

JOB PROGRESS REPORT

STATE: South Carolina

PROJECT NO.: F-63

PROJECT TITLE: Fisheries Investigations in Lakes and Streams - Statewide

STUDY: Survey and Inventory

STUDY TITLE: Fishery surveys -
Statewide Fishery Research

JOB NO.: Y

JOB TITLE: Fishery Survey of Congaree
Swamp National Monument

PERIOD COVERED: July 01, 1996 - June 30, 1997

Introduction

Congaree Swamp National Monument (the Monument) was included in the National Park System in 1976. It is one of the last significant stands (22,200 acres) of old-growth riverbottom hardwood forest in the United States. The area boasts approximately 90 tree species, with many trees holding the state record for size. Flooding occurs, on average, 10 times per year via a complex network of creeks, which are fed by the Congaree River. At present, the Monument is not adequately staffed to fully survey the fish community. In August and October 1996, we conducted preliminary surveys of the fish community to help Monument staff develop appropriate management plans.

The effect of fishing, if any, and a general description of the fish community were two general concerns of Monument staff. The purpose of this survey was:

1. to compare the fish populations in a fished and an unfished oxbow lake and,
2. to survey the fish community of Cedar Creek, the main tributary that flows through the Monument, at locations close to public access and fishing (i.e. Wise Lake and South Cedar Creek Road) and a location not close to public access (Red Bluff Road).

Information obtained in these surveys would provide an initial assessment of the effects, if any, of fishing and provide an initial description of the fish community.

Methods

Fish were collected from Weston and Wise lakes using a 12' electrofishing boat. Direct current was supplied by a 2500 watt Homelight, 5 hp gas generator. The generator was connected to a Smith Root model 1.5 KVA-83 electrofishing unit. Current up to 566 volts and 1 amp was directed into the water. Two people, a boat operator and a netter, collected fish. Attempts were made to collect all stunned fish. Collected fish were held in a cooler in the boat and periodically dropped off at a larger onshore holding tank. Most large fish were fin clipped to insure that they were not counted twice during the survey. Collected fish were weighted (g), measured (TL, mm), and identified to species. When identifications could not be made in the field, fish were preserved in 10% formalin and identified using keys (Eddy et. al. 1978, Lee et. Al. 1980, and Page et. al. 1991). Largemouth bass, bluegill sunfish and other larger sunfish were weighed. Length-frequencies of largemouth bass and bluegills in Weston and Wise Lake were compared ($P=0.05$) using Fishers' exact test (SAS 1988). Otoliths from a sample of largemouth bass and bluegill from both lakes were sacrificed for an evaluation of age and growth. Otoliths were sectioned and evaluated using an established protocol (Secor et. al. 1989). Growth was compared between sites and against the regional average growth rate.

Electrofishing in the two lakes lasted from approximately 8 A.M. until 10 A.M.. Fishing effort on each lake was assumed to be equal for this initial sampling effort. Areas sampled included water around shoreline structure, downed trees, root wads and shaded areas. Actual electrofishing was

initiated by the footpedal controller once the area of structure to be sampled was within 5' of the end of the boat; electricity was supplied to each habitat for approximately 5-15 seconds.

In Cedar Creek, all habitats within a pre-defined length of stream were sampled. All stunned fish were collected, identified, and measured. At the South Cedar Creek Road (33°47'48" x 80°47'30") and Red Bank Road sites (33°47'40" x 80°46'10"), approximately 300 meters of stream length were sampled. At the Wise Lake site (33°47'48" x 80°49'42"), approximately 300 m of stream upstream from the Wise Lake Bridge and 150 m pool just downstream of the bridge were sampled with the electrofishing boat. Additionally, a shoal area, immediately downstream from the Wise Lake bridge, was sampled with a backpack electrofishing unit. Length frequency differences of a species between locations was evaluated with the G-test (Sokal and Rohlf, 1969).

Results and discussion

[Wise and Weston Lakes]

A total of 23 species were collected from Wise Lake while 15 were obtained from Weston Lake (Table 1). One hundred and forty-four fish were collected from Weston Lake on August 22, 1996, while 247 were collected from Wise Lake on August 30, 1996 (Table 1). Measurements from individual fish are reported in appendix A. A total of 30 largemouth bass and 178 bluegill were collected from both lakes. Length-frequency of bluegill was significantly ($P=0.05$) different in Wise and Weston Lakes (Table 2). Relative abundance of bluegill <50mm was lower in Weston Lake (Table 2). Length frequency of largemouth bass was not significantly ($P=0.05$) different in the two lakes (Table 3).

Table 1. Species collected in August 1996 with equal effort from Wise and Weston lakes, Congaree Swamp National Monument, South Carolina.

Family	Common Names	Scientific Names	Number	
			Wise Lake	Weston Lake
<i>Lepisosteidae</i>	Longnose gar	<i>Lepisosteus osseus</i>	1	1
<i>Amitidae</i>	Bowfin	<i>Amita calva</i>	5	6
<i>Cyprinidae</i>	Common carp	<i>Cyprinus carpio</i>	4	1
	Golden shiner	<i>Notemigonus crysoleucas</i>	1	20
	Ironcolor shiner	<i>Notropis chalybaeus</i>	79	19
	Taillight shiner	<i>Notropis maculatus</i>	5	-
<i>Catostomidae</i>	Creek chubsucker	<i>Erimyzon oblongus</i>	5	5
	Lake chubsucker	<i>Erimyzon sucetta</i>	1	-
	Spotted sucker	<i>Mnytrema melanops</i>	1	-
<i>Esocidae</i>	Chain pickerel	<i>Esox niger</i>	1	-
<i>Aphredoderidae</i>	Pirate perch	<i>Aphredoderus sayanus</i>	1	4
<i>Poeciliidae</i>	Eastern mosquitofish	<i>Gambusia holbrooki</i>	6	7
<i>Atherinidae</i>	Brook silversides	<i>Labidesthes sicculus</i>	1	1
<i>Centrarchidae</i>	Flier	<i>Centrarchus macropterus</i>	2	-
	Bluespotted sunfish	<i>Emmeoanilius gloriosus</i>	1	-
	Redbreast sunfish	<i>Lepomis auritus</i>	5	-
	Warmouth	<i>Lepomis gulosus</i>	9	6
	Bluegill	<i>Lepomis macrochirus</i>	134	46
	Dollar sunfish	<i>Lepomis marginatus</i>	20	8
	Redear sunfish	<i>Lepomis microlophus</i>	9	1
	Largemouth bass	<i>Micropterus salmoides</i>	12	18
	Black crappie	<i>Pomoxis nigromaculatus</i>	16	1
<i>Percidae</i>	Swamp darter	<i>Etheostoma fusiforme</i>	1	-
	Totals		247	144

Table 2. Length-frequency of bluegill collected in August 1996 from Wise and Weston lakes, Congaree Swamp National Monument, South Carolina.

Total Length (mm)	Wise Lake	Weston Lake
0-49	91	16
50-99	28	20
100-149	3	5
150-199	3	5
Total	134	46

Table 3. Length frequency of largemouth bass collected in August 1996 from Wise and Weston lakes, Congaree Swamp National Monument, South Carolina.

Total Length (mm)	Total Numbers	
	Wise Lake	Weston Lake
0-99	3	3
100-199	1	3
200-299	1	5
300-399	4	3
400-499	2	2
500-599	1	2
Total	12	18

Thirteen largemouth bass and 33 bluegill were sacrificed for age and growth analysis. Largemouth bass in Weston and Wise Lakes tended to grow more slowly than the state average reported by Morrow (1990) (Table 4). Bluegills age 3 or older tended to grow more slowly than the regional average, (Carlander 1977). Based on the small sample, there was not an obvious growth difference of largemouth bass or bluegill in Weston and Wise lakes (Table 4).

Wise Lake had a higher catch per unit of effort than Weston Lake, even though fishing is allowed in Wise Lake. Less numbers were taken from Weston Lake probably because of the physical characteristics associated with the two lakes. Wise Lake may have been sampled more efficiently due to its smaller size, more gradual banks, and shallower depths. Structure was more exposed in Wise lake. Differences in total numbers between the two lakes appear to have been influenced by their physical characteristics and the limits of our sampling gear.

Length-frequency of largemouth bass was roughly equivalent, suggesting similar survival in the two lakes. However, small bluegill sunfish were more abundant in Wise Lake. This could be explained by increased sampling efficiency. Alternatively, higher abundance of small bluegill may also be explained by lower predation pressure in Wise lake, suggesting reduced densities of largemouth bass, the main predator. Increased sampling effort is needed to better define population densities in each lake.

Table 4. Average total-length (mm) of largemouth bass and bluegill collected in August, 1996, from Wise and Weston lakes, Congaree Swamp National Monument, South Carolina. Sample size is listed in parenthesis.

Location	Species	Average Size					
		1	2	3	4	5	6
Weston Lake	LMB	188.6(2)	264(3)	-	363.5(2)	410(1)	-
Wise Lake	LMB	163(1)	320(3)	-	-	-	-
Wise and Weston Lakes	LMB	179.6(3)	292(6)	-	363.5(2)	410(1)	-
State Average ¹	LMB	199	309	358	388	423	-
Weston Lake	BLG	77.6(8)	118(1)	184(1)	162(3)	186(1)	-
Wise Lake	BLG	76.8(1)	122.2(5)	115(1)	184(1)	-	196(1)
Wise and Weston Lakes	BLG	77(19)	121.5(6)	149.5(2)	167.8(4)	186(10)	196(1)
Region Average ² NC, GA = \bar{x}	BLG	65(266)	115.5(266)	160(266)	192(266)	217(266)	242.5(266)

¹ Morrow 1990

² Carlander 1977

[Cedar Creek]

A total of 21 species were collected from Cedar Creek during October sampling (Table 5). Individual records for fish collections are reported in Appendix B. Twenty species were collected at the Wise Lake site while 10 and 8 species were collected at the Red Bluff Road and South Cedar Creek Road sites. The relatively high percentage of species that were collected at the Wise Lake site reflects a

Table 5. Species collected by boat and backpack electrofishing on October 22 and 29, 1996 from Cedar Creek, Congaree Swamp National Monument, South Carolina.

Family	Common Names	Scientific Names	Number Collected At:		
			Wise Lake Bridge	Red Bluff Road	South Cedar Creek Road
<i>Anniidae</i>	Bowfin	<i>Lepisosteus osseus</i>	1	0	1
<i>Clupeidae</i>	Gizzard shad	<i>Dorosoma cepedianum</i>	1	0	0
<i>Cyprinidae</i>	Coastal shiner	<i>Notropis petersoni</i>	14	0	0
<i>Catostomidae</i>	Creek chubsucker	<i>Erimyzon oblongus</i>	1	0	0
	Spotted sucker	<i>Minytrema melanops</i>	2	2	1
<i>Ictaluriidae</i>	Tadpole madtom	<i>Noturus gyrinus</i>	1	0	0
	Margined madtom	<i>Noturus insignis</i>	6	0	1
<i>Esocidae</i>	Redfin pickerel	<i>Esox americanus</i>	0	2	0
	Chain pickerel	<i>Esox niger</i>	1	0	0
<i>Aphredoderidae</i>	Pirate perch	<i>Aphredoderus sayanus</i>	1	7	0
<i>Poeciliidae</i>	Mosquitofish	<i>Gambusia affinis</i>	2	0	0
<i>Atherinidae</i>	Brook silversides	<i>Labidesthes sicculus</i>	45	0	0
<i>Centrarchidae</i>	Flier	<i>Centrarchus pomotis</i>	1	0	0
	Redbreast sunfish	<i>Lepomis auritus</i>	52	23	13
	Warmouth	<i>Lepomis gulosus</i>	16	17	3
	Bluegill	<i>Lepomis macrochirus</i>	54	1	0
	Dollar sunfish	<i>Lepomis marginatus</i>	18	18	1
	Redear sunfish	<i>Lepomis microlophus</i>	16	0	0
	Spotted sunfish	<i>Lepomis punctatus</i>	10	13	0
<i>Percidae</i>	Largemouth bass	<i>Micropterus salmoides</i>	7	1	1
	Yellow perch	<i>Perca flavescens</i>	5	1	2
Totals			254	85	23

more extensive sampling effort and the presence of a variety of habitat types (pool, shoal, and run) created by bridge construction. The high relative abundance of bluegill at the Wise Lake site may reflect effects associated with nearby Wise lake where bluegill are abundant. A relative paucity of dollar sunfish and spotted sunfish at the South Cedar Creek Road site may be due to some combination of habitat limitation and fishing; further investigation is needed.

Redbreast sunfish was the most common sport fish collected from Cedar Creek. Only 3 of 88 redbreast sunfish were ≥ 203 mm in total length. This low relative abundance of 'large' fish may indicate the effects of fishing pressure; a more thorough investigation is needed. Length frequency of redbreast sunfish at the Wise Lake site ($11 \geq 152\text{mm}$, 152 mm $> 18 > 102$ mm, $24 < 102$ mm) was not significantly different ($G=1.19$, 2 df) from the 'unfished' site at Red Bluff Road ($2 \geq 152\text{mm}$, 152 mm $> 7 > 102$ mm, $14 < 102$ mm). Similar population structure may indicate rapid redistribution of redbreast within Cedar Creek or similar levels of exploitation. A tagging study is needed to more accurately assess fishing pressure on redbreast sunfish in various areas of Cedar Creek

Conclusion and Recommendations

1. Initial sampling efforts yielded 30 species of fish and did not indicate that fishing was having a negative effect on population structure of sport fishes. Therefore, management should continue to allow fishing at Congaree Swamp National Monument. A tagging study is needed to better define the rate of fishing pressure in oxbow lakes and Cedar Creek. A tagging study could also provide much-needed information on the movement of various fish species during and after a flood event. Work with personnel at the Monument to identify a source of funding for reward tags.

Appendix D. Fish Collection statistics from Wise and Weston Lakes, Congaree Swamp National Monument, South Carolina

Fish species short names:

BFN = Bowfish	DSF = Dollar sunfish
LMB = Largemouth bass	GLS = Golden shiner
BLG = Bluegill sunfish	ICS = Ironcolor shiner
LNG = Longnose gar	TLS = Tailight shiner
WAR = Warmouth	FLR = Plier sunfish
MSQ = Mosquitofish	RBS = Redbreast sunfish
PIP = Pirate perch	LKC = Lake chubsucker
BSS = Brook silversides	SPS = Spotted sucker
RES = Redear sunfish	SWD = Swamp darter
CCS = Creek chubsucker	BLS = Bluespotted sunfish
BLC = Black crappie	CHP = Chain pickerel
CRP = Common Carp	

<u>RECORD#</u>	<u>LOCATION</u>	<u>PLACE</u>	<u>SPECIES</u>	<u>TL</u>	<u>MM</u>	<u>WT</u>	<u>GR</u>	<u>AGE</u>
1	CONGNATM	WESTON	BFN	620				
2	CONGNATM	WESTON	BFN	580				
3	CONGNATM	WESTON	BFN	520				
4	CONGNATM	WESTON	LMB	570		3024		
5	CONGNATM	WESTON	CRP			6792		
6	CONGNATM	WESTON	LMB	530		1953		
7	CONGNATM	WESTON	BLG	80				
8	CONGNATM	WESTON	BLG	52				
9	CONGNATM	WESTON	BLG	55				
10	CONGNATM	WESTON	BLG	32				
11	CONGNATM	WESTON	BLG	72				
12	CONGNATM	WESTON	BLG	54				
13	CONGNATM	WESTON	BLG	70				
14	CONGNATM	WESTON	BLG	40				
15	CONGNATM	WESTON	BLG	35				
16	CONGNATM	WESTON	BLG	35				
17	CONGNATM	WESTON	BFN	500				
18	CONGNATM	WESTON	BFN	510				
19	CONGNATM	WESTON	BFN	610				
20	CONGNATM	WESTON	LNG	550				
21	CONGNATM	WESTON	LMB	425		1132		
22	CONGNATM	WESTON	LMB	280		260		
23	CONGNATM	WESTON	LMB	186		80		
24	CONGNATM	WESTON	LMB	320		390		
25	CONGNATM	WESTON	WAR	173		108		
26	CONGNATM	WESTON	WAR	177		121		
27	CONGNATM	WESTON	WAR	107		25		
28	CONGNATM	WESTON	MSQ	22				
29	CONGNATM	WESTON	BLG	32				
30	CONGNATM	WESTON	BLG	30				
31	CONGNATM	WESTON	BLG	27				
32	CONGNATM	WESTON	BLG	25				
33	CONGNATM	WESTON	BLG	115		23		
34	CONGNATM	WESTON	LMB	98		12		
35	CONGNATM	WESTON	BLG	105		21		
36	CONGNATM	WESTON	WAR	130		36		

RECORD#	LOCATION	PLACE	SPECIES		TL	MM	WT	GR	AGE
			W	AR					
37	CONGNATM	WESTON				153	70		
38	CONGNATM	WESTON	PIP		75				
39	CONGNATM	WESTON	BLG		125		30		
40	CONGNATM	WESTON	BLG		83				
41	CONGNATM	WESTON	BLG		82				
42	CONGNATM	WESTON	BLG		80				
43	CONGNATM	WESTON	BLG		72				
44	CONGNATM	WESTON	WAR		73				
45	CONGNATM	WESTON	BLG		36				
46	CONGNATM	WESTON	LMB		38				
47	CONGNATM	WESTON	LMB		83				
48	CONGNATM	WESTON	BSS		48				
49	CONGNATM	WESTON	MSQ		42				
50	CONGNATM	WESTON	MSQ		40				
51	CONGNATM	WESTON	MSQ		40				
52	CONGNATM	WESTON	MSQ		31				
53	CONGNATM	WESTON	RES		63				
54	CONGNATM	WESTON	BLG		26				
55	CONGNATM	WESTON	BLG		27				
56	CONGNATM	WESTON	BLG		25				
57	CONGNATM	WESTON	BLG		164		72		
58	CONGNATM	WESTON	BLG		65				
59	CONGNATM	WESTON	BLG		80				
60	CONGNATM	WESTON	CCS		45				
61	CONGNATM	WESTON	MSQ		20				
62	CONGNATM	WESTON	BLG		58				
63	CONGNATM	WESTON	BLG		25				
64	CONGNATM	WESTON	BLG		20				
65	CONGNATM	WESTON	MSQ		30				
66	CONGNATM	WESTON	BLG		35				
67	CONGNATM	WESTON	LMB		362		635		4+
68	CONGNATM	WESTON	LMB		242		183		2+
69	CONGNATM	WESTON	LMB		190		86		1+
70	CONGNATM	WESTON	LMB		410		950		5+
71	CONGNATM	WESTON	LMB		365		632		4+
72	CONGNATM	WESTON	LMB		280		280		2+
73	CONGNATM	WESTON	LMB		270		245		2+
74	CONGNATM	WESTON	LMB		200		105		1+
75	CONGNATM	WESTON	LMB		176		60		1+
76	CONGNATM	WESTON	BLG		186		122		5+
77	CONGNATM	WESTON	BLG		174		96		4+
78	CONGNATM	WESTON	BLG		128		103		4+
79	CONGNATM	WESTON	BLG		184		122		3+
80	CONGNATM	WESTON	BLG		185		110		4+
81	CONGNATM	WESTON	BLG		95		13		1+
82	CONGNATM	WESTON	BLG		118		25		2+
83	CONGNATM	WESTON	BLG		87		12		1+
84	CONGNATM	WESTON	BLG		100		19		1+
85	CONGNATM	WESTON	BLG		87		10		1+
86	CONGNATM	WESTON	BLG		82		9		1+
87	CONGNATM	WESTON	BLG		56		4		1+
88	CONGNATM	WESTON	BLG		61		4		1+
89	CONGNATM	WESTON	BLG		53		2		1+
90	CONGNATM	WESTON	PIP		30				
91	CONGNATM	WESTON	PIP		31				
92	CONGNATM	WESTON	PIP		34				
93	CONGNATM	WESTON	CCS		47				
94	CONGNATM	WESTON	CCS		44				
95	CONGNATM	WESTON	CCS		45				
96	CONGNATM	WESTON	CCS		42				
97	CONGNATM	WESTON	BLC		52				
98	CONGNATM	WESTON	DSF		53				
99	CONGNATM	WESTON	DSF		69				
100	CONGNATM	WESTON	DSF		54				
101	CONGNATM	WESTON	DSF		60				
102	CONGNATM	WESTON	DSF		53				
103	CONGNATM	WESTON	DSF		46				

<u>RECORD#</u>	<u>LOCATION</u>	<u>PLACE</u>	<u>SPECIES</u>	<u>TL</u>	<u>MM</u>	<u>WT</u>	<u>GR</u>	<u>AGE</u>
104	CONGNATM	WESTON	DSF	59				
105	CONGNATM	WESTON	DSF	60				
106	CONGNATM	WESTON	GLS	50				
107	CONGNATM	WESTON	GLS	55				
108	CONGNATM	WESTON	GLS	49				
109	CONGNATM	WESTON	GLS	53				
110	CONGNATM	WESTON	GLS	50				
111	CONGNATM	WESTON	GLS	46				
112	CONGNATM	WESTON	GLS	48				
113	CONGNATM	WESTON	GLS	49				
114	CONGNATM	WESTON	GLS	52				
115	CONGNATM	WESTON	GLS	46				
116	CONGNATM	WESTON	GLS	52				
117	CONGNATM	WESTON	GLS	51				
118	CONGNATM	WESTON	GLS	46				
119	CONGNATM	WESTON	GLS	44				
120	CONGNATM	WESTON	GLS	50				
121	CONGNATM	WESTON	GLS	53				
122	CONGNATM	WESTON	GLS	51				
123	CONGNATM	WESTON	GLS	51				
124	CONGNATM	WESTON	GLS	43				
125	CONGNATM	WESTON	GLS	49				
126	CONGNATM	WESTON	ICS	53				
127	CONGNATM	WESTON	ICS	45				
128	CONGNATM	WESTON	ICS	43				
129	CONGNATM	WESTON	ICS	58				
130	CONGNATM	WESTON	ICS	49				
131	CONGNATM	WESTON	ICS	47				
132	CONGNATM	WESTON	ICS	43				
133	CONGNATM	WESTON	ICS	54				
134	CONGNATM	WESTON	ICS	51				
135	CONGNATM	WESTON	ICS	43				
136	CONGNATM	WESTON	ICS	48				
137	CONGNATM	WESTON	ICS	43				
138	CONGNATM	WESTON	ICS	49				
139	CONGNATM	WESTON	ICS	55				
140	CONGNATM	WESTON	ICS	61				
141	CONGNATM	WESTON	ICS	53				
142	CONGNATM	WESTON	ICS	56				
143	CONGNATM	WESTON	ICS	48				
144	CONGNATM	WESTON	ICS	46				
145	CONGNATM	WISE	BLC	59				
146	CONGNATM	WISE	BLC	55				
147	CONGNATM	WISE	BLC	58				
148	CONGNATM	WISE	BLC	57				
149	CONGNATM	WISE	BLC	52				
150	CONGNATM	WISE	BLC	54				
151	CONGNATM	WISE	BLC	59				
152	CONGNATM	WISE	BLC	54				
153	CONGNATM	WISE	BLC	59				
154	CONGNATM	WISE	BLC	59				
155	CONGNATM	WISE	BLC	55				
156	CONGNATM	WISE	BLC	68				
157	CONGNATM	WISE	BLC	56				
158	CONGNATM	WISE	BLC	57				
159	CONGNATM	WISE	BLC	61				
160	CONGNATM	WISE	BLC	109				
161	CONGNATM	WISE	PIP	30				
162	CONGNATM	WISE	CCS	67				
163	CONGNATM	WISE	CCS	68				
164	CONGNATM	WISE	CCS	75				
165	CONGNATM	WISE	CCS	65				
166	CONGNATM	WISE	CCS	70				
167	CONGNATM	WISE	CCS	70				
168	CONGNATM	WISE	BLS	53				
169	CONGNATM	WISE	WAR	69				
170	CONGNATM	WISE	GLS	60				
	CONGNATM	WISE	TLS	58				

<u>RECORD#</u>	<u>LOCATION</u>	<u>PLACE</u>	<u>SPECIES</u>	<u>TL</u>	<u>MM</u>	<u>WT</u>	<u>GR</u>	<u>AGE</u>
171	CONGNATM	WISE	TLS	58				
172	CONGNATM	WISE	TLS	61				
173	CONGNATM	WISE	TLS	57				
174	CONGNATM	WISE	TLS	64				
175	CONGNATM	WISE	ICS	50				
176	CONGNATM	WISE	ICS	52				
177	CONGNATM	WISE	ICS	54				
178	CONGNATM	WISE	ICS	56				
179	CONGNATM	WISE	ICS	51				
180	CONGNATM	WISE	ICS	48				
181	CONGNATM	WISE	ICS	29				
182	CONGNATM	WISE	BLG	36				
183	CONGNATM	WISE	BLG	41				
184	CONGNATM	WISE	BLG	40				
185	CONGNATM	WISE	BLG	35				
186	CONGNATM	WISE	BLG	40				
187	CONGNATM	WISE	BLG	41				
188	CONGNATM	WISE	BLG	30				
189	CONGNATM	WISE	BLG	36				
190	CONGNATM	WISE	BLG	33				
191	CONGNATM	WISE	BLG	30				
192	CONGNATM	WISE	BLG	40				
193	CONGNATM	WISE	BLG	31				
194	CONGNATM	WISE	BLG	41				
195	CONGNATM	WISE	BLG	32				
196	CONGNATM	WISE	BLG	30				
197	CONGNATM	WISE	BLG	39				
198	CONGNATM	WISE	BLG	30				
199	CONGNATM	WISE	BLG	45				
200	CONGNATM	WISE	BLG	26				
201	CONGNATM	WISE	BLG	25				
202	CONGNATM	WISE	BLG	39				
203	CONGNATM	WISE	BLG	26				
204	CONGNATM	WISE	BLG	29				
205	CONGNATM	WISE	BLG	28				
206	CONGNATM	WISE	BLG	23				
207	CONGNATM	WISE	BLG	24				
208	CONGNATM	WISE	BLG	42				
209	CONGNATM	WISE	BLG	35				
210	CONGNATM	WISE	BLG	29				
211	CONGNATM	WISE	BLG	21				
212	CONGNATM	WISE	BLG	36				
213	CONGNATM	WISE	BLG	26				
214	CONGNATM	WISE	BLG	21				
215	CONGNATM	WISE	BLG	31				
216	CONGNATM	WISE	BLG	26				
217	CONGNATM	WISE	BLG	30				
218	CONGNATM	WISE	BLG	35				
219	CONGNATM	WISE	BLG	30				
220	CONGNATM	WISE	BLG	22				
221	CONGNATM	WISE	BLG	20				
222	CONGNATM	WISE	BLG	26				
223	CONGNATM	WISE	BLG	30				
224	CONGNATM	WISE	BLG	31				
225	CONGNATM	WISE	BLG	30				
226	CONGNATM	WISE	BLG	25				
227	CONGNATM	WISE	BLG	28				
228	CONGNATM	WISE	BLG	31				
229	CONGNATM	WISE	BLG	30				
230	CONGNATM	WISE	BLG	20				
231	CONGNATM	WISE	BLG	30				
232	CONGNATM	WISE	BLG	26				
233	CONGNATM	WISE	BLG	35				
234	CONGNATM	WISE	BLG	19				
235	CONGNATM	WISE	BLG	32				
236	CONGNATM	WISE	BLG	20				
237	CONGNATM	WISE	BLG	31				

<u>RECORD#</u>	<u>LOCATION</u>	<u>PLACE</u>	<u>SPECIES</u>	<u>TL</u>	<u>NM</u>	<u>WT</u>	<u>GR</u>	<u>AGE</u>
238	CONGNATM	WISE	BLG	39				
239	CONGNATM	WISE	BLG	26				
240	CONGNATM	WISE	BLG	30				
241	CONGNATM	WISE	LMB	334		491		2+
242	CONGNATM	WISE	LMB	329		476		2+
243	CONGNATM	WISE	LMB	297		355		2+
244	CONGNATM	WISE	LMB	163		48		1+
245	CONGNATM	WISE	BLG	196		140		6+
246	CONGNATM	WISE	BLG	184		108		4+
247	CONGNATM	WISE	BLG	135		44		2+
248	CONGNATM	WISE	BLG	105		24		1+
249	CONGNATM	WISE	BLG	120		28		2+
250	CONGNATM	WISE	BLG	115		30		2+
251	CONGNATM	WISE	BLG	125		38		2+
252	CONGNATM	WISE	BLG	115		28		3+
253	CONGNATM	WISE	BLG	116		24		2+
254	CONGNATM	WISE	BLG	100		16		1+
255	CONGNATM	WISE	BLG	90		12		1+
256	CONGNATM	WISE	BLG	82		12		1+
257	CONGNATM	WISE	BLG	79		8		1+
258	CONGNATM	WISE	BLG	81		10		1+
259	CONGNATM	WISE	BLG	73		7		1+
260	CONGNATM	WISE	BLG	65		5		1+
261	CONGNATM	WISE	BLG	66		6		1+
262	CONGNATM	WISE	BLG	55		3		1+
263	CONGNATM	WISE	BLG	49		3		1+
264	CONGNATM	WISE	CRP	419				
265	CONGNATM	WISE	CRP	657				
266	CONGNATM	WISE	CRP	545				
267	CONGNATM	WISE	CRP	531				
268	CONGNATM	WISE	BFN	780				
269	CONGNATM	WISE	BFN	568				
270	CONGNATM	WISE	BFN	538				
271	CONGNATM	WISE	BFN	631				
272	CONGNATM	WISE	BFN	595				
273	CONGNATM	WISE	BSS	46				
274	CONGNATM	WISE	LNG	451				
275	CONGNATM	WISE	SPS	432				
276	CONGNATM	WISE	LKC	273				
277	CONGNATM	WISE	CHP	294		142		
278	CONGNATM	WISE	FLR	119		28		
279	CONGNATM	WISE	FLR	126		33		
280	CONGNATM	WISE	DSF	94		16		
281	CONGNATM	WISE	DSF	85		12		
282	CONGNATM	WISE	DSF	81		10		
283	CONGNATM	WISE	DSF	74				
284	CONGNATM	WISE	DSF	68				
285	CONGNATM	WISE	DSF	76				
286	CONGNATM	WISE	DSF	62				
287	CONGNATM	WISE	DSF	62				
288	CONGNATM	WISE	DSF	58				
289	CONGNATM	WISE	DSF	73				
290	CONGNATM	WISE	DSF	78				
291	CONGNATM	WISE	DSF	66				
292	CONGNATM	WISE	DSF	69				
293	CONGNATM	WISE	DSF	61				
294	CONGNATM	WISE	DSF	58				
295	CONGNATM	WISE	DSF	70				
296	CONGNATM	WISE	DSF	75				
297	CONGNATM	WISE	DSF	70				
298	CONGNATM	WISE	DSF	59				
299	CONGNATM	WISE	DSF	55				
300	CONGNATM	WISE	WAR	191		150		
301	CONGNATM	WISE	WAR	179		122		
302	CONGNATM	WISE	WAR	97		17		
303	CONGNATM	WISE	WAR	171		100		
304	CONGNATM	WISE	WAR	35				

<u>RECORD#</u>	<u>LOCATION</u>	<u>PLACE</u>	<u>SPECIES</u>	<u>TL</u>	<u>MM</u>	<u>WT</u>	<u>GR</u>	<u>AGE</u>
305	CONGNATM	WISE	WAR	60				
306	CONGNATM	WISE	WAR	101				
307	CONGNATM	WISE	WAR	67				
308	CONGNATM	WISE	RBS	186		114		
309	CONGNATM	WISE	RBS	203		180		
310	CONGNATM	WISE	RBS	167		100		
311	CONGNATM	WISE	RBS	186		112		
312	CONGNATM	WISE	RBS	170		86		
313	CONGNATM	WISE	RES	99		18		
314	CONGNATM	WISE	RES	154		58		
315	CONGNATM	WISE	RES	135		40		
316	CONGNATM	WISE	RES	135		40		
317	CONGNATM	WISE	RES	104		20		
318	CONGNATM	WISE	RES	142		48		
319	CONGNATM	WISE	RES	75		8		
320	CONGNATM	WISE	RES	61		4		
321	CONGNATM	WISE	RES	67				
322	CONGNATM	WISE	MSQ	25				
323	CONGNATM	WISE	MSQ	20				
324	CONGNATM	WISE	MSQ	30				
325	CONGNATM	WISE	MSQ	26				
326	CONGNATM	WISE	MSQ	19				
327	CONGNATM	WISE	MSQ	16				
328	CONGNATM	WISE	LMB	465		1128		
329	CONGNATM	WISE	LMB	586		2374		
330	CONGNATM	WISE	LMB	347		423		
331	CONGNATM	WISE	LMB	425		799		
332	CONGNATM	WISE	LMB	380		611		
333	CONGNATM	WISE	LMB	61				
334	CONGNATM	WISE	LMB	76				
335	CONGNATM	WISE	LMB	47				
336	CONGNATM	WISE	BLG	87		12		
337	CONGNATM	WISE	BLG	132		40		
338	CONGNATM	WISE	BLG	73		4		
339	CONGNATM	WISE	BLG	156		60		
340	CONGNATM	WISE	BLG	81		8		
341	CONGNATM	WISE	BLG	128		32		
342	CONGNATM	WISE	BLG	110		24		
343	CONGNATM	WISE	BLG	89		15		
344	CONGNATM	WISE	BLG	89		12		
345	CONGNATM	WISE	BLG	130		34		
346	CONGNATM	WISE	BLG	97		15		
347	CONGNATM	WISE	BLG	94		17		
348	CONGNATM	WISE	BLG	79		12		
349	CONGNATM	WISE	BLG	87				
350	CONGNATM	WISE	BLG	69				
351	CONGNATM	WISE	BLG	63				
352	CONGNATM	WISE	BLG	78				
353	CONGNATM	WISE	BLG	37				
354	CONGNATM	WISE	BLG	41				
355	CONGNATM	WISE	BLG	33				
356	CONGNATM	WISE	BLG	76				
357	CONGNATM	WISE	BLG	30				
358	CONGNATM	WISE	BLG	66				
359	CONGNATM	WISE	BLG	42				
360	CONGNATM	WISE	BLG	60				
361	CONGNATM	WISE	BLG	30				
362	CONGNATM	WISE	BLG	89				
363	CONGNATM	WISE	BLG	28				
364	CONGNATM	WISE	BLG	35				
365	CONGNATM	WISE	BLG	60				
366	CONGNATM	WISE	BLG	40				
367	CONGNATM	WISE	BLG	41				
368	CONGNATM	WISE	BLG	39				
369	CONGNATM	WISE	BLG	34				
370	CONGNATM	WISE	BLG	30				
371	CONGNATM	WISE	BLG	35				

<u>RECORD#</u>	<u>LOCATION</u>	<u>PLACE</u>	<u>SPECIES</u>	<u>TL</u>	<u>MM</u>	<u>WT</u>	<u>GR</u>	<u>AGE</u>
372	CONGNATM	WISE	BLG		35			
373	CONGNATM	WISE	BLG		33			
374	CONGNATM	WISE	BLG		35			
375	CONGNATM	WISE	BLG		34			
376	CONGNATM	WISE	BLG		34			
377	CONGNATM	WISE	BLG		31			
378	CONGNATM	WISE	BLG		30			
379	CONGNATM	WISE	BLG		30			
380	CONGNATM	WISE	BLG		31			
381	CONGNATM	WISE	BLG		27			
382	CONGNATM	WISE	BLG		30			
383	CONGNATM	WISE	BLG		74			
384	CONGNATM	WISE	BLG		57			
385	CONGNATM	WISE	BLG		38			
386	CONGNATM	WISE	BLG		39			
387	CONGNATM	WISE	BLG		33			
388	CONGNATM	WISE	BLG		30			
389	CONGNATM	WISE	BLG		59			
390	CONGNATM	WISE	BLG		36			
391	CONGNATM	WISE	SWD		35			

Appendix E. Fish collection data from Cedar Creek, Congaree Swamp National Monument, South Carolina. Keys to abbreviations are:

cc-b = Cedar Creek, just downstream from Wise Lake bridge
 cc-a = Cedar Creek, just upstream from Wise Lake bridge
 cc-at = Cedar Creek shoal, just downstream from Wise Lake bridge
 cc-br = Cedar Creek at Red Bluff Road
 cc-scor = Cedar Creek at South Cedar Creek Road

bt-e = boat electrofishing
 bk-e = backpack electrofishing

Fish collection data from Cedar Creek, Congaree Swamp National Monument, South Carolina. Collections were made by boat and backpack electrofishing on October 22, 1996.

<u>Location</u>	<u>Method</u>	<u>Species</u>	<u>Length</u>	<u>Weight</u>
cc-b	bt-e	Yellow perch	182	70
cc-a	bt-e	Yellow perch	182	65
cc-b	bt-e	Yellow perch	166	43
cc-b	bt-e	Yellow perch	162	37
cc-a	bt-e	Yellow perch	144	24
cc-b	bt-e	Warmouth	202	185
cc-at	bk-e	Warmouth	160	81
cc-b	bt-e	Warmouth	138	.
cc-at	bk-e	Warmouth	138	51
cc-at	bk-e	Warmouth	127	37
cc-a	bt-e	Warmouth	125	35
cc-at	bk-e	Warmouth	123	32
cc-a	bt-e	Warmouth	115	26
cc-at	bk-e	Warmouth	112	26
cc-at	bk-e	Warmouth	111	27
cc-at	bk-e	Warmouth	111	20
cc-at	bk-e	Warmouth	105	20
cc-at	bk-e	Warmouth	85	9
cc-a	bt-e	Warmouth	76	.
cc-a	bt-e	Warmouth	75	.
cc-a	bt-e	Warmouth	72	6
cc-at	bk-e	Warmouth	67	.
cc-at	bk-e	Tadpole madtom	65	.
cc-b	bt-e	Spotted sunfish	126	47
cc-b	bt-e	Spotted sunfish	115	32
cc-a	bt-e	Spotted sunfish	112	30
cc-a	bt-e	Spotted sunfish	111	30
cc-a	bt-e	Spotted sunfish	110	29
cc-a	bt-e	Spotted sunfish	109	27
cc-b	bt-e	Spotted sunfish	83	11
cc-b	bt-e	Spotted sunfish	66	.
cc-at	bk-e	Spotted sunfish	56	.
cc-b	bt-e	Spotted sunfish	55	.
cc-b	bt-e	Spotted sucker	372	499
cc-at	bk-e	Spotted sucker	87	14
cc-b	bt-e	Redear sunfish	211	160
cc-b	bt-e	Redear sunfish	207	156
cc-b	bt-e	Redear sunfish	196	133
cc-b	bt-e	Redear sunfish	189	62
cc-b	bt-e	Redear sunfish	181	102
cc-b	bt-e	Redear sunfish	181	100
cc-b	bt-e	Redear sunfish	177	89
cc-b	bt-e	Redear sunfish	175	72
cc-b	bt-e	Redear sunfish	162	65
cc-b	bt-e	Redear sunfish	161	66
cc-b	bt-e	Redear sunfish	160	62
cc-b	bt-e	Redear sunfish	156	65
cc-b	bt-e	Redear sunfish	149	46

<u>Location</u>	<u>Method</u>	<u>Species</u>	<u>Length</u>	<u>Weight</u>
cc-b	bt-e	Redear sunfish	128	32
cc-a	bt-e	Redear sunfish	108	18
cc-at	bk-e	Redear sunfish	76	.
cc-b	bt-e	Redbreast sunfish	213	182
cc-b	bt-e	Redbreast sunfish	203	157
cc-b	bt-e	Redbreast sunfish	192	132
cc-b	bt-e	Redbreast sunfish	187	129
cc-b	bt-e	Redbreast sunfish	183	104
cc-b	bt-e	Redbreast sunfish	178	100
cc-b	bt-e	Redbreast sunfish	161	86
cc-a	bt-e	Redbreast sunfish	160	72
cc-b	bt-e	Redbreast sunfish	157	87
cc-a	bt-e	Redbreast sunfish	150	69
cc-b	bt-e	Redbreast sunfish	145	56
cc-b	bt-e	Redbreast sunfish	143	57
cc-a	bt-e	Redbreast sunfish	143	58
cc-b	bt-e	Redbreast sunfish	134	39
cc-b	bt-e	Redbreast sunfish	133	41
cc-b	bt-e	Redbreast sunfish	129	38
cc-a	bt-e	Redbreast sunfish	125	34
cc-at	bk-e	Redbreast sunfish	125	33
cc-b	bt-e	Redbreast sunfish	123	26
cc-at	bk-e	Redbreast sunfish	122	27
cc-b	bt-e	Redbreast sunfish	119	28
cc-a	bt-e	Redbreast sunfish	119	28
cc-b	bt-e	Redbreast sunfish	118	27
cc-a	bt-e	Redbreast sunfish	115	24
cc-b	bt-e	Redbreast sunfish	114	22
cc-a	bt-e	Redbreast sunfish	112	23
cc-at	bk-e	Redbreast sunfish	108	20
cc-b	bt-e	Redbreast sunfish	103	19
cc-at	bk-e	Redbreast sunfish	90	11
cc-a	bt-e	Redbreast sunfish	89	11
cc-a	bt-e	Redbreast sunfish	84	8
cc-a	bk-e	Redbreast sunfish	84	13
cc-at	bk-e	Redbreast sunfish	84	.
cc-at	bk-e	Redbreast sunfish	79	.
cc-at	bk-e	Redbreast sunfish	75	.
cc-at	bk-e	Redbreast sunfish	66	.
cc-at	bk-e	Redbreast sunfish	65	.
cc-a	bt-e	Redbreast sunfish	60	.
cc-at	bt-e	Redbreast sunfish	59	.
cc-b	bk-e	Redbreast sunfish	56	.
cc-at	bk-e	Redbreast sunfish	50	.
cc-at	bk-e	Redbreast sunfish	49	.
cc-at	bk-e	Redbreast sunfish	46	.
cc-b	bk-e	Redbreast sunfish	45	.
cc-at	bk-e	Redbreast sunfish	45	.
cc-b	bt-e	Redbreast sunfish	44	.
cc-b	bt-e	Redbreast sunfish	41	.
cc-at	bk-e	Redbreast sunfish	38	.
cc-b	bt-e	Redbreast sunfish	37	.
cc-b	bt-e	Redbreast sunfish	37	.
cc-at	bk-e	Redbreast sunfish	36	.
cc-at	bk-e	Pirate perch	46	.
cc-at	bk-e	Mosquitofish	27	.
cc-at	bk-e	Mosquitofish	23	.
cc-at	bk-e	Margined madom	98	.
cc-at	bk-e	Margined madom	91	.
cc-at	bk-e	Margined madom	90	.
cc-at	bk-e	Margined madom	74	.
cc-at	bk-e	Margined madom	69	.
cc-at	bk-e	Margined madom	61	.
cc-a	bt-e	Largemouth bass	325	454
cc-b	bt-e	Largemouth bass	300	328
cc-b	bt-e	Largemouth bass	274	258
cc-b	bt-e	Largemouth bass	264	241

<u>Location</u>	<u>Method</u>	<u>Species</u>	<u>Length</u>	<u>Weight</u>
cc-b	bt-e	Largemouth bass	211	109
cc-b	bt-e	Largemouth bass	205	111
cc-at	bt-e	Largemouth bass	84	6
cc-b	bt-e	Gizzard shad	333	353
cc-b	bt-e	Flier	136	39
cc-b	bt-e	Dollar sunfish	100	14
cc-a	bt-e	Dollar sunfish	93	15
cc-b	bt-e	Dollar sunfish	85	11
cc-b	bt-e	Dollar sunfish	82	.
cc-a	bt-e	Dollar sunfish	80	.
cc-b	bt-e	Dollar sunfish	79	8
cc-at	bt-e	Dollar sunfish	76	.
cc-a	bt-e	Dollar sunfish	71	.
cc-a	bt-e	Dollar sunfish	71	.
cc-a	bt-e	Dollar sunfish	66	.
cc-a	bt-e	Dollar sunfish	66	.
cc-at	bt-e	Dollar sunfish	62	.
cc-b	bt-e	Dollar sunfish	61	.
cc-a	bt-e	Dollar sunfish	61	.
cc-a	bt-e	Dollar sunfish	58	.
cc-a	bt-e	Dollar sunfish	53	.
cc-at	bt-e	Dollar sunfish	50	.
cc-a	bt-e	Dollar sunfish	43	.
cc-a	bt-e	Creek chubsucker	272	10
cc-at	bt-e	Coastal shiner	58	.
cc-b	bt-e	Coastal shiner	43	.
cc-b	bt-e	Coastal shiner	41	.
cc-b	bt-e	Coastal shiner	36	.
cc-b	bt-e	Coastal shiner	35	.
cc-b	bt-e	Coastal shiner	35	.
cc-at	bt-e	Coastal shiner	35	.
cc-at	bt-e	Coastal shiner	34	.
cc-b	bt-e	Coastal shiner	21	.
cc-b	bt-e	Coastal shiner	20	.
cc-b	bt-e	Coastal shiner	18	.
cc-b	bt-e	Coastal shiner	17	.
cc-b	bt-e	Coastal shiner	14	.
cc-b	bt-e	Coastal shiner	10	.
cc-b	bt-e	Coastal shiner	10	.
cc-a	bt-e	Chain pickerel	310	159
cc-a	bt-e	Brook silverside	68	.
cc-a	bt-e	Brook silverside	65	.
cc-a	bt-e	Brook silverside	63	.
cc-a	bt-e	Brook silverside	59	.
cc-at	bt-e	Brook silverside	59	.
cc-at	bt-e	Brook silverside	55	.
cc-at	bt-e	Brook silverside	50	.
cc-a	bt-e	Brook silverside	46	.
cc-at	bt-e	Brook silverside	45	.
cc-at	bt-e	Brook silverside	42	.
cc-at	bt-e	Brook silverside	38	.
cc-at	bt-e	Brook silverside	36	.
cc-b	bt-e	Brook silverside	35	.
cc-b	bt-e	Brook silverside	33	.
cc-at	bt-e	Brook silverside	29	.
cc-b	bt-e	Brook silverside	28	.
cc-b	bt-e	Brook silverside	27	.
cc-b	bt-e	Brook silverside	26	.
cc-b	bt-e	Brook silverside	26	.
cc-b	bt-e	Brook silverside	26	.
cc-at	bt-e	Brook silverside	25	.
cc-b	bt-e	Brook silverside	25	.
cc-a	bt-e	Brook silverside	25	.
cc-b	bt-e	Brook silverside	24	.
cc-a	bt-e	Brook silverside	24	.
cc-at	bt-e	Brook silverside	23	.
cc-b	bt-e	Brook silverside	22	.

<u>Location</u>	<u>Method</u>	<u>Species</u>	<u>Length</u>	<u>Weight</u>
oo-b	br-e	Brook silverside	21	.
oo-b	br-e	Brook silverside	21	.
oo-b	br-e	Brook silverside	21	.
oo-a	br-e	Brook silverside	21	.
oo-b	br-e	Brook silverside	20	.
oo-b	br-e	Brook silverside	20	.
oo-b	br-e	Brook silverside	20	.
oo-b	br-e	Brook silverside	20	.
oo-b	br-e	Brook silverside	20	.
oo-b	br-e	Brook silverside	20	.
oo-b	br-e	Brook silverside	19	.
oo-b	br-e	Brook silverside	19	.
oo-a	br-e	Brook silverside	18	.
oo-at	br-e	Brook silverside	18	.
oo-b	br-e	Brook silverside	15	.
oo-b	br-e	Brook silverside	13	.
oo-a	br-e	Bovfin	630	2315
oo-b	br-e	Bluegill	179	109
oo-b	br-e	Bluegill	178	110
oo-b	br-e	Bluegill	171	95
oo-a	br-e	Bluegill	132	41
oo-b	br-e	Bluegill	131	35
oo-b	br-e	Bluegill	130	33
oo-a	br-e	Bluegill	112	22
oo-b	br-e	Bluegill	106	.
oo-a	br-e	Bluegill	105	17
oo-a	br-e	Bluegill	92	11
oo-b	br-e	Bluegill	91	11
oo-at	br-e	Bluegill	88	13
oo-b	br-e	Bluegill	86	.
oo-b	br-e	Bluegill	47	.
oo-b	br-e	Bluegill	45	.
oo-b	br-e	Bluegill	43	.
oo-b	br-e	Bluegill	42	.
oo-b	br-e	Bluegill	42	.
oo-b	br-e	Bluegill	41	.
oo-b	br-e	Bluegill	41	.
oo-b	br-e	Bluegill	40	.
oo-b	br-e	Bluegill	40	.
oo-b	br-e	Bluegill	38	.
oo-b	br-e	Bluegill	37	.
oo-b	br-e	Bluegill	37	.
oo-b	br-e	Bluegill	37	.
oo-b	br-e	Bluegill	36	.
oo-b	br-e	Bluegill	36	.
oo-b	br-e	Bluegill	36	.
oo-b	br-e	Bluegill	35	.
oo-b	br-e	Bluegill	35	.
oo-b	br-e	Bluegill	35	.
oo-b	br-e	Bluegill	35	.
oo-b	br-e	Bluegill	35	.
oo-b	br-e	Bluegill	33	.
oo-b	br-e	Bluegill	33	.
oo-b	br-e	Bluegill	33	.
oo-b	br-e	Bluegill	32	.
oo-b	br-e	Bluegill	32	.
oo-b	br-e	Bluegill	32	.
oo-b	br-e	Bluegill	31	.
oo-b	br-e	Bluegill	30	.
oo-b	br-e	Bluegill	30	.
oo-at	br-e	Bluegill	30	.
oo-a	br-e	Bluegill	29	.
oo-b	br-e	Bluegill	28	.

Fish collection data from Cedar Creek, Congaree Swamp National Monument, South Carolina. Collections were made by boat electrofishing on October 29, 1996.

<u>Location</u>	<u>Method</u>	<u>Species</u>	<u>Length</u>	<u>Weight</u>
cc-b	bl-e	Bluegill	28	.
cc-at	bl-e	Bluegill	27	.
cc-b	bl-e	Bluegill	25	.
cc-b	bl-e	Bluegill	25	.
cc-secr	bl-e	Yellow perch	243	.
cc-secr	bl-e	Yellow perch	237	.
cc-rbr	bl-e	Yellow perch	160	.
cc-rbr	bl-e	Warmouth	174	.
cc-rbr	bl-e	Warmouth	162	.
cc-rbr	bl-e	Warmouth	159	.
cc-rbr	bl-e	Warmouth	157	.
cc-rbr	bl-e	Warmouth	147	.
cc-rbr	bl-e	Warmouth	143	.
cc-rbr	bl-e	Warmouth	131	.
cc-rbr	bl-e	Warmouth	123	.
cc-rbr	bl-e	Warmouth	122	.
cc-rbr	bl-e	Warmouth	120	.
cc-rbr	bl-e	Warmouth	114	.
cc-secr	bl-e	Warmouth	104	.
cc-rbr	bl-e	Warmouth	100	.
cc-rbr	bl-e	Warmouth	99	.
cc-secr	bl-e	Warmouth	98	.
cc-rbr	bl-e	Warmouth	90	.
cc-secr	bl-e	Warmouth	86	.
cc-rbr	bl-e	Warmouth	80	.
cc-rbr	bl-e	Warmouth	74	.
cc-rbr	bl-e	Warmouth	67	.
cc-rbr	bl-e	Spotted sunfish	127	.
cc-rbr	bl-e	Spotted sunfish	124	.
cc-rbr	bl-e	Spotted sunfish	114	.
cc-rbr	bl-e	Spotted sunfish	112	.
cc-rbr	bl-e	Spotted sunfish	105	.
cc-rbr	bl-e	Spotted sunfish	102	.
cc-rbr	bl-e	Spotted sunfish	100	.
cc-rbr	bl-e	Spotted sunfish	97	.
cc-rbr	bl-e	Spotted sunfish	93	.
cc-rbr	bl-e	Spotted sunfish	92	.
cc-rbr	bl-e	Spotted sunfish	79	.
cc-rbr	bl-e	Spotted sunfish	72	.
cc-rbr	bl-e	Spotted sunfish	71	.
cc-secr	bl-e	Spotted sucker	352	.
cc-secr	bl-e	Spotted sucker	332	.
cc-rbr	bl-e	Spotted sucker	244	.
cc-rbr	bl-e	Redfin pickerel	147	.
cc-rbr	bl-e	Redfin pickerel	130	.
cc-rbr	bl-e	Redbreast sunfish	221	.
cc-rbr	bl-e	Redbreast sunfish	165	.
cc-rbr	bl-e	Redbreast sunfish	135	.
cc-secr	bl-e	Redbreast sunfish	130	.
cc-secr	bl-e	Redbreast sunfish	130	.
cc-secr	bl-e	Redbreast sunfish	130	.
cc-secr	bl-e	Redbreast sunfish	128	.
cc-secr	bl-e	Redbreast sunfish	126	.
cc-rbr	bl-e	Redbreast sunfish	115	.
cc-rbr	bl-e	Redbreast sunfish	112	.
cc-rbr	bl-e	Redbreast sunfish	111	.
cc-rbr	bl-e	Redbreast sunfish	110	.
cc-secr	bl-e	Redbreast sunfish	106	.
cc-rbr	bl-e	Redbreast sunfish	106	.
cc-secr	bl-e	Redbreast sunfish	103	.

<u>Location</u>	<u>Method</u>	<u>Species</u>	<u>Length</u>	<u>Weight</u>
00-secr	bl-e	Redbreast sunfish	100	.
00-rbr	bl-e	Redbreast sunfish	99	.
00-rbr	bl-e	Redbreast sunfish	98	.
00-rbr	bl-e	Redbreast sunfish	97	.
00-rbr	bl-e	Redbreast sunfish	97	.
00-rbr	bl-e	Redbreast sunfish	93	.
00-secr	bl-e	Redbreast sunfish	92	.
00-secr	bl-e	Redbreast sunfish	92	.
00-rbr	bl-e	Redbreast sunfish	86	.
00-secr	bl-e	Redbreast sunfish	86	.
00-secr	bl-e	Redbreast sunfish	84	.
00-secr	bl-e	Redbreast sunfish	83	.
00-rbr	bl-e	Redbreast sunfish	82	.
00-rbr	bl-e	Redbreast sunfish	80	.
00-rbr	bl-e	Redbreast sunfish	80	.
00-secr	bl-e	Redbreast sunfish	79	.
00-rbr	bl-e	Redbreast sunfish	75	.
00-rbr	bl-e	Redbreast sunfish	62	.
00-rbr	bl-e	Redbreast sunfish	60	.
00-rbr	bl-e	Redbreast sunfish	45	.
00-rbr	bl-e	Pirate perch	109	.
00-rbr	bl-e	Pirate perch	106	.
00-rbr	bl-e	Pirate perch	104	.
00-rbr	bl-e	Pirate perch	93	.
00-rbr	bl-e	Pirate perch	73	.
00-rbr	bl-e	Pirate perch	68	.
00-rbr	bl-e	Pirate perch	57	.
00-secr	bl-e	Margined madtom	95	.
00-secr	bl-e	Largemouth bass	209	.
00-rbr	bl-e	Largemouth bass	52	.
00-rbr	bl-e	Dollar sunfish	107	.
00-secr	bl-e	Dollar sunfish	103	.
00-rbr	bl-e	Dollar sunfish	101	.
00-rbr	bl-e	Dollar sunfish	98	.
00-rbr	bl-e	Dollar sunfish	97	.
00-rbr	bl-e	Dollar sunfish	97	.
00-rbr	bl-e	Dollar sunfish	96	.
00-rbr	bl-e	Dollar sunfish	94	.
00-rbr	bl-e	Dollar sunfish	93	.
00-rbr	bl-e	Dollar sunfish	90	.
00-rbr	bl-e	Dollar sunfish	90	.
00-rbr	bl-e	Dollar sunfish	90	.
00-rbr	bl-e	Dollar sunfish	86	.
00-rbr	bl-e	Dollar sunfish	85	.
00-rbr	bl-e	Dollar sunfish	85	.
00-rbr	bl-e	Dollar sunfish	77	.
00-rbr	bl-e	Dollar sunfish	76	.
00-rbr	bl-e	Dollar sunfish	72	.
00-secr	bl-e	Dollar sunfish	63	.
00-rbr	bl-e	Bowfin	384	.
00-secr	bl-e	Bluegill	92	.