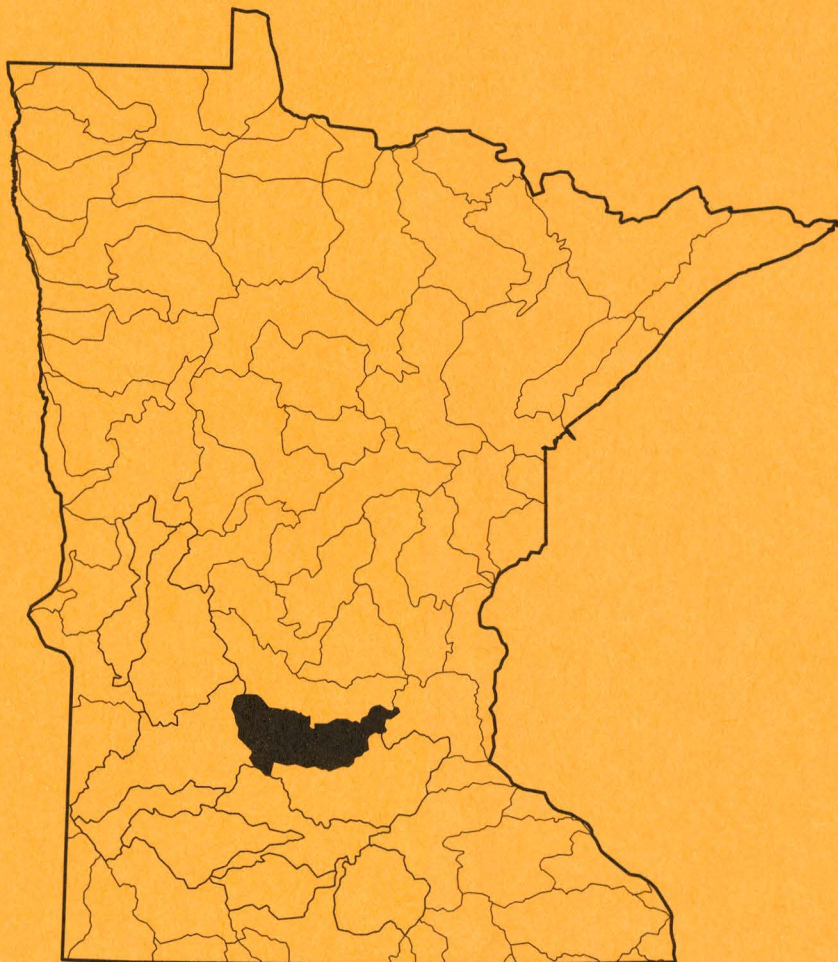


PHYSICAL CHARACTERISTICS OF STREAM SUBBASINS IN THE SOUTH FORK CROW RIVER BASIN, SOUTH-CENTRAL MINNESOTA

By Christopher A. Sanocki

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Physical Characteristics of Stream Subbasins in the South Fork Crow River Basin, South-Central Minnesota

By Christopher A. Sanocki

Abstract

Data that describe the physical characteristics of stream subbasins upstream from selected sites on streams in the South Fork Crow River Basin, located in south-central Minnesota are presented in this report. The physical characteristics are the drainage area of the subbasin, the percentage area of the subbasin covered only by lakes, the percentage area of the subbasin covered by both lakes and wetlands, the main-channel length, and the main-channel slope. Stream sites include outlets of subbasins of at least 5 square miles, and locations of U.S. Geological Survey low-flow, high-flow, and continuous-record gaging stations.

Introduction

This is the 13th report in a series detailing subbasin characteristics of streams in Minnesota and adjacent states. The South Fork Crow River Basin drains an area of 1,281 square miles and is represented by hydrologic accounting unit 07010205 (U.S. Geological Survey, 1974). The South Fork Crow River Basin includes parts of Carver, Hennepin, Kandiyohi, McLeod, Meeker, Renville, Sibley and Wright Counties in south-central Minnesota.

Selected data for sites on streams at outlets of subbasins larger than about 5 square miles; at locations of U.S. Geological Survey (USGS) low-flow, high-flow, and continuous-record gaging stations located in the South Fork Crow River Basin are presented in this report. This report was prepared in cooperation with the Minnesota Department of Transportation.

Acknowledgments

Brian Schreurs, a graduate student at St. Cloud State University, did much of the digitizing and assisted in the preparation of this report. These contributions were essential for the completion of this report.

Methods

USGS 7-1/2 minute series topographic maps were used as source maps to obtain the areas for the subbasin boundaries, the main-channel length, and the contour elevation points used in this report. Paper copies of the maps were used. Lake and marsh data were obtained from U.S. Fish and Wildlife Service National Wetlands

Inventory Data (U.S. Fish & Wildlife Service, 1981-present). A geographic information system (GIS) was used to define the geographic location and extent of the subbasins, lakes, marshes, main-channels, and elevation points. Data digitized from paper copies were in error by no more than twice the horizontal accuracy of National Mapping Standards of 40 feet (Thompson, 1987, p. 104). All thematic (digitized) data were projected into an Albers Equal-Area projection for storage and analysis.

Subbasin boundaries were delineated on the basis of anthropogenic activities and topographic contours. Anthropogenic activities, such as the installation of storm sewers, the drainage of wetlands, and the diversion of streams, may alter the drainage area of a stream. Data from field inspections and recent drainage-ditch maps, therefore, were transferred to the topographic maps. The subbasin boundaries were digitized by the Minnesota Department of Natural Resources (DNR), and the USGS Minnesota using a GIS.

Lake and marsh boundaries were overlaid on the subbasin boundaries to associate each lake and marsh with a subbasin. The total area of lakes and marshes within each subbasin was calculated by the GIS. Total marsh area plus total lake area is defined as storage area.

Main channels were delineated for each subbasin on the 7-1/2 minute topographic maps starting at the outflow of the subbasin and continuing upstream. Whenever the main channel joined with another stream, the stream upstream of the junction that drained the largest area was selected as the main channel. The main

channel, which represents the watercourse that drains the greatest area, is continuous and is defined as a single trace that passes through marshes, lakes, and midline of rivers and braided streams from the basin outlet to an endpoint in the basin, generally at the basin divide. The main channels were digitized by the Minnesota Department of Transportation, using a computer aided drafting system and transferred to the GIS. Stream extensions that represent a portion of the main channel from the end of the mapped stream (blue line on 7-1/2 minute topographic maps) to an endpoint within the basin, generally at the basin divide, were digitized by USGS Minnesota using a GIS. The main-channel data were overlaid onto the subbasin data to associate each main channel with its subbasin.

Elevation points were digitized at the intersection of topographic contour lines and main channels. The elevation data were digitized using a GIS. The elevation data was overlaid onto the main channel data to associate each elevation data point with a main channel. Two points on the main-channel, at 10 percent and at 85 percent of the main channel length from the basin outlet to the drainage divide, were located by the GIS. The elevations of these two points were interpolated from the digitized elevation data. Main-channel slope was calculated by dividing the difference in elevation between these points by the distance along the stream channel between these points.

Physical Characteristics of South Fork Crow River Subbasins

Physical characteristics determined for each of the subbasins shown on plate 1 are presented in table 1. Subbasins are presented in order from headwaters to mouth. The rank of the subbasin stream is shown by indentation; whenever two subbasin streams joined, the stream draining the least cumulative area was assigned a lower rank and indented in the table.

The data for drainage area, and main-channel length are reported using three significant figures or rounded to the nearest one-hundredth of a unit. The data for lake area and storage area are reported using two significant figures or rounded to the nearest one-tenth of a percent. The data for main-channel slope is reported to the nearest one-tenth of a foot per mile.

The following is an explanation of the terms used in table 1:

Subbasin number. A seven digit number based on the Minnesota Common Stream and Watershed Numbering System (Minnesota Department of Natural Resources, 1981). The first two digits are 19 and identify the South

Fork Crow River Basin. The following three digits are arbitrary and were assigned by the DNR. The last two digits were added by the USGS Minnesota, to identify additional subdivisions to the DNR's watersheds at locations of USGS gaging stations and to identify noncontributing areas.

Stream name. The name of the stream or ditch shown on 7-1/2 minute topographic maps. The relative position of the subbasin above other subbasins, streams, and gaging stations.

Outlet location. The U.S. Public Lands Survey System is used to describe the location where the stream exits the subbasin, down to quarter-quarter section. The description includes quarter-quarter section, section, township, and range.

Drainage area. That area, measured on a horizontal plane, enclosed by a topographic divide, within which direct surface runoff from precipitation normally flows by gravity into a watercourse above a specific point. This may include closed basins and other areas that do not contribute directly to surface runoff.

Lake area. The percentage of the drainage area labeled lacustrine (lakes) on U.S. Fish and Wildlife Service National Wetlands Inventory Data.

Storage area. The percentage of a drainage area labeled lacustrine (lakes) and palustrine (wetlands) on U.S. Fish and Wildlife Service National Wetlands Inventory Data. Marsh areas shown on plate 1 are from USGS 1:100,000 Digital Line Graph data 1993.

Main-channel length. The total length of the main channel from the basin outlet to a point within the basin (generally at the basin divide) representing the watercourse that drains the greatest area.

Main-channel slope. The average slope of the watercourse between the points at 10 and at 85 percent of the distance along the main channel from the basin outlet to the drainage divide.

Stream extension. A representation of the main channel from the end of the mapped stream line (blue line on 7-1/2 minute topographic maps) to an endpoint within the basin, generally at the basin divide. This is done by interpreting topographic relief so that the extension of the main channel represents the watercourse draining the greatest area.

References Cited

Minnesota Department of Natural Resources, 1981, The common stream and watershed numbering system: Minnesota Department of Natural Resources Stream Inventory and Data Retrieval Systems Report 7002, unpagged.

Thompson, M.M., 1987, Maps for America, 3d edition: U.S. Geological Survey, 265 p.

U.S. Geological Survey, 1974, Hydrologic unit map-- 1974 State of Minnesota: 1 plate, scale 1:500,000.

U.S. Fish & Wildlife Service, National Wetlands Inventory Digital Data: Oct. 1981 to present

Table 1.—Physical characteristic data for the South Fork Crow River Basin.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Township	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)

1908901	Unnamed tributary to County Ditch 23A near Kandiyohi	NE SW	10	119N	34W	3.90	0.0	15.	3.90	0.0	15.	4.74	3.6
1908900	County Ditch No. 23A above Wagonga Lake	NE SW	32	119N	34W	25.7	1.0	5.9	29.6	0.9	7.0	12.8	11.3
1901600	Outlet from Mennetaga Lake	NE NE	36	119N	34W	13.0	9.9	18.	13.0	9.9	18.	6.49	24.4
1901700	Outlet from Little Kandiyohi Lake	NE SE	03	118N	34W	32.4	15.	24.	74.9	8.4	16.	16.2	8.6
1901500	South Fork Crow River above Branch No. 2	SW SW	04	117N	33W	16.0	0.0	25.	90.9	6.9	18.	25.8	4.7
1908800	Unnamed tributary to Lake Elizabeth	NE SW	35	119N	33W	7.25	5.9	18.	7.25	5.9	18.	4.70	14.5
1900600	Branch No. 2 to South Fork Crow River	SW SW	04	117N	33W	39.2	5.2	12.	46.4	5.3	13.	15.2	7.0
1901400	County Ditch 24A above subbasin 1900900	NE NE	13	117N	34W	18.0	0.0	4.6	18.0	0.0	4.6	8.04	1.5
1900900	South Fork Crow River above County Ditch No. 51	SE SW	17	117N	33W	34.9	17.	27.	190.	7.7	17.	28.3	4.1
1901200	County Ditch No. 51 to South Fork Crow River	SE SW	17	117N	33W	10.5	0.0	3.0	10.5	0.0	3.0	6.29	5.6
1901000	South Fork Crow River above Judicial Ditch No. 29	SW SE	22	117N	32W	20.0	1.7	4.2	221.	6.8	15.	38.5	2.7
1902800	Judicial Ditch No. 29 to South Fork Crow River	SW SE	22	117N	32W	17.2	0.0	1.1	17.2	0.0	1.1	5.12	3.4
1902406	South Fork Crow River above gaging station at Cosmos: station number is 05278500	SW SW	14	117N	32W	1.58	0.0	3.9	240.	6.2	14.	39.8	2.4
1902405	South Fork Crow River above Judicial Ditch No. 18	SE SW	02	117N	32W	2.65	0.0	3.6	242.	6.2	14.	42.3	1.9
1900700	Unnamed tributary to Judicial Ditch No. 18	SW NE	33	118N	32W	8.45	0.0	5.2	8.45	0.0	5.2	7.09	6.9
1900801	Judicial Ditch No. 18 above unnamed tributary subbasin 1700700	SW NE	33	118N	32W	5.29	0.0	8.4	5.29	0.0	8.4	5.38	3.1
1900800	Judicial Ditch No. 18 above Belle Creek	SE NE	33	118N	32W	0.09	0.0	0.0	13.8	0.0	6.4	7.25	7.0
1901800	Belle Creek to Judicial Ditch No. 18	SE NE	33	118N	33W	9.52	2.1	15.	9.52	2.1	15.	8.22	9.0
1909000	Judicial Ditch No. 18 to South Fork Crow River	SE SW	02	117N	32W	9.38	0.0	1.3	32.7	0.6	7.4	10.0	7.3

Table 1.—Physical characteristic data for the Lower Minnesota River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Township	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
1902404	South Fork Crow River above King Creek	NE NE	11	117N	32W	0.85	0.0	5.5	275.8	5.5	13.	43.4	1.7
1901909	Noncontributing area to subbasin 1901900					0.28	0.0	0.2	0.28	0.0	0.2	--	--
1901900	King Creek to South Fork Crow River	NE NE	11	117N	32W	24.8	8.3	14.	25.1	8.2	14.	13.0	7.4
1902403	South Fork Crow River above unnamed tributary subbasin 1902000	SE NE	09	117N	31W	8.94	0.0	12.	310.	5.6	13.	51.0	1.0
5 1902000	Unamed tributary to South Fork Crow River	SE NE	09	117N	31W	15.9	2.4	11.	15.9	2.4	11.	8.08	13.4
1902402	South Fork Crow River above unnamed tributary subbasin 1902100	SE NE	10	117N	31W	0.47	0.0	14.8	326.	5.4	13.	52.1	1.0
1902100	Unamed tributary to South Fork Crow River	SE NE	10	117N	31W	5.62	6.9	22.	5.62	6.9	22.	5.42	21.0
1902401	South Fork Crow River above County Ditch No. 18	NE SE	10	117N	31W	0.33	0.0	21.	332.	5.4	13.	52.4	1.0
1903000	County Ditch No. 18 to South Fork Crow River	NE SE	10	117N	31W	8.36	0.0	15.	8.36	0.0	15.	6.21	7.6
1902400	South Fork Crow River above unnamed tributary subbasin 1902200	NE NW	24	117N	31W	1.71	0.0	12.	342.	5.3	13.	55.0	1.0
1902300	Outlet of Cedar Lake	NE SW	31	118N	30W	19.0	24.	40.	19.0	24.	40.	5.64	0.5
1902200	Unnamed tributary to South Fork Crow River	NE NW	24	117N	31W	20.6	9.5	26.	39.6	17.	33.	10.5	1.4
1902702	South Fork Crow River above unnamed tributary subbasin 1902600	NW SW	30	117N	30W	1.41	0.0	16.	383.	6.4	15.	57.5	1.1
1902500	Outlet of Boon Lake	NW NW	04	116N	31W	12.4	9.4	13.	12.4	9.4	13.	8.23	4.4
1902600	Unnamed tributary to South Fork Crow River	NW SW	30	117N	30W	11.3	0.0	10.	23.7	4.9	12.	13.0	4.0
1902701	South Fork Crow River above Judicial Ditch No. 1	NW NW	09	116N	30W	3.78	0.0	11.	411.	6.3	15.	61.8	1.2
1902900	Judicial Ditch No. 1 to South Fork Crow River	NW NW	09	116N	30W	14.8	0.0	5.1	14.8	0.0	5.1	8.31	5.8
1902700	South Fork Crow River above Otter Lake	NW NW	02	116N	30W	7.48	0.3	6.3	433.	5.9	15.	64.6	1.3

Table 1.—Physical characteristic data for the South Fork Crow River Basin—Continued.

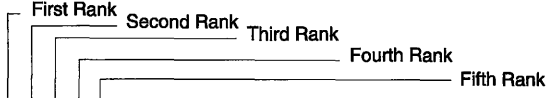
Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Township	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
													
1903100	Otter Lake outlet	SE SW	31	117N	29W	16.0	6.3	15.	449.	6.0	15.	66.9	1.3
1904900	South Fork Crow River above McCuen Creek	SE NE	21	116N	29W	10.6	0.0	6.8	460.	5.8	14.	72.9	1.4
1905000	McCuen Creek to South Fork Crow River	SE NE	21	116N	29W	16.1	1.2	5.1	16.1	1.2	5.1	8.53	6.1
1906201	South Fork Crow River above gaging station at Biscay: station number is 05278590	SE SW	23	116N	29W	1.90	0.0	4.9	478.	5.6	14.	74.6	1.4
9 1906200	South Fork Crow River above unnamed tributary subbasin 1905400	NW SW	31	116N	28W	7.39	0.0	6.1	485.	5.6	14.	78.7	1.5
1905400	Unnamed tributary to South Fork Crow River	NW SW	31	116N	28W	13.9	0.8	10.	13.9	0.8	10.	9.52	5.7
1904701	South Fork Crow River above County Ditch No. 26	SE NE	20	116N	28W	5.11	0.0	6.0	504.	5.4	14.	83.4	1.5
1904800	County Ditch No. 26 to South Fork Crow River	SE NE	20	116N	28W	9.08	0.0	14.	9.08	0.0	14.	7.71	6.2
1904700	South Fork Crow River above Bear Creek (County Ditch No. 40)	SW NE	21	116N	28W	1.22	0.0	12.	514.	5.3	14.	84.5	1.5
1903200	Bear Creek (County Ditch No. 40) to South Fork Crow River	SW NE	21	116N	28W	26.0	4.8	17.	26.0	4.8	17.	13.8	5.5
1906100	South Fork Crow River above unnamed tributary subbasin 1903500	SW SE	08	116N	27W	11.0	0.0	5.5	551.	5.1	14.	91.6	1.6
1903500	Unnamed tributary to South Fork Crow River	SW SE	08	116N	27W	10.6	0.0	14.	10.6	0.0	14.	8.88	7.5
1903601	South Fork Crow River above Otter Creek	NW NE	12	116N	27W	4.73	0.0	6.8	567.	5.0	14.	97.9	1.7
1903302	Otter Creek above gaging station near Lester Prairie: station number is 05278700	SE SE	28	117N	27W	31.3	1.7	14.	31.3	1.7	14.	14.8	3.1
1903301	Unnamed tributary to Otter Creek above gaging station near Lester Prairie: station number is 05278750	SE SE	33	117N	27W	1.09	0.0	2.4	1.09	0.0	2.4	2.08	17.5

Table 1.—Physical characteristic data for the South Fork Crow River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin					
		Quarter-quarter section	Section	Township	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)	
<div><div>First Rank</div><div>Second Rank</div><div>Third Rank</div><div>Fourth Rank</div><div>Fifth Rank</div></div>	1903300	OTter Creek above South Fork Crow River	NW SE	01	116N	27W	6.20	0.0	6.9	38.6	1.4	13.	19.8	4.6
	1900300	County Ditch No. 11 to Winstead Lake	NW SE	02	117N	27W	23.5	1.7	15.	23.5	1.7	15.	12.4	6.1
	1905900	Judicial Ditch No. 1 above subbasin 1903400	NW NE	32	117N	26W	12.2	7.8	23.	35.7	3.8	18.	20.4	4.9
	1903400	Judicial Ditch No. 1 to South Fork Crow River	SW NW	07	116N	26W	17.6	0.0	15.	53.3	2.5	17.	24.2	4.7
	1903600	South Fork Crow River above Silver Creek	SW SW	07	116N	26W	1.26	0.0	20.	660.	4.6	14.	100.	1.7
	1903700	Silver Creek to South Fork Crow River	SW SW	07	116N	26W	29.3	0.0	11.	29.3	0.0	11.	17.6	4.4
	1901300	Judicial Ditch No. 2 above subbasin 1901101	SE NW	09	116N	33W	16.2	0.0	10.	16.2	0.0	10.	10.2	1.5
	1901101	Judicial Ditch No. 2 above County Ditch No. 67	SW SE	16	116N	33W	7.15	0.0	2.2	23.4	0.0	7.8	12.1	1.3
	1906300	County Ditch No. 67 above Judicial Ditch No. 2	SW SE	16	116N	33W	7.37	0.0	0.6	7.37	0.0	0.6	9.61	1.9
	1901100	Buffalo Creek above Judicial Ditch No. 9	SE NE	21	116N	33W	0.87	0.0	1.6	31.6	0.0	6.0	12.7	1.3
	1906400	Judicial Ditch No. 9 to Buffalo Creek	SE NE	21	116N	33W	7.97	0.0	1.9	7.97	0.0	1.9	7.55	2.6
	1906500	Buffalo Creek above unnnamed ditch subbasin 1907100	NE NW	10	115N	33W	9.67	0.0	0.4	49.2	0.0	4.2	18.3	2.0
	1907100	Unnamed ditch to Buffalo Creek (Judicial Ditch No. 27)	NE NW	10	115N	33W	4.99	0.0	0.3	4.99	0.0	0.3	5.08	3.4
	1906700	Buffalo Creek (Judicial Ditch No. 27) above County Ditch No. 4	NW SW	34	116N	32W	13.0	0.0	1.8	67.2	0.0	3.5	25.3	2.3
	1906600	County Ditch No. 4 to Buffalo Creek	NW SW	34	116N	32W	15.4	0.0	2.9	15.4	0.0	2.9	10.9	2.9
	1906902	Buffalo Creek (Judicial Ditch No. 27) above County Ditch No. 7A	SW NE	34	116N	32W	0.18	0.0	14.	82.8	0.0	3.4	25.8	2.3
	1906802	Unnamed tributary to County Ditch No. 7A	NE SE	13	116N	32W	1.76	0.0	2.4	1.76	0.0	2.4	2.83	3.2
	1906801	Unnamed tributary to County Ditch No. 7A	NE SE	13	116N	32W	1.34	0.0	8.4	1.34	0.0	8.4	2.58	19.7

Table 1.—Physical characteristic data for the South Fork Crow River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)

1906800	County Ditch No. 7A to Buffalo Creek	NW NE	34	116N	32W	5.58	0.0	8.4	8.69	0.0	7.2	7.16	1.6
1906901	Buffalo Creek (Judicial Ditch No. 28A) above unnamed tributary subbasin 1907000	NE NW	15	115N	31W	18.5	1.0	4.5	110.	0.2	3.9	34.2	2.5
1907000	Unnamed tributary to Buffalo Creek (Judicial Ditch No. 28A)	NE NW	15	115N	31W	14.6	14.	16.	14.6	14.	16.	9.05	1.9
∞ 1906900	Buffalo Creek (Judicial Ditch No. 28A) above gaging station near Buffalo Lake: station number is 05278830	SW NE	15	115N	31W	0.24	0.0	3.4	125.	1.8	5.3	34.6	2.5
1907400	Judicial Ditch No. 15 above unnamed tributary subbasin 1907701	NW SE	33	115N	33W	11.0	0.0	0.1	11.0	0.0	0.1	7.08	3.6
1907701	Unnamed tributary to Judicial Ditch No. 15	NW SE	33	115N	33W	4.36	0.0	0.1	4.36	0.0	0.1	3.91	7.1
1907700	Judicial Ditch No. 15 above Judicial Ditch No. 15C	NW SW	36	115N	33W	7.43	0.0	0.8	22.8	0.0	0.3	10.0	3.1
1907800	Judicial Ditch No. 15C to Judicial Ditch No. 15	NW SW	36	115N	33W	9.09	0.0	6.7	9.09	0.0	6.7	5.26	5.5
1907602	Judicial Ditch No. 15 above Judicial Ditch No. 15B	NW NW	36	115N	33W	0.16	0.0	0.0	32.1	0.0	2.1	10.7	2.8
1907500	Judicial Ditch No. 15B to Judicial Ditch No. 15	NW NW	36	115N	33W	7.91	0.0	0.1	7.91	0.0	0.1	6.51	4.9
1907601	Judicial Ditch No. 15 above County Ditch No. 33	SW NW	33	115N	32W	5.22	0.0	0.0	45.2	0.0	1.5	13.7	2.7
1907900	County Ditch No. 33 to Judicial Ditch No. 15	SW NW	33	115N	32W	11.4	0.0	4.9	11.4	0.0	4.9	7.81	4.8
1907600	Judicial Ditch No. 15 above Judicial Ditch No. 15A	SE SE	22	115N	32W	3.48	0.0	0.4	60.1	0.0	2.1	16.4	2.7
1907200	Judicial Ditch No. 15A to Judicial Ditch No. 15	SE SE	22	115N	32W	13.6	0.0	2.0	13.6	0.0	2.0	10.2	3.0
1907300	Judicial Ditch No. 15 above gaging station near Buffalo Lake: station number is 05278835	NW SE	15	115N	31W	27.1	0.0	3.9	101.	0.0	2.6	23.9	2.6
1905701	Buffalo Creek above unnamed tributary subbasin 1905800	SW SW	24	115N	31W	4.30	0.0	8.1	230.	1.0	4.2	36.7	2.6

Table 1.—Physical characteristic data for the South Fork Crow River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
1905800	Unnamed tributary to Buffalo Creek	SW SW	24	115N	31W	4.56	0.0	9.6	4.56	0.0	9.6	4.88	8.0
1905100	County Ditch No. 33 to Buffalo Creek	NW SE	23	115N	30W	24.5	4.1	18.	24.5	4.1	18.	12.8	3.7
1905700	Buffalo Creek (Judicial Ditch No. 15) above unnamed tributary subbasin 1905200	NE NW	19	115N	29W	19.5	0.0	5.3	278.	1.2	5.5	48.5	2.4
1905201	Unnamed tributary above gaging station near Brownton: station number is 05278850	NE SE	13	115N	30W	9.24	8.8	16.	9.24	8.8	16.	4.90	3.5
1905200	Unnamed tributary to Buffalo Creek	NE NW	19	115N	29W	0.61	0.0	3.4	9.85	8.3	15.	5.50	4.3
1905600	Buffalo Creek above unnamed tributary subbasin 1905300	SE SE	28	115N	29W	10.4	2.6	12.8	299.	1.4	6.1	53.1	2.5
1905300	Unnamed tributary to Buffalo Creek	SE SE	28	115N	29W	13.2	1.0	12.	13.2	1.0	12.	9.81	5.8
1905500	Buffalo Creek above unnamed tributary subbasin 1906000	SE NW	05	114N	28W	13.8	0.0	17.	326.	1.4	6.8	61.9	2.3
1906000	Unnamed tributary to Buffalo Creek	SE NW	05	114N	28W	5.86	16.	31.	5.86	16.	31.	3.30	5.9
1904501	Buffalo Creek above gaging station near New Auburn: station number is 05278880	NW NW	03	114N	28W	4.85	0.0	18.	337.	1.6	7.4	64.5	2.2
1904400	Unnamed tributary to Buffalo Creek	NE SE	34	115N	28W	7.57	0.0	13.	7.57	0.0	13.0	5.39	3.2
1904500	Buffalo Creek above unnamed tributary subbasin 1904600	NW NE	27	115N	28W	3.07	0.0	9.6	347.	1.5	7.5	67.7	2.2
1904600	Unnamed tributary to Buffalo Creek	NW NE	27	115N	28W	11.0	0.8	13.	11.0	0.8	13.	6.51	3.4
1904301	Buffalo Creek above gaging station near Glencoe: station number is 05278930	SW SW	16	115N	27W	14.6	0.0	7.8	373.	1.5	7.7	73.7	2.1
1904300	Buffalo Creek above Judicial Ditch No. 8	NE SE	16	115N	27W	1.45	0.0	4.8	374.	1.5	7.7	74.8	2.1
1904200	Judicial Ditch No. 8 to Buffalo Creek	NE SE	16	115N	27W	12.2	0.0	9.7	12.2	0.0	9.7	7.37	4.9

Table 1.—Physical characteristic data for the South Fork Crow River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
	<div><div>First Rank</div><div>Second Rank</div><div>Third Rank</div><div>Fourth Rank</div><div>Fifth Rank</div></div>												
1903802	Buffalo Creek above unnamed tributary subbasin 1904100	NE SW	15	115N	27W	0.24	0.0	9.6	387.	1.4	7.7	75.3	2.1
1904100	Unnamed tributary to Buffalo Creek	NE SW	15	115N	27W	11.5	0.0	8.3	11.5	0.0	8.3	6.46	3.7
1903801	Buffalo Creek above gaging station near Plato: station number is 05278950	NW NE	02	115N	27W	12.5	0.0	8.9	411.	1.3	7.8	79.2	2.1
1903800	Buffalo Creek to South Fork Crow River	NE SE	18	116N	26W	8.97	0.0	11.	420.	1.3	7.8	85.4	2.1
1903900	South Fork Crow River above unnamed tributary subbasin 1904000	SW NW	22	116N	26W	7.47	0.0	7.7	1120.	3.2	12.	105.	1.8
1904000	Unnamed tributary to South Fork Crow River	SW NW	22	116N	26W	20.4	3.4	19.	20.4	3.4	19.	11.	5.8
1908200	South Fork Crow River above gaging station near Mayer: station number is 05279000	SW SW	30	117N	25W	19.1	0.3	12.	1160.	3.2	12.	112.	1.8
1908101	County Ditch No. 9 above gaging station near Mayer: station number is 05279030	NW NE	36	117N	26W	6.80	0.0	7.3	6.80	0.0	7.3	5.40	3.7
1908100	County Ditch No. 9 to South Fork Crow River	SW SW	30	117N	25W	0.42	0.0	2.2	7.22	0.0	7.0	6.06	4.4
1908000	Unnamed tributary to South Fork Crow River	SE NW	30	117N	25W	8.55	1.0	12.	8.55	1.0	12.	6.60	7.4
1908300	South Fork Crow River above unnamed tributary subbasin 1900500	SW NE	04	117N	25W	10.3	0.0	10.	1180.	3.1	12.	119.	1.8
1900500	Unnamed tributary to South Fork Crow River	SW NE	04	117N	25W	19.2	0.0	17.	19.2	0.0	17.	14.4	6.0
1900200	South Fork Crow River above unnamed tributary subbasin 1900400	NW SE	26	118N	25W	7.81	0.0	16.	1210.	3.0	12.	122.	1.8
1908700	Spurzem Creek to Lake Independence	NE SW	18	118N	23W	5.64	4.3	31.	5.64	4.3	31.	4.99	3.4
1908600	Lake Independence outlet	NE NW	24	118N	24W	7.52	17.	37.	13.2	12.	35.	6.30	2.4
1908500	Pioneer Creek to Ox Yoke Lake	SE NW	05	117N	24W	15.4	2.5	24.	28.5	6.6	29.	15.6	3.0

Table 1.—Physical characteristic data for the South Fork Crow River Basin—Continued.

First Rank Second Rank Third Rank Fourth Rank Fifth Rank

