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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

3 FLOODS IN INDIANA, JUNE-AUGUST 1979

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Open-File Report 80-1204

Prepared in cooperation with the
Indiana Department of Natural Resources

Indianapolis, Indiana
November 1980

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METRIC CONVERSION FACTORS

The inch-pound units used in this report can be converted to the metric (S.I.) system of units as follows:

<u>Multiply inch-pound unit</u>	<u>By</u>	<u>To obtain metric unit</u>
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
square mile (mi ²)	2.590	square kilometer (km ²)
cubic foot per second (ft ³ /s)	0.0283	cubic meter per second (m ³ /s)

FLOODS IN INDIANA, JUNE-AUGUST 1979

By Robert L. Gold and Stephen W. Wolcott

ABSTRACT

This report documents rainstorms and resultant floods in central and southern Indiana during the summer of 1979. Major flooding was caused by three storms, one in June and two in July 1979, centered primarily in central and southern Indiana. Peak discharge exceeded the 100-year recurrence interval at 16 sites in this area. State Civil Defense officials estimated that almost 50-million dollars damage was attributable to the July floods.

Hydrologic data have been tabulated for streamflow sites in the areas of flooding. Reservoir storage volumes, observation-well data, rainfall totals, and discharge hydrographs are presented to show the intensity and time of the storms and resultant floods.

INTRODUCTION

This report documents rainstorms and attendant floods in central and southern Indiana during the summer of 1979. The floods were significant in both magnitude (16 exceeding a 100-year recurrence) and areal extent across the State.

Acknowledgments

The National Oceanographic and Atmospheric Administration provided the precipitation data, radar summaries, and frontal-boundary data; the U.S. Army Corps of Engineers provided stages and capacity tables of reservoirs; Civil Defense officials provided estimates of damages caused by floods; and the newspaper, Hard Times, Marengo, Ind., provided the photograph of Main Street, English, Ind., used in the report.

STORM ON JUNE 8-9, 1979

The storm on June 8-9, which contributed a large part of the total rainfall in June, resulted from a stationary front. The frontal boundary entered northwest Indiana as a cold front at approximately 7:00 p.m. eastern standard time, June 8. Extensive thunderstorm activity in southern Indiana and western Kentucky preceded the front. At approximately 10:00 p.m., eastern standard time, June 8, the cold front began to slow. Precipitation continued to fall, as the front stalled.

Precipitation and frontal boundaries of the storm at selected times on June 8 and 9 are shown in figures 1 and 2. Although thunderstorms were active over much of Indiana (fig. 1), rainfall was most intense in the southern part of the State (fig. 2). Radar summaries before and after 3:35 a.m. eastern standard time on June 9 closely resembled the pattern shown in figure 2. Total precipitation for June 8 and 9 is shown in figure 3.

STORM ON JULY 12-14, 1979, CAUSED BY HURRICANE BOB

Precipitation from the remnants of Hurricane Bob resulted in the second major storm during the summer of 1979 in Indiana. The hurricane, after traveling through the Gulf of Mexico, reached the Gulf Coast States in the early morning hours of July 11. After the hurricane left the warm, smooth gulf waters, its available supply of energy was cut off. The winds subsided greatly; however, the rain continued, although at a lesser rate. The upper-level winds, blowing strongly from the southwest, placed the now downgraded hurricane on a direct path toward the Ohio River valley. During the early morning of July 12, the rain from the storm began to fall on southern Indiana. This happened after strong surface convergence north of the storm's low pressure center provided the necessary upward vertical motion needed to trigger thunderstorm activity amidst moderate rain showers throughout central Indiana. A squall line stretching west to east across the central part of the State was analyzed by the National Weather Service at 1:00 and 4:00 p.m., July 12. As the low pressure center moved across the State (fig. 4), rain continued to fall at a moderate rate throughout the night and into the early morning of the next day. Finally, during the afternoon of July 13, the precipitation temporarily subsided. With the air and ground already saturated, an advancing cold front began to induce additional rainfall and flooding throughout the streams of Indiana.

The total precipitation during July 12-14 is shown in figure 5. The pattern represents rainfall from the remnants of Hurricane Bob and the subsequent cold front. However, the pattern was not greatly affected by the cold front.

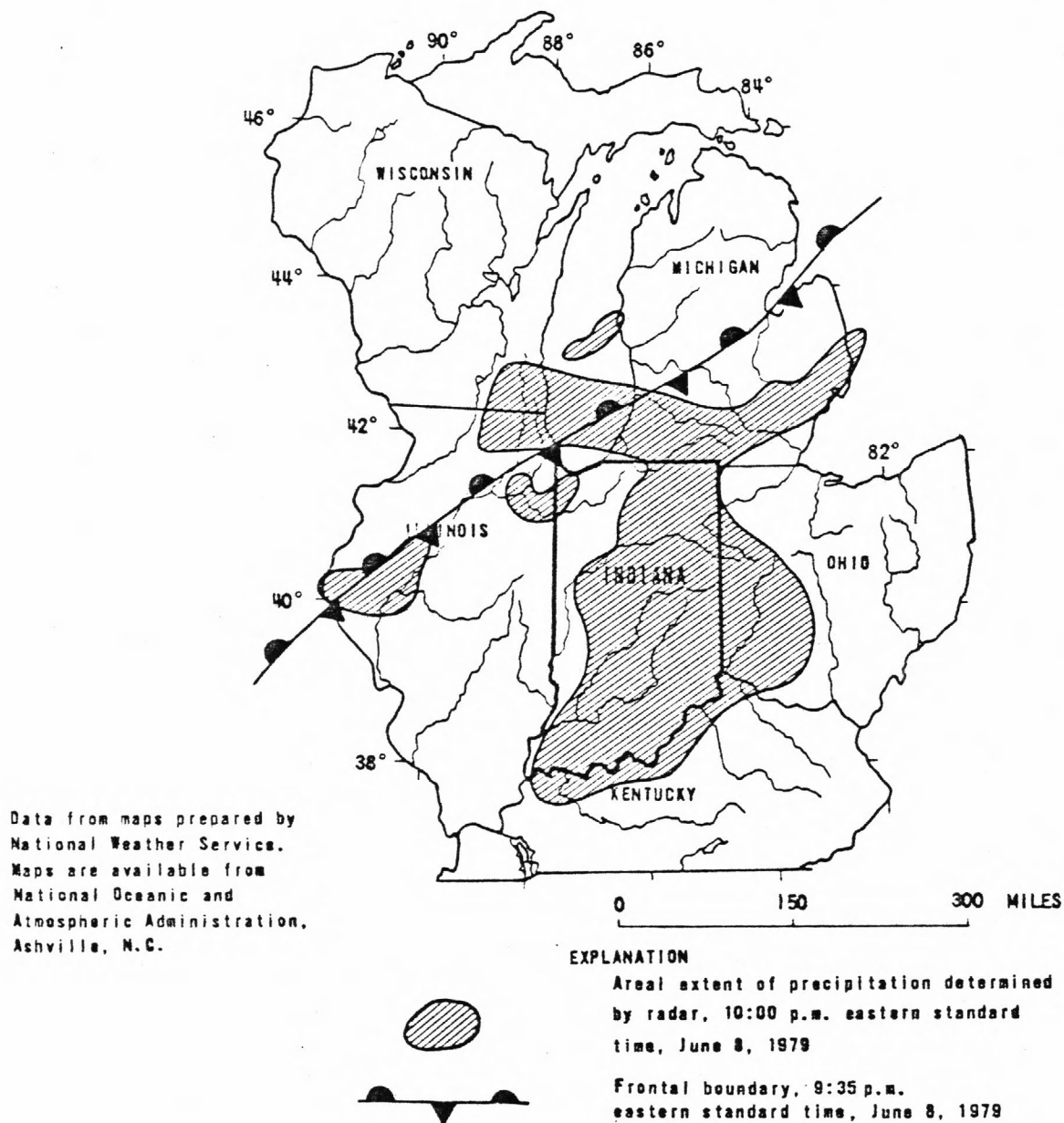


Figure 1. — Precipitation and frontal boundary, June 8, 1979.

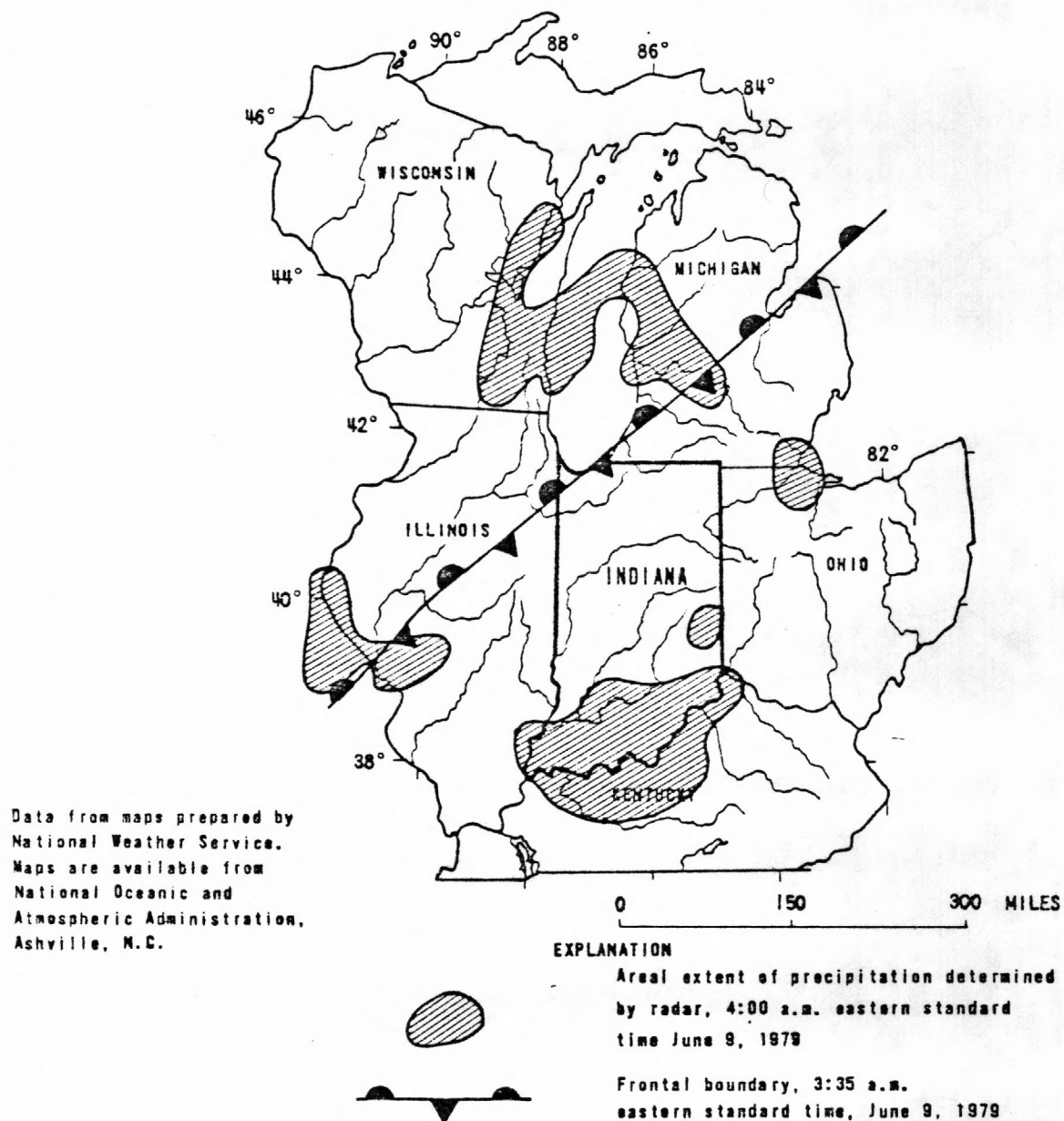


Figure 2. — Precipitation and frontal boundary, June 9, 1979.

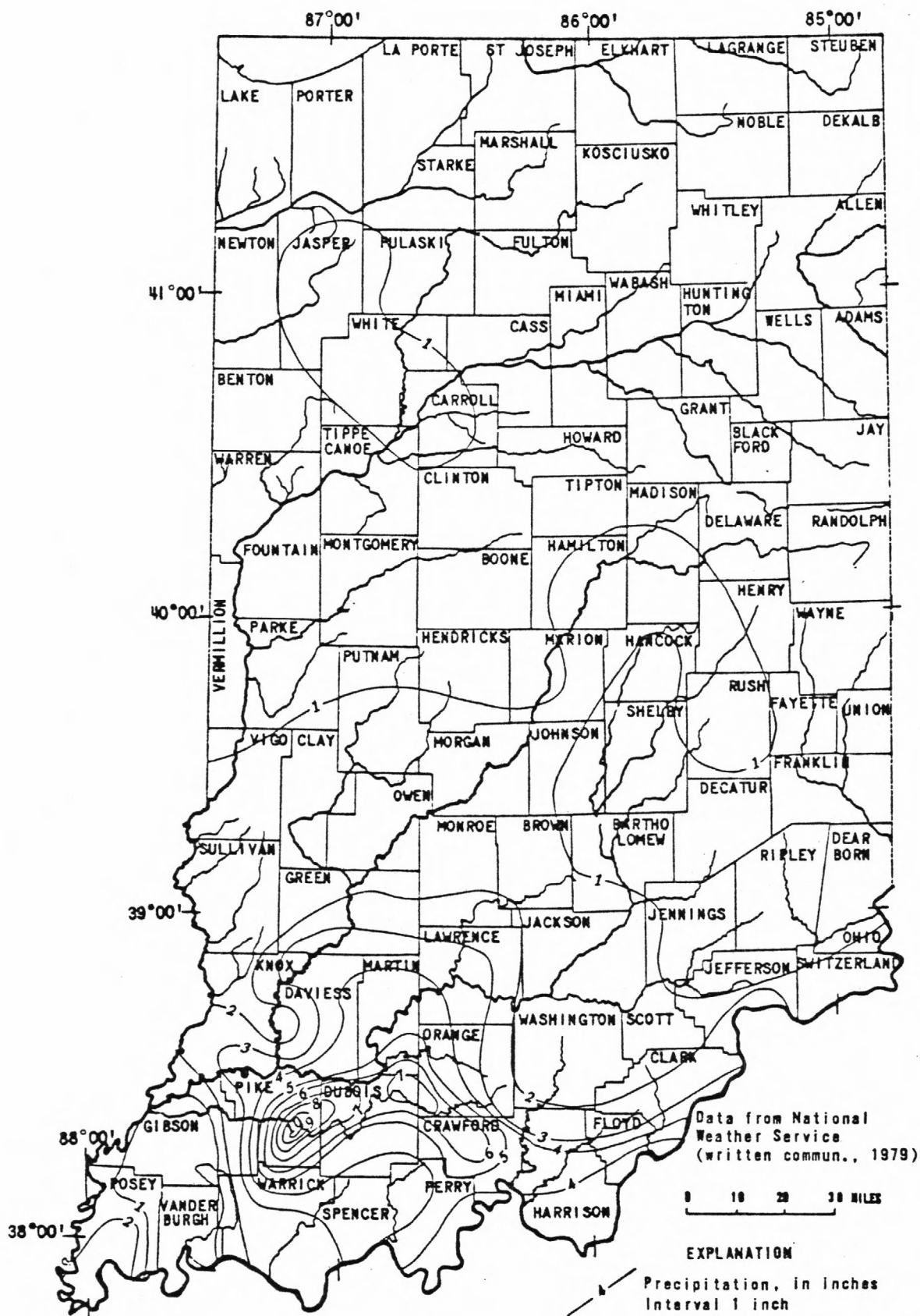


Figure 3. -- Forty-eight-hour precipitation totals, June 8-9, 1979.

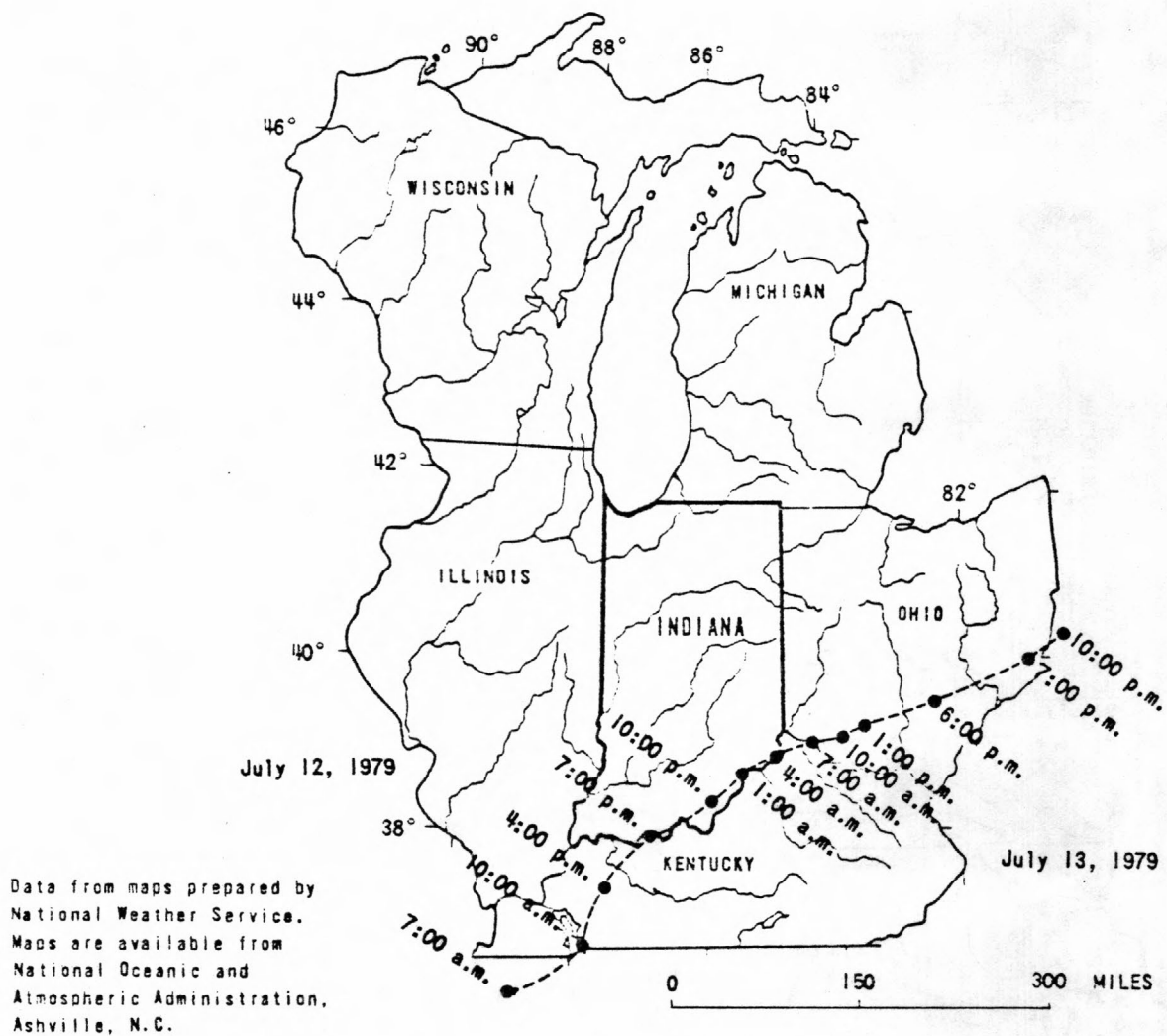


Figure 4.-- Approximate eastern standard times and positions of the surface low-pressure center of the remnants of Hurricane Bob.

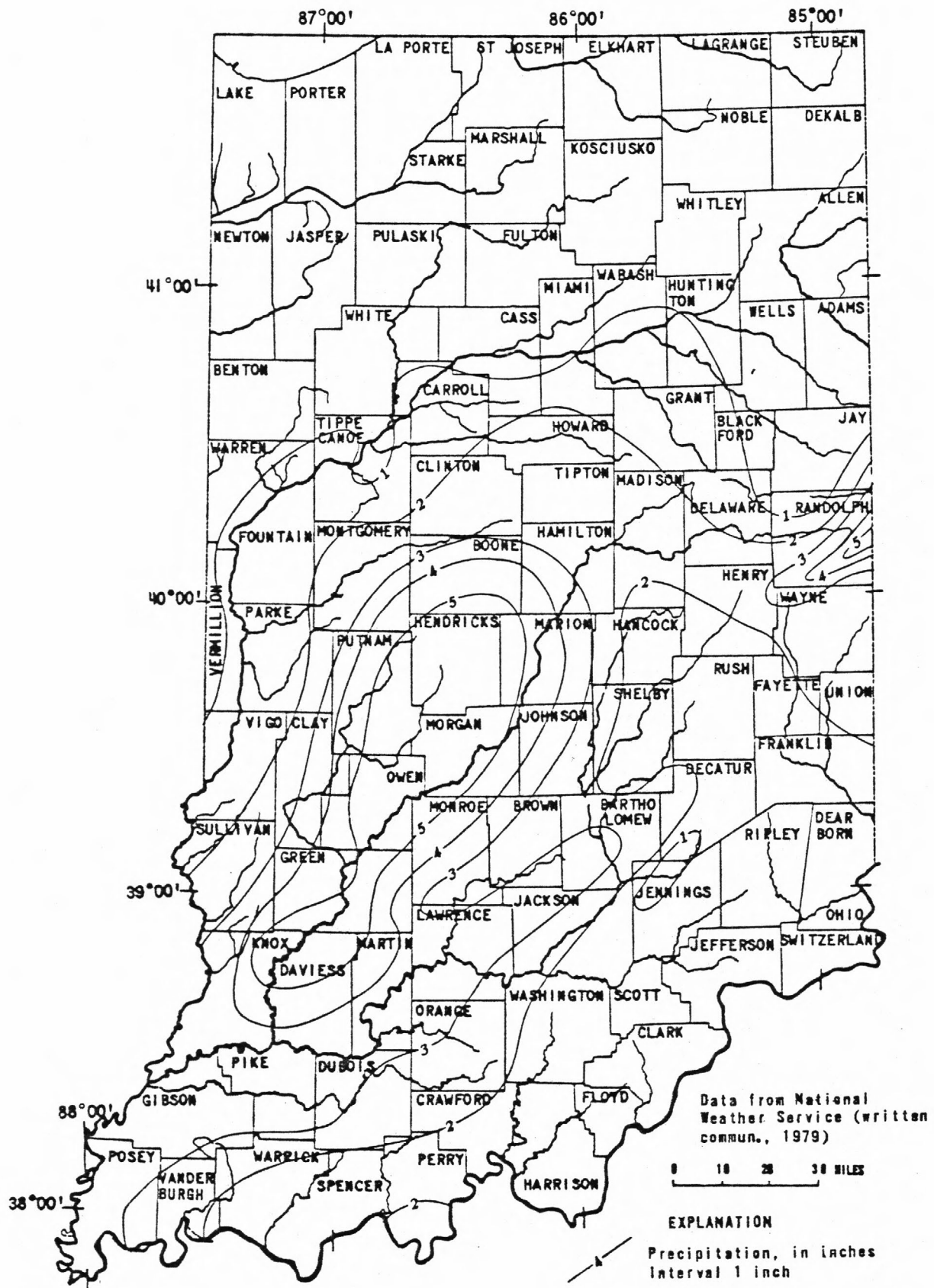


Figure 5.-- Seventy-two-hour precipitation totals, July 12-14, 1979.

STORM ON JULY 25-28, 1979, CAUSED BY THE STATIONARY FRONT AND
HURRICANE CLAUDETTE

The combined effect of the precipitation from a stationary front and the remnants of Hurricane Claudette resulted in Indiana's third and most destructive storm of the summer. During the early afternoon on July 25, a line of thunderstorms oriented southwest to northeast ahead of a stationary front produced heavy rainfall on central-southern Indiana. Only 11 days earlier, light scattered rainshowers and precipitation from the remnants of Hurricane Bob had saturated the ground. The rain continued throughout the night at a lessened rate and until the morning of July 26, when damaging flash floods struck the Crawford County area. Rate of precipitation decreased slightly during the day but increased at night in the vicinity of Gibson and Pike Counties. The rain continued intermittently throughout the southern two-thirds of the State until late afternoon on July 28.

The primary cause of the excessive precipitation was the strong flow of moist southerly air being forced to lift and overrun slightly cooler drier air from the north. Unlike the earlier storms in June and July, no strong upper-level winds were associated with the precipitation. Hurricane Claudette, with its strong counter-clockwise motion, moved very slowly northward from the Gulf Coast and pushed large quantities of moisture northward in the process. The total precipitation contributed by the showers and thunderstorms from the stationary front and the remnants of Hurricane Claudette is shown in figure 6.

METEOROLOGICAL SUMMARY

Total precipitation during June and July 1979 greatly exceeded average rainfall for large parts of central and southern Indiana. The three major storms contributed substantially to the total. However, daily thunderstorms also helped make June and July one of the wettest periods on record.

Figure 7, a map of the average precipitation for the June period of record, was constructed with data from rainfall stations having lengths of record equal to or greater than 25 yr. If this map is compared with figure 8, the June 1979 totals, the influence of the storm on June 8, 1979, can be seen.

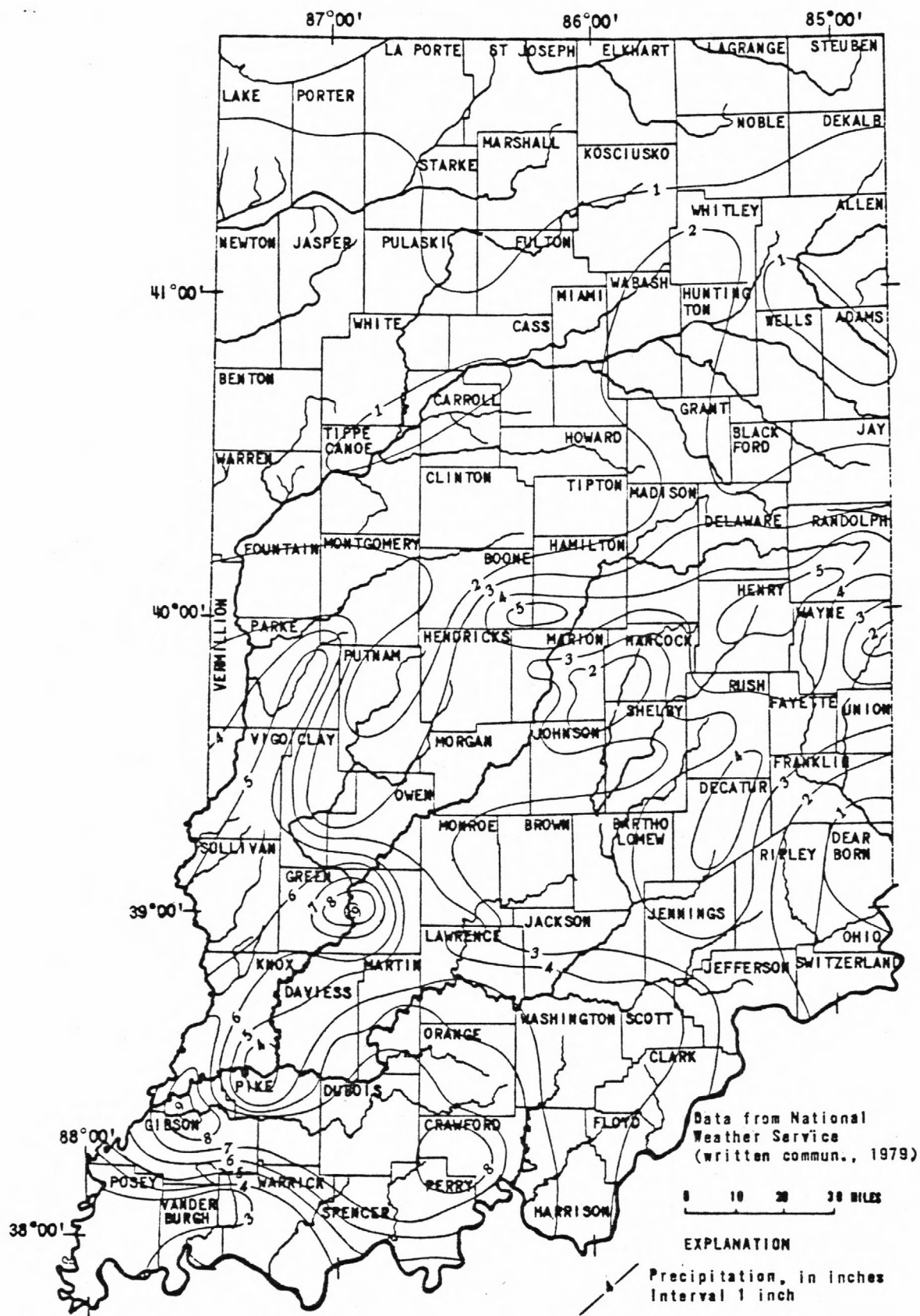


Figure 6. -- Ninety-six-hour precipitation totals, July 25-28, 1979.

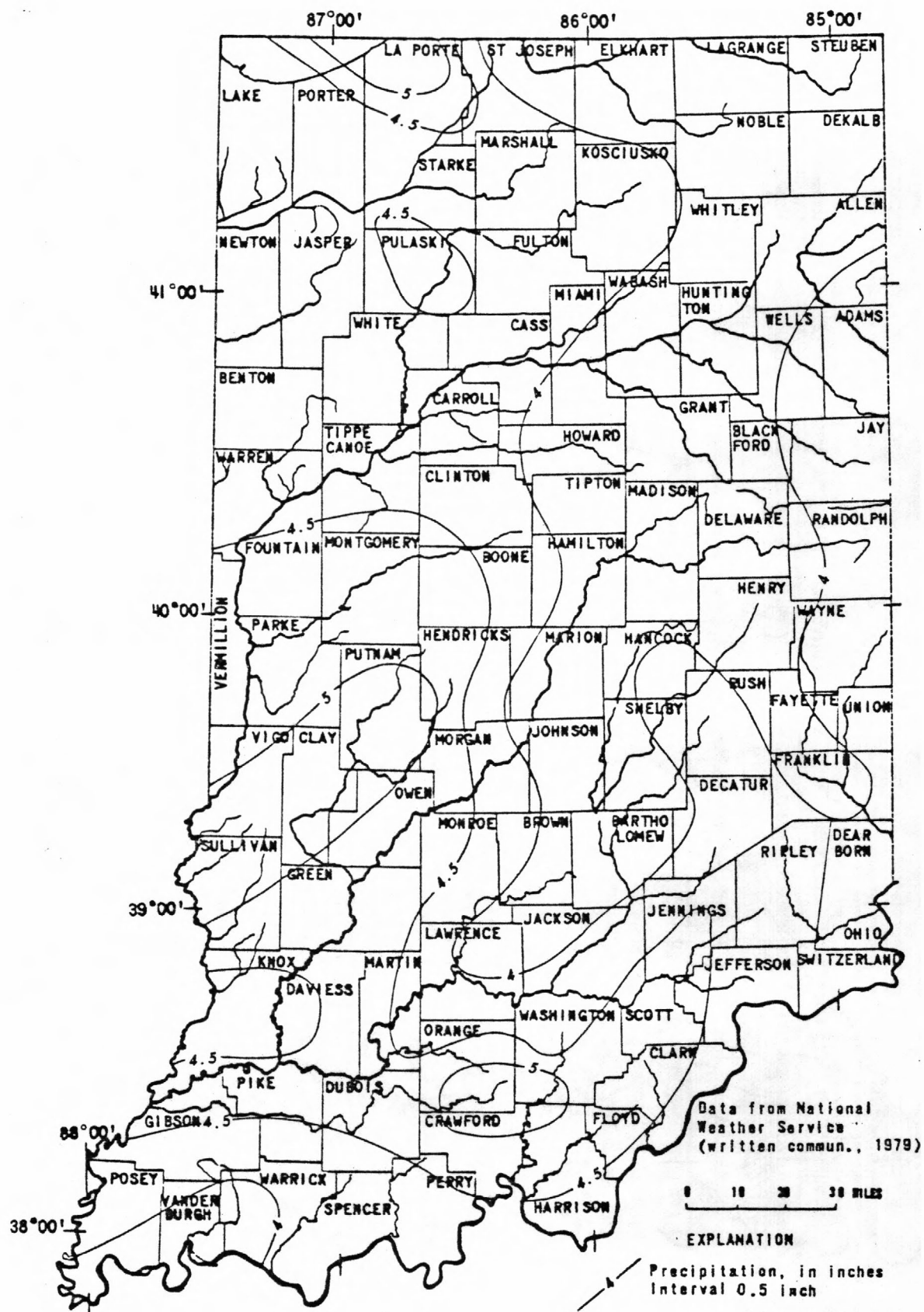


Figure 7. -- Average precipitation for June period of record.

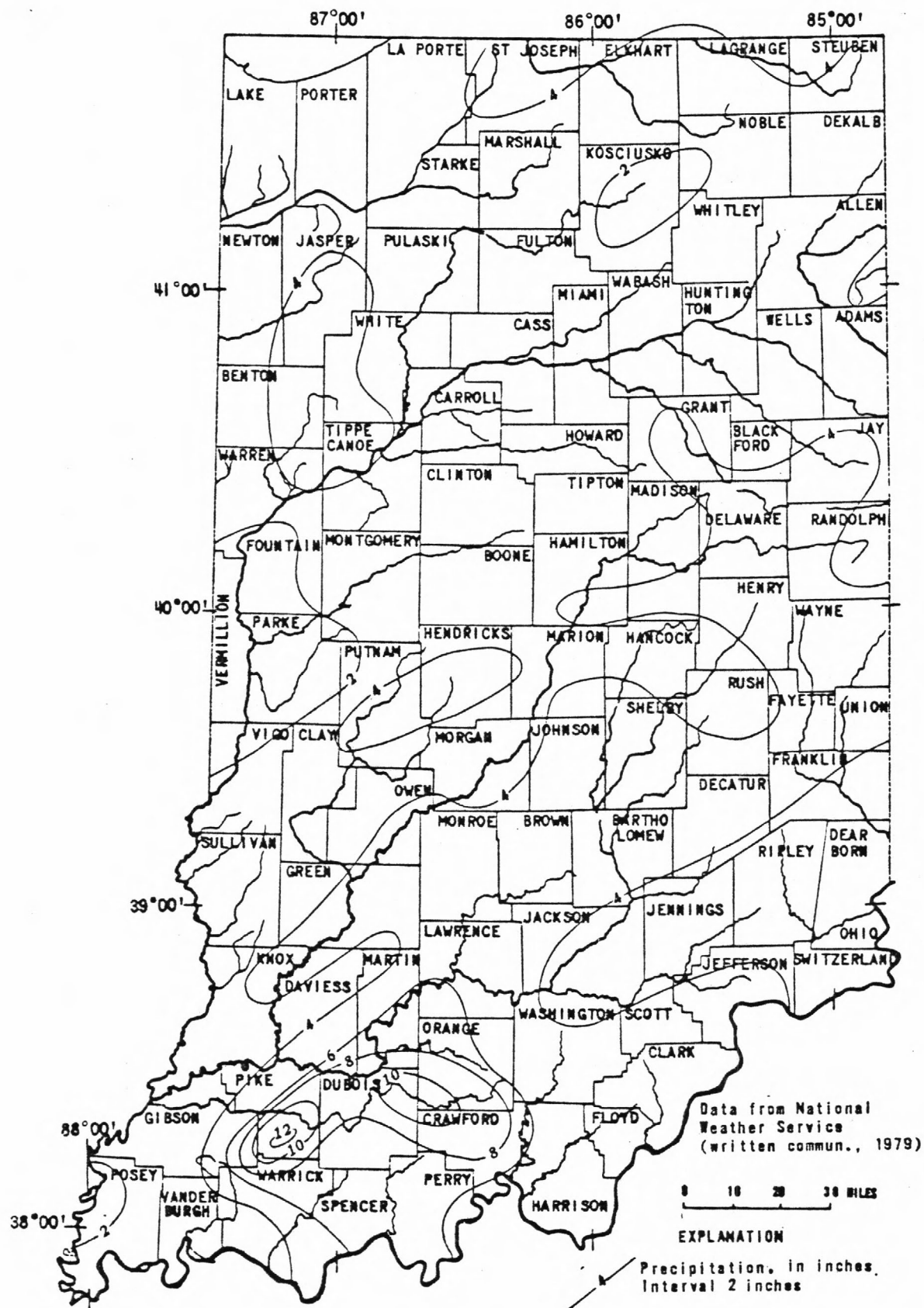


Figure 8.-- Total precipitation for June 1979.

Average precipitation for July (fig. 9), compared with the total for July 1979 (fig. 10), shows that July 1979 in Indiana was exceptionally wet. Precipitation at isolated locations in Pike, Spencer, Greene, and Owen Counties was as much as four times the average. Again, similar to June totals, quantities of precipitation in northern Indiana were the same or less than the average rainfall.

STORM DAMAGE

The flooding caused by the storm on June 8-9, 1979, was centered in the southwest part of the State. The area of major flooding extended southwest from the town of English, in Crawford County, to St. Meinrad and from St. Meinrad through the Anderson River valley to the Ohio River. Interstate 64 near Lynnville was closed temporarily, owing to high water. In addition, flooding in English, St. Meinrad, and St. Anthony damaged many houses and businesses.

The intensity of the rains spawned by Hurricane Bob on July 12-14 was greatest in the central part of the State. The greatest increases in flow were recorded at sites in the central part of the White River and East Fork White River basins. Nearly all residents in Helmsburg, Trevlac, and other communities near Lake Lemon, all in Brown County, had to be evacuated. In Indianapolis, about 20 streets had to be closed, owing to the high water.

The effects of intense rains on July 26-28, resulting in part from Hurricane Claudette, were greatest in the Busseron Creek and Patoka River basins and the Ohio River tributaries downstream from Louisville, Ky. Hardest hit were the towns of English (fig. 11), Marengo, and Milltown, in Crawford County. Floodwater as deep as 10 ft forced 500 people from their homes in those areas. State Highway 145 south of French Lick was closed, owing to the destruction of a culvert (fig. 12). At Princeton, in Gibson County, a 7½-inch rainfall submerged sewer lines on the city's south side and forced evacuation of 250 residents.

In a letter requesting disaster relief from the President, Governor Otis R. Bowen cited Civil Defense estimates of damage in Indiana from the July 1979 storms as \$11,450,500 to public property (bridges and roads), \$6,474,000 to private property, and \$31,343,500 to crops, or a total of slightly less than 50 million dollars.

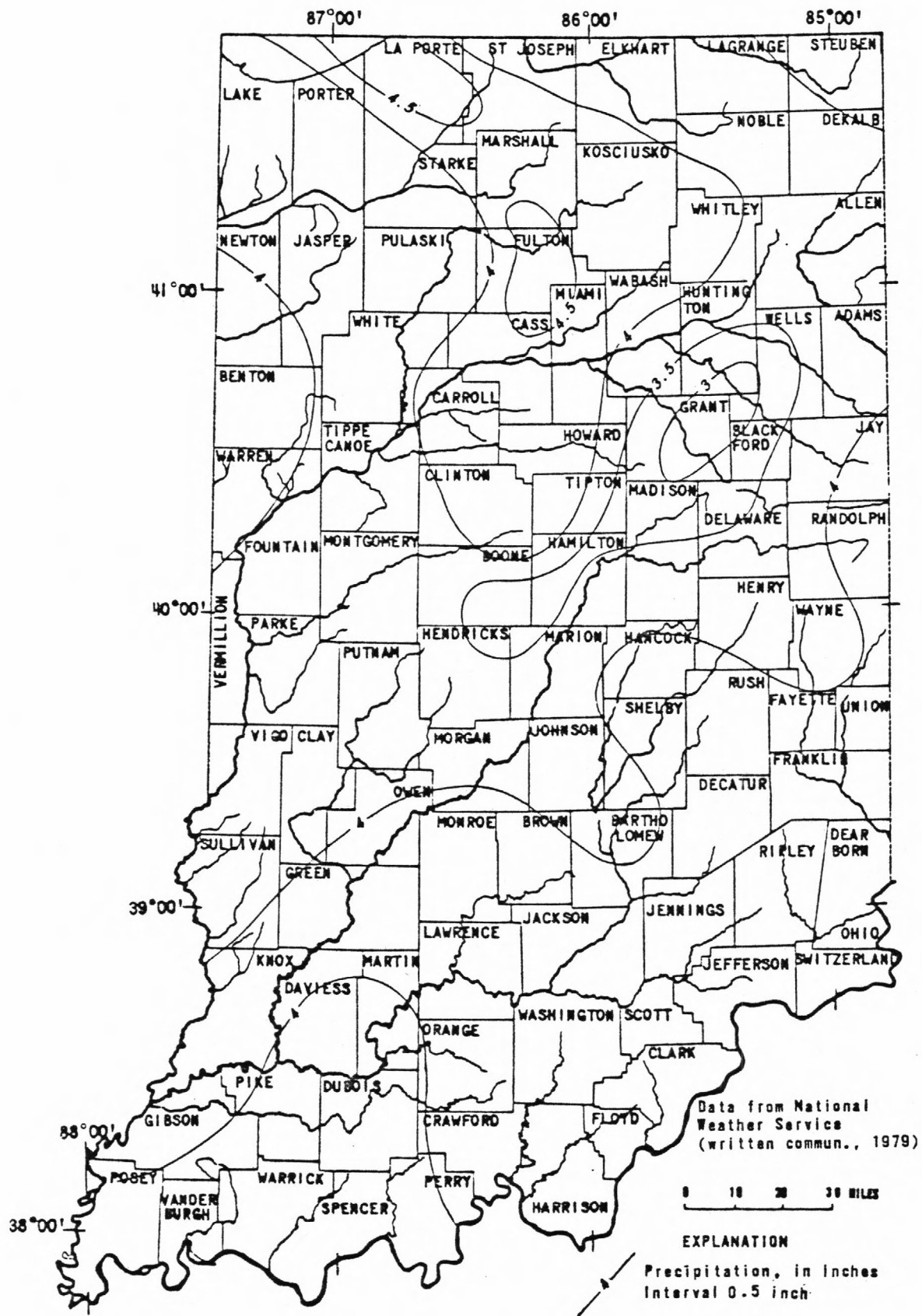


Figure 9. -- Average precipitation for July period of record.

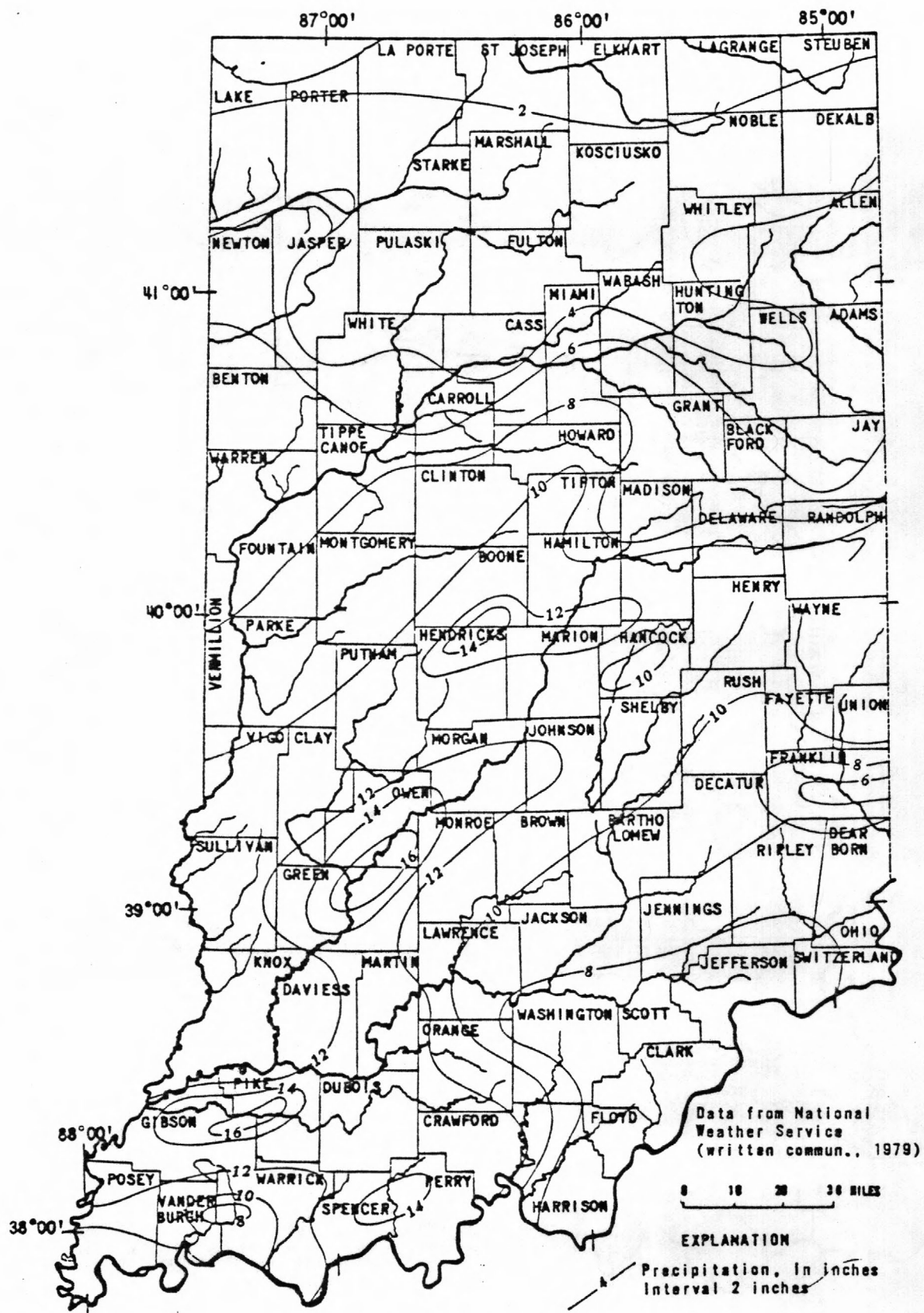


Figure 10. — Total precipitation for July 1979.

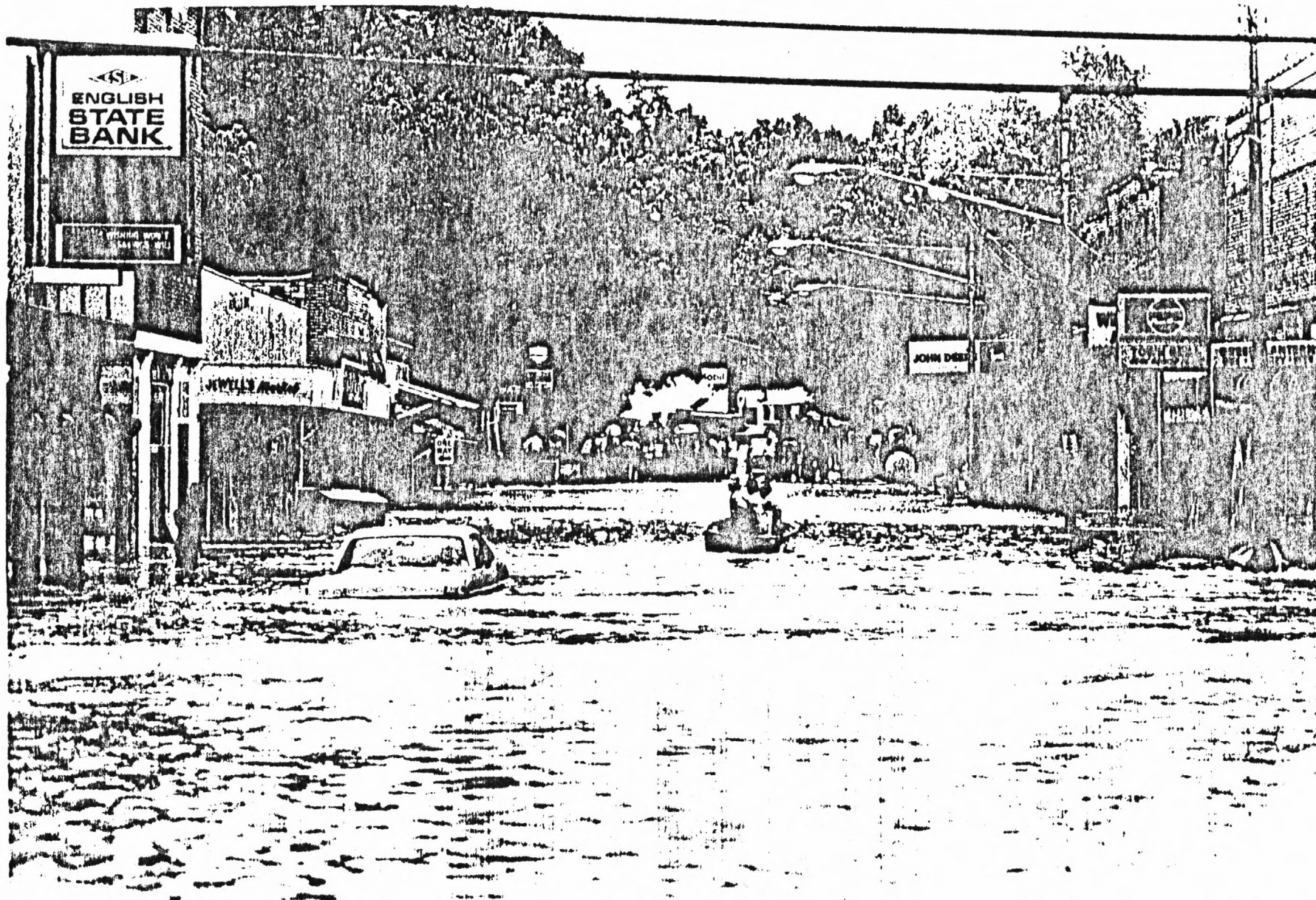


Figure 11. -- Main Street, English, Ind., after crest of flood in July 1979.
Photograph courtesy of *Hard Times*, edition of August 1, 1979, a weekly
newspaper, Marengo, Ind.



Figure 12. -- Culvert damaged by flood on July 26, 1979, State Highway 145 near French Lick, Ind. (looking north).

HYDROLOGIC DATA

The hydrologic data have been divided into five groups. The first (table 1) is a tabulation of instantaneous peak discharges recorded at the indicated stream sites during the 1979 summer. Previously known maximum flood peaks have been included.

The second group (table 2) is a tabulation of the mean monthly discharges recorded at the indicated gaging stations for the months June through August. Mean monthly discharges for both the period of record and 1979 have been listed. The monthly mean discharges for June 1979 are generally less than those for the period of record at half of the sites. However, monthly mean discharges for July and August 1979 at all the sites listed greatly exceed the values for the same months for the period of record.

The third group (table 3), a tabulation of reservoir storage volumes, emphasizes the great quantities of water accumulated during the flood. Volumes are presented for the end of each month and the peak for the summer.

The fourth group (figs. 13-20) consists of discharge hydrographs for eight selected continuous-recording-gaging stations from June through August 1979. These hydrographs illustrate the timing of the flood peaks in different areas of the State.

Lastly, the fifth group (figs. 21-23) consists of water levels in three observation wells plotted for the summer months in the affected areas. The plots indicate that the periods of major rainfall caused great increases in ground-water levels. The datum used in this report is the National Geodetic Vertical Datum of 1929, abbreviated as NGVD elsewhere in the report.

The locations of the sites for which data have been included in this report are shown in figure 24. Descriptions of the locations are listed in tables 4-6.

Table 1.--Summary of flood stages and discharges for June-August 1979

[Data collected by U.S. Geological Survey]

Station no.	Stream and place of determination Station name	Drainage area (mi ²)	Period of record	Maximum flood previously known				Maximum peaks June - August 1979				
				Date	Gage height (ft)	Discharge		Date	Gage height (ft)	Discharge		Recurrence interval (yr)
						(ft ³ /s)	[(ft ³ /s)/mi ²]			(ft ³ /s)	[(ft ³ /s)/mi ²]	
03274650	Whitewater River near Economy, Ind.	10.4	1971-79	2-23-75 8-28-78	8.00 8.14	820	78.8	8-20	8.85	1,100	106	80
03274730	Whitewater River tributary near Hagerstown, Ind.	.12	1973-79	5-23-78	6.95	28	233	8-1	6.65	23	192	11
03274750	Whitewater River near Hagerstown, Ind.	58.7	1971-79	1-26-76	10.89	2,300	39.2	8-1	11.24	2,200	37.5	8
03274880	Greens Fork tributary near Lynn, Ind.	.78	1973-79	3-14-78	8.24	270	346	8-1	8.86	305	391	32
03274950	Little Williams Creek at Connersville, Ind.	9.16	1969-79	6-22-74	10.13	3,560	389	8-22	6.94	1,240	135	5
03275000	Whitewater River near Alpine, Ind.	529	1929-79	1-14-37	16.61	37,100	70.1	7-29	13.84	11,600	21.9	<5
03275600	East Fork Whitewater River at Abington, Ind.	200	1966-79	7-20-69	16.18	13,400	67.0	7-29	13.61	6,990	35.0	<2
03275800	West Run near Liberty, Ind.	.26	1972-79	6-22-74	10.70	240	923	8-9	5.30	30	115	<2
03275900	Templeton Creek near Fairfield, Ind.	5.39	1973-79	6-22-74	17.25	1,020	189	7-29	10.08	330	61.2	2
03276000	East Fork Whitewater River at Brookville, Ind.	380	1954-79	1-21-59 5-24-62	17.35	36,100	95.0	8-9	7.64	1/3,890	10.2	<2
03276500	Whitewater River at Brookville, Ind.	1,224	1924-79	1-21-59 3-25-13	27.78 39.0	81,800	668	7-29	10.54	1/14,500	11.8	<2
03276640	Tanners Creek tributary near Lawrenceburg, Ind.	.19	1973-79	6-22-74	15.59	300	1,580	7-28	14.57	270	1,420	6
03276700	South Hogan Creek near Dillsboro, Ind.	38.1	1962-79	4-29-70 1-21-59	12.7 14.00	13,000 16,300	341 428	8-1	9.92	6,780	178	4
03276770	Laughery Creek tributary near Napoleon, Ind.	.11	1973-79	6-19-78	7.77	58	527	7-28	7.05	39	355	3
03276950	Uhlman Creek tributary near Avonburg, Ind.	.16	1973-79	4-2-77	7.75	63	394	7-28	7.71	60	375	5
03277000	Laughery Creek near Farmers Retreat, Ind.	248	1942-79	1-21-59	21.13	47,800	193	8-1	12.15	10,300	41.5	<2
03277030	Buck Run near Rising Sun, Ind.	.03	1973-79	5-5-77	9.68	18	600	7-4	6.65	12.5	417	4
03277250	Indian Creek tributary near Bennington, Ind.	.16	1973-79	9-12-74	6.52	66	412	7-28	5.94	34	212	<2
03291780	Indian-Kentuck Creek near Canaan, Ind.	27.5	1970-79	2-23-75 2-22-71	7.42 11.02	3,220	117	8-1	11.27	5,600	204	>100
03292350	Flag Run tributary near New Washington, Ind.	.16	1973-79	7-21-73	7.71	51	319	6-9	5.35	5.8	36.2	<2
03294000	Silver Creek near Sellersburg, Ind.	189	1955-79	1-22-59	30.89	19,600	104	6-9	17.23	3,400	18.0	<2
03302220	Buck Creek near New Middletown, Ind.	2/65.2	1970-79	4-2-70	14.40	12,700	195	7-26	11.95	7,920	121	4
03302300	Little Indian Creek near Galena, Ind.	16.1	1969-79	7-21-73	9.30	5,500	342	7-27	7.71	3,570	222	3
03302350	Georgetown Creek tributary near Georgetown, Ind.	.56	1973-79	4-24-75	11.11	200	357	7-27	6.35	74	132	<2
03302500	Indian Creek near Corydon, Ind.	2/129	1944-79	3-5-64	22.64	26,700	207	7-26	16.82	8,160	63.2	2
03302680	West Fork Blue River at Salem, Ind.	19.0	1971-79	7-10-74	12.29	4,430	233	7-27	9.54	2,260	119	3

Table 1.--Summary of flood stages and discharges for June-August 1979--Continued

Station no.	Stream and place of determination Station name	Drainage area (mi ²)	Period of record	Maximum flood previously known				Maximum peaks June - August 1979				
				Date	Gage height (ft)	Discharge		Date	Gage height (ft)	Discharge		Recurrence interval (yr)
						(ft ³ /s)	[(ft ³ /s)/mi ²]			(ft ³ /s)	[(ft ³ /s)/mi ²]	
03302730	South Fork Blue River near Palmyra, Ind.	64.3	1974-79	4-24-75	21.90	8,300	129	7-26	20.15	3,100	48.2	2
03302800	Blue River at Fredericksburg, Ind.	2/283	1969-79	4-24-75 1-21-59	22.88 29.20	12,000	42.4	7-26	19.82	8,360	29.5	<2
033028525	Brandywine Fork near Marengo, Ind.	1.74	-----	-----	-----	-----	-----	7-26	-----	2/2,180	1,250	>100
033028535	Whiskey Run at Milltown, Ind.	34.9	-----	-----	-----	-----	-----	7-26	-----	2/10,800	309	50-100
03303000	Blue River near White Cloud, Ind.	2/476	1931-79	1-22-59	23.07	28,500	59.9	7-26	19.71	22,500	47.3	10
033031455	Bird Hollow Creek above Dog Creek near English, Ind.	3.17	-----	-----	-----	-----	-----	7-26	-----	2/4,000	1,260	>100
03303150	Bird Hollow Creek at English, Ind.	9.31	1974-79	4-24-75	16.10	5,520	593	7-26	17.80	2/8,500	913	>100
033031605	Little Blue River at English, Ind.	27.2	-----	-----	-----	-----	-----	7-26	-----	2/21,600	794	>100
033032705	Anderson River near Saint Meinrad, Ind.	125	-----	-----	-----	-----	-----	6-9	-----	1/14,100	113	50-100
03303300	Middle Fork Anderson River at Bristow, Ind.	398	1962-79	3-9-64 3-4-64 1-21-59	----- 19.33 20.0	6,360 15,000	160 377	6-9	17.13	2/3,020	75.9	2/50-100
03303400	Crooked Creek at Santa Claus, Ind.	7.86	1970-79	4-28-70	9.74	4,100	522	7-26	9.41	1,860	237	4
03303440	East Fork Crooked Creek tributary near Fulda, Ind.	.26	1973-79	8-24-77	10.60	182	700	7-26	10.02	160	615	6
03303900	Little Red Creek tributary near Heilman, Ind.	.25	1973-79	10-18-75	8.23	88	352	7-26	9.38	102	408	11
03339230	Woods ditch near Frankfort, Ind.	1.12	1972-79	6-32-78	11.59	350	312	7-26	5.64	8.6	7.68	<2
03339500	Sugar Creek at Crawfordsville, Ind.	509	1939-79	6-28-57 3- -13	14.48 17.3	26,300 36,000	51.7 70.7	7-26	5.13	5,670	11.1	<2
03340500	Wabash River at Montezuma, Ind.	11,118	1928-79	5-20-43 3-27-13	32.83 34.0	184,000 230,000	16.5 20.7	8-2	17.25	29,700	2.67	<2
03340800	Big Raccoon Creek near Fincastle, Ind.	139	1958-79	1-26-62 6-28-57	15.68 19.10	15,100 39,900	109 287	7-29	11.93	3,950	28.4	<2
03341150	Demeree Creek tributary near Byron, Ind.	.15	1973-79	7-8-78	7.80	105	700	7-27	6.48	52	347	<2
03341200	Little Raccoon Creek near Catlin, Ind.	134	1957-79	6-28-57	18.27	53,400	399	7-29	14.47	8,660	64.6	4
03341300	Big Raccoon Creek at Coxville, Ind.	448	1957-79	6-28-57	21.23	108,000	241	7-29	14.06	10,900	24.3	<2
03341387	Feather Creek near Clinton, Ind.	.72	-----	-----	-----	-----	-----	7-28	-----	2/525	729	>100
03341387	Feather Creek at Clinton, Ind.	3.59	-----	-----	-----	-----	-----	7-28	-----	2/1,350	376	50-100
03341500	Wabash River at Terre Haute, Ind.	12,265	1928-79	5-20-43 3-27-13	30.50 31.1	189,000 245,000	15.4 20.0	7-29	20.01	37,500	3.06	<2
03342000	Wabash River at Riverton, Ind.	13,161	1939-79	5-21-43 3-28-13	29.36 26.4	201,000 250,000	15.3 19.0	7-30	18.80	48,300	3.67	<2
03342100	Busseron Creek near Hymers, Ind.	16.7	1967-79	9-12-74	18.58	1,890	113	7-28	18.90	1,700	102	8

Table 1.--Summary of flood stages and discharges for June-August 1979--Continued

Station no.	Stream and place of determination Station name	Drainage area (mi ²)	Period of record	Maximum flood previously known				Maximum peaks June - August 1979				
				Date	Gage height (ft)	Discharge		Date	Gage height (ft)	Discharge		Recurrence interval (yr)
						(ft ³ /s)	[(ft ³ /s)/mi ²]			(ft ³ /s)	[(ft ³ /s)/mi ²]	
03342150	West Fork Busseron Creek near Hymers, Ind.	14.4	1967-79	7-26-73	13.23	1,930	134	7-27	13.00	1,900	132	25
03342180	Kettle Creek tributary near Shelburn, Ind.	.48	1972-79	7-25-73	9.33	310	646	7-27	11.52	490	1,020	53
03342250	Mud Creek near Dugger, Ind.	11.9	1967-79	5-30-74	13.70	919	77.2	7-27	14.83	1,270	107	6
03342300	Busseron Creek near Sullivan, Ind.	138	1967-79	1-30-69	15.83	5,480	39.7	7-29	16.28	6,050	43.8	100
03342500	Busseron Creek near Carlisle, Ind.	228	1944-79	1-5-50	20.05	8,800	38.6	7-30	19.01	6,210	27.2	12
03343000	Wabash River at Vincennes, Ind.	13,706	1930-79	5-22, 23, 1913 3-29-13	29.33 26.3	189,000 255,000	13.8 18.6	8-2	19.79	46,200	3.37	<2
03346650	River Deshee tributary near Fritchton, Ind.	.82	1973-79	4-23-73	9.24	180	220	8-3	7.62	98	120	2
03347000	White River at Muncie, Ind.	241	1931-79	4-21-64 1-15-37 3- -13	14.98 21.07 22.6	14,300 20,000	59.3 83.0	8-22	9.84	5,230	21.7	2
03347500	Buck Creek near Muncie, Ind.	35.5	1955-79	4-21-64	13.96	1,780	50.1	8-21	11.24	860	24.2	2
03348000	White River at Anderson, Ind.	406	1932-79	4-21-64 6-14-58 3-25-13	19.41 19.96 23.6	18,700 28,000	46.1 69.0	8-22	11.70	7,080	17.4	2
03348020	Killbuck Creek near Gaston, Ind.	25.5	1969-79	3-16-78 4-20-72	11.07 11.14	412	16.2	8-20	9.16	268	10.5	2
03348350	Pipe Creek at Frankton, Ind.	113	1969-79	7-12-76 6-10-58	11.30 15.5	2,370	21.0	8-21	9.96	1,600	14.2	<2
03348700	White River tributary near Strawtown, Ind.	.42	1973-79	1-25-76	7.94	70	167	8-3	8.42	103	245	41
03349000	White River at Noblesville, Ind.	858	1947-79	4-22-64	21.31	26,800	31.2	8-3	12.82	6,780	7.90	<2
03349500	Cicero Creek near Arcadia, Ind.	131	1955-79	6-29-57 1- -37	11.86 15.6	6,720	51.3	7-13	8.61	1,500	11.4	<2
03349700	Little Cicero Creek near Arcadia, Ind.	40.4	1956-79	6-28-57	10.69	3,980	98.5	7-13	7.88	844	20.9	<2
03350100	Hinkle Creek near Cicero, Ind.	18.5	1956-79	6-28-57	8.45	4,920	266	7-28	6.29	1,780	96.2	3
03350500	Cicero Creek at Noblesville, Ind.	216	1951-79	6-28-57	15.26	9,800	45.4	7-13	11.77	2,980	13.8	<2
03350650	Stony Creek tributary near Lapel, Ind.	.46	1973-79	3-17-78	7.55	180	391	7-29	5.61	62	135	<2
03350700	Stony Creek near Noblesville, Ind.	50.8	1968-79	2-17-76	7.35	1,560	30.7	7-29	6.27	1,000	19.7	3
03351000	White River near Nora, Ind.	1,219	1930-79	5-19-43 4-23-64 3-26-13	18.65 22.4	32,400 58,500	26.6 48.0	7-28	10.37	8,300	6.82	<2
03351310	Crooked Creek at Indianapolis, Ind.	17.9	1970-79	6-26-78	13.31	5,500	307	7-13	8.65	1,210	67.6	2
03351400	Sugar Creek near Middletown, Ind.	5.80	1969-79	4-28-75	7.72	1,100	190	7-28	7.05	607	105	3

Table 1.--Summary of flood stages and discharges for June-August 1979--Continued

Station no.	Stream and place of determination Station name	Drainage area (mi ²)	Period of record	Maximum flood previously known				Maximum peaks June - August 1979				
				Date	Gage height (ft)	Discharge		Date	Gage height (ft)	Discharge		Recurrence interval (yr)
						(ft ³ /s)	[(ft ³ /s)/mi ²]			(ft ³ /s)	[(ft ³ /s)/mi ²]	
03351500	Fall Creek near Fortville, Ind.	169	1942-79	4-21-64 3- -13	9.88 12	8,750	51.8	8-3	8.09	3,310	19.6	3
03352400	Blue Creek near Castleton, Ind.	.77	1972-79	6-26-78	7.12	72	93.5	6-9	7.18	76	98.7	20
03352500	Fall Creek at Millersville, Ind.	298	1930-79	5-28-56 3-26-13	13.53 16.3	12,900 22,000	43.3 73.8	7-29	10.09	4,500	15.1	3
03353000	White River at Indianapolis, Ind.	1,635	1904-06 1931-79	5-18-43 1-16-37 3-26-13	 21.57 30.0	37,200 70,000	22.8 42.8	7-28	14.97	18,900	11.6	<2
03353120	Pleasant Run at Arlington Ave. at Indianapolis, Ind.	7.58	1960-79	6-25-78 5- -56	13.86 16.0	2,600	343	8-1	10.34	1,590	210	10
03353160	Pleasant Run at Brookville, Rd. at Indianapolis, Ind.	10.1	1960-79	6-25-78	11.28	3,000	297	8-1	9.09	1,750	173	5
03353180	Bean Creek at Indianapolis, Ind.	4.40	1971-79	6-25-78	7.77	770	175	8-1	7.24	600	136	33
03353200	Eagle Creek at Zionsville, Ind.	103	1958-79	4-20-64 6-28-57	14.64 19.20	12,400	120	7-29	11.18	5,010	48.6	3
03353500	Eagle Creek at Indianapolis, Ind.	174	1939-79	6-28-57 3- -13	23.59 23.2	28,800	166	7-29	9.43	6,800	39.1	3
03353600	Little Eagle Creek at Speedway, Ind.	6/23.9	1960-79	6-26-78	12.13	3,250	136	7-28	12.07	3,290	138	100
03353620	Lick Creek at Indianapolis, Ind.	15.6	1971-79	6-25-78	9.61	2,500	160	8-1	8.10	1,840	-----	9
03353668	White Lick Creek tributary near Brownsburg, Ind.	.31	1972-79	6-25-78	7.61	180	581	7-13	6.39	92	297	>100
03353700	West Fork White Lick Lick Creek at Danville, Ind.	28.8	1959-79	7-14-62 6-28-57	11.32 16.0	3,330 6,660	116 231	7-13	12.13	3,040	106	17
03353800	White Lick Creek at Mooresville, Ind.	212	1958-79	3-4-63 6-28-57	22.95 22.5	18,000	84.9	7-13	23.31	19,000	89.6	44
03354000	White River near Centerton, Ind.	2,444	1947-79	4-22-24 3- -13	17.57 17.9	50,500 90,000	20.7 36.8	7-29	16.51	28,700	11.7	3
03354500	Beanblossom Creek at Beanblossom, Ind.	14.6	1952-79	6-23-60	11.78	8,140	558	7-13	10.45	1,980	136	2
03355000	Bear Creek near Trevlac, Ind.	6.94	1952-79	6-12-57	7.62	1,830	264	7-28	7.61	1,840	265	30
03356780	Limestone Creek tributary near Gosport, Ind.	.72	1972-79	8-6-77	7.73	250	347	7-28	6.15	105	146	2
03357000	White River at Spencer, Ind.	2,988	1925-79	5-15-33 1-16-37 3-26-13	23.2 28.5	59,400 100,000	19.9 35.5	7-15	21.90	30,600	10.2	2
03357350	Plum Creek near Bainbridge, Ind.	3.00	1970-79	6-30-77	5.75	744	248	7-28	4.25	449	150	4
03357420	Big Walnut Creek at Greencastle, Ind.	216	1975-79	3-14-78 6-28-57	13.55 24.1	8,350	38.7	7-29	13.66	6,080	28.2	2
03357500	Big Walnut Creek near Reelsville, Ind.	326	1949-79	6-28-57	18.63	27,400	84.0	7-29	14.44	7,610	23.3	<2
03358000	Mill Creek near Cataract, Ind.	245	1950-79	6-24-60	22.58	11,400	46.5	7-14	20.17	8,380	34.2	6

Table 1.--Summary of flood stages and discharges for June-August 1979--Continued

Station no.	Stream and place of determination Station name	Drainage area (mi ²)	Period of record	Maximum flood previously known				Maximum peaks June - August 1979				
				Date	Gage height (ft)	Discharge		Date	Gage height (ft)	Discharge		Recurrence interval (yr)
						(ft ³ /s)	[(ft ³ /s)/mi ²]			(ft ³ /s)	[(ft ³ /s)/mi ²]	
03360000	Eel River at Bowling Green, Ind.	830	1931-79	1-4-50 8-18-75	23.53 30.0	34,000	41.0	7-29	20.25	13,300	16.0	4
03360100	Clear Branch at Cory, Ind.	.27	1973-79	7-21-73	8.21	90	333	7-28	7.02	51	189	<2
03360400	Doans Creek tributary near Doans, Ind.	.20	1973-79	2-22-75	7.81	102	510	7-29	8.27	120	600	13
03360500	White River at Newberry, Ind.	4,688	1928-79	5-21-43 3-27-13	24.19 27.5	76,900 130,000	16.4 27.7	8-2	21.67	48,700	10.4	4
03360600	Smothers Creek near Plainville, Ind.	33.0	1974-79	2-22-75	16.02	1,350	40.9	7-27	15.91	920	27.8	---
03361000	Big Blue River at Carthage, Ind.	184	1951-79	3-4-63	14.62	12,900	70.1	8-2	10.25	4,170	22.7	3
03361500	Big Blue River at Shelbyville, Ind.	421	1943-79	3-5-63 3- -13	17.70 20.2	15,800	37.5	7-30	14.15	6,250	14.8	<2
03361650	Sugar Creek at New Palestine, Ind.	93.9	1968-79	6-23-74 2-2-68	9.12 9.34	1,850	19.7	8-3	9.15	1,640	17.5	5
03361660	Little Sugar Creek tributary at Carrollton, Ind.	.70	1973-79	6-26-78	7.30	175	250	8-2	6.48	105	150	4
03361850	Buck Creek at Acton, Ind.	78.8	1968-79	7-20-69	14.99	5,300	67.3	8-2	11.08	2,450	31.1	2
03361890	Gilmore Creek near Bargersville, Ind.	.71	1973-79	6-26-78	10.93	312	439	7-14	8.13	160	225	5
03362000	Youngs Creek near Edinburgh, Ind.	107	1943-79	1-27-52	13.4	10,700	100	7-14	12.11	7,440	69.5	7
03362500	Sugar Creek near Edinburgh, Ind.	474	1943-79	5-29-56	18.38	27,600	58.2	7-14	13.30	8,170	17.2	<2
03363000	Driftwood River near Edinburgh, Ind.	1,060	1941-79	3-6-63 3- -13	16.97 20.3	40,500	38.2	7-30	14.08	13,500	12.7	<2
03363500	Flatrock River at St. Paul, Ind.	303	1931-79	1-5-49 3- -13	10.60 20.5	18,500	61.1	7-28	5.77	4,470	14.8	<2
03363900	Flatrock River at Columbus, Ind.	534	1968-79	5-25-68	15.87	20,000	37.5	7-30	13.03	10,500	19.7	3
03364000	East Fork White River at Columbus, Ind.	1,707	1948-79	3-6-63	16.23	52,300	30.6	7-30	10.25	21,700	12.7	<2
03364100	Tough Creek near Norristown, Ind.	1.46	1973-79	1-13-78	11.43	395	271	7-14	7.13	100	68.5	<2
03364200	Haw Creek near Clifford, Ind.	47.5	1968-79	5-24-68	13.9	2,560	53.9	7-28	12.45	1,970	41.5	<2
03364500	Clifty Creek at Hartsville, Ind.	91.4	1948-79	1-21-59	14.29	11,300	124	7-4	7.29	2,580	28.2	<2
03364570	Fall Fork Clifty Creek near Horace, Ind.	.83	1973-79	6-26-78	9.85	240	289	6-20	10.29	270	319	20
03365000	Sand Creek near Brewersville, Ind.	155	1948-79	1-21-59	21.70	19,900	128	7-29	11.55	4,740	30.6	<2
03365500	East Fork White River at Seymour, Ind.	2,341	1928-79	1-5-49 3-26-13	19.67 21.0	78,500 120,000	33.5 51.3	8-2	17.95	39,900	17.0	4
03366200	Harberts Creek near Madison, Ind.	9.31	1969-79	4-2-70	7.89	1,540	165	8-1	7.57	1,400	150	5
03366400	Lewis Creek tributary near Kent, Ind.	.16	1973-79	8-3-78	7.03	100	625	7-28	7.71	130	812	25

Table 1.--Summary of flood stages and discharges for June-August 1979--Continued

Station no.	Stream and place of determination Station name	Drainage area (mi ²)	Period of record	Maximum flood previously known				Maximum peaks June - August 1979				
				Date	Gage height (ft)	Discharge (ft ³ /s) [(ft ³ /s)/mi ²]		Date	Gage height (ft)	Discharge (ft ³ /s) [(ft ³ /s)/mi ²]		Recurrence interval (yr)
03366500	Muscatatuck River near Deputy, Ind.	293	1948-79	1-21-59	33.1	52,200	178	8-2	22.49	13,600	46.4	<2
03367600	Flat Creek tributary near Frankfort, Ind.	.34	1973-79	8-3-78	8.21	200	588	6-9	7.44	150	441	6
03368000	Brush Creek near Nebraska, Ind.	11.4	1955-79	5-24-68	11.40	3,440	302	8-1	10.04	2,540	223	6
03369000	Vernon Fork near Butlerville, Ind.	85.9	1942-79	1-21-59	25.41	26,200	305	8-1	14.10	6,550	76.3	<2
03369500	Vernon Fork at Vernon, Ind.	198	1940-79	1-21-59	32.83	56,800	287	8-1	19.81	16,300	82.3	7
03369700	Sixmile Creek tributary near North Vernon, Ind.	.39	1973-79	6-26-78	7.52	60	154	8-1	7.31	52	133	6
03370100	Blau ditch tributary near Crothersville, Ind.	1.31	1973-79	9-12-74	7.76	40	30.5	7-13	5.08	3.0	2.29	<2
03371500	East Fork White River near Bedford, Ind.	3,861	1940-79	5-12-64 5-11-61	35.97	75,700	19.6	8-6	26.02	28,000	7.25	<2
03371520	Back Creek at Leesville, Ind.	24.1	1971-79	7-21-73 1913	14.0 18.1	15,300	635	8-1	10.83	7,720	320	17
03371630	North Fork Salt Creek tributary near Nashville, Ind.	.22	1973-79	4-3-77	7.56	46	209	7-13	6.97	31	141	5
03371650	North Fork Salt Creek at Nashville, Ind.	76.1	1962-79	3-4-63 5-24-68	16.00	7,500	98.6	7-13	14.79	5,990	78.7	4
03372300	Stephens Creek near Bloomington, Ind.	10.9	1971-79	4-2-77	11.52	2,370	217	7-13	13.18	5,400	495	>100
03372680	Clear Creek tributary near Bloomington, Ind.	.38	1972-79	5-29-74	7.02	72	189	7-13	7.74	110	289	19
03373200	Indian Creek near Springville, Ind.	60.7	1961-79	3-9-64	12.95	6,450	106	8-8	10.54	4,100	67.6	2
03373240	Spring Creek tributary near Springville, Ind.	.54	1972-79	5-31-74	9.36	285	528	6-9	7.54	140	259	5
03373500	East Fork White River at Shoals, Ind.	4,927	1903-06 1909-16 1923-79	3-28-13	42.2	160,000	32.5	8-5	20.46	31,900	6.47	<2
03373680	French Lick Creek tributary near French Lick, Ind.	.29	1973-79	3-28-77	8.00	170	586	7-27	-----	215	741	35
03373700	Lost River near West Baden Springs, Ind.	287	1965-79	7-22-73 3- -64	25.35 28.1	7,020	24.5	7-27	25.71	7,540	26.3	24
03373850	Slate Creek tributary near Haysville, Ind.	.14	1973-79	4-24-75	7.29	112	800	6-9	6.65	80	571	<2
03374000	White River at Petersburg, Ind.	11,125	1928-79	1-22-37 3- -13	28.3 29.5	183,000 235,000	16.4 21.1	8-5	24.12	84,000	7.55	3
03374455	Patoka River near Hardinsburg, Ind.	12.8	1969-79	5-31-76	8.22	1,960	153	7-26	11.35	9,270	724	>100
03375500	Patoka River at Jasper, Ind.	262	1948-79	3-11-64 3- -13	8/15.17 8/15.9	14,100 16,000	53.8 61.1	6-10	16.35	2/3,360	13.8	<2
03375800	Hall Creek near St. Anthony, Ind.	21.8	1971-79	4-24-75 2-23-75	12.35 12.38	4,400	202	7-26	15.30	11,500	528	>100
03376230	Shiloh Drain near Jasper, Ind.	.57	1973-79	1-20-74	9.31	220	386	6-10	10.85	350	614	>100

Table 1.--Summary of flood stages and discharges for June-August 1979--Continued

Station no.	Stream and place of determination Station name	Drainage area (mi²)	Period of record	Maximum flood previously known				Maximum peaks June - August 1979				
				Date	Gage height (ft)	Discharge		Date	Gage height (ft)	Discharge		Recurrence interval (yr)
						(ft³/s)	[(ft³/s)/mi²]			(ft³/s)	[(ft³/s)/mi²]	
03376260	Flat Creek near Otwell, Ind.	21.3	1965-79	5-12-78 3- -64	12.34 12.58	1,680	78.9	7-26	12.31	1,100	51.6	<2
033762785	Rock Creek near Velpen, Ind.	4.54	-----	-----	-----	-----	-----	6-9	-----	3/2,500	551	>100
03376340	Patoka River tributary near Glezen, Ind.	.84	1973-79	3-27-77	7.81	164	195	7-27	10.71	350	417	>100
03376350	South Fork Patoka River near Spurgeon, Ind.	42.8	1965-79	4-28-70 3-64	12.79 13.09	3,600 4,000	84.1 93.5	6-9	15.07	5,900	138	>100
03376500	Patoka River near Princeton, Ind.	822	1934-79	1-26-37	10/26.80	18,700	22.7	8-2	19.57	10,500	12.8	7
03377500	Wabash River at Mount Carmel, Ind.	28,635	1928-79	5-23-43 2-5, 6,69 3-30-13	30.62 33.0	305,000 428,000	10.7 14.9	8-7	27.24	140,000	4.89	3
03378550	Big Creek near Wadesville, Ind.	104	1965-79	4-24-75	19.72	7,610	73.2	7-26	17.26	1,820	17.5	<2
03378590	Olive Creek tributary near Solitude, Ind.	.32	1973-79	5-31-74	9.89	222	694	7-26	8.06	98	306	<2

1/ Regulated by Brookville Lake since January 1974.

2/ Part of drainage area does not contribute directly to surface runoff.

3/ Indirect measurement.

4/ Flow regulated by Forest Service and Soil Conservation Service control structure.

5/ Recurrent interval based on period of regulation.

6/ Includes 5.57 mi² from Dry Run basin.

7/ At site 0.4 mi downstream.

8/ Regulated by Patoka Lake since February 1978.

9/ At Jasper, 5.6 mi downstream. March 11, 1964, reached a stage of 21.20 ft at gage.

10/ At site "at Patoka", 4.1 mi downstream.

Table 2.--Monthly discharges at selected sites, June through August 1979

[Data collected by the U.S. Geological Survey]

Station no.	Station name	Period of record	Drainage area (mi ²)	Monthly discharges (ft ³ /s)					
				June 1979 ¹	June period of record ²	July 1979 ¹	July period of record ²	August 1979 ¹	August period of record ²
03274650	Whitewater River near Economy, Ind.	1971-79	10.4	9.82	8.01	27.5	5.86	61.5	9.45
03342100	Busseron Creek near Hymera, Ind.	1967-79	16.7	1.28	8.50	60	11.7	25.4	5.16
03342500	Busseron Creek near Carlisle, Ind.	1944-79	228	163	186	1,101	105	633	55.4
03353800	White Lick Creek at Mooresville, Ind.	1958-79	212	90.6	163	764	164	567	94.4
03372300	Stephens Creek near Bloomington, Ind.	1971-79	10.9	3.62	5.72	48.6	7.07	13.3	1.67
03374455	Patoka River near Hardinsburg, Ind.	1969-79	12.8	47.5	17.6	89.6	15.6	15.4	7.26
03375800	Hall Creek near St. Anthony, Ind.	1971-79	21.8	71.8	18.8	246	33.2	52.5	20.2
03376350	South Fork Patoka River near Spurgeon, Ind.	1965-79	42.8	227	45.7	240	38.7	127	18.4

¹Monthly mean.²Mean monthly.

Table 3.--Reservoir volumes for selected sites,
June through August 1979

Station no.	Station name	Date	Time ¹	Elevation (feet above NGVD)	Volume in storage (acre-ft)
03374498	Patoka Lake near Cuzco, Ind.	6-30	12:00 p.m.	539.00	205,800
		7-31	12:00 p.m.	545.57	270,970
		8- 3	10:00 a.m.	545.97	² 275,170
		8-31	12:00 p.m.	545.35	268,650
03358900	Cagles Mill Lake near Manhattan, Ind.	6-30	12:00 p.m.	639.75	32,660
		7-31	12:00 p.m.	680.82	132,900
		8-30	2:00 p.m.	689.61	² 165,210
		8-31	12:00 p.m.	689.10	163,210
03372400	Monroe Lake near Harrodsburg, Ind.	6-30	12:00 p.m.	537.99	182,140
		7-31	12:00 p.m.	545.41	272,340
		8- 7	1:00 a.m.	547.00	² 294,520
		8-11	9:00 a.m.	547.00	² 294,520
		8-31	12:00 p.m.	545.16	268,680
03275990	Brookville Lake at Brookville, Ind.	6-30	12:00 p.m.	748.32	185,710
		7-31	12:00 p.m.	753.97	217,060
		8- 3	2:00 a.m.	754.16	² 218,170
		8-31	12:00 p.m.	748.32	185,710

¹Eastern standard time.

²Maximum for June-August 1979.

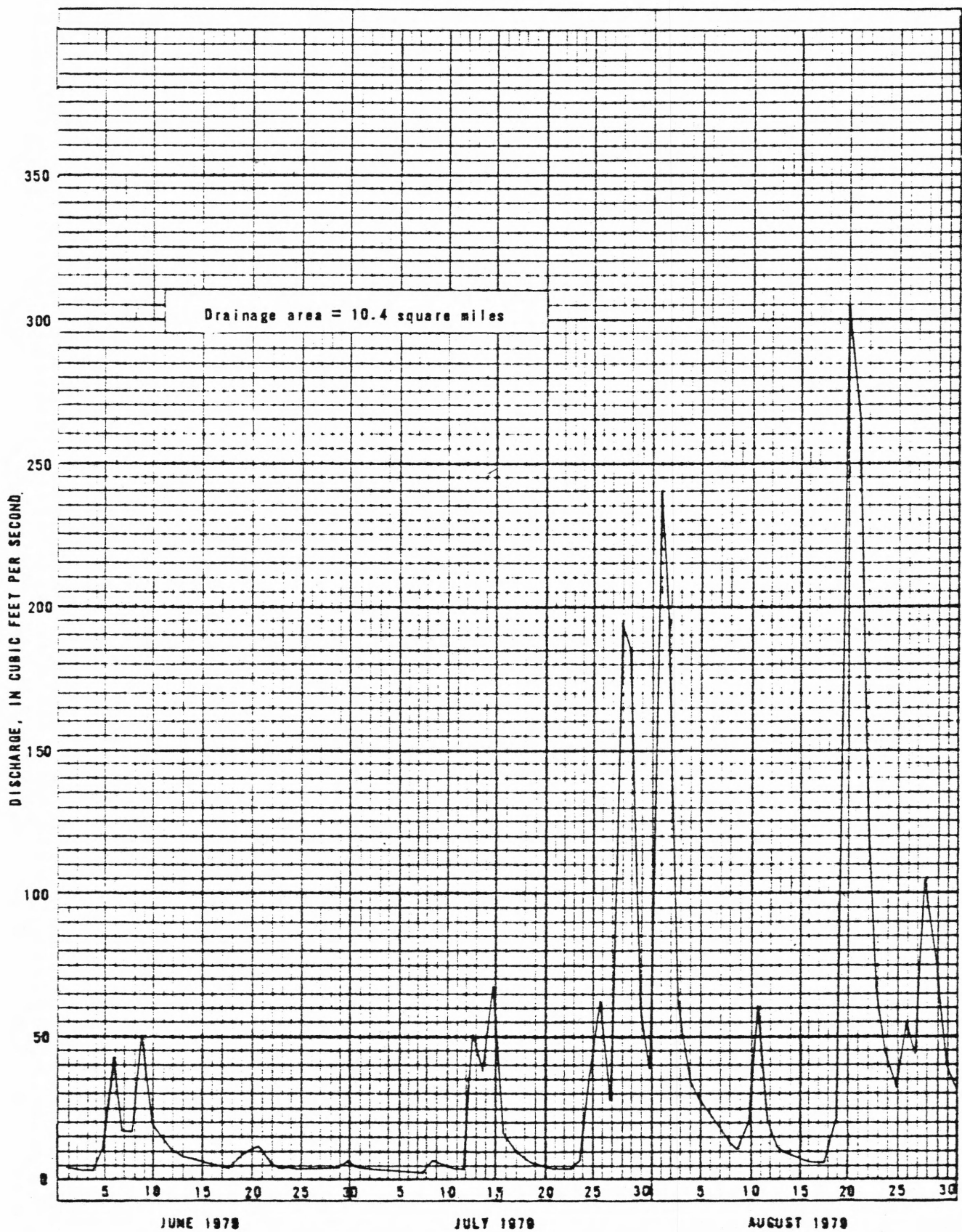


Figure 13.-- Discharge hydrograph of Whitewater River near Economy, Ind. (03274650).

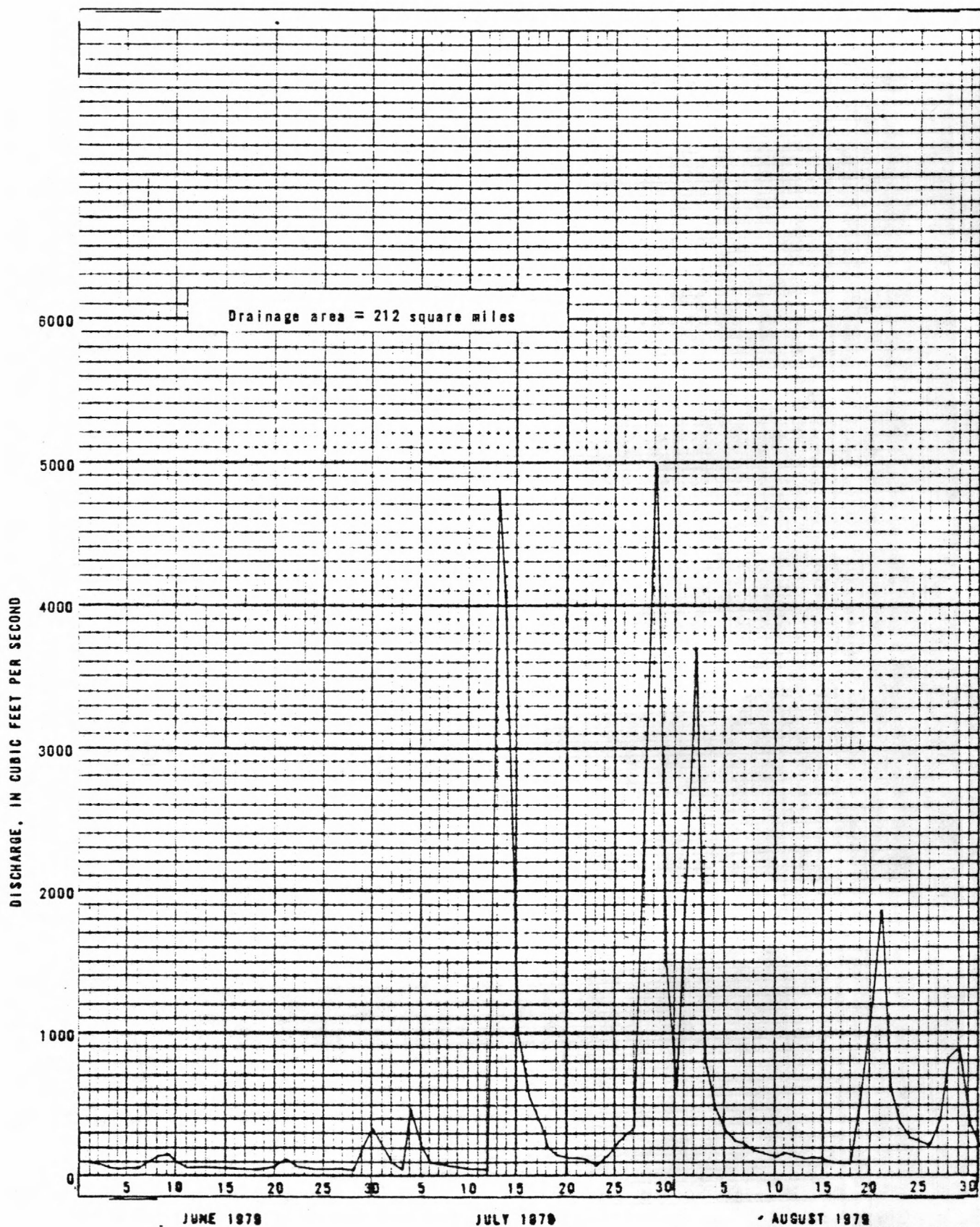


Figure 14.-- Discharge hydrograph of White Lick Creek at Mooresville, Ind. (03353800).

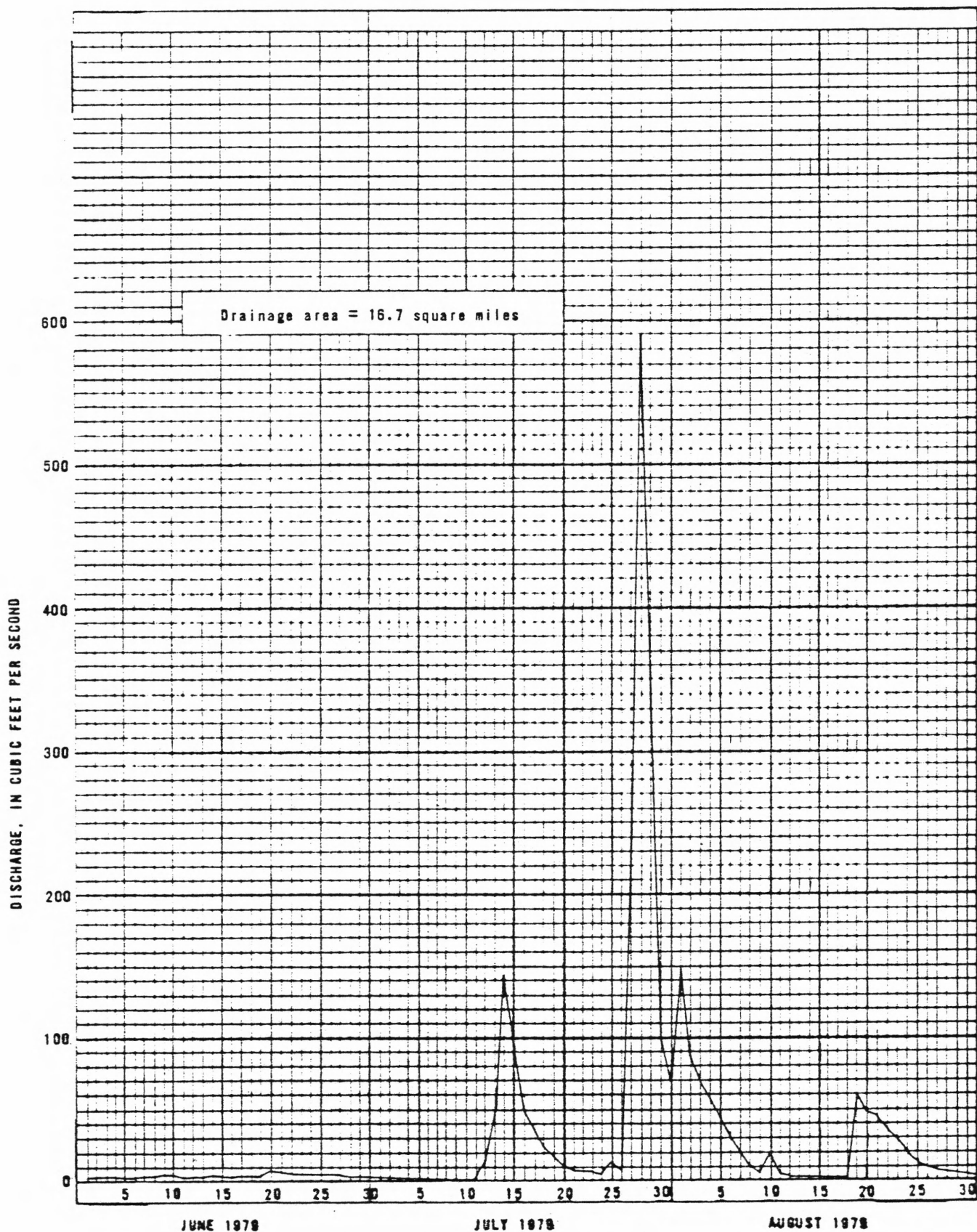


Figure 15.— Discharge hydrograph of Busseron Creek near Myra, Ind. (03342100).

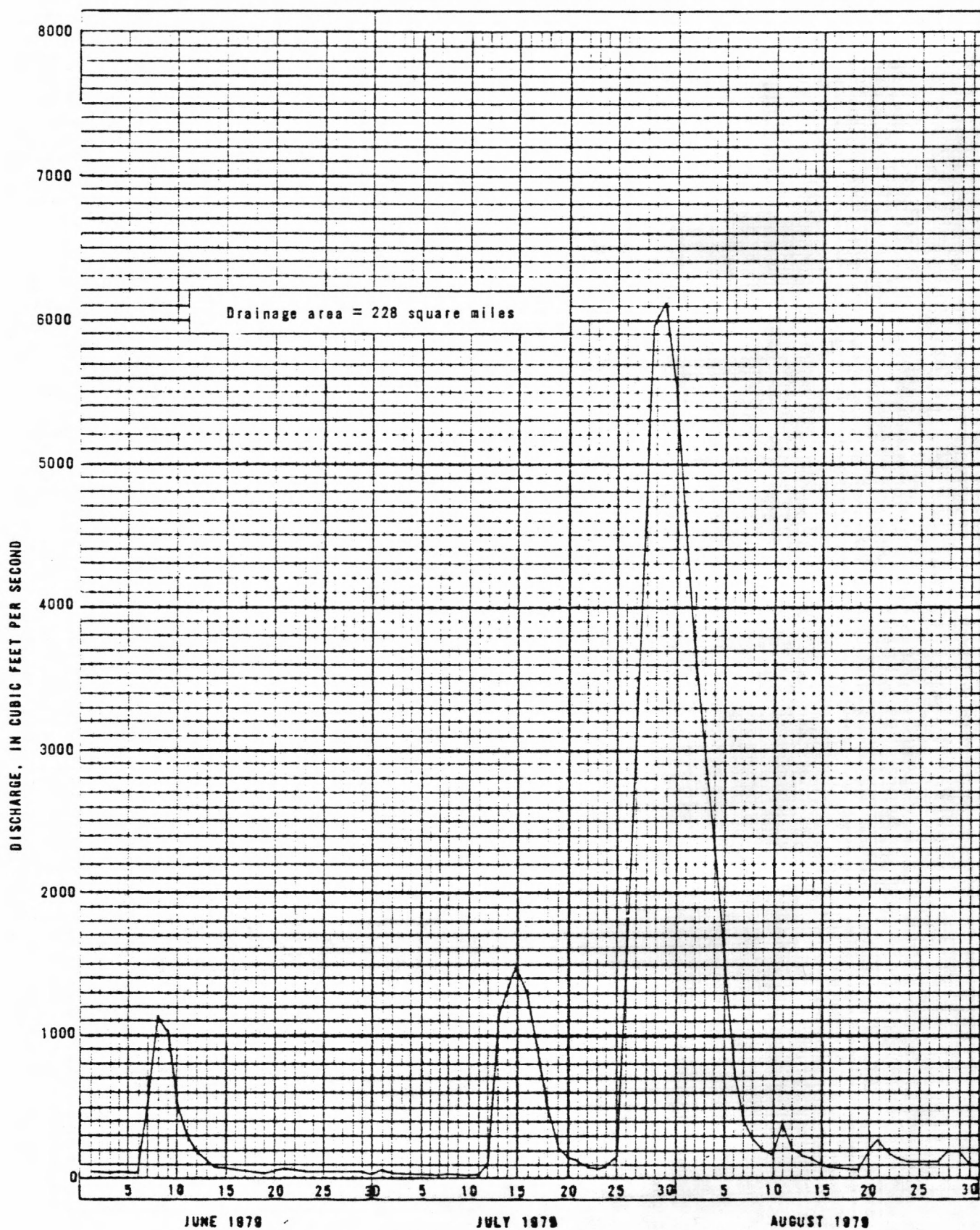


Figure 16.-- Discharge hydrograph of Busseron Creek near Carlisle, Ind. (03342500).

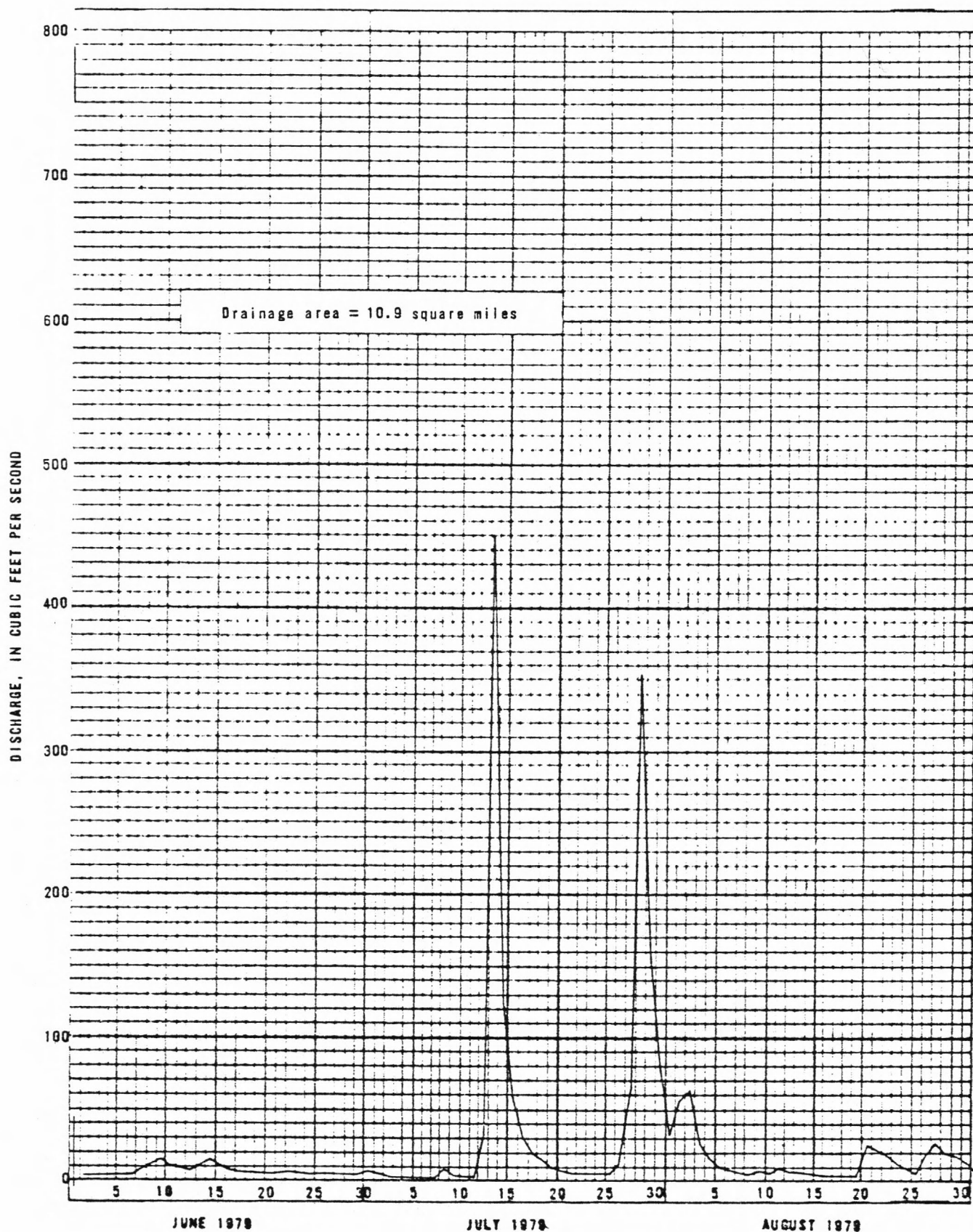


Figure 17.-- Discharge hydrograph of Stephens Creek near Bloomington, Ind. (03372300).

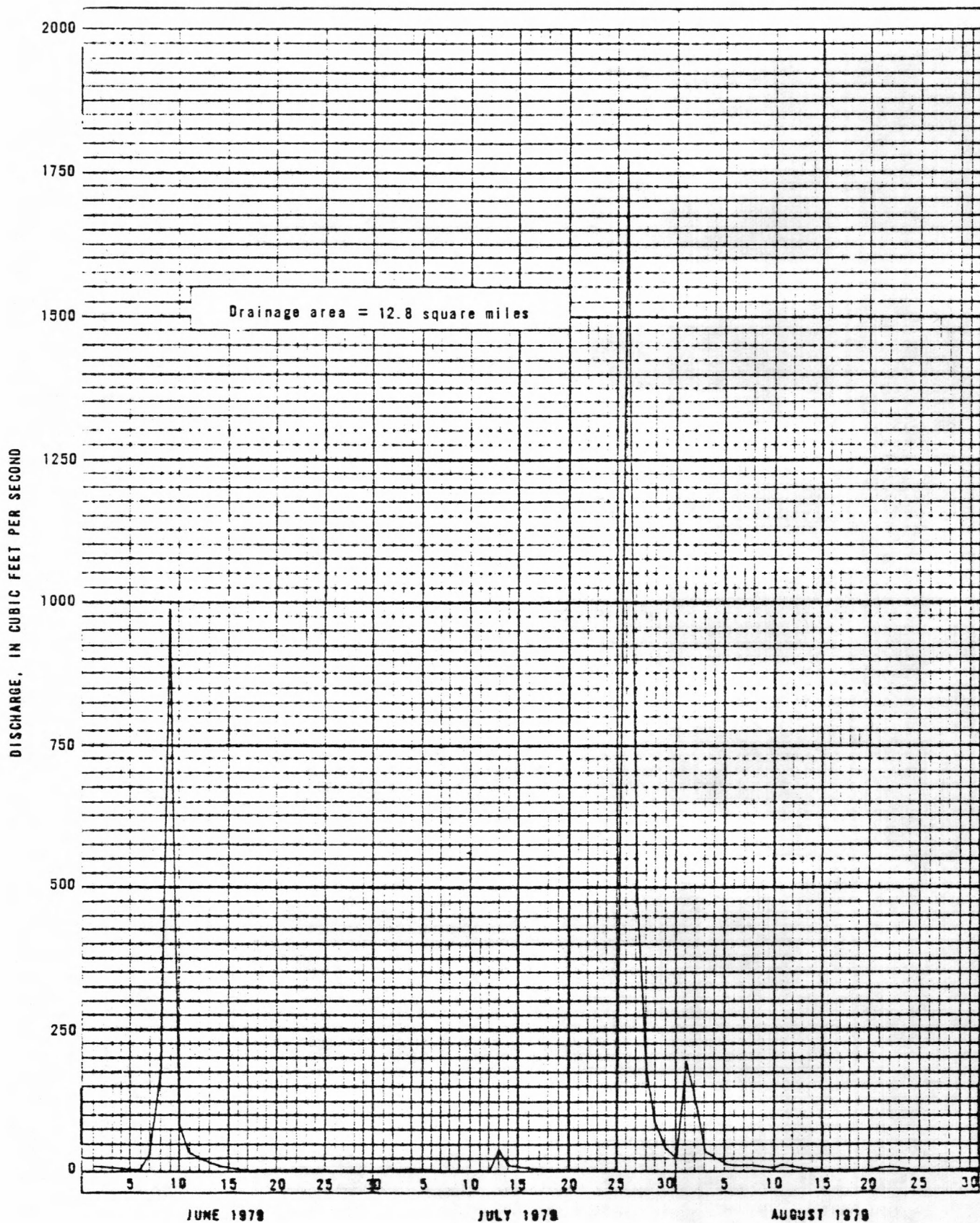


Figure 18.-- Discharge hydrograph of Petoka River near Hardinsburg, Ind. (03374455).