HABITAT CONDITIONS

AQUATIC COMMUNITY CLASSIFICATIONS

Pflieger (1989) includes the basin in the Ozark-White Division community. Streams in this classification are found in narrow, steep-sided valleys with high bluffs and are characterized by high gradient and relief (usually between 300 and 600 feet). Streams in this region are clear with a substrate of mostly gravel and rubble with some boulders and bedrock. Channels of these streams also have clear, well-defined riffles and pools. There are numerous springs in the area due to the karst topography. This makes some streams of the region ideal for cool or cold water fisheries.

CHANNEL ALTERATIONS

Channel alterations in the basin include modifications to urban stream courses, channelization associated with road and bridge construction, several small impoundments on streams such as Finley Creek, small channel modifications related to gravel removal and efforts by individual landowners to control streambank erosion and similar problems, and the impoundment of major portions of the original James River and some of its tributaries by Table Rock Dam and Lake Springfield Dam. Approximately 44 miles of the James River have been impounded. Instream gravel mining operations are typically small, few in number, and scattered. With the exception of channel alterations on small streams in the Springfield urban area, channelization in the basin is limited.

Streams flowing through urban portions of Springfield have been straightened, lined with materials such as concrete and riprap, cleared of riparian vegetation, and in some cases, re-routed through underground channels. Channel alterations of this kind are common on Jordan Creek, South Creek, and their tributaries.

Portions of Crane Creek on the Wire Road Conservation Area were channelized prior to MDC taking ownership. The channelized sections now appear relatively stable. Consideration had been given to re-routing streamflows into the original channel at one location. However, plans were dropped due to the potential for channel de-stabilization.

UNIQUE TERRESTRIAL HABITATS

The state's terrestrial natural resources have been classified into six major categories---Forest, Savanna, Prairie, Primary, Wetland, and Cave communities. These communities have been divided based on characteristic features such as topography, size, distribution, and characteristic plants (Nelson 1985).

The Missouri Department of Conservation's Natural Heritage Program has identified natural communities in three of these major types in the James River Basin; Forest, Primary and Wetland (Table 13).

The James River Basin contains both upland and bottomland forest. The upland forest habitats include Dry-Mesic Limestone/Dolomite, Mesic Limestone/Dolomite, and Dry Chert Forest. The bottomland forest habitat type is the Mesic Bottomland Forest (Nelson 1985).

The Primary category type found in the basin includes both Limestone and Dolomite Glade habitats, as

Table 13. Unique community types found in the James River Basin.

COMMUNITY TYPE	AREA NAME	LOCATION (T R S)	SIZE (AC)	OWNERSHIP
Dolomite Glade	Crane Hollow Glade	23N 23W 21	6.0	USFS-Cassville/Private
Dolomite Glade	Piney Creek Wilderness	23N 25W 24	8.0	USFS-Cassville
Dolomite Glade	Piney Creek Wilderness	23N 25W 22	11.0	USFS-Cassville
Dolomite Glade	Piney Creek Wilderness	23N 25W 23	17.5	USFS-Cassville
Dolomite Glade	South Ance Creek Glade	23N 23W 22	6.0	USFS-Cassville/Private
Dry Chert Forest	Justus Forest	25N 25W 30	40.0	Private
Dry Limestone/Dolomite Cliff	Oswalt Bluff	22N 24W 2		USCOE/Private
Dry Limestone/Dolomite Cliff	Virgin Bluff	23N 24W 15		USCOE/Private
Dry-Mesic Limestone/Dolomite Forest	Finley Creek Forest	28N 18W 30	13.0	Private
Dry-Mesic Limestone/Dolomite Forest	Moon Tract	29N 20W 23	16.0	Private
Limestone Glade	Hailey Bald	23N 26W 13		USFS-Cassville
Mesic Bottomland Forest	James River Bottomland Forest	29N 21W 1	13.0	Private
Mesic Limestone/Dolomite Forest	James River Forest	25N 23W 33	30.0	Private
Pond Shrub Swamp	Murphy Pond	27N 19W 24	10.0	Private

Source: Missouri Department of Conservation (1995b)

well as the Limestone/Dolomite Cliff habitat (Nelson 1985).

There is one Wetland community type identified, the Pond Shrub Swamp community (Nelson 1985).

IMPROVEMENT PROJECTS

As in most basins, there have been a variety of attempts by private landowners to stabilize streambanks. These attempts include channelization and bank armoring using a variety of materials including rock, gravel, and construction debris.

MDC personnel have installed seven improvement projects since 1989 (Table 14), three on MDC property, one on property owned by the City of Cassville, and three on private property.

STREAM HABITAT ASSESSMENT

Stream habitat assessments (SHAD) were completed at 105 sites between 1993 and 1995 by Fisheries District 9 staff (Table 15, Figures 5A-D). SHAD sites were selected in all four of the major sub-basins using the guidelines of Bovee (1982).

SHAD assessments are summarized in Table 16 and the written SHAD summaries by sub-basin and by stream are included in Appendix B. Data on streambank erosion and protection, stream corridor, corridor vegetation quality, land use, channel condition, instream cover, and streambed condition are summarized.

Stream habitat quality throughout most of the basin is fair to good. Portions of the Crane Creek sub-basin as well as a few other areas suffer from a severe lack of riparian vegetation. Problem areas observed include lack of adequate riparian corridors, nutrient loading, streambank erosion, and instream activities such as gravel mining. Increased urbanization and related runoff also impact stream habitat quality.

Table 14. Missouri Department of Conservation streambank restoration and habitat improvement projects in the James River Basin.

STREAM	COUNTY	PRACTICE	LOCATION (T R S)	OWNER	INSTALLATION DATE
Crane Creek *	Stone	Revetments	25N,24W,10	MDC	1994
Dry Crane Creek	Stone	Revetments	26N,23W,27	Private	1995
Flat Creek *	Barry	Revetment	24N,26W,15	MDC	1989
Flat Creek	Barry	Revetment	24N,25W,31	Private	1992
Flat Creek	Barry	Riprap	24N,26W,15	MDC	1995
Flat Creek	Barry	Riprap	23N,27W,28	Cassville	1997
James River	Greene	Revetment	29N,20W,28	Private	1991

*** Project failed. No repairs are planned. Unless otherwise noted, all projects are functioning as planned.**

Table 15. List of Stream Habitat Assessment Device (SHAD) sites completed in the James River Basin by the Missouri Department of Conservation.

STREAM	SITE	ORDER	LOCATION	STREAM MILE	TOPOGRAPHIC MAP	SURVEY DATE
James River	A1	5	T28N R21W S 2	60.54	Galloway	8-18-94
James River	A2	5	T29N R19W S 3	78.40	Strafford	7-12-95
James River	A3	5	T29N R20W S31	97.80	Galloway	8-18-94
James River	A4	5	T29N R18W S 6	115.20	Marshfield	10-15-93
James River	A5	4	T29N R18W S 4	117.80	Marshfield	8-18-94
James River	A6	4	T29N R17W S 7	122.90	Seymour	10-13-93
James River	A7	3	T29N R17W S22	127.00	Seymour	10-13-93
Dry Fork	A8	3	T29N R19W S28	0.90	Oak Grove Heights	12-10-93
Dry Creek	A9	4	T29N R18W S 6	0.30	Marshfield	10-15-93
Dry Creek	A10	3	T29N R18W S 4	3.00	Fordland	10-15-93
North Carolina Creek	A11	4	T29N R19W S 4	0.90	Oak Grove Heights	12-10-94
Panther Creek	A12	4	T29N R18W S21	2.80	Oak Grove Heights	12-10-93
Panther Creek	A13	3	T29N R18W S29	8.10	Fordland	10-15-93
Pearson Creek	A14	3	T29N R20W S26	0.60	Galloway	6- 6-94
Sawyer Creek	A17	3	T29N R20W S26	1.10	Oak Grove Heights	6- 6-94
Turnbo Creek	A15	4	T30N R19W S35	0.30	Marshfield	12-10-93
Turnbo Creek	A16	3	T30N R18W S20	5.00	Marshfield	12-10-93
James River	B1	6	T24N R23W S 6	7.75	Galena	7-18-95
James River	B2	6	T26N R22W S19	29.17	Hurley	7-18-95
James River	B3	6	T27N R22W S32	36.10	Nixa	7-18-95
James River	B4	6	T27N R23W S13	40.42	Brookline	7-19-95
James River	B5	5	T28N R22W S27	49.26	Nixa	7-14-95
Green Valley Creek	B15	4	T27N R23W S12	0.20	Brookline	1-11-94
Green Valley Creek	B16	3	T27N R23W S24	1.90	Brookline	1-11-94
Goff Creek	B7	4	T25N R23W S13	1.20	Hurley	7- 7-95
Silver Lake Branch	B12	3	T26N R23W S13	1.00	Hurley	8-16-94
Terrell Creek	B10	4	T28N R23W S35	0.90	Brookline	1-11-94
Terrell Creek	B11	3	T28N R23W S33	3.80	Brookline	1-11-94
Tory Creek	B13	4	T26N R22W S27	2.50	Highlandville	3- 4-94
Tory Creek	B14	3	T26N R22W S34	2.90	Highlandville	3- 4-94
West Prong Goff Creek	B6	3	T25N R22W S19	1.32	Galena	7- 7-95
Wilson Creek	B8	5	T28N R23W S36	0.90	Republic	1-11-94
Wilson Creek	B9	3	T28N R22W S18	5.30	Brookline	1-11-94
Crane Creek	C2	5	T25N R23W S16	2.00	Elsey	7-31-95
Crane Creek	C3	5	T25N R23W S 5	8.12	Hurley	6-30-95

Crane Creek	C4	5	T25N R24W S10	12.80	Crane	7- 7-94
Crane Creek	C5	4	T26N R25W S24	20.00	Aurora	7- 5-95
Crane Creek	C6	3	T26N R25W S23	20.35	Aurora	7- 5-95
Dry Crane Creek	C7	4	T25N R23W S 9	0.25	Hurley	6-30-95
Dry Crane Creek	C8	4	T26N R23W S33	2.90	Hurley	6-30-95
Dry Crane Creek	C9	4	T26N R23W S22	6.60	Hurley	3- 4-94
Dry Crane Creek	C10	3	T26N R23W S 4	9.50	Hurley	3- 4-94
Dry Creek	C17	4	T24N R24W S17	1.00	Elsey	7-25-95
Dry Creek	C18	3	T25N R24W S34	4.00	Elsey	7-31-95
Little Crane Creek	C11	4	T26N R25W S35	2.90	Aurora	7- 5-95
Little Crane Creek	C12	3	T25N R25W S 4	6.32	Aurora	7- 5-95
Mc Cullah Hollow	C15	4	T26N R23W S19	0.50	Crane	8-16-94
Mc Cullah Hollow	C16	4	T26N R24W S11	2.70	Crane	8-16-94
McCord Branch	C1	3	T26N R24W S34	3.11	Crane	7- 5-95
Spring Creek	C13	4	T26N R23W S31	1.10	Hurley	6-30-95
Spring Creek	C14	3	T26N R23W S18	4.00	Hurley	8-16-94
Davis Branch	F16	3	T28N R18W S15	1.30	Bruner	6-10-93
Elk Valley	F27	4	T26N R22W S33	1.80	Selmore	7- 2-93
Elk Valley	F28	4	T26N R21W S 3	3.30	Selmore	8-25-93
Elk Valley	F29	3	T26N R21W S 2	4.60	Selmore	8- 4-93
Finley Creek	F1	5	T26N R22W S10	2.80	Highlandville	10-28-93
Finley Creek	F2	5	T27N R22W S 1	4.80	Highlandville	10-28-93
Finley Creek	F15	5	T26N R22W S 1	4.95	Highlandville	7-19-95
Finley Creek	F3	5	T27N R21W S14	13.60	Ozark	10-28-93
Finley Creek	F14	5	T27N R21W S23	11.93	Ozark	7-19-95
Finley Creek	F4	5	T27N R20W S18	15.40	Ozark	8-25-93
Finley Creek	F5	5	T27N R20W S16	17.90	Ozark	6- 6-94
Finley Creek	F6	5	T27N R20W S14	23.40	Rogersville	8-25-93
Finley Creek	F7	4	T27N R19W S16	28.50	Rogersville	9- 2-93
Finley Creek	F8	4	T27N R19W S11	30.50	Bruner	8- 3-93
Finley Creek	F9	4	T27N R19W S 1	32.90	Bruner	8- 3-93
Finley Creek	F10	4	T28N R18W S29	37.90	Bruner	8-26-93
Finley Creek	F11	4	T28N R18W S23	41.70	Dogwood	8-26-93
Finley Creek	F12	3	T28N R17W S19	43.50	Dogwood	7- 1-93
Finley Creek	F13	3	T28N R17W S23	49.00	Dogwood	6-10-93
Hog Creek	F21	3	T26N R21W S 6	1.30	Highlandville	7- 2-93
Hog Creek	F22	3	T26N R21W S 8	3.10	Selmore	7- 2-93
Johnson Hollow	F20	3	T27N R20W S13	1.00	Rogersville	8- 4-93
Little Finley Creek	F30	3	T28N R18W S13	1.40	Dogwood	8-26-93
Martins Branch	F19	3	T27N R18W S31	0.30	Bruner	8- 3-93

Parched Corn Hollow	F23	4	T27N R20W S 7	0.70	Ozark	8- 4-93
Parched Corn Hollow	F24	3	T27N R20W S 5	3.50	Ozark	8- 4-93
Pedelo Creek	F25	4	T27N R19W S 6	2.40	Rogersville	7- 1-93
Pedelo Creek	F26	3	T28N R19W S32	3.80	Rogersville	8- 3-93
Stewart Creek	F18	3	T27N R19W S12	1.70	Bruner	8- 3-93
Terrell Branch	F17	3	T28N R18W S20	0.90	Bruner	7- 1-93
East Fork Jenkins Creek	D3	3	T25N R25W S28	1.50	Jenkins	7-25-95
Flat Creek	D7	6	T24N R24W S30	8.50	Elsey	7-25-95
Flat Creek	D8	6	T24N R25W S34	14.20	Elsey	7-12-95
Flat Creek	D9	6	T23N R25W S 6	20.60	Shell Knob	7-12-95
Flat Creek	D10	5	T24N R26W S24	26.30	Jenkins	7-14-95
Flat Creek	D11	5	T24N R26W S 9	30.64	Jenkins	7-14-95
Flat Creek	D12	5	T24N R26W S 6	35.20	McDowell	7-17-95
Flat Creek	D14	4	T23N R27W S 3	43.90	Cassville	6-16-94
Flat Creek	D15	3	T22N R28W S13	55.13	Seligman	7-17-95
Flat Creek	D13	3	T22N R28W S22	57.20	Seligman	7-17-95
Fortune Branch	D16	3	T23N R26W S10	1.80	Shell Knob	7-10-95
Gunter Creek	D17	3	T24N R27W S12	0.90	Jenkins	7-25-95
Gunter Creek	D18	3	T24N R27W S 9	3.50	Jenkins	7-17-95
Jenkins Creek	D1	4	T24N R26W S24	0.30	Jenkins	7-14-95
Jenkins Creek	D2	4	T24N R26W S 1	3.00	Jenkins	7-25-95
Little Flat Creek	D4	4	T24N R27W S 1	0.50	McDowell	7-17-95
Little Flat Creek	D5	4	T25N R27W S25	3.86	McDowell	7-17-95
Little Flat Creek	D6	3	T25N R27W S26	5.70	McDowell	7-17-95
North Railey Creek	D22	3	T24N R23W S11	0.90	Galena	7- 7-95
Railey Creek	D23	4	T24N R23W S 9	2.80	Galena	7- 7-95
Railey Creek	D24	3	T24N R23W S10	3.80	Galena	7- 7-95
Rockhouse Creek	D19	5	T23N R26W S12	2.70	Shell Knob	7-10-95
Rockhouse Creek	D20	4	T23N R26W S14	4.00	Shell Knob	7-10-95
Rockhouse Creek	D21	3	T23N R26W S22	4.48	Shell Knob	7-10-95