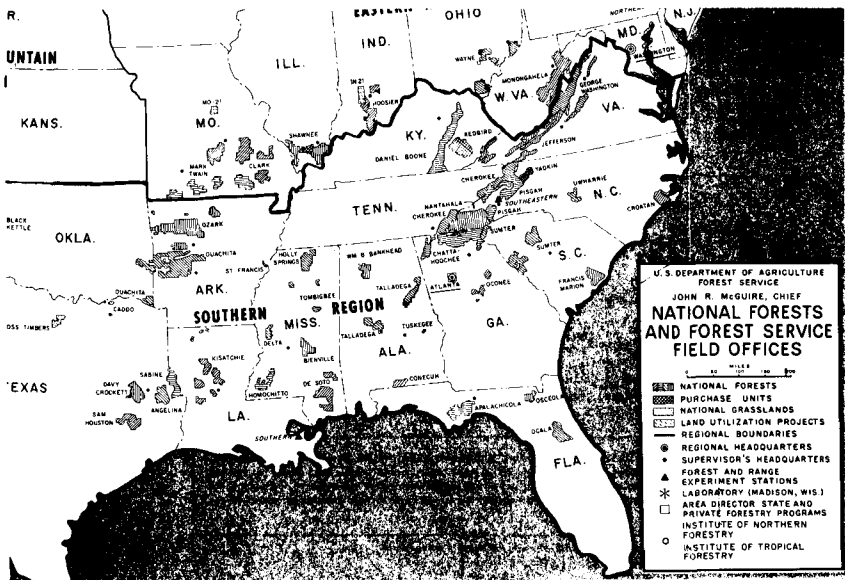


Figure 1. Southeastern National Forests.

METHODS AND DISCUSSION

Contracts were let with 10 leading ichthyologists (see acknowledgment section) and universities to inventory fishes on specified Forests. The inventory consisted primarily of a review and summary of existing survey records, a review of museum and university fish collections, and some field collecting. The overall project was coordinated with State Game and Fish agencies which, in many cases, provided both men and equipment for field work. Seining or electrofishing were the primary methods used in sampling, although chemicals were occasionally utilized in situations where other gear was unsuitable. Specimens taken were deposited in appropriate university or museum collections for future reference.

Survey results by fish species, National Forest and drainage are summarized in Table 1. Nomenclature is as listed in American Fisheries Society Special Publication No. 6 (Bailey et al, 1971). Drainages were assigned arbitrary numerical designations (Appendix 1) which were then inserted under the Forest opposite the appropriate species in the table. Numbers without parentheses indicate definite records of species found on or immediately adjacent to National Forest lands. Numbers in parentheses indicate a species that, although not previously collected in surveys, probably exists there.

Table 1 includes 28 species or groups of species not included in Special Publication No. 6. Nine of these were described or recognized since its publication, while six were resurrected from descriptions published as far back as the 1800's. An additional 13 fish or groups of fish are potential species currently under study. Details are given in Appendix 2.

Of the endangered species listed in the current "Yellowbook" (U. S. Department of the Interior, 1974) and the September 26, 1975, Federal Register, only the Shortnose sturgeon, *Acipenser brevirostrum*, was shown occurring in or adjacent to National Forest lands. On a few Forests where it may occur, it is likely only a transient, moving up the larger rivers during certain times of the year.

The September 26, 1975, Federal Register lists only four species under threatened status, none of which occur in National Forest streams. The Southeastern Section of the Wildlife Society and the Southern Division American Fisheries Society are, however, sponsoring a list of 29 endangered and threatened fish species of the southeast for inclusion in the Federal Register. The list was formulated by ichthyologists and other fishery specialists at a September 1974 workshop in Tallahassee, Florida. Of the 29, 20 occur or are likely to occur in or adjacent to National Forest lands. Of these, only the Spotfin chub, *Hybopsis monacha*, Sharphead darter, *Etheostoma acuticeps*, and Pygmy sculpin, *Cottus pygmaeus*, are recommended for endangered status. Although these 3 fish and the other 17 recommended for threatened status have not been officially added to the Register, the Forest Service plans to make a special effort to protect them and their habitat.

Protective measures will be more easily applied to species such as the Ouachita madtom, *Noturus lachneri*, Paleback darter, *Etheostoma pallidiorsum*, Coldwater darter, *Etheostoma ditrema*, and other fishes normally found in extreme headwaters where the Forest Service has complete control. Timber management and other development activities can be modified, or even excluded, if needed to protect the habitat. Species such as the Coldwater darter and the Pygmy sculpin, whose range are restricted to a few known springs, can possibly be stocked, as a last resort, in other similar habitat to reduce chance of extinction.

Species such as the Sharphead darter and the Spotfin chub, found lower in the drainage, present a much more complex management problem. First, since they are found in much larger streams than the fish previously mentioned, sampling to determine their presence is more difficult. Second, the ownership pattern on larger streams is usually so broken by private lands that the Forest Service or other land management agency has little if any control over water quality in these sections. Although lands can be purchased through provisions of the Endangered Species Act of 1973, an active public education program pointing out the importance of protecting endangered and threatened species is the best hope for a successful protection program.

In summary, the data presented in this paper are not intended to be taken as a complete and final listing of all fishes found on National Forest lands but do provide a solid base of information, not previously available, which can be used in guiding current land management programs.

—“Delete *Notropis altipinnis* from the Croatan National Forest.”

—“*Etheostoma serriferum*—Delete drainages 10 and 11 under Uwharrie N. F. and add 10 and 11 under Croatan N. F.”

FISH SPECIES (Common Name)	Virginia		North Carolina		Tennessee		Georgia		Alabama		Mississippi				Louisiana		Florida		Texas		Oklahoma		South Carolina		
	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	W. M. H. S. No.	Count	
<i>Moostoma carolinum</i>	(7)	10	(10)	12	(16,17)	19,20	(11,12,13,14,15,16,17)	25	27	51(52)	(53)	30	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	
<i>Moostoma setivum</i>	3	(16)																							
<i>Moostoma congestum</i>																									
<i>Moostoma alpinum</i>	5	(8,9)																							
<i>Moostoma erythrum</i>	3	(10)																							
<i>Moostoma hachneri</i>																									
<i>Moostoma macrodipidum</i>	2	(1)	(10)	(12)	(15,17)	19,20	(11,12,13,14,15,16,17)	25	27	51(52)	(53)	30	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	
<i>Moostoma papilionum</i>			(10)	(12)	(16)																				
<i>Moostoma moerulum</i>																									
<i>Moostoma sp. (cf. poecilum)</i>																									
<i>Moostoma tibibocum</i>	2,3	3																							
<i>Moostoma tibatum</i>																									
<i>Moostoma supraceras</i>																									
<i>Moostoma melleum</i>	1,1																								
<i>Moostoma boscum</i>	2,2	(3)	(10)	(12)	(16)																				
<i>Moostoma setu</i>																									
<i>Moostoma boreatum</i>																									
<i>Moostoma melas</i>																									
<i>Moostoma mastix</i>	1	(8,9)																							
<i>Moostoma melanosum</i>	2,3	(10,11,12)	(15,16,17)	(19,20)	(21,22,23,24,25,26,27,28,29,30,31,32)																				
<i>Moostoma platycephalus</i>																									
<i>Moostoma punctatum</i>	1,1	(10,11,12)	(15,16,17)	(19,20)	(21,22,23,24,25,26,27,28,29,30,31,32)																				
<i>Moostoma varratanthum</i>	1,1																								
<i>Moostoma albat</i>																									
<i>Moostoma baileyi</i>																									
<i>Moostoma elongatum</i>																									
<i>Moostoma exilis</i>																									
<i>Moostoma flavovirens</i>																									
<i>Moostoma flavum</i>																									
<i>Moostoma fumibis</i>																									
<i>Moostoma gilberti</i>	(3)	10																							
<i>Moostoma byrnesi</i>																									

*Species recommended for "threatened" status at the September 1974 meeting in Tallahassee, Florida.

Rice SPECIES	Virginia		North Carolina		Tennessee		Georgia		Alabama			Mississippi				Florida			Texas		Oklahoma		South Carolina				
	STATE	FEDERAL	Greene	Frank	Waynesville	Cherokee	Charleston	Barkeed	Talladega	Concord	Tuskegee	Spring	Tombigbee	Bluffville	Monrovia	Deale	Escambia	Orange	Apalachicola	Palmetto	Bay	Franklin	St. Francis	Ouchita	Daniel Boone	Francis Marion	
<i>Noturus nitidus</i> (Cope 49)			10	12	13	15	21	25				33															
<i>Noturus ligatus</i>	1	1(4)	11	13	14	15	25																				
<i>Noturus leachii</i>																											
<i>Noturus letracanthus</i>						27	28, 29, 30, 31, 32, 33, 34, 35	29	31, 32, 33, 34	30, 31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34	31, 32, 33, 34
<i>Noturus maculatus</i>						22		27	51																		
<i>Noturus mosereri</i>								27	51																		
<i>Noturus pharus</i>								27	51																		
<i>Noturus strigosus</i>																											
<i>Noturus taylori</i>																											
<i>Pygidictis olivacea</i>																											
<i>Pseudis</i>																											
<i>Atelopus fallax</i>																											
<i>Ampelisca</i>																											
<i>Cholorostes coronea</i>																											
<i>Trichostichus substriatus</i>																											
<i>Amphispiza bilineata</i>																											
<i>Strongylura media</i>																											
<i>Cyprinodon v. hubbsi</i>																											
<i>Cyprinodon v. variegatus</i>																											
<i>Fundulus albolineatus</i>																											
<i>Fundulus crenatus</i>	4(7)					19-20	65	28	31	48-50	51	48-50	51	48-50	51	48-50	51	48-50	51	48-50	51	48-50	51	48-50	51	48-50	51
<i>Fundulus shrevei</i>																											
<i>Fundulus olivaceus</i>																											
<i>Fundulus confluentus</i>	10																										
<i>Fundulus diaphanus</i>	2																										
<i>Fundulus heteroclitus</i>	10																										
<i>Fundulus limonatus</i>	10																										
<i>Fundulus luciae</i>	10																										
<i>Fundulus majalis</i>	10																										
<i>Fundulus notatus</i>	10																										
<i>Fundulus notii</i>	10																										
<i>Fundulus olivaceus</i>	10																										

*Species identified, recognized, or resurrected since Special Publication No. 6 was prepared, and potential species undescribed but currently under study. See Appendix 2.

FISH SPECIES	Virginia W. Virginia		North Carolina		Tennessee		Georgia		Alabama			Mississippi					Louisiana			Florida			Texas		Oklahoma		South Carolina						
	Westmoreland	Jefferson	Unharris	Fraugh	Watauga	Cherokee	Chatahoochee	Down	Bainbridge	Talladega	Conouch	Tuskegee	Holly Springs	Tombigbee	Bentley	Homochito	Dagob	Dalca	Keatchie	Ocala	Oceola	Apalachicola	Sabine	Anglina	Davy Crockett	Sam Houston	Deake	St. Francis	Quachita	Daniel Boone	Sumter		
<i>Etheostoma caeruleum</i>				(15)	19, 20	15, 16, 19, 20	13	(26)										37											60				
<i>Etheostoma collare</i>																		38, 39									(57)						
<i>Etheostoma collis</i>			(12)			22	24																										
<i>Etheostoma cooperi</i>										59, 50																							
<i>Etheostoma danielsi</i>						22	(24)																										
<i>Etheostoma dori</i>								26											40		63, 64, 65, 66												
<i>Etheostoma edwini</i>										48, 50																							
<i>Etheostoma euzoanum</i>	1, 3, 4, 5, 7, 2, 2	6, 7, 8		13, 14, (15), 17, 18	(19)	5, 6, 15, 17, 19	(24)											37	38, 39	41, 43, 44, 45	47	(53)	(53)	(54)	(55)	(56)	(57)	58, 59, 60					
<i>Etheostoma forficatum</i>			11	(17)			25			(49, 50)	28, 29	30, 31, 32	30, 31, 32	30, 31, 32	34	(30), 39																	
<i>Etheostoma gracile</i>																																	
<i>Etheostoma hiardi</i>																																	
<i>Etheostoma hopkinsi</i>																																	
<i>Etheostoma inscriptum</i>							25																										
<i>Etheostoma jessiae</i>				17		16, 19, 20	65																										
<i>Etheostoma jordanii</i>						22	24	27	51, 52		52																						
<i>Etheostoma julie</i>																																	
<i>Etheostoma kanabae</i>																																	
<i>Etheostoma kennicottii</i>							26																										
<i>Etheostoma longimanum</i>																																	
<i>Etheostoma maculatum</i>						17	19																										
<i>Etheostoma mixotectus</i>																																	
<i>Etheostoma moorei</i>																																	
<i>Etheostoma nigrum</i>																																	
<i>Etheostoma ohyense</i>																																	
<i>Etheostoma olivaceum</i>																																	
<i>Etheostoma orbiculare</i>																																	
<i>Etheostoma pallidiorum</i>																																	
<i>Etheostoma parviflora</i>																																	
<i>Etheostoma podostomum</i>																																	
<i>Etheostoma proclare</i>																																	
<i>Etheostoma punctulatum</i>																																	

**Species recommended for "threatened" status at the September 1974 meeting in Tallahassee, Florida.

FISH SPECIES (Common Name)	STATE														South Carolina																						
	Virginia		North Carolina		Tennessee		Georgia		Alabama		Mississippi		Louisiana			Arkansas	Ky.																				
	Jefferson	Greene	Wahpete	Periah	Kanawha	Cherokee	Chattoohatchee	Donee	Baldhead	Talladega	Concu	Toussige	North	Sortins				Tombyee	Stennis	Hombotico	Desoto	Delta	Kaatchie	Ocala	Ocala	Apalachicola	Sabina	Angelia	Davy Crockett	Sam Houston	Oark	St. Francis	Duachta	Dentel Boone			
SLIPFLOPPER																																					
AGASSIZ'S MUDPUPPET																																					
Mudg cephalus																																					
ELEPHANTNOSE SQUID																																					
SHOVELNOSTRIL																																					
BOULANGER'S																																					
AMERICAN																																					
SAND																																					
SCOTT'S																																					
SHOVELNOSTRIL																																					
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*Species recommended for "mudpuppet" status at the September 1974 meeting in Tallahassee, Florida.

†Species described, recognized, or resurrected since Special Publication No. 8 was prepared, and potential species undescribed but currently under study. See Appendix 2.

APPENDIX I

<i>Code No.</i>	<i>Drainage</i>	<i>Code No.</i>	<i>Drainage</i>
1	Potomac	34	Pascagoula
2	Shenandoah	35	Biloxi Bay
3	James	36	Yazoo
4	Roanoke	37	Red
5	New (Va.)	38	Sabine
6	Holston	39	Calcasieu
7	Clinch-Powell	40	St. Johns
8	Big Sandy	41	Suwannee
9	Cumberland (Va.)	42	St. Marys
10	Neuse	43	Apalachicola
11	New-Whiteoak-Newport	44	New (Fla.)
12	Peedee	45	Ochlockonee
13	Yadkin	46	Sopchoppy
14	Catawba	47	St. Marks
15	Watauga	48	Blackwater
16	Nolichucky	49	Conecuh
17	French Broad	50	Yellow
18	Pigeon	51	Cahaba
19	Little Tennessee	52	Tallahpoosa
20	Hiwassee	53	Neches
21	Savannah	54	San Jacinto
22	Conasauga	55	Arkansas
23	Chattahoochee	56	White
24	Coosa	57	Ouachita
25	Altamaha	58	Licking
26	Tennessee	59	Kentucky
27	Warrior	60	Cumberland (Ky.)
28	Little Tallahatchie	61	St. Francis
29	Wolf	62	Santee
30	Tombigbee	63	Cooper
31	Pearl	64	Santee-Cooper
32	Leaf	65	Chickamauga
33	Homochitto	66	Alabama

APPENDIX 2

Scientific Name	Common Name	Status
<i>Hybognathus regius</i>	Silvery minnow	Resurrected
<i>Hybopsis lineapunctata</i>	Gravel chub	Described
<i>Hybopsis winchelli</i>	Clear chub	Resurrected
<i>Hybopsis zanema</i>	Santee chub	Resurrected
<i>Notropis (Alburnops) spp.</i>	—	Under study
<i>Notropis atrapiculus</i>	Blacktip shiner	Described
<i>Notropis gibbsi</i>	Tallapoosa shiner	Described
<i>Notropis harperi</i>	Redeye chub	Reassigned from <i>Hybopsis</i>
<i>Notropis sp. (cf semperasper)</i>	—	Under study
<i>Notropis sp. (cf volucellus)</i>	—	Under study
<i>Phoxinus sp. (cf oreas)</i>	Silverspot dace	Under study
<i>Carpiodes forbesi*</i>	Plains carpsucker	Resurrected
<i>Carpiodes sp. (cf velifer)</i>	—	Under study
<i>Moxostoma sp. (cf poecilurum)</i>	Grayfin redhorse	Under study
<i>Noturus taylori</i>	Caddo madtom	Resurrected
<i>Ambloplites ariommus</i>	Bigeye rockbass	Resurrected
<i>Micropterus sp. (cf coosae)</i>	Shoal bass	Under study
<i>Ammocrypta bifascia</i>	Florida sand darter	Described
<i>Ammocrypta meridiana</i>	Southern sand darter	Described
<i>Etheostoma (Catonotus) sp. (cf flabellare)</i>	Duskytail darter	Under study
<i>Etheostoma chlorobranchium</i>	Greenfin darter	Described
<i>Etheostoma (Ulocentra) spp.</i>	Snubnose darter	Under study
<i>Percina (Alvordius) sp. (cf macrocephala)</i>	Bridle darter	Under study
<i>Percina (Imostoma) sp. (cf ouachitae)</i>	Amber darter	Under study
<i>Percina macrolepida</i>	Big scaled logperch	Described
<i>Percina ouachitae</i>	Ouachita darter	Resurrected
<i>Percina (Odontopholis) sp. (cf cymatotaenia)</i>	—	Under study
<i>Cottus sp. (cf caroliniae)</i>	Eight pored sculpin	Under study

* Considered synonymous with *Carpiodes cyprinus* by many ichthyologists.

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