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Patterns of recreational use and characteristics of users of the Upper Iowa River

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by

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INTRODUCTION

The National Wild and Scenic Rivers System

In October 1968 the President signed Public Law 90-542 creating a National Wild and Scenic Rivers System. This law declared as the policy of the United States "...that certain selected rivers of the Nation which, with their immediate environments, possess outstanding remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations" (Public Law 90-542 1968). The Act specified three classes of rivers: wild, scenic, and recreational. A wild river is generally inaccessible except by trail, its shore lines are primitive and its waters are unpolluted. A scenic river can be accessible in places by roads and may have some development along its shore lines, so long as the essentially primitive character is retained. A recreational river can be readily accessible by road or railroad, it may have development along the shore lines, and it may have had impoundments or diversions in the past.

Nationwide, eight rivers were selected by Congress to form the initial components of the wild and scenic rivers system:

Clearwater (Middle Fork), Idaho
Eleven Point, Missouri
Feather, California
Rio Grande, New Mexico
Rouge, Oregon
Saint Croix, Minnesota and Wisconsin
Salmon (Middle Fork), Idaho
Wolf, Wisconsin.

In addition to these rivers, 27 other rivers were designated by Congress for potential inclusion in the National System, including the Upper Iowa River in northeast Iowa.

Scenic River Status of the Upper Iowa River

During the preliminary inventory and evaluation period for the proposed nationwide system of wild and scenic rivers, a brief survey and analysis was made of the Upper Iowa in 1963 (U. S. Department of the Interior 1972:1). In the early 1960's and in 1967, the State of Iowa initiated inventory studies to evaluate scenic and recreational qualities of the river (Taylor 1969:1). After passage of the Wild and Scenic Rivers Act, the Bureau of Outdoor Recreation, U. S. Department of the Interior (USDI), initiated an extensive 2-year study of the Upper Iowa to determine whether the river qualified for inclusion in the system. In 1970 the USDI Study Team concluded that the river possessed values which qualified it for inclusion in the scenic rivers system, and recommended that protection and development of the Upper Iowa could be achieved by the State of Iowa, in cooperation with

local governments (USDI 1972:70). The Governor of Iowa proclaimed the river as part of the Iowa Scenic Rivers System in 1970 (Code of Iowa 1971). The Secretary of the Interior in 1972 recommended to the President that the river be included in the national system, however, the President has not acted upon the recommendation.

Historical Review of Proposed Recreational Development of the Upper Iowa River

There are several groups, in addition to the recreationists, that have an important interest in present and future plans for development and management of the Upper Iowa River for recreation: owners of private land along the river, citizen conservation organizations, and the Iowa Conservation Commission (ICC). To place results of this study in proper perspective, roles that these major groups have played in recreation development of the Upper Iowa River since the USDI made its scenic river proposal are reviewed.

Private landowners

Upon completion of its 2-year study, the USDI announced in August 1970 that public hearings would be held in Decorah, Waukon, and Cresco, county seats of Winneshiek, Allamakee, and Howard counties on August 25, 26, and 27, 1970. The suddenness of the hearings and the unexpected news that much

of the land along the Upper Iowa was to be acquired for public access caused much concern with private landowners, especially farmers living along the river. Because of this concern, the Upper Iowa River Preservation Association (UIRPA) was formed in August 1970. The association's twofold purpose was, "To preserve the Upper Iowa River and its riparian lands in their present natural state and to promote all causes which shall work toward this end" (UIRPA 1971:3).

Leaders of the association claimed that 100 percent of those holding land along the Upper Iowa were members of the UIRPA, however, the association's official membership roster was not made available to verify this claim. Many of the UIRPA members are farmers and they saw the association as an organization through which they could work together in opposition to what they viewed as unfavorable aspects of the USDI Study Team's river development proposal. Some of the main aspects of the USDI's proposal which landowners opposed were:

1. Emphasis on recreation development which would accommodate 121,000 people annually.

2. The taking of 14,000 acres of land, in addition to the river, for public use.

3. The requirement that the Iowa Project come under the jurisdiction of the Federal Wild and Scenic Rivers Act.

UIRPA was also concerned about the liability of landowners for injuries sustained by river users (UIRPA 1971:41).

The ICC asked the UIRPA to present a counter-proposal to the USDI's proposed scenic river recommendations. In December 1970 the association proposed the following:

1. That the river be designated scenic to preserve the natural habitat.

2. That the forests be preserved in accordance with an Agricultural Stabilization and Conservation Committee program.

3. That farmers be permitted to continue use of the lands adjacent to the river and that there be no encroachment upon their watering rights as long as such farm uses do not interfere with the river's preservation.

4. That only licensed boats and canoes be permitted to use the river.

5. That rest areas and campsites be on land now owned by the state with any additional sites needed obtained by the ICC through purchase and easement.

6. That the ICC administer the plan (UIRPA 1971:6).

In summary, landowners along the river wanted to keep control of the river land and maintain their property rights. Emphasis was placed on scaling down the impact of recreation use. No immediate action was taken by the ICC on their counter-proposal.

Citizen conservation organizations

Many conservation groups, such as the Sierra Club, the Izaak Walton League of Iowa, the Iowa Wildlife Federation, and the Iowa Chapter of The Wildlife Society, supported the scenic river concept as proposed by the USDI. The Sierra

Club was the most active group in supporting the USDI proposal. As with the UIRPA, the Sierra Club was intensely interested in preserving scenic qualities of the river and believed only public control would insure integrity of scenic bluffs and wooded banks. They actively sought funds from the Federal Government to purchase a corridor of land on both sides of the 80 miles of river the USDI recommended for inclusion in the National Wild and Scenic Rivers System. In 1971 the Iowa Sierra Club urged their state members (about 350) in several state-wide mailings to write their congressmen, the Secretary of the Interior, and the President and request speedy inclusion of the river in the system (Clark C. Bowen, Chairman, Iowa Chapter of the Sierra Club, Ames, Iowa. Personal communication, 1973). The Sierra Club's stand was widely publicized in the Des Moines Register, a paper with wide circulation in the State of Iowa and the Midwest. Understandably, the club's strong stand made it very unpopular with UIRPA members.

Iowa Conservation Commission

The Federal Study Team had recommended that the river should be a member of the national scenic rivers system, but that the river should be managed by the ICC. This management concept was relatively new, since in 1970 the Allagash Wilderness Waterway in Maine became the first

state-administered river to be included in the National Wild and Scenic Rivers System (Gauvin 1972). At first the ICC moved rapidly toward fulfilling the requirements of the original act, by promoting state legislation to protect the river and by acquiring land through purchase or scenic easements to assure preservation of the quality of river landscape and to provide public access to its waters. The first Federal requirement for National Wild and Scenic River status was met in 1970 when the Governor signed into law the Scenic Rivers Act of 1970 (Code of Iowa 1971). When the Wild and Scenic Rivers Act became law in 1968, the ICC and Winneshiek County Conservation Board had fee simple title to less than 500 acres of land bordering the Upper Iowa River. By 1968 the ICC acquired more than 1,800 acres of river land (information presented by the ICC at a public hearing held by a Committee of the Iowa General Assembly representing the Appropriations Committee and Natural Resources Standing Committee on September 20, 1973 in Decorah, Iowa). The Iowa Legislature appropriated $150,000 in 1971 for land purchases along the river; this was to be matched with an equal amount of money from the Land and Water Conservation Fund (LAWCON) (Des Moines Register 1972). The commission made public its management and land acquisition objectives in August 1973.

Present status

On May 25, 1972 the Secretary of the Interior in a letter to President Nixon formally recommended that an 80-mile segment of the river become a state-administered component of the National Wild and Scenic River System. This event was widely publicized in the state's major newspapers (Des Moines Register 1972). The Sierra Club claimed a major conservation victory while the UIRPA claimed the "battle" was not over.

In late spring of 1972 the UIRPA initiated an annual user fee of $2 for each canoeist using the river. The permits were sold locally and the farmers in the association announced they would check canoeists for their river permits. A 1-page brochure furnished with the permit requested the recreationist's cooperation in usage of the river area for "mutual benefits." In the brochure, it was stated that the fee was not for promoting recreation, but for, "...compensation for our costs involved, a nominal sum is essential, and TO KEEP EVERYONE HAPPY." The permit gave the holder the right to use private property posted by the UIRPA. During the 1972 recreation season, I saw only three posted areas in the 74 river miles from Florenceville, Iowa, to State Highway 76. In 1973 only one posted area was observed. Even though UIRPA press releases in local newspapers gave the impression that these permits were required by canoeists,

canoeists could legally canoe on the Upper Iowa River without a permit. Exact numbers of permits sold in 1972 and 1973 were not released by the UIRPA. I made personal contact with many parties using the river, and found that a majority did not purchase the association permits. In early 1973 the ICC discouraged persons from puchasing these permits, according to a news story in the Des Moines Register (Knauth 1973a).

On June 14, 1973 Dr. George Knudson (one of the leaders in the effort to develop the Upper Iowa River as a public recreation stream and a chemistry professor at Luther College in Decorah, Iowa) and his son were arrested and charged with trespassing on land of a river property owner, Mr. George Smith. Although Mr. Smith was an active member in the UIRPA, the association was not a party in the suit against Knudson. The UIRPA saw the trial as a test of a trespass law passed by the Iowa legislature in 1972 (Code of Iowa 1973). In a letter to the editor of the Decorah Journal on July 12, 1973, Mr. Dale Reiser, President of the UIRPA, expressed concern as to whether river users would be confined to the established boundaries if a scenic river was established. He also questioned whether the state trespass law would be sufficient protection "...against the hordes of people ready to carry off a place piece by piece?" He closed by saying, "If the law is worthless then the landowners would have to use on-the-spot Vigilante Justice."

On July 6, 1973, Dr. Knudson was acquitted of trespass charges. An article by the Des Moines Register (Knauth 1973b) quoted Mr. Mark Sutton, Vice-President of the UIRPA, in a post-trial interview as threatening to "put a stop" to canoe travel by placing fences across the river "you can't get through." Sutton was also quoted as saying, "If people now think they don't need a permit to canoe on the river, we'll just stop it." In the eyes of the recreationists, the coverage of the Knudson trespass case and the $2 canoeing permit by newspapers and TV clouded an already controversial issue.

In August 1973 the Bureau of Outdoor Recreation (BOR) of the USDI released for review a draft environmental impact statement for proposed land acquisition along the Upper Iowa River (BOR 1973). The statement discussed the proposed acquisition of 4,993.5 acres of land which would provide access to over 28 miles of river. The main areas discussed were scenic areas between Kendallville and Bluffton where the ICC holds little acreage and between Decorah and the Allamakee county line where the ICC already has over 1,000 acres of land. By direction of Section 102 (c) of the National Environmental Policy Act of 1969, the environmental impact statement was necessary because the ICC requested $594,920 in LAWCON funds to be matched by state funds for land acquisition. The draft impact statement stated that

present land-use operations, principally farming and grazing, would be eliminated; use of the river water by cattle within the corridor of acquired land would cease; and approximately 25 to 30 landowners would be relocated as a result of the proposed acquisition (BOR 1973:49).

Understandably, landowners along the river were concerned at the extent of the proposed land acquisition and called for a public hearing. A public hearing was held by a Committee of the Iowa General Assembly representing the Appropriations Committee and the Natural Resources Standing Committee at the Winneshiek County Courthouse in Decorah, Iowa on September 20, 1973. About 130 persons attended and heard divergent plans and attitudes presented by Dr. George Knudson, the ICC, the UIRPA, the Izaak Walton League of Iowa, the Winneshiek County Board of Supervisors, the Iowa Chapter of the Sierra Club, and Mr. C. J. Anderson, attorney representing the UIRPA. At the hearing, there appeared to be a compromise between plans offered by Anderson and the Sierra Club. The Sierra Club's plan asked the ICC to drop its massive land acquisition along the river in favor of establishing the river as a national scenic river. The club suggested a program under which the state would work together with private property owners to establish a strip of land for public access on both river banks by the purchase of scenic river easements. Under their plan, priority would go to the

continued use of farmlands along the river and preservation of existing access to the river. There would be no relocation of farm families under the club's proposed plan (Des Moines Register 1974). The UIRPA's attorney agreed in principal with the general plan as presented by the Sierra Club with the exception of the 200 foot width of the scenic easement (100 feet on a side); indicating that this point required future negotiation. He believed a width of 30 feet on a side was a more reasonable width. Taylor, in a research study, found that landowners along the river had mixed emotions concerning scenic river easements (1969:78). Most landowners preferred easements over fee simple purchases, however, a few felt that rather than have the public using their land under an easement they preferred to sell their property.

As of March 1974, the ICC has not announced whether it will accept the plan agreed upon by the two groups. The decision by ICC will have an important bearing on whether the river is added to the National Wild and Scenic Rivers System.

Objectives

Even though a potential recreation development plan for the river was outlined in the final study report filed by the USDI in 1972, that report lacked basic data on current use patterns, user characteristics, and the recreation furnished

in the taking of furbearing animals such as muskrat, Ondatra zibethicus; beaver, Castor canadensis; and mink, Mustela vison. Such data are needed to serve as a baseline for reference in planning use standards that assure maintenance of the wild and scenic characteristics of the river in an unspoiled and natural condition. In order to have sound management in any natural area, basic use information is a necessity. The Upper Iowa River, a quality scenic area unique to the midwest, is no exception.

Due to the importance of scenic river management to Iowa, the Iowa Cooperative Wildlife Research Unit, Iowa State University, initiated a recreational use study on the Upper Iowa River in 1972. The principal question to be answered in the study was: What are the current levels of water-based recreation use of the Upper Iowa River? This information would be helpful in the formulation of use standards necessary for maintaining the river in an unspoiled and natural condition. Several objectives were formulated:

1. To determine current patterns of recreational use on the Upper Iowa River.

2. To determine user preference priorities, origins, and expenditures in relation to recreational use of the river.

3. To evaluate contribution of furbearer resources to recreational values.

LITERATURE REVIEW

In 1969, less than a year after the Wild and Scenic Rivers Act was passed, a Scenic Rivers Study Unit was formed by the Water Resources Research Institute (WRRI) at the University of Idaho (Scenic Rivers Study Unit 1970). The Unit's goal was to establish criteria which could be used to identify and estimate economic, aesthetic, social, and other values connected with scenic rivers. Subjects such as outdoor recreation, commercial fisheries, flood control, and water quality control were part of 14 subprojects formulated to study the aspects of scenic rivers. In July 1969 the Idaho WRRI sponsored a Wild and Scenic Rivers Symposium (Herbst 1970). Participants from several states and federal agencies, universities, and private interest groups discussed such subjects as criteria for and the difficulties encountered on wild river studies, regulation of a wild river, public involvement, economic concepts, and hydropower concepts.

Two scenic river studies, completed under the sponsorship of the Idaho Scenic Rivers Study Unit, are of major importance to this project. Christopherson (1973) collected information from recreationists interviewed along the St. Joe River in northern Idaho regarding their attitudes and opinions toward the proposed inclusion of the river in

the National Wild and Scenic Rivers System. Peckfelder (1973) interviewed users and managers of the Middle Fork of the Salmon River in Idaho, and analyzed differences and similarities in responses made by Middle Fork floaters and the Forest Service personnel managing the Middle Fork in management-oriented statements. The Pine River in the Manistee National Forest of northern Michigan was the site of a study by Solomon and Hansen (1972). They solicited canoeist's suggestions for stream management, particularly of eroding stream banks.

In the late 1950's and 1960's a series of water-based recreation investigations were conducted in the Boundary Waters Canoe Area in Superior National Forest, Minnesota. Taves et al. (1960) conducted a field study of campers and canoeists who vacationed in the Quetico-Superior area during the summer of 1958. Using personal interviews, they sought to identify who vacationed in the area, for what reasons they vacationed, and with what effects. They also solicited user's attitudes on what types of management that users desired for the Quetico-Superior area. Bultena (1961) investigated changing wilderness images and how the images related to forest management policy. In addition to categorizing the motives that induced visitors to visit the Boundary Waters area, he discussed the management implications of trying to preserve the wilderness image while

at the same time providing minimal facilities to satisfy the most urgent demands of those users desiring improvements. Lucas (1964a) described four main aspects of recreation use of the Boundary Waters area: the number of visitors, the types of visitors, the distribution of visitors over the area in 1961, and trends in use. Using information collected by personal interview from canoeists using the Area in 1961, Lucas (1964b) discussed wilderness perception and wilderness use. He presented user's perceptions of the wilderness resource of the area's lakes as held by three groups (managers, canoeists, and boaters) and discussed to what extent these perceptions influence the use of the resource by these three groups. Lime (1972) investigated the sizes, characteristics, and impact of large groups using the Boundary Waters area. Fleener (1971) investigated recreational use on a 57-mile unchannelized portion of the Platte River in northeastern Missouri.

Iowa water-based recreation studies have involved primarily lakes. In a study of competitive uses of selected Iowa lakes, Haugen and Sohn (1968) analyzed the cycles and fluctuations in recreational activity on Clear, Spirit, Okoboji, and Little Wall Lakes in 1966 and 1967. In addition to describing summer recreation activities, information concerning areas of present and future conflict between users was gathered. Proescholt and Carlander (1969) reported on

1968 summer boating and fishing activity on Clear Lake. Pre-impoundment recreational use patterns and waterfowl occurrence in the Saylorville area of the Des Moines River were investigated by Haugen and Lenning (1970). Their work was the first comprehensive analysis of water-based recreation activities of an Iowa river. Taylor (1969) investigated the feasibility of using scenic easements as a means of acquiring land along the Upper Iowa River for public access.

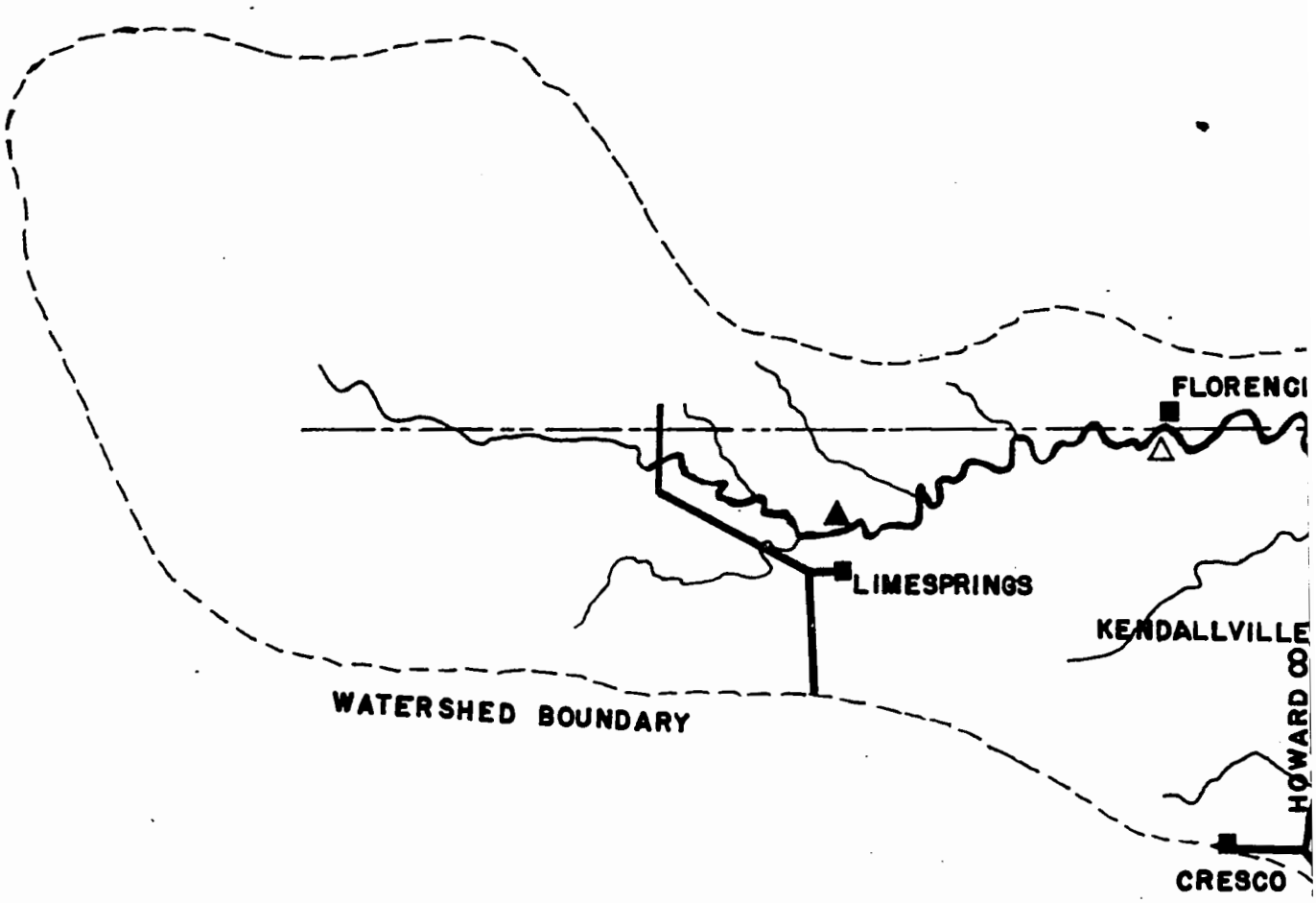
DESCRIPTION OF STUDY AREA

The Upper Iowa River begins just beyond the northern boundary of Iowa in the flat prairie lands of southeastern Minnesota and winds through rolling hills of the northeastern Iowa counties of Howard, Winneshiek, and Allamakee before emptying into the Mississippi River (Fig. 1). The distance from a point on the Minnesota-Iowa State line in Howard County to the Mississippi is approximately 86 river miles. From Kendallville to below Bluffton, the river has created an array of scenic bluffs, chimneys, palisades, and rugged limestone walls (Figs. 2 and 3). Along with these rugged geologic features, there is a pleasant contrast as the river winds its way through crop, pasture, and timberlands. The lower section of the Upper Iowa flows through a broad, deep valley flanked by steep slopes crowned with limestone escarpments (Fig. 4).

A continuous 74-mile section of the Upper Iowa River located in Howard, Winneshiek, and Allamakee counties was selected for study. The study section started in Howard County at Larkin Bridge, 7 miles northwest of Kendallville, and ended in Allamakee County at the river bridge on State Highway 76, 11 miles north of Waukon. This 74-mile section was divided into five segments: (1) Larkin Bridge to Kendallville Park, 6.5 river miles; (2) Kendallville Park to

Bluffton, 14.1 miles; (3) Bluffton to the city campground on the western edge of Decorah, 15.9 miles; (4) Decorah City Campground to the Lower Dam, 17.3 miles; and (5) Lower Dam to the bridge on State Highway 76, 20.5 miles. These segments were chosen because (1) they were reportedly used by canoeists, campers, and fishermen, and (2) they are included in the 80 miles recommended by the Secretary of Interior for scenic and recreation classification in the National Wild and Scenic Rivers System (USDI 1972:70).

Fig. 1. The Upper Iowa River in northeast Iowa. The study area included a 74-mile section of river beginning at Larkin Bridge (#04) and ending at State Highway 76 (Bridge 26)



UPPER IOWA RIVER

LEGEND

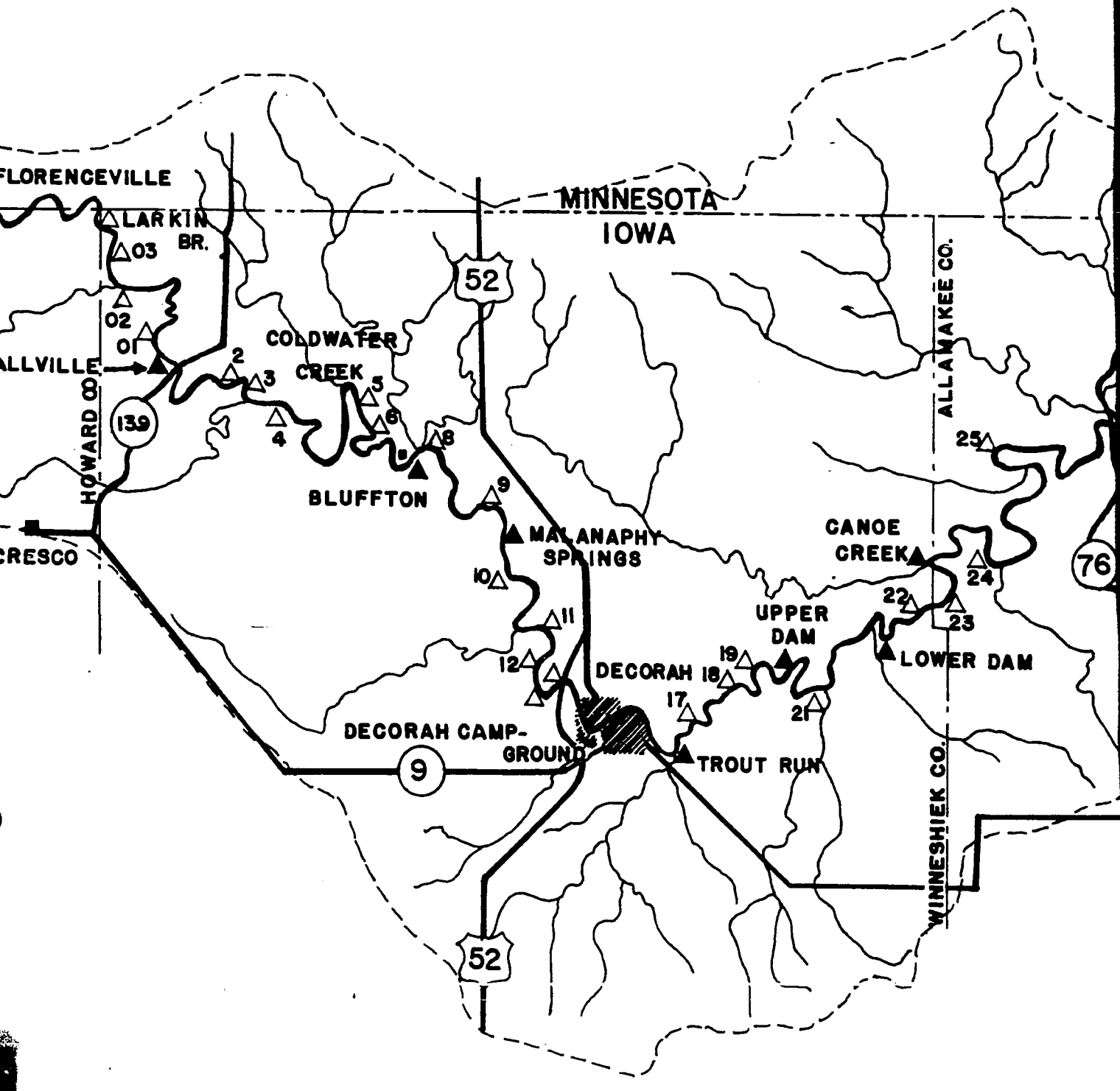
N

▲ PUBLIC ACCESS

△ BRIDGE (NUMBERS CORRESPOND WITH TEXT)

1 0 1 2 3 4 5

MILES


FLORENCEVILLE
LARKIN BR.
03
02
01
ALLVILLE
HOWARD CO.
139
2
3
4
COLDWATER CREEK
5
6
8
BLUFFTON
9
MALANAPHY SPRINGS
10
11
12
DECORAH CAMP-GROUND
9
52
MINNESOTA
IOWA
52
DECORAH
17
18
19
UPPER DAM
21
TROUT RUN
LOWER DAM
22
23
24
CANOE CREEK
25
76
ALLAMAKEE CO.
WINNESHIEK CO.

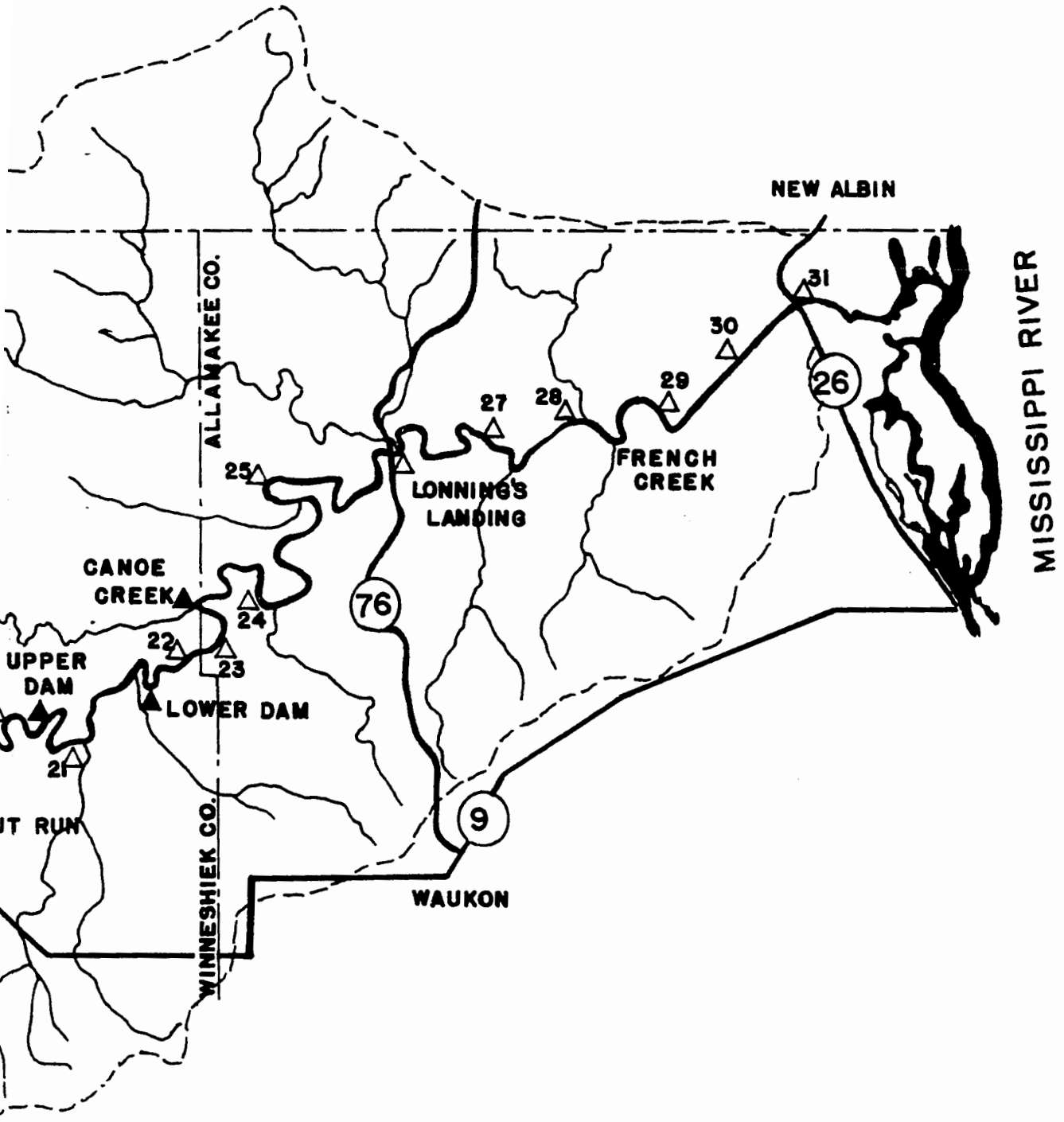

NEW ALBIN
ALLAMAKEE CO.
MISSISSIPPI RIVER
31
30
29
28
27
26
25
24
23
22
21
LONNING'S LANDING
FRENCH CREEK
CANOE CREEK
UPPER DAM
LOWER DAM
76
9
WAUKON
WINNESHIEK CO.

Fig. 2. Chimney Rocks on the Upper Iowa River, located about three river miles downstream from Plymouth Rock Bridge (#4)

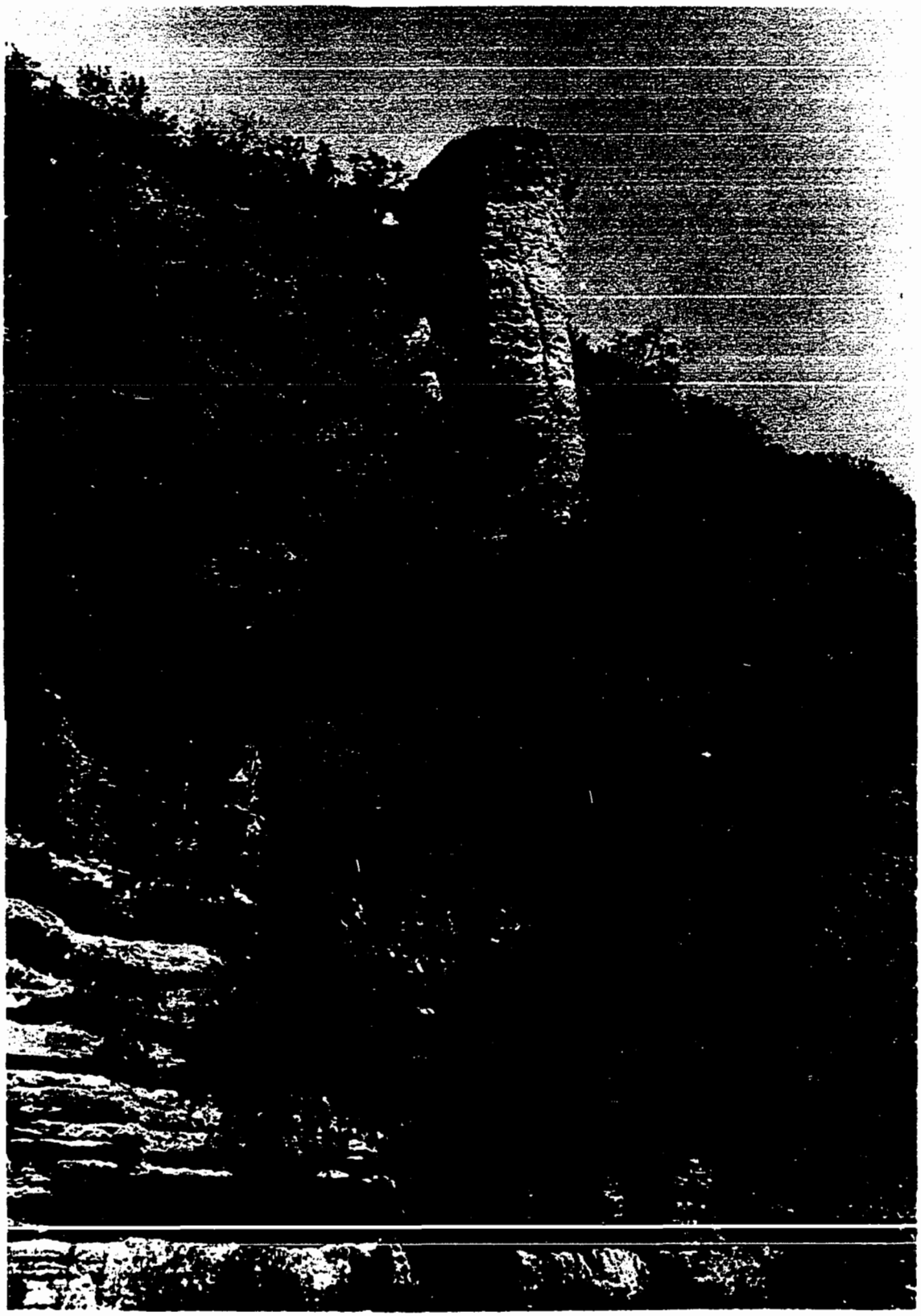


Fig. 3. The Palisades, located about 1 river mile downstream from Snell's Bridge (#5), is one of the highest vertical limestone cliffs on the Upper Iowa River

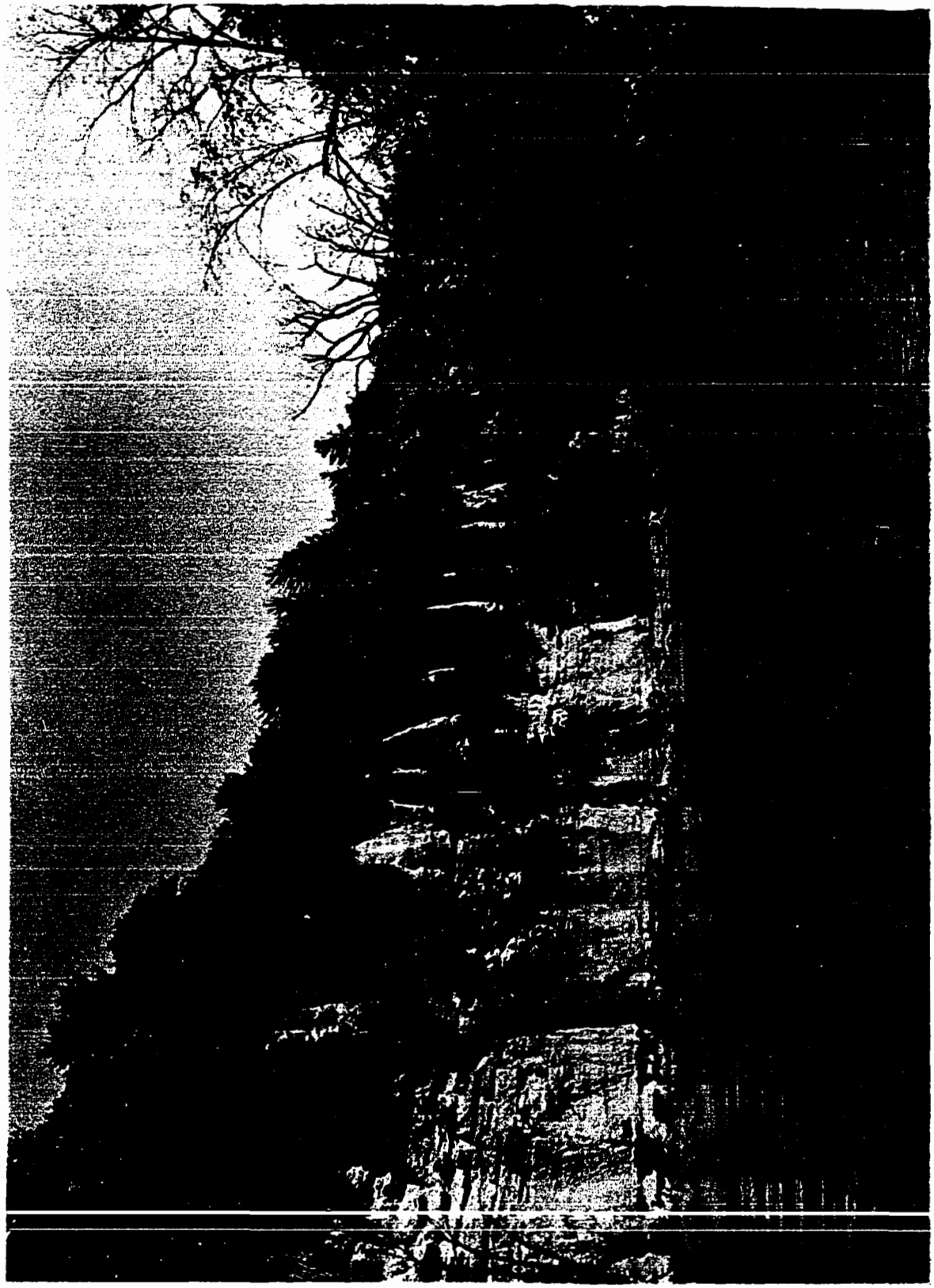
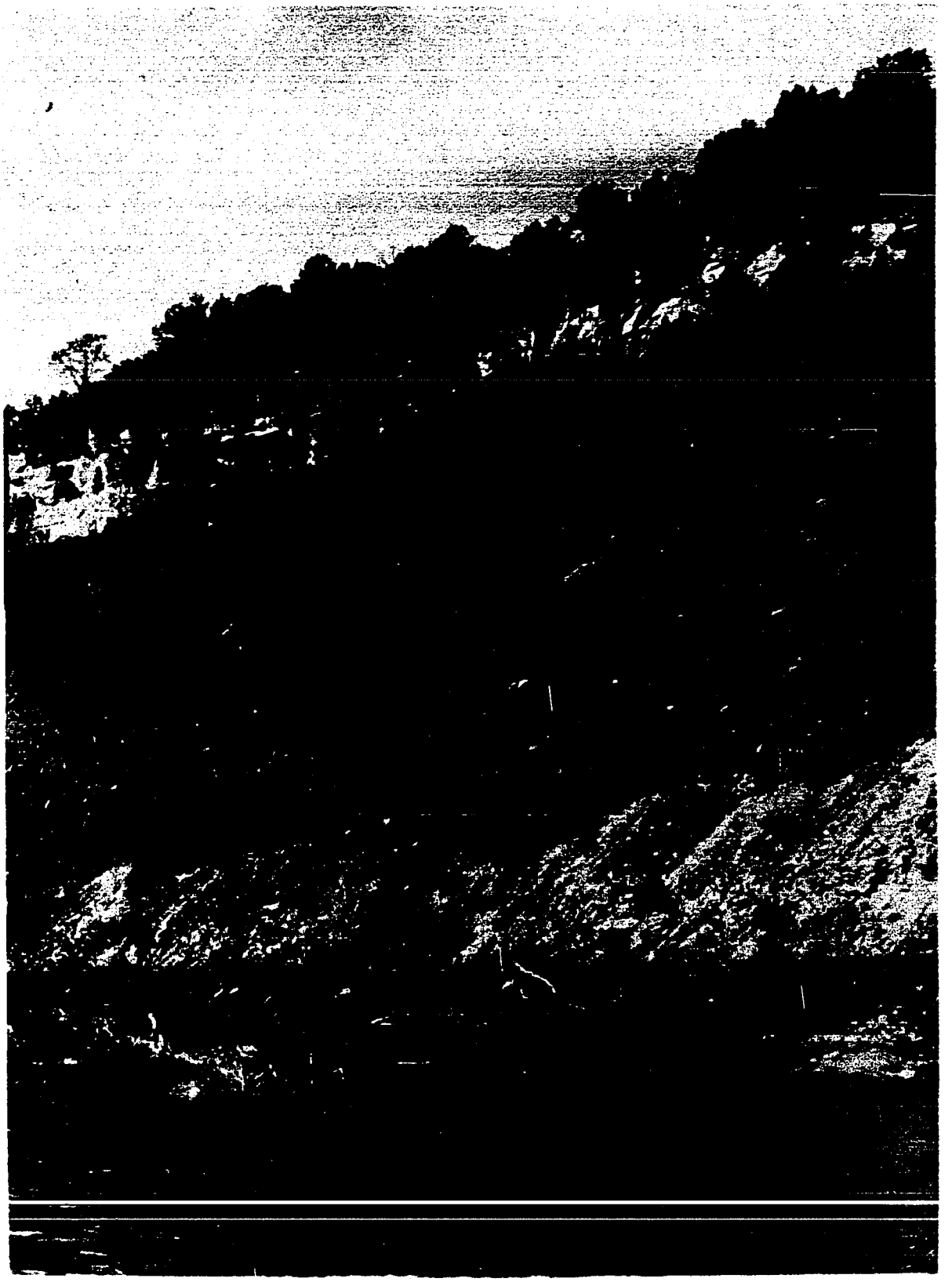


Fig. 4. A broad, deep valley flanked by steep slopes crowned with limestone escarpments characterizes the lower section of the river near Iverson's Bridge (#25)



METHODS

Data Collection

Field work began in spring 1972 with the pretesting of interview schedules on two weekends in early May. Daily field work began on May 24 and ended September 4. Fall recreational activity was recorded on the weekends of September 23-24 and October 8-9. In 1973, spring recreational activity was recorded on the weekends of May 5-6 and 12-13. Daily field work began May 23 and ended September 3.

Information on recreational use was gathered principally by personal interview. Contacts for interviews were made by driving main roads paralleling and crossing the 74-mile river study area and by waiting at heavily-used public canoe access areas. Using this method I assumed that I contacted all canoeists and campers, however not all fishermen were contacted. When a party was contacted, preliminary questions were asked concerning their proposed length of visit and canoeing activity. If the party had spent at least a day participating in recreational activity on or along the river, then a 21-question general recreation schedule was used (Appendix I). Many of the questions asked in the interview schedule related to the respondent's participation in some recreational activity. Thus, if the party had arrived

shortly before time of contact and were not sure what they would do during their visit to the river, a 12-question schedule was completed (Appendix II). Those parties who had just completed their trip and felt they did not have time for a lengthy interview were also queried using the shorter schedule. This 12-question schedule took only several minutes to complete.

Interviewing each person in the party was not practical because it would have caused unnecessary duplication. Several general rules were applied to the selection of respondents:

1. If the 12-question schedule was used, one person, preferably the trip leader, was selected to answer the quantitative questions applicable to the entire party. No sex or age restrictions were imposed.

2. If the 21-question schedule was used, an adult male or female (18 years and older) was chosen from each party. In instances where no adults were present, one of the older persons in the party was interviewed. Effort was made to get equal representation of sexes but this was difficult due to the high number of all-male parties.

To gather information from fishermen, a 10-question schedule was used (Appendix III). Generally, one fisherman was selected and interviewed from each fishing party. Fur trapping information for the 1972-73 trapping season was gathered by use of an 8-question interview schedule (Appendix IV). Names and addresses of licensed trappers in Winneshiek and Allamakee counties were obtained from county recorders. Effort was made to contact all licensed trappers by telephone

or personal contact to see whether or not they had trapped on the Upper Iowa River. If they had, the trappers were interviewed.

Recreational activity observed from an auto, as well as a count of autos parked at access areas, was recorded. During July in 1972 and 1973, Dr. Arnold O. Haugen, project leader during the field phases of the study, made airplane counts of recreational activity while I conducted field interviews.

Data Analysis

After the interview schedules were completed, I coded the responses on the schedules. After completion of the field work each season, coded responses on interview schedules were keypunched on Hollerith cards by the Computer Center, Iowa State University. Data were tabulated by the Statistical Laboratory, Iowa State University using computer programs adapted from the Statistical Analysis System. Chi-square test and t-tests were applied to differences.

Sample Size

In 1972, 652 interview schedules were completed: 166, 21-question general recreation schedules; 300, 12-question canoeist schedules; and 186, 10-question fishing schedules. In 1973, 775 interview schedules were completed: 106,

21-question general recreation schedules; 503, 12-question canoeist schedules; and 166, 10-question fishing schedules. In 1973, 12 trapping schedules were completed.

RESULTS

Canoeing and Camping

In 1972 and 1973, 1,075 canoeing and camping parties totaling 7,802 visitors were contacted along the river (Table 1). Party size was similar both years, 7.3 persons per party in 1972 and 7.2 in 1973 (Table 2). There was a 28 percent increase in river users contacted in 1973 and a 31 percent increase in the number of parties. During the two summers of field investigation, effort to contact recreationists was about equal.

Over 90 percent (246 of 272) of the respondents visiting the river to participate primarily in canoeing and camping activities traveled directly from their home town to the river. Persons from 20 states and 2 foreign countries were contacted along the river in 1972 and 1973 (Table 3). Ninety-eight percent of the visitors contacted were from three states---Iowa (87 percent), Minnesota (7 percent), and Illinois (4 percent). In Iowa, visitors from 65 counties were contacted; Black Hawk, Winneshiek, Linn, and Howard were home counties for 54 percent of the river users from Iowa (Table 4). Almost all of the canoeing and camping groups were from the northeast one-quarter of Iowa. Home towns of Iowa visitors as well as the number of groups and people from each town are listed in Appendix V.

Table 1. Recreation parties contacted along the Upper Iowa River in 1972 and 1973

Activity	Year	Number of parties	Number of people
Camping only	1972	18	99
	1973	12	76
	Totals	30	175
Canoeing only	1972	214	1464[1]
	1973	272	1795[2]
	Totals	486	3259
Canoeing and camping	1972	234	1687[3]
	1973	325	2414[4]
	Totals	559	4101
All parties combined	1972	466	3416
	1973	609	4386
	Totals	1075	7802[5]

[1]There were an additional 7 persons present but not canoeing.

[2]There were an additional 9 persons present but not canoeing.

[3]There were an additional 157 persons camping but not canoeing.

[4]There were an additional 94 pe-sons camp&ng but not canoeing.

[5]Includes 267 persons listed in footnotes 1-4.

Table 2. Average sizes of recreation parties contacted along the Upper Iowa River in 1972 and 1973

Activity	Year	Average party size[1]	Average party size with observers[2] included
Camping	1972	5.5	
	1973	6.3	
	2-yr avg	5.8	
Canoeing only	1972	6.8	6.8
	1973	6.6	6.6
	2-yr avg	6.7	6.7
Canoeing and camping	1972	7.2	7.9
	1973	7.4	7.7
	2-yr avg	7.3	7.8
All canoeing groups	1972	7.0	7.3
	1973	7.1	7.5
	2-yr avg	7.0	7.4
All parties combined	1972	7.3	
	1973	7.2	
	2-yr avg	7.2	

[1]Totals in Table 1 were used to calculate average party sizes.

[2]Observers are the non-canoeing members of a party.

Table 3. State of residence for recreationists contacted along the river in 1972 and 1973

State	Number of people				Number of groups[1]			
	1972	1973	Total	%	1972	1973	Total	%
Alabama	0	2	2	tr[2]	0	1	1	tr
California	0	14	14	0.2	0	6	6	tr
Florida	2	0	2	tr	1	0	1	tr
Illinois	122	175	297	4.0	25	28	53	3.7
Iowa	3002	3456	6478	87.0	496	692	1188	83.5
Indiana	9	6	15	0.2	5	2	7	0.5
Maine	0	1	1	tr	0	1	1	tr
Maryland	0	1	1	tr	0	1	1	tr
Michigan	0	4	4	tr	0	2	2	tr
Minnesota	174	336	510	6.9	37	76	113	7.9
Missouri	1	0	1	tr	1	0	1	tr
Nebraska	1	4	5	tr	1	1	2	tr
North Carolina	0	1	1	tr	0	1	1	tr
Ohio	0	4	4	tr	0	1	1	tr
Oklahoma	0	1	1	tr	0	1	1	tr
Oregon	0	1	1	tr	0	1	1	tr
Pennsylvania	3	1	4	tr	3	1	4	tr
South Carolina	2	0	2	tr	1	0	1	tr
Virginia	1	2	3	tr	1	2	3	tr
Wisconsin	37	58	95	1.3	10	22	32	tr
Washington, D.C.	1	0	1	tr	1	0	1	tr
Finland	0	1	1	tr	0	1	1	tr
New Zealand	1	0	1	tr	1	0	1	tr
Totals	3356	4088	7444[3]	100.0	583	840	1423	100.0

[1]Because not all people in a party were from the same home town, the term "group" is defined to be all individuals from the same point of origin in a party. A party may be composed of one or more groups.

[2]Tr = trace = < 0.5 percent.

[3]The total number of persons in column 3 is less than the total number of persons contacted (column 3, Table 1) because only the home town of respondents completing the 272 general recreation schedules were recorded. The same is true for the total number of groups listed in column 6.

Table 4. County of residence for Iowans contacted along the river in 1972 and 1973

County number	County	Number of groups 1972	1973	Total	%	Number of people 1972	1973	Total	%
2	Adams	0	1	1	tr[1]	0	1	1	tr
3	Allamakee	18	12	30	2.5	93	43	136	2.1
6	Benton	2	7	9	0.8	15	18	33	0.5
7	Black Hawk	56	117	173	14.6	486	800	1286	19.9
8	Boone	0	1	1	tr	0	2	2	tr
9	Bremer	13	24	37	3.1	75	115	190	2.9
10	Buchanan	6	12	18	1.5	50	59	109	1.7
11	Buena Vista	1	0	1	tr	1	0	1	tr
12	Butler	1	5	6	0.5	2	14	16	tr
13	Calhoun	1	1	2	tr	2	2	4	tr
15	Cass	3	1	4	tr	41	1	42	tr
16	Cedar	5	4	9	0.8	68	55	123	1.9
17	Cerro Gordo	4	15	19	1.6	9	52	61	0.9
18	Cherokee	1	0	1	tr	1	0	1	tr
19	Chickasaw	10	14	24	2.0	73	70	143	2.2
21	Clay	1	0	1	tr	8	0	8	tr
22	Clayton	6	5	11	0.9	54	63	117	1.8
23	Clinton	2	4	6	0.5	38	12	50	0.8
25	Dallas	1	0	1	tr	2	0	2	tr
26	Davis	1	0	1	tr	10	0	10	tr
28	Delaware	2	3	5	tr	4	7	11	tr
29	Des Moines	2	2	4	tr	24	4	28	tr
30	Dickinson	1	1	2	tr	9	16	25	tr
31	Dubuque	10	17	27	2.3	9	16	25	tr
32	Emmet	3	2	5	tr	50	52	102	1.6
33	Fayette	17	18	35	2.9	26	9	35	0.5
34	Floyd	7	3	10	0.8	70	121	191	2.9
35	Franklin	2	2	4	tr	31	8	39	0.6
37	Greene	0	1	1	tr	0	2	2	tr
38	Grundy	5	3	8	0.7	33	24	57	0.9
39	Guthrie	0	1	1	tr	0	18	18	tr
40	Hamilton	1	1	2	tr	2	4	6	tr
41	Hancock	0	3	3	tr	0	11	11	tr
42	Hardin	4	3	7	0.6	15	11	26	tr
44	Henry	0	1	1	tr	0	4	4	tr
45	Howard	32	40	72	6.1	204	219	423	6.5
46	Humboldt	0	3	3	tr	0	24	24	tr
48	Iowa	1	0	1	tr	2	0	2	tr

[1]Tr = trace = < 0.5 percent.

Table 4. (continued)

County number	County	Number of groups 1972	1973	Total	%	Number of people 1972	1973	Total	%
49	Jackson	0	2	2	tr	0	10	10	tr
50	Jasper	2	2	4	tr	10	17	27	tr
52	Johnson	23	30	53	4.5	96	128	224	3.5
53	Jones	0	2	2	tr	0	3	3	tr
55	Kossuth	0	1	1	tr	0	2	2	tr
56	Lee	3	0	3	tr	6	0	6	tr
57	Linn	39	68	107	9.0	224	309	533	8.2
58	Louisa	1	0	1	tr	2	0	2	tr
63	Marion	2	0	2	tr	4	0	4	tr
64	Marshall	3	5	8	0.7	11	24	35	0.5
66	Mitchell	2	6	8	0.7	32	41	73	1.1
70	Muscatine	0	4	4	tr	0	11	11	tr
74	Palo Alto	2	1	3	tr	8	1	9	tr
76	Pocahontas	0	1	1	tr	0	9	9	tr
77	Polk	25	26	51	4.3	118	123	241	3.7
79	Poweshiek	1	3	4	tr	11	12	23	tr
82	Scott	14	24	38	3.2	134	204	338	5.2
84	Sioux	1	0	1	tr	5	0	5	tr
85	Story	13	19	32	2.7	68	105	173	2.7
86	Tama	2	1	3	tr	14	4	18	tr
91	Taylor	1	2	3	tr	27	5	32	0.5
92	Washington	1	0	1	tr	14	0	14	tr
94	Webster	5	0	5	tr	15	0	15	tr
95	Winnebago	1	4	5	tr	2	15	17	tr
96	Winneshiek	131	159	290	24.4	659	571	1230	19.0
97	Woodbury	1	2	3	tr	1	4	5	tr
99	Wright	4	2	6	0.5	22	8	30	0.5
	Unknown	0	1	1	tr	0	1	1	tr
	Totals	496	692	1188	100.0	3002	3476	6478	100.0

The Upper Iowa River visitor traveled an average straight-line distance of 85 miles from home to river contact area in 1972 and 89 miles in 1973; these figures were calculated using weighted mileage values for all persons in each group. A group is defined as all individuals from the same home town within a party. For example, average distance traveled per visitor for a 2-party sample is calculated as:

Party A (3 groups)

Group 1 - 4 persons traveled 120 mi from Town 1 to contact area
Group 2 - 3 persons traveled 90 mi from Town 2 to contact area
Group 3 - 2 persons traveled 45 mi from Town 3 to contact area

Party B (1 group)

Group 1 - 6 persons traveled 82 mi from Town 4 to contact area

Weighted mileages were calculated as follows for the two parties:

120 mi/person (4 persons) + 90(3) + 45(2)
+ 82(6)/15 persons =
480 mi + 270 + 90 + 492/15 =
1,322 mi/15 persons = 88.8 mi/person.

The average distance traveled by a party was 92 miles in 1972 and 94 miles in 1973. A weighted average was calculated for all parties with two or more groups. These average values were then combined with values of parties with one group to get a party average for the entire sample. Using Parties A

and B above, average distance traveled per party is calculated as:

120 mi/person (4 persons) + 90(3) + 45(2)/9 persons =
480 mi + 270 + 90/9 =
840 mi/9 persons = 93.3 mi/person for Party A,

and,

(93.3 mi + 82.0)/2 parties =
175.3 mi/2 parties = 87.6 mi/party.

In both years about half of the groups traveled less than 50 miles to reach the river and about 80 percent traveled less than 150 miles (Table 5).

The Upper Iowa River and its surroundings were considered a major attraction by the persons using the river. Over 95 percent of the persons interviewed (158 of 166 in 1972, 102 of 106 in 1973) stated their visit to the Upper Iowa was the main reason for visiting the northeastern region of the state. Of the 12 persons who visited the Upper Iowa for other reasons, 6 listed visitation with friends or relatives as the main reason.

Most people stated that they visited the Upper Iowa River because of the recommendations of others or because they had been there before, and fewer visited because they had heard or read some publicity about the river (Table 6).

Visitations to the river in the previous and present year were recorded for 166 respondents in 1972 and 106 in

Table 5. Miles traveled by canoeists and campers from their residence to river contact point[1]

Mileage categories	Number of groups 1972 Freq	1972 %	1973 Freq	1973 %	2-Yr %	Cumulative %
1- 10	83	14.1	138	15.7	15.0	100.0
11- 20	90	15.3	69	7.8	10.8	85.0
21- 30	13	2.2	32	3.6	3.1	74.2
31- 50	39	6.6	69	7.8	7.4	71.1
51- 75	95	16.2	186	21.1	19.1	63.7
76-100	32	5.4	53	6.0	5.8	44.6
101-150	127	21.6	196	22.3	22.0	38.8
151-200	64	10.9	85	9.7	10.2	16.8
201 or more	45	7.7	52	5.9	6.6	6.6
Totals	588[2]	100.0	880	99.9	100.0	

[1]Distance was calculated as straight-line distance between home and river contact point.

[2]The group totals in columns 1 and 3 are larger than the party totals in column 3, Table 1 because some parties contained more than one group. A group is defined as all individuals in a party from the same home town.

1973. Almost 90 percent (148) of the 1972 respondents were on a canoeing trip when contacted. The 148 canoeists made an average of 2.9 non-canoeing visits per person to the river in 1971. Over 55 percent (82) of these canoeists were making the first canoeing trip they ever made when interviewed. Forty-five percent (66) of the experienced canoeists (canoed at least one time prior to being interviewed) made an average of 3.4 Upper Iowa canoeing trips per person in 1971 (Tables 7 and 8). Of the 45 percent who had canoed on the Upper Iowa

Table 6. Reasons given when respondents were asked what influenced them to visit the Upper Iowa River. They were given five choices from which to choose as many as fit their particular circumstances: 1-Publicity regarding the river, 2-A previous visit to the river, 3-Recommendations of others, 4-Reading (other than advertising), and 5-Other reasons

Responses	Freguency 1972	Freguency 1973	2-Yr %
1	2	2	1.5
1,2	4	1	1.8
1,2,3	5	4	3.3
1,2,3,4	5	0	1.8
1,2,3,4,5	1	0	0.4
1,2,4	3	0	1.1
1,3	2	3	1.8
1,3,4	8	7	5.5
1,4	5	2	2.6
1,5	1	0	0.4
2	41	21	22.8
2,3	21	17	14.0
2,3,4	6	2	2.9
2,4	7	3	3.7
2,5	2	1	1.1
3	34	33	24.6
3,4	8	5	4.8
3,5	1	0	0.4
4	7	4	4.0
5	3	1	1.5
Totals	166	106	100.0

previously, 55 percent (36 of 66) made only one canoeing trip on the river in 1971 (Table 8). Ten percent of the respondents in 1972 (18 of 166) were camping but not canoeing when interviewed. These individuals made an average of 2.5 non-canoeing visits per person (45 visits) in 1971.

Table 7. Numbers of non-canoeing visits to the river by canoeists in 1971 and 1972. Respondents in 1972 were asked to recall visits made in 1971 (n=166); respondents interviewed in 1973 were asked to recall visits made in 1972 (n=106)

Number of visits	1971		1972	
	Freq	No. visits/ yr	Freq	No. visits/ yr
0	109	0	84	0
1	15	15	2	2
2	4	8	3	6
3	6	18	1	3
4	2	8		
5	1	5		
6	2	12	2	12
10	2	20		
12	1	12	1	12
15	1	15		
17	1	17		
20	1	20		
24	1	24		
25	1	25		
30	1	30	1	30
34	1	34		
Totals	148	246	94	65

Previous canoeing activity of these respondents was not recorded.

In 1973, almost 88 percent (94 of 106) of the respondents were on a canoeing trip when interviewed. The 94 canoeists made an average of 0.7 non-canoeing visits to the river in 1972. Over 63 percent (60) of the canoeists interviewed were making their first canoeing trip. Sixty-two percent (21 of 34) of the experienced canoeists made an

Table 8. Numbers of Upper Iowa River canoeing trips made by canoeists in 1971 and 1972. The canoeists were on a canoeing trip when interviewed and asked to recall canoeing trips made in the previous year

No. canoeing trips	1971 Freq	1971 No. trips/ yr	1972 Freq	1972 No. trips/ yr
0	7	0	13	0
1	36	36	15	15
2	5	10	2	4
3	6	18	2	6
4	4	16		
5	2	10		
7	2	14		
12	1	12	1	12
15			1	15
20	2	40		
25	1	25		
Totals	66	181	34	52

Number of persons making their first canoeing trip in 1972 = 82; in 1973 = 60

average of 2.5 canoeing trips per person the previous year (Tables 7 and 8). Of the 36 percent who had canoed on the Upper Iowa previously, 44 percent (15 of 34) made only one trip in 1972 (Table 8). Twelve percent of the respondents (12 of 106) were camping but not canoeing when interviewed in 1973. They made an average of 2.2 non-canoeing visits per person (26 visits) in 1972.

Canoeing

During the spring, summer, and fall months, the Upper Iowa River is an important natural resource for many outdoor activities, especially canoeing, camping, and fishing. In terms of numbers of users, the river receives its greatest recreational use by canoeists. Over 82 percent of all recreational parties contacted were canoeing. There were 7,627 persons (including 267 observers in the parties that did not canoe in the 1,045 canoeing parties; an average of 7.4 persons per party (Tables 1 and 2). Though a distinction was made in Table 2 between the size of those parties canoeing only and those parties canoeing and camping, there was no significant difference in party size. When observers (persons in the party but not canoeing) are included, average party size of those parties canoeing and camping increased but not significantly. Canoeists spent an average of 1.7 days per visit in 1972 and 1.6 days in 1973.

Canoeing parties contacted during the 2-year study used 3,134 canoes or 3.0 canoes per party. The difference between the number of canoes per party for those parties canoeing only (2.7) and those parties camping and canoeing (3.2) was not significant ($P>0.05$). There was an average of 2.3 persons per canoe for all canoeing parties, 2.4 in 1972 and 2.3 in 1973.

Canoeing use patterns To relate user information to actual river usage, three terms should first be explained. Observed canoeing activity was recorded as canoe-days (one canoe on the river for one day), canoeist-days (one canoeist on the river for one day), and party-days (one canoeing party on the river for one day). A running accounting system was used to record canoeing activity in the five major river segments (see Methods section for description of segments and Fig. 1 for locations). If a canoeing trip started in a particular segment and more than one-half the trip occurred in that segment, then all activity was recorded as occurring in that segment. In cases where a trip included two or more segments in a single day, then the activity was recorded in the upstream segment having the longest portion of the trip. An example is given: A 2-day canoeing trip including 1 canoe and 2 canoeists which started at Kendallville and ended at Decorah with an overnight stop in Bluffton was recorded for Day 1 as 1 canoe-day, 2 canoeist days, and 1 party-day in Segment 2, for Day 2, 1 canoe-day, 2 canoeist-days, and 1 party-day. During the 2-day canoeing trip, the final totals were: 2 canoe-days, 4 canoeist-days, and 2 party-days.

The following totals reflect information gathered by personal interview schedules and road counts of observed recreational activity. In 1972, there were 2,028 canoe-days, 4,743 canoeist-days, and 691 party-days recorded during a

101-day period beginning May 27 and ending September 4 (Table 9). In 1973, 2,901 canoe-days, 6,529 canoeist-days, and 960 party-days were recorded during a comparable period beginning May 26 and ending September 3. In 1973 there was a 43 percent increase in canoe-days, 38 percent increase in canoeist-days, and a 39 percent increase in party-days. Daily use rates for the three canoeing activity categories in the five major river segments all showed increases in 1973 (Tables 10-12). If canoeist-day totals in Table 11 are considered for 1972 and 1973, there was a daily use rate of 47 canoeist-days in 1972 as compared with 65 canoeist-days per day in 1973; a 37 percent increase ($t=2.15$, 200 df, $P<0.05$).

In both 1972 and 1973, Segment 2 (Kendallville-Bluffton) ranked first in canoeing use followed by Segments 3, 5, 4, and 1 (the only exception was the reversal of canoeist-days in Segments 4 and 5 in 1973). One 30-mile stretch of the river study area (Segments 2 and 3, Kendallville-Decorah) received 82 percent of the canoeing use in 1972 and 84 percent in 1973. Although there were no major changes in use between segments over the two summers of investigation, Segment 2 had the most noticeable increase in canoeing (Table 9).

Although there were exceptions, a common pattern of use was for large numbers of canoeists to camp along the river on

Table 9. Canoeing activity recorded in five river segments on a 74-mile section of the river during the summer months of 1972-73[1]

Activity category	1972	%[2]	1973	%	2-Yr Total	2-Yr %	Change in %[3]
Canoe-days							
River segment							
1	74	3.6	142	4.9	216	4.4	+1.3
2	904	44.6	1395	48.1	2299	46.6	+3.5
3	761	37.5	1052	36.3	1813	36.8	-1.2
4	127	6.3	146	5.0	273	5.5	-1.3
5	162	8.0	166	5.7	328	6.7	-2.3
Totals	2028	100.0	2901	100.0	4929	100.0	+43.0
Canoeist-days							
River segment							
1	167	3.5	326	5.0	493	4.4	+1.5
2	2082	43.9	3169	48.5	5251	46.6	+4.6
3	1832	38.6	2354	36.0	4186	37.1	-2.6
4	302	6.4	322	4.9	624	5.5	-1.5
5	360	7.6	358	5.5	718	6.4	-2.1
Totals	4743	100.0	6529	99.9	11,272	100.0	+37.7
Party-days							
River segment							
1	38	5.5	42	4.4	80	4.8	-1.1
2	290	42.0	436	45.4	726	44.0	+3.4
3	268	38.8	369	38.4	637	38.6	-0.4
4	41	5.9	50	5.2	91	5.5	-0.7
5	54	7.8	63	6.6	117	7.1	-1.2
Totals	691	100.0	960	100.0	1651	100.0	+38.9

[1]See text for description and Fig. 1 for location of river segments.

[2]Percentage of yearly totals.

[3]Change in percentage of use from 1972 to 1973. Percentages for totals represent the change in numbers from 1972 to 1973.

Table 10. Weekday and weekend canoe-day totals and use rates recorded in five river segments on a 74-mile section of the river during the summer months of 1972-1973

Canoe-days	1972	Use rate[1]	1973	Use rate	2-Yr Totals	2-Yr Use rate
Weekdays						
River segment						
1	34	0.5	89	1.2	123	0.9
2	230	3.2	347	4.9	577	4.1
3	285	4.0	306	4.3	591	4.2
4	51	0.7	73	1.0	124	0.9
5	45	0.6	71	1.0	116	0.8
Totals	645	9.0	886	12.4	1531	10.9
Weekends						
River segment						
1	40	1.3	53	1.8	93	1.6
2	674	22.5	1048	34.9	1722	28.7
3	476	15.9	746	24.9	1222	20.4
4	76	2.5	73	2.4	149	2.5
5	117	3.9	95	3.2	212	3.5
Totals	1383	46.1	2015	67.2	3398	56.6
Total	2028	20.1	2901	28.7	4929	24.4

[1]A 71-day period was used for weekdays and a 30-day period for weekends in 1972 and 1973. Use rate is canoe-days per day.

Table 11. Weekday and weekend canoeist-day totals and use rates recorded in five river segments on a 74-mile section of the river during the summer months of 1972-1973

Canoeist-days	1972	Use rate[1]	1973	Use rate	2-Yr Totals	2-Yr Use rate
Weekdays						
River segment						
1	68	1.0	209	2.9	277	2.0
2	519	7.3	786	11.1	1305	9.2
3	676	9.5	708	10.0	1384	9.8
4	119	1.7	162	2.3	281	2.0
5	95	1.3	150	2.1	245	1.7
Totals	1477	20.8	2015	28.4	3492	24.7
Weekends						
1	99	3.3	117	3.9	216	3.6
2	1563	52.1	2383	79.4	3946	65.8
3	1156	38.5	1646	54.9	2802	46.7
4	183	6.1	160	5.3	343	5.7
5	265	8.8	208	6.9	473	7.9
Totals	3266	108.8	4514	150.4	7780	29.7
Total	4743	47.0	6529	64.6	11,272	55.8

[1]A 71-day period was used for weekdays and a 30-day period for weekends in 1972 and 1973. Use rate is canoeist-days per day.

Table 12. Weekday and weekend canoe party-day totals recorded in five river segments on a 74-mile section of the river during the summer months of 1972-1973

Canoe party-days	1972	Use rate[1]	1973	Use rate	2-Yr Totals	2-Yr Use rate
Weekdays						
River segment						
1	12	0.2	21	0.3	33	0.2
2	72	1.0	105	1.5	177	1.3
3	79	1.1	90	1.3	169	1.2
4	21	0.3	21	0.3	42	0.3
5	12	0.2	21	0.3	33	0.2
Totals	196	2.8	258	3.7	454	3.2
Weekends						
River segment						
1	26	0.9	21	0.7	47	0.8
2	218	7.3	331	11.0	549	9.2
3	189	6.3	279	9.3	468	7.8
4	20	0.7	29	10.0	49	0.8
5	42	1.4	42	1.4	84	1.4
Totals	495	16.6	702	23.4	1197	20.0
Total	691	6.8	960	19.5	1651	8.2

[1]A 71-day period was used for weekdays and a 30-day period for weekends in 1972 and 1973. Use rate is canoe party-days per day.

Friday evening, canoe Saturday, camp Saturday evening, and complete the weekend with a canoeing trip on Sunday. During both summers of study, one noticeable effect of this generalized use pattern was the big difference in use between weekends and weekday periods. In 1972 and 1973 over 68 percent of the recorded canoeing activity was on weekends (Tables 10-12). There was a wide and significant difference between daily use rates of weekends and weekdays in both 1972 and 1973 (t[canoeist-days 1972] = 13.2, 99 df, $P<0.05$; t[canoeist-days 1973] = 16.7, 99 df, $P<0.05$) (Tables 10-12 and Figs. 5-6). This pattern was consistent in 1972 and 1973 with annual increases in 1973 proportional in both weekend and weekday periods (χ^2 [canoe-days] = 0.89, 1 df, n.s.; χ^2 [canoeist-days] = 0.10, 1 df, n.s.; χ^2 [party-days] = 0.45, 1 df, n.s.).

Segments 2 and 3, which received the highest overall use by canoeists, also had the highest rate of use during the 71 week days (Monday-Friday) and the 30 weekend days (Saturday-Sunday). For example, 81 percent of the recorded weekday canoeist-days were in Segments 2 and 3 in 1972. The weekday daily use rate was almost 17 canoeist-days. In 1973, 74 percent of the river's weekday use was in Segments 2 and 3; there was a use rate of 21 canoeist-days. More canoeists used the river on weekdays in 1973 but their use of Segments 2 and 3 was not as concentrated as in 1972.

Fig. 5. Canoeist-days recorded on a 74-mile section of river beginning at Larkin Bridge (#04) and ending at State Highway 76 (Bridge 26) from May 27 to September 4, 1972

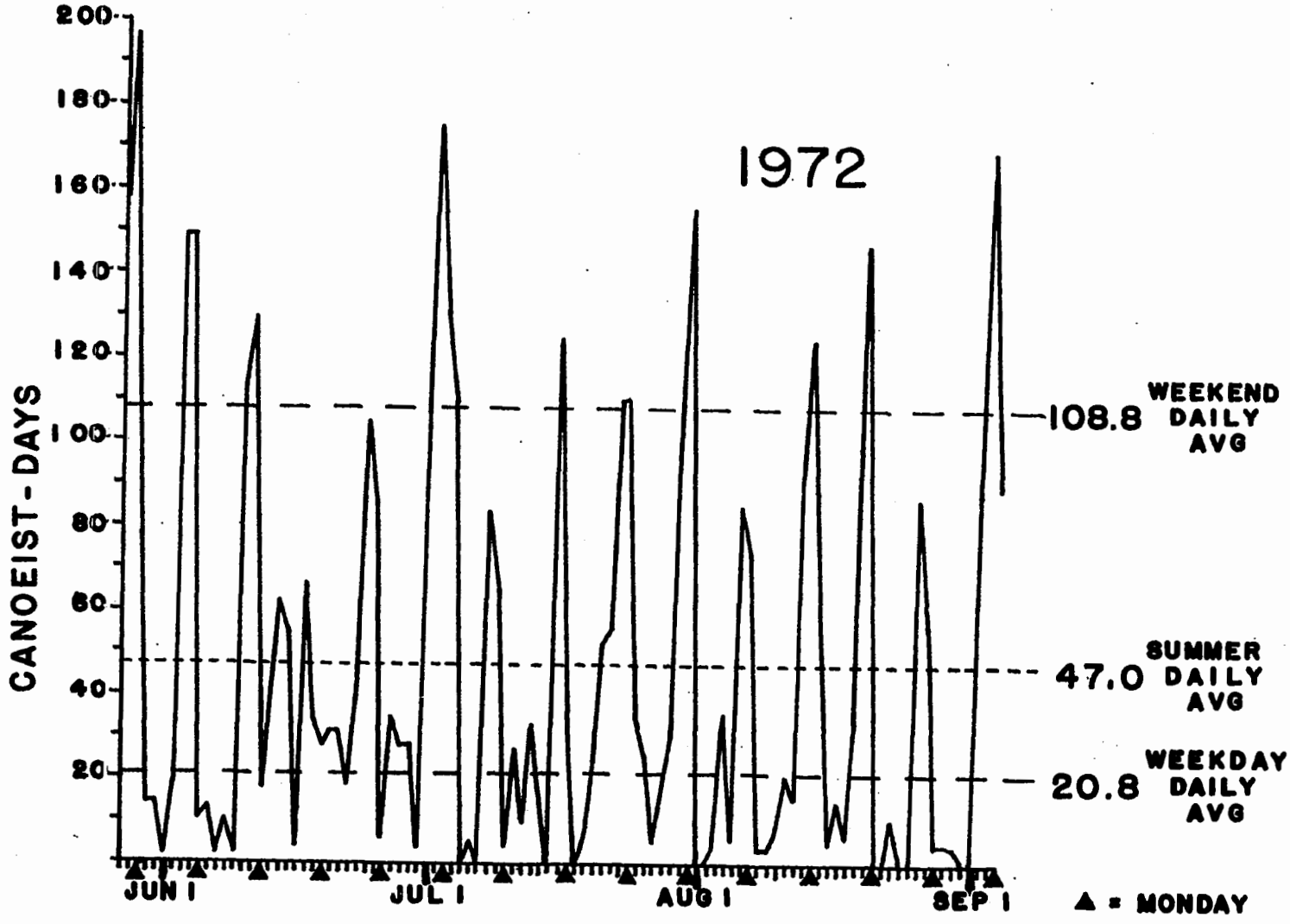
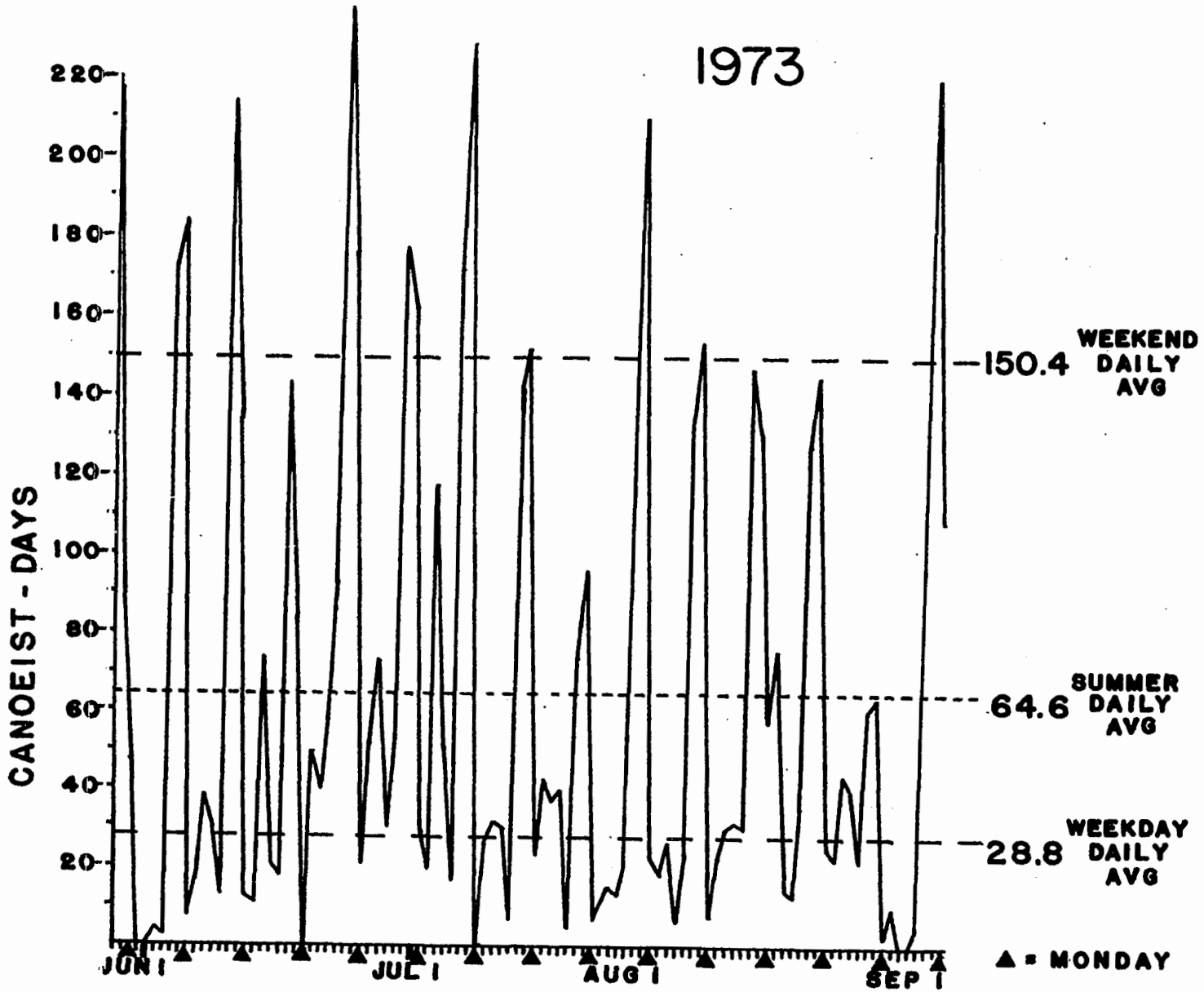

1972
CANOEIST-DAYS
200
180
160
140
120
100
80
60
40
20
108.8 WEEKEND DAILY AVG
47.0 SUMMER DAILY AVG
20.8 WEEKDAY DAILY AVG
JUN 1
JUL 1
AUG 1
SEP 1
▲ = MONDAY

Fig. 6. Canoeist-days recorded on a 74-mile section of river beginning at Larkin Bridge (#04) and ending at State Highway 76 (Bridge 26) from May 26 to September 3, 1973


1973
CANOEIST - DAYS
220
200
180
160
140
120
100
80
60
40
20
150.4 WEEKEND DAILY AVG
64.6 SUMMER DAILY AVG
28.8 WEEKDAY DAILY AVG
JUN 1
JUL 1
AUG 1
SEP 1
▲ = MONDAY

Ninety-one canoeist-days per weekend day (84 percent of the river use) occurred in Segments 2 and 3 in 1972 as compared to 134 canoeist-days (89 percent of the river use) in 1973. When compared with 1972 figures, weekend canoeing pressure in 1973 was heavier in terms of numbers, and was more concentrated in Segments 2 and 3. This is in contrast to weekday use of the river in 1973.

Weekend use by canoeists accounted for a major portion of summer canoeing activity (Figs. 5-6). The influx of recreationists on weekends was greatest during national holiday periods. In 1972 over 17 percent of the canoeist-days recorded during the 101-day period occurred during the 7 days associated with holidays (two 3-day weekends and July 4th) (Table 13). Over 14 percent of recorded canoeing activity occurred during a comparable period in 1973. Dissimilar weather conditions preclude comparison of use during holiday periods in the same year and between years. Generally, canoeing use on the river was greatest on the second day of the 3-day holiday weekend. The only exception was Memorial Day weekend in 1973 when cold, rainy weather on Saturday forced many people to leave the river.

Canoeing results reported so far have concerned summer canoeing activity. The river also receives considerable use by canoeists during spring and fall months. In 1972 canoeing

Table 13. Canoeing use of the river during holiday periods in 1972 and 1973

Holiday period	1972 Canoes	1972 Canoeists	1972 Parties	1973 Canoes	1973 Canoeists	1973 Parties
Memorial Day						
Sat., May 27/26	60	158	16	95	217	19
Sun., May 28/27	73	196	22	41	92	10
Mon., May 29/28	22	58	10	22	47	4
Totals	155	412	48	158	356	33
July 4th						
Tue., 1972 and Wed., 1973	51	110	10	52	118	22
Labor Day						
Sat., Sept. 2/1	41	77	35	55	119	21
Sun., Sept. 3/2	89	170	85	100	220	31
Mon., Sept. 4/3	24	34	11	49	109	13
Totals	154	281	31	204	448	65

parties were personally contacted on two fall weekends, September 23-24 and October 8-9 (Table 14). Canoeing totals on Saturday, September 23, although well below the 1972 summer weekend averages, were similar to the overall 1972 summer averages. Activity on the 24th was low because of cool, rainy weather. On both days, 83 percent of the canoeist's activity was in Segments 2 and 3. Why no activity was observed on October 8-9 is unclear. Weather conditions were clear and cool and water levels for canoeing were excellent. Although this fall sample is small, it seems that

fall weekend canoeing activity is light when compared to summer months.

Table 14. Weekend canoeing totals recorded in fall 1972 and spring 1973

Activity period	Canoes	Canoeists	Parties
Fall 1972			
Sat., Sept. 23	20	47	7
Sun., Sept. 24	24	54	7
Totals	44	101	14
Sat., Oct. 8	No recorded activity		
Sun., Oct. 9			
Spring 1973			
Sat., May 5	4	116	11
Sun., May 6	6	17	2
Totals	50	133	13
Sat., May 12	33	67	10
Sun., May 13	33	65	9
Totals	66	132	19

In Spring 1973 canoeing parties were personally contacted on two weekends: May 5-6 and May 12-13. As with 1972 fall activity, spring canoeing rates were similar to 1973 summer averages but less than weekend rates (Table 14). Rain was a major reason for the low totals on May 6. As in fall and summer months, Segments 2 and 3 were the most used

by canoeists in spring (94 percent of the use on May 5-6 and 12-13). Canoeing use of the river in spring is, on the average, greater than use in the fall, perhaps because of what canoeists expected to find for water levels in the river. Iowa's major canoeing streams are best for canoeing in the spring when the water levels are generally high due to spring precipitation. Many of the canoeists contacted along the river used stream conditions in their own community as a guide for conditions on the Upper Iowa. In the fall, water levels are not as predictable. Even though the Upper Iowa is spring fed, many of Iowa's other canoeing streams are not. Fall canoeing conditions on the Upper Iowa may be adequate for canoeing while conditions on streams 75 miles away may be poor due to low flows.

Aircraft counts of canoeing activity Heretofore, quantitative information concerning canoeing use on the river was based upon data collected by personal interview and road counts of recreational activity. It should be determined how well these totals reflect actual usage. To determine this, recreational activity was recorded by Dr. Arnold O. Haugen in an airplane in July of both years (Tables 15 and 16). I used normal field procedures to record canoeing activity while the flights were made. In 1972, the flight began at the Freeport bridge at 1100 AM and proceeded east along the river to State Highway 26 (Flight 1) near New Albin and then back to

Freeport arriving at 1200 PM (Flight 2) (Fig. 1). The flight then proceeded west along the river to a point several miles west of Florenceville, Iowa, in Howard County (Flight 1) and then back to Freeport arriving at 0105 PM (Flight 2). In 1973 the flight began at State Highway 26 and followed the river course west to a point several miles west of Florenceville (Flight 1) and then back along the river to Highway 26 (Flight 2). In both years during Flight 1, the pilot followed the river's course exactly; during Flight 2 the pilot flew along the river but did not follow all the sharp river bends. As a result, activity recorded in Flight 1 was considered to be the more reliable. Visibility during both years was excellent.

Canoes on the river were readily visible to the air observer. When canoeing totals observed from the air are compared with totals obtained by ground observer, there is close agreement between the two counts in both years (Tables 15 and 16). Ground counts accounted for 90 percent of the actual number of canoes seen from the air in 1972 and 89 percent in 1973. Because of camping and picnicking material placed in the canoes, it was not possible to get accurate counts of canoeists from the air. Figures in Tables 15 and 16 therefore reflect a rate of 2 canoeists per canoe for each canoe counted from the air. Ground counts accounted for 98 percent of the "adjusted" canoeist totals observed from the

Table 15. Airplane counts of canoeing activity on the river, July 4, 1972[1]

River segments	Canoes			Canoeists			Parties		
	Flight 1[2]	Flight 2	Ground counts[3]	Flight 1	Flight 2	Ground counts	Flight 1	Flight 2	Ground counts
Several miles west of Florenceville, Ia. to Florenceville, Ia.	0	0	no counts	0	0	no counts	0	1	no counts
1[4]	1	2	1	2	4	2	1	1	1
2	15	3	14	30	6	32	2	1	3
3	13	16	10	26	32	21	6	5	3
4	0	2	0	0	4	0	0	0	0
5	21	13	20	42	26	43	4	3	3
State Highway 76 to State Highway 26 (15.1 miles)	4	4	no counts	12	12	no counts	2	2	no counts
Totals	54	40	45	112	84	98	15	13	10

[1]Dr. Arnold Haugen was the aircraft observer.

[2]See text for flight time and direction.

[3]Normal field procedures were used to obtain ground counts.

[4]See text for description and Fig. 1 for location of segments.

Table 16. Airplane counts of canoeing activity on the river, July 1, 1973[1]

River segments	Canoes			Canoeists			Parties		
	Flight 1[2]	Flight 2	Ground counts[3]	Flight 1	Flight 2	Ground counts	Flight 1	Flight 2	Ground counts
Several miles west of Florenceville, Ia. to Florenceville, Ia.	1	1	no counts	2	2	no counts	1	1	no counts
1[4]	2	1	0	4	2	0	2	1	0
2	38	37	25	76	74	52	8	13	7
3	23	28	27	46	56	63	8	10	11
4	1	13	5	2	26	11	1	4	1
5	8	3	7	16	6	19	3	3	3
State Highway 76 to State Highway 26 (15.1 miles)	0	0	no counts	0	0	no counts	0	0	no counts
Totals	73	83	64	146	166	145	23	32	22

[1]Dr. Arnold Haugen was the aircraft observer.

[2]See text for flight time and direction.

[3]Normal field procedures were used to obtain ground counts.

[4]See text for description and Fig. 1 for location of segments.

air in 1972 and 101 percent in 1973. Of the three canoeing categories, party counts were the most variable with the ground counts accounting for 77 percent of parties observed from the air in 1972 and 100 percent in 1973. It was difficult to differentiate one party from another from the air because canoes were strung out for some distance along the river. In the case of parties, ground counts were probably more accurate than those from the air.

Access areas used for launching and taking out canoes

The 30-mile section of river from Kendallville to Decorah is the most popular canoeing section in spring, summer, and fall months. Use of access areas by canoeists to launch and take out canoes follows this pattern of use (Appendix VI and Table 17). In 1972 and 1973 Kendallville County Park (owned by the Winneshiek County Conservation Board) was the most-used access area for launching canoes (183 of 692 parties, 26 percent in 1972; 303 of 894 parties, 34 percent in 1973). In 1972 the privately-owned pasture near the grocery store in Bluffton received the next heaviest use (111 parties, 16 percent) followed by the public fishing access (owned by the ICC) 1 mile downstream from Bluffton (76 parties, 11 percent). In 1973 this pattern was reversed with the Bluffton public access used by 20 percent of the parties (182) followed by the pasture access with 10 percent (87). If launch locations are classed by ownership (Table 18), we

find that in both 1972 and 1973 the county-owned park and bridge right-of-ways ranked first with 56 percent of the use. In 1972 privately-owned land ranked second followed by state and municipal land. The pattern of use changed in 1973 with state-owned access areas ranking second followed by private and municipal land. There was over a 9 percent drop in use on private land while use on state land increased 6 percent and county land increased almost 5 percent (Table 18). One reason for the change in private land use may have been the state-wide newspaper and TV publicity concerning adverse farmer-recreationist relations along some parts of the river.

The pattern of use of take-out areas was somewhat different than that of launch areas (Table 19). For example, in both years a major portion of the canoeing trips originating in Segment 2 ended somewhere in Segment 3 (Tables 17 and 19). In 1972 the private pasture in Bluffton had 20 percent of the use (141 of 692 parties) while the public access 1 mile downstream had 16 percent of the use (108 parties). Will Baker City Park in Decorah had 20 percent in 1972 (139 parties) and 19 percent in 1973 (174 parties). In 1973 the public access downstream from Bluffton received 24 percent of use while the private pasture received 14 percent (123 parties). By classing take-out areas by land ownership (Table 20), private land in 1972 ranked first due largely to use of the private pasture at Bluffton. State land ranked

Table 17. Access areas used by canoeists to launch canoes on the river in 1972 and 1973 as classed by major river segment[1]

River segment	1972 Freq	1972 %	1973 Freq	1973 %	Change in %	2-Yr %
Chester, Ia. to Florenceville, Ia.	9	1.3	14	1.5	-0.2	1.5
Florenceville to above Kendallville Park (Segment 1)	27	3.9	41	4.6	-0.7	4.3
Kendallville to above Bluffton (Segment 2)	314	45.4	421	47.1	+1.7	46.3
Bluffton to above Will Baker Park, Decorah (Segment 3)	243	35.1	337	37.7	+2.6	36.6
Will Baker Park to Lower Dam (Segment 4)	51	7.4	42	4.7	-2.7	5.9
Lower Dam to above Lonning's Landing (Segment 5)	39	5.6	33	3.7	-1.9	4.5
Lonning's Landing to the Mississippi River	2	0.3	0	0	-0.3	0.1
Unknown	7	1.0	6	0.7	-0.3	0.8
Totals	692	100.0	894	100.0		100.0

[1]See Fig. 1 for segment locations.

Table 18. Ownership of areas used by canoeists to launch canoes on the river in 1972 and 1973

Ownership category[1]	1972 Freq	1972 %	1973 Freq	1973 %	Change in %	2-Yr %
State	118	17.1	208	23.3	+6.2	20.5
County	374	54.0	523	58.5	+4.5	56.6
Municipal	27	3.9	25	2.8	-1.1	3.3
Private	166	24.0	132	14.7	-9.3	18.8
Unknown	7	1.0	6	0.7	-0.3	0.8
Totals	692	100.0	894	100.0		100.0

[1]To determine ownership of a particular access see Appendix VI.

first in 1973 due to increased use of the public access downstream from Bluffton. It is felt that the adverse state-wide publicity mentioned earlier was a major factor causing the 8 percent increase in use of state areas and 8 percent decrease for private areas.

Canoeing trip lengths The canoeist-day statistic tells very little about river use by the canoeists. Because of this, information on lengths of canoeing trips is presented (Table 21 and 22). Average trip length for 1,045 canoeing trips was 13 miles. Regardless of length of stay, canoeists averaged about 12 to 13 miles a day with the majority of trips being longer than 12 miles (Table 22).

Table 19. Access areas used by canoeists to take out canoes from the river in 1972 and 1973 as classed by major river segments[1]

River segment	1972 Freq	1972 %	1973 Freq	1973 %	Change in %	2-Yr %
Chester, Ia. to Florenceville, Ia.	3	0.4	1	0.1	-0.3	0.3
Florenceville to above Kendallville Park (Segment 1)	8	1.2	11	1.2	0	1.2
Kendallville to above Bluffton (Segment 2)	54	7.8	77	8.6	+0.8	8.3
Bluffton to above Will Baker Park, Decorah (Segment 3)	353	51.0	512	57.3	+6.3	54.5
Will Baker Park to Lower Dam (Segment 4)	193	27.9	232	26.0	-1.9	26.8
Lower Dam to above Lonning's Landing (Segment 5)	64	9.2	50	5.6	-3.6	7.2
Lonning's Landing to the Mississippi River	10	1.4	5	0.5	-0.9	0.9
Unknown	7	1.1	6	0.7	-0.3	0.8
Totals	692	100.0	894	100.0		100.0

[1]See Fig. 1 for segment locations.

Table 20. Ownership of areas used by canoeists to take out canoes from the river in 1972 and 1973

Ownership category[1]	1972 Freq	1972 %	1973 Freq	1973 %	Change in %	2-Yr %
State	151	21.8	263	29.4	+7.6	26.1
County	127	18.4	188	21.0	+2.6	19.9
Municipal	170	24.6	200	22.4	-2.2	23.3
Private	237	34.2	237	26.5	-7.7	29.9
Unknown	7	1.0	6	0.7	-0.3	0.8
Totals	692	100.0	894	100.0		100.0

[1]To determine ownership of a particular access see Appendix VI.

Using information in Table 21 and an average party size of 7 canoeists per party (Table 2), it was calculated that canoeists paddled a minimum of 132,164 miles in 1972 and 1973. Under normal water conditions, canoeists travel about 3 miles per hour depending upon experience levels and stops along the way. A 13-mile canoeing trip then takes 4 to 5 hours to complete. In 1972 and 1973, canoeists spent over 44,054 hours canoeing on the Upper Iowa.

Canoeing trip length is, in some respects, related to access areas readily available for launching and taking out canoes. For example, the stretch of river from Kendallville to the Bluffton public access (15.5 river miles) has only

Table 21. Average daily lengths of canoeing trips taken in 1972 and 1973

Trip length (days)	Sample size	Daily avg (miles) Day 1	Day 2	Day 3	Day 4	Day 5	Trip avg
1	657	11.9					11.9
2	302	12.1	12.6				12.3
3	51	11.2	12.6	10.2			11.3
4	14	11.8	10.8	13.7	14.8		12.7
5	13	10.8	13.6	16.6	11.7	11.5	12.8
6	4[1]						9.9
7	2						11.8
8	2						10.1
Totals	1045	Avg for all trips = 13.2					

[1]Averages for each day of trips 6-8 days in length were not calculated because of small sample size.

eight areas that people have used to launch or take out canoes. Two of these areas, Kendallville Park and the Bluffton access, are available for public use. Five of the access areas are county right-of-ways at bridges while owner's permission is required for use of the pasture in Bluffton. From below the Bluffton public access to Will Baker Park in Decorah (14.5 miles) there are eight access areas: 1 state-owned, 1 city-owned, and 6 bridge right-of-ways. Although canoeists used county bridge right-of-ways (Appendix VI), legality of this use is unclear at present. Some of the adverse relations between canoeists and landowners developed over use of several of these bridge

Table 22. Daily lengths of canoeing trips taken in 1972 and 1973 as classed in five mileage categories

Mileage categories	1-Day		2-Day		3-Day		4-Day		5-Day		All trips	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
0.1 - 3.0	27	4.1	33	5.5	14	9.1	8	14.3	3	4.6	85	5.5
3.1 - 6.0	91	13.9	49	8.1	16	10.5	4	7.1	2	3.1	162	10.6
6.1 - 9.0	88	13.4	74	12.3	24	15.7	2	3.6	11	16.9	199	13.0
9.1 -12.0	60	9.1	49	8.0	34	22.2	7	12.5	11	16.9	161	10.5
12.1 and longer	391	59.5	399	66.1	65	42.5	35	62.5	38	58.5	928	60.4
Totals	657	100.0	604	100.0	153	100.0	56	100.0	65	100.0	1535	100.0

right-of-ways. Many of the canoeists contacted, especially in 1973, planned their canoeing trips to start and finish on public access areas in order to avoid possible conflict with private landowners. As a result, many of the parties may have taken a longer or shorter trip.

Experience levels Most canoeists were experienced, with almost 84 percent of the canoeists having canoed at least once prior to the interview (Table 23). In both years, about 45 percent of the experienced canoeists had 2 to 5 years of experience with 78 percent having 2 or more years of experience. When asked how many times they had gone canoeing the previous year, many had only canoed one or two times (48 percent in 1972, 67 percent in 1973) (Table 24).

Most of the canoeists with experience had canoed on either rivers (26 percent, 2-year average) or rivers and lakes or reservoirs (63 percent, 2-year average) (Table 25). Forty percent of the canoeists had canoed in a "remote wilderness area." Such remote wilderness areas listed by canoeists included rivers and lakes from Canada to Iowa.

Camping

Camping was found to be another important use of the Upper Iowa River valley, second only to canoeing in terms of use. Though the investigation was concerned primarily with water-based recreation, camping was an integral part of the

Table 23. Years of canoeing experience as reported by persons having canoed at least once prior to being interviewed[1]

	Persons				
	1972		1973		2-Yr
Years	Freq	%	Freq	%	%
1 or less	31	25.0	14	17.1	21.8
2- 5	53	42.7	41	50.0	45.6
6-10	21	16.9	15	18.3	17.5
11 or more	19	15.4	12	14.6	15.1
Totals	124	100.0	82	100.0	100.0

[1]Only persons canoeing at the time of interview were asked to list years of experience. In 1972, n=148; in 1973, n=94.

Table 24. Number of times that experienced canoeists reported canoeing in the previous year[1]

	Persons				
	1972		1973		2-Yr
Years	Freq	%	Freq	%	%
1- 2 times	60	48.4	55	67.1	55.8
3- 5	34	27.4	10	12.2	21.4
6-10	10	8.1	6	7.3	7.8
10 or more	20	16.1	11	13.4	15.0
Totals	124	100.0	82	100.0	100.0

[1]An experienced canoeist is one that had canoed previous to being interviewed.

Table 25. Bodies of water on which experienced canoeists reported canoeing

Bodies of water	1972 Freq	1972 %	1973 Freq	1973 %	2-Yr %
Rivers	33	24.0	21	25.6	26.5
Rivers and lakes or reservoirs	76	62.3	53	64.6	63.2
Rivers and farm ponds	1	0.8			0.5
Rivers, lakes or reservoirs, and farm ponds	12	9.8	8	9.8	9.8
Totals	122[1]	100.0	82	100.0	100.0

[1]Two interview schedules were incomplete in 1972.

Upper Iowa outdoor recreation scene. The results presented in this section include responses from only those persons contacted along the river and do not include all the persons who camped in the Decorah City Campground. Totals of camping activity in the Decorah City Campground in 1971-73 are presented in Appendix VII. Over 43 percent of the recreation parties (632 of 1,427 parties) contacted in 1972-73 were camping. Party totals include results from 1972 and 1973 fishing surveys: 33 (163 fishermen) of 352 fishing parties camped. There were 4,690 campers in the camping parties or 7 persons per party. Canoeing and camping were closely related, since many of the parties that canoed on the Upper

Iowa camped during their visit (52 percent in 1972, 54 percent in 1973). Canoeing was also an important activity of those parties camping, since over 88 percent of the camping parties were canoeing (559 of 632).

Camping use patterns A running accounting system was used to record observed camping activity along the river. Camping activity was recorded as camping nights (one person camping along the river for one night) and camping party nights (one party camping along the river for one night). For the canoeing example given earlier (p. 44), the stopover at Bluffton would be recorded as 2 camping nights and 1 camping party night on Day 1.

The following totals reflect information gathered by personal interview schedules and road counts of observed camping activity. In 1972, there were 4,032 camping nights and 501 party nights recorded during a 102-day period beginning May 26 and ending September 4. In 1973, 4,791 camping nights and 657 party nights were recorded in a comparable period beginning May 25 and ending September 3 (Table 26). In 1973, there was a 19 percent increase in the number of camping nights and a 31 percent increase in party nights. The daily camping use rate (39.5 camping nights in 1973, 47.0 in 1972) increased by 19 percent in 1973 ($t=1.35$, 202 df, $P<0.10$) (Table 27).

Table 26. Camping activity by land ownership along a 74-mile section of the river during summer months in 1972 and 1973

Activity category	1972	%	1973	%	2-Yr %	Change in % use	Annual change in %
Camping nights							
Land ownership							
Private	2040	50.6	1675	34.9	42.1	-15.7	-17.9
City	734	18.2	991	20.7	19.6	+2.5	+35.0
County	843	20.9	1322	27.6	24.5	+6.7	+56.8
State	415	10.3	803	16.8	13.8	+6.5	+93.5
Totals	4032	100.0	4791	100.0	100.0		+18.8
Party nights							
Land ownership							
Private	242	48.3	224	34.1	40.2	-14.2	-7.4
City	81	16.2	114	17.3	16.8	+1.1	+40.7
County	120	23.9	191	29.1	26.8	+5.2	+59.2
State	58	11.6	128	19.5	16.2	+7.9	+120.7
Totals	501	100.0	657	100.0	100.0		+31.1

The weekday-weekend use pattern discussed earlier in conjunction with canoeing activity was also evident in camping activity along the river (Table 27 and Figs. 7-8). Unlike weekend canoeing activity, where Saturday and Sunday were high-use days, Friday and Saturday nights were the high-use camping periods. Because of this a "camping weekend" was considered as Friday and Saturday nights and a "camping weekday period" as Sunday to Thursday nights. In 1972 over 60 percent of the camping activity was on weekends.

Table 27. Weekday and weekend camping totals and use rates as recorded on a 74-mile section of the river in 1972 and 1973

Activity category	1972	Use rate[1]	1973	Use rate	2-Yr Totals	2-Yr Use rate
Camping nights						
Weekdays	1849	25.7	1626	22.6	3475	24.1
Weekends	2183	72.8	3165	105.5	5348	89.1
Totals	4032	36.3	4791	47.0	8823	43.3
Party nights						
Weekdays	222	3.1	189	2.6	411	2.9
Weekends	279	9.3	468	15.6	747	12.4
Totals	501	4.9	657	6.4	1158	5.7

[1]A 72-day period was used for weekdays and a 30-day period for weekends. Use rate is camping-nights per weekday or weekend day.

There was a difference between daily use rates of weekends and weekdays in both 1972 and 1973 (54 percent weekend use in 1972, $t=5.56$, 100 df, $P<0.05$; 66 percent weekend use in 1973, $t=11.44$, 100 df, $P<0.05$). This pattern of high weekend use was consistent in 1972 and 1973 . However, increases in camping activity in 1973 were not proportional (χ^2 [camping nights] $=132.28$, 1 df, $P<0.05$), that is, there was a 12 percent decrease in the weekday daily use rate and a 45 percent increase in weekend daily use rate. More of the canoeists camped on weekends in 1973 causing the large increase in weekend daily use.

Fig. 7. Camping nights recorded on a 74-mile section of river beginning at Larkin Bridge (#04) and ending at State Highway 76 from May 26 to September 4, 1972

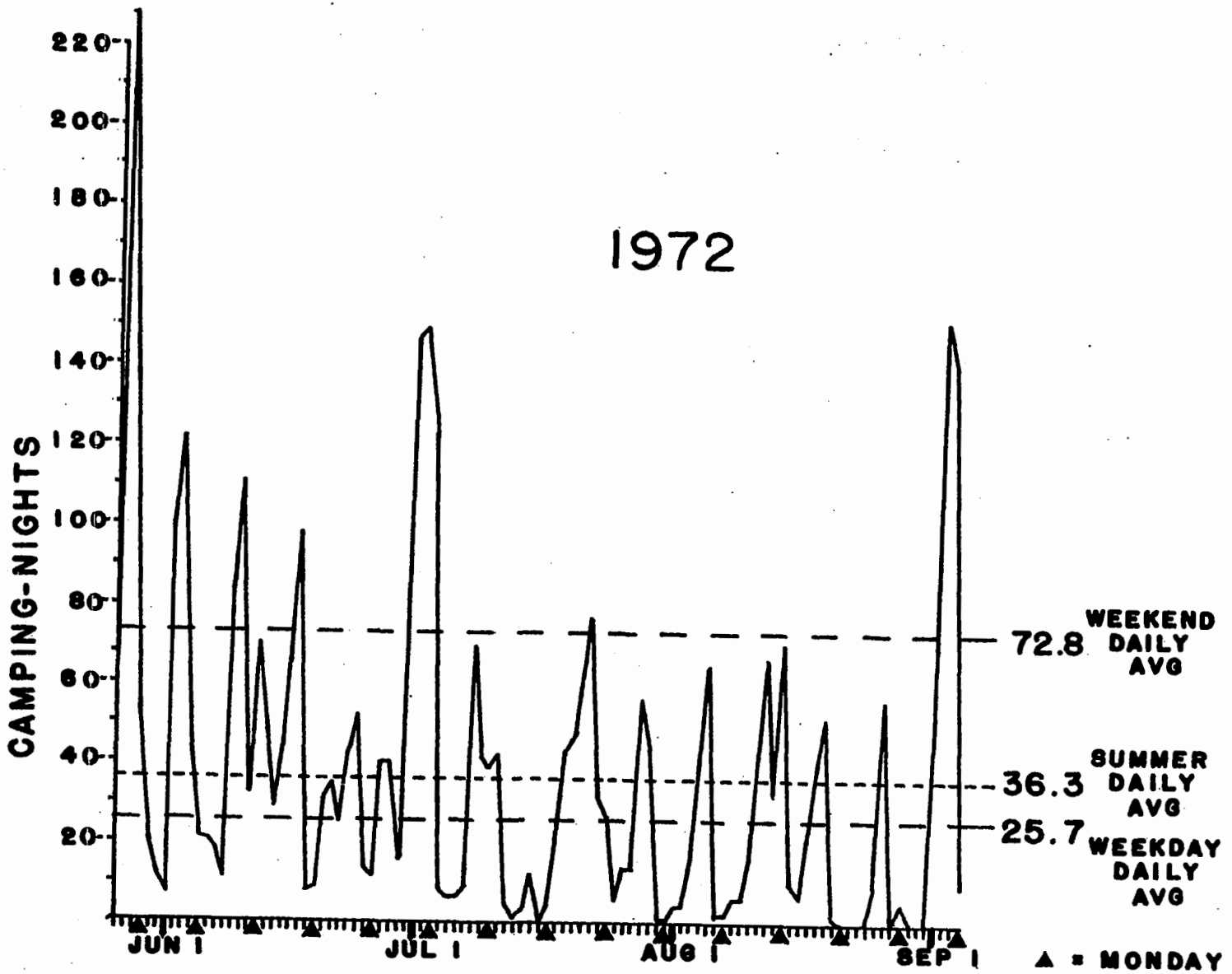
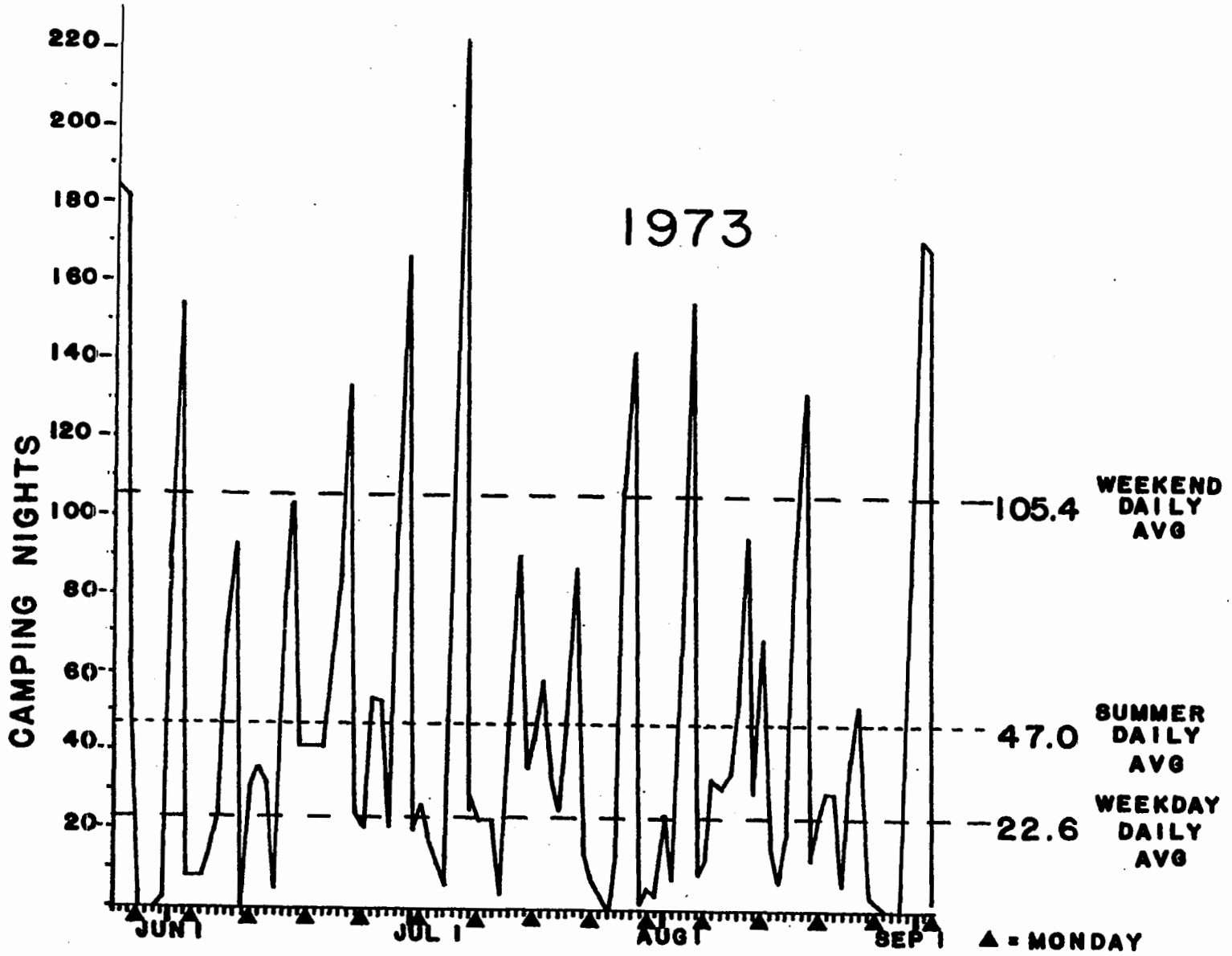

1972
CAMPING-NIGHTS
220
200
180
160
140
120
100
80
60
40
20
72.8
WEEKEND DAILY AVG
36.3
SUMMER DAILY AVG
25.7
WEEKDAY DAILY AVG
JUN 1
JUL 1
AUG 1
SEP 1
▲ = MONDAY

Fig. 8. Camping nights recorded on a 74-mile section of river beginning at Larkin Bridge (#04) and ending at State Highway 76 (Bridge 26) from May 25 to September 3, 1973


1973
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WEEKDAY DAILY AVG
JUN 1
JUL 1
AUG 1
SEP 1
▲ = MONDAY

The high weekend camping use was even more noticeable during the periods including national holidays (Table 28 and Figs. 7 and 8). Over 22 percent of the camping nights recorded during the 102-day period in 1972 occurred during the 7 days associated with holidays (two 3-day weekends and July 3), 18 percent in 1973. In 1972 daily camping totals were higher than the summer's weekday and weekend daily averages for 5 of the 7 days associated with holidays and 6 of the 7 days in 1973 (Tables 27 and 28). As noted in the discussion of holiday canoeing activity, weather conditions do not allow comparison of camping activity during the holiday periods in the same year and between years. With few exceptions, holiday camping activity along the river was greatest on the first night (Saturday) of Memorial and Labor Day weekends. On Saturday, May 25, the first day of the 3-day Memorial Day weekend in 1973, rainy weather caused many people to leave who were otherwise planning to camp. Even though weather conditions were good on July 4th in both years, there was a wide difference in camping activity on the evenings before the holiday. One major reason for the difference was the day of the week on which the 4th came. Because the 4th was on a Tuesday in 1972, many people took Monday off to give them a 4-day weekend. July 4th came on a Wednesday in 1973 and evidently the persons did not or were not able to get the Monday-Tuesday or Thursday-Friday periods

off from work.

Table 28. Holiday camping activity along the river in 1972 and 1973

Holiday period	1972 Camping nights	1972 Camping parties	1973 Camping nights	1973 Camping parties
Memorial Day				
Fri., May 26/25	68	6	184	16
Sat., May 27/26	228	24	182	18
Sun., May 28/27	138	17	63	10
Totals	434	47	429	44
July 4th				
Mon., 1972 and Tue., 1973	123	15	12	1
Labor Day				
Fri., Sept. 1/Aug. 31	54	10	83	9
Sat., Sept. 2/Sept. 1	151	5	171	23
Sun., Sept. 3/2	141	17	169	21
Totals	346	32	423	53

Fall and spring weekend camping activity was recorded on the same weekends on which fall and spring canoeing activity was monitored (Table 29). In all instances, daily camping activity in fall 1972 and spring 1973 was below the overall summer daily-use averages (Table 27). All camping parties contacted were also canoeing and, as a result, areas where people camped during fall and spring weekends corresponded

closely to areas of canoeing activity. Campgrounds in Segments 2 and 3, such as Kendallville County Park, Bluffton public access and private pasture, and Decorah City Campground, received almost all the use by campers.

Table 29. Weekend camping totals recorded in fall 1972 and spring 1973

Activity period	Camping nights	Camping parties
Fall 1972		
Fri., Sept. 22	48	6
Sat., Sept. 23	11	2
Totals	59	8
Fri., Oct. 7	No activity recorded	
Sat., Oct. 8		
Spring 1973		
Fri., May 4	15	2
Sat., May 5	37	4
Totals	52	6
Fri., May 11	36	5
Sat., May 12	40	6
Totals	76	11

Land ownership of camping areas Before information on where people camped is presented, it might be helpful to briefly look at present land ownership patterns along the river. The distance from Florenceville, Iowa, to State

Highway 76 is about 80 river miles, or 160 miles of river bank. If the 160 miles of river bank is classed by land ownership, we find: 134 miles (84 percent) private, 16 miles (10 percent) state, 8 miles (5 percent) municipal, and 2 miles (1 percent) county. Twelve of the state's 16 miles are located between Decorah and the Lower Dam.

A major portion of the recorded camping activity was in the Kendallville to Decorah stretch of the river (Table 30). This was due to (1) the strong relationship between the large number of canoeing parties that camp and (2) the availability of public campgrounds close to the river in these two segments. In 1972 and 1973, the private pasture at Bluffton and the county park at Kendallville ranked first and second in use by campers (Appendix VIII). Percentage of use of private land by campers ranked first in 1972 and 1973 (51 percent in 1972, 42 percent in 1973) (Table 26). In terms of total numbers, however, there was an 18 percent decrease in camping on private land in 1973. County-owned land ranked second in percentage of use for both years (21 percent in 1972, 24 percent in 1973) with a 57 percent increase in total use in 1973. This increase is meaningful because Kendallville Park is the only county-owned, riverside park in the study area. Although use of state land ranked fourth in both 1972 and 1973, there was a 94 percent increase in total usage in 1973. The changes in percentages of use within

years and the great increases in use of county and state land in 1973 reflect the user's desire to camp so as to avoid conflict with private landowners.

Methods of camping Over 74 percent of the campers used tents or slept outside with no shelter (Table 31). In both 1972 and 1973, almost half of the campers interviewed used wall or pole tents.

Table 30. Camping use along the river classed by major river segment[1]

River segment	1972 Camping nights	1972 %	1972 Camping parties	1973 Camping nights	1973 %	1973 Camping parties	2-Yr %[2]
1	35	0.9	8	110	2.3	14	1.7
2	968	24.6	133	1283	26.8	164	25.8
3	1841	46.8	226	1929	40.3	241	43.2
4	827	21.0	97	1293	27.0	149	24.3
5	260	6.7	34	173	3.6	30	5.0
Totals	3931	100.0	498	4788	100.0	598	100.0

[1]See text for description of segments and Fig. 1 for locations.

[2]Percentages are those for camping nights.

Table 31. Types of camping equipment used by campers during their visit to the river

Equipment	1972 Freq	1972 %	1973 Freq	1973 %	2-Yr %
With no shelter	12	7.9	8	7.8	7.8
Pup tent or lean-to	28	18.3	23	22.3	19.9
Wall or pole tent	68	44.4	51	49.5	46.5
Vehicle-pulled trailer	26	17.0	10	9.7	14.1
Pickup camper or motorhome	19	12.4	11	10.7	11.7
Totals	153	100.0	103	100.0	100.0

Fishing

Fishing, the second most popular water-based recreation activity, followed canoeing and camping in terms of use. During late May through early September in 1972 and 1973, persons observed fishing on the river from the Minnesota border to State Highway 76, a distance of 74 miles by river, were interviewed. In 1972 and 1973, 342 interviews were completed (186 in 1972, 166 in 1973). There were 900 persons in the 352 parties or 2.5 persons per party; a party size considerably smaller than for those parties canoeing.

A major portion (94 percent) of the fishermen lived in Iowa (Table 32) in four counties - Allamakee, Winneshiek, Howard, and Fayette (Table 33). The river runs through Howard, Winneshiek, and Allamakee counties before emptying into the Mississippi River. Fayette County is situated along the southern border of Winneshiek County (Fig. 1). Home towns of Iowa fishermen as well as the number of groups and people from each town are listed in Appendix IX. The average straight-line distance traveled by the fishermen from home to areas on the river where they were contacted was 44 miles in 1972 and 43 miles in 1973 (Table 34). Average distance traveled per fishing party was 41 miles in 1972 and 49 miles in 1973. Over 67 percent of the fishermen contacted lived within 20 miles of the point of contact in 1972 and 55 percent in 1973.

Table 32. State of residence for fishermen contacted along the river during June-August 1972 and May-September 1973

State	Number of groups				Number of fishermen			
	1972	1973	Total	%	1972	1973	Total	%
California	3	0	3	0.7	5	0	5	0.5
Illinois	2	2	4	1.0	4	12	16	1.8
Iowa	191	179	370	93.4	416	428	844	93.8
Kansas	0	1	1	0.3	0	5	5	0.6
Minnesota	8	6	14	3.5	13	12	25	2.8
Missouri	0	1	1	0.3	0	2	2	0.2
Wisconsin	2	0	2	0.5	2	0	2	0.2
Virginia	0	1	1	0.3	0	1	1	0.1
Totals	206[1]	190	396	100.0	440	460	900	100.0

[1]Although there were 186 completed interview schedules in 1972 and 166 in 1973, not all the fishermen in the party were from the same location.

The Upper Iowa River is well known as being one of the state's best smallmouth bass streams. Although smallmouth bass are caught along the entire length of the river, the upper reaches of the river from Limesprings to Malanaphy Springs are considered to be the best areas (Fig. 1). In 1972 the ICC initiated an annual trout stocking program on the river from the Foreston Bridge to Malanaphy Springs. The Lower Dam acts as a barrier for fish coming upstream from the Mississippi. Almost all species found in the Mississippi are

Table 33. County of residence for Iowa fishermen contacted along the river in 1972 and 1973

County number	County	Number of groups 1972	1973	Total	%	Number of people 1972	1973	Total	%
1	Adair	0	2	2	0.5	0	3	3	tr[1]
3	Allamakee	21	2	23	6.2	51	5	56	6.6
7	Black Hawk	4	9	13	3.5	8	21	29	3.4
9	Bremer	1	4	5	1.4	1	14	15	1.8
10	Buchanan	0	2	2	0.5	0	12	12	1.4
12	Butler	1	0	1	tr	4	0	4	0.5
17	Cerro Gordo	7	2	9	2.4	9	3	12	1.4
19	Chickasaw	1	2	3	0.8	1	2	3	tr
21	Clay	0	1	1	tr	0	2	2	tr
22	Clayton	1	2	3	0.8	2	8	10	1.2
23	Clinton	1	1	2	0.5	4	2	6	0.7
31	Dubuque	2	4	6	1.6	7	9	16	1.9
33	Fayette	12	13	25	6.8	25	25	50	5.9
34	Floyd	1	3	4	1.1	1	9	10	1.2
38	Grundy	1	1	2	0.5	2	2	4	0.5
42	Hardin	1	3	4	1.1	3	7	10	1.2
45	Howard	7	21	28	7.6	22	50	72	8.5
52	Johnson	0	3	3	0.8	0	11	11	1.3
56	Lee	1	0	1	tr	1	0	1	tr
57	Linn	3	6	9	2.4	5	14	19	2.3
64	Marshall	0	1	1	tr	0	2	2	tr
69	Montgomery	7	0	7	1.9	16	0	16	1.9
70	Muscatine	1	0	1	tr	4	0	4	0.5
77	Polk	4	3	7	1.9	13	4	17	2.0
79	Poweshiek	1	1	2	0.5	1	2	3	tr
85	Story	1	1	2	0.5	1	1	2	tr
90	Wappello	0	1	1	tr	0	3	3	tr
91	Warren	1	0	1	tr	1	0	1	tr
95	Winnebago	0	1	1	tr	0	1	1	tr
96	Winneshiek	111	89	200	5.4	234	214	448	53.1
	Unknown	0	1	1	tr	0	2	2	tr
	Totals	191	179	370	100.0	416	428	844	100.0

[1]Tr = trace = < 0.5 percent.

Table 34. Miles traveled by fishermen from their residence to river contact point[1]

Mileage categories	Number of groups 1972 Freq	1972 %	1973 Freq	1973 %	2-Yr %	Cumulative %
1- 10	65	34.9	50	30.1	32.7	100.0
11- 20	62	33.3	42	25.3	29.5	67.3
21- 30	17	9.1	22	13.3	11.1	37.8
31- 50	8	4.3	7	4.2	4.3	26.7
51- 75	10	5.4	18	10.8	7.9	22.4
76-100	6	3.2	12	7.2	5.1	14.5
101-150	7	3.8	11	6.6	5.1	9.4
151-200	6	3.2	1	0.6	2.0	4.3
201 or more	5	2.8	3	1.9	2.3	2.3
Totals	186	100.0	166	100.0	100.0	

[1]Distance was calculated as straight-line distance between home and river contact point.

found in the stretch of river from the Lower Dam to the Mississippi. The Upper Dam, about 5 miles upstream from the Lower Dam, is an additional barrier that fish encounter in their movement upstream. There are no fish ladders at either dam.

Fishing use patterns Much of the fishing activity (95 percent in 1972, 83 percent in 1973), primarily from the bank, occurred from the Bluffton area to State Highway 76, a distance of 52 river miles. In 1972, 49 percent of the recorded fishing activity occurred from the Lower Dam to State Highway 76 (20.5 river miles); 47 percent occurred

there in 1973 (Table 35). Public accesses were important areas of fishing activity with Kendallville County Park, Bluffton state access, and Lower and Upper Dam state accesses the most heavily used by fishermen (Appendix X).

Table 35. Locations along the river where fishermen were contacted during June-August 1972 and May-September 1973

River segment[1]	1972 Freq	1972 %	1973 Freq	1973 %	2-Yr %
1	2	1.6	2	1.2	1.4
2	5	2.7	25	15.1	8.5
3	38	20.4	31	18.7	19.6
4	48	25.8	29	17.5	21.9
5	92	49.5	79	47.5	48.6
Totals	186	100.0	166	100.0	100.0

[1]See text and Fig. 1 for location of segments.

Fishing information was collected from 166 canoeing parties in 1972 and 106 parties in 1973. In 1972, 30 percent (44 of 148 parties) of the canoeing parties fished, while in 1973, 26 percent (24 of 94 parties) of the canoeing parties fished. Eleven (61 percent) of the 18 parties camping only that were contacted in 1972 reported fishing; in 1973, 67 percent (8 of 11 parties) of the parties camping only fished. Thus, in 1972 and 1973, 78 percent of the parties

interviewed fished in conjunction with canoeing activity. Summarizing areas of fishing activity for canoeists is difficult because of the distance covered during a canoeing trip. In both years, over 81 percent of the recreationists (primarily canoeists) reported starting their fishing activities in a 30-mile river segment beginning at Kendallville and ending at the campground in Decorah (Table 36). Over 84 percent of the locations where recreationists ended their fishing activity were included in this same 30-mile segment. In contrast to bank-fishing activity, fishing pressure from primarily canoeing groups was upstream from Decorah.

Table 36. Areas of fishing activity for canoeists and campers by major river segment in 1972 and 1973

River segment	Starting locations 1972	1973	2-Yr %	Ending locations 1972	1973	2-Yr %
1	6	2	9.9	3	0	3.7
2	40	26	81.5	34	21	67.1
3	1	2	3.7	5	9	17.1
4	1	0	1.2	6	0	7.3
5	2	1	3.7	3	1	4.8
Totals	50	31	100.0	51	31	100.0

Past and present fishing habits Members of fishing parties were asked how many times during the current season

they had fished on the Upper Iowa previous to the present fishing trip (Table 37). In both years, almost half of the fishermen contacted were either making their first or second fishing trip of the year. Fishermen made a minimum of 888 fishing trips to the river in 1972 and 684 trips in 1973. The midpoints of each frequency category in Table 37 were used for calculations. Road counts of fishing parties observed but not contacted accounted for 102 additional fishing trips in 1972 and 95 trips in 1973. There were a minimum of 4,423 fisherman-days of use on the river in 1972 and 1973. This use figure was calculated using the following assumptions: (1) fishermen did not make more than one visit per day and (2) average fishing party size was 2.5 persons.

Table 37. Responses to the survey question: How many times have you fished on the river previously this calendar year?

Frequency groups	1972 Freq	1972 %	1973 Freq	1973 %	2-Yr %
1- 2 times	88	48.1	82	49.4	48.7
3- 4	30	16.4	43	25.9	20.9
5- 7	20	10.9	12	7.2	9.2
8-12	18	9.8	13	7.8	8.9
13 or more times	27	14.8	16	9.7	12.3
Totals	183[1]	100.0	166	100.0	100.0

[1]Three interview schedules were incomplete in 1972.

Fishermen were asked if they had fished on the Upper Iowa in previous years. In both 1972 and 1973 a large majority of the bank fishermen had fished on the Upper Iowa in the previous year (80 percent, 148 of 185 parties, in 1972; 84 percent, 141 of 166 parties, in 1973). Over half the canoeing and camping fishermen reported fishing in the previous year (51 percent, 26 of 51, in 1972; 53 percent, 17 of 32, in 1973). The large difference between the previous year's fishing activity of the bank fishermen and canoeing and camping fishermen is a reflection, in part, of the relatively localized nature of the bank fishermen's home residence. If a fisherman did fish previously, he was asked what species of fish he was trying to catch (Table 38). The most frequent responses were trout, smallmouth bass, channel catfish, and anything that would bite (see Table 38 for scientific names of fish).

Why people were fishing where they were was of interest to the investigation. Taken singularly, the three reasons listed the most were: "good looking spot" (70 percent), "easy to get there" (49 percent), and "caught fish there before" (48 percent) (Table 39). With few exceptions, the areas where fishermen were contacted were only a short walk from roadways or parking areas.

Creel success Creel counts of fishermen contacted showed that in 1972 over 34 percent of bankfishing parties

Table 38. Species of fish that fishermen who fished on the river in previous years were trying to catch (n= 148 in 1972, 141 in 1973)

Species of fish[1]	1972 Freq	1972 %	1973 Freq	1973 %
Trout	17	11.5	34	24.1
Smallmouth Bass	42	28.3	45	31.9
Channel Catfish	51	34.4	37	26.2
Northern Pike			1	0.7
Sucker	4	2.7	12	8.5
Rock Bass			2	1.4
Carp	12	8.1	6	4.2
Walleye Pike or Sauger	2	1.4	4	2.8
Striped Bass	2	1.4		
Anything that will bite	56	37.8	50	35.5
Other	5	3.4	3	2.1

[1]Scientific names of fish are: trout (Salmo spp. and Salvelinus fontinalis), smallmouth bass (Micropterus dolomieu), channel catfish (Ictalurus lacustris), northern pike (Esox lucius), sucker (Catostomus, Hypentelium, and Moxostoma spp.), rock bass (Ambloplites rupestris), carp (Cyprinus carpio), walleye pike or sauger (Stizostedion spp.), striped bass (Roccus chrysops), and crappie (Pomoxis spp.).

(62 of 185) and 55 percent of canoeing and camping parties (26 of 48) caught at least one keeping-size fish. In 1973, over 48 percent of bankfishermen (80 of 166) and 42 percent of canoeing and camping parties (16 of 31) caught at least one keeping-size fish. The 1972 bankfishermen caught an average of 1.2 fish per party or 0.5 fish per person while canoeing and camping fishing parties caught 2.0 fish per party. In 1973 the bankfishing parties caught 1.7 fish per party or 0.7 fish per person. Camping and canoeing fishing

Table 39. Selected combinations of reasons fishermen on the river gave for fishing where they did in 1972 and 1973 (n=428). The choices that fishermen were given were as follows: 1-Easy to get there, 2-Good looking spot, 3-Because it was stocked with trout, 4-Caught fish there before, 5-Saw others fishing there, and 6-Someone else suggested it

Combinations	Freq	%
1	18	4.2
1,2	33	7.7
1,2,4	54	12.6
1,2,3,4	9	2.1
1,2,4,5	16	3.7
1,2,4,6	10	2.3
1,4	11	2.6
2	40	9.3
2,3	9	2.1
2,4	46	10.7
2,4,5	10	2.3
2,6	14	3.3
4	12	2.8
6	37	8.6

parties caught an average of 1.8 fish per party in 1973 (Table 40). Since many of the fishermen were contacted while fishing was in progress, results are not entirely representative of fishing success. Fishermen that canoed and camped were often interviewed at the end of a day, so their catch results are more representative of fishing success.

Method of fishing The average fisherman still-fished from the bank with live or dead bait (as opposed to artificial lures) using spinning tackle (Table 41). No data concerning methods and equipment of canoe fishermen were

Table 40. Creel counts of fishermen contacted along the river during June-August 1972 and May-September 1973

Fish species	Parties			Fish caught		
	1972	1973	Totals	1972	1973	Totals
Trout	19	25	44	67	98	165
Smallmouth Bass	24	20	44	39	41	80
Channel Catfish	20	17	37	34	33	67
Sucker	17	38	55	59	103	172
Striped Bass	6	5	11	13	5	18
Rock Bass	11	8	19	16	15	31
Carp	4	10	14	7	10	17
Walleye-Sauger	2	9	11	3	10	13
Crappie	1	0	1	1	0	1
Other	14	14	28	29	20	49

collected, but canoe fishermen generally casted from a canoe or waded using artificial lures and spinning tackle.

Fur Trapping

In order to learn more about Upper Iowa River trappers and their use of the river, effort was made to contact all persons trapping that portion of the river running through Winneshiek and Allamakee counties. Persons obtaining a 1972 trapping license in Allamakee and Winneshiek counties were contacted and asked whether or not they trapped on the Upper Iowa during the 1972-73 trapping season. Of 165 persons purchasing trapping licenses in the 2 counties, only 12 reported trapping the Upper Iowa.

Table 41. Methods, locations, types of bait, and fishing tackle used by fishermen contacted along the river in June-August 1972 and May-September 1973. Numbers are shown first in parentheses, followed by percentages

Method	Location	Bait	Tackle used
Casting (29,8.3)	Shore (16,55.2)	Artificial lure (9,56.2)	Spinning (8,88.9) Flyrod (1,11.1)
		Bait (6,37.5)	Casting (1,16.7) Flyrod (1,16.7) Spinning (4,66.6)
		Lure and bait (1,6.3)	Spinning (1,100)
	Boat (1,3.5)	Artificial lure (1,100)	Spinning (1,100)
	Wading (9,31.0)	Artificial lure (8,88.9)	Spinning (1,100)
		Bait (1,11.1)	Spinning (1,100)
	Shore and wading (3,10.3)	Artificial lure (1,33.3)	Spinning (1,100)
		Bait (1,33.3)	Spinning (1,100)
		Lure and bait (1,33.3)	Spinning (1,100)
Casting and still fishing (20,5.7)	Shore (13,65.0)	Lure and bait (13,100)	Flyrod and Spinning (2,15.4) Spinning (11,84.6)
	Shore and wading (6,30.0)	Lure and bait (6,100)	Spinning (6,100)
	Boat, shore, and	Lure and bait	Spinning (1,100)

Table 41. (continued)

Method	Location	Bait	Tackle used
	Wading (1, 5.0)	(1, 100)	
Still fishing (302, 86.0)	Shore (288, 95.4)	Artificial lure (2, 0.7)	Spinning (2, 100)
		Bait (278, 96.5)	Spinning (267, 96.0) Flyrod (2, 0.7) Casting (2, 097) Pole (3, 1.1) Fly and spin (2, 0.7) Cast and pole (1, 0.4) Spin and pole (1, 0.4)
		Lure and bait (8, 2.8)	Spinning (6, 75.0) Flyrod (1, 12.5) Flyrod and spin (1, 12.5)
	Wading (6, 2.0)	Bait (6, 100)	Spinning (4, 66.7) Flyrod (2, 33.3)
	Shore and wading (3, 1.0)	Bait (2, 66.7)	Spinning (2, 100)
		Lure and bait (1, 33.3)	Spinning (1, 100)

Table 41. (continued)

Method	Location	Bait	Tackle used
	Boat (3, 1.0)	Bait (3, 100)	Spinning (3, 100)
	Boat and shore (2, 0.6)	Bait (2, 100)	Spinning (2, 100)

The river from Bluffton to the Lower Dam was most heavily trapped with over 58 percent of the recorded trap-nights (one trap set for one night) occurring in this 22-mile section of the river (Table 42). Even though there was some overlap in use of segments by different trappers, the trappers commented that they made special effort to keep clear of other trap lines.

Muskrat and beaver were the species most frequently caught by Upper Iowa trappers (Table 43). A substantial number of animals were trapped by these trappers on other areas besides the Upper Iowa River. Although quite variable in terms of total trap-night's (range from 6 to 100), river trappers averaged about 33 percent of their trap-nights on the Upper Iowa.

Nine of the 12 trappers interviewed had trapped on the river in previous years. These 9 trappers had an average of 20 years of trapping experience (range from 2 to 42). Six trappers considered trapping as a form of outdoor recreation while five considered trapping both a form of outdoor recreation and a means of making a livelihood. Only one person considered trapping solely as a means of making a livelihood.

With one exception, all the trappers lived within 20 miles of their trap lines. All trappers were male and had an average age of 39 years (range from 19 to 69). All but four

Table 42. Trapping activity on the river during the 1972-73 trapping season (n=12)

River segments[1]	No. trappers	%	No. trap-nights	%
1	1	5.6	291	2.6
2	1	5.6	291	2.6
3	6	33.3	4011	36.4
4	5	27.7	2385	21.7
5	2	11.1	1875	17.0
Highway 76-Mississippi River	3	16.7	2157	19.7
Totals	18[2]	100.0	11010	100.0

[1]See text and Fig. 1 for description and location of segments.

[2]Although n=12 there was overlap in use of river segments.

Table 43. Numbers of animals trapped on the river and in other areas by 11 Upper Iowa trappers during the 1972-73 trapping season

Animals trapped[1]	Number trapped	
	All areas	Upper Iowa
Muskrat	1040	399
Beaver	253	88
Raccoon	103	45
Fox	168	34
Mink	170	34
Skunk	18	4
Weasels	2	2
Other	15	3

[1]Scientific names of animals are: muskrat (*Ondatra zibethica*), beaver (*Castor canadensis*), raccoon (*Procyon lotor*), fox (*Vulpes fulva*), mink (*Mustela vison*), skunk (*Mephitis mephitis*), and weasels (*Mustela* spp.).

of the trappers had completed at least high school. Occupations were varied with three white-collar workers, three blue-collar workers, two farmers, two retired, one disabled, and one student.

Other Recreation Activities

Recreationists participated in a wide variety of activities during their river visit (Table 44). One member of each party canoeing or camping contacted was asked to list the recreational activities that the party either planned to do or had done during their visit. Fishing parties were not asked to list recreational activities. Activities listed were: canoeing (97 percent of 1,071 parties contacted in 1972-73), sightseeing (85 percent), picnicking (76 percent), camping (51 percent), and bird watching (42 percent) (Table 44). Many of the activities were done in conjunction with each other largely because of the compatibility of the activities themselves. Canoeing, sightseeing, and picnicking were almost inseparable activities of canoeists (Table 45). Camping and the combination of picnicking, sightseeing, and canoeing were also a common choice of activities.

Because a major portion of the interview schedules were completed in the summer months, spring and fall activities such as trout fishing and hunting were not fully represented. Although accurate total use figures by hunters are not

Table 44. Outdoor recreation activities of parties contacted along the river during May-September 1972 and 1973 (n=463 in 1972, 608 in 1973)

	1972		1973		2-Yr
	Freq	%	Freq	%	%
Canoeing	446	96.3	596	98.0	97.3
Sightseeing	365	78.8	544	89.5	84.9
Picnicking	312	67.4	502	82.6	76.0
Camping	252	54.4	298	49.0	51.4
Bird watching	165	35.6	287	47.2	42.2
Nature study	144	31.1	205	33.7	32.6
Photography	140	30.2	192	31.6	31.0
Swimming	129	27.9	179	29.4	28.8
Fishing	131	28.3	169	27.8	28.0
Hiking	56	12.1	56	9.2	10.5
Bicycling	2	0.4	4	0.7	0.6
Horseback riding	5	1.1	0	0	0.5
Mushroom hunting	1	0.2	4	0.7	0.5
Hunting	2	0.4	0	0	0.2
Motorcycling	1	0.2	0	0	0.1

available, the river and its banks are used by hunters of deer (Odocoileus virginianus), squirrel (Sciurus spp.), ruffed grouse (Bonasa umbellus), and waterfowl during fall hunting seasons. Spring trout fishing on the river has gained in popularity since the initiation in 1972 of a trout stocking program by the Iowa Conservation Commission.

Feelings and Attitudes

An important and often controversial aspect of natural resource management is the act of making decisions related to the public use of these natural resources. No matter what

Table 45. Outdoor recreation activities of parties contacted along the river in 1972 and 1973. Only combinations of activities with a frequency of eight or more parties are presented. The key to activity numbers is as follows:

1-Picnicking 5-Hunting 9-Photography
2-Nature study 6-Hiking 10-Bird watching
3-Swimming 7-Bicycling 11-Canoeing
4-Fishing 8-Camping 12-Sightseeing

Activities	Freq	%	Activities	Freq	%	Activities	Freq	%
1,11,12	95	8.9	1,8,11,12	18	1.7	1,3,10-12	11	1.0
1,3,11,12	30	2.8	1,2,4,8-12	16	1.5	1-3,6,8-12	11	1.0
1,10-12	29	2.7	1-3,8-12	14	1.3	1,11	9	0.8
1,8,11-12	25	2.3	1,2,8-12	14	1.3	1,3,4,8,9,11,12	9	0.8
1,4,11,12	24	2.2	1,2,9-12	14	1.3	1,2,11,12	9	0.8
1,2,10-12	20	1.9	1,9,10-12	13	1.2	1,2,4,8,10-12	9	0.8
1,2,8,10-12	19	1.8	1,9,11,12	12	1.1	1-4,8-12	9	0.8
1,8,10-12	19	1.8	1,8-12	13	1.2	1-3,8,10-12	8	0.7
1,4,8,11,12	18	1.7						

the decision, segments of the public will not agree. Background information regarding feelings and attitudes of users of a particular natural area can be of major importance in formulating resource decisions for that area. Effort was made in this study to record the attitudes and feelings of the river user as they related to (1) crowded canoeing conditions, (2) desired recreation facility development, (3) willingness to pay user fees, (4) restriction of canoeing and camping use of the river, and (5) the importance of various aspects of a river recreation experience.

Crowded canoeing conditions

Canoeists completing the general recreation schedules were asked how many people they expected to see during their first day of canoeing. Ninety-five percent of the people (210 of 221) interviewed expected to see some canoeists on the river: 33 percent (73) expected to find the number of canoeists they actually encountered and 31 percent each (69 and 68) either expected to see fewer canoeists but actually saw more or expected to find more canoeists but actually saw fewer (Table 46). When asked how they felt about crowded canoeing conditions during their canoeing trip, 82 percent (177 of 217) believed river use was "just right" (Table 46). Eleven percent (24) felt the river was "too crowded" while 7 percent (16) felt the river was "not used enough." A

majority of the canoeists were satisfied with the observed canoeing use of the river regardless of how many canoeists they expected to see.

Table 46. A comparison of canoeist's expected levels of canoeing use of the river and their feelings toward observed canoeing use of the river

Expected to find	Canoeing use of the river: Not used enough	Just right	Too crowded	No opinion
Nobody else	6.3	5.6	0	0
Fewer people	12.5	28.9	50.0	25.0
Numbers of people seen	31.2	33.9	29.2	25.0
More people	50.0	31.6	20.8	50.0
Totals	100.0	100.0	100.0	100.0

After expected canoe use on the river was determined, the canoeist was then asked how many canoes he had seen on the first day of canoeing (Table 47). Of the 7 percent who felt the river was not used enough, all saw 15 or fewer canoes during their canoeing trip. Eighty-six percent of those canoeists who felt use of the river was "just right" saw 15 or fewer canoes. Between these 2 groups, over 84 percent saw fewer than 16 canoes during their 1-day canoeing trip. Of the 11 percent who felt "too crowded" during their

trip, 8 percent saw 10 canoes or fewer or, conversely, 92 percent saw 11 or more canoes. The 24 canoeists who expressed feelings of crowdedness made their canoeing trip on a weekend on a stretch of the river between Kendallville and the Bluffton public access (15 river miles).

Table 47. A comparison of canoeist's feelings toward canoeing use of the river and the number of canoes they observed during their canoeing trip

Number of canoes seen	Canoeing use of the river: Not used enough Freq	%	Just right Freq	%	Too crowded Freq	%	No opinion Freq	%	Totals
0- 5	12	75.0	87	49.2	1	4.2	3	75.0	103
6-10	2	12.5	40	22.6	1	4.2	0	0	43
11-15	2	12.5	25	14.1	8	33.3	0	0	35
16-25	0	0	19	10.7	8	33.3	1	25.0	28
26-35	0	0	3	1.7	3	12.5	0	0	6
35 or more	0	0	3	1.7	3	12.5	0	0	6
Totals	16	100.0	177	100.0	24	100.0	4	100.0	221

Knowledge of the relationship between actual canoeing pressure and canoeist dissatisfaction with crowded canoeing conditions could greatly assist in future management decisions concerning recreational use of the river. Before this relationship can be understood, a direct relationship between canoes observed by canoeists and the actual number of canoes on the river should be established. However, in this

study there was no clear, direct relationship between the two. A combination of many variables such as (1) time and location of trip origin, (2) number of stops made by the party during their trips, and (3) trip length prevented the establishment of such a relationship. For example, a canoeing party reported leaving Kendallville on a Saturday at 0530 AM and not seeing another canoe during the 15-mile trip. In another instance, a group put in several miles above the Palisades near Bluffton in late afternoon and reported seeing many canoeing groups. These groups had begun their trip earlier in the day miles upstream.

Desired recreation facility development

Over 57 percent of the recreationists (156 of 272) interviewed during the 2-year study wanted the river left as it is in its present state of development (Table 48). Forty-one percent wanted the river more fully developed for recreation, that is, creation of river-access primitive campsites, hiking trails, horseback riding trails, and self-guided natural history walks. Such development is essentially that proposed by the USDI Final Study Report of 1972 discussed earlier. Less than 1 percent wanted the river developed to its full economic potential, that is, trailer and car campsite development, building of resorts or motels in the vicinity of the river, river-access private cabins,

and intensified agricultural use.

A majority of persons contacted were aware of the Upper Iowa's relationship to the National Wild and Scenic Rivers System (Table 48). Over 75 percent were aware the river had been recommended for inclusion in the national system. Newspaper articles, TV/radio news features, and a combination of newspaper articles, conservation groups, TV/radio news features and Dr. George Knudson's canoeing guide (Knudson 1973) were the most frequently listed sources that prompted awareness of the river's scenic importance (Table 49). Over 59 percent of the people aware of the river's scenic status desired no development while 40 percent wanted a limited degree of development. This same relationship was found in those not aware of the river's scenic status; 54 percent wanted no development and 46 percent wanted some.

Better understanding of the information concerning the river recreationist's desire for more, less, or no change of facilities such as campsites, toilets, fireplaces, and tables is gained from a brief review of existing facilities in the river study area. The Decorah City Campground furnished full camping facilities: designated campsites, picnic tables, fireplaces with firewood furnished for an extra fee, running-water toilets, hot showers, electric outlets, and trailer dump stations. A fee of $2.50 per unit or $0.50 per person group rate was charged. Kendallville County Park had

Table 48. The relationship of knowledge of legislative status to preference for degree of development on and along the river (n=272 in 1972-73)

Response category	No response		Those aware that river has been recommended for inclusion in National Wild and Scenic Rivers System		Those not aware that river has been recommended for inclusion in National Wild and Scenic Rivers System		Totals	
	Freq	%	Freq	%	Freq	%	Freq	%
No response	0	0	2	0.9	0	0	2	0.7
River be left essentially as it is in its present state	2	40.0	121	59.0	33	53.2	156	57.4
River be more fully developed for recreation (see text)	3	60.0	81	39.6	27	43.6	111	40.8
River be developed to its full economic potential (see text)	0	0	0	0	2	3.2	2	0.7
No opinion	0	0	1	0.5	0	0	1	0.4
Totals	5	100.0	205	100.0	62	100.0	272	100.0

Table 49. Sources of information about the river's relationship to the National Wild and Scenic Rivers System as listed by recreationists contacted along the river. Key to the sources: 1-Newspaper article, 2-Conservation groups, 3-TV/radio news feature, 4-Dr. George Knudson's Guide to the Upper Iowa River and 5-Other which includes lectures, National Geographic Magazine, personal conversation with friends and relatives, and legislative material

Responses	1972	1973	2-Yr %
1	11	13	11.8
1,2	5	3	3.9
1,2,3	6	5	5.4
1,2,3,	13	5	8.9
1,2,4,	2	1	1.5
1,2,4	6	3	4.4
1,2,5	2	1	1.5
1,3	20	13	16.3
1,3,4	8	5	6.4
1,3,5	3	3	2.9
1,4	5	2	3.4
1,4,5	3	1	2.0
1,5	2	3	2.5
2	4	0	2.0
2,3,4	1	0	0.5
2,4	0	1	0.5
2,5	2	0	1.0
3	9	3	5.9
3,4	2	1	1.5
4	9	0	4.4
4,5	5	1	3.0
5	12	9	10.3
Total	130[1]	73[2]	100.0

[1]Two incomplete interview schedules in 1972.

[2]Four incomplete interview schedules in 1973.

free camping, improved pit toilets, several picnic tables, litter barrels and in 1974 there will be on-site drinking water. There is a small grocery store near the campground. Camping is permitted by owner's permission at the private riverside pasture in Bluffton. There is a pit toilet and drinking water can be obtained at the Bluffton grocery store nearby. A fee of $2.50 per unit or $0.50 per person group rate was charged. The remainder of the places where people camped, either on state land or private land with the owner's permission, were primitive as far as facilities were concerned. In June 1973 all litter barrels were removed from state areas; this action may have influenced responses by some of those contacted.

Data concerning the recreationist's desires for more, less, or no change of specific recreational facilities were divided into two groups: (1) those persons wanting no development along the river and (2) those wanting some degree of development (Tables 50 and 51). There is a consistency between the desire for specific facilities and the feeling toward overall river development. With the exception of concessions and lodges or cabins, a majority of the pro-development recreationists wanted more campsites, toilets, tables, and firewood furnished. Anti-development recreationists were much more conservative in their desires for more campsites, toilets, tables, and furnished firewood.

Both groups were overwhelmingly against the addition of lodges or cabins or concessions and were strongly in favor of better litter disposal and an interpretive brochure to take with them on their canoeing trip. The anti-development group desired a relatively high level of desired facilities, considering that they classed themselves as wanting the river left "as it is." Theoretically, one would expect that a person against river development would want little change in present recreation facility development. There are differences, however, in individual's perceptions of the degree of "no development" (Table 51).

Willingness to pay a user fee

In both years, a large majority of the recreationists were willing to pay a user permit fee for use of the Upper Iowa River (143 of 164 persons, 87 percent in 1972; 85 of 106, 80 percent in 1973). If the recreationist was willing to pay a user fee, he was asked to rank in order of preference the following choices:

Choice 1. A fee for each trip or visit to the river.
Choice 2. An annual fee for all trips or visits to the river.
Choice 3. A fee based on the number of days on the river.

Choice 1 was most preferred by 44 percent of the persons in 1972 and 55 percent in 1973 (Table 52). Those persons in 1972 listing Choice 1 as their first choice were willing to

Table 50. Levels of recreation facility development desired by persons wanting the river more fully developed for recreation (pro-development group)

Facility		Desired availability: More	Less	No change	No opinion	Totals
Campsites	Freq	77	0	32	2	111
	%	69.4	0	28.8	1.8	100.0
Toilets	Freq	89	1	17	4	111
	%	80.2	0.9	15.3	3.6	100.0
Fireplaces	Freq	59	1	46	5	111
	%	53.2	0.9	41.4	4.5	100.0
Tables	Freq	65	2	39	5	111
	%	58.6	1.8	35.1	4.5	100.0
Firewood supplied	Freq	68	0	40	3	111
	%	61.3	0	36.0	2.7	100.0
Lodges or cabins	Freq	6	2	98	5	111
	%	5.4	1.8	88.3	4.5	100.0
Concessions	Freq	6	2	102	1	111
	%	5.4	1.8	91.9	0.9	100.0
Better litter disposal	Freq	89	1	21	0	111
	%	80.2	0.9	18.9	0	100.0
An interpretive brochure to take with you	Freq	93	0	16	2	111
	%	83.8	0	14.4	1.8	100.0

Table 51. Levels of recreation facility development desired by persons wanting the river left as it is in its present state (anti-development group)

Facility		Desired availability: More	Less	No change	No opinion	Totals
Campsites	Freq	54	2	97	2	155
	%	34.8	1.3	62.6	1.3	100.0
Toilets	Freq	92	2	60	1	155
	%	59.4	1.3	38.7	0.6	100.0
Fireplaces	Freq	44	5	100	6	155
	%	28.4	3.2	64.5	3.9	100.0
Tables	Freq	54	4	91	6	155
	%	34.8	2.6	58.7	3.9	100.0
Firewood supplied	Freq	66	5	79	5	155
	%	42.6	3.2	51.0	3.2	100.0
Lodges or cabins	Freq	7	14	129	5	155
	%	4.5	9.0	83.2	3.3	100.0
Concessions	Freq	6	7	140	2	155
	%	3.9	4.5	90.3	1.3	100.0
Better litter disposal	Freq	116	1	38	0	155
	%	74.8	0.6	24.6	0	100.0
An interpretive brochure to take with you	Freq	120	3	28	4	155
	%	77.4	1.9	18.1	2.6	100.0

pay an average of $1.11 per person per trip or visit and those in 1973 would pay $0.87. Choice 3 was second choice by 41 percent of those contacted in 1972 and 43 percent in 1973. Individuals ranking Choice 3 as their first choice in 1972 were willing to pay an average of $0.89 per person per day and $0.95 in 1973. An annual user fee was the least popular with the respondents, preferred as a third choice by 55 percent of the people in 1972 and 44 percent in 1973. Persons in 1972 ranking Choice 2 first said they would be willing to pay $3.65 per person per year and $3.83 in 1973. There is a difference between willingness to pay and actually paying. At present no entrance fees are required to use any state or county land along the river. The only fees that are now paid by river visitors are the campground fees previously mentioned. The $0.50 per day group rate presently charged by city and private land-owners is almost half of what the persons said they would be willing to pay for Choice 3, a fee based on the number of days on the river.

Of those canoeists willing to pay a fee in 1972 and 1973, over 91 percent who most preferred either Choice 1 or Choice 3 as a method of paying made less than 3 visits per person to the river in the year previous to the interview. Fifty-six percent of the canoeists who most preferred Choice 2 made less than 3 visits to the river in the previous year while 20 percent made 8 or more trips.

Table 52. Preferences for method of paying a user fee as ranked by persons willing to pay a fee for use of the river for recreation and amounts per person they were willing to pay for the method of paying they ranked first (n=143 in 1972, 84 in 1973)

Method of paying fee	Year	Ranking 1st Freq	1st %	2nd Freq	2nd %	3rd Freq	3rd %	Amount per person those ranking method 1st were willing to pay Avg $	Min	Max
Each river visit	1972	63	44.1	57	39.9	23	16.0	1.11	.50	5.00
	1973	46	54.8	27	32.1	11	13.1	.87	.50	2.00
An annual fee for all river visits	1972	36	25.2	28	19.6	79	55.2	3.65	.50	15.00
	1973	20	23.8	27	32.1	37	44.0	3.83	.50	10.00
By number of days on the river	1972	44	30.8	58	40.6	41	35.7	.89	.50	2.00
	1973	18	21.4	36	42.9	30	28.6	.95	.25	2.00

Restriction of canoeing and camping numbers

Restriction of certain types of public use of natural areas is often met with stiff resistance. However, if the level of canoeing use of the river increases enough to have a majority of the canoeists feel the river is too crowded, restriction of canoe numbers may be necessary to preserve the aesthetic qualities of the river canoeing experience. At present use levels a majority of the canoeists were satisfied with observed canoeing use of the river. It is no surprise then to find that in 1972 and 1973 over 83 percent of the canoeists interviewed (121 of 145 canoeists, 83 percent in 1972; 72 of 86, 84 percent in 1973) did not think the volume of canoe traffic on the river should be restricted. Several canoeists contacted along the river expressed dismay at the increase in canoeing use over that of previous years and believed that, if the level of use increased much more, some restrictions would be necessary. They further added that they would not continue to canoe on the Upper Iowa if restriction was placed on their activities.

Feelings of persons camping along the river toward restriction of camping activity were not as clearly defined as were the canoeists toward restriction of canoeing numbers. In 1972, 55 percent of the campers interviewed (54 of 152) did not want camping activity restricted to designated

camping areas along the river. Feelings were slightly different in 1973 with over 57 percent (58 of 101) feeling that camping activity should be restricted to camping areas. Although no concrete reasons for the shift in thinking are available, the adverse state-wide publicity in 1973 concerning trespassing on private land along the river may have been a factor in attitudes toward restriction of camping activity.

The importance of a river recreation experience

To learn how important certain aspects of the Upper Iowa River recreation experience were to the river user, respondents were asked to rate the relative importance of items listed in Table 53. As a result of the simplification of the descriptive items for quick response, there was possibility for wide latitude in their interpretation by the river user. The levels of importance that respondents were given to choose from were "very important," "moderately important," "important," and "unimportant." Respondents were also given a "no opinion" choice. Because of the possibility for different interpretation and the relative nature of the importance levels, only general statements are made concerning the data collected.

Of the 11 items, "scenic beauty" and "free-flowing, clear water" were rated the highest in the "very important"

Table 53. Feelings of the river user toward the relative importance of various aspects of a river recreation experience (n=162 in 1972, 105 in 1973)

Aspects	Feelings									
	Very important		Moderately important		Important		Unimportant		No opinion	
	Rank	Freq	Rank	Freq	Rank	Freq	Rank	Freq	Rank	Freq
Scenic beauty	1	207	11	25	11	32	11	2	10	1
Free-flowing, clear water	2	183	10	34	9	43	10	5	6	3
Escape from the crowded city	3	144	7	49	10	36	3	33	4	5
Communing with nature	4	130	6	57	4	72	9	7	11	1
Personal enrichment	5	122	5	62	5	67	8	14	9	2
Family unity	6	120	8	49	8	64	4	23	1	11
Isolation	7	87	2	87	6	67	5	23	7	3
Excitement of the river	8	80	3	83	3	74	6	22	2	8
Adventure	9	67	1	100	1	77	7	19	8	3
History of the area	10	50	4	65	2	75	2	72	5	5
Scientific interest	11	34	9	47	7	65	1	115	3	6

category (Table 53). These two choices were followed by "escape from the crowded city," "communing with nature," "personal enrichment," and "family unity."

Socio-economic Characteristics of River Users

An objective of the investigation was to determine the major socio-economic characteristics of river users. Information about (1) age, (2) sex, (3) occupation, (4) level of formal education completed, (5) social and formal groups of which the visitor was a member, and (6) expenditures was gathered.

Age

The average age of a member of a canoeing and camping party was 24 years while the average age of a member of a fishing party was 32 years (Table 54). When the ages of members of canoeing and camping parties were classed in age categories (Table 54), the mode fell in the 19-30 year age group. Thirty-seven percent of the persons from whom age information was collected were less than 18 years of age while over 76 percent of the users were 30 years or younger. The modal age group of fishermen were classed evenly in 2 categories, 18-30 and 31-50, with 27 percent of the fishermen less than 18 years of age.

Table 54. Age and sex of canoeists, campers, and fishermen contacted along the river in 1972 and 1973

Age category (years)	Males Freq	Males %	Females Freq	Females %	% for both sexes
Canoeists and campers					
1-10	197	5.9	115	6.4	6.0
11-17	1047	31.0	559	31.0	31.0
19-30	1314	38.9	730	40.6	39.5
31-50	720	21.3	344	19.1	20.6
51-65	89	2.6	50	2.8	2.7
66 and older	10	0.3	1	0.1	0.2
Totals	3377	100.0	1799	100.0	100.0
Average age of a canoeist or camper = 23.7 years					
Fishermen					
1-10	75	11.6	24	15.5	12.4
11-17	97	15.0	19	12.3	14.5
19-30	164	25.4	41	26.4	25.6
31-50	162	25.1	42	27.0	25.5
51-65	114	17.7	29	18.8	17.9
66 and older	33	5.2	0	0	4.1
Totals	645	100.0	155	100.0	100.0
Average age of a fisherman = 32.4 years					

Sex

A majority of the river users were male: 65 percent of the canoeists and campers and 81 percent of the fishermen. With the exception of the 66-and-older age category, the ratios of males to females in all age categories in the canoeing and camping groups were similar. Generally this is true for fishermen also. Relatively more women of all ages participated in canoeing and camping than in fishing.

Fishing attracted a higher percentage of young boys than girls when compared to canoeing and camping (Table 54).

Occupation

The classification system used by the U. S. Census Bureau was used to classify river users by occupation. Occupations of 5,059 canoeists and campers were recorded in the 2-year study (Table 55). Over half of the canoeists and campers were school students with 22 percent in grades 9-12. Over one-fourth of the persons using the river for canoeing and camping activity were white-collar workers, especially those in professional and technical positions. If occupations of adults (18 years and older) are considered, over 42 percent of the users were in white-collar professions. Other important occupations represented were college students (17 percent), blue-collar workers (16 percent), and homemakers (13 percent).

Occupations of fishermen were somewhat different (Table 56). Over one-fourth of the fishermen were school students with 18 percent in grades 1-8. Twenty-five percent of the fishermen held blue-collar positions. If occupations of adult fishermen are considered, over a third of the fishermen held blue-collar positions. White-collar workers (19 percent), homemakers (16 percent), and service-workers (13 percent) were also well represented among fishermen. Eight

Table 55. General occupation groups of canoeists and campers contacted along 1972 and 1973

Occupation groups	All persons Freq	All persons %	Adults only Freq	Adults only %
White-collar workers				
Professional, technical, and kindred workers	842	16.6	842	27.1
Managers, officials, and proprietors (except farm)	188	3.7	188	6.1
Clerical and kindred workers	137	2.7	137	4.4
Sales workers	159	3.1	159	5.1
	1326	26.2	1326	42.7
Blue-collar workers				
Craftsmen, foremen, and kindred workers	261	5.1	257	8.3
Operatives and kindred workers	89	1.8	88	2.8
Laborers	148	2.9	147	4.7
	498	9.8	492	15.8
Service industries				
Service workers (except private household)	78	1.5	77	2.5
Farmers and farm managers	105	2.1	103	3.3
Pre-school	75	1.5		

Table 56. (continued)

Occupation groups	All persons Freq	All persons %	Adults only Freq	Adults only %
Students				
Grade school (1-8)	778	15.4		
High school (9-12)	1108	21.9	31	1.0
College	532	10.5	525	16.9
Graduate school	94	1.9	94	3.0
	2512	49.7	650	20.9
Homemakers	400	7.9	400	12.9
Disabled	2	tr[1]	2	tr
Unemployed	43	0.8	37	1.2
Armed forces	7	tr	7	tr
Retired	13	tr	13	tr
Totals	5059	100.0	3107	100.0

[1]Tr = trace = < 0.5 percent.

Table 56. General occupation groups of fishermen contacted along the river in 1972 and 1973

Occupation groups	All persons Freq	All persons %	Adults only Freq	Adults only %
White-collar workers				
Professional, technical, and kindred workers	32	4.0	32	5.5
Managers, officials, and proprietors (except farm)	24	3.0	24	4.1
Clerical and kindred workers	19	2.4	19	3.3
Sales workers	33	4.2	33	5.7
	108	13.6	108	18.6
Blue-collar workers				
Craftsmen, foremen, and kindred workers	82	10.3	82	14.1
Operatives and kindred workers	52	6.5	52	8.9
Laborers	65	8.2	65	11.1
	199	25.0	199	34.1
Service industries				
Service workers (except private household)	26	3.3	26	4.5
Farmers and farm managers	71	8.9	71	12.2
Pre school	29	3.6		

Table 56. (continued)

Occupation groups	All persons Freq	All persons %	Adults only Freq	Adults only %
Students				
Grade school (1-8)	141	17.7		
High school (9-12)	40	5.0		
College	19	2.4	17	2.9
Graduate school	6	0.8	6	1.0
	206	25.9	13	3.9
Homemakers	90	11.3	90	15.4
Disabled	5	0.6	5	0.9
Unemployed	11	1.4	11	1.9
Armed forces	5	0.6	5	0.9
Retired	45	5.8	45	7.6
Totals	795	100.0	583	100.0

percent of the fishermen were retired as compared to less than 0.5 percent of the canoeists and campers.

Education

Level of formal education completed was recorded for 3,522 canoeists and campers and 783 fishermen during the investigation (Table 57). If a person was still in school at the time of interview, only the years of schooling completed prior to the interview were recorded. An exception was made for students interviewed during May. If the entire sample of canoeists and campers is considered, we see that over 61 percent had completed high school (Grade 12). Over 96 percent of the adults had completed high school while 65 percent had completed some college.

Forty-seven percent of all the fishermen had completed high school. If only education levels for adult fishermen are considered, we find that 64 percent of the fishermen had completed high school while 22 percent had completed at least 1 year of college.

Socio-economic characteristics: river users versus the Iowa population

Members of canoeing or camping parties were younger than the 1970 Iowa average (24 years vs. 29 years) and more were male (65 percent vs. 48 percent) (U. S. Bureau of Census 1972). The percentage of adult canoeists or campers holding

Table 57. Education levels completed by canoeists, campers, and fishermen contacted along the river in 1972 and 1973

Education	Canoeists and campers					Fishermen				
	All persons		Adults			All persons		Adults		
	Freq	%	Freq	%	Cumulative %	Freq	%	Freq	%	Cumulative %
Grade school										
1	25	0.7				8	1.1	2	0.4	100.0
2	17	0.5				14	1.9			
3	36	1.0				15	2.0			
4	37	1.1				14	1.9	2	0.4	99.6
5	46	1.3				25	3.2	3	0.5	99.2
6	58	1.7	6	0.3	100.0	21	2.7	4	0.7	98.7
7	88	2.5				23	3.1	7	1.2	98.0
8	224	6.4	12	0.5	99.7	153	20.3	127	22.3	96.8
High school										
1	240	6.9	4	0.2	99.2	28	3.7	12	2.1	74.5
2	158	4.5	10	0.5	99.0	41	5.4	28	4.9	72.4
3	369	10.6	39	1.8	98.5	40	5.3	17	3.0	67.5
4	737	21.1	696	31.5	96.7	247	32.8	243	42.7	64.5
College										
1	244	7.0	244	11.0	65.2	30	3.9	29	5.1	21.8
2	213	6.1	213	9.6	54.2	28	3.7	28	4.9	16.7
3	148	4.4	148	6.7	44.6	14	1.9	14	2.5	11.8
4	531	15.3	531	24.0	37.9	34	4.5	34	6.0	9.3
Post-graduate	77	2.2	77	3.5	13.9	8	1.1	8	1.4	3.3

Table 57. (continued)

Education	Canoeists and campers					Fishermen				
	All persons		Adults			All persons		Adults		
	Freq	%	Freq	%	Cumulative %	Freq	%	Freq	%	Cumulative %
Masters degree	134	3.9	134	6.1	10.4	8	1.1	8	1.4	1.9
PhD, LLD, DDS, MD, DVM, or Divinity	96	2.8	96	4.3	4.3	3	0.4	3	0.5	0.5
	3478	100.0	2210	100.0		754	100.0	569	100.0	

white-collar positions equaled that of the 1970 Iowa population, 40 percent. Adult canoeists and campers were better educated than Iowans 25 years and older in 1970 (96 percent completing high school vs. 60 percent).

Members of fishing parties were slightly older than the average Iowan (32 years vs. 29 years) and more were male (94 percent vs. 48 percent). About a third of the fishermen held blue-collar positions compared to 12 percent for the 1970 Iowa population. The fishermen's schooling was slightly higher than the Iowa average (64 percent completed high school vs. 60 percent).

The apparent differences in the socio-economic characteristics between the canoeists or campers and the fishermen was brought about partly by the nature of the activities themselves. On the Upper Iowa canoeing was primarily a group activity, popular with younger individuals, while fishing was more an individualized outdoor activity, popular with older persons.

Social and formal composition of the recreation parties

Recreationists were asked about the nature of the group with whom they made their visit. In 1972 and 1973, the predominant social groups were family and friends (51 percent) and friends (31 percent) (Table 58). If a respondent was a member of a specific, organized group, he

was asked to list the particular group (Table 59). Boy scouts and religious groups were the most frequently listed. Although this type of information was not collected from all canoeing parties, I believe it is representative of all canoeing and camping parties. Participation in organized groups was one reason for the large number of school-age children using the river.

The group composition of fishing parties was not recorded but I believe that it was similar to that of canoeing and camping parties with one major exception. Although the parties were composed of family and friends or friends, there were very few organized groups such as boy scouts or church groups that were fishing. Both the number and percentage of school-age children in the sample of fishermen was much less than the number and percentage of school-age children in canoeing and camping parties. For the most part, fishing is a solitary sport usually carried on at small access areas. Only a few access areas on the river offer enough riverbank to physically and safely handle a large group of fishermen.

Expenditures

Recreationists were asked to estimate the expenditures that his or her party incurred during their Upper Iowa River visit (Table 60). In 1972, the recreation parties contacted

Table 58. Social composition of recreation parties contacted along the river in 1972 and 1973

Social group	1972 Freq	1972 %	1973 Freq	1973 %	2-Yr %
Individual	0	0	0	0	0
Husband and wife	10	6.1	1	1.0	4.1
Family	29	17.8	8	7.5	13.8
Family and friends	74	45.4	64	60.4	51.3
Friends	50	30.7	33	31.1	30.8
Totals	163	100.0	106	100.0	100.0

Table 59. Formal organizations to which river users belonged.

Organizations	1972 Freq	1972 %	1973 Freq	1973 %	2-Yr %
Canoe clubs, conservation groups, or outdoor clubs or organizations	3	9.1	2	7.7	8.5
Youth groups including youth hostel, YMCA, YWCA, Upward Bound, 4-H Clubs, and Junior Police	4	12.1	1	3.8	8.5
Boy Scouts and explorers	9	27.3	13	50.0	37.3
Girl Scouts	1	3.0	1	3.8	3.4
Religious groups (adult or family)	5	15.1	1	3.8	10.2
Religious groups (juveniles with or without leaders)	9	27.3	7	27.0	27.1
Business groups such as Jaycees	2	6.1	1	3.9	5.0
Totals	33	100.0	26	100.0	100.0

spent an average of $12.50 per person per visit and $16.46 in 1973. In both 1972 and 1973, expenditures for food and beverages ranked first with a 2-year average of $6 per person per visit (assuming an average party size of 7.2 persons per party), expenditures for transportation to and from the river ranked second ($3.75 per person per visit) and canoe rental ranked third ($2.86 per person per visit). Canoe rental rates ranged from $2 to 6.50 per canoe per day with $5 per canoe per day the most common rate charged. Campground fee costs ranked fourth in expenditures with a 2-year average of $0.88 per person per visit (see page 110 for camping fees charged at river campgrounds).

In 1972, 82 percent of the parties interviewed (134 of 164) made some of their expenditures in the general area of the river and in 1973 the percentage was 83 (88 of 106). Locally, canoe rental costs ranked first with $1.67 per person per visit. In terms of dollars spent, local canoe rental expenses amounted to 55 percent of the overall canoe rental expenditures. Expenditures for food and beverages in the vicinity of the river ranked second with $1.52 per person per visit or 21 percent of the total dollars spent for overall food and beverage expenditures. In 1972 and 1973 about one-fourth of the transportation expenditures were made in the vicinity of the river. Almost all the user's campground fees were incurred in the river area. In 1972,

Table 60. Expenditures incurred by canoeists and campers during their visit

Expenditure category	1972 $ spent	1972 $ spent/ party[1]	1973 $ spent	1973 $ spent/ party	Avg. $ spent/ party
Entire trip					
Transportation	3495.40	21.31[2]	3797.50	35.83	27.01
Lodging	1065.00	6.49	645.00	6.08	6.33
Food and beverages	6575.45	40.09	5285.45	49.86	43.93
Recreation supplies	188.14	1.15	358.50	3.38	2.02
Canoe rental	2751.50	18.98[3]	2168.50	23.07	20.59
Miscellaneous	94.00	.57	31.50	.30	.46
Totals	14169.49	88.59	12286.45	118.52	100.34
In vicinity of river					
Transportation	1050.00	7.84[4]	839.00	9.53	8.51
Lodging	892.00	6.66	523.50	5.95	6.38
Food and beverages	1544.15	11.52	953.05	10.83	11.25
Recreation supplies	85.69	.64	61.20	.70	.66
Canoe rental	1393.50	10.56[5]	1294.50	15.23	12.39
Miscellaneous	64.00	.48	22.00	.25	.39
Totals	5029.34	37.70	3693.25	42.49	39.58

[1]Average party size=7.2, average days per visit=2.3.

[2]In 1972 n=164; in 1973 n=106.

[3]In 1972 n(canoeing)=148, in 1973 n=94.

[4]In 1972 n(making purchases in river area)=134; in 1973 n=88

[5]In 1972 n(canoeing)=132; in 1973 n=85.

recreationists spent an average of $5.26 per person per visit in the vicinity of the river or almost 36 percent of their total trip expenditures. Average local expenditures by parties in 1973 amounted to almost $5.56 per person per visit or 30 percent of their total trip expenditures.

DISCUSSION and CONCLUSIONS

Information on existing recreation use patterns and user's attitudes and preferences is necessary in the formulation of a comprehensive river management plan. While it is not within the scope of this dissertation to propose such a plan, I believe it is necessary to discuss the management implications of my results.

Levels of Use

In 1972 and 1973 over 11,000 canoeist-days were recorded on the river between late May and early September. Canoeists paddled over 132,000 miles in the 2 years, experiencing over 44,000 hours of recreation. Recorded levels of boating use of other Iowa rivers are non-existent while studies relating use levels on rivers in other states are few. Solomon and Hansen (1972) estimated that between May 1 and September 30, 1971 over 50,000 canoeists used the Pine River in Michigan, a level considerably higher than that recorded on the Upper Iowa. Use rates on the Pine River were 82 canoeists per day on weekdays and 911 canoeists per day on weekends as compared to 11 and 57 on the Upper Iowa. Nearly half the canoeists camped before or after their Pine River float trip, or about 25,000 campers per year. This estimated total is much higher than the 4,800 camping nights recorded along the Upper Iowa

in 1973. In Idaho, the number of floaters on the Middle Fork of the Salmon River increased from 625 in 1962 to over 3,200 in 1971 (Peckfelder 1973:7). Although no indication was given, it appears that these totals do not reflect accumulated use. It is highly likely that if accumulated use were recorded, use levels would be somewhat higher than Upper Iowa use levels. Fleener (1971) estimated recreationists made 2,370 visits and expended 4,841 hours while boating during summer months on a 57-mile unchannelized portion of the Platte River in northeastern Missouri.

Compared to boating use of the Pine and Salmon Rivers, the level of canoeing use on the Upper Iowa is light. Even though 89 percent of the respondents felt that river use by canoeists was either "just right" or "not used enough," 11 percent felt "too crowded." All complaints of crowdedness came on weekends from canoeists using the most heavily-used segment of the river, Kendallville to Decorah. Solomon and Hansen (1972) recorded similar respondent attitudes on the Pine River in Michigan. They hypothesized that as the total numbers of canoeists increased, the proportion objecting to crowding would increase, but when the number of canoeists increased from 300 per day to 700, there was no increase in dissatisfaction. Possibly people who disliked crowding tended to stay away as the number of canoeists increased. Canoeing use of the Upper Iowa River is approaching 200

canoeists per day on weekends. If canoeing use continues to increase at the present annual rate, the number of canoeists feeling crowded will likely increase and, as a result, patterns of use may change. Possibly some canoeists will either canoe in less-used segments of the river or not canoe on the Upper Iowa.

Recreational Use Patterns

A large percentage of all recreation took place on weekends and holidays. This agrees with reported observations of recreation use of water-based recreation areas across Iowa such as Spirit, Little Wall, Okoboji, and Clear Lakes (Haugen and Sohn 1968, Proescholt and Carlander 1969) and the Des Moines River (Haugen and Lenning 1970). Peckfelder (1973:7), while not specifically investigating river use patterns, reported that 42 percent of the float trips on the Middle Fork of the Salmon River in Idaho started on three consecutive days of the week---Sunday, Monday, and Tuesday. Visitation habits to areas such as the Salmon River are undoubtedly influenced by their remote location. People require more time to drive the distance required to get to such areas.

In this study, 82 percent of the canoeing use of the river occurred in a 30-mile section of the river beginning at Kendallville and ending at Decorah. Even though most of the

canoeists felt that river use levels were satisfactory, 11 percent felt crowded when canoeing. The levels of canoeing use at which the percentage of people feeling crowded significantly increases is not known, but before this level of use is reached effort should be made to disperse use to other areas of the river.

Dispersing use can be accomplished by changing the existing recreation facilities available to recreationists. Several factors influenced the heavy use of the Kendallville-Decorah segment: sections between Kendallville and Bluffton possess unique scenic beauty; public campgrounds in this section are close to river-based activities such as camping, fishing, and canoeing; and access areas are conveniently located for 1-day canoeing trips. Because of low water conditions during June-August in segments of the river above Kendallville, the section of river downstream from Decorah has the greatest potential for an increase in recreational use by canoeists. In 1973 only 12 percent of the canoeing use occurred in this section. With a limited degree of development such as expansion of existing parking areas and improvement of canoe launching sites, existing state-owned areas at the Upper and Lower Dams and Canoe Creek could be developed to accommodate increased numbers of canoeists. Using data on fishing use, it may be inferred that conflicts between bank fishermen and canoeists may occur

if canoeing use of the lower segments increases. This possible conflict could be lessened by placement of signs at major canoe launching sites emphasizing canoeing courtesy, especially measures to minimize the disturbance caused when canoeing parties encounter bank fishermen.

Results indicated that a previous visit or conversation with friends were the main reasons influencing users to visit the river. Thus, on-site information provided by resource agency personnel during peak periods of use such as weekends and holidays may be helpful in changing existing use patterns. At present the ICC's canoeing guide (ICC ca. 1971), does not provide road directions or a river map for the section of river downstream of Decorah. The existing guide could be modified to provide more information and thus encourage use in these downstream segments.

Recreation Facility Development

Over half of the persons interviewed preferred to see the Upper Iowa left as it is in its present state of development. Those persons who preferred no development generally desired no change in recreation facilities. Christopherson (1973:33) found a similar relationship of preferences of floaters on the St. Joe River in Idaho, a river under consideration for inclusion in the National Wild and Scenic Rivers System. However, a sizeable portion of the

Upper Iowa users, both those that were pro-development and those who were anti-development, wanted more facilities developed along the river. With the exception of the two public parks located along the river, all public-use areas were undeveloped. In a study of Quetico-Superior area visitors, Bultena (1961:169) found that while most area visitors favored maintaining the area in a natural wilderness state, a relatively high proportion of the campers, and somewhat smaller, although sizeable proportion of the canoeists, favored the development of more facilities. Apparently, the visitors did not adopt the more traditional definition of wilderness (no man-made developments), but instead substituted an "urban frame of reference," unwilling to dichotomize wilderness values (Bultena 1961:169).

Although the visitor may be able to rationalize the incompatibility of wilderness values and development of facilities, the resource manager may not be as flexible. If resource management policy tries to maintain the level of facilities desired by visitors, the attractiveness of the area may be depreciated from either overuse or overdevelopment. If a rigid management policy of little or no development is adopted, the resource may suffer from such things as the lack of planning for litter removal or from stream bank erosion. Results from a study of canoeists and campers in the Boundary Waters Canoe Area led Lucas

(1964b:410) to believe that a decision must be made between limiting the numbers using a wilderness and letting the wilderness (as defined by some visitors) vanish from overuse. It is not the intent of this discussion to equate the Upper Iowa with wilderness areas such as the Boundary Waters area, but to show that the Upper Iowa, with its scenic beauty and timbered, pastoral banks, could experience future management problems of overuse and overdevelopment.

Proposals of extensive development in outstanding natural areas generally meet with stiff resistance from special interest groups. The proposed recreation development along the Upper Iowa is no exception. The USDI's recommended river plan called for (1) the provision of approximately 14,300 acres of land, including 6,000 that would be purchased in title by the State, for protection of the river environment and for recreation areas, (2) fee simple purchase of a land corridor 200-400 feet deep on both sides of the river for the 80-river miles recommended for inclusion in the national system, and (3) location along the river of eight recreation development sites designed principally to serve the river user. Small campgrounds that include tables, fire rings, pad areas, vault toilets, water supply, and parking were proposed for five of these development areas (USDI 1972:75-84). The UIRPA has repeatedly made public statements against adoption of the scenic river concept for the Upper

Iowa because of the high degree of recreation development implied by the concept and the loss of agricultural land through public land acquisition. The Sierra Club, which strongly supports the scenic river concept, wants little or no development of any kind along the river. I found in this study that a majority of the users wanted no major development, but most wanted more facilities. A decision by the resource agency of no recreation development would be popular with all the major groups involved. However, a policy of no development may not be wise management from the standpoint of protection of the natural resource.

During this study the river and its banks received use from several thousand users annually. There were large and significant increases in recorded canoeing and camping activity in 1973. Mr. Fred A. Priewert, Director of the ICC, believes that gasoline shortages in the 1970's will cause increased use of Iowa's parks and recreation areas (Knauth 1974). Because of the proximity of the Upper Iowa to Minnesota, Wisconsin, and Illinois, even heavier use than that recorded in 1972 and 1973 is likely in the future due to the energy shortage. Areas of heavy use such as Kendallville County Park and Bluffton private and public accesses will be affected by the physical impact of increased use in the form of eroded canoe launching sites, trees stripped of limbs to be used for firewood, increased trash from recreationists,

and vegetation beaten down due to inadequate automobile parking. Any management plan should provide opportunities for river-oriented recreation which are consistent with protection of the quality of the river and its environment.

Provision of firewood, toilets, adequate parking, and litter receptacles at high-use access areas could lessen the physical impact caused by recreation activities that I observed in this study. It is almost certain that recreational use of the river will increase, thus, promotion of use on other areas of the river may lessen the congestion of canoeing and camping activities in the Kendallville-Decorah section. Whether or not additional facilities would lessen congestion, it would allow an increase in total recreation use of the river. Expansion of existing parking areas at Upper and Lower Dams and acquisition of public accesses downstream from dam areas could enable the handling of added recreation use. At present the absence of sanitation facilities at heavily-used access areas poses the biggest threat by recreationists to river water quality. Only the toilet facilities at Decorah city park are adequate to prevent pollution of the river. Chemically-treated toilets placed at key areas such as the Bluffton public access would help stop the pollution of the river by human wastes. In June 1973 litter receptacles were removed from all state game management areas including the

Bluffton public access, Upper and Lower Dam accesses, and Canoe Creek access. Throughout the summer of 1973 unsightly trash piles and litter were found at these access areas. Litter barrels placed at critical points during high-use periods would alleviate most of this litter and in turn, furnish a better recreational experience.

So far the discussion has dealt with canoeing and facility development related to canoeing. With the exception of parking areas and launch and take-out sites, canoeing activity does little to disturb the quality of the river and its banks. Camping activity on the other hand, whether participated in by canoers or those solely camping, can have great physical impact on an area. Vegetation in campgrounds is trampled, trees are cut for firewood, rocks from the river bank are used for fireplaces, and, in some campgrounds, repeated use by automobiles causes ruts in the ground. I observed all these effects during the 2-year study.

The USDI study report proposed construction of special river-access camping areas composed of Adirondack-type shelters midway between major general-use campgrounds at Kendallville, Bluffton, and Decorah (USDI 1972:84). Levels of recorded camping activity and general observations of group behavior give me reason to question the wisdom of developing such campsites. With the exception of several holiday periods, existing camping areas along the river were

not overcrowded. Because of the lack of necessary facilities such as toilets, firewood, fireplaces, and parking lots, the more heavily-used camping areas were physically abused. Improvement of existing camping areas to adequately handle existing use levels is a more reasonable approach than opening more campsites along scenic, wooded and pastoral sections of river bank. Future developments may have to be made at other than sites presently used. When this is done, it would seem most logical to plan them to distribute use loads.

Argument can be made that camping developments do not present the aesthetic recreation experience that canoeists desire when they visit a river. However, what is more important is protection of the scenic characteristics that make the river a high-quality natural area. Management objectives should provide river-oriented recreational opportunities as long as they do not impair the river quality and its environment. In this study, an average canoeing and camping party was seven persons in number. It would not take long for groups of this size to cause a secluded river-access campsite to be run-down. Once the campground is run-down, the resource agency must do something about creation of a new one. These problems need consideration before the USDI river plan is adopted. Careful planning should precede management decisions to minimize adverse impacts of use and to provide

for orderly and controlled development.

Recommendations

Recreation use patterns

1. Effort should be made to disperse use to areas of the river downstream from Decorah. Presently, 83 percent of the canoeing use is concentrated on a 30-mile section of the river from Kendallville to Decorah.
2. The ICC Canoeing Guide should be modified to provide road directions and a river map of the section of river downstream of Decorah. This may be helpful in changing existing use patterns.
3. On-site information should be provided by resource agency personnel during peak periods of use such as weekends and holidays to help change existing use patterns.
4. Signs should be established at major canoe launching sites emphasizing canoeing courtesy, especially measures to minimize the disturbance caused when canoeing parties encounter bank fishermen. This may be important if conflicts between bank fishermen and canoeists occur as canoeing use of the lower segments increases.

Recreation facility development

A comprehensive river management plan should be developed soon. The management plan adopted should provide opportunities for river-oriented recreation which are consistent with protection of the quality of the river and its environment.

1. Firewood, toilets, adequate parking, and litter receptacles should be provided at high-use access areas to lessen the physical impact caused by recreation activities.
2. Existing state-owned areas at the Upper and Lower Dams and Canoe Creek should be developed to accommodate increased numbers of canoeists. This could be accomplished with a limited degree of development such as expansion of existing parking areas and improvement of canoe launching sites.
3. Existing camping areas along the river should be improved to adequately handle existing use levels rather than opening special river-access camping areas along scenic, wooded, and pastoral sections of river bank. These latter areas should be protected from camping use.

LITERATURE CITED

Bultena, Gordon. 1961. Changing wilderness images and forestry policy. J. For. 59:167-171.

Bureau of Outdoor Recreation. 1973. Upper Iowa scenic river proposal, draft environmental statement 73-42. Bur. Outdoor Recreation, U. S. Dep. Int., Denver, Colo.

Christopherson, Kjell A. 1973. Report of attitudes and opinions of recreationists towards wild and scenic rivers: a case study of the St. Joe River. Scenic Rivers Study No. 9, Proj. C-3342-IDA, Water Resour. Res. Inst., University of Idaho, Moscow, Ida. 66 pp.

Code of Iowa. 1971. Scenic Rivers Act. Chapter 108A.

Code of Iowa. 1973. Malicious mischief and willful trespass. Chapter 714.

Des Moines Register. 1972. Urge inclusion of Upper Iowa River in scenic U. S. system. Des Moines (Iowa) Register, May 24, 1972. p. 9.

Des Moines Register. 1974. Plan seeks scenic river status for the Upper Iowa. Des Moines (Iowa) Register, January 10, 1974. p. 10.

Fleener, George C. 1971. Recreational use of the Platte River, Missouri. Pages 63-78 in Edward Schneberger and John L. Funk, ed. Stream channelization: a symposium. Special publication No. 2, North Central Division, American Fisheries Society.

Gauvin, Aime. 1972. Rumblerattlebangclatterroar---you're on the Allagash nonwilderness waterway. Audubon 74(4):44-51.

Haugen, Arnold O., and Arnold J. Sohn. 1968. Competitive recreational uses of selected Iowa lakes. Completion Rep., Proj. A-005-IA, Ia. State Water Resour. Inst., Ames, Ia. 173 pp.

Haugen, Arnold O., and Richard E. Lenning. 1970. Pre-impoundment recreational use pattern and waterfowl occurrence in the Saylorville Reservoir Area. Completion Rep., Proj. A-023-IA, Ia. State Water Resour. Res. Inst., Ames, Ia. 177 pp.

Herbst, John, ed. 1970. A wild and scenic rivers symposium. Information Bull. No. 6, Water Resour. Res. Inst., University of Idaho, Moscow, Ida. 42 pp.

Iowa Conservation Commission. ca. 1971. Iowa canoe trips. Ia. Conserv. Comm., Des Moines, Ia. 14 pp.

Knauth, Otto. 1973a. Upper Iowa River 'toll'. Des Moines (Iowa) Sunday Register. May 20, 1973. Iowa living, 1B.

Knauth, Otto. 1973b. Threatens to stop boaters. Des Moines (Iowa) Sunday Register. July 8, 1973. Iowa living, 1B.

Knauth, Otto. 1974. Expect heavy 1974 Iowa parks traffic. Des Moines (Iowa) Sunday Register, January 6, 1974. 1974 progress edition, Iowa business review and outlook, 10Y.

Knudson, G. E. 1973. A guide to the Upper Iowa River. Luther College Press, Decorah, Ia. 69 pp.

Lime, David. 1972. Large groups in the Boundary Waters Canoe Area---their numbers, characteristics, and impact. Res. Note NC-142, North Central For. Exp. Stat., For. Serv., U. S. Dep. Agr., St. Paul, Minn.

Lucas, Robert C. 1964a. Recreational use of the Quetico-Superior Area. U. S. For. Serv. Res. Pap. LS-8, Lakes States For. Exp. Stat., For. Serv., U. S. Dep. Agr., St. Paul, Minn. 50 pp.

Lucas, Robert C. 1964b. Wilderness perception and use: the example of the Boundary Waters Canoe Area. Nat. Resour. J. 3(1):394-411.

Peckfelder, Robert L. 1973. Wild river perception and management: a study of users and managers of the Middle Fork of the Salmon River. Scenic Rivers Study Rep. No. 8, Proj. C-3342-IDA, Water Resour. Res. Inst., University of Idaho, Moscow, Ida. 108 pp.

Proescholt, T. A., and K. E. Carlander. 1969. Measurements of boating and fishing, Clear Lake, Summer 1968. Ia. Acad. Sci. Proc. 76:188-195.

Public Law 90-542. 1968. Wild and Scenic Rivers Act. 90th Congress, S. 119.

Reiser, Dale E. 1973. River preservation president warns of 'Vigilante' action. Decorah (Iowa) Journal, July 12, 1973. p. 2.

Scenic Rivers Study Unit. 1970. A methodology study for evaluation of wild and scenic rivers. Water Resour. Res. Inst., University of Idaho, Moscow, Ida. 8 pp.

Solomon, Michael J., and Edward A. Hansen. 1972. Canoeist suggestions for stream management in the Manistee National Forest of Michigan. For. Serv. Res. Pap. NC-77, North Central For. Exp. Stat., For. Serv., U. S. Dep. Agr., St. Paul, Minn. 10 pp.

Taves, M., W. Hathaway, and G. Bultena. 1960. Canoe country vacationers. Minn. Agr. Exp. Stat. Misc. Rep. No. 39. 28 pp.

Taylor, Larry C. 1969. Scenic easements along the Upper Iowa River. Unpublished M. S. Thesis. Library, Iowa State University, Ames, Ia.

U. S. Bureau of Census. 1972. Census of population: 1970, general social and economic characteristics, Final Report PC(1)-C17, Iowa. U. S. Government Printing Office, Washington, D. C.

U. S. Department of the Interior. 1972. Upper Iowa River wild and scenic river study. U. S. Government Printing Office, Washington, D. C. 99 pp.

Upper Iowa River Preservation Association. 1971. Can a master plan be devised for public river development that will protect owner rights? Mimeo. Upper Iowa River Preservation Assoc., Decorah, Ia. 8 pp.

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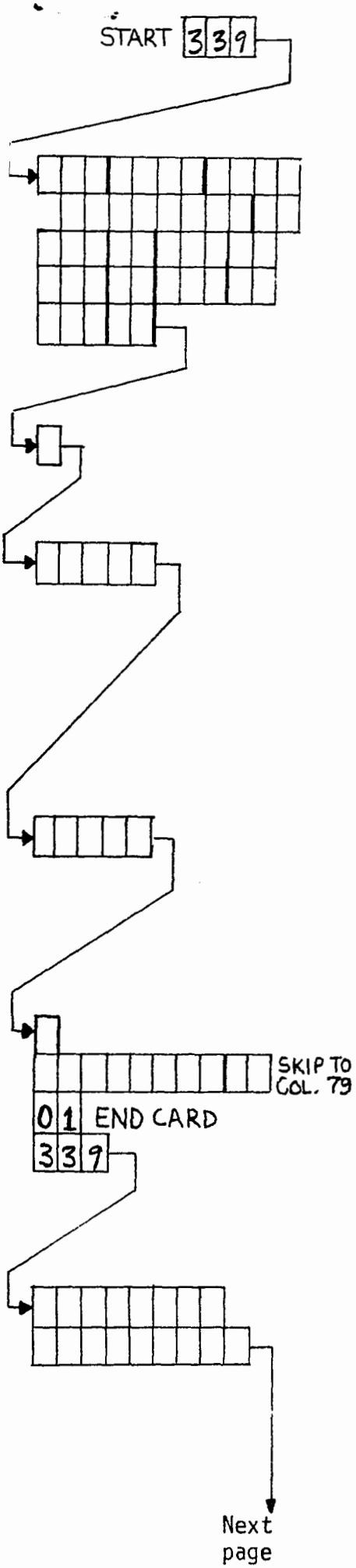
APPENDIX I: WATER RECREATION SURVEY



Questionnaire No. 339

Water Recreation Survey
157 Iowa Cooperative Wildlife Research Unit
Iowa State University, Ames, Iowa

Contact Area _____ Time _____ Date _____
Respondent's address _____
Other cities if any _____

Mileage/People =	/	/	/	/	/

1. Was the Upper Iowa River visit the MAIN reason for your trip to this region of the state?

   YES ____ (PROCEED TO Q. 2)

   NO ____

   1a. (IF NO) What was the MAIN reason(s) for your trip?

   ___1. Recreation in other areas of NE Iowa
   ___2. Personal business
   ___3. Visiting friends or relatives
   ___4. Part of an extended vacation
   ___5. Other (please list) _____

2. What influenced you to visit the Upper Iowa River? (Check as many as apply)

   ___1. Publicity regarding the Upper Iowa River
   ___2. A previous visit to the Upper Iowa River
   ___3. Recommendations of others
   ___4. Reading (other than advertising)
   ___5. Other (please list)

3. Did you travel directly from home to the River?

   YES ____
   NO ____ (IF NO, SKIP TO Q. 3a)

   3a. (IF NO) Where was the point of origin for this trip?

   _____
   (City and State)

4. Check those activities in which you have taken part in on this visit to the Upper Iowa River.

   ___1. Picnicking
   ___2. Nature study
   ___3. Swimming
   ___4. Fishing
   ___5. Hunting
   ___6. Hiking
   ___7. Bicycling
   ___8. Camping
   ___9. Photography
   ___10. Horseback riding
   ___11. Bird watching
   ___12. Canoeing
   ___13. Mushroom hunting
   ___14. Sightseeing
   ___15. Motorcycling
   ___16. Archery
   ___17. Other (specify) _____

5. How many visits other than canoe trips have you made to the Upper Iowa River this year?

_____

Previous year?

_____

6. Did you canoe or float parts of the River on this trip?

YES____

NO ____(IF NO, SKIP TO Q. 6d)

6a. (IF Q.6 YES) How many days did you spend (have you spent) on the River this trip?

6b. How many more days do you plan to spend on the River this trip?

_____

6c. Is this your first canoe trip on the Upper Iowa River?

YES_____(IF YES, SKIP TO Q. 6e)

NO _____

6d. (IF Q.6 IS NO, Q.6c IS NO) How many canoe trips have you made on the Upper Iowa River this year?

_____

Previous year?

_____

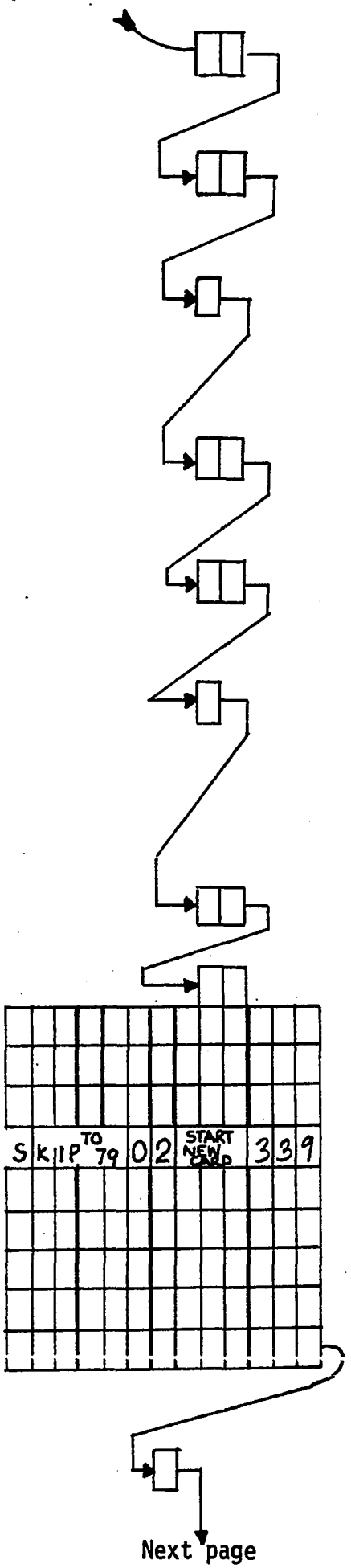
6e. What parts of the River did you (will you) canoe on the:

		Date	Mileage
1st day	____to ____		
2nd day	____to ____		
3rd day	____to ____		
4th day	____to ____		
5th day	____to ____		
6th day	____to ____		
7th day	____to ____		
8th day	____to ____		

6f. On your canoe or float trip, did you:

Expect to find:

___1. Nobody else
___2. Fewer people
___3. Numbers of people seen
___4. More people



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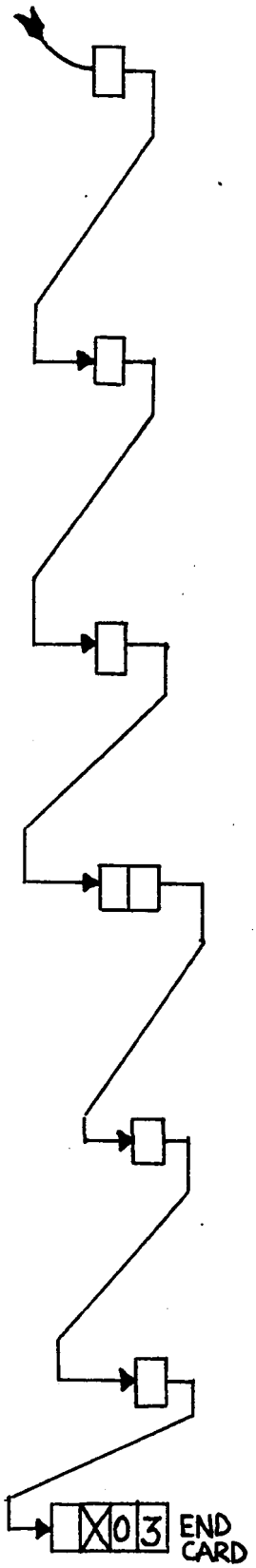

Feel the River was:

___1. Too crowded
___2. Just right
___3. Not used enough
___4. No opinion

6g. How many canoes or boats other than your own did you see on the River today?

___1. 0-5
___2. 6-10
___3. 11-15
___4. 16-25
___5. 26-35
___6. 36 or more (specify)_____

6h. Which category best describes the group with which you made this river trip or visit?

___1. Individual
___2. Husband and wife
___3. Family
___4. Family and friends
___5. Friends

Did you make this trip as a member of a specific organization?

YES___(IF YES) Which one? _____

NO____

6i. Have you had any previous canoeing experience?

YES____

NO ____ (Skip to Q.6n)

6j. (IF Q. 6i IS YES) About how many years of canoeing experience do you have?

___1. 0-1 years
___2. 2-5
___3. 5-10
___4. 11 or more

6k. With what frequency did you go canoeing last year?

___1. 0-2 times
___2. 3-5
___3. 5-10
___4. 11 or more

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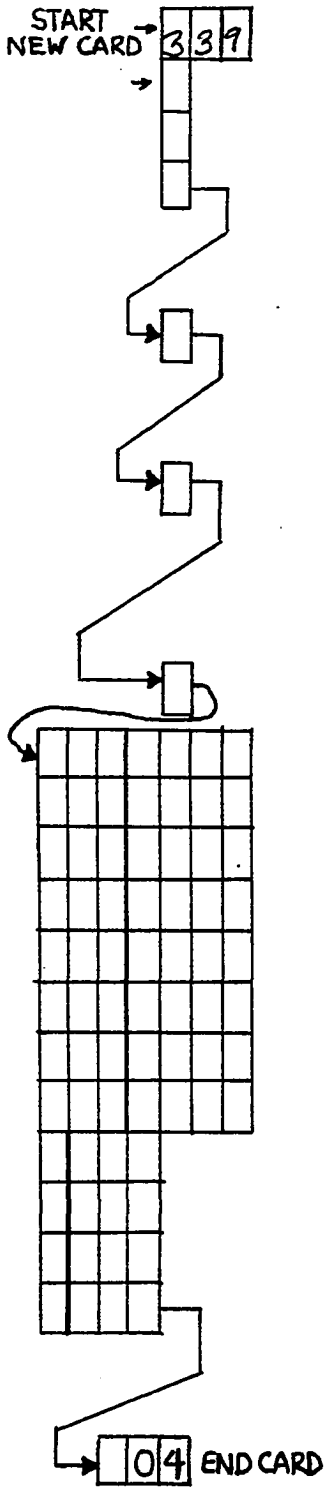


61. On what type of areas have you canoed? (CHECK AS MANY AS APPLY) 160

___1. Rivers
___2. Lakes or reservoirs
___3. Farm ponds

6m. Have you canoed in any remote wilderness areas?

YES____ (IF YES, LIST)_____

NO ____

6n. Can you swim?

YES___ NO___

7. Did you camp along the Upper Iowa River during your visit?

YES____

NO ____(IF NO, SKIP TO Q.8)

7a. (IF YES) At which area(s) did you stay?

	Location	Date
1st day	_____	_____
2nd day	_____	_____
3rd day	_____	_____
4th day	_____	_____
5th day	_____	_____
6th day	_____	_____
7th day	_____	_____
8th day	_____	_____

7b. Under whose ownership was (were) the area(s) you stayed? How many days did you stay on those areas checked?

___1. Private	____
___2. County	____
___3. City	____
___4. State	____

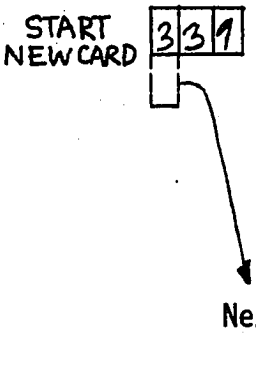
7c. What type of camping equipment did you use on this visit?

___1. "Under the stars"
___2. Pup tent or lean-to
___3. Wall/pole tent
___4. Vehicle-pulled trailer
___5. Pickup camper or motor home

8. Did you fish on this Upper Iowa River visit?

YES____

NO ____(IF NO, SKIP TO Q.9)



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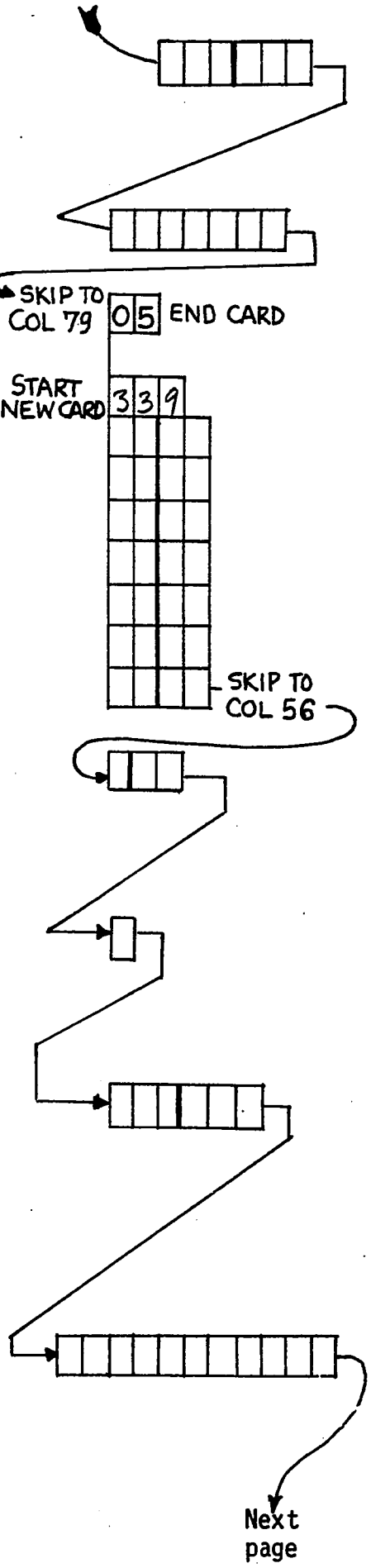


8a. (IF YES) What area(s) did you fish?

_____to_____

8b. Why did you fish where you did? (CHECK AS MANY AS APPLY)

___1. Easy to get there.
___2. Good looking spot.
___3. Because it was stocked with trout.
___4. Caught fish there before.
___5. Saw others fishing there.
___6. Someone else suggested it.
___7. Don't know.

8c. What species did you catch? 8d. How many of each species did you keep?

___1.	Trout	___
___2.	Smallmouth	___
___3.	Channel catfish	___
___4.	Northern pike	___
___5.	Sucker	___
___6.	Other (specify)____	___
___7.	Didn't catch any	___

8e. Have you fished on the Upper Iowa River in previous years?

YES___(IF YES) for what species?_____

NO ___

9. Did you hunt along the Upper Iowa River last fall?

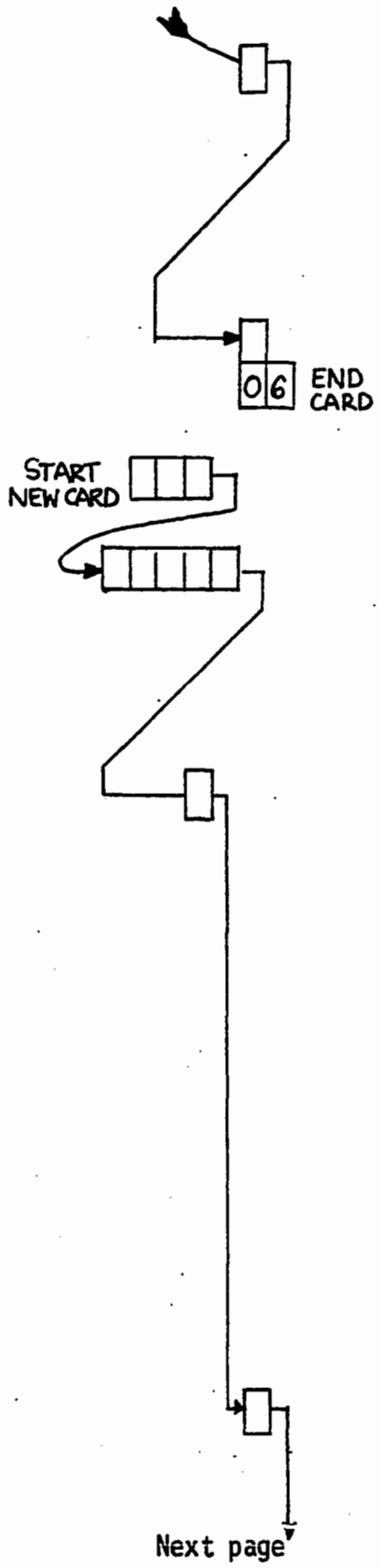
YES ___
NO ___ (IF NO, SKIP TO Q. 10)

9a. (IF YES) In what area(s) did you hunt?

_____to_____

9b. Indicate by preference those game species that you hunted in the area(s) checked in QUESTION 9a. Put "1" before the game you most hunted, a "2" before the game you spent the second most time hunting, and a "3" before the game you spent the third most time hunting.

___1.	Deer	___5.	Raccoon	___9.	Ducks
___2.	Squirrel	___6.	Fox	___10.	Geese
___3.	Ruffed grouse	___7.	Opossum	___11.	Other
___4.	Rabbit	___8.	Pheasant	(specify)_____	



9c. How many times during the season did you hunt?
162

___1. 1-2 days
___2. 3-4 days
___3. 5-7 days
___4. 8-12 days
___5. More than 12 days (specify how many)_____

10. Are you aware that the Upper Iowa River has been included in the National Wild and Scenic Rivers System?

YES___
NO ___(IF NO, SKIP TO Q. 11)

10a. (IF YES) From what sources have you heard about it? (CHECK AS MANY AS APPLY)

___1. Newspaper article
___2. Conservation groups(s)_____
___3. TV/Radio news feature
___4. George Knudson's - Guide to the Upper Iowa River
___5. Other (specify)_____

11. Would you MOST prefer that the Upper Iowa River:

___1. Be left essentially as it is in its present state.
___2. Be more fully developed for recreation. This might include creation of river-access primitive campsites, hiking trails, horseback riding trails, and self-guided natural history walks.

___3. Be developed to its full economic potential. This might include trailer and car campsite development, building of resorts or motels in the River, river-access private cabins, or intensified agricultural use.

___4. No opinion.

12. Would you be willing to pay a user permit fee for the use of the Upper Iowa River recreational experience?

YES___
NO ___
NO OPINION___

IF NO OR NO OPINION, SKIP TO Q. 13)

12a. (IF YES) If a fee were charged per individual, would you list your order of preference, 1 through 3, for the method of paying fee. Then indicate how much you would be willing to pay for EACH type of fee.

	Preference	50¢	$1	$2	$5	More
1. A fee for each trip/visit to the river	___	___	___	___	___	___
2. An annual fee for all trips/ visits to the river	___	___	___	___	___	___
3. A fee based on the number of days on the river	___	___	___	___	___	___
4. Other (specify) _____	___	___	___	___	___	___

13. (IF Q.6 WAS ANSWERED YES) Do you think the volume of canoe travel on the river should be restricted?

SHOULD____

SHOULD NOT____

14. Based on this visit to the Upper Iowa River, would you like to see: (PLEASE RESPOND TO EACH ITEM, CHECK ONLY 1 CATEGORY FOR EACH ITEM)

	More	Less	No change	No opinion
1. Campsites	____	____	_____	_____
2. Toilets	____	____	_____	_____
3. Fireplaces	____	____	_____	_____
4. Tables	____	____	_____	_____
5. Lodges and/or cabins	____	____	_____	_____
6. Firewood supplied	____	____	_____	_____
7. An interpretive brochure to take with you	____	____	_____	_____
8. Better litter disposal	____	____	_____	_____
9. Concessions	____	____	_____	_____
10. Other (specify) _____	____	____	_____	_____

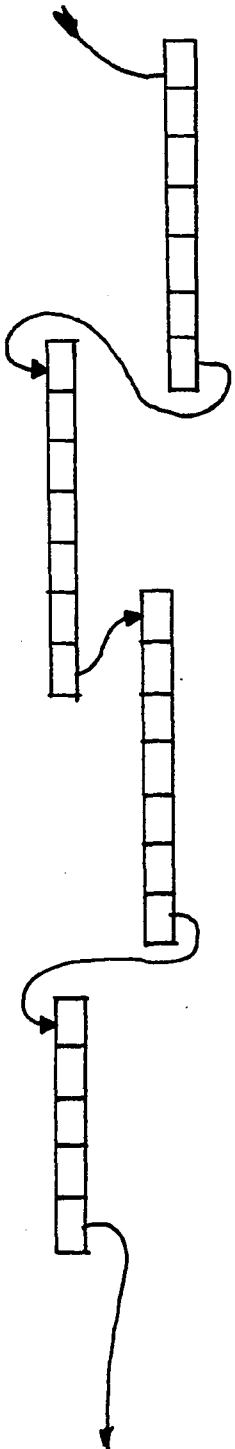
15. (IF Q. 7 WAS ANSWERED YES) Do you think the volume of camping along the river should be restricted?

SHOULD____

SHOULD NOT____

Next page

16. With regard to your personal experience on this Upper Iowa River visit, do you feel that each item listed below was: (PLEASE RESPOND TO EACH ITEM - CHECK ONLY 1 CATEGORY FOR EACH ITEM)



a. Unique River Experience

	Very important	Moderately important	Important	Unimportant	No Opinion
1. Scenic beauty					
2. Adventure					
3. Isolation					
4. Excitement of river					
5. Personal enrichment					
6. Communing with nature					
7. Other (specify)_____					

b. Participation in activities

	Very important	Moderately important	Important	Unimportant	No Opinion
1. Picnicking					
2. Camping					
3. Canoeing					
4. Fishing					
5. Hunting					
6. Swimming					
7. Photogr					
8. Bird					
9. Mot					
10. H					
11.					
12.					
13.					
14.					

c. Othe

	Very important	Moderately important	Important	Unimportant	No Opinion
1. His					
2. Fami					
3. Escape ... cy					
4. Scientific interest					
5. Free flowing clear water					
6. Other (specify)					

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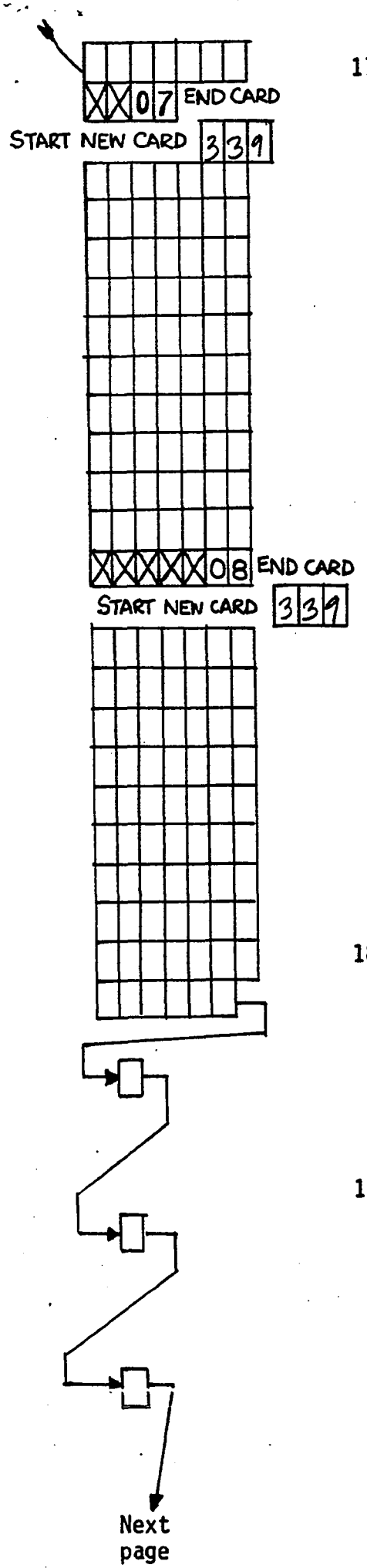

17. Recreational preferences:

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a. In column (1) place the age of each person in your (include interviewee)
b. In column (2) place the sex of each person listed
c. In column (3) place the occupation of each person group who is 18 years and older
d. In column (4) rank by order of preference these activities each member of the group participated in this trip.

1 AGE	2 SEX	3 OCCUPATION	4 FIRST	SECOND	TH
___	___	_____	___	___	_
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			

18. What is the highest level of education you have comple
(PLEASE CHECK THE HIGHEST GRADE COMPLETED IN SCHOOL)

___1. Grade 0 - 8
___2. Grade 9 - 12
___3. Some college
___4. College graduate
___5. Post-graduate

19. Do you live:
___1. On a farm
___2. On a rural non-farm acreage
___3. In a town (less than 1000)
___4. In a town (1000-2500)
___5. In a city (2500-10,000)
___6. In a city (10,000-50,000)
___7. In a city 50,000

(If in a city) Where in the city do you live?
___City proper
___Suburb

16. With regard to your personal experience on this Upper Iowa River visit, do you feel that each item listed below was: (PLEASE RESPOND TO EACH ITEM - CHECK ONLY ONLY 1 CATEGORY FOR EACH ITEM)

a. Unique River Experience

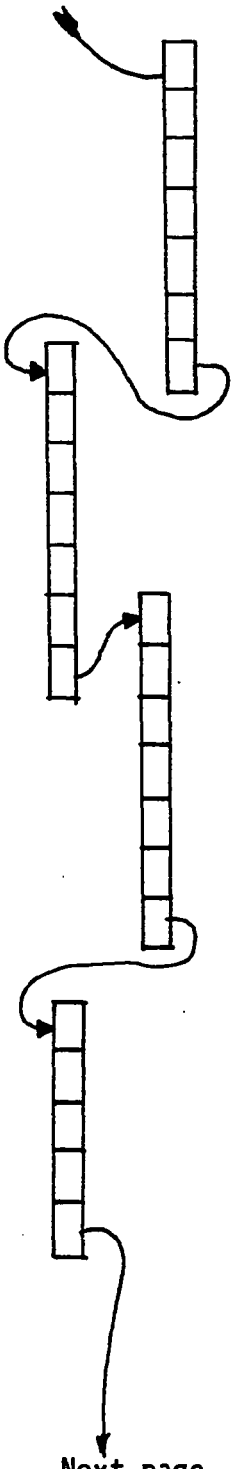
	Very important	Moderately important	Somewhat important	Important	Unimportant	No opinion
1. Scenic beauty						
2. Adventure						
3. Isolation						
4. Excitement of river						
5. Personal enrichment						
6. Communing with nature						
7. Other (specify)_____						

b. Participation in activities

	Very important	Moderately important	Somewhat important	Important	Unimportant	No opinion
1. Picnicking						
2. Camping						
3. Canoeing						
4. Fishing						
5. Hunting						
6. Swimming						
7. Photography						
8. Bird watching						
9. Motorcycling						
10. Horseback riding						
11. Nature study						
12. Hiking						
13. Boating						
14. Other (please list)						

c. Other features

	Very important	Moderately important	Somewhat important	Important	Unimportant	No opinion
1. History of area						
2. Family unity						
3. Escape from crowded city						
4. Scientific interest						
5. Free flowing clear water						
6. Other (specify)						



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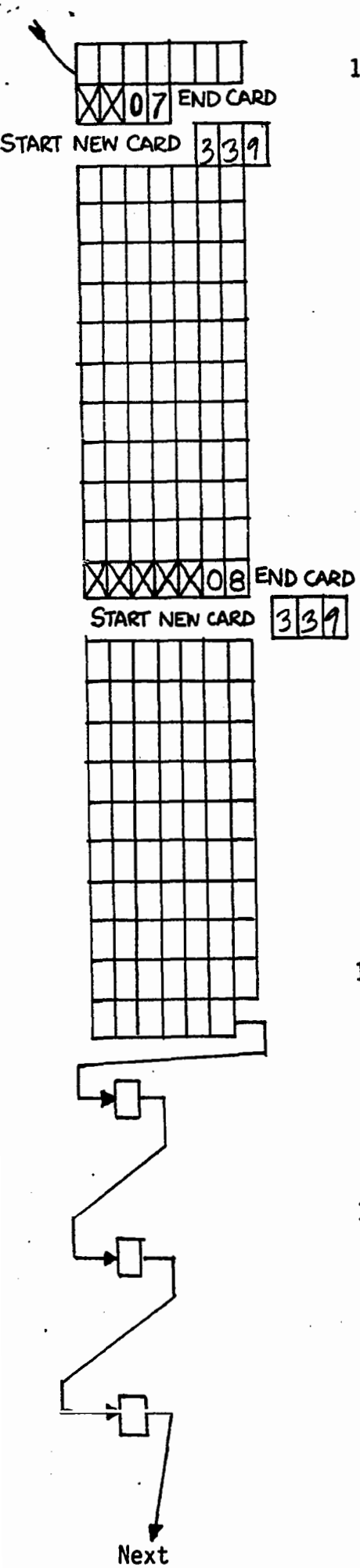


17. Recreational preferences:

165

a. In column (1) place the age of each person in your group (include interviewee)
b. In column (2) place the sex of each person listed
c. In column (3) place the occupation of each person in the group who is 18 years and older
d. In column (4) rank by order of preference those activities each member of the group participated in on this trip.

1 AGE	2 SEX	3 OCCUPATION	4 FIRST	SECOND	THIRD
___	___	_____	___	___	___
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			
___	___	_____			

18. What is the highest level of education you have completed? (PLEASE CHECK THE HIGHEST GRADE COMPLETED IN SCHOOL)

___1. Grade 0 - 8
___2. Grade 9 - 12
___3. Some college
___4. College graduate
___5. Post-graduate

19. Do you live:

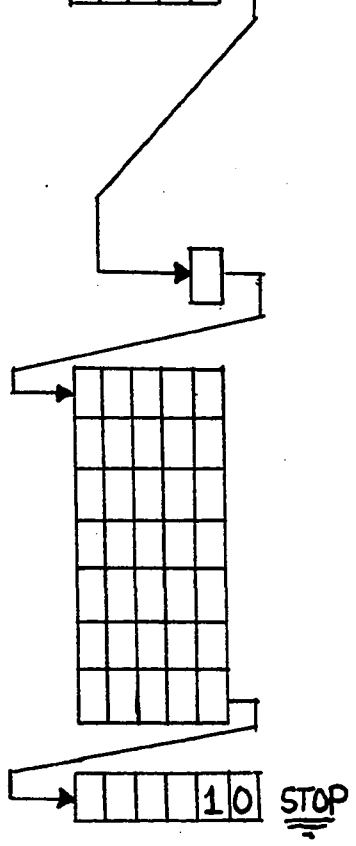
___1. On a farm
___2. On a rural non-farm acreage
___3. In a town (less than 1000)
___4. In a town (1000-2500)
___5. In a city (2500-10,000)
___6. In a city (10,000-50,000)
___7. In a city 50,000

(If in a city) Where in the city do you live?

___City proper
___Suburb

XX09

START NEW CARD 339



20. What was the approximate total yearly income of your family in 1972? 166

___1.	Under $2,999	___5.	$10,000 - 14,999
___2.	3,000 - 4,999	___6.	15,000 - 19,999
___3.	5,000 - 6,999	___7.	20,000 - 24,999
___4.	7,000 - 9,999	___8.	25,000 and over

21. Cost of outdoor recreational activities:

21a. For this trip to the Upper Iowa River, estimate your total expenses in each of the following:

		Total
1.	Transportation (gas, general repairs, etc.)	_____
2.	Lodging (motels, campground fees, etc.)	_____
3.	Food and beverages	_____
4.	Recreational supplies (fishing lures, licenses, bait, etc.)	_____
5.	Rental of:	
	Canoe ___per canoe	_____
	Boat	_____
	Other	_____

21b. Did you purchase any supplies in the vicinity of the Upper Iowa River, or did you bring them all with you from home?

In vicinity____(IF CHECKED, SKIP TO Q. 21c)

From home____

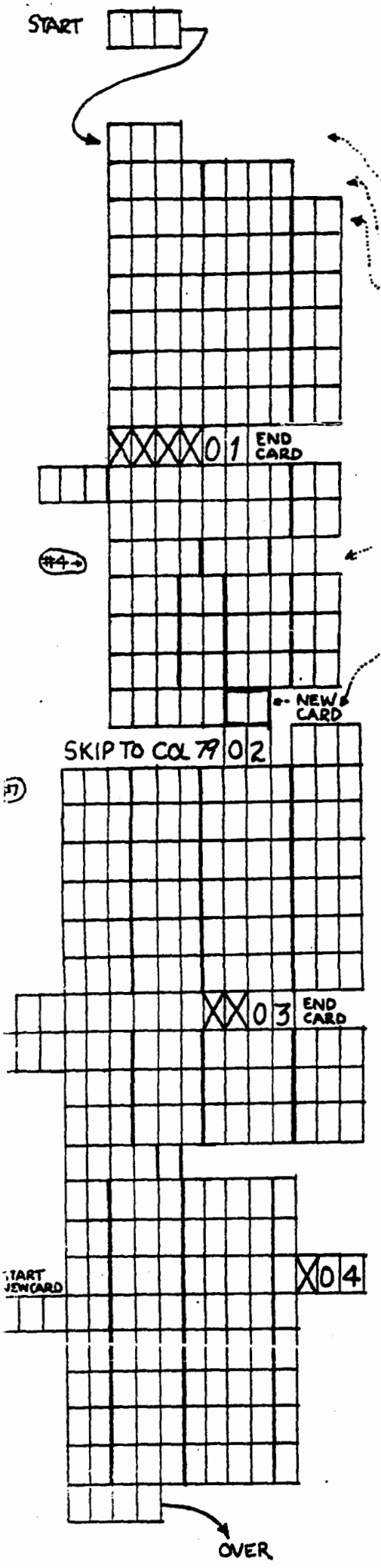
21c. (IF IN THE VICINITY) Please estimate your total expenses in each of the following categories:

		Total
1.	Transportation (gas, general repairs, etc.)	_____
2.	Lodging (motels, campground fees, etc.)	_____
3.	Food and beverages	_____
4.	Recreational supplies (fishing lures, licenses, bait, etc.)	_____
5.	Rental of:	
	Canoe _____per canoe	_____
	Boat	_____
	Other	_____

If group canoed: Number canoes in your group_____

Total number people in your group_____

APPENDIX II: CANOER SURVEY



Survey No._____

168 CANOER SURVEY
Iowa Cooperative Wildlife Research Unit
Iowa State University, Ames, Iowa

1. Contact Area_____

2. Time_____Date_____

3. Respondent's address_____/_____/

_____/_____/_____

_____/_____/_____

4. Number of canoes in your group _____

Number of canoers in your group_____

5. Mileage/People

6. How many days are you planning (did you spend) on the Upper Iowa River this trip?_____

7. What parts of the River did you (will you) canoe on the

		Date	Mileage
1st day	_____to_____	_____	_____
2nd day	_____to_____	_____	_____
3rd day	_____to_____	_____	_____
4th day	_____to_____	_____	_____
5th day	_____to_____	_____	_____
6th day	_____to_____	_____	_____
7th day	_____to_____	_____	_____
8th day	_____to_____	_____	_____

8. Have you had any previous canoeing experience? YES___ NO___

9. Are you going (did you) to camp along the River during your visit? YES____ NO____

(IF YES) At which area(s) did you (are you going) to stay?

	No. people	Location	Date	Ownership
1-	_____	_____	_____	_____
2-	_____	_____	_____	_____
3-	_____	_____	_____	_____
4-	_____	_____	_____	_____
5-	_____	_____	_____	_____
6-	_____	_____	_____	_____
7-	_____	_____	_____	_____
8-	_____	_____	_____	_____

10. Are you aware that the Upper Iowa River has been included in the National Wild and Scenic Rivers System?

YES____ NO____

11. Of the following activities, which did you (are you planning to) take part in on this visit to the Upper Iowa River:

1. __Picnicking
2. __Nature study
3. __Swimming
4. __Fishing
5. __Hunting
6. __Hiking
7. __Bicycling
8. __Camping
9. __Photography
10. __Bird watching
11. __Canoeing
12. __Sightseeing
13. __Other (specify)__________________

SKIP TO COL 79

05

12. Age___ Sex___ Occupation__________ Highest level of education completed_____

SKIP TO COL 79 06 END CARD

SKIP TO COL 79 07 END CARD

No. Adult males ___ Adult females___

Juv. males ___ Juv. females ___

No. canoes rented______ Trailer_______ Shuttle_______

SKIP TO → COL 79 08 STOP

APPENDIX III: CREEL CENSUS

Creel Census

Water Recreation Survey

Iowa Cooperative Wildlife Research Unit
Iowa State University, Ames, Iowa 50010

1. Contact area_____

2. Time_____Date_____

3. Respondent's address_____

4. How many times have you fished on the Upper Iowa River previously this calendar year? (INCLUDE THIS VISIT)

___1. 1 - 2 times
___2. 3 - 4
___3. 5 - 7
___4. 8 - 12
___5. More than 12 times (specify)____

5. Have you fished on the Upper Iowa River in previous years? YES___NO___

6. Why did you fish where you did? (CHECK AS MANY AS APPLY)

___1. Easy to get there
___2. Good looking spot
___3. Because it was stocked with trout
___4. Caught fish there before
___5. Saw others fishing there
___6. Someone else suggested it.
___7. Don't know

7. What species did you catch? How many of each species did you keep?

___1. Trout ____
___2. Smallmouth bass ____
___3. Channel catfish ____
___4. Northern pike ____
___5. Sucker ____
___6. Other (specify) ____
___7. Didn't catch any. How long have you fished_____hrs. Canoes seen_____.

8. Types of angling (CHECK AS MANY AS APPLY)

A. Casting_____ Still fishing_____
B. From canoe or boat_____ from shore_____ Wading____
C. With bait_____Artificial lure_____Both_____
D. Fly rod_____Spinning gear_____Casting tackle_____Pole_____

9. Age___Sex___Occupation_____Highest level of education completed_____

10. Are you aware that the Upper Iowa River has been recommended for inclusion in the National Wild and Scenic Rivers System? Yes_____ No_____

:00 6/12/72

APPENDIX IV: TRAPPER SURVEY

START

TRAPPER SURVEY
OUTDOOR RECREATION SURVEY

Iowa Cooperative Wildlife Research Unit 173
Iowa State University, Ames, Iowa 50010

1. Did you trap on the Upper Iowa River valley during the 1972-3 trapping season?

   ____Yes ____No

2. In what segments of the Upper Iowa River valley did you trap?

   ___1. Minnesota border-Kendallville
   ___2. Kendallville - Bluffton
   ___3. Bluffton - Decorah
   ___4. Decorah - Lower Dam
   ___5. Lower Dam - Highway 76
   ___6. Highway 76 - Mississippi River

3. What was the total number of traps you used on all areas?_____

   in the Upper Iowa River valley? _____

   What was the total number of days you trapped on all areas?_____

   in the Upper Iowa River valley? _____

4. From the following list of animals, check those animals that you trapped during the 1972-3 trapping season. List the numbers of each animal you trapped on all areas and the Upper Iowa River valley.

	No. trapped on all areas	No. trapped in Upper River Valley
___1. Mink	____	____
___2. Muskrat	____	____
___3. Beaver	____	____
___4. Fox	____	____
___5. Raccoon	____	____
___6. Skunk	____	____
___7. Weasels	____	____
___8. Other (list)	____	____

COL 80 1

5. Have you trapped on the Upper Iowa River in previous years?

   ____Yes ____No

   (If Yes) How many years have trapped?_____

   What animals did you trap?_____

6. Is trapping (CHECK AS MANY AS APPLY)

   ____1. a means of making a livelihood?
   ____2. a form of outdoor recreation?

7. Age____Sex____Occupation_____Highest level of education completed_____

8. Residence_____Rural_____Urban_____

COL 80 2

1/12/73

APPENDIX V: HOME TOWNS OF IOWA CANOEISTS AND CAMPERS CONTACTED ALONG THE RIVER IN 1972 AND 1973

County number	Home town	No. of groups 1972	No. of groups 1973	No. of people 1972	No. of people 1973
42	Ackley		1		3
77	Altoona	1		5	
77	Alleman		1		29
85	Ames	12	16	65	94
53	Anamosa		1		2
77	Ankeny	1	3	4	5
12	Aplington		1		1
33	Arlington		1		2
32	Armstrong		1		4
15	Atlantic	1		39	
38	Beaman	1		3	
6	Belle Plaine		1		1
49	Bellevue		1		8
99	Belmond	1		18	
77	Berwick	2		5	
82	Bettendorf	1	7	22	85
40	Blairsburg	1		2	
26	Bloomfield	1		10	
96	Bluffton	4	6	9	20
8	Boone		1		2
10	Brandon	1	1	6	3
9	Bremer County	1		4	
42	Buckeye	2		9	
29	Burlington	2	2	24	4
96	Burr Oak	3	4	7	31
96	Calmar	8	9	57	53
91	Carlisle		1		2
31	Cascade	2		4	
96	Castalia	1	1	7	4
7	Cedar Falls	17	46	181	346
57	Cedar Rapids	32	51	198	181
57	Central City	1	1	4	1
34	Charles City	7	3	31	8
18	Cherokee	1		1	
16	Clarence	1		22	
99	Clarion		2		8
17	Clear Lake	1	2	1	7
33	Clermont	2	4	5	12
23	Clinton	1	4	1	12
58	Columbus Junction	1		2	

County number	Home town	No. of groups 1972	No. of groups 1973	No. of people 1972	No. of people 1973
38	Conrad	1		9	
52	Coralville	2		16	
2	Corning	1		1	
45	Cresco	22	31	90	136
15	Cumberland	1		1	
82	Davenport	11	15	104	117
96	Decorah	74	103	325	360
9	Denver	3	3	22	25
77	Des Moines	20	22	84	89
23	DeWitt	1		37	
38	Dike		1		21
3	Dorchester	3	1	34	11
99	Dows	1		1	
31	Dubuque	7	17	40	52
94	Duncombe	1		6	
7	Dunkerton		1		4
31	Dyersville	1		6	
99	Eagle Grove	2		3	
28	Earlville	1	1	3	2
42	Eldora	1	1	2	2
82	Eldridge	1		4	
33	Elgin	1	1	1	3
22	Elkader	1	2	1	2
45	Elma		1		1
74	Emmetsburg		1		1
7	Evansdale	1	1	14	1
33	Fayette	1	2	6	10
96	Festina	2	2	5	5
95	Forest City	1	3	2	12
96	Fort Atkinson	3	3	5	5
94	Fort Dodge	4		9	
56	Fort Madison	2		4	
19	Fredericksburg	2	4	24	32
41	Garner		3		11
64	Gilman	1		5	
76	Gilmore City		1		9
86	Gladbrook	1		7	
12	Greene	1	1	2	7
79	Grinnell	1	1	11	2
38	Grundy City	1		9	

County number	Home town	No. of groups 1972	No. of groups 1973	No. of people 1972	No. of people 1973
39	Guthrie Center		1		18
35	Hampton	1		4	
3	Harper's Ferry	1		1	
33	Hawkeye		1		2
96	Hesper	2	1	7	1
28	Hopkington		1		2
45	Howard County	1		6	
10	Independence	4	8	41	42
91	Indianola	1	1	27	3
52	Iowa City	21	29	80	126
42	Iowa Falls		1		6
96	Jackson Junction	1		1	
9	Janesville	2	3	14	9
37	Jefferson		1		2
10	Jessup		3		14
96	Kendallville		2		3
56	Keokuk	1		2	
63	Knoxville	1		3	
3	Lansing		2		6
7	La Porte City	1	1	4	2
35	Latimer	1	2	17	28
19	Lawler	1	1	2	2
15	Lewis		1		1
45	Limesprings	4	5	71	50
57	Lisbon	1		3	
33	Little Turkey	2		5	
16	Lowden	2	1	40	38
96	Luther College	13	11	161	62
50	Lynnville		1		8
79	Malcolm		1		6
28	Manchester	1	1	1	3
49	Maquoketa		1		2
57	Marion	2	11	8	84
64	Marshalltown	2	5	6	24
17	Mason City	3	12	8	44
15	Massena	1		1	
33	Maynard	1	1	1	1
16	Mechanicsville		1		1
17	Meservey		1		1
22	Monona	2		4	

County number	Home town	No. of groups 1972	No. of groups 1973	No. of people 1972	No. of people 1973
50	Monroe		1		9
79	Montezuma		1		4
53	Monticello		1		1
6	Mount Auburn		2		3
44	Mount Pleasant		1		4
57	Mount Vernon	2	3	6	23
70	Muscatine		3		9
19	Nashua	3	1	25	5
3	New Albin		1		2
11	Newell	1		1	
6	Newhall		1		5
19	New Hampton	4	8	22	31
50	Newton	2		10	
52	North Liberty		1		2
33	Oelwein	3	4	14	25
84	Orange City	1		5	
66	Osage	1	2	20	24
96	Ossian	4	6	22	14
46	Ottosen		1		5
12	Parkersburg		1		2
63	Pella	1		1	
25	Perry	1		2	
97	Pierson	1		1	
82	Pleasant Valley	1	1	4	1
13	Pomeroy	1	1	2	2
3	Postville	6	4	29	4
82	Princeton	5	3	37	32
45	Protivin		1		1
7	Raymond	1	1	2	4
38	Reinbeck	2	1	12	2
46	Renwick		1		2
66	Riceville	1	4	12	17
96	Ridgeway	10	7	31	21
57	Robbins	1	2	5	20
85	Roland		1		2
74	Ruthven	2		8	
46	Rutland		1		17
33	St. Lucas	2	3	3	46
12	Shellrock		2		4
6	Shellsburg		1		1

County number	Home town	No. of groups 1972	No. of groups 1973	No. of people 1972	No. of people 1973
97	Sioux City		2		4
85	Slater		1		7
7	Solon	1	4	25	46
21	Spencer	1		8	
96	Spillville	5	4	17	12
30	Spirit Lake	1	1	9	16
10	Stanley	1		3	
42	Steamboat Rock	1		4	
85	Story City	1	1	3	2
22	Strawberry Point	2	3	49	61
9	Sumner	1	9	6	37
55	Swea City		1		2
95	Thompson		1		3
16	Tipton		1		4
86	Toledo		1		4
86	Traer	1		7	
77	Urbandale	1		20	
6	Van Horne		1		6
6	Vinton	2	1	15	2
32	Wallingford	3	1	26	5
92	Washington	1		14	
7	Waterloo	36	62	264	393
33	Waucoma	1		1	
3	Waukon	7	5	25	24
9	Waverly	6	9	29	44
40	Webster City		1		4
38	Wellsburg		1		1
16	West Branch	2	1	6	12
70	West Liberty		1		2
33	West Union	4	1	34	20
48	Williamsburg	1		2	
96	Winneshiek County	1		5	
	Unknown	1		1	
	Totals	496	692	3002	3476

APPENDIX VI: AREAS ALONG THE RIVER AND THE NUMBER OF PARTIES USING THEM TO LAUNCH OR TAKE OUT CANOES IN 1972 AND 1973

Owner-ship[1]	Locations	Launch locations 1972	Launch locations 1973	Take-out locations 1972	Take-out locations 1973
M	Chester, Ia.	2			
M	Limesprings, Ia.	4	13		1
S	Foreston area (Br. 06)	3	1	3	
C	Florenceville, Ia.	7	27	4	5
P	Odessa Springs		2		3
C	Larkin Bridge (#04)	2	3	1	
C	Dahly's Flat Bridge (#03)	4	3		3
C	Bigalk's Bridge (#02)	1		1	
C	Clark's Bridge (#01)	1			
P	River bank, 1 mi upstream Kendallville	12	6	2	
C	Kendallville County Park	183	303	23	38
P	River bank, 0.5 mi down-stream Kendallville		1		1
P	River bank, 1 mi down-stream Kendallville		1		1
C	Bridge 2	1	2	1	
C	Plymouth Rock Bridge (#3)	29	23	5	7
P	River bank, 1 mi down-stream Plymouth Rock Br.	2	1	1	1

[1]Key for ownership code: S-State, C-County, M-Municipal, and P-Private. Numbered areas are shown in Fig. 1.

Ownership[1]	Locations	Launch locations 1972	Launch locations 1973	Take-out locations 1972	Take-out locations 1973
P	River bank, 3 mi downstream Plymouth Rock Br.		1		1
C	Bridge 4	38	29	7	4
P	Blue Springs		5		5
P	River bank, mouth Coldwater Creek	5	5	5	3
P	River bank, near Chimney Rocks	4	2	4	2
C	Snell's Bridge (#5)	48	44	5	9
P	River bank, 1 mi upstream Bridge 6	4	3	3	4
P	River bank, 0.5 mi upstream Bridge 6		1		1
C	Bridge 6	5	6	3	2
P	Pasture in Bluffton, Ia.	111	87	141	123
S	State land south of Bluffton pasture				1
S	State access, 1 mi downstream Bluffton	76	182	108	215
P	River bank, 0.3 mi downstream Bluffton access	1	3	1	2
P	Bridge 8	1	3	5	4
P	River bank, 1 mi downstream Bridge 8	3	3	3	4
P	Christopher Springs	2	1	4	5

Ownership[1]	Locations	Launch locations 1972	Launch locations 1973	Take-out locations 1972	Take-out locations 1973
	(2 mi downstream Br. 8)				
C	Henry's Bridge (#9)	10	15	23	21
S	Malanaphy Springs state access	10	10	10	11
C	Bridge 10	3	5	15	22
P	River bank, 1 mi downstream Bridge 10	1		2	1
C	Bridge 11	6	9	16	26
P	River bank, 1 mi downstream Bridge 11		1		1
C	Tatro's Bridge (#12)	3	5	3	6
P	River bank, 1.5 mi downstream Bridge 12	1	3	1	3
C	Nor-ski Runs near U.S. 52		3	2	2
C	Bridge 13 (U.S. 52)			1	3
P	Luther College, Decorah	3		14	24
C	5th Ave. Bridge (#14)	7	1	1	21
M	Will Baker Landing, Decorah	20	19	139	176
M	Lief Erickson Bridge (#15)	2		26	12
M	Dunning's Springs, Decorah		3		3
M	Twin Bridges (#16)	3	3	5	9
S	Trout Run state access	5	1	6	2

Ownership[1]	Locations	Launch locations 1972	Launch locations 1973	Take-out locations 1972	Take-out locations 1973
P	River bank, 0.5 mi downstream Trout Run		1		1
C	Freeport Bridge (#17)	1	2		8
P	River bank, 1.5 mi downstream Bridge 17	1	1		1
C	MacMaster's Bridge (#18)	5	3	5	1
C	Bridge 19				1
S	Upper Dam state access	6	8	5	13
P	Pine Bluff 4-H Camp	8	1	7	5
S	Lower Dam state access	11	16	14	15
C	Lundy Bridge (#22)	3	4	14	15
P	Ferris Mills			1	
C	Bridge 23		1		1
S	Canoe Creek state access	9	7	7	6
C	Bridge 24	5		1	4
P	River bank, 2.5 mi downstream Bridge 24	2		2	
C	Iverson's Bridge (#25)	3	1	9	4
P	Lonning's Landing at State HW 76	6	4	30	20
C	Bridge 28				1
P	French Creek, 1.5 mi downstream Bridge 28	1		1	

Owner-ship[1]	Locations	Launch locations 1972	Launch locations 1973	Take-out locations 1972	Take-out locations 1973
C	Lane's Bridge (#29)			2	1
C	Bridge 31 (State HW 26)	1		6	3
S	Mississippi River			1	
	Unknown	7	6	7	6
	Totals	692	894	692	894

APPENDIX VII: DECORAH CITY CAMPGROUND ACTIVITY (1971-1973)[1]

Category	1971	1972	1973
Income[2]			
Units	6909.93	8560.25	10757.30
Electricity	487.75	481.25	646.25
Firewood	193.15	212.07	220.47
Showers	2.25	5.75	5.90
Dump station	8.50	6.50	6.00
Books	1.25	2.00	5.75
Totals	7602.83	9267.82	11641.67
Campers[3]	12054	12033	15000
Equipment			
Trailers	1098	1079	1237
Pick-ups	266	299	574
Mobile	164	170	485
Fold-down	335	494	312
Tents	391	472	248
Air stream	46	29	46
Totals	2300	2543	2902
Camper's origin[4]			
Iowa	1545 (73.5%)	1707 (73.3%)	2161 (75.1%)
Minnesota	197 (9.3)	203 (8.7)	256 (8.9)
Illinois	114 (5.4)	122 (5.4)	159 (5.5)
No. states represented	29	39	38

[1]Information furnished by Parks and Recreation Department, Decorah, Ia.

[2]1973 fees: registration-$2.50/unit/day; group rate-$0.50/person/day; electricity-$0.25 and $0.50/day; firewood-$0.25; and for non-registered guests, shower-$0.25, dump station-$0.50.

[3]Parks and Recreation Department estimate.

[4]Iowa, Minnesota, and Illinois ranked 1st, 2nd, and 3rd as states of origin for campers in 1971-1973.

APPENDIX VIII: AREAS ALONG THE RIVER WHERE PERSONS CAMPED IN 1972 AND 1973

Camping area[1]	1972 Camping parties	1972 Camping nights	1973 Camping parties	1973 Camping nights
Florenceville, Ia.	3	24	10	71
River bank, 1 mi downstream Florenceville	1	2	0	0
River bank, 3 mi downstream Florenceville	0	0	3	31
Larkin Bridge (#04)	1	1	0	0
River bank, 0.5 mi downstream Larkin Bridge	1	2	0	0
Dahly's Flat Bridge (#03)	0	0	1	8
Bigalk's Bridge (#02)	1	2	0	0
River bank, 1 mi upstream Kendallville	1	4	0	0
Kendallville County Park	113	858	135	1028
River bank, 0.5 mi downstream Kendallville	0	0	1	4
River bank, 1 mi downstream Kendallville	0	0	1	2
Bridge 2	1	2	0	0
Plymouth Rock Bridge (#3)	2	17	1	6
River bank, 1 mi downstream Plymouth Rock Br.	1	5	1	5
Riverbank, 3 mi downstream Plymouth Rock Br.	0	0	1	4

[1]Numbered areas are shown on Fig. 1.

Camping area[1]	1972 Camping parties	1972 Camping nights	1973 Camping parties	1973 Camping nights
Bridge 4	0	0	3	13
Blue Springs	0	0	5	29
River bank, mouth Cold-water Creek	5	21	3	31
River bank, near Chimney Rocks	3	10	2	21
Snell's Bridge (#5)	3	28	6	91
River bank, 1 mi upstream Bridge 6	4	25	5	49
Riverbank, 0.5 mi upstream Bridge 6	1	2	0	0
Pasture in Bluffton, Ia.	185	1510	138	1084
State land south of Bluffton pasture	1	4	0	0
Private cabin, Bluffton	1	9	0	0
State access, 1 mi downstream Bluffton	15	83	72	521
River bank, 0.3 mi downstream Bluffton access	1	2	2	19
Bridge 8	1	2	1	2
River bank, 1 mi downstream Bridge	4 8	23	3	30
Christopher Springs (2 mi downstream Br. 8)	2	24	1	1

Camping area[1]	1972 Camping parties	1972 Camping nights	1973 Camping parties	1973 Camping nights
Henry's Bridge (#9)	0	0	3	58
Malanaphy Springs state access	8	52	11	77
River bank, 1 mi downstream Bridge 10	1	20	0	0
River bank, 1 mi downstream Bridge 11	1	20	1	2
Taro's Bridge (#12)	1	4	0	0
River bank, 1.5 mi downstream Bridge 12	1	2	4	29
Nor-ski Runs near U.S. 52	0	0	2	27
Luther College, Decorah	2	78	2	56
5th Ave. Bridge (#14)	2	8	1	23
Will Baker Park, Decorah	7	60	0	0
Decorah City Campground	74	588	129	1184
River bank, 0.5 mi downstream Decorah campground	1	39	0	0
Dunning's Springs, Decorah	2	28	4	25
Twin Bridges (#16)	1	2	0	0
Trout Run state access	3	11	0	0
River bank, 0.5 mi downstream Trout Run	0	0	1	4
Freeport Bridge (#17)	0	0	2	8

Camping area[1]	1972 Camping parties	1972 Camping nights	1973 Camping parties	1973 Camping nights
River bank, 1.5 mi downstream Bridge 17	0	0	1	2
MacMaster's Bridge (#18)	2	5	0	0
Upper Dam state access	1	2	10	50
Pinebluff 4-H Camp	6	92	2	20
Lower Dam state access	16	92	14	81
Lundy Bridge (#22)	0	0	1	2
Canoe Creek state access	9	137	8	55
Bridge 24	1	6	0	0
River bank, 2.5 mi downstream Bridge 24	2	6	0	0
Lonning's Landing at State HW 76	6	19	7	35
Bridge 28	0	0	1	2
French Creek, 1.5 mi downstream Bridge 28	1	2	0	0
Bridge 31 (State HW 26)	2	6	0	0
Mississippi River bank	0	0	1	2
Totals	501	3938	600	4792

APPENDIX IX: HOME TOWNS OF IOWA FISHERMEN CONTACTED ALONG THE RIVER IN 1972 AND 1973

County number	Home town	No. of groups 1972	No. of groups 1973	No. of people 1972	No. of people 1973
57	Alburnet		1		3
85	Ames	1	1	1	1
96	Bluffton		1		2
42	Buckeye		3		7
29	Burlington	1		1	
96	Burr Oak	6	4	16	9
96	Calmar	7	5	11	12
23	Camanche	1		4	
96	Castalia		1		1
7	Cedar Falls	1	4	3	8
57	Cedar Rapids	3	4	5	10
34	Charles City	1	2	1	3
23	Charlotte		1		2
12	Clarksville	1		4	
33	Clermont	2		2	
17	Clear Lake	4	1	5	2
45	Cresco	7	18	22	46
82	Davenport	1		4	
96	Decorah	66	54	151	135
77	Des Moines	4	3	13	4
38	Dike	1	1	2	2
3	Dorchester	2	2	3	5
31	Dubuque	1	4	6	9
31	Dyersville	1		1	
33	Fayette	1		1	
95	Forest City		1		1
96	Fort Atkinson	7	6	11	11
96	Frankville	2	2	5	4
96	Freeport	1	2	1	2
79	Grinnell	1	1	1	2
3	Harper's Ferry	1		1	
33	Hawkeye	1		1	
96	Hesper	1		2	
96	Highlandville	5		9	
42	Hubbard	1		3	
10	Independence		1		10
91	Indianola	1		1	
52	Iowa City		2		8
7	La Porte City		1		4
1	Lawler	1	2	1	3

County number	Home town	No. of groups 1972	No. of groups 1973	No. of people 1972	No. of people 1973
45	Limesprings		1		1
22	Luana		1		5
96	Luther College	1		3	
22	MacGregor	1		2	
57	Marion		1		1
64	Marshalltown		1		2
17	Mason City	3		4	
33	Maynard		1		2
17	Meservey		1		1
22	Monona		1		3
34	Nashua		1		6
19	New Hampton		2		2
52	North Liberty		1		3
98	Northwood	1		1	
33	Oelwein	1		5	
90	Ottumwa		1		3
96	Ossian	3	2	4	8
3	Postville	5		11	
45	Protivin		2		3
33	Randalia		1		3
96	Red Oak	1		2	
96	Ridgeway	7	5	16	12
21	Spencer		1		2
96	Spillville	5	4	8	9
9	Sumner		2		6
33	Wadena	1		1	
7	Waterloo	4	4	8	9
33	Waucoma	2	10	10	19
3	Waukon	14		36	
9	Waverly	1	2	3	8
33	West Union	4	1	5	1
96	Winneshiek County	3	3	5	9
10	Winthrop		1		2
	Unknown		1		2
	Totals	191	179	416	428

APPENDIX X: AREAS ALONG THE RIVER WHERE FISHING PARTIES WERE CONTACTED IN 1972 AND 1973

Fishing area[1]	Frequency 1972	Frequency 1973
Bigalk's Bridge (#02)	1	
River bank, 2 mi downstream Bridge 02	1	2
Clark's Bridge (#01)	1	
Kendallville County Park	5	17
Bridge 2		1
Plymouth Rock Bridge (#3)		1
Bridge 4		1
Snell's Bridge (#5)		5
Pasture in Bluffton, Ia.	5	3
State access, 1 mi downstream Bluffton	10	15
River bank, 0.3 mi downstream Bluffton access	1	5
Bridge 8	3	1
Christopher Springs (2 mi downstream Br. 8)	5	2
Henry's Bridge (#9)	12	3
Bridge 10	1	1
Bridge 11	1	
Nor-ski Runs near U. S. 52		1

[1]Numbered areas are shown on Fig. 1.

Fishing area[1]	Frequency 1972	1973
Will Baker landing, Decorah	1	
Trout Run state access		5
Freeport Bridge (#17)	1	
Upper Dam state access	43	17
Bolson's Bridge (#21)	1	2
Trout River state access	2	5
Lower Dam state access	44	29
Lundy Bridge (#22)	8	
River bank, 1.2 mi downstream Bridge 22	10	11
River bank, 0.2 mi upstream	6	8
Bridge 23	3	8
River bank, 0.2 mi upstream Canoe Creek access	4	2
Canoe Creek state access	5	19
Bridge 24		1
River bank, 1 mi upstream Bridge 25		1
Iverson's Bridge (#25)	10	
River bank, 0.5 mi upstream Lonning's	1	

Fishing area[1]	Frequency 1972	1973
Lonning's Landing at State Highway 76	1	
Totals	186	166