

BIOTIC COMMUNITIES

Stream Fish Distribution and Abundance

Sixty-six fish species representing 16 families have been collected (including sport fish sample observations) in the Eleven Point Watershed since 1930 (Table Bc01)(MDC 1998a and Pflieger 1975). Figure Bc01 shows recent as well as historical fish community sampling sites within the Eleven Point Watershed.

In 1996, fish were collected at nine locations throughout the watershed, including one site at each of four major tributaries to the Eleven Point River (Middle Fork, Spring Creek, Hurricane Creek, and Frederick Creek). Collection sites on the four major tributaries were located within three miles of the tributary mouths. Since 1930, fish have been collected from 30 sites throughout the watershed.

The stream fish fauna of the Eleven Point River Watershed is dominated by Ozark species (Table Bc01). Since 1980, fifty-six fish species have been collected (including sport fish sample observations), 51 of which have been collected at one or more locations on the mainstem of the Eleven Point River. According to the faunal region classification of species as developed by Pflieger (1989), they could be described as 60% Ozark, 9% Ozark-Prairie, 11% Ozark-lowland, 4% Ozark-Big River, 2% Prairie, and 14% widely distributed.

Two fish species, checkered madtom and spotted sucker appear to have very limited distributions in the watershed. Checkered madtom were collected from only two sites; both of which were on the Eleven Point River. A single spotted sucker was collected during the 1989, Eleven Point River sport fish sample (Mayers 1994). The fish was collected somewhere between Thomasville and Greer Spring Branch.

Several spotted suckers were observed during the 1996 sample of the Wild Trout Management Area, just below Greer Spring. These observations of a spotted sucker from the Eleven Point River, represent new distributions for the species. The historical range of the spotted sucker extended east and north from the Current River Watershed and did not include the Eleven Point River Watershed (Pflieger 1997). To further quantify the distribution of the spotted sucker and checkered madtom, additional sampling effort on the Eleven Point River is required.

Eight fish species collected from the Eleven Point River Watershed prior to 1980, were not found in post 1980 samples. These fish include black buffalo, channel catfish, spotted bass, , freshwater drum, mooneye, gilt darter, ozark shiner, and johnny darter.

None of the previously mentioned species have ever been collected in great numbers or in many samples within the watershed. Out of these collections, the maximum number of individuals collected were 7 spotted bass from a single site in 1964 while the maximum number of collections an individual species occurred in was 2. This in addition to the fact that most of the previously mentioned species are commonly found in other areas of the state is why their absence in recent collections is not necessarily a concern. Exceptions to this which raise an immediate management concern, however, include the gilt darter, mooneye, and Ozark Shiner.

The gilt darter, although it remains common in the Current, Black, and Gasconade River systems, has experienced a decline in its range since the construction of dams within the White River Basin (Pflieger 1997). Within the Eleven Point Watershed, only one individual from from one site has been collected since 1930. It appears that this species has never been common within the watershed; however, due to the

decline of its already small range, additional effort should be expended toward determining the present status of this species within the watershed.

The mooneye is currently listed as a species of conservation concern (MDC 1999). Only 4 individuals from 2 samples have been collected within the Eleven Point Watershed. Pflieger (1997) states that "the mooneye has never been common in Missouri collections and may be declining". It is possible this species no longer exists within the watershed. Additional sampling will be necessary in order to determine the status of this species in the watershed.

The Ozark Shiner has only been collected in two samples within the watershed. A total of three individuals were collected in these samples (MDC 1998). Because of state wide reductions in the range of the Ozark Shiner and virtual extirpation from areas such as the Eleven Point Watershed, the Ozark Shiner has been placed on the "Species of Conservation Concern" List (MDC 1999a). Future monitoring will need to be performed in order to determine the status of this species within the watershed.

One fish species, the Ozark Chub, was collected in fish community samples after 1980, but had not appeared within the watersheds in previous collections. The Ozark Chub occurs within neighboring watersheds; thus its appearance within the Eleven Point Watershed is should be of little surprise.

Four species have been observed in sport fish samples which have not been collected in historical fish community samples within the watershed. These include the black crappie, fathead minnow, sauger, and spotted sucker. Both the **black crappie**, sauger, spotted sucker have been collected in fish community samples within neighboring watersheds. The fathead minnow, however, does not occur in any watersheds bordering the Eleven Point. This species has been recommended as a supplemental forage species for game fish in new fishing ponds and lakes (MDC 1992). In addition, it is said to be one of the most commonly used bait minnows in North America. For these reasons it is quite possible that additional populations exist within the Eleven Point, as well as other watersheds.

Sport Fish

Sport fish species (as defined as game fish in MDC 1999b) occurring within the Eleven Point Watershed include black crappie, chain pickerel, largemouth bass, and rainbow trout, shadow bass, sauger, smallmouth bass, walleye, and warmouth,(Mayers 1994, MDC 1998a, and Ozark Region Sport Fish Collection Files).

The Eleven Point River from Thomasville to Greer Spring Branch is characterized as a warm water stream (Mayers 1994). Discharge from Greer Spring doubles the flow of the Eleven Point River. The cold water influence from Greer Spring transforms the river into a coldwater fishery for approximately the next 20 miles to Highway 160. From Highway 160 to the state line the Eleven Point is primarily a warm water fishery, although the springs near the mouth of Fredrick Creek affect year round temperatures for a few miles downstream.

Sport fish populations in the Eleven Point River from Thomasville to Greer Spring Branch were sampled in 1989 and 1990 (Mayers 1994). In addition to longear sunfish, shadow bass, and smallmouth bass, which dominate the fishery; largemouth bass, northern hog sucker , chain pickerel, and rainbow trout were also collected during these samples. Tables Bc02, Bc03, Bc04 summarize the electrofishing catch, estimated abundance and size distribution of shadow bass, smallmouth bass, and largemouth bass.

The twenty miles of cold water are primarily managed for rainbow trout. Greer Spring Branch to Turner

Mill has been designated a Wild Trout Management Area (MDC 1999c). The Eleven Point River is designated as a Trout Management Area from Turner Mill to 14.2 miles downstream of Tuner Mill. In addition to rainbow trout, the cold water areas support sizable populations of smallmouth bass, shadow bass, longear sunfish and several species of suckers. Chain pickerel also contribute to this sport fishery, although their numbers have never been estimated.

Similar to the warmwater sport fishery in the head waters, the lower reaches of the Eleven Point River support good populations of chain pickerel, largemouth bass, shadow bass, smallmouth bass and walleye. In addition to these species, the Eleven Point River near the Arkansas state line supports a limited sauger population.

In addition to the previously mentioned sport fish, streams within the Eleven Point Watershed support populations of bluegill, black redhorse, golden redhorse, green sunfish, longear sunfish, northern hog sucker, redear, redspotted sunfish, shorthead redhorse, spotted sucker, white sucker, and yellow bullhead.

Fish Stocking

Grass carp (Ctenopharyngodon idella), bluegill, largemouth bass, and channel catfish are routinely stocked in lakes and ponds throughout the Eleven Point Watershed. There are only two public lakes within the watershed. Stocking records for these lakes date back to 1964. Simms Valley Lake is 38 acres and was constructed in 1963. Within the first few years after construction, Simms Valley Lake was stocked with bluegill, largemouth bass, redear sunfish, and channel catfish. While other fish populations have sustained themselves, channel catfish stocking has continued on an annual basis (Table Bc05). McCormack Lake is 11 acres and was constructed in the 1930's and has remained under United States Forest Service ownership since that time. Original stocking records of McCormack Lake are not available, however, present day fish populations suggest that in addition to channel catfish; bluegill, largemouth bass, smallmouth bass, and grass carp were all stocked at some point in time. Periodic stocking of channel catfish into McCormack Lake has continued since 1977 (Table Bc06). The potential exists for these fish to enter streams during periods of high precipitation. Blue catfish (Ictalurus furcatus), also stocked into lakes and ponds, have been captured from the Eleven Point Watershed (Legler, personal communication). Bait bucket releases also occur in streams throughout the watershed.

Available records indicate the first state authorized stocking of trout into the Eleven Point River occurred in 1962 with the release of 5000 rainbow trout. Stocking of rainbow trout has continued at a near-annual occurrence (Table Bc07). Between 12,000 and 16,000 rainbow trout per year have been released into the Eleven Point River since 1991. These trout support areas managed by minimum length limits as well as put-and-take fisheries.

Mussels

A total of 23 mussle species have been collected from the Eleven Point Watershed (Table Bc08 and Figure Bc02)(Oesch 1995, MDC 1998b, and Turgeon et al. 1998). Of these, 3 species are listed as species of conservation concern (MDC 1999a). These include the black sandshell,

Ouachita Kidneyshell, and the purple lilliput. Both the Ouchita Kidneyshell and puple lilliput are former category 2 federal candidates. While the Missouri Department of Conservation continues to distinguish these former category 2 species for information and planning purposes. The United States Fish and Wildlife Service (USFWS) discontinued the practice of maintaining a list of species regarded as

"category-2 candidates" in 1996 (MDC 1999a).

Crayfish

Six species of crayfish Hubbs' Crayfish (Cambarus hubbsi), coldwater crayfish(Orconectes eupunctus), OzarkCrayfish(Orconectes ozarkae), Salem Cave Crayfish (Cambarus hubrichti), devil crayfish(Cambarus diogenes),and spothanded crayfish (Orconectes punctimanus) have been collected from the Eleven Point Watershed (Table Bc09 and Figure Bc03)(MDC 1988; Pflieger 1996; and MDC 1998c). The Hubbs', coldwater, Ozark and spothanded crayfish are primarily aquatic, while the devil crayfish lives primarily on land, in burrows extending down to the water table. Both the coldwater crayfish and the Salem Cave Crayfish are listed as species of conservation concern (MDC 1999a). The coldwater crayfish occurs only in the Eleven Point River and Spring River (Pflieger 1996). The Salem Cave Crayfish has been found only in Missouri and is believed to occur throughout the eastern Ozarks from Camden to Crawford Counties, southward to Oregon and Ripley Counties.

Aquatic Insects

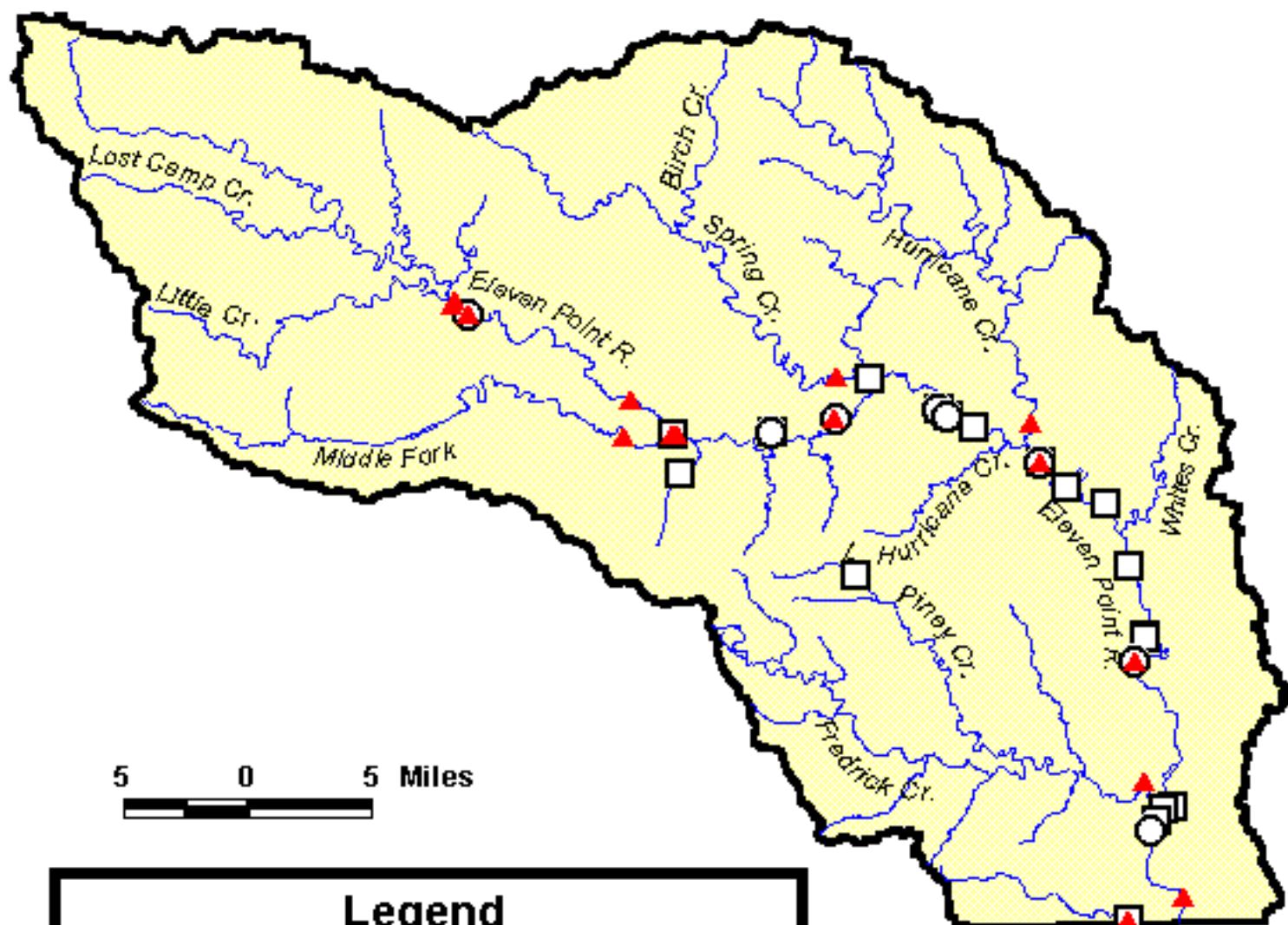
Benthic macro-invertebrates have been periodically sampled throughout the Eleven Point Watershed by Missouri Department of Conservation employees since 1974. A total of 78 collections have been made from 20 sites throughout the watershed including Spring Creek, Barren Fork, Middle Fork, Fredrick Creek, Hurricane Creek, and the main stem of the Eleven Point River (Table Bc10 and Figure Bc04) (MDC 1995b and MDC 1998d). A comparison was made between two samples taken from the same site and same month, but in different years (Table Bc11). Although the amount of effort expended in 1985 (8 ft²) is only 75% of the 1974 effort (12 ft²), eight additional taxa were collected in 1985. With few exceptions, the numbers of organisms per taxa, per square feet were greater in the 1985 collection. Much of the increase occurred within the family Ephemoptera, which could be an indication of improved water quality.

Species of Conservation Concern

A total of 76 species of conservation concern are known to occur in the Eleven Point Watershed (Table Bc12)(MDC 1999a and MDC 1999c). This includes four species of fish (mooneye, Ozark Shiner, checkered madtom, and southern cavefish), one species of amphibian (Ozark Hellbender), three species of mussel (black sandshell, Ouachita Kidneyshell, and purple lilliput), and two species of crayfish (Salem Cave Crayfish and cold water crayfish). Terrestrial oriented species include two species with state and federal endangered status: the gray bat (Myotis grisescens) and the Indiana Bat (Myotis sodalis). In addition three other species are state endangered. These include the Bachman's Sparrow (Aimophila aestivalis), Swainson's Warbler (Limnothlypis swainsonii), and the bald eagle (Haliaeetus leucocephalus). The bald eagle also has federal threatened status. Several heron rookeries have also been identified throughout the watershed.

Figure Bc01.

Eleven Point Watershed Fish Community Sampling Sites



Legend

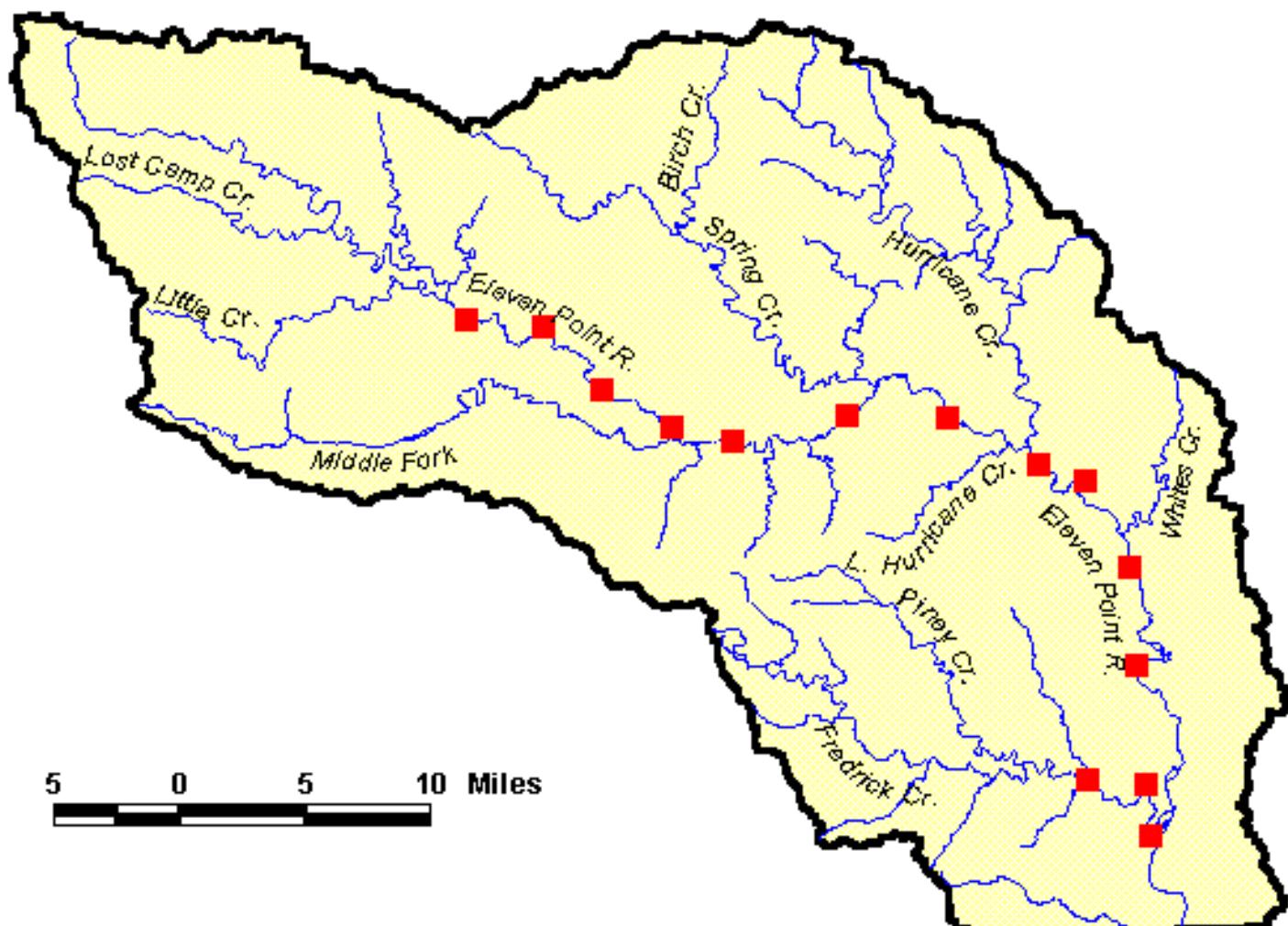
- ▲ 1980-1999
- 1960-1979
- 1930-1959

Dates are for collections within MDC fish collection database (1998a) as well as collections performed by MDC Ozark Region Fisheries personnel.

MDC 5/1999

Figure Bc02.

Eleven Point Watershed Mussel Community Sampling Sites



Legend

- Mussel Community Sample Site (MDC 1998b).

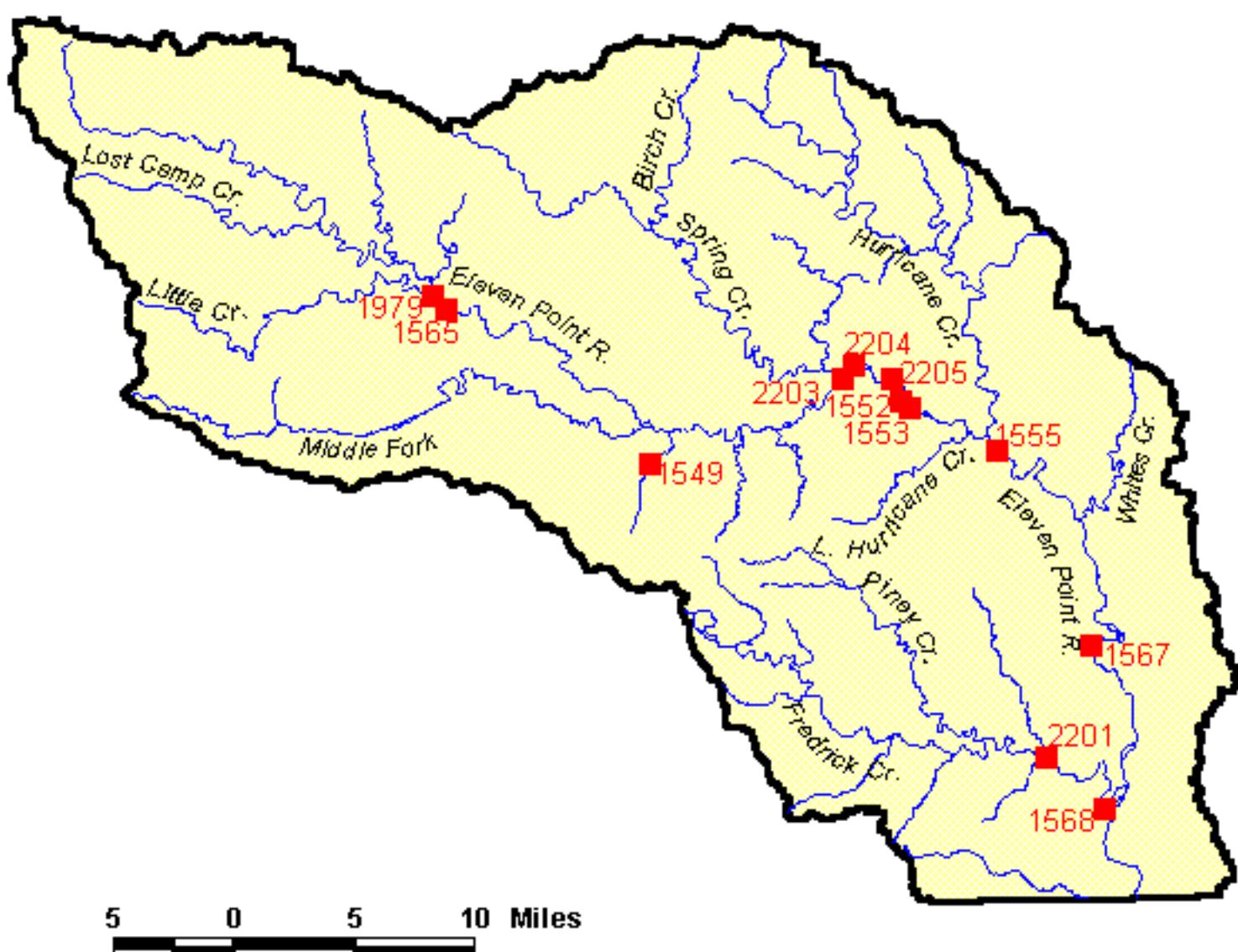
N



MDC 5/1999

Figure BC03.

Eleven Point Watershed Crayfish Community Sampling Sites



5 0 5 10 Miles

N

Legend

- Crayfish Community Sample Site (MDC 1998c).



MDC 5/1999

Figure Bc04.

Eleven Point Watershed Benthic Community Sampling Sites

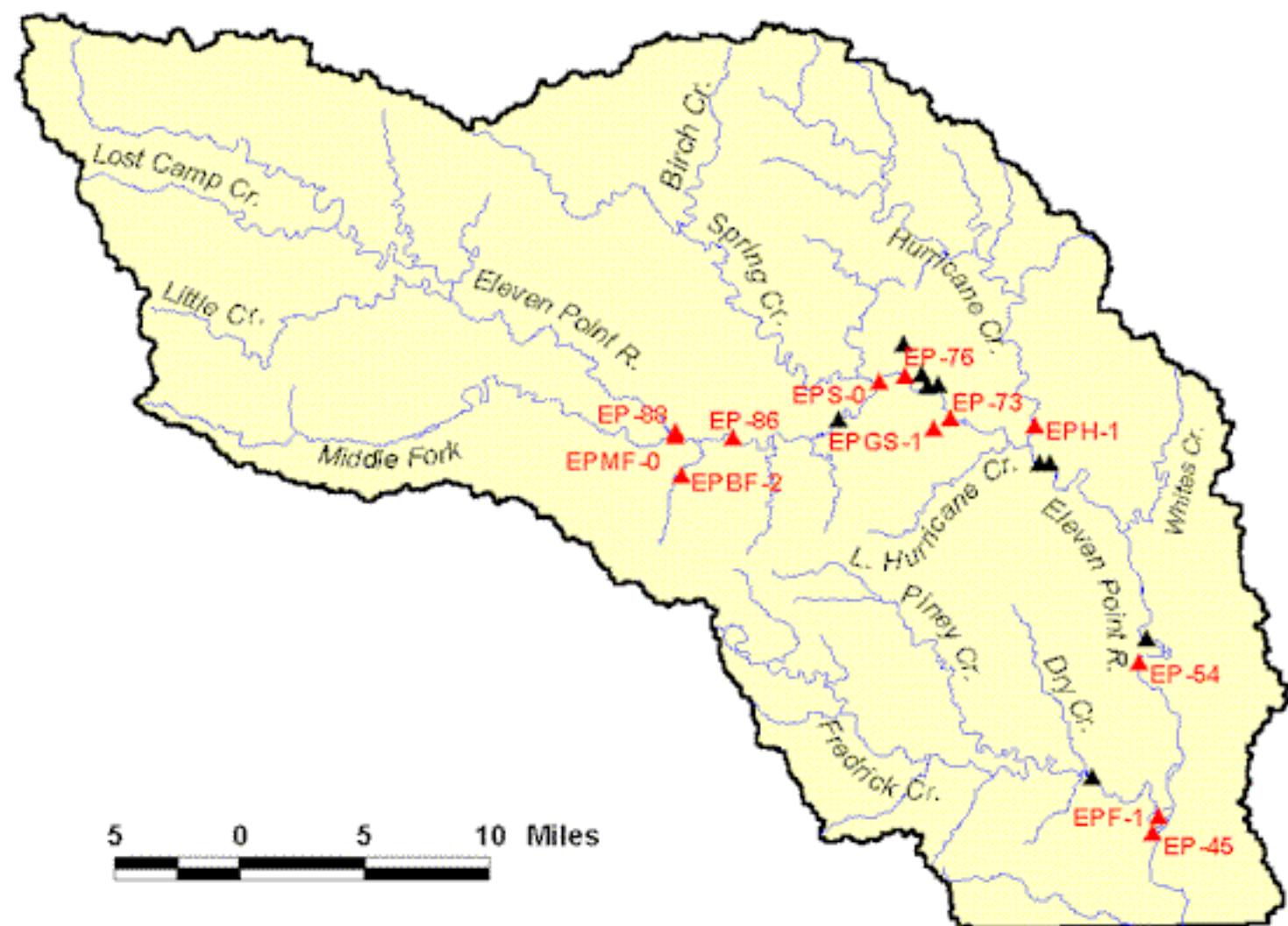


Table Bc01. Fish species of the Eleven Point Watershed. Key to Status: 1 = collected 1930 (1 of 4) to 1960; 2 = collected 1961 to 1980; 3 = collected 1981 to 1996 (Mayers, personal communication; MDC Ozark Regional Fish Collection Files; MDC 1995a; Pflieger 1975; Pflieger 1989; Pflieger and Bruenderman 1996; Pflieger 1997; Ozark Region Sport Fish Collection Files).

Common Name	Scientific Name	Trophic Guild ¹	Geo Affinity ³	Sam. Date
American eel	<i>Anquilla rostrata</i>	O	O,R	1,2,3
Banded darter	<i>Etheostoma zonale</i>	P	O	1,2,3
Banded sculpin	<i>Cottus carolinae*</i>	P	O	1,2,3
Bigeye chub	<i>Notropis amblops</i>	?	O	1,2,3
Bigeye shiner	<i>Notropis boops*</i>	P	O	2,3
Black buffalo	<i>Ictiobus niger</i>	O	WIDE	2
Black Crappie	<i>Pomoxis nigromaculatus</i>	P	WIDE	#
Black redhorse	<i>Moxostoma duquesnei*</i>	O	O	1,2,3
Blackspotted topminnow	<i>Fundulus olivaceus*</i>	O	L,O	1,2,3
Bleeding shiner	<i>Luxilus zonatus</i>	P	O	1,2,3
Bluegill	<i>Lepomis macrochirus</i>	P	WIDE	1,2,3
Bluntnose minnow	<i>Pimephales notatus</i>	O	WIDE	1,2,3
Brook silverside	<i>Labidesthes sicculus*</i>	P	O	1,2,3
Central stoneroller	<i>Campostoma pullum</i>	P	O,P	1,2,3
Common carp	<i>Cyprinus carpio</i>	O	WIDE	2,3
Chain pickerel	<i>Esox niger</i>	P	O	1,2,3
Channel catfish	<i>Ictalurus punctatus</i>	O	WIDE	1,2
Checkered madtom	<i>Noturus flavater</i>	P	O	2,3
Creek chub	<i>Semotilus atromaculatus</i>	P	O,P	1,3

Creek chubsucker	<i>Erimyzon oblongus</i>	P	O	1,2,3
Current River Darter	<i>Etheostoma uniporum</i>	P	O	1,2,3
Eastern redfin shiner	<i>Lythurus u. cyanocephalus</i>	P	L,O	1,2,3
Fathead minnow	<i>Pimephales promelas</i>	O	P	#
Freshwater drum	<i>Aplodinotus grunniens</i>	P	WIDE	1,2
Gilt darter	<i>Percina evides</i>	P	O	2
Gizzard shad	<i>Dorosoma cepedianum</i>	O	WIDE	2,3
Golden redhorse	<i>Moxostoma erythrurum*</i>	P	O,P	1,2,3
Greenside darter	<i>Etheostoma blennioides</i>	P	O	1,2,3
Green sunfish	<i>Lepomis cyanellus</i>	P	WIDE	1,2,3
Hornyhead chub	<i>Nocomis biguttatus*</i>	O	O	1,2,3
Johnny darter	<i>Etheostoma nigrum</i>	O,P	P	1
Largescale stoneroller	<i>Campostoma oligolepis*</i>	H	O	1,2,3
Largemouth bass	<i>Micropterus salmoides</i>	P	WIDE	1,3
Larval lamprey	<i>Ichthyomyzon ammocoete</i>	-	O	3
Least brook lamprey	<i>Lampetra aepyptera</i>	P	O	1,2,3
Longear sunfish	<i>Lepomis megalotis</i>	P	L,O	1,2,3
Longnose gar	<i>Lepisosteus osseus</i>	P	WIDE	2,3
Mooneye	<i>Hiodon tergisus*</i>	P	WIDE	2
Northern hogsucker	<i>Hypentelium nigricans*</i>	H	O	1,2,3
Northern studfish	<i>Fundulus catenatus</i>	P	O	1,2,3
Ohio logperch	<i>Percina c. caprodes</i>		O	1,2,3

Ozark chub	<i>Erimystax harryi</i>	ND	O	3
Ozark madtom	<i>Noturus albater</i>	P	O	1,2,3
Ozark minnow	<i>Notropis nubilus</i>	H	O	1,2,3
Ozark sculpin	<i>Cottus hypselurus</i>	P	O	1,2,3
Ozark shiner	<i>Notropis ozarcanus</i>	O	O	1,2
Rainbow darter	<i>Etheostoma caeruleum</i>	P	O	1,2,3
Rainbow trout	<i>Oncorhynchus mykiss</i>	P	O	2,3
Redspotted sunfish	<i>Lepomis miniatus</i>	O	L,O	1,2,3
Rosyface shiner	<i>Notropis rubellus</i> *	O	O	1,2,3
Sauger	<i>Stizostedion canadense</i>	P	R	#
Shadow bass	<i>Ambloplites ariommus</i>	P	O	1,2,3
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	O	WIDE	2,3
Slender madtom	<i>Noturus exilis</i> *	P	O	1,2,3
Smallmouth bass	<i>Micropterus dolomieu</i> *	P	O	1,2,3
Southern redbelly dace	<i>Phoxinus erythrogaster</i> *	H	O	1,3
Spotted Bass	<i>Micropterus punctulatus</i>	P	O,L	2
Spotted sucker	<i>Minytrema melanops</i>	P	L,O	3
Striped fantail darter	<i>Etheostoma f. lineolatum</i>	P	O	2,3
Striped shiner	<i>Luxilus chryscephalus</i> *	O	O	1,2,3
Telescope shiner	<i>Notropis telescopus</i>	O	O	1,2,3
Walleye	<i>Stizostedion vitreum</i>	P	O,R	2,3
Warmouth	<i>Lepomis gulosus</i>	P	L	1,2,3

White sucker	<i>Catostomus commersoni</i>	P	O,P	1,2,3
Whitetail shiner	<i>Cyprinella galactura</i>	P	O	1,3
Yellow bullhead	<i>Ameirus natalis</i>	O	O,P	1,2,3

All records based on observations associated with sport fish samples.

* = intolerant species

Trophic Guild: H = Herbivore, P = Predator, O = Omnivore

Geographic Affinity: L = Lowland, O = Ozark, P = Prairie, R = Big River

WIDE=Statewide Distribution

Table Bc02. Modified Petersen abundance estimates (number/mi.) of various sizes of shadow bass, smallmouth bass, and largemouth bass from 1989-1990 and 1991 Upper Eleven Point River Samples 1991 figures are modified Schnabel abundance estimates collected by Roell (1994) (Mayers 1994).

Species	Size group (in)	Mean 1989-1990	1991
Shadow Bass	All	348	--
-	>4	341	346
-	>7	195	184
-	>9	21	--
Smallmouth Bass	All	234	--
-	>5	227	176
-	>9	147	124
-	>12	47	--
-	>15	16	--

Largemouth Bass	All	59	--
-	>5	59	62
-	>12	16	33
-	>15	3	--

Table Bc03. Size distribution of shadow bass, smallmouth bass, and largemouth bass captured in electrofishing samples from the Eleven Point River from 1989 to 1991 (Mayers 1994). Number in parenthesis is sample size.

Species	Size Group (in)	Percent Total			
		1989	1990	1990 ^a	1991 ^b
Shadow Bass	<4.0	0	2	3	10
-	4.0-6.9	45	45	39	39
-	7.0-8.9	48	47	53	43
-	≥ 9.0	7	6	5	7
-	-	(111)	(186)	(191)	(474)
Smallmouth Bass	<7.0	8	5	29	20
-	7.0-11.9	69	77	55	60
-	12.0-14.9	14	14	12	16
-	≥ 15.0	9	4	4	4
-	-	(127)	(152)	(78)	(302)
Largemouth Bass	<7.0	0	0	13	11
-	7.0-11.9	67	72	40	29
-	12.0-14.9	29	22	43	56

-	≥ 15.0	4	6	4	4
-	-	(66)	(50)	(55)	(144)

^aSeptember sample

^bRoell 1994

Table Bc04. Percent species composition of electrofishing catch from the Eleven Point River in 1963, 1964, 1978, 1985, 1989, and 1990. Number in parentheses is sample size. (Mayers 1994)

Species	1963	1964	1978	1985	1989	1990
Rainbow Trout	0	0	0	0	3(1)	0
Gizzard Shad	9(49)	2(22)	30(173)	15(107)	21(275)	*
Northern Hog Sucker	2(12)	6(52)	<1(3)	3(22)	6(83)	*
Spotted Sucker	0	0	0	0	<1(1)	*
Black Redhorse	12(67)	18(162)	22(124)	6(41)	16(213)	*
Golden Redhorse	6(31)	8(74)	5(30)	16(116)	4(60)	*
Shorthead Redhorse Redhorse	0	0	0	0	<1(1)	*
Yellow Bullhead	<1(3)	<1(4)	<1(2)	<1(2)	1(14)	1(12)
Chain Pickerel	<1(3)	<1(4)	1(4)	1(8)	<1(6)	2(18)
Smallmouth Bass	4(12)	6(50)	15(84)	4(32)	10(127)	18(152)
Largemouth Bass	1(6)	2(14)	1(8)	4(27)	5(66)	6(50)
Warmouth	<1(2)	<1(3)	<1(1)	<1(1)	<1(5)	0
Green Sunfish	9(49)	7(65)	2(12)	1(9)	1(13)	2(13)
Spotted Sunfish	1(5)	<1(4)	0	<1(3)	<1(2)	0
Longear Sunfish	34(184)	33(290)	16(90)	39(275)	23(296)	47(404)

Bluegill	1(6)	2(14)	1(6)	1(7)	1(13)	1(9)
Shadow Bass	5(25)	8(72)	3(19)	6(44)	9(111)	22(186)
Hybrid Sunfish	<1(2)	<1(1)	0	0	<1(3)	1(10)
Carp	12(61)	5(46)	3(15)	0	*	*
American Eel	1(5)	1(9)	0	<1(3)	*	*

*Species were not collected.

Table Bc05. Channel Catfish Stocking Records for Sims Valley Lake (MDC Fish Stocking Records).

Year	Total Number Stocked	Number/Acre	Size(in.)
1964	4000	105	2-5
1967	1200	32	N/A
1968	1500	39	N/A
1974	1000	26	N/A
1975	1903	50	9-12
1976	2000	53	9
1977	2000	53	9
1978	1000	26	8-10
1979	2000	53	10
1980	2000	53	9
1981	2000	53	8-10
1982	2000	53	8-10
1983	2000	53	8-10

1984	750	20	8-10
1985	788	21	8-10
1986	800	21	8-10
1987	600	16	10-12
1988	600	16	8-10
1989	600	16	8-10
1990	600	16	8-10
1991	400	11	10-12
1992	500	13	8-10
1993	500	13	10-12
1994	500	13	8-10
1995	500	13	8-10
1996	500	13	8-10
1997	500	13	8-10
1998	185	5	8-10

Table Bc06. Channel catfish stocking records for McCormack Lake (MDC Fish Stocking Records).

Year	Total Number Stocked	Number/Acre	Size (in.)
1977	1000	91	9
1978	250	23	8-10
1979	500	45	10
1982	400	36	8-10
1983	400	36	8-10
1984	400	36	8-10
1985	248	22	8-10
1986	209	19	8-10
1987	150	14	10-12
1988	150	14	8-10
1990	275	25	8-10
1991	200	18	10-12
1993	275	25	10-12

1995

200

18

8-10

1997

200

18

8-10

Table Bc07. Rainbow Trout Stocking Records for the Eleven Point River (MDC Fish Stocking Records).

Trout Management Area		
Year	Number of Fish	Pounds of Fish
1962	5000	2500
1963	5000	3260
1964	50500	13200
1965	6000	2176
1966	52000	3920
1967	7000	4550
1968	8000	5089
1969	10800	7081
1971	8000	6552
1972	8000	5218
1973	12200	8588
1974	15200	9749
1975	9600	6783
1976	8800	6561
1977	8800	5542
1978	8800	5260
1979	8800	5351
1980	8800	4568
1981	8800	5175
1982	10200	6742
1983	8800	5620
1984	8800	5090
1985	8800	5090
1986	8800	5397

1987	12000	7252
1988	12000	7658
1989	16000	10356
1990	12000	8971
1991	12000	9089
1992	12300	10811
1993	13000	8579
1994	12000	6329
1995	12000	11247
1996	12000	N/A
1997	12000	N/A
1998	16000	N/A

1992	2000	N/A
1993	1525	N/A
1998	2000	N/A

Table Bc08. Mussels collected from the Eleven Point Watershed (Oesch 1995, MDC 1998b, and Turgeon et al. 1998).

Scientific Name	Common Name	Federal Status	State Status
<i>Corbicula fluminea</i>	Asian Clam	-	-
<i>Cyclonaias tuberculata</i>	Purple Wartyback	-	-
<i>Elliptio dilatata</i>	Spike	-	-
<i>Fusconaia flava</i>	Wabash Pigtoe	-	-
<i>Fusconaia ozarkensis</i>	Ozark Pigtoe	-	-
<i>Lampsilis cardium</i>	Plain Pocketbook	-	-
<i>Lampsilis r. brittii</i>	Northern Broken-ray	-	-
<i>Lampsilis r. brevicula</i>	Ozark Brokenray	-	-
<i>Lampsilis siliquoidea</i>	Fatmucket	-	-
<i>Lasmigona costata</i>	Fluted Shell	-	-
<i>Ligumia recta*</i>	Black Sandshell	-	-
<i>Ligumia subrostrata</i>	Pondmussel	-	-
<i>Pleurobema sintoxia</i>	Round Pigtoe	-	-

Ptychobranchus occidentalis*	Ouachita Kidneyshell	#	-
Pyganodon grandis	Giant Floater	-	-
Quadrula pustulosa pustulosa	Pimpleback	-	-
Strophitus undulatus	Creeper	-	-
Toxolasma lividus*	Purple Lilliput	#	-
Toxolasma parvus	Lilliput	-	-
Utterbackia imbecillis	Paper Pondshell	-	-
Venustaconcha pleasi	Bleedingtooth Mussel	-	-
Villosa iris	Rainbow	-	-
Villosa lienosa	Little Spectaclecase	-	-

* Species of Conservation Concern (MDC 1999a)

Former category-2 candidate (In December of 1996, the USFWS discontinued the practice of maintaining a list of species regarded as "category-2 candidates". MDC continues to distinguish these species for information and planning purposes.)

Table Bc09. Summary of crayfish collections within the Eleven Point Watershed (MDC 1988).

Stream	Locality	<i>Cambarushubrichti</i>	<i>Cambarushubbsi</i>	<i>Orconectesupunctus</i>
Eleven Pt S1 87	1568C	-	7	5
Eleven Pt S2 84	1567C	-	7	62
Eleven Pt S2 85	1567D	-	-	54
Eleven Pt S3 86	1555C	-	7	83
Eleven Pt S4 86	2205C	-	-	73
Eleven Pt S4 86	2204C	-	-	31
Eleven Pt S6 82	1565C	-	-	-
Eleven Pt S6 84	1565D	-	-	-
Eleven Pt S6 82	1979C	-	-	-
Greer Spr Br 78	1552C	-	12	7
Greer Spr Br 85	1552D	-	74	32
Barren Fork 87	1549C	-	-	-
Frederick Cr 85	2201C	-	-	-
Unnamed Spr 86	2203C	-	-	-
BASIN TOTALS	-	--	107	347
BASIN % COMP.	-	-	9.5%	31.1%

Eleven Pt S1 17 Aug 87	1568C	10	5	-
Eleven Pt S1 17 Sep 84	1567C	25	19	-

Eleven Pt S2 17 Jul 85	1567D	-	5	-
Eleven Pt S3 17 Jan 86	1555C	-	-	-
Eleven Pt S4 13 May 86	2205C	67	3	-
Eleven Pt S4 17 Jan 86	2204C	23	1	-
Eleven Pt S6 28 Jun 82	1565C	60	16	-
Eleven Pt S6 23 Mar 84	1565D	289	19	-
Eleven Pt S6 28 Jun 82	1979C	27	15	-
Greer Spr Br 7 Jun 78	1552C	-	2	-
Greer Spr Br 13 Nov 85	1552D	1	2	-
Barren Fork 2 Apr 87	1549C	15	2	-
Frederick Cr 27 Mar 85	2201C	41	15	-
Unnamed Spr 17 Jan 86	2203C	-	2	1
BASIN TOTALS		558	106	1
BASIN % COMP.		49.9%	9.4%	.1%

Table Bc10. Summary of riffle habitat benthic invertebrate collections from the (1 of 13) Eleven Point Watershed; Numbers beside taxa indicate total number collected with the average number/ft² in parentheses. (*) indicates none found (MDC 1995b).

	11pt River Mile 5 1974	Frederick Mile 7 1983	Frederick Mile 1 1974
No. Samples	4	1	4
Total No. Organisms	8042	921	7664
Avg. Number Organisms/ft ²	136	154	213
Trichoptera	2119 (36.5)	349 (58.1)	1060 (29.5)
Ephemeroptera	1302 (22.4)	432 (72.0)	3686 (102.4)
Odonata	6 (<1.0)	1 (<1.0)	13 (<1.0)
Plecoptera	10 (<1.0)	1 (<1.0)	296 (8.2)
Lepidoptera	2 (<1.0)	*	10 (<1.0)
Coleoptera	1251 (21.6)	95 (15.8)	490 (13.6)
Diptera	273 (4.7)	12 (2)	1689 (46.9)
Arachnoidea	7 (<1.0)	*	2 (<1.0)
Gastropoda	2567 (44.3)	*	37 (1.03)
Annelida	227 (3.9)	*	128 (3.6)
Isopoda	28 (<1.0)	5 (<1.0)	17 (1.0)
Amphipoda	231 (3.9)	*	*
Decapoda	6 (<1.0)	*	3 (<1.0)

Platyhelminthes	10 (<1.0)	3 (<1.0)	71 (1.9)
Megaloptera	*	23 (3.8)	22 (<1.0)
Nemato	*	*	4 (<1.0)
Hemiptera	*	*	1 (<1.0)
Pelecypoda	*	*	130 (3.6)
Nematomorpha	*	*	*

	11pt River Mile 14 1974	11pt River Mile 14 1979	11pt River Mile 14 1981
No. Samples	4	1	2
Total No. Organisms	15,810	6776	5874
Avg. Number Organisms/ft	256	565	196
Trichoptera	5432 (87.6)	2698 (224.8)	842 (28.1)
Ephemeroptera	4623 (74.6)	1441 (120)	2071 (69.0)
Odonata	1 (<1.0)	*	5 (<1.0)
Plecoptera	18 (<1.0)	8 (<1.0)	2 (<1.0)
Lepidoptera	10 (<1.0)	8 (<1.0)	5 (<1.0)
Coleoptera	3018 (48.7)	1141 (18.4)	1670 (55.7)
Diptera	1093 (17.6)	352 (29.3)	116 (3.9)
Arachnoidea	28 (<1.0)	14 (1.2)	7 (<1.0)
Gastropoda	1191 (19.2)	755 (62.9)	781 (26.0)

Annelida	94 (1.5)	233 (19.4)	213 (7.1)
Isopoda	7 (<1.0)	*	2 (<1.0)
Amphipoda	63 (1.0)	15 (1.3)	69 (2.3)
Decapoda	7 (<1.0)	2 (<1.0)	25 (<1.0)
Platyhelminthes	213 (3.4)	101 (8.4)	55 (<1.8)
Megaloptera	7 (<1.0)	2 (<1.0)	*
Nematoda	5 (<1.0)	5 (<1.0)	*
Hemiptera	*	*	*
Pelecypoda	*	1 (<1.0)	3 (<1.0)
Nematomorpha	*	*	*

	11pt River Mile 14 1983	Boze Mill Mile 1 1979	Boze Mill Mile 1 1981
No. Samples	1	1	1
Total No. Organisms	1192	931	1745
Avg. Number Organisms/ft	119	116	175
Trichoptera	430 (43)	14 (1.8)	27 (2.7)
Ephemeroptera	378 (37.8)	197 (24.6)	282 (28.2)
Odonata	*	*	*
Plecoptera	*	2 (<1.0)	*

Lepidoptera	*	*	*
Coleoptera	317 (31.7)	5 (<1.0)	4 (<1.0)
Diptera	22 (2.2)	59 (7.4)	62 (6.2)
Arachnoidea	*	16 (2.0)	1 (<1.0)
Gastropoda	*	428 (53.5)	1078 (107.8)
Annelida	2 (<1.0)	8 (1.0)	17 (1.7)
Isopoda	1 (<1.0)	154 (19.3)	9 (<1.0)
Amphipoda	4 (<1.0)	41 (5.1)	111 (11.1)
Decapoda	9 (<1.0)	2 (<1.0)	3 (<1.0)
Platyhelminthes	26 (2.6)	5 (<1.0)	151 (15.1)
Megaloptera	8 (<1.0)	*	*
Nematoda	*	*	*
Hemiptera	*	*	*
Pelecypoda	*	*	*
Nematomorpha	*	*	*

	Boze Mill Mile 1 1983	11pt River Mile 28 1981	11pt River Mile 28 1985
No. Samples	1	2	1
Total No. Organisms	427	2917	2406

Avg. Number Organisms/ft	71	365	301
Trichoptera	65 (10.8)	439 (54.9)	896 (112)
Ephemeroptera	18 (3.0)	1009 (126.0)	1194 (149.3)
Odonata	*	*	*
Plecoptera	*	*	*
Lepidoptera	*	18 (2.3)	*
Coleoptera	*	731 (91.4)	*
Diptera	6 (1.0)	169 (21.1)	180 (22.5)
Arachnoidea	*	2 (<1.0)	46 (5.8)
Gastropoda	*	94 (11.8)	1 (<1.0)
Annelida	12 (2.0)	90 (11.3)	23 (2.9)
Isopoda	118 (19.7)	*	52 (6.5)
Amphipoda	141 (23.5)	243 (30.4)	*
Decapoda	*	6 (<1.0)	*
Platyhelminthes	67 (11.2)	108 (13.5)	9 (1.1)
Megaloptera	*	*	2 (<1.0)
Nematoda	*	1 (<1.0)	2 (<1.0)
Hemiptera	*	*	1 (<1.0)
Pelecypoda	*	*	*
Nematomorpha	*	*	*

	Turner Mill Mile 0 1981	Turner Mill Mile 0 1983	11pt River Mile 33 1974
No. Samples	1	1	4
Total No. Organisms	1439	434	14,389
Avg. Number Organisms/ft	192	72	313
Trichoptera	402 (50.3)	113 (18.8)	4976 (108.2)
Ephemeroptera	41 (5.1)	*	4710 (102.4)
Odonata	*	*	1 (<1.0)
Plecoptera	*	*	232 (5.1)
Lepidoptera	*	*	9 (<1.0)
Coleoptera	8 (1.0)	1 (<1.0)	1579 (34.3)
Diptera	152 (19.0)	1 (<1.0)	2151 (46.8)
Arachnoidea	*	*	26 (<1.0)
Gastropoda	472 (59.0)	*	113 (2.5)
Annelida	89 (11.1)	6 (1.0)	141 (3.1)
Isopoda	1 (<1.0)	*	46 (1.0)
Amphipoda	165 (20.6)	279 (46.5)	*
Decapoda	4 (<1.0)	9 (1.5)	8 (<1.0)
Platyhelminthes	101 (12.6)	25 (4.2)	359 (7.8)
Megaloptera	4 (<1.0)	*	17 (<1.0)

Nematoda	*	*	2 (<1.0)
Hemiptera	*	*	*
Pelecypoda	*	*	*
Nematomorpha	*	*	*

	11pt River Mile 33 1981	11pt River Mile 33 1983	11pt River Mile 33 1985
No. Samples	2	1	1
Total No.Organisms	7462	3838	3989
Avg. Number Organisms/ft	249	384	499
Trichoptera	4292 (143.1)	2178 (217.8)	1733 (216.6)
Ephemeroptera	1534 (51.1)	774 (77.4)	1848 (231.0)
Odonata	1 (<1.0)	*	*
Plecoptera	27 (<1.0)	14 (1.4)	10 (1.3)
Lepidoptera	22 (<1.0)	*	2 (<1.0)
Coleoptera	685 (22.8)	103 (10.3)	75 (9.4)
Diptera	159 (5.3)	173 (17.3)	66 (8.3)
Arachnoidea	*	*	4 (<1.0)
Gastropoda	92 (3.1)	*	23 (2.9)
Annelida	93 (3.1)	2 (<1.0)	8 (1.0)

Isopoda	167 (5.6)	331 (33.1)	100 (12.5)
Amphipoda	7 (<1.0)	*	9 (1.1)
Decapoda	35 (1.2)	3 (<1.0)	11 (1.4)
Platyhelminthes	336 (11.2)	259 (25.9)	97 (12.1)
Megaloptera	10 (<1.0)	1 (<1.0)	3 (<1.0)
Nematoda	2 (<1.0)	*	*
Hemiptera	*	*	*
Pelecypoda	*	*	*
Nematomorpha	*	*	*

	11pt River Mile 34 1985	11pt River Mile 36 1974	11pt River Mile 36 1983
No. Samples	1	4	1
Total No.Organisms	1977	5568	1927
Avg. Number Organisms/ft	247	139	193
Trichoptera	916 (114.5)	1440 (36.0)	811 (81.1)
Ephemeroptera	761 (95.1)	2475 (61.9)	876 (87.6)
Odonata	*	3 (<1.0)	*
Plecoptera	10 (1.3)	27 (<1.0)	2 (<1.0)
Lepidoptera	6 (<1.0)	4 (<1.0)	*

Coleoptera	97 (12.1)	718 (18.0)	164 (16.4)
Diptera	62 (7.2)	585 (14.6)	28 (2.8)
Arachnoidea	1 (<1.0)	12 (<1.0)	*
Gastropoda	46 (5.8)	85 (3.2)	*
Annelida	46 (5.8)	160 (4.0)	*
Isopoda	*	*	*
Amphipoda	*	*	*
Decapoda	9 (1.1)	14 (<1.0)	10 (1.0)
Platyhelminthes	*	7 (<1.0)	2 (<1.0)
Megaloptera	18 (2.3)	26 (<1.0)	34 (3.4)
Nematoda	*	*	*
Hemiptera	*	*	*
Pelecypoda	5 (<1.0)	9 (<1.0)	*
Nematomorpha	*	*	*

	Hurricane Mile 1 1974	Hurricane Mile 1 1981	Hurricane Mile 1 1983
No. Samples	4	1	1
Total No. Organisms	8312	1449	2070
Avg. Number Organisms/ft	260	145	345

Trichoptera	3532 (110.4)	67 (6.7)	941 (156.8)
Ephemeroptera	3038 (94.9)	247 (24.7)	910 (151.7)
Odonata	21 (<1.0)	*	1 (<1.0)
Plecoptera	151 (4.7)	73 (7.3)	1 (<1.0)
Lepidoptera	26 (<1.0)	*	*
Coleoptera	338 (10.6)	48 (4.8)	71 (11.8)
Diptera	635 (19.8)	982 (98.2)	55 (9.2)
Arachnoidea	26 (<1.0)	*	*
Gastropoda	277 (<1.0)	3 (<1.0)	*
Annelida	52 (1.6)	11 (1.6)	1 (<1.0)
Isopoda	1 (<1.0)	*	*
Amphipoda	73 (2.3)	*	2 (<1.0)
Decapoda	6 (<1.0)	2 (<1.0)	4 (<1.0)
Platyhelminthes	7 (<1.0)	*	35 (5.8)
Megaloptera	124 (3.9)	14 (1.4)	46 (7.7)
Nematoda	*	1 (<1.0)	*
Hemiptera	*	*	3 (<1.0)
Pelecypoda	3 (<1.0)	*	*
Nematomorpha	2 (<1.0)	1 (<1.0)	*

	Hurricane Mile 1 1985	Greer SP Mile 1 1974	Greer SP Mile 1 1979
No. Samples	1	4	1
Total No. Organisms	3435	2198	1134
Avg. Number Organisms/ft	573	73	142
Trichoptera	1648 (274.7)	754 (25.1)	852 (106.5)
Ephemeroptera	558 (9.3)	937 (31.2)	86 (10.8)
Odonata	8 (1.3)	*	*
Plecoptera	26 (4.3)	155 (5.2)	16 (2.0)
Lepidoptera	2 (<1.0)	*	2 (<1.0)
Coleoptera	253 (42.2)	152 (5.1)	46 (5.8)
Diptera	86 (14.3)	115 (3.8)	*
Arachnoidea	8 (1.3)	4 (<1.0)	*
Gastropoda	741 (123.5)	8 (<1.0)	*
Annelida	17 (2.8)	4 (<1.0)	19 (2.4)
Isopoda	*	*	*
Amphipoda	7 (1.2)	37 (1.2)	16 (2.0)
Decapoda	3 (<1.0)	21 (<1.0)	4 (<1.0)
Platyhelminthes	28 (4.7)	3 (<1.0)	2 (<1.0)
Megaloptera	49 (8.2)	*	*

Nematoda	*	5 (<1.0)	2 (<1.0)
Hemiptera	1 (<1.0)	*	*
Pelecypoda	*	*	*
Nematomorpha	*	*	*

	McCormack Mile 0 1985	McCormack Mile 0 1985	11pt River Mile 40 1983
No. Samples	1	1	1
Total No. Organisms	2092	1247	617
Avg. Number Organisms/ft	349	208	62
Trichoptera	1402 (233.7)	308 (51.3)	39 (3.9)
Ephemeroptera	140 (23.3)	452 (75.3)	493 (49.3)
Odonata	2 (<1.0)	10 (1.7)	11 (1.1)
Plecoptera	6 (1.0)	12 (2.0)	*
Lepidoptera	*	2 (<1.0)	*
Coleoptera	2 (<1.0)	170 (28.3)	30 (3.0)
Diptera	236 (39.3)	168 (28.0)	39 (3.9)
Arachnoidea	5 (<1.0)	*	*
Gastropoda	13 (2.2)	8 (1.3)	*
Annelida	13 (2.2)	49 (8.2)	1 (<1.0)

Isopoda	116 (19.3)	*	*
Amphipoda	*	*	*
Decapoda	*	*	*
Platyhelminthes	59 (9.8)	34 (5.7)	1 (<1.0)
Megaloptera	85 (14.2)	32 (5.3)	3 (<1.0)
Nematoda	*	*	*
Hemiptera	2 (<1.0)	*	*
Pelecypoda	*	2 (<1.0)	*
Nematomorpha	8 (<1.0)	*	*

	11pt River Mile 40 1985	11pt River Mile 47 1974	Spring Cr Mile 0 1974
No. Samples	2	4	4
Total No. Organisms	3985	3357	3045
Avg. Number Organisms/ft	247	93	102
Trichoptera	882 (55.1)	865 (9.3)	864 (39.1)
Ephemeroptera	2161 (135.1)	1897 (52.7)	1123 (37.4)
Odonata	25 (1.6)	1 (<1.0)	1 (<1.0)
Plecoptera	130 (8.1)	42 (1.2)	29 (<1.0)
Lepidoptera	2 (<1.0)	2 (<1.0)	1 (<1.0)

Coleoptera	48 (3.0)	86 (2.4)	156 (5.2)
Diptera	405 (25.3)	340 (9.4)	310 (10.3)
Arachnoidea	1 (<1.0)	19 (<1.0)	7 (<1.0)
Gastropoda	168 (10.5)	67 (1.9)	5 (<1.0)
Annelida	37 (2.3)	9 (<1.0)	103 (3.4)
Isopoda	*	*	*
Amphipoda	*	2 (<1.0)	1 (<1.0)
Decapoda	5 (<1.0)	*	1 (<1.0)
Platyhelminthes	2 (<1.0)	1 (<1.0)	30 (1.0)
Megaloptera	18 (1.1)	25 (<1.0)	3 (<1.0)
Nematoda	*	*	3 (<1.0)
Hemiptera	*	*	*
Pelecypoda	34 (2.1)	*	*
Nematomorpha	*	1 (<1.0)	1 (<1.0)

	11pt River Mile 40 1985	11pt River Mile 47 1974	Spring Cr Mile 0 1974
No. Samples	2	4	4
Total No. Organisms	3985	3357	3045
Avg. Number Organisms/ft	247	93	102

Trichoptera	882 (55.1)	865 (9.3)	864 (39.1)
Ephemeroptera	2161 (135.1)	1897 (52.7)	1123 (37.4)
Odonata	25 (1.6)	1 (<1.0)	1 (<1.0)
Plecoptera	130 (8.1)	42 (1.2)	29 (<1.0)
Lepidoptera	2 (<1.0)	2 (<1.0)	1 (<1.0)
Coleoptera	48 (3.0)	86 (2.4)	156 (5.2)
Diptera	405 (25.3)	340 (9.4)	310 (10.3)
Arachnoidea	1 (<1.0)	19 (<1.0)	7 (<1.0)
Gastropoda	168 (10.5)	67 (1.9)	5 (<1.0)
Annelida	37 (2.3)	9 (<1.0)	103 (3.4)
Isopoda	*	*	*
Amphipoda	*	2 (<1.0)	1 (<1.0)
Decapoda	5 (<1.0)	*	1 (<1.0)
Platyhelminthes	2 (<1.0)	1 (<1.0)	30 (1.0)
Megaloptera	18 (1.1)	25 (<1.0)	3 (<1.0)
Nematoda	*	*	3 (<1.0)
Hemiptera	*	*	*
Pelecypoda	34 (2.1)	*	*
Nematomorpha	*	1 (<1.0)	1 (<1.0)

	Tupelo Gum Mile 1 1985	Barren Fork Mile 2 1974	11pt River Mile 49 1974
No. Samples	1	4	4
Total No. Organisms	30	4023	3288
Avg. Number Organisms/ft	N/A (pond)	118	110
Trichoptera	*	846 (24.9)	1286 (42.9)
Ephemeroptera	*	9 (<1.0)	1 (<1.0)
Odonata	8	9 (<1.0)	1 (<1.0)
Plecoptera	*	265 (7.8)	134 4.5)
Lepidoptera	*	*	1 (<1.0)
Coleoptera	4	152 (4.5)	254 (8.5)
Diptera	2	758 (22.3)	222 (7.4)
Arachnoidea	*	8 (<1.0)	1 (<1.0)
Gastropoda	*	*	2 (<1.0)
Annelida	*	148 (4.4)	5 (<1.0)
Isopoda	*	10 (<1.0)	*
Amphipoda	*	*	*
Decapoda	*	*	3 (<1.0)
Platyhelminthes	*	10 (<1.0)	184 (6.1)
Megaloptera	2	100 (2.9)	10 (<1.0)

Nematoda	*	*	*
Hemiptera	10	*	1 (<1.0)
Pelecypoda	3	*	8 (<1.0)
Nematomorpha	*	5 (<1.0)	*

	11pt River Mile 49 1985	Mid Fk/11 Pt Mile 1 1974
No. Samples	1	4
Total No. Organisms	3193	5395
Avg. Number Organisms/ft	399	317
Trichoptera	1188 (148.5)	980 (28.8)
Ephemeroptera	1550 (193.8)	3096 (91.1)
Odonata	6 (<1.0)	4 (<1.0)
Plecoptera	10 (1.3)	249 (7.3)
Lepidoptera	2 (<1.0)	*
Coleoptera	32 (4.0)	25 (>1.0)
Diptera	363 (45.4)	918 (27.0)
Arachnoidea	3 (<1.0)	1 (<1.0)
Gastropoda	4 (<1.0)	6 (<1.0)
Annelida	16 (2.0)	20 (<1.0)

Isopoda	*	*
Amphipoda	*	2 (<1.0)
Decapoda	4 (<1.0)	3 (<1.0)
Platyhelminthes	*	47 (1.4)
Megaloptera	13 (1.6)	31 (<1.0)
Nematoda	*	*
Hemiptera	*	*
Pelecypoda	2 (<1.0)	*
Nematomorpha	*	2 (<1.0)

Table Bc11. Comparison of riffle habitat benthic invertebrate collections from stream mile 33 on the Eleven Point River; Numbers beside family names indicate total number of taxa with the number of organisms/ft² in parentheses (MDC 1995b). (*) indicates none found.

	Eleven Point River Mile 33 October 25, 1974	Eleven Point River Mile 33 October 31, 1985
Effort (FT²sampled)	12 FT²	8 FT²
Trichoptera	7 (170)	5 (216)
Ephemeroptera	6 (68)	13 (231)
Plecoptera	2 (0.8)	3 (1.3)
Lepidoptera	1 (0.1)	1 (0.3)
Coleoptera	2 (50)	2 (9)
Diptera	4 (6)	3 (8)
Arachnoidea	1 (0.3)	1 (0.5)
Gastropoda	2 (4)	3 (3)
Annelida	1 (1.5)	1 (1)
Isopoda	*	1 (13)
Amphipoda	1 (0.1)	1 (1)
Decapoda	1 (0.2)	3 (1)
Platyhelminthes	1 (5)	1 (12)
Megaloptera	2 (0.6)	2 (0.4)

Table Bc12. Species of conservation concern within the Eleven Point Watershed (MDC 1988,(1 of 4) Pflieger 1996, MDC 1998a, MDC 1998b MDC 1998c and MDC 1999).

Scientific Name	Common Name	Federal Status	State Status	G Rank	S Rank
Mammals	*	*	*	*	*
<i>Myotis grisescens</i>	Gray Bat	E	E	G3	S3
<i>Myotis sodalis</i>	Indiana Bat	E	E	G2	S1
<i>Sylvilagus aquaticus</i>	Swamp Rabbit	*	*	G5	S2?
Birds	*	*	*	*	*
<i>Aimophila aestivalis</i>	Bachman's Sparrow	*	E	G3	S1
<i>Ardea herodias</i>	Great Blue Heron	*	*	G5	S5
<i>Buteo lineatus</i>	Red-shouldered Hawk	*	*	G5	S3
<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	E	G4	S2
<i>Limnothlypis swainsonii</i>	Swainson's Warbler	*	E	G4	S1
Amphibians	*	*	*	*	*
<i>Cryptobranchus alleganiensis (bishop)</i>	Ozark Hellbender	*	*	G4T3	S2
Fish	*	*	*	*	*
<i>Hiodon tergisus</i>	Mooneye	*	*	G5	S3
<i>Notropis ozarcanus</i>	Ozark Shiner	*	*	G3	S2
<i>Noturus flavater</i>	Checkered Madtom	*	*	G4	S3S4
<i>Typhlichthys subterraneus</i>	Southern Cavefish	*	8	G3	S2S3
Invertebrates	*	*	*	*	*
<i>Agapetus artesius</i>	Artesian Agapetus Caddisfly	*	*	G?	S3
<i>Cambarus hubrichti</i>	Salem Cave Crayfish	*	*	G2	S3
<i>Hesperochernes occidentalis</i>	A Troglobitic Pseudoscorpion	*	*	G?	S3

Table Bc12. Species of conservation concern within the Eleven Point Watershed (MDC 1988, (2 of 4) Pflieger 1996, MDC 1998a, MDC 1998b MDC 1998c and MDC 1999).

Scientific Name	Common Name	Federal Status	State Status	G Rank	S Rank
<i>Hydropsyche piatrix</i>	A Net-spinning Caddisfly	*	*	G?	S4
<i>Ligumia recta</i>	Black Sandshell	*	*	G5	S1S2
<i>Ochrotrichia contorta</i>	Contorted Ochrotrichian Micro Caddisfly	*	*	G?	SU

<i>Orconectes eupunctus</i>	Coldwater Crayfish	*	*	G2	S3
<i>Ptychobranchus occidentalis</i>	Ouachita Kidneyshell	*	*	G3G4	S2S3
<i>Pseudosinella espana</i>	A Springtail	*	*	G?	S3
<i>Scoterpes dendropus</i>	A Cave Millipede	*	*	G?	S2?
<i>Stenonema bednariki</i>	A Heptageniid Mayfly	*	*	G?	S3
<i>Stygobromus onondagaensis</i>	Onondaga Cave Amphipod	*	*	G1	S3?
<i>Toxolasma lividus</i>	Purple Lilliput	*	*	G2	S2?
Plants, Ferns, Fern Allies, and Mosses		*	*		
<i>Armoracia lacustris</i>	Lake Cress	*	*	G4?	S2
<i>Aster furcatus</i>	Forked Aster	*	*	G3	S2
<i>Aster macrophyllus</i>	Big-leaved Aster	*	*	G5	S2
<i>Berberis canadensis</i>	American Barberry	*	*	G3	S2
<i>Bromus latiglumis</i>	A Brome	*	*	G5	S2S3
<i>Calamagrostis porteri</i> <i>ssp. insperata</i>	Reed Bent Grass	*	*	G4T3	S3
<i>Carex alata</i>	Broadwing Sedge	*	*	G5	S2S3
<i>Carex comosa</i>	Bristly Sedge	*	*	G5	S2
<i>Carex decomposita</i>	Epiphytic Sedge	*	*	G3	S3
<i>Carex stricta</i>	Tussock Sedge	*	*	G5	S2?
<i>Castanea pumila</i> <i>var. ozarkensis</i>	Ozark Chinquapin	*	*	G5T3	S2

Table Bc12. Species of conservation concern within the Eleven Point Watershed (MDC 1988, (3 of 4) Pflieger 1996, MDC 1998a, MDC 1998b MDC 1998c and MDC 1999).

Scientific Name	Common Name	Federal Status	State Status	G Rank	S Rank
<i>Cyperus retrofractus</i>	Teasel-like Cyperus	*	*	G5	S1S2
<i>Cypripedium candidum</i>	Small White Lady-slipper	*	*	G4	S1
<i>Cypripedium reginae</i>	Showy Lady-slipper	*	*	G4	S2S3
<i>Dryopteris celsa</i>	Log Fern	*	*	G4	S1
<i>Eleocharis equisetoides</i>	Horsetail Spike Rush	*	*	G4	SX
<i>Euonymus americanus</i>	Strawberry Bush	*	*	G5	S2
<i>Glyceria acutiflora</i>	Sharp-scaled Manna Grass	*	*	G5	S3
<i>Helodium paludosum</i>	A Moss	*	*	G3G5	S1
<i>Hottonia inflata</i>	Featherfoil	*	*	G4	S2

<i>Isoetes engelmannii</i>	Engelmann's Guillwort	*	*	G4T?	S1?
<i>Juncus debilis</i>	Weak Rush	*	*	G5	S1
<i>Lemna trisulca</i>	Star Duckweed	*	*	G5	S2
<i>Liatris spicata</i>	Button Snakeroot	*	*	G5	SX
<i>Liatris scariosa</i> var. <i>nieuwlandii</i>	A Blazing Star	*	*	G5? TU	S2
<i>Ludwigia microcarpa</i>	A False Loosestrife	*	*	G5	S2
<i>Lycopodium digitatum</i>	A Clubmoss	*	*	G5	S2
<i>Malaxis unifolia</i>	Green Adder's Mouth	*	*	G5	S3
<i>Marshallia caespitosa</i> var. <i>caespitosa</i>	Barbara's Buttons	*	*	G4T4	S3
<i>Mecardonia acuminata</i>	Water Hyssop	*	*	G5	S1
<i>Myurella sibirica</i>	A Moss	*	*	G4?	S?
<i>Najas gracillima</i>	Thread-like Naiad	*	*	G5?	S2
<i>Paspalum dissectum</i>	Mudbank Paspalum	*	*	G4?	SH

Table Bc12. Species of conservation concern within the Eleven Point Watershed (MDC 1988, (4 of 4) Pflieger 1996, MDC 1998a, MDC 1998b MDC 1998c and MDC 1999).

Scientific Name	Common Name	Federal Status	State Status	G Rank	S Rank
<i>Plagiomnium ellipticum</i>	A Moss	*	*	G5	S?
<i>Platanthera flava</i> var. <i>herbiola</i>	Northern Rein Orchid	*	*	G4 T4Q	S2
<i>Potamogeton pulcher</i>	Spotted Pondweed	*	*	G5	S2S3
<i>Sacciolepis striata</i>	American Cupscale	*	*	G5	S1
<i>Schoenoplectus etuberculatus</i>	Canby's Bulrush	*	*	G3G4	S1
<i>Schoenoplectus subterminalis</i>	Swaying Rush	*	*	G4G5	S1
<i>Sida elliotii</i>	Elliott Sida	*	*	G4G5	S1
<i>Sphagnum centrale</i>	Sphagnum	*	*	G5	S1S2
<i>Spiranthes ovalis</i> var. <i>erostellata</i>	Oval Ladies' Tresses	*	*	G5T?	S2
<i>Tipularia discolor</i>	Cranefly Orchid	*	*	G4G5	S1
<i>Tridens flavus</i> var. <i>chapmanii</i>	A Grass	*	*	G5T?	SX
<i>Trillium pusillum</i> var. <i>ozarkanum</i>	Ozark Wake Robin	*	*	G3T3	S2
<i>Viburnum recognitum</i>	Northern Arrow-wood	*	*	G5	S1

<i>Waldsteinia fragarioides</i> ssp. <i>fragarioides</i>	Barren Strawberry	*	*	G5T5	S2
<i>Wolfiella gladiata</i>	Wolfiella	*	*	G5	S1
<i>Yucca arkansana</i>	Arkansas Yucca	*	*	G5	S2
<i>Zigadenus nuttallii</i>	Death Camas	*	*	G5	S1

Note: This table is not a final authority. Data subject to change.

Federal Status

E=Endangered

T=Threatened

* =Former category-2 candidate (In December of 1996, the USFWS discontinued the practice of maintaining a list of species regarded as "category-2 candidates". MDC continues to distinguish these species for information and planning purposes.

State Status

E=Endangered

SRrank

S1=Critically imperiled in the state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. (typically 5 or fewer occurrences or very few remaining individuals)

S2=Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. (6 to 20 occurrences or few remaining individuals or acres)

S3=Rare and uncommon in the state. (21 to 100 occurrences)

S4=Widespread, abundant, and apparently secure in state, with many occurrences, but the species is of long-term concern. (usually more than 100 occurrences)

S5=Demonstrably widespread, abundant, and secure in the state, and essentially ineradicable under present conditions.

SU=Unrankable: Possibly in peril in the state, but status uncertain; need more information.

SE=Exotic: An exotic established in the state; may be native in nearby regions.

SH=Historical: Element occurred historically in the state (with expectation that it may be rediscovered). Perhaps having not been verified in the past 20 years, and suspected to be still extant.

SX=Extirpated: Element is believed to be extirpated from the state.

S?=Unranked: Species is not yet ranked in the state.

Qualifier:

? =Inexact or uncertain: for numeric ranks, denotes inexactness. (The ? qualifies the character immediately preceding it in Srank)

Q=Questionable taxonomy: taxonomic status is questionable; numeric rank may change with taxonomy.

Grank

G1=Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. (typically 5 or fewer occurrences or very few remaining individuals or acres)

G2=Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction throughout its range. (6 to 20 occurrences or few remaining individuals or acres)

G3=Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout its range. (21 to 100 occurrences)

G4=Widespread, abundant, and apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery. Thus, the element is of long-term concern. (usually more than 100 occurrences)

G5=Demonstrably Widespread, abundant, and secure globally, though it may be quite rare in parts of its range, especially at the periphery.

Subrank:

T=Taxonomic subdivision: rank applies to subspecies or variety.

Note: Data in table subject to revision. This table is not a final authority.