THE ACTIVITIES, PERCEPTIONS, AND MANAGEMENT PREFERENCES OF LOCAL VERSUS TOURIST BOATERS ON THE ARKANSAS RIVER

by

Robyn Michelle McMullen

Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Forestry

APPROVED:

Joseph W. Roggenbuck, Chairman

James L. Smith

Jeffrey Marion

July 1993
Blacksburg, Virginia

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(ABSTRACT)

The purpose of this study was to determine whether local and tourist boaters in the Arkansas River Headwaters Recreation Area differed in their activities, perceptions of environmental problems and user conflicts, and preferences for management. Locals were defined as living 100 miles or less from the river, and tourists were those living more than 100 miles away.

Data were collected by on-site interviews with boaters as they completed their trip, and through a 12-page mailback questionnaire. Approximately 1168 questionnaires were returned, for an overall response rate of 58%.

Few differences were found between locals and tourists. The largest differences between the two groups were in their trip expenditures and in their recreational activities in the river valley. Expenditures by tourists were significantly greater, and tourists also showed a greater tendency to both participate in and express interest in a greater variety of activities than did locals. The locals tended to be slightly more experienced and involved than were tourists, and they were also more predisposed toward membership in river running clubs. On reasons for selecting the Arkansas River, locals

were more inclined to feel that a convenient location and being with friends were more important, while tourists felt that being in a new area with a variety of recreational opportunities was more important. In addition, locals exhibited a slightly greater sensitivity toward both environmental and people problems along the river. However, neither group supported more controls to reduce environmental damage or user conflicts. With respect to services and facilities, differences between the two groups were tenuous. Tourists were slightly more supportive of both manipulating the river's water level to benefit boating and constructing more shower facilities along the river. Locals were more in favor of scheduling 'no boat' times on the river to benefit fishing. Finally, in response to willingness to pay for services, tourists were more in inclined to pay a greater amount for a given service than were locals in four out of five responses.

Results of this study indicate that managers need to be aware of and monitor the perceptions, opinions, and preferences of both local and tourist users. Additionally, user groups other than boaters (such as landowners, river fishermen, or wildlife observers) must be studied in order that a more complete and thorough understanding of the different resource users and their relationships with the resource can be attained.

ACKNOWLEDGEMENTS

I would like to thank Dr. Joe Roggenbuck for his patience, guidance, and assistance in this project. I wish to thank my other committee members, Dr. Jim Smith and Dr. Jeff Marion as well, for their support in this study.

Special thanks are extended to Mike Patterson for his assistance in word processing and statistical analysis. Mike patiently fielded innumerable questions and "rescued" me from an ornery computer more than once. I am indebted to him for all of his help, without which this and many other projects may never have been completed. I also wish to express my sincere appreciation to Bill Borrie for all of his time and help with the statistical analyses.

The assistance given by Victoria Bishop, of the U.S.D.A. Forest Service, in producing the final draft of this paper was greatly appreciated. Vicki generously sacrificed several Saturdays on behalf of this paper and I owe her many thanks.

Further, I owe many, many thanks to my entire family, Rose, James, Colleen, and Jaimie McMullen. I am indebted to Colleen -my sister- for the many hours she put in organizing and typing the numerous tables that appear in this paper, as well as for other clerical help. My brother Jaimie's unique (and slightly twisted) humor was always ready to lighten a frustrating or stressful moment. My parents, Rose and Jim, encouraged my interest in nature from the time I could walk, and to them I express my deepest gratitude for all their support and encouragement, without which neither this paper nor my degree would have been accomplished.

Last, but not least, I thank K.C. and Corri McMullen for always being happy to see me, for countless hugs and wet kisses, for never asking me if I was finished "yet", and for simply being their irrepressible selves.

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BACKGROUND

The Arkansas River is the major drainage system in south-central Colorado. It rises on the eastern slope of the Rocky Mountains near Leadville, Colorado, and then flows southeast through Kansas, Oklahoma, and Arkansas, before entering the Mississippi River in Desha County, Arkansas (275 miles above New Orleans). At 1450 miles in length, it is the largest tributary of the Mississippi-Missouri River system.

The Arkansas Headwaters Recreation Area, managed jointly by the United States Department of Interior's Bureau of Land Management (BLM) and Colorado Division of Parks and Outdoor Recreation, encompasses the upper river corridor from its headwaters near Leadville, Colorado to the reservoir at Pueblo, Colorado.

The upper Arkansas River is a diverse length of river,

internationally recognized as one of the nation's finest recreational rivers. It begins its journey in a high valley among the Collegiate Range, and, over the first 125 miles, descends 5000 feet through open valleys and narrow canyons, including the 1000-foot walls of the Royal Gorge, before entering the plains near Pueblo (Figure 1).

Ownership along the 148.5 mile long upper river is a mixture of public and private: 59.7 percent (or 88.6 miles) of the river's shoreline borders private land, while the Bureau of Land Management administers 27.2 percent (40.4 miles) of the shoreline, the state of Colorado 5.2 percent (7.8 miles), the United States Forest Service 1.1 percent(1.6 miles), and municipalities 6.8 percent (10.1 miles). U.S. Highways 24, 285 and 50 closely follow much of the river as it makes its way through the Arkansas Valley.

Six distinct river segments have been identified within the Arkansas Headwaters Recreation Area by the Bureau of Land Management and the Colorado Division of State Parks. Some of these segments are bordered by roads and communities; other segments are more secluded. Each section has unique visitor-use and resource characteristics (BLM, 1988):

Segment 1: Leadville to Buena Vista (Figure 2)--Primary recreational use is private boating (largely kayaking), for which it is ideally suited. This section provides rapids in classes I through V, and vertical drops ranging from 26 to 66

feet per mile. Commercial rafting, camping, fishing, and hiking do occur but in limited quantities.

Segment 2: Buena Vista to Salida (Figure 3)--This is the most congested and heavily used segment of the river. The river winds through the granite boulders of Brown's Canyon in this segment: a relatively remote canyon, not immediately accessible from the highway, that offers a challenging recreational experience to those seeking a greater degree of solitude. Rapids occur in classes III and IV, and this segment has a vertical drop of 30 feet per mile. Used extensively for commercial rafting trips, the section also supports fishing, private kayaking and rafting, and some overnight camping trips. Boating and fishing access is limited in this segment of the river.

Segment 3: Salida to Vallie Bridge (Figure 4)--Fishing activity dominates this section, although some boating does occur. Fisheries habitat improvement projects have been completed by the Colorado Division of Wildlife, and several fishing easements have been obtained. Highway 50 follows this section closely, and the waters are quiet with a vertical drop of 24 feet per mile.

Segment 4: Vallie Bridge to Parkdale (Figure 5)--Highway 50 also follows this segment; rapids occur up to class IV, and

the vertical drop is 30 feet per mile. Commercial boating is heavy, and picnicking, wildlife viewing, and fishing opportunities are available at pullouts.

Segment 5: Parkdale to Canon City (Figure 6)--This section runs through the Royal Gorge and provides very technical white water, class III, IV, and V rapids, with a vertical drop of 50 feet per mile. Though historically run by private boaters, commercial rafting is now occurring also in this segment.

Segment 6: Canon City to Pueblo Reservoir (Figure 7)--This section is characterized as a plains river, drops vertically only 15 feet per mile, and offers only class I rapids. It is suitable for rafters and kayakers seeking a more placid river trip, as well as for canoeists, but is lightly used. Fishing opportunities are available also. Due to its light use, this segment of the river was not included in this study.

The Upper Arkansas is a diverse and quality resource, highly accessible, and a resource with multiple ownership patterns. It was these resource characteristics that prompted the Bureau of Land Management and Colorado Division of Parks and Outdoor Recreation to jointly establish the Arkansas Headwaters Recreation Area.

The scenic beauty of the river corridor, the diverse nature of the river and its waters (the river provides a

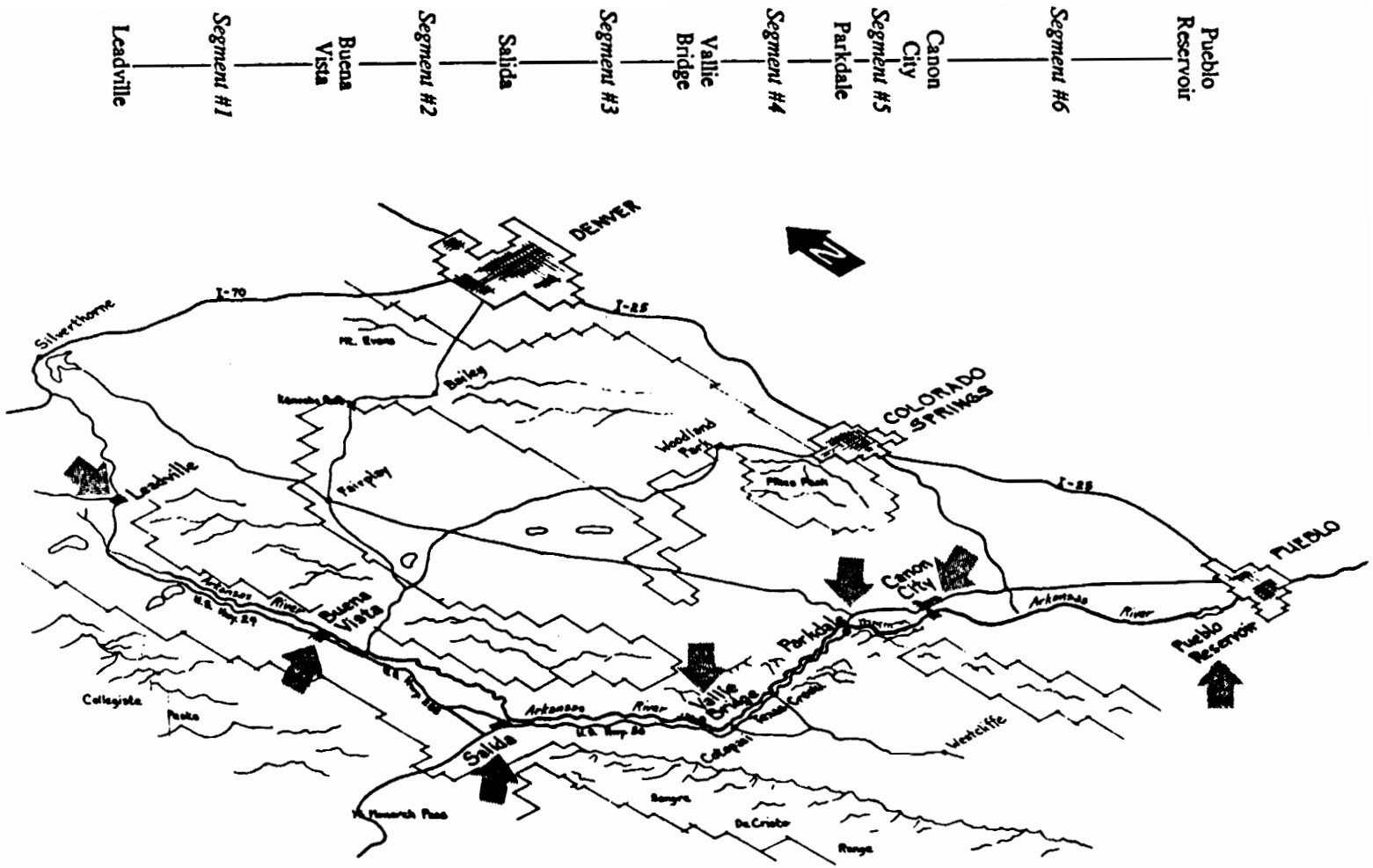

FIGURE 1: **Planning Area**

(from Bureau of Land Management, 1988)

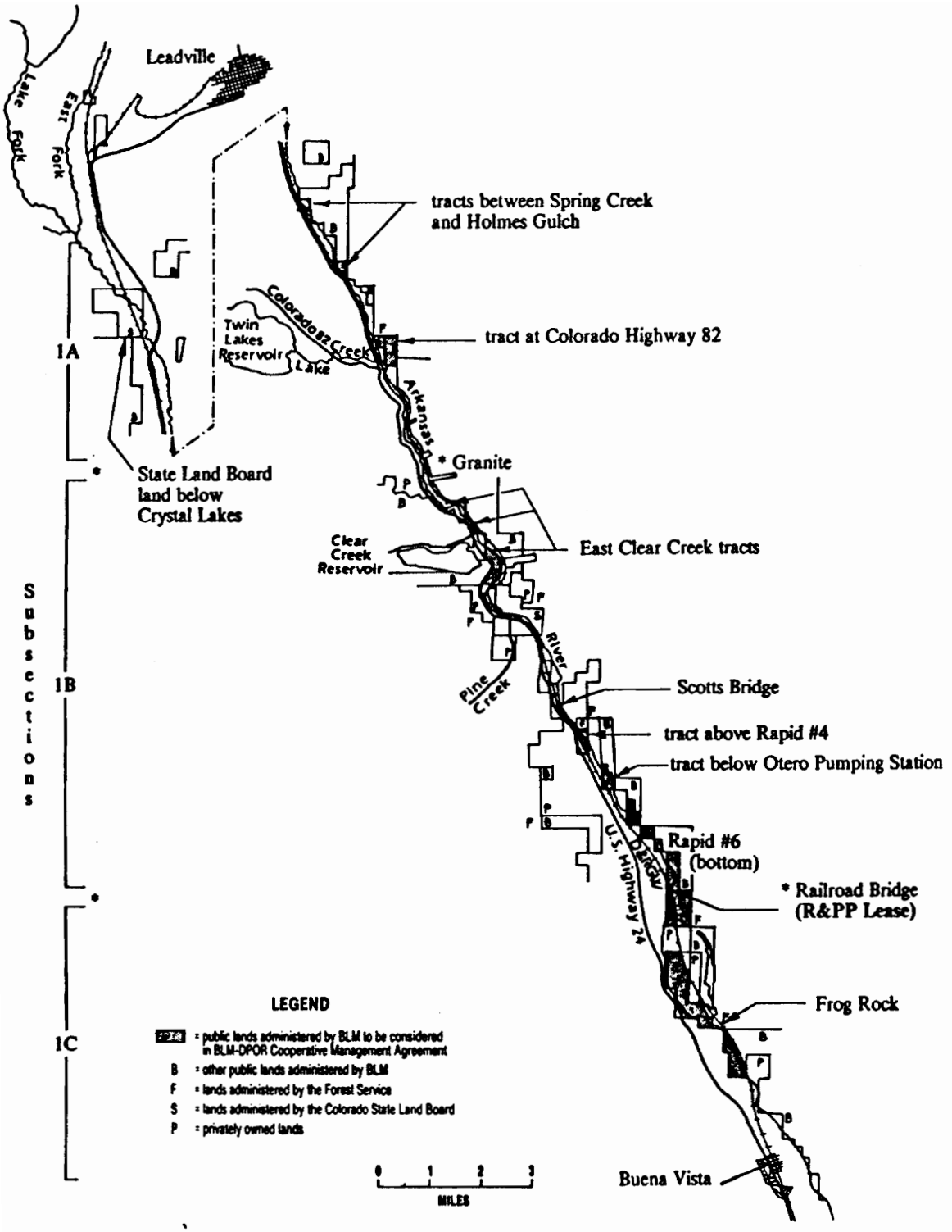

FIGURE 2: SEGMENT #1 — Leadville to Buena Vista

(from Bureau of Land Management, 1988)

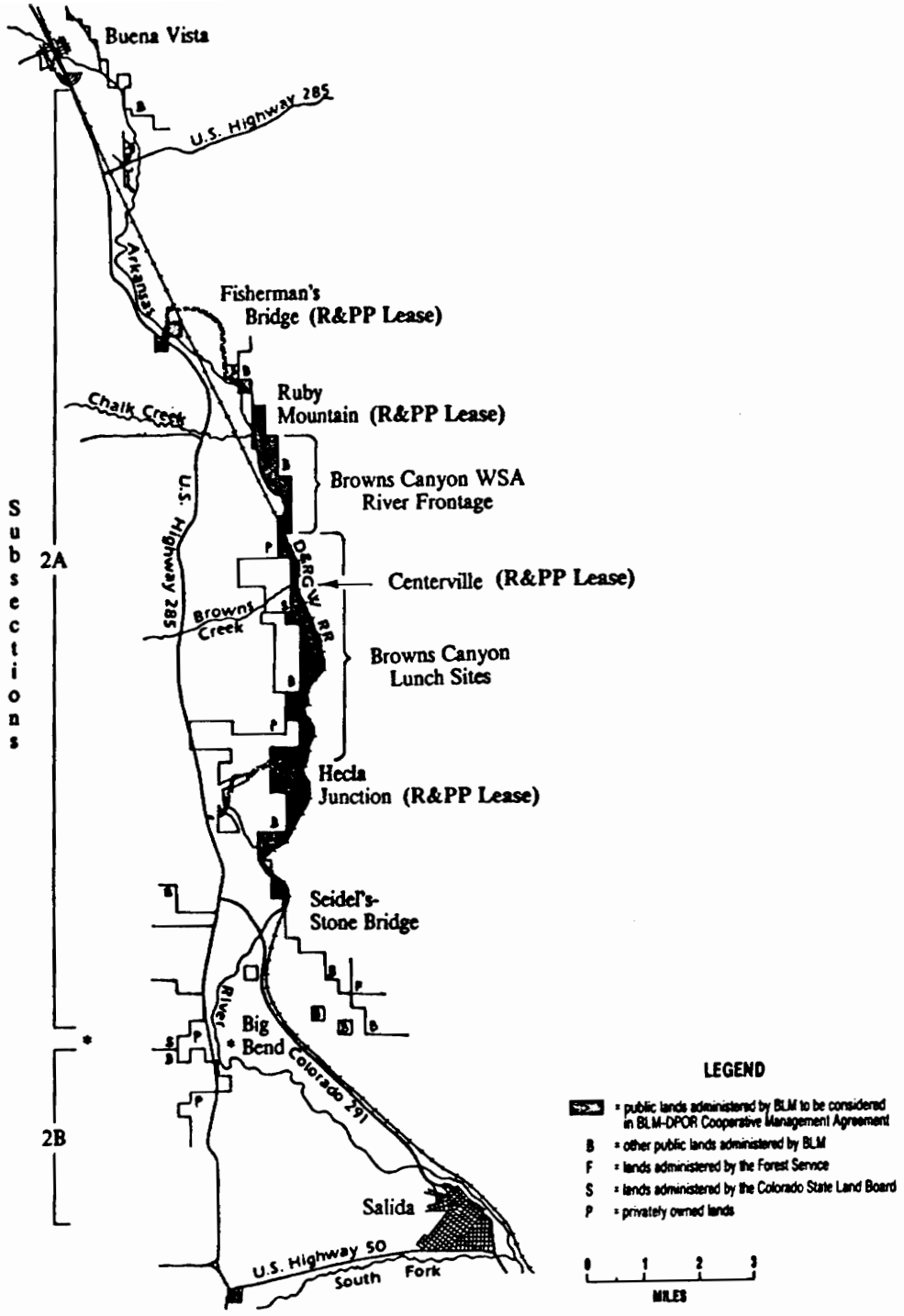

FIGURE 3: SEGMENT #2 — Buena Vista to Salida

(from Bureau of Land Management, 1988)

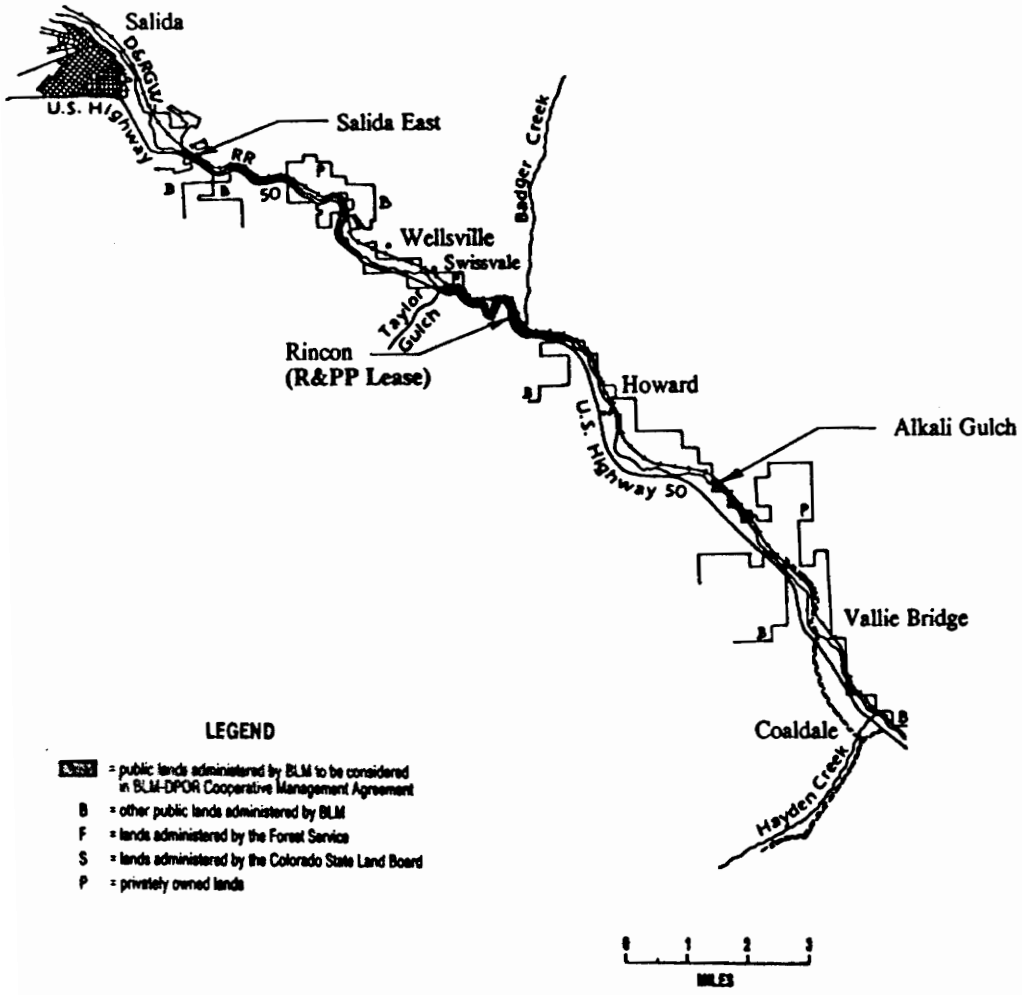

FIGURE 4: SEGMENT #3 — Salida to Vallie Bridge

(from Bureau of Land Management, 1988)

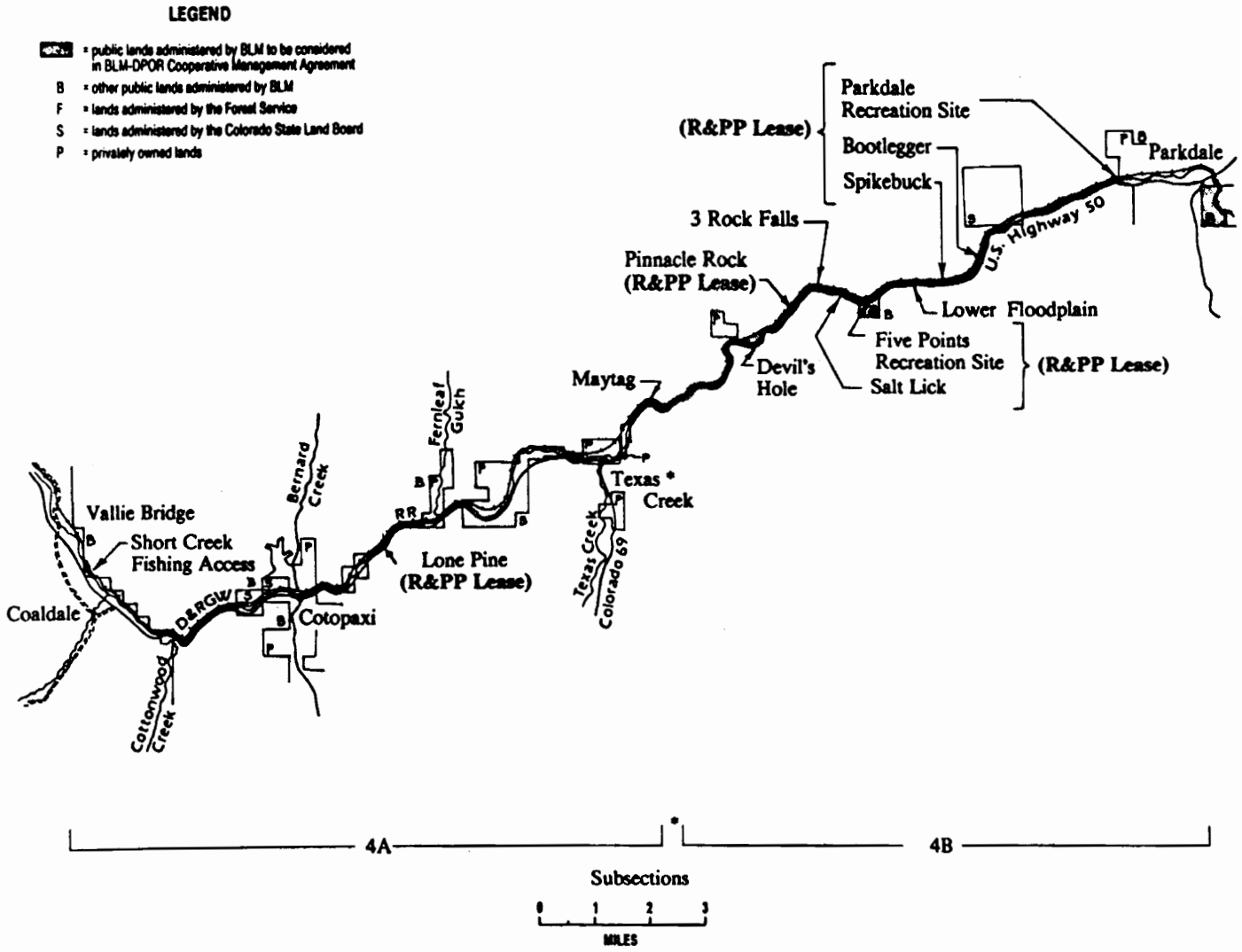

FIGURE 5: **SEGMENT #4 — Vallie Bridge to Parkdale**

(from Bureau of Land Management, 1988)

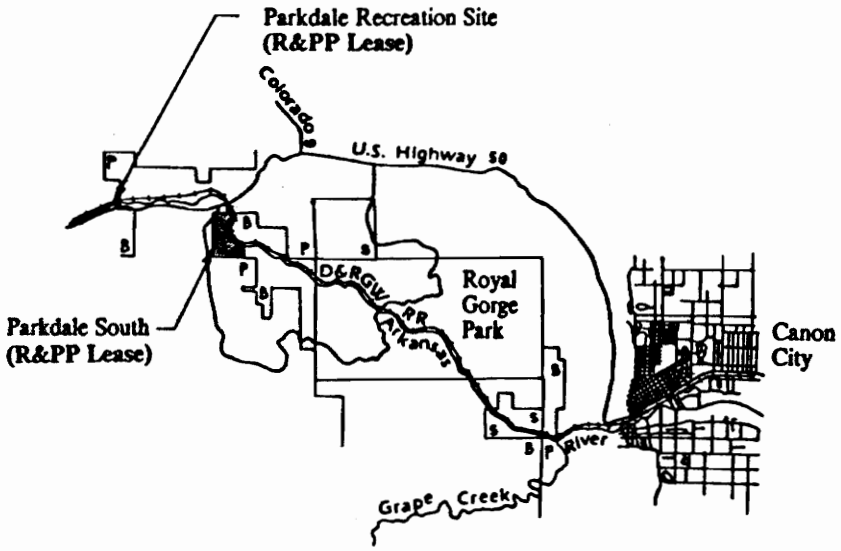

FIGURE 6: SEGMENT #5 — Parkdale to Canon City

(from Bureau of Land Management, 1988)

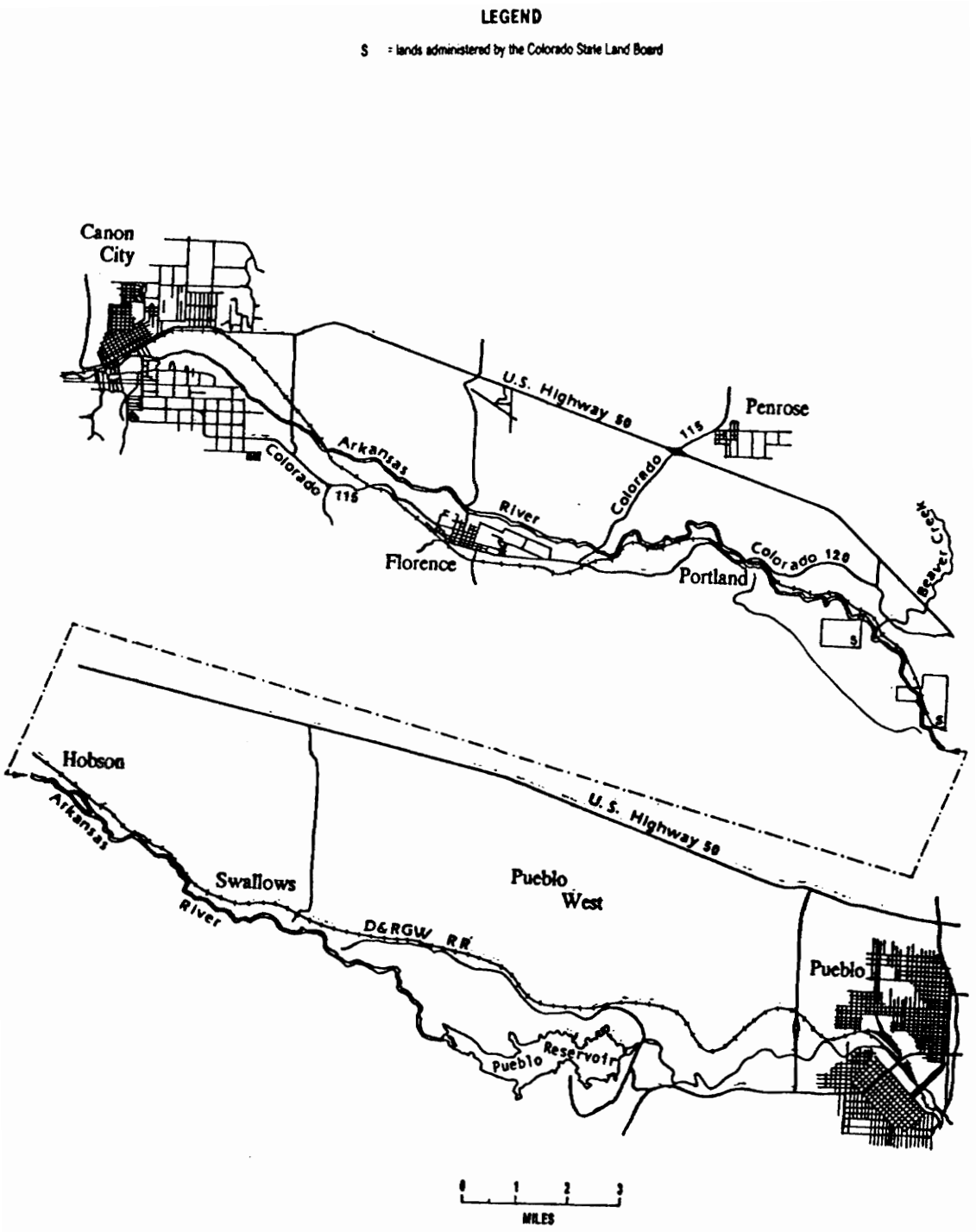

FIGURE 7: SEGMENT #6 -- Canon City to Pueblo Reservoir
(from Bureau of Land Management, 1988)

multitude of opportunities for fishing, whitewater rafting, kayaking, picnicking, camping, and sightseeing), and the major tourist routes that parallel the river for most of its length, draw a great diversity of both tourists and local recreationists in large numbers. As a result of this diversity in the river, the use of the river, and the users themselves, resource managers face many problems in trying to provide quality recreational opportunities, among which are the difficulties in protecting the resource itself and the problems caused by the increasing number of conflicts among the users of the resource. In response to these problems, a recreation area management plan that coordinated management along the river and gave direction to planning was completed in 1982 by the BLM and Colorado Division of Parks and Outdoor Recreation. That plan was a result of a comprehensive public involvement effort in which sixteen government entities, two citizens groups, recreational user groups, environmental organizations, conservation districts, industry associations, and area residents participated. Continued growth in use and increases in both resource and people conflicts have created a need for revision of this plan.

Over the past several years, the Bureau of Land Management has noted a marked increase in the numbers of boaters using the river. The Arkansas River has become one of the most heavily used and well-known whitewater recreation resources within Colorado and the surrounding region. This

growth in use has prompted growing concerns within the BLM over increasing user conflicts and congestion, visitor safety, resource deterioration, and sanitation. All six segments of the river have visitor use and/or resource protection problems, and problems that occur on one segment often affect other segments as well.

Management which will both effectively protect the resource and provide quality recreation opportunities necessitates the use of public input into the planning process. However, this, in turn creates its own challenges. The public is extremely diverse. For example, local and tourist recreationists, the tourism industry, and landowners along the river corridor all seek diverse and potentially conflicting outputs from the river. Different people demand different types and qualities of opportunities from the resource, which leads managers to question how to define and identify the different user and recreational groups (in terms of preferences, characteristics, desires, and use patterns), and for which groups to manage.

Frequently resource managers must deal with the problem of which user groups to manage for, especially if there are conflicting opinions as to how the resource should be used or managed. Although managers often try to manage an area for multiple use, sometimes uses conflict with each other and the manager is forced to make a choice. Thus, there is a need for resource managers to identify and define a resource's

recreational user groups.

LOCAL USERS VERSUS TOURISTS

One method by which different recreational user groups may be identified is through defining the users as either local (those living within or travelling less than 100 miles to the resource) or tourist (those travelling 100 miles or greater to the resource) (Andrew, 1989).

One source of conflict is often manifested in the differences in the perceptions and attitudes about the resource between the local residents of a destination area and those of the visitors to the area. In these situations, the manager must provide something for both groups, and is faced with the difficulty of integrating the desires and needs of the two groups. Which group of users, then, should the manager be most concerned with--the local residents or the visitors/tourists?

A review of the literature strongly suggests that resource planners and managers should incorporate the views of the local residents. Keogh (1990) writes that both planners and administrators alike are becoming more aware that community tourism development can achieve long-term success only if it receives the general support of local populations. He adds that community tourism development must endeavor to provide benefits not only for visitors but for local users of

the resources as well, if the ability of the area to sustain tourism is to be achieved. Ross (1992) cautions that care be taken so that development does not lead to negative impacts for the host community. Residents must be favorably disposed toward tourists and feel that they exercise some influence within the planning process if tourism is to survive. Perdue et al. (1987) concurs with this and adds that managers should be particularly careful not to damage the integrity of local outdoor recreational opportunities. Fridgen (1991) concludes that, in the end, it is up to residents to plan for the type of tourism that best fits the community; community leaders and citizens need to take control of and shape the type of tourism that fit their lifestyle, community, and does not destroy their surroundings. Liu et al. (1987) write that researchers are stressing the views of residents and recognizing the need to include the local community at the outset of planning, noting that projects can be delayed or even stopped after much investment because of resident concerns. They also cite a study of British Columbia, Canada by Cook (1982) which recommends that all tourism planning be based on the goals and priorities of the residents. The study suggests that local attractions be promoted ONLY when endorsed by residents in order for the stability of the tourist industry to be sustained. Stimulating tourism does little good if the local residents give visitors a bad experience, and efforts will achieve little if the local public is not

supportive (Davis et al., 1988). Allen et al. (1988) also note that because of the frequency of interaction of residents with visitors, their willingness to serve as gracious hosts is critical to the success of tourism. For this reason, residents must be involved in the planning, as well as be informed and consulted about the scope of preferred development, their attitudes toward tourism must be studied, and their perceptions of its impact on community life assessed.

Caneday et al. (1990) likens tourism to a satellite dish in that it is an intrusion on the natural landscape, introducing ideas and technologies foreign to the setting. They feel that the satellite dish of nature tourism is a local installation that requires local decisions by the local population on local "appliances".

For Prince Edward Island, a study by Birch et al. (1976) recommended that proper tourism planning should include the community's participation, and should create social and economic conditions that are compatible with the island way-of-life.

When Donald Wolbrink, Maui County planner, prepared a set of tourism planning guidelines for use in Maui or other Hawaiian counties, he maintained that the residents have a much greater commitment to the Islands than do either of the other groups (industry and tourism). Because of this, a careful study of their needs is much more important than those

of the others. He adds that as it is the resident who must deal with the lasting consequences of a poorly planned development, a careful analysis of the needs and interests of the residents must be developed (Farrell, 1982). This statement is in agreement with D'Amore (1983) who suggests a set of socially sensitive tourism development guidelines for British Columbia, Canada. These include: (1) at the local level, tourism planning should be based upon overall development goals and priorities identified by the residents, (2) the promotion of local attractions should be subject to resident endorsement, and (3) coordinated public and private efforts should be made to maintain the integrity and quality of local opportunities for fishing, hunting and outdoor recreation.

Finally, a study by Carroll and Hendrix (1992) illustrated the need for local involvement in resource planning. The study presented the responses of local residents along two rivers to the presence and actions of the National Park Service. In one case--the Upper Delaware Scenic and Recreational River (in Pennsylvania and New York)--protracted conflict between local groups and the National Park Service occurred, while in the other instance (the New River Gorge National River in southeast West Virginia), a relatively harmonious relationship evolved. In the former case, the NPS only involved and informed the locals very late in the planning process, and even then contact was limited. As a

result, the NPS was viewed as not being responsive to the viewpoints and interests of the local residents and therefore not trusted. With the latter case, the Park Service established contact early with a wide variety of locals, and management made an effort to visit and discuss issues on the local citizens' "turf". Additionally, residents were made to feel as though they were welcome to visit with managers at any time to discuss concerns. As a result, the NPS in this case was viewed as sensitive to the local values and interests, open, honest, and reasonable. The authors conclude that planning strategies must incorporate local values and interests in planning and management to create successful relationships with the locals, to avoid the management agency and actions being viewed as a threat to the local community, and to make way for agreement about acceptable levels of and strategies for resource protection.

Although the literature presents overwhelming support for local input into the management and planning of resources, there is also support for a more broad-based planning effort. Both Pearce (1989) and Lundberg (1990) note the need for regional planning. A study completed by Vining and Ebreo in 1991 showed the regional public to be more interested in regional forest issues than previous studies had presumed. In their research, they presented study participants with a hypothetical forest management problem and rated the importance of various resource management goals. Amenity

management goals (recreation, wilderness preservation, and scenic beauty, for example) were indicated as high priorities by citizens who lived some distance from a national forest. Vining and Ebreo voice concern that difficulties in reaching a broadly-based constituency decrease the likelihood that the larger viewpoint will be assessed and integrated, but stress the importance of finding ways to reach that constituency. Pearce (1989) also stresses that goals and objectives be related to national needs as well as local and regional. Saremba and Gill (1991) emphasize that mangers and planners should incorporate the view of the different attitudes and values of special interest groups into the plans.

Since the Arkansas River is a national resource, managers have a responsibility to manage the river for a broad constituency. However, the managers live among the locals and it is often their input that the manager hears most frequently and prominently. Thus, there may be a tendency to respond to the local demand and concerns first and foremost. Vining and Ebreo (1991) express concern that local citizens and vocal special interest groups may overpower a manager's sense of national priorities simply because of their proximity and ease of access. By doing so, the resource is treated more as a local resource, rather than a regional or national resource. Thus, managers, if they are to satisfy the needs of a broad spectrum of the public, require both local and out-of-town

visitor input (i.e., their perceptions of problems, desires, motivations, management preferences, and characteristics) in order to effectively manage the resource.

MANAGERS AND THE PUBLIC

Evidence also supports the theory that there are differences between resource managers and the public in the way in which resources are perceived and their opinions concerning appropriate use.

These differences can lead to conflict between managers and the public. Vining and Ebreo (1991) indicate that past studies have determined that important differences exist between how resource managers, users and special interest groups perceive the resource and respond to management problems. They cite several examples: Merriam, Wald, and Ramsey (1972) studied state parks with regard to managers' and public perceptions, and found that managers tended to view the parks as nature preserves, whereas park visitors felt they were recreational resources. Peterson (1974) found that managers of the Boundary Waters Canoe Area were concerned with multiple-use opportunities for the area, while the canoeists, who were concerned mainly with canoeing opportunities, were considerably less so. Twight's and Catton's (1975) study showed that arboretum managers perceived their facilities as educationally, horticulturally, and scientifically oriented,

while visitors were more concerned with the aesthetic and amenity values of the facility. Thus, uninformed interactions of resource managers with the public are often characterized by acrimonious conflict and animosity.

Vining and Ebreo (1991) explain that conflicts may arise because of differences in the decision preferences of key groups and also because of misunderstandings or inaccurate perceptions the different groups may hold about the feelings and responses of other groups. Their study on the Mark Twain National Forest tested whether decision preferences of management alternatives varied among three key players: resource managers, local public (those residing within approximately 100 miles of the forest) and special interest groups. Results showed a notable difference between management and the other two groups. For example, resource managers tended to give higher ratings of importance to forest commodity goals and lower ratings to amenity goals. The other two groups tended to do just the opposite. Managers also showed a tendency to give lower importance ratings to the management of roadless areas than the other two groups.

Carroll and Hendrix's (1992) research confirms similar results. They found that the designation of protected areas, such as Wild and Scenic River designation near human settlements, often creates significant conflict between the resource management agencies and the local residents because the locals often see the consequences of such activities very

differently than urban interest groups or resource managers employed by federal agencies. This is because river protection measures often result in changes in the way local people have traditionally used resources or in the actual loss of ownership or control of property. Consequently, river planning efforts have provoked bitter and protracted locally-based conflict (Eugster, 1983).

Such studies imply that more time and attention during management activities should be devoted to developing an understanding of the expectations and perceptions of the public and special interest groups so that steps can be taken to alleviate misunderstanding. These increased efforts may enable managers to design and implement public involvement activities that are less likely to lead to the misinterpretation of administrative motives and more likely to enhance feelings of involvement, empowerment, and satisfaction by the public with proposed alternatives, decisions, and the decision-making process in general (Vining and Ebreo, 1991).

PROBLEM STATEMENT

If resource planners and managers are to be effective in planning and managing for the recreational needs and desires of an extremely large and diversified public, they must first identify the different groups for which they are managing, as well as the needs, desires, and characteristics (user

patterns, perceptions, preferences) of those groups.

To date, few studies have addressed the issue of local user groups versus tourist user groups in terms of their perceptions of the resource, differences in actual and preferred use of the resource, and opinions or desires on planning and management of the resource. Since the resource manager lives among the locals, he or she has greater opportunity to become familiar with local perceptions, but often has little information on tourist perceptions. The problem, then, is one of the resource manager identifying users as either tourists or locals, investigating differences in their uses, perceptions, and preferences regarding the resource, and using this information to plan and manage the river resource. Information on locals and tourists are needed so that both groups may enjoy satisfying recreational experiences, and user impacts on the environment as well as conflict among users can be reduced or minimized.

CHAPTER TWO: RESEARCH OBJECTIVES

The purpose of this study is to examine differences in characteristics, use patterns, perceptions, and resource management preferences among local and tourist boaters on the Arkansas River.

Natural resource managers of federal agencies have a responsibility to manage the resource for all Americans. However, the American public is extremely diverse in its use of and management preferences for natural resources, and often the resource manager is caught in the middle of resource disputes concerning how to manage resources and for whom.

Little research has been done that investigates the differences between the resource management preferences of local versus nonlocal users. However, evidence suggests that there may be differences between locals and nonlocals in how the resources are perceived (Ross, 1992) as well as differences in desires for various types of recreational

activities (McCool, 1978; Jackson and Schinkel, 1981). These differences can be a source of conflict between both the local and nonlocal users of the resource and between the local residents of an area and the resource managers. There is a need, therefore, for resource managers to identify the various clientele groups and to recognize the differences in the perceptions and preferences of those groups when planning for the resource.

Given the paucity of empirical evidence demonstrating the differences in perceptions, desires, and preferences between local and nonlocal users, and the need for this sort of information in resource planning and management, the objectives and research questions of this study are:

Objective One--

Define boaters on the Arkansas River as either local or tourists, and characterize the two groups.

Objective Two--

Determine differences, if any, in the motivations,use- patterns, and preferred recreational activities of locals versus tourists on the Arkansas River.

Objective Three--

Investigate any differences in perceptions of the resource, problems with the resource, or management preferences between locals versus tourists.

CHAPTER THREE: LITERATURE REVIEW

Planning for both the use and protection of rivers and their surrounding environments is becoming one of the most controversial and difficult tasks for natural resource managers in the U.S. today (Carroll and Hendrix, 1992) as growing numbers of recreationists in rafts, canoes, kayaks, innertubes, and small motorboats are putting increasing pressures on America's river resources (Roggenbuck et al., 1982). Resultant outcomes are conflicts: conflicts among recreationists using the resource, conflicts between recreationists and landowners. The challenge, then, is for the resource managers to protect the integrity of the resource while reducing conflicts between groups of users with motivational, attitudinal, and behavioral differences. To do so, the manager must identify who the users are and understand the different characteristics and perceptions of those user groups. He or she must also be familiar with the types of

impacts caused by the users, and the extent and severity of conflicts among user groups.

DEFINITION AND CHARACTERIZATION OF LOCALS VERSUS TOURISTS

Although there is no one universally accepted way by which to define or differentiate a local user from a tourist, literature has frequently defined locals as those individuals living within, or travelling less than, 100 miles to the resource, and tourists as those travelling to, or living 100 miles or greater from the resource (Andrew, 1989).

LOCAL VERSUS TOURIST SOCIO-DEMOGRAPHIC CHARACTERISTICS AND RECREATION USE PATTERNS

With respect to the socio-demographic characteristics and recreational use patterns of locals versus tourists, literature and research are extremely lacking. Information of this sort, however, is important to a resource manager, especially managers of intensively used national or regional resources which must serve large numbers of both local recreationists and tourist recreationists. To effectively plan for and manage a recreational resource, the managers must be familiar with and understand the characteristics and behaviors of their different user groups.

Given the importance of such information, the following research questions about boaters on the Upper Arkansas River

are proposed:

Research Question 1: Are locals versus tourists different in age, gender, education, or socio-demographic characteristics?

Research Question 2: Are locals versus tourists more experienced in white-water boating?

Research Question 3: Do local versus tourists differ in their involvement in whitewater river running?

Research Question 4: Are locals versus tourists different in how they learn about the river or in the kinds of information they use for trip planning?

Research Question 5: Do locals versus tourists differ in their knowledge of who manages the river?

Research Question 6: Do locals and tourists vary in the amount of money they spend in the river valley on river recreation activities?

LOCAL VERSUS TOURIST PERCEPTIONS, PREFERENCES, AND USE OF NATURAL RESOURCES

There have been some studies, although limited, that examine the differences in attitudes between local residents and visitors with regard to management priorities and use of natural resources. Saremba and Gill (1991) examined the differences in attitude among participants in a mountain park planning process in British Columbia. Results showed that resort-area locals exhibited less support for preservation than residents of the city of Vancouver, 120 km south of the resort area. In Wisconsin, riparian landowners along three

wild rivers were studied for their attitudes toward river programs (Roggenbuck and Kushman, 1980). Absentee landowners were found to be more supportive of the wild river program than were the resident owners. Although both the residents and absentees favored preserving the wild rivers in their free-flowing condition, absentees were significantly more in agreement with protecting the streams from impoundment, and prohibiting the use of motor boats, than were resident owners.

Ross (1992) notes that as the distance between the place of residence and tourism center increases, the perceived impacts of tourism at attraction sites decreases. Local residents tend to perceive greater impacts, such as crowding, noise, litter, property destruction, and environmental degradation, from tourists to their environment.

In terms of activity preference, Murphy (1985) determined that residents of destination areas possess different recreational priorities than do visitors. He cites McCool (1976, 1978) who has hypothesized and confirmed that residents participate more frequently than tourists in certain activities, which can lead to local demands for one type of recreation while tourists seek out another. In a study of Utah's water-based state parks, McCool found that local residents exhibited stronger preferences for activities such as resting or relaxing, swimming, boating and canoeing, than did tourists who expressed more interest in activities such as

sightseeing, hiking, photography, visiting, and meeting people. They note that such differences in activity orientation could cause competition for recreation resources and that in these type of situations, conflicts between users are likely to occur. Jackson and Schinkel (1981) studied campers of the Yellowknife region of Alberta, Canada and found that residents and tourists differed in recreational activity preferences. Residents participating in the survey expressed significantly more interest in activities such as resting, relaxing, swimming, and boating, than did tourists who expressed preferences for sight-seeing, hiking, photography, visiting, and nature study. These finding correspond closely with the results of McCool's (1976, 1978) study of tourists in Utah.

Such findings have enormous implications for resource management. Recreational resources have different meanings to different groups of users. Managers of national resources have a legal mandate to provide for the needs of "the public". It is therefore crucial for those managers to understand the use patterns and preferences of the different user groups. Without this knowledge, it is difficult for a manager to effectively plan and manage a resource such that the resource is protected, needs of the different user groups are served, and satisfying recreational experiences are provided. To acquire the required information, the research questions below are posited:

Research Question 7: Do locals versus tourists differ in motivations for their recreational activities on the river?

Research Question 8: Do locals differ from tourists in their activities on or along the river or in the kinds of activities that they would like to do on or along the river?

Research Question 9: Do locals and tourists have different preferences for experiences, facilities, services, and management activities to protect the resource and the experience?

LOCAL AND TOURIST PERCEPTIONS OF IMPACTS, CROWDING AND CONFLICT, AND SATISFACTION

Local Perceptions of Visitors

At a general level, socio-demographic data appear to be of little value in determining how the local residents of an area will perceive visitors, with the exception of two factors: the resident's economic dependency on the tourism industry and distance from the place of residency to the tourism center. Increases in both of these factors tend to contribute to the development of a more favorable attitude toward visitors. Individuals employed within the tourism industry depend on it for their livelihood and exhibit a more positive attitude toward tourists than those not economically dependent on tourism. Likewise, as the distance between a tourist destination and a local resident's home increases, the more positive an attitude toward the tourist the individual

displays (Davis et al., 1988; Perdue et al., 1987; and Keogh, 1990). Ross (1992) contends that residents' perceptions of tourism's environmental impacts have also been found to be a function of the tourist-resident ratio and are related to the carrying-capacity of the area. The greater the number of tourists per resident, the more negative is the residents' perception of tourists.

At a more specific level, several studies have examined how local residents of destination areas feel about and perceive tourists. Frequently, these feelings are of a negative nature and can impact both the management/planning process and the tourism industry. Fridgen (1991) notes that residents may feel that tourists do not really care about the environment; they may feel that tourists simply use and abuse the environment and then leave. Ballman et al. (1989) states, in their report of a three year project in the Boundary Waters Canoe Area Wilderness in Minnesota, that a major problem developing in the area was one of locals exhibiting strong negative attitudes toward "outsiders" (i.e. tourists). These negative attitudes were developing as a result of local perceptions that their community was being controlled by outsiders. Greenwood (1977) writes that local residents may feel exploited by tourists, or feel that tourists are expropriating their local culture. Local people in Alaska's tourist destinations have reported feeling insulted and resentful of constant photographs and endless questions about

their cultural beliefs, behaviors, and customs. They feel that tourism is destroying their privacy (Pearce, 1982). Reiter (1977) notes that in La Roche, France, locals often complain of feeling awkward in the face of "city folk", and feel that their local culture has been turned into folklore for outside consumption.

O'Leary (1976) studied the reactions of residents in a small rural community to an increase in tourism caused by the establishment of a national park and access highway. Locals felt that the expansion of tourism was disrupting their recreational patterns, and, as a result, some local residents were developing antagonistic attitudes toward tourists (Perdue et al., 1987). Farrell (1982) noted loss of local recreational opportunities in Hawaii also, where long-time residents indicate that tourism and related activities have resulted in a deterioration of fishing to the point that locals have had to abandon favorite areas. In Hawaii, many permanent residents feel that tourism has been overdeveloped and has been detrimental to their quality of life (Lundberg, 1990). In an impact study on Prince Edward Island, Birch et al. (1976) found that tourism had a profound effect on the way-of-life of the residents. Islanders expressed conflict when asked about tourists--many liked having tourists visit their island, but disliked the disruption and unfavorable impact on their quality of life. In the cities of London, Honolulu, and San Juan, on Cape Cod, and in the state of

Vermont, thousands of residents wish there were fewer visitors and want to put a lid on tourism (Lundberg, 1990). D'Amore (1983) lists conditions associated with socially inappropriate tourism development: locals perceive conflicts over fish and game resources and feel that tourists are overharvesting the wildlife; residents feel that they are being forced out of their traditional weekend/vacation recreation sites by tourists; residents feel that tourists do not respect or understand local traditions or values, and residents consider that tourists are catered to ahead of local needs or that infrastructure and facilities are not available to local residents.

As noted by Perdue et al. (1987) and Davis et al. (1988), often the negative perceptions of tourists held by local residents manifest themselves in hostilities directed toward the tourist. Many other studies confirm this. For example, in a 1989 study of the city of Cairns, in North Queensland, Australia, Ross (1992) found a clear association between lower levels of community enjoyment and a lessening of the friendliness of residents as a result of tourism development. Ross concludes that such a trend could have major consequences for the community and tourism industry. If increasing numbers of locals perceive tourists as detrimental, then the visitors may become the targets for dislike or hostility. A case study carried out in a community on the Catalan coast of northeastern Spain by Pi- Sunyer (1977) examined aspects of

the images that hosts and guests may hold of each other and describes some of the changes in tourist-resident relationships due to mass tourism. The findings uncovered a growing lack of concern, loss of empathy, and even intolerance toward outsiders among local residents. Murphy (1985, p.31) writes:

> Evidence of growing hostility towards visitors is beginning to emerge in the more popular tourist destinations which are becoming overwhelmed by the volume of business. In some areas it is evident in a growing antipathy toward tourists, as in Cornwall where they are referred to as "emmets" (ants), or in southern England where they are called "grackles" (a commercially worthless shellfish). In Hawaii, those tourists dressed in...Hawaiian Shirts and the everpresent camera are referred to as "howlies". In a few regions the hostility is no longer latent with the appearance of anti-tourism graffiti, property destruction, and personal violence.

The perceptions and feeling of the people in the local community toward visitors affect how local residents feel about the resource and their recreational enjoyment of the resource. Accordingly, resource managers must recognize and be concerned with those perceptions if user conflicts are to be reduced and satisfying recreational experiences provided.

IMPACTS ASSOCIATED WITH TOURISM

The impacts of tourism on the resource and surrounding environment have been well-documented. Fridgen (1991) provides the following list of environmental impacts: loss of

historic sites, loss of habitat, littering, vandalism, degradation of parks and preserves, wear and tear on infrastructure, extensive resource consumption, extensive development, negative changes in land use, excessive waste generation, and water and air pollution. Var et al. (1985) add crowding, noise, and the disappearance of wildlife to this long list. Similar impacts are noted by Mathieson and Wall (1982), Perdue et al. (1987), Milne (1990), Allen et al. (1988), and Pearce (1981, 1982, 1987, and 1989). Pearce (1989) writes of such negative environmental impacts at tourist destination sites such as the French Riviera, the Spanish coast, Aspen and Vail, Colorado, and numerous other beaches, ski areas, and water attractions worldwide.

Impacts associated with the burgeoning numbers of tourists are not limited to the environment. They extend also to the social and economic stability of the area. The impacts are rarely confined to just one impact, and each component cannot be considered in isolation of each other, but instead must be viewed as integrated with the other components (environmental, social, economic) (Mathieson and Wall, 1982). Together, these three components can impact the quality of life for local people residing in tourist destinations. Some of the social and economic impacts of tourism that Birch et al. (1976) listed in their study of Prince Edward Island were overcommercialization, an increase in drug trafficking in the community, increases in the cost- of-living, and loss of local

culture and way-of-life. Mathieson and Wall (1982) also write that inflation of land values, and increased crime rates and prostitution are frequently cited as negative impacts of the tourism industry. Murphy (1985) notes, from a study of English tourist centers, that residents of the community felt that tourists were receiving preferential treatment in their community and that residents were losing control over the form and function of their own community. Many of these impacts have been well-documented in Hawaii, the destination of millions of visitors every year (Farrell, 1982).

Fridgen (1991) also points out that tourism does not have to be destructive. He writes that it can, instead, be a positive environmental force which encourages the preservation of wildlands, wildlife, and historical sites. Milne (1990), however, is less optimistic. He writes that there is little evidence to indicate that there exists any widespread existence of a symbiotic relationship between tourists and the physical environment. Cohen, in his 1978 report, concludes that moderate, well-distributed development of tourism might help the upkeep and preservation of environments, but that any development on a massive scale poses severe risks. Canaday et al. (1990) asserts that it can take only five years of intensive tourist impact on sensitive environmental and social communities to emulate the impact of five hundred years of natural processes, change, and "normal" living on a continent.

The influence of visitors on the natural, social, and

economic environment of an area can greatly affect how individuals perceive the resource and problems with the resource. Just as a manager must understand a community's perception of visitors, he/she must recognize all aspects of impacts associated with tourists, because these aspects also influence feelings about the resource, and the user's recreational satisfaction. With this in mind, this study seeks to investigate differences between local and tourist recreational boaters in the Arkansas Headwater Recreation Area with respect to their perceptions of the resource itself and their perceptions of problems with the resource.

Research Question 10: Do locals and tourists perceive different environmental problems on the river (i.e., damage to the environment, or feelings about appropriate levels of use)?

Research Question 11: Do locals versus tourists perceive different people problems on the river (i.e. crowding, or conflicts between users)?

Research Question 12: Are there differences in satisfaction between locals and tourists with their trip or the resource managers?

CHAPTER FOUR: METHODS

STUDY AREA AND SAMPLED POPULATIONS

The study area encompassed five of the six segments included in the Arkansas River Recreation Managment Plan for the Arkansas Headwater Recreation Area, a 150 mile long section of the Arkansas River, stretching from Leadville to Pueblo, Colorado. The segments studied were: Segment 1 (Leadville to Buena Vista), Segment 2 (Buena Vista to Salida), Segment 3 (Salida to Vallie Bridge), Segment 4 (Vallie Bridge to Parkdale), and Segment 5 (Parkdale to Canon City).

The study population was comprised of both commercial and private boaters on the Arkansas River during the 1991 summer boating season, which began May 25, 1991 and extended to August 16, 1991.

SAMPLING PLAN

Sampling was conducted at the take-out points for each of the five river segments. These points were as follows:

Segment 1 = Railroad Bridge and Buena Vista

Segment 2 = Hecla Junction and Big Bend

Segment 3 = Rincon and Pinnacle Rock

Segment 4 = Parkdale, Old and New

Segment 5 = Pink House Take-out Point

SAMPLING PROCEDURE

Sampling was stratified by segment and by weekend and weekday. Within the strata, sampling was systematic after a random start and was carried-out during all weekend days (Saturday, Sunday, and Holidays). The order of sampling of segments was randomly chosen : 1, 4, 2, 3, 5. Weekday days were sampled three days a week with the segment order following the same 1, 4, 2, 3, 5 sequence as the weekend days. Sampling was completed each day during the hours from 10:00 am to 6:00 pm, which covered the hours of trip completions.

Either two or three technicians conducted the sampling for the entire season. From May 25 through June 12 two technicians did the sampling. Beginning June 12 and continuing through August 16, two technicians completed the

sampling, with two exceptions--on days that Segment 2 or Segment 4 were covered, three technicians interviewed boaters (two technicians interviewed at the Hecla take-out point and one person interviewed at the Big Bend take-out point in Segment 2; two technicians interviewed at Parkdale New, and one at Parkdale Old in Segment 4). This was because of the particularly high use Segments 2 and 4 receive from boaters during this time.

Sampling fractions were 1 interview for every 6 people for Segments 1 and 3, and 1 interview for every twelve persons for Segments 2, 4, and 5. At least 100 respondents from each segment was desired. Segments 2, 4, and 5 sampling fractions were lower for two reasons. First, with the extremely high use these segments received, a sampling fraction of 1/6 would have produced far more interviews than the research budget for this study could afford. Secondly, a sample of 1/6 would have been impossible to obtain from such intensively used areas with the limited number of technicians available for interviews. Even with the smaller sampling fraction, Segments 2, 4, and 5 produced sufficiently large sample sizes that there was no need for a greater number of interviews.

Interviews with participants in each boater group were conducted on a random basis with an effort made to obtain representation from the user population in both age and gender. No persons under the age of 16 years were selected for an interview.

DATA COLLECTION INSTRUMENT

Two forms of data collection instruments were used for this study. One instrument was a boater contact sheet which was completed during a short on-site interview in which the field technician contacted the boaters at the river exit points, requested his or her participation in the study, obtained the respondent's mailing address for a mailback survey, and recorded the participant's answers to eight study questions. The on-site interviews for each participant were completed in approximately five minutes and allowed the technicians to record information on the participant's group size and type, amount of time spent on the river, previous experience on the Arkansas River, number of other boaters seen on the river, the participant's feelings about the number of other boaters, and whether the participant scheduled his/her trip to try to avoid potential problems on the river (see Appendix A for sample contact sheet).

The second data collection instrument was a mailback questionnaire. Two forms of the mailback questionnaire were used--Form A and Form B (see Appendix B). This allowed the study to address more questions concerning the planning and management of the Arkansas River than just one form of the questionnaire would have allowed. Participants were randomly assigned one form of the questionnaire, with half of the participants from each river segment receiving Form A and the

other half receiving Form B. The questionnaires gathered data on the following subjects:

Form A:
- Past experience and involvement with whitewater rivers
- Source of information about the Arkansas River
- Type of tourist trip
- Recreational activities preferred or participated in while in the Arkansas River Valley
- Perception of crowding and conflict
- Preferences for alternative river experiences
- Perceptions of management problems on the river
- Feelings about river user fees
- Socio-demographic information

Form B:
- Reasons for choosing the Arkansas River
- Past experience and involvement with whitewater rivers
- Economic expenditures while in the Arkansas River Valley
- Perceptions of crowding and conflict
- Preferences for alternative river experiences
- Preferences for facilities, services, and management
- Evaluation of the commercially guided trip
- Socio-demographic information

A mailback questionnaire packet, which included a questionnaire (with an identification number to permit tracking), a cover letter (see Appendix C), and a postage-paid return envelope, was mailed to each study participant within one month after contact in the field. One week after the questionnaire mail-out, a reminder postcard (see Appendix D) was mailed. If the questionnaire had not been returned within two weeks after the reminder postcard had been mailed, another questionnaire packet was sent to the participant. The second questionnaire packet was slightly different from the

first in that a stronger cover-letter was included (see Appendix E). It is also important to note that Segment 2 participants who had not responded to the original mail-out packet, were not sent a second questionnaire packet. This was because the number of contacts at Segment 2 was so large that the study's budget could not afford a second mail-out for this segment. However, even without the second mailing, the number of responses for this segment was such that a sufficient sample size was obtained.

RESPONSE RATE

A total of 2189 contacts were made at river take-out points. Of this total, 112 were refusals and 77 yielded erroneous addresses. The total number of responses was 1168, with a total overall response rate of 58 %. However, most sections have a response rate greater than 60%, with only one of the four sections below this average. A breakdown of contacts, responses, and response rates by river segment is shown in Table 1(page 46).

DATA ANALYSIS

Two types of statistical calculations were performed on the data in this study: the student's t-test and the chi-square test. In most cases, simple descriptive statistics,

such as means and percentages, are reported in conjunction with the tests.

The *t*-tests were used to determine if any overall differences existed between locals and tourists on variables that were interval or interval-like in nature (e.g., was the average age generally higher/lower for tourists or locals?). The chi-square test was employed to determine significant differences between locals and tourists on variables which were nominal or categorical in nature (e.g., do locals and tourists differ in gender?). To test the strength of any significant relationships, either the phi statistic (for two-by-two tables) or Cramer's V (for larger contingency tables) was used. All tests were examined at the p=.05 significance level.

TABLE 1: Questionnaire response rate by river segment of local and tourist boaters on the Arkansas River.

River Segment	People Contacted (N)	Refusals (N)	Bad Addresses (N)	Responses (N)	Response Rate (%)
1	152	5	5	101	71
2	1051	68	40	484	51
3	73	0	2	45	63
4	557	29	16	329	64
5	356	10	14	209	63
Total	2189	112	77	1168	58

CHAPTER FIVE: RESULTS

LOCALS' VERSUS TOURISTS' SOCIO-DEMOGRAPHIC CHARACTERISTICS AND RECREATIONAL USE PATTERNS

In the entire study, 318 (or 29.0%) boaters were locals, i.e. they travelled 100 miles or less to the Arkansas River. The remaining 71.0% (or 777 individuals) were tourists, i.e., they travelled more than 100 miles to the Arkansas River.

Socio-Demographics

Evidence suggests that little or no differences exist between locals and tourists insofar as socio-demographics are concerned. A t-test of age (Table 2) shows only a very slight difference in the average age of locals (mean= 37.3) as compared to tourists (mean= 38.5), and this difference was not significant. Similarly, a t-test for education (Table 3) shows no difference in the number of years of education between the two groups. On average, both locals and tourists

have three years of college (mean # of years in school=15.3 for locals and 15.4 for tourists). A chi-square analysis of gender and marital status (Tables 4 and 5) showed no significant relationship for gender at the .05 probability level, but indicated a significant relationship for marital status at the .05 level, with locals less likely to be married than tourists. However, a phi statistic of .089 showed this relationship to be fairly weak.

Trip Characteristics

The percentage of locals that floated each of the five river segments included in this study ranged from approximately 24.0%, on Segments 3 and 5, to 32.0% for Segment 2, and up to 33.0% for Segment 1. River Segment 4 was intermediate with about 28% of its boaters from the local area. These differences were not statistically significant (Table 6). The vast majority of both local and tourist boaters took an outfitted trip (i.e. a commercially organized trip), but the locals were more likely to take a private trip (p=.000). For example, 22.3% of all locals were on a private trip; the comparable number for tourists was 13.3% (Table 7). The two groups did not differ in their length of time on the river, with both averaging about 3.4 hours (Table 8).

The two groups differed greatly in group composition (p=.000, Table 9). For example, 44.7% of all tourist groups

were composed of family only groups. Only 21.8% of the local groups were family oriented. In contrast, 44.9% of the local groups were composed of friends only, while just 28.2% of the tourist groups were friendship groups. Slightly more private users (18.9%) came as members of a club or organization than did the tourists (14.5%). In both groups, about 10.0% were with family and friends, and only approximately 3.0% floated the river by themselves.

Finally, the two boater types did not differ in group size, as evidenced by the t-test displayed in Table 10. The local users averaged 24.6 persons per trip; the average group size for tourists was 22.4 persons.

Whitewater Experience

A chi-square analysis of data dealing with boating experience on the Arkansas River shows a significant difference between locals and tourists. Statistics show that the trip on which respondents were contacted for this study was the first float trip on the Arkansas for 67.3% of the tourists, but was the first for only 42.7% of locals (Table 11). This relationship is moderate, as the phi statistic of .228 indicates. Among those that had floated the Arkansas before, there was a significant difference between tourists and locals in their level of experience. A t-test of the number of float trips on the Arkansas River shows that the

total number of trips for local users was approximately 14.40 and the total number of trips for tourists was 7.28. This difference was significant as indicated by Table 12. In the case of experienced users, with regard to the number of years since the first trip on the Arkansas River, locals noted an average of 5.39 years and tourists gave an estimated 5.12 years, which was not significant at the .05 level (Table 13).

Results comparing tourists' and locals' experience with whitewater trips and rivers other than the Arkansas are mixed. A chi-square analysis of the number of whitewater trips ever (Table 14) shows that there is a tendency for locals to have had a greater number of whitewater trips (albeit a fairly weak tendency with a Cramer's V=.159) than have tourists. However, locals and tourists reveal no significant relationship in the number of different rivers ever floated (Table 15).

Involvement in Whitewater River Running

The two groups (locals and tourists) did differ in the extent to which floating the Arkansas River was the primary purpose for the trip away from home (p=.000). Almost 83% of all locals said they left home on the trip for the primary purpose of floating the Arkansas River. Only 47.6% of the tourists were able to say the same (Table 16).

There appears to be little difference between locals

and tourists in the case of river running, outdoor, or conservation club membership, as evidenced by Tables 17, 18, and 19. Although locals do tend to be slightly more predisposed towards belonging to a river running club (13.0% of locals claimed membership in a river running clubs as opposed to 5.7% of tourists, with a significant chi-square), the phi statistic shows this relationship to be weak: phi=.125. With regard to both outdoor recreation clubs and conservation clubs, there is no significant statistical evidence that a difference exists between locals and tourists. In fact, locals and tourists seem to be about equal in outdoor recreation club membership, with 14.3% of locals and 17.8% of tourists belonging to this type of club. Comparably, 21.9% of locals and 25.8% of tourists belong to a conservation organization.

Another question pertaining to this section asked study participants to rate whitewater as an outdoor recreation activity. The majority of both tourists and locals stated that it was either 'one of my favorites' (60.6% of locals and 65.4% of tourists) or 'my favorite' (locals=11.3%, tourists=10.4%). Thus, no significant difference was found between the groups on this question (Table 20).

The final question in this section asked users how much they had invested in river running equipment. This question showed no significant difference between tourists and locals. The majority of both tourists and locals (73.2% and

76.0%, respectively) recorded that they had invested less than $50 for equipment (Table 21).

Information Used to Learn About the River

In order to determine which sources of information were used by locals and tourists to learn about the Arkansas River, twenty-two items were presented in a question, and respondents were asked to check those items which he/she used as sources of information (see Appendix B, Form A questionnaire, question 9). Chi-square tests were used in all cases. Of the twenty-two potential sources, three received so few responses (Question #9 c, e, n) that any statistical analysis of the items was not possible. Eight of the items revealed no significant differences between tourists/locals and information source. That is, approximately the same number of tourists and locals used or did not use the outfitter brochure, the Colorado State Parks Brochure, a Colorado Welcome Center, highway billboards, a tour company, books, television/radio, and/or 'other' as a source of information. Conversely, tourists showed a greater propensity to utilize the Arkansas Recreation Area brochure (Table 22), a Southcentral Colorado Tourism Region brochure (Table 23), a Colorado Tourism Board source (Table 24), a Chamber of Commerce (Table 25), a travel agent (Table 26), an auto club (Table 27), a hotel or resort (Table 28), magazines

(Table 29) as information sources when planning their trip, while locals relied more heavily on newspapers (Table 30), friends/relatives (Table 31), or personal experiences (Table 32) for information.

Results for these statistical tests were as follows: 10% of tourists and 2.5% of locals reported using the Arkansas Recreation Area brochure; 6.7% of tourists/1.2% of locals used a Southcentral Colorado Tourism Region brochure; 11.3% tourists/5.6% locals used information from the Colorado Tourism Board; 7.7% tourists/1.9% locals used a Chamber of Commerce; 4.4% tourists/0.6% locals used a travel agent; 5.9% tourists/1.2% locals used an auto club; 15.7% tourists/ 4.3% locals gained information from a hotel or resort; and 16.2% tourists/9.9% locals used magazines. It should be noted, too, that although there were apparent relationships in the data, these relationships were not very strong, as evidenced by the relatively small phi statistics. As for the remaining items: only 3.3% of tourists reported using a newspaper to obtain information, as compared with 11.8% of locals ; 57.3% of tourists relied on friends and relatives for information while 76.4% of locals did so; and finally, 21.9% of tourists used personal experience while 42.9% of locals used their personal experiences as a source of information to plan their trip on the Arkansas River. This is in keeping with a earlier discussion of experience--it was noted that locals tended to have more experience with boating on the Arkansas River. The

strength of these latter three chi-squares is slightly stronger than those discussed first, as shown by the slightly larger phi statistics.

After identifying their sources of information, participants were asked to name the single most important source. The three most commonly cited sources were the river outfitter brochure, friends/relatives, and personal experience. Table 33 shows that local and tourist boaters differed at the p=.017 level in their selection of the most important source of information. About 51% of all local boaters said friends and relatives were most important; 41.9% of the tourists said the same. Tourists were slightly more likely than locals to use outfitters brochures, with the reverse being true for personal experience. Finally, the tourists were much more likely to list one of the many other sources of information as most important, compared to the locals.

Next, respondents were asked <u>where</u> they obtained their most important information about the Arkansas River. The most frequently cited answer for both was their home community followed by "in the Arkansas River Valley". Table 34 shows a significant difference between tourists and locals for this question though: 44.9% of tourists cited their home community, while 77.6% of locals did the same. About 40.5% of the tourists cited the Arkansas River Valley compared to 18.4% of locals.

The final question of this section asked respondents how helpful their information was in enabling them to understand what their river trip would be like. No significant difference was found between locals and tourists for this question (Table 35): 55.2% of the tourists and 56.5% of the locals rated their information as 'extremely helpful', and 41.8% of the tourists and 38.4% of the locals rated it as 'somewhat helpful'.

Knowledge of Who Manages the Arkansas Headwaters

Both locals and tourists had difficulty when asked to name the two managers of the Arkansas Headwaters Recreation Area. More than one third of both groups could not correctly identify either of the co-managers of the area (35.7% of the locals and 44.3% of the tourists missed both answers). Approximately one half of each group could correctly identify one of the managers (55.4% of the locals and 46.4% of the tourists), but less than 10% of each group could correctly identify both managers (8.9% of the locals and 9,3% of the tourists). As can be seen in Table 36, no significant differences were found between tourists and locals in their knowledge of the river managers.

Amount of Money Spent in the River Valley

As could be expected, tourists spent significantly more money during their trips than did locals. Table 37 shows a t-test of total expenditures of locals and tourists for their **entire** trip. Locals spent, on average, $245.19 for their trip; tourists spent, on average, $1023.62 for their trip. Tables 38 through 47 show the estimated expenditures for individual commodities by each group while in the **Arkansas River Valley.** For each commodity, tourists spent significantly more during their trip than did locals: restaurant expenses cost tourists an average of $78.48 and locals an average of $17.23; tourists spent an average of $25.83 in grocery stores and locals spent $5.62; lodging averaged $86.38 for tourists but only $14.07 for locals; tourists purchased $25.58 worth of non-durable goods while locals spent only $5.57; automobile and transportation cost tourists $59.26 and $32.99, respectively, while for locals these costs were $15.09 and $3.77, respectively; expenditures for photographic supplies averaged $15.43 for tourists and $6.49 for locals; totals for outfitters and guides averaged $85.79 for tourists and $50.27 for locals; tourists paid $11.28 for various attractions while locals paid only $0.39; and tourists shelled out $18.42 in "other" expenses, with locals dispensing $3.05 for the same. Overall, expenditures for tourists averaged $204.46 **per day** for their trip (Table

48). Expenses for locals, comparatively, were approximately one half as much--$101.44 **per day.**

LOCAL VERSUS TOURIST PERCEPTIONS, PREFERENCES, AND USE OF THE RESOURCE

Motivations

Results comparing locals' versus tourists' motivations for visiting the Arkansas Headwaters Area were mixed. To obtain information about the recreationists' motivations, a 22-item question asked respondents to rate each item as to how important that particular reason was in influencing their decision to visit the Arkansas River.

In only four of the twenty-two items were responses of tourists and locals significantly different. Tables 49, 50, 51, and 52 display the results of the data for these four items. The first significant difference was found within the 'convenient location' item. Locals showed a tendency to rate this reason as having been 'very important' in their decision to visit the area; tourists more often rated this factor as 'moderately important'. The next significant difference was found within the 'new area' reason for the visit. Tourists rated this reason as moderately important, while locals rated it as only somewhat important. The item which listed 'to be with friends' as a possible motivation was more highly rated by locals, who tended to feel that this reason was very

important; tourists felt that it was moderately important. The last significant item of the question asked respondents to rate 'variety of recreation opportunity in the area'. Tourists marked this item as moderately important, but locals leaned slightly more towards the 'somewhat important' rating. The three most highly rated reasons for visiting the Arkansas River were 'challenge', 'quality of the whitewater', and 'quantity of whitewater'. Both locals and tourists alike felt that these reasons were highly influential in their decisions to choose the Arkansas as a destination. Although the majority of items listed in the question resulted in similar ratings by both locals and tourists, there does seem to be some differences between the two groups in certain items.

Activities in the River Valley

A two-part question was used to determine whether tourists and locals enjoy or prefer different types of activities on the river and in the river valley. It first asked participants to identify, from a list of nineteen possible choices, which of those items they participated in on their trip, and then, from that same list, which activities they would like to participate in during future trips if opportunities were provided (see Appendix C, Form A Questionnaire, question #14).

This question produced mixed results. Of the nineteen

items (activities) presented to the study participants on the first part of the question (what activities he/she had actually participated in), nine showed significant differences between locals and tourists in participation in the activity. Locals had a tendency to participate less in a variety of activities, while tourists were more likely to participate in a greater variety of activities. Locals were less likely to hike (4.6% said they participated in this activity) than were tourists (10.8% participated) as shown in Table 53, although this relationship was weak (phi=.098). For biking, 17.7% of tourists checked 'yes', but only 5.4% of locals checked 'yes' (Table 54); 17.4% of tourists said they participated in off-road vehicle use, compared with 7.8% of locals (Table 55); 73.3% of tourists participated in four-wheel driving while 38.3% of locals did so (Table 56); 17.8% of the tourists stated that they had been sightseeing on this trip but only 4.8% of the locals had done so (Table 57); 42.9% of the tourists had picnicked, compared to 24.8% of locals (Table 58); 'swimming' was checked 'yes' by 14.9% of the tourists, but by only 6.2% of the locals (Table 59); viewing wildlife was a chosen activity for 56.7% of tourists and for 30% of locals (Table 60); and, finally, 31.4% of tourists elected to visit museums or educational centers, with only 6.2% of locals doing the same (Table 61). Some of the differences are relatively large, as can be seen by the larger phi values, and represent some of the strongest differences found in the

entire study.

The final part of this question asked the study participants to note which of the nineteen items listed they would participate in on future trips, if opportunities were provided. Respondents were asked to provide each of the items with an answer of 'would not do it', 'probably would do it', or 'definitely would do it' (see Appendix C, Form A Questionnaire, question 14). Here, as in the first part of this question, tourists showed a stronger interest in participating in a greater variety of activities. In eight of the nineteen items a significant difference between the responses of locals and tourists was found: 68.6% of tourists responded that they 'probably would' or 'definitely would' participate in biking on their next visit if opportunities were available, compared with 61.8% of locals; 91.4% of tourists probably or definitely would participate in four-wheel driving activities if provided with an opportunity, compared to 81.0% of locals; 83.1% of the tourists would probably or definitely picnic, while only 73.3% of locals would; 40.5% of tourists replied 'probably' or 'definitely' to swimming, while just 28.3% of the locals agreed; 44.8% of the tourists in this study would probably or definitely like to try rock collecting, but only 25.8% of the locals would do the same; wildlife viewing appealed to 91.6% of tourists and 79.1% of locals; 61.2% of the tourists would or probably would attend evening campfire programs, while 45.6% of the locals

would or probably would; and 78.6% of the tourists stated that they would or probably would visit educational centers or museums, compared with 63.8% of the locals. Tables 62 through 69, respectively, display the chi-square statistics for these results. Although the statistics show a significant relationship, the Cramer's value shows them to be relatively weak. In most cases, both tourists and locals said they would participate in the activity.

Preferences for Experiences, Facilities, Services, and Management

This next section sought to uncover any differences that might exist between locals and tourists in their preferences for experiences, facilities and services, water level management, controls on river use, and support for fees to enhance management to protect the resource and the recreational experience.

The first question in this section asked participants what type of river trip he/she preferred; the second question asked what kind of river trip they actually had. Tables 70 and 71 show the results of chi-square analysis for the visitors' **preferred** kind of river trip and the **actual** kind of trip they felt they had had. As Table 70 shows, most respondents (locals=62.1%, tourists=62.2%), said they preferred backcountry trips (i.e. trips in a natural setting with few other people and few or no recreational facilities),

as opposed to rural (trips in a rural or agricultural landscape with rustic recreational facilities and moderate numbers of other people) (locals=32.3%, tourists=31.7%) or developed river trips (trips in a setting with many manmade features, many recreational facilities, and frequent contact with other people) (locals=5.8%, tourists=6.1%). As is readily seen, percentages of both groups in each of the three trip choices were comparable. However, when asked which kind of river trip they felt they actually had, tourists were more likely than locals to state 'backcountry' (33.2% of tourists thought they had a backcountry trip; 27.4% of locals labelled their trip as 'backcountry'). Conversely, locals were more apt to feel that they had had a developed river trip (40%) than were tourists (31.7%). Although statistical analyses do indicate a slight difference between the two user groups, this relationship is weak, as the Cramer's V statistic of .083 indicates.

Another question in this section asked study participants to determine a monetary amount (maximum) that he/she would be willing to pay per day for each of five recreational services: a day of boating, a day of fishing, use of picnic areas, rustic camping, and developed camping (refer to Appendix C, Form A Questionnaire, question #36). These fees would go to the management agency for management purposes. Four of these five items revealed differences in the amounts locals and tourists would be willing to pay for the services, with

tourists and locals agreeing on a dollar amount for use of picnic areas. T-tests for the average amount given by each group are presented in Tables 72 through 76. For a day of boating tourists would pay an average of $17.70; locals would pay an average of $13.26 for the same service. The average amount tourists would be willing to pay for a day of fishing is $6.61, while locals feel $2.51 is a fair amount. Locals and tourists gave approximately the same average for picnic areas--$1.80 for tourists and $1.66 for locals. For rustic camping, tourists were willing to pay $7.19 per day; locals were willing to pay $5.46 per day. In all four cases where a difference was noted, the tourists were willing to pay the greater amount for the service.

The next set of questions asked the users if they would be willing to alter their behavior in order that the river environment and recreation experience be protected. An eight-item question (Appendix C, Form B Questionnaire, question #34) asked users to respond to a series of proposed actions that would limit or change the time, amount, or way the respondent would use the river. The response choices were 'would not do it', 'probably would do it', or 'definitely would do it'. Of the eight items, six showed no significant difference in the responses of locals and tourists, with the majority of both answering either 'probably' or 'definitely' to the questions. The two questions on which a significant difference was found between the locals' and tourists' responses were whether they

would float a section of the river that has fewer rapids but lower use, and whether they would be willing to schedule their trip for mid-week rather than for the weekend. The chi-square test for the former (Table 77) shows that 64.3% of the tourists stated that they would not be willing to do this, while 53.2% of locals said the same. Note that this relationship is barely significant by this study's decision rule (p=.057) and that the Cramer's V value is low, indicating that the relationship is fairly weak. As far as scheduling the trip for a weekday, 50.7% of the locals say they 'probably would', compared to just 39.5% of the tourists. However, 43.8% of the tourists answered 'definitely would' to the same question, as compared with 32.9% of the locals. Again, a relationship does appear to exist (Table 78), although the Cramer's V value shows it to be weak (Cramer's V=.109).

Management Practices

Next, a series of questions asked users to respond to several potential management practices. The first asked users their opinion on manipulating the water level of the river to benefit specific ends: to benefit fish and aquatic life, boating, fishing, and irrigation/agriculture. The only one of the four in which a difference between locals and tourists was noted involved manipulating the level of the water to benefit boating. While 68.9% of the tourists said they would favor

such a practice, only 58.3% of the locals concurred. The chi-square results for this question are presented in Table 79. It can be seen, from this table, that although the test has a p=.026 level of statistical significance, the phi statistic shows the difference between the two groups to be fairly weak (phi=.102).

Services and Facilities

The last question of this section is a multiple-item question which asks the study participants to state which facilities or services they would or would not support. Answers had a five-point response format, ranging from strongly oppose along a continuum to strongly support (Appendix C; Form B Questionnaire, question 33). Only two of the sixteen items, however, resulted in a significant difference between locals and tourists. Tables 80 and 81 present the results to those items. With respect to the 'scheduling no boat times' on the river to benefit fishing, locals tended to answer either 'neither oppose nor support' and 'somewhat support' most often; tourists answered 'somewhat oppose' and 'neither support nor oppose' most often. In the case of the 'provide more shower facilities' item, locals leaned more towards 'somewhat oppose' while tourists tended to 'neither support nor oppose' that option.

ENVIRONMENTAL AND SOCIAL IMPACTS ASSOCIATED WITH TOURISM

This section was broken down into two main parts: those impacts associated mainly with the environment, and those impacts associated mainly with people (i.e. conflict or crowding problems).

Problems With The Environment

Two questions dealt with problems of the environment. One question asked the boaters if they noticed any damage to the river environment that bothered them. The majority of both tourists and locals answered 'no' to this question (82.8%=locals, 86.0%=tourists). No significant difference between the answers of the locals and those of the tourists was revealed (Table 82). Next, the respondents that gave an affirmative answer to the last question were asked whether the damage was due to recreational or non-recreational use. Here the difference in answers between the two groups was significant. Table 83 shows that locals were more inclined to attribute the damage to recreational use (35.0% of locals felt the damage they noticed was caused by recreational use of the river) than were tourists (only 11.2% felt the damage was recreation-related). Conversely, 30.0% of locals said that the damage was not related to recreation, while 40.4% of tourists felt the same. The strength of this test is

moderate, as evidenced by the Cramer's V value of .282.

Next, a question asked users whether they felt that more controls were needed to reduce environmental damage. The majority of both groups (77.0% of locals, 79.3% of tourists) answered 'no' to this question (Table 84), with no significant difference between the locals' responses and the tourists' responses.

Management Problems

The survey question (Appendix C, Form A Questionnaire, question #32) presented twenty-two management problems to the participants and asked them to rate each problem on a five-point scale from 'not a problem' to a 'very serious problem'. Of the twenty-two items, nine showed a significant difference. These results are shown in Tables 85, 86, 87, 88, 89, 90, 91, 92, and 93. Locals had a tendency to rate litter, obstructions in the river, and human waste along the river bank (labelling it a 'slight' problem) as more serious than did tourists, who tended to place all three in the 'not a problem' category. Locals were slightly more inclined to answer 'slight problem' to the 'too many rules and regulations', 'not enough enforcement of rules and regulations', and 'too much enforcement of rules and regulations' items as well. Tourists again were more inclined to feel that these items were not a problem. Tourists were

also less likely to feel that 'lunch sites occupied by others' and 'waiting at the rapids for other to pass through' were problems, and that there were 'too many recreation facilities along the river'. Locals, once again, were slightly more prone towards labelling these items as 'slight problems'.

People Problems

Boaters were questioned during the on-site interviews as to whether they had selected a time or section of the river to avoid problems (such as user conflicts or crowding). Few of either the local versus tourist boaters stated that they had, however, the locals were significantly more likely to do so (Table 94). Almost 7% of the locals said they had selectively chosen a time or segment; only 3.6% of the tourists attempted to avoid problems on the river.

Another set of questions were designed to uncover differences between locals and tourists in their perceptions of crowding. First they were asked about the **number** of people in their boats, on their river trips, and seen on the river, and then they were asked **how they felt** about those numbers.

In answer to the question pertaining to the number of people in their boats, both locals and tourists quoted an average of approximately six with no significant difference between the two answers (Table 95). When asked to estimate the number of people that had been on their river trip (a

river trip includes river users who float together down the river--often this includes more than one boat), both groups gave an approximate answer of twenty-two, again with no significant difference between the two groups (Table 96). Then users were asked to respond to questions which asked them if they felt that the number of people in their boats and on their river trip had been acceptable. About 85.5% of locals and 88.6% of tourists replied that the number of people in their boats was acceptable. This small difference was not statistically significant. Less than 3% of each group said that the number was unacceptable (Table 97). In response to the number of people on their river trip, approximately 76.4% of locals and 72.5% of tourists responded that the number was acceptable, with only 5.0% and 3.1% of each group, respectively, responding negatively. Thus, there was no significant difference between the two groups for this particular question (Table 98) as well.

Next, a set of questions asked users to estimate the number of people they had seen at the river put-in, on the river, and at the take-out areas. Locals estimated the number of people seen at put-in points at about 49.6, tourists said 45.2; this difference was not statistically significant (Table 99). Locals estimated the number of people seen on the river at 77.58, while tourists estimated an average of 63.70 (Table 100); and locals said that they had seen approximately 64.84 people at the take-out point, compared to the 53.81

people that the tourists had seen (Table 101). Although the locals' estimation appeared slightly higher than the tourists' in all cases, this difference was not large enough to be significant.

When asked how those numbers compared with what they had expected to see, the only item that showed a significant difference between locals and tourists was the item that asked about their expectations at the take-out point: about 16% of locals said that there were more people than they had anticipated, while 19.6% of the tourists said the same; 15.5% of the locals versus 9.6% of the tourists said that there were far more people than expected, while almost twice as many tourists (8.4%) as locals (4.4%) answered that they had had no expectations (Table 102). It should be noted once again that the Cramer's V statistic show this relationship to be somewhat weak (Cramer's V=.114).

When the tourists and locals were asked how they felt about the number of people they had seen at each of these points, significant results were found for all three items. Only 63.8% of locals felt that the number of people they had seen at put-in was 'about right'; 71.4% of tourists felt that the numbers at put-in were 'about right'. About 14.0% of the locals felt that these numbers were 'far too many', but only 7.6% of tourists felt the same (Table 103). Similarly, 56.2% of locals and 62.5% of tourists responded 'about right' when asked about their feelings on the number of people they had

seen on the river, while 17.9% of locals, but only 11.4% of tourists said that those numbers were 'far too many' (Table 104). The trend continues for the last item: fewer locals (62.4%) than tourists (70.1%) were apt to respond 'about right' to the number of people seen at take-out, and more locals (16.9%) than tourists (7.8%) responded 'far too many' to the same question (Table 105). Although the Cramer's V numbers show the relationships to be relatively weak, these answers are still interesting. They show that, although locals and tourists report seeing approximately the same numbers of people, locals are more likely to feel that those numbers are too large.

The results were similar when both groups were asked to estimate the percentage of time their boat group was in sight of other boat trips. The t-test in Table 106 shows that the estimated percentage given by locals (53.13%) was not significantly different from that given by tourists (47.41%). Chi-square results, shown in Table 107, however, indicate that these numbers were considered unacceptable by 27.2% of the locals, but by just 18.7% of tourists.

The next series of questions dealt with actual conflicts between users on the river. The first question asked the users to rate how well the individuals in their particular group interacted with each other. As Table 108 shows, both local (82.1%) and tourist (84.2%) recreationists felt that the people in their group got along 'extremely well' with

no significant differences between tourists and locals. Another 15.9% of locals and 11.5% of tourists said their group got along 'pretty well', again with no significant differences. In fact, although one of the choices was 'there were some real problems', no one in either group selected that item.

Next, users were asked if the numbers or behaviors of **other** groups disturbed them. Locals were more likely than tourists to state that the numbers of people in the other groups were disturbing to them, with 29.1% of locals stating this, compared with 20.9% of tourists. Locals (3.2%) were also slightly more likely to feel that both the number and behavior of the other groups disturbed them than were tourists (1.9%). Tourists, on the other hand, were more likely than locals to find neither the numbers nor behaviors of other groups disturbing (64.6% of locals; 74.0% of tourists) (Table 109).

When users were asked whether they felt there were any conflicts between different groups of recreationists, the majority of both locals and tourists responded with a negative answer, as indicated in Table 110. Nevertheless, a significant difference was found between the number of locals (25.6%) and the number of tourists (17.4%) who responded with an affirmative answer to this question. As with the previous question, the phi value shows this relationship to be weak. Nonetheless, the question still is useful in that it becomes

a part of the pattern that shows that local users of the resource have a greater tendency to be more sensitive to or aware of people problems on the river than are the tourists.

Finally, a question asked whether users felt that more controls were needed to reduce user conflicts. The majority of both groups (77.0% of locals, 79.3% of tourists) answered 'no' to this question (Table 111), with no significant difference between the locals' responses and the tourists' responses.

USER SATISFACTION

The final research question sought to determine differences, if any, between locals' and tourists' levels of satisfaction with their river trip. Six questions on the two forms of the questionnaire pertained to this issue.

The first question discussed here asked to what extent the raft guides discussed the natural history of the area. Tourists exhibited a greater tendency (46.2%), than did locals (18.6%) to report that the guide had discussed the history often or extensively. The statistical analysis for this question shows a significant difference as indicated by Table 112.

The question that followed requested that the boaters rate the extent to which their guide's nature or history discussion added to the trip. Choices on a five-point scale

ranging from 'not at all' to 'the discussion was the most enjoyable part of the whole trip' were presented, and respondents were asked to select the choice that best matched their feelings on the subject. In keeping with the former question, locals selected 'a little' more frequently than did tourists, while tourists selected 'the most enjoyable part of the trip' more frequently than did locals (Table 113). About 38.0% of locals selected 'a little', as did 23.8% of tourists, but 36.55% of tourists selected 'the most enjoyable part of the trip' while only 24.4% of locals did so.

One other multiple-item question was directed towards determining how the boaters felt about their river guide. The question requested that the study participant rate his/her river guide according to six factors along a seven-point continuum from positive to negative. The six factors were: good/bad, pleasant/unpleasant, cold/warm, like/dislike, unsafe/safe, knowledgeable/ignorant (Appendix C, Form B Questionnaire, question #39). Both locals and tourists were generally pleased with their river guide. In only one category was a significant difference in answers between locals and tourists detected. Tourists were slightly more confident in their guide's ability to keep everyone safe than were the locals as evidenced by the t-test values for this question (Table 114). The mean score for locals was 5.83, which placed the guide's rating between 'slightly' and 'quite' safe on the continuum, whereas the mean score for tourists was

6.18, which would earn the guide a place in the continuum between 'quite' and 'extremely' safe.

The question which investigated the boaters' feelings in regards to the water level revealed no significant relationships in the data. Boaters were asked to rate the water level on a six-point scale from 'perfect' to 'substandard'. As the chi-square results show (Table 115), both tourists and locals were in relative agreement with their answers. Approximately three quarters of both groups rated the water level either 'good' or 'superior'.

Next, a question concerning the users' feelings about various aspects of their trip was posed. This question asked users to select the one response, along a five-point continuum from 'strongly disagree' to 'strongly agree', which most closely described their feeling concerning the following seven items: satisfaction with the river manager, desire to return to the Arkansas River again, whether they felt their trip was worth the money, satisfaction with their choice of outfitter, whether they would recommend the river trip to friends, whether they would like to run other rivers similar to the Arkansas, and satisfaction with services provided in the local communities (see Appendix C, Form A Questionnaire, question #35). Overall, both groups were well-satisfied with their trip, and most of their answers were highly similar . Only two of the seven items produced significant differences. Tourists seemed to be slightly more pleased with the river

managers, rating the question closer to the 'agree' end of the continuum, whereas locals rated the river managers closer to the 'neither agree nor disagree' end (Table 116). The second item which produced a significant result was the users' satisfaction with their outfitter. Again, tourists rated the outfitters slightly higher than did locals. The tourists rated their outfitter slightly more towards the 'strongly agree' end of the scale, while locals rated them slightly more toward the 'agree' end (Table 117).

The final question for this section was an overall satisfaction rating of the river trip from the study participants. This question did not produce any significant differences between locals and tourists, as shown by the chi-square statistics in Table 118. Over three quarters of each group rated their river trip as either 'good' or 'superior'; another one-fifth of respondents chose the category of 'perfect'. Only an extremely small portion (less than 1%) of respondents selected 'substandard'.

CHAPTER SIX: SUMMARY AND DISCUSSION

CHARACTERIZATION OF LOCALS VERSUS TOURISTS

Analysis of data obtained in this study revealed few differences between tourists and locals with respect to socio-demographics. In the four items tested (age, gender, education, and marital status), only one -- marital status -- resulted in a significant relationship and this relationship was not very strong. Thus, the study found few differences in answer to Research Question One.

Research Question Two sought to determine differences between local users and tourists regarding whitewater rafting experience. Data showed that there was a slight tendency for locals to be more experienced boaters both on the Arkansas and on other rivers. However, with respect to the actual number of different rivers ever floated, no significant difference between locals and tourists was uncovered.

In response to Research Question Three, very little difference was found between locals and tourists in the case of outdoor recreation or nature/conservation club membership. Of the three items tested (river running clubs, outdoor recreation clubs, and conservation clubs), only the question pertaining to the river running club resulted in a significant difference. Locals were slightly more likely to belong to a river running club than were tourists. Both groups were just as likely to hold membership in outdoor recreation or conservation clubs. The question about investment in river running equipment showed no significant difference between tourists and locals, with the majority of both groups investing a relatively small amount in equipment. The last question in this section asked both groups to indicate how favorite whitewater boating was as an outdoor activity. Again no significant difference was found between locals and tourists with the majority of both groups rating whitewater as one of their favorite activities.

Research Question Four asked whether locals or tourists were different in the kind of information they used to plan their trip. In this study, locals were found to use friends/relatives, personal experience, and newspapers (in that order) most often; tourists favored friends/relatives, personal experience, and magazines (in that order). Although friends/relatives and personal experience were the primary two sources for each group, a greater percentage of locals

than tourists relied on these sources. Although a relatively small percentage of tourists used the other sources presented (such as agency brochures, Chambers of Commerce), they were still more likely to use these sources than were locals. When asked which source was their single most important source, however, both locals and tourists cited friends and relatives most frequently, showing no significant difference between locals and tourists. The third question for this section asked where users obtained their information. The two groups differed significantly, with locals more frequently citing their home community and tourists about equally divided between their home community and the Arkansas River Valley. This places the bulk of information originating in the Arkansas River Valley, since the locals' homes are usually in the Valley, making the locals' answers of 'home' the same as the tourists' 'Arkansas River Valley' answers.

Both the locals and the tourists in this study appeared to have approximately the same amount of knowledge concerning who manages the Arkansas Headwaters Recreation Area (Research Question Five). Although the knowledge is somewhat low for both groups (i.e. there is apparently some confusion among users as to who actually manages the area), neither group showed significantly more or less knowledge of the subject than the other.

In response to Research Question Six, expenditures by tourists were significantly greater than those by locals.

This of course was to be expected, as travel, lodging, and meal expenses would be normally greater for visitors than for residents of or near the Arkansas River Valley. Also, residents would be, presumably, more familiar with the area and its attributes and would generally spend less on items such as photography and attractions.

LOCAL VERSUS TOURIST PERCEPTION AND USE OF NATURAL RESOURCES

The first question in this section inquired about the motivations of the users to visit the area (Research Question Seven). Results were mixed. Only four of twenty- two items showed significant differences between locals and tourists. Locals had a greater tendency to feel that convenience of location and the opportunity to be with friends were very important; tourists rated these items as only moderately important. Tourists were more likely to feel that an opportunity to visit a new area and to have a variety of recreational opportunities were more important than these reasons were to locals. The three most highly rated motivations by both locals and tourists were 'challenge', 'quantity of whitewater', and 'quality of whitewater'.

Research Question Eight asked users about activity preference within the River Valley. Tourists were found to both have participated in and expressed interest in participating on future trips in a greater variety of

activities than locals. This is in keeping with earlier research by both McCool (1976, 1978), and Jackson and Schinkel (1981).

Evidence to support differences between tourists and locals with respect to their preferences for experiences, management, facilities, and services (Research Question 9) was limited. Tourists, in general, were willing to pay more for services, such as camping or fishing, than were locals. Both groups generally responded affirmatively when asked if they would be willing to alter their behavior in order to save the resource or experience, with few differences between the two groups. When questioned about management practices, both locals and tourists were generally agreeable to manipulating the water levels to benefit various activities and/or the environment. Neither group felt that more controls were necessary in order to reduce conflict or environmental damage. Locals were just slightly more inclined to support 'no boat' times on the river to benefit fishing, while tourists showed a slight preference toward more facilities.

Research Question Ten asked whether locals versus tourists perceive different environmental problems along the river. The results of data in this study showed locals to be somewhat more sensitive to environmental problems. Although the majority of both groups answered 'no' to a question asking whether they had noticed any environmental problems along the river, among the individuals that had responded 'yes', locals

were more inclined to attribute that damage to recreational use than were tourist. In another question, locals tended to notice litter, obstructions in the river, and human waste along the river banks more so than tourists and were more likely to be bothered by the number of rules and regulations as well as the lack of enforcement of rules and regulations. These answers, together with an earlier negative response to more controls, might suggest the need for river managers to employ more light-handed, non- authoritarian methods in both implementing and enforcing rules and regulations. Locals also appeared to be somewhat more bothered by such inconveniences as lunch sites that were occupied by others and having to wait at the rapids for other boaters to pass through.

With respect to people problems (such as crowding and conflict) (Research Question Eleven), both locals and tourists gave similar estimates of the number of people they saw while at various points in their trip. However, there was a difference in how each group **perceived** those numbers. As with the environmental problems, locals were more sensitive to the number of people they saw and had a greater tendency, than did tourists, to be bothered by the behavior of others and to be more aware of conflict between different groups of recreationists.

USER SATISFACTION

The final research question (number twelve) sought to determine any differences between locals and tourists in their satisfaction with their river trip. Little difference between the two groups was found. In general, both locals and tourists were very pleased with the trip itself, the river guide, and the area.

IMPLICATIONS FOR MANAGEMENT

Although much of the results from this research show few differences between locals and tourists, enough differences exist to suggest that managers do need to monitor and be aware of the perceptions, feelings, and preferences of both local users and tourists. The differences between the two groups, even if slight, could cause conflict and dissatisfaction both among the groups and between the groups and the resource managers. In this study, there was a tendency for locals to notice environmental problems more and also to perceive crowding and conflicts among users more so than tourists. Tourists showed a slightly greater tendency to want more recreational activity development. These types of differences have the potential to cause future conflicts between locals and tourists. This being so, managers need to be aware of such differences.

The fact that the majority of both groups receive the bulk of their information about the area from personal sources may suggest a need for managers to update and revise their materials and devise ways to make them more attractive or available to users. Materials should include information on environmentally correct procedures for recreationists in order that the materials not only inform but educate, in an effort to reduce user conflict and environmental damage. Additionally, materials should strive to help users become more aware of and familiar with the managers of the Arkansas Headwaters Area since manager-public interaction would be more successful and effective if the public was aware of who those managers were. Managers should also offer educational workshops to guides and outfitters which would help river guides become better informed (to reduce damage and conflict) and also to make them more skillful at sharing that information with users.

Additionally, although results indicate there may be a need to reduce environmental damage and user crowding, users are hesitant to agree to more rules and regulations. If managers need to intervene, they should develop unobtrusive, light-handed methods which would encourage users to develop more appropriate behaviors without causing resentment or rebellion.

RECOMMENDATIONS FOR FUTURE RESEARCH

More research is needed to determine whether the 100-mile breakdown to distinguish locals from tourists is appropriate. Although literature from previous studies note that it is a commonly used determinate, it may not be the most appropriate for this study. Perhaps a more appropriate method would be to classify locals as those individuals living in counties through which the river flows; all other users would then be categorized as tourists.

Additionally, this study involved only boaters. Many different types of user groups (such as fishermen, landowners, general vacationers, and specific interest groups) have not been studied. These groups also need to be investigated so that more complete and thorough knowledge of the resource users and their relationships can be possible. Knowledge of and understanding these relationships will help managers provide for better experiences and protect the resource.

STUDY LIMITATIONS

Due to time and budget constraints, this thesis was limited to boaters only. Many other users groups are present and should be studied for a more thorough understanding of relationships.

Also, two questionnaires were used in this study, and not

all questions were present on both questionnaires. As a result, some questions had a very large sample size, while the sample sizes for others were comparatively small. This may have influenced the results on some of the questions, although all sample sizes were sufficient for analysis.

The response rates for this study may have also influenced the results. Although the response rate for most of the river segments (four out of five) was greater than 60%, the overall response rate for this study was 58%. This is lower than typical for these types of surveys and, even though the number of respondents was more than 1000, the number of missing responses could have influenced the results of the study.

Finally, many factors and many different types of users influence and are involved with the resource. One study is not sufficient for conclusive results. Instead, this study should be used as a starting point and source of comparison for other studies.

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APPENDIX A: CONTACT SHEETS

ARKANSAS RIVER RECREATION STUDY – 1991
BOATER STUDY - ON-SITE INTERVIEW

ID Number:_____ Contact:_____Before Trip _____After Trip

1. What type of group did you travel with when you came to the Arkansas River (check all that apply)?

_____By yourself
_____Family
_____Friends or acquaintances
_____Club or organization--please give name_____

2. How many times have you floated the Arkansas River (including this trip)?_____

3. Is this river trip on the Arkansas River the primary purpose of your trip away from home?
_____Yes
_____No

4. How many people were (are) in your group on the river today?_____

5. About how many hours did you spend on the river on this trip?_____hrs

6. In planning this trip did you pick a time or river section to avoid any potential problems on the river?

_____No
_____Yes If Yes, what potential problems did you attempt to avoid?

_____

7. How many boats (other than those in your own group) did you see (or expect to see) on the river today?

_____boats seen (or expect to see)
_____Have no expectations (only if respondent is interviewed before the river trip and respondent has no expectations)

8. How do you feel about the number of boats that you saw on the river today? (Check one; Skip if interview occurs before the trip)

_____Far too few
_____Somewhat too few
_____About right
_____Somewhat too many
_____Far too many
_____Number of boats I see on the river doesn't matter

9. Now so that we can send you a follow-up questionnaire, we need your name and address. This information will be kept confidential.

Name:_____

Street Address:_____

City, State, Zip Code:_____

(If Colorado, what county do you reside in?_____)

For Research Technicians

1. Type of Trip - (Check One)
   _____commercially-outfitted boater
   _____commercially-outfitted boater-fisherman
   _____private boater
   _____private boater-fisherman

2. Type of boat: _____oared raft _____paddled raft _____kayak _____canoe

3. Name of outfitter_____

4. Date of trip_____

5. Time of interview_____

6. Place of interview_____

7. Put-in point_____

8. Take-out point_____

9. River segment(s) used_____

10. Water flows_____cfs

APPENDIX B: FORM A QUESTIONNAIRE

FORM B QUESTIONNAIRE

A Study on the Use and Management of

The Arkansas River

Your Feelings Count

Department of Forestry
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061

Boater Survey - A

This survey is voluntary. However, your cooperation is needed to make the survey results comprehensive, accurate, and timely. You may be assured that in the analysis and reporting of the results, your answers will not be connected with you. The questions below refer to your visit to the Arkansas River on _____ when we contacted you.

Your Past Experience and Involvement with Whitewater Rivers

---

1. Was the whitewater boating trip when we contacted you your first on the Arkansas River?

   ____Yes -- Go on to Question 4
   ____No

2. How many years ago did you make your first whitewater boating trip on the Arkansas River? ____Years

3. How many times have you floated the Arkansas River before this trip? ____Trips

4. How many years ago did you make your first whitewater boating trip on any river? ____Years

5. Besides the Arkansas, how many other different rivers have you floated?

   ____None ____6-10

   ____1-2 ____11-20

   ____3-5 ____More than 20

6. How many total whitewater boating trips have you taken in your entire life?

   ____1-2 ____11-20

   ____3-5 ____More than 20

   ____6-10

7. How would you rate whitewater river running compared with your other outdoor recreation activities?

   ____River running is my favorite outdoor recreation activity

   ____River running is one of my favorite outdoor recreation activities

   ____I prefer several outdoor recreation activities over river running

8. Do you....

Belong to any river running club or organization?	[ ]Yes	[ ]No
Belong to any other sportsmen or outdoor recreation clubs (like rod and gun clubs or hiking clubs)?	[ ]Yes	[ ]No
Belong to any other conservation organizations (like Audubon Society)?	[ ]Yes	[ ]No

9. People learn about float trip opportunities on the Arkansas River in many ways. On the list provided below, check all the sources of information you used to plan your Arkansas River trip.

	Check as Many as Apply
a. The "Arkansas Headwaters Recreation Area" brochure	____
b. River outfitter brochure	____
c. Bureau of Land Management brochure	____
d. Colorado State Parks brochure	____
e. Colorado Division of Wildlife brochure	____
f. Southcentral Colorado Tourism Region brochure	____
g. Colorado Welcome Center	____
h. Colorado Tourism Board	____
i. Chamber of Commerce	____
j. Highway billboard	____
k. Travel agent	____
l. Tour company	____
m. Auto club	____
n. Airline/commercial carrier	____
o. Hotel or resort	____
p. Books	____
q. Magazines	____
r. Newspapers	____
s. Television/Radio	____
t. Friends or relatives	____
u. Personal experience on the river	____
v. Other:_____	____

10. Of all the information sources you checked in Question 9, list the one that was most important in making your decision to float the Arkansas River. _____

11. Where did you obtain the most important information (listed in Question 10) about the Arkansas River? (Check one)

____ In the community where you live
____ Enroute to the Arkansas River Valley
____ After arriving in the Arkansas River Valley

12. How helpful was the information you received in developing a good understanding of what the river trip would be like?

____ Extremely helpful; it couldn't have been better
____ Somewhat helpful, but the information could have been more complete
____ Not very helpful; the information seemed incomplete or inaccurate

If you check b or c above, describe the specific problems you had with the information you received.

_____

13. Travelers in Colorado have a variety of purposes for their pleasure trips. Below we have listed various trip types. Please check the one that best describes the main purpose of the trip during which we contacted you. (Check one)

____ Visit friends or relatives
____ A local excursion (a trip to a single destination within 100 miles of your home)
____ Combined business/pleasure trip (primary trip purpose is a conference, business meeting, or convention, but you stayed at least one additional day for pleasure)
____ Touring vacation (an extended sightseeing trip by car, bus, etc. through areas of scenic beauty, cultural or general interest)
____ Outdoors vacation (a visit to a natural area where you may engage in activities such as camping, picnicking, hiking, or backpacking)
____ Country resort vacation (a trip to a resort area or guest ranch with an opportunity to engage in a variety of outdoor and sports activities on or close to the premises)
____ City trip (a visit to a city to shop, dine, visit museums, enjoy entertainment, attend plays or concerts, or just stroll around)

14. Please tell us whether you participated in any of the following outdoor recreation activities in the Arkansas River Valley during the visit when we contacted you, and whether you would participate on a future trip to the valley if additional opportunities and facilities were provided. (For the purposes of this study, the Arkansas River Valley includes the area within 20 miles of the river and between Leadville and Canon City, Colorado.)

	Participated in the activity on the trip when contacted		Would you participate on a future visit if opportunities were provided?		
	No	Yes	Would not do it	Probably would do it	Definitely would do it
Fishing	____	____	____	____	____
Hiking	____	____	____	____	____
Backpacking	____	____	____	____	____
Mountain biking	____	____	____	____	____
Bicycling along roads	____	____	____	____	____
Horseback riding	____	____	____	____	____
Off-road-vehicle use	____	____	____	____	____
4-wheel driving on backcountry roads	____	____	____	____	____
Scenic driving/ sightseeing	____	____	____	____	____
Rock climbing	____	____	____	____	____
Camping	____	____	____	____	____
Picnicking	____	____	____	____	____
Swimming or sunbathing	____	____	____	____	____
Rock collecting	____	____	____	____	____
Gold panning	____	____	____	____	____
Golfing	____	____	____	____	____
Wildlife viewing	____	____	____	____	____
Attending evening campfire programs	____	____	____	____	____
Visiting museums or education centers	____	____	____	____	____

A Description of Your River Trip

Note: For the purposes of this questionnaire, a river trip involves a group of river users who put in at the same time and place, float as a group down the river, and take out at the same place. One or more boats may be included. For commercial trips, all boats on a river trip are provided by a single outfitter.

15. Overall, how would you rate your river trip?

____Perfect
____Superior
____Good
____Acceptable
____Substandard
____Terrible

16. If you *rated* your trip as good, superior, or perfect, please tell us why you gave your trip this high rating.

_____

_____

17. If you rated your trip as substandard or terrible, please tell us why you gave your trip this low rating.

_____

_____

18. About how many people were on your river trip (remember, a river trip includes river users who float together down the river. Often this includes more than one boat)?____

19. Was this number acceptable to you? (Check one)
____The number makes no difference to me
____Yes, this number was acceptable
____No, this number was not acceptable; If NO, what number would be acceptable? (Mark one statement below)

a. Would accept a larger trip with a total of____people
b. Would accept a smaller trip with a total of____people

20. While you were on the river, estimate the percentage of time you were in sight of boats from <u>other</u> river trips.____% of the time.

21. Was this percent acceptable to you? (Check one of the three statements below)
____The percent of time makes no difference to me
____Yes, this percent was acceptable
____No, this percent was not acceptable; If NO, what percent would be acceptable? (Mark one of the statements below)

a. Would accept boats in sight____% of the time
b. ____Percent of time boats are in sight does make a difference to me but I don't feel I can suggest an acceptable percent

22. Estimate the number of people you saw at each of the following places. (Do not count members of your own trip.)

	Estimated number of people seen
At river put-in	____
While on the river	____
At lunch sites	____
At river take-out	____

23. How did the number of people you saw at each of the following places compare with what you had expected to see?

	Far fewer than expected	Fewer than expected	About what I expected	More than I expected	Far more than I expected	Had no expectations
At river put-in	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
While on river	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
At lunch sites	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
At river take-out	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

24. How do you feel about the number of people you saw at each of the following places? (Check the box that best describes your feelings)

	Would like to see a lot more people	Would like to see few more people	Neither too many nor too few people	A few too many people	Far too many people
At river put-in	[ ]	[ ]	[ ]	[ ]	[ ]
While on river	[ ]	[ ]	[ ]	[ ]	[ ]
At lunch sites	[ ]	[ ]	[ ]	[ ]	[ ]
At river take-out	[ ]	[ ]	[ ]	[ ]	[ ]

25. Which statement below most closely reflects your point of view concerning the other groups you saw on the river? (Check one)

a.____On this river trip, neither the number of people nor their behavior were disturbing to me.
b.____The behavior of people was more disturbing to me than the number of people.
c.____The numbers of people were more disturbing to me than their behavior.
d.____Both the numbers and behavior of people were disturbing to me.

If you checked b or d, please describe the behaviors which bothered you.

_____

26. For the river stretch you visited, do you feel there are conflicts between different groups of river recreationists? (For example, between rafters and kayakers, boaters and fishermen, landowners and boaters, etc.)

____No
____Yes -- If Yes, between which groups are the conflicts occurring?

_____

_____

What types of conflicts exist between these groups?

_____

_____

27. Do you feel that more management controls are needed to keep these conflicts from occurring (for example, limit numbers of boaters, provide more law enforcement, etc.)?

____No
____Yes

Your Preferences for Alternative River Experiences

---

28. The Arkansas River in Colorado is a long river, and various sections could be managed for different experiences. We would like your help in making this important decision. Below are three kinds of trips that might be provided. Select the one that best describes the kind of trip you had on the Arkansas River. (Check one)

____ Backcountry river trip - a trip in a natural setting where you would expect to find few other people and few or no recreational facilities.

____ Rural river trip - a trip in a rural landscape (with agricultural uses like grazing), rustic recreational facilities to protect the land and ensure visitor safety, and moderate numbers of other people.

____ Developed river trip - a trip in a setting with many manmade features like roads, many recreational facilities for the visitors' convenience, and frequent contact with other people.

29. Of the kinds of river trips described above, which one best describes the kind of trip that you would prefer on the river segment you floated? (Check one)

____ Backcountry river trip
____ Rural river trip
____ Developed river trip

30. Given the kind of river trip that you prefer on the Arkansas River, indicate the highest number of boats you would accept seeing on the river before the trip would no longer provide the kind of experience you prefer.

A. It is OK to see as many as...

____boat(s) per day on the river
____it doesn't matter to me

B. It is OK to be in sight of boats from other trips...

____percent of the time while on the river
____it doesn't matter to me

31. We would like to know the extent to which you feel your standards for acceptable levels of use on the river are similar or different from other important river user groups. Below we have listed several important river user groups. First, tell us whether you think each group cares about the percent of time boats are in sight while using the river.

Percent of Time Boats Are in Sight

	Makes no difference to them	Makes some difference to them	Makes a lot of difference to them
a. River managers	____	____	____
b. River outfitters and guides	____	____	____
c. Guests on commercially outfitted raft trips	____	____	____
d. Kayakers on the river	____	____	____
e. Fishermen	____	____	____
f. Shoreline landowners	____	____	____

Next, if you believe the number of boats seen makes some or a lot of difference to a river user group, tell us what you believe to be the group's standard for the highest acceptable percent of time to be in sight of boats on the river. (Mark one of the three columns for each user group for which percent time in sight of boats makes some or a lot of difference).

Highest Acceptable Percent of Time in Sight of Boats

	List the highest percent of time they would accept (Give us the percent)	I can't give a percentage of time they would accept, but:	
		it is probably greater than what I would accept	it is probably less than what I would accept
a. River managers	_____	_____	_____
b. River outfitters and guides	_____	_____	_____
c. Guests on commercially outfitted raft trip	_____	_____	_____
d. Kayakers on the river	_____	_____	_____
e. Fishermen	_____	_____	_____
f. Shoreline landowners	_____	_____	_____

Your Perceptions of Problems on the River Trip

32. Information about problems you may have experienced during your river trip would be helpful to river managers. To what extent did you find each of the following to be a problem during your trip? (Circle the number that best describes how serious you found each to be).

	Not a problem	Slight problem	Moderate problem	Serious problem	Very Serious problem
Litter along the river	1	2	3	4	5
Obstructions in river (logs, limbs, fence, low bridges)	1	2	3	4	5
Too few drinking water sources	1	2	3	4	5
People shouting or playing loud radios	1	2	3	4	5
People drinking alcoholic beverages	1	2	3	4	5
Too many fishermen	1	2	3	4	5
Too many rules and regulations	1	2	3	4	5
Not enough enforcement of river rules and regulations	1	2	3	4	5
Too much enforcement of river rules and regulations	1	2	3	4	5
Too many billboards along river highway	1	2	3	4	5
Too few toilet and change room facilities at put-in and take-out points	1	2	3	4	5
Too few toilet facilities along the river between put-in and take-out points	1	2	3	4	5
Presence of human body waste along the river	1	2	3	4	5
Too many recreational facilities (like toilets and change rooms) along the river	1	2	3	4	5
Inadequate information services (signs, displays) at river access points	1	2	3	4	5
River guide spends too little time describing the natural features and history	1	2	3	4	5
Lack of shower facilities at river take-out points	1	2	3	4	5
Too few brochures on the river's natural features and history	1	2	3	4	5
Too few maps of the river showing access points, attractions, and hazards	1	2	3	4	5
Poor quality lunch sites	1	2	3	4	5
Lunch sites occupied by others	1	2	3	4	5
Waiting at rapids for other boats to pass through	1	2	3	4	5

33. For the river stretch you were on, did you notice any damage to the river environment that bothered you?

_____No
_____Yes -- If Yes, what kinds of environmental damage are occurring?

_____

_____

Is the damage due to recreational use or nonrecreational causes?

_____Due to recreational use
_____Due to nonrecreational causes
_____Don't know

34. Do you feel more controls are needed to prevent the river environment from being damaged (for example, control mining activities in the watershed or prohibit boating use during certain periods)?

_____No
_____Yes

35. How well do the following statements describe your feelings about your river trip? (Circle the number that best describes how strongly you agree or disagree with each statement).

	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
I was pleased with the job being done by managers of the river	1	2	3	4	5
I want to return and run the Arkansas River again	1	2	3	4	5
The river trip was well worth the money I spent on it	1	2	3	4	5
I was satisfied with my choice of commercial outfitters	1	2	3	4	5
I would recommend the river trip to my friends	1	2	3	4	5
I do not want to run anymore rivers like this one	1	2	3	4	5
I was pleased with the quality of food, lodging, etc. provided in the communities along the river	1	2	3	4	5

Your Feelings About Fees

36. Public agencies are currently attempting to protect the natural qualities of the Arkansas River, manage its use, and provide recreational facilities. As you know, providing these services costs money. The money usually comes from general taxes. However, many Americans believe that those who actually use and benefit from a recreational resource should pay for its protection and management. Given this, what would be the maximum amount you would be willing to pay per day for the following recreational services on the Arkansas River? (Remember, the money you pay would go to the public agency and would be used to protect, manage, and provide recreational services on the Arkansas River).

	I would pay nothing	I would pay the following dollar amount:
a. For a day of boating	____	____
b. For a day of fishing	____	____
c. For use of picnic areas along the river	____	____
d. For rustic camping along the river(camp area contains pad, tables, fire grates, and pit toilets)	____	____
e. For developed camping along the river (camp area includes pad, tables, fire grates, flush toilets, electricity, and showers)	____	____

Information About Your Background

37. What is your age?____years

38. What is your gender?____Male____Female

39. What is your educational background? (Circle the number of the highest grade you have completed.)

1 2 3 4 5 6 7 8 Elementary 9 10 11 12 High School 13 14 15 16 College 16+ Graduate Work

40. What is your marital status? [ ] Single [ ] Married

Thank you very much for your help. If you would like to receive a summary of the results of this survey, please write your name and address on the back of the return envelope. Please make any further comments about the Arkansas River and its management on the inside front cover of this questionnaire.

A Study on the Use and Management of

The Arkansas River

Your Feelings Count

Department of Forestry
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061

Boater Survey - B

This survey is voluntary. However, your cooperation is needed to make the survey results comprehensive, accurate, and timely. You may be assured that in the analysis and reporting of the results, your answers will not be connected with you. The questions below refer to your visit to the Arkansas River on _____ when we contacted you.

Your Reasons For Choosing The Arkansas River

1. Some possible reasons why people go boating on the Arkansas River rather than some other river are listed below. Tell us how important each reason was in your decision to select the Arkansas River.

	Not at all Important	Somewhat Important	Moderately Important	Very Important	Extremely Important
I chose the Arkansas River as a place to boat for the following reasons:					
Beautiful scenery	1	2	3	4	5
Convenient location	1	2	3	4	5
Meet new people	1	2	3	4	5
See and learn about wildlife	1	2	3	4	5
Try out a new area	1	2	3	4	5
Quality of the whitewater	1	2	3	4	5
Good facilities at river access points	1	2	3	4	5
Other rivers too crowded	1	2	3	4	5
Amount of whitewater	1	2	3	4	5
Outfitter services	1	2	3	4	5
Freedom from rules and regulations	1	2	3	4	5
Be with friends	1	2	3	4	5
Be with family	1	2	3	4	5
Be away from the crowds	1	2	3	4	5
Release tensions and anxieties	1	2	3	4	5
For challenge and excitement	1	2	3	4	5
Test and use my equipment	1	2	3	4	5
Test and develop my abilities	1	2	3	4	5
Plenty of public access to the river	1	2	3	4	5
Peace and solitude	1	2	3	4	5
The availability of a variety of outdoor recreation opportunities in the area	1	2	3	4	5
The convenient services in nearby communities	1	2	3	4	5

Your Past Experience and Involvement with Whitewater Rivers

2. Was the river trip when we contacted you your first on the Arkansas River?

____Yes -- Go on to Question 5
____No

3. How many years ago did you make your first whitewater boating trip on the Arkansas River? ____Years

4. How many times have you floated the Arkansas River before this trip? ____Trips

5. How many years ago did you make your first whitewater boating trip on any river? ____Years

6. Besides the Arkansas, how many other different rivers have you floated?

____None ____6-10

____1-2 ____11-20

____3-5 ____More than 20

7. How many total whitewater boating trips have you taken in your entire life?

____1-2 ____11-20

____3-5 ____More than 20

____6-10

Expenditures on Your Trip to the Arkansas River Valley

We would now like to determine how much money people spend while visiting the Arkansas River Valley. This permits us to estimate the value of tourism to the area, and to determine the role of the river in area tourism.

8. About how far did you travel from your home to the Arkansas River Valley?____Miles

9. What kind of transportation did you use to travel from your home to the Arkansas River Valley? (Check as many as apply)

____Private Car
____Rental Car
____Bus
____Train
____Airplane
____Other, please specify:_____

10. How many days did you spend on your entire vacation or trip (including days spent in the Arkansas River Valley and all other areas visited on the trip)?____Days

11. How many days did you spend in the Arkansas River Valley?____Days

12. Which of the following best describes how you handled your expenses on this trip?

____I paid all of my own expenses and no one elses'.
____I paid for all of my expenses and the expenses of ____ members of my group.
____Someone else paid all my expenses (If so, go to Question 15).
____There were no expenses associated with this trip at all (If so, go to Question 15).

13. Please estimate the <u>total</u> amount you spent on your trip from your preparations before leaving home until your return home_____.

14. In the space below, please list your estimated expenditures while in the ARKANSAS RIVER VALLEY. Report the amounts you actually spent in each category while in the ARKANSAS RIVER VALLEY.

Estimated Amount spent for:	Dollars		Dollars
a. Restaurants (including fast food, sit down, etc.)	_____	f. Auto expenses:	
b. Food and beverage in retail stores	_____	Car rental	_____
c. Lodging expenses:		Gas and oil	_____
hotel/motel	_____	Repairs and service	_____
camping	_____	Parking	_____
other	_____	g. Other transportation costs:	
d. Retail purchases other than durable goods (personal items, souvenirs, etc)	_____	Airfare and busfare	_____
		Taxis	_____
		h. Film and developing	_____
		i. Fees for outfitters or guides	_____
e. Purchases of durable goods such as:		j. Fees for other attractions:	
Clothing (shoes, boots, hats, etc.)	_____	Amusement parks	_____
		Theaters	_____
Equipment (backpacks, fishing rods, etc.)	_____	Museums	_____
		k. Other expenditures (please specify):	
Accessories (water bottles, helmets, cameras)	_____	_____	_____
Books, guides, maps	_____	_____	_____

15. Approximately how much money have you invested in river running equipment?

( ) Less than $50 ( ) $101-$500 ( ) $2001-$5000
( ) $51-$100 ( ) $501-$2000 ( ) Over $5000

A Description of Your River Trip

Note: For the purposes of this questionnaire, a river trip involves a group of river users who put in at the same time and place, float as a group down the river, and take out at the same place. One or more boats may be included. For commercial trips, all boats on a river trip are provided by a single outfitter.

16. Overall, how would you rate your river trip?

____Perfect
____Superior
____Good
____Acceptable
____Substandard
____Terrible

17. If you rated your trip as good, superior, or perfect, please tell us why you gave your trip this high rating.

_____

_____

18. If you rated your trip as substandard or terrible, please tell us why you gave your trip this low rating.

_____

_____

19. How would you rate the water level of the river for an enjoyable trip?

____Perfect
____Superior
____Good
____Acceptable
____Substandard
____Terrible

20. If you rated the water level as terrible or substandard, please tell us why you gave the water level this low rating. The water level was:

____Far too low
____Somewhat too low
____Slightly too low
____Slightly too high
____Somewhat too high
____Far too high

21. Do you favor manipulating water levels (by altering the time and amount of water released from existing upstream reservoirs) to:

	Yes	No
Benefit fish and other aquatic life	____	____
Benefit boating	____	____
Benefit fishing	____	____
Benefit irrigation and agriculture	____	____

22. How many people were on your boat? _____

23. Was this number acceptable to you? (check one)

____The number makes no difference to me

____Yes, the number was acceptable

____No, this number was not acceptable; If NO, what number would be acceptable? (Mark one statement below)

a. Would accept a smaller boat with ____ people per boat
b. Would accept a larger boat with ____ people per boat

24. How well did the people in your boat or group get along with each other? (Check one)

____The group got along extremely well
____The group got along pretty well

____The group was indifferent, neither good nor bad
____There were some real problems; the group did not get along well at all

25. Estimate the number of people you saw at each of the following places. (Do not count members of your own trip.)

	Estimated number of people seen
At river put-in	____
While on the river	____
At lunch sites	____
At river take-out	____

26. How did the number of people you saw at each of the following places compare with what you had expected to see?

	Far fewer than expected	Fewer than expected	About what I expected	More than I expected	Far more than I expected
At river put-in	[ ]	[ ]	[ ]	[ ]	[ ]
While on river	[ ]	[ ]	[ ]	[ ]	[ ]
At lunch sites	[ ]	[ ]	[ ]	[ ]	[ ]
At river take-out	[ ]	[ ]	[ ]	[ ]	[ ]

27. How do you feel about the number of people you saw at each of the following places? (Check the box that best describes your feelings)

	Would like to see a lot more people	Would like to see a few more people	Neither too many nor too few people	A few too many people	Far too many people
At river put-in	[ ]	[ ]	[ ]	[ ]	[ ]
While on river	[ ]	[ ]	[ ]	[ ]	[ ]
At lunch sites	[ ]	[ ]	[ ]	[ ]	[ ]
At river take-out	[ ]	[ ]	[ ]	[ ]	[ ]

28. Which statement below most closely reflects your point of view concerning the other groups you saw on the river? (Check one)

a.____On this river trip, neither the number of people nor their behavior were disturbing to me.
b.____The behavior of people was more disturbing to me than the number of people.
c.____The numbers of people were more disturbing to me than their behavior.
d.____Both the numbers and behavior of people were disturbing to me.

If you checked b or d, please describe the behaviors which bothered you.

_____

_____

29. The Arkansas River in Colorado is a long river, and various sections could be managed for different experiences. We would like your help in making this important decision. Below are three kinds of trips that might be provided. Select the one that best describes the kind of trip you had on the Arkansas River. (Check one)

____ Backcountry river trip - a trip in a natural setting where you would expect to find few other people and few or no recreational facilities.

____ Rural river trip - a trip in a rural landscape (with agricultural uses like grazing), rustic recreational facilities to protect the land and ensure visitor safety, and moderate numbers of other people.

____ Developed river trip - a trip in a setting with many manmade features like roads, many recreational facilities for the visitors' convenience, and frequent contact with other people.

30. Of the kinds of river trips described above, which one best describes the kind of trip that you would prefer on the river segment you floated? (Check one)

____ Backcountry river trip

____ Rural river trip

____ Developed river trip

31. Given the kind of river trip that you prefer on the Arkansas River, indicate the highest level of encounters you would accept before the trip would no longer provide the kind of experience you prefer.

A. Seeing boats from other trips on the river (Check 1 or 2 below).

1. ____Makes no difference to me how many boats I see on the river

2. ____Does make a difference to me how many boats I see on the river. If number of boats seen makes a difference, how many boats per day would be acceptable? (Mark a or b below)

a. Would accept ____ boats per day on the river

b. ____ Number of boats I see does make a difference, but I don't feel I can suggest an acceptable number.

B. Percent of time in sight of boats from other trips on the river (Check 1 or 2 below)

1. ____Makes no difference to me what percent of time other boats are in sight on the river.

2. ____Does make a difference to me what percent of time other boats are in sight on the river. If percent of time in sight of other boats makes a difference, what percent would be acceptable? (Mark a or b below)

a. Would accept boats in sight ____% of the time on the river.

b. ____Percent of time boats are in sight on the river does make a difference to me, but I don't feel I can suggest an acceptable percent.

32. We would like to know the extent to which you feel your standards for acceptable levels of use on the river are similar or different from other important river user groups. Below we have listed several important river user groups. First, tell us whether you think each group cares about the number of boats seen on the river.

	Number of Boats Seen on the River		
	Makes no difference to them	Makes some difference to them	Makes a lot of difference to them
a. River managers	____	____	____
b. River outfitters and guides	____	____	____
c. Guests on commercially outfitted raft trips	____	____	____
d. Kayakers on the river	____	____	____
e. Fishermen	____	____	____
f. Shoreline landowners	____	____	____

Next, If you believe the number of boats seen makes some or a lot of difference to a river user group, tell us what you believe to be the group's standard for the greatest acceptable number of boats to see on the river. (Mark one of the three columns for each user group for whom number of boats seen makes some or a lot of difference).

	Greatest Acceptable Numbers of Boats Seen		
	List the greatest number of boats they would accept (Give us the number)	I can't give a number they would accept, but: it is probably greater than what I would accept	it is probably less than what I would accept
a. River managers	_____	_____	_____
b. River outfitters and guides	_____	_____	_____
c. Guests on commercially outfitted raft trips	_____	_____	_____
d. Kayakers on the river	_____	_____	_____
e. Fishermen	_____	_____	_____
f. Shoreline landowners	_____	_____	_____

Your Preferences for Facilities, Services, and Management

33. Given the conditions on the river when you were there, how do you feel about each of the following management actions? (Circle the number that shows how much you support or oppose <u>each</u> action).

	Strongly Oppose	Somewhat Oppose	Neither Support Nor Oppose	Somewhat Support	Strongly Support
Provide more public access to the river	1	2	3	4	5
Provide more campsites along the river	1	2	3	4	5
Provide more restrooms and changing rooms at river access points	1	2	3	4	5
Provide more picnic tables and fire grates at put-in and take-out points	1	2	3	4	5
Provide roadside pullouts with facilities for viewing wildlife	1	2	3	4	5
Provide more interpretive exhibits to explain natural and cultural features	1	2	3	4	5
Provide workshops to train river guides about natural features and history along the river	1	2	3	4	5
Provide more parking spaces at pullouts along the river	1	2	3	4	5
Schedule "no-boat" times to enhance shoreline fishing	1	2	3	4	5
Provide "no-boat" river segments as quality fishing areas	1	2	3	4	5
Provide more patrols to assist river users and enforce regulations	1	2	3	4	5
Provide drinking water facilities at access points	1	2	3	4	5
Provide more water safety instructions for river users	1	2	3	4	5
Distribute brochures on the area's natural features and history	1	2	3	4	5
Make more information available on the different kinds of trips and experiences available on the Arkansas River	1	2	3	4	5
Provide shower facilities for use after the trip	1	2	3	4	5

34. The opportunity to obtain the kind of experience you are seeking on the Arkansas River and still protect its natural qualities sometimes involves tradeoffs. Would you be willing to do any of the following in order to protect the river and be assured that you and other important user groups get the experience that you think should be provided on the Arkansas River?

A. To assure an acceptable number of boats on the river, I would be willing to:

	Would not do it	Probably would do it	Definitely would do it
Schedule my river trip earlier in the morning or late in the afternoon	____	____	____
Take a trip during mid-week rather than on a weekend	____	____	____
Take a trip earlier or later in the river use season when the weather and water conditions are less likely to be ideal	____	____	____
Float a section of the river that has similar rapids but lower use	____	____	____
Float a section of the river that has fewer rapids and lower use	____	____	____
Support limiting the size of individual trips (fewer people per trip) knowing that it might decrease my chances of running the river	____	____	____
Float the river less often (e.g. go every other year rather than once a year)	____	____	____
Support a system of limited river use permits, knowing that my chance of obtaining a permit at popular times and river segments would be lowered	____	____	____

Information About Your Background

35. What is your age?____years

36. What is your gender?____Male____Female

37. What is your educational background? (Circle the number of the highest grade you have completed.)

1 2 3 4 5 6 7 8	9 10 11 12	13 14 15 16	16+
Elementary	High School	College	Graduate Work

38. Managers of the Arkansas River would like to measure the public's awareness of who are the primary managers of the Arkansas River. List who you believe to be the river's managers. (Check the two most important managers.)

____Landowners and ranchers along the river
____Cities along the river
____Counties along the river
____Colorado State Parks
____Colorado Division of Wildlife
____Colorado Highway Department
____National Park Service
____Bureau of Land Management
____U.S. Forest Service
____I don't know

Your Feelings About Your Commercially Guided Trip*

**If you were not on a commercially guided trip, you have now completed this questionnaire. See note at the bottom of this page.*

39. How would you describe your raft guide on your river trip. (Check one blank between each pair of words that best expresses your feelings).

	Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely	
Good	____	____	____	____	____	____	____	Bad
Pleasant	____	____	____	____	____	____	____	Unpleasant
Cold	____	____	____	____	____	____	____	Warm
Like	____	____	____	____	____	____	____	Dislike
Unsafe	____	____	____	____	____	____	____	Safe
Knowledgeable	____	____	____	____	____	____	____	Ignorant

40. Including this trip, how many times have you floated with this outfitter?____

41. Did your guide discuss the natural features and history of the river with you during your trip?

____Not all all
____Briefly
____Somewhat
____Often
____Extensively

42. To what extent did your guide's discussion of the natural features and history of the river increase your overall enjoyment of the trip?

____Not at all
____A little
____Quite a bit
____A great deal
____The discussion was the most enjoyable part of the whole trip

NOTE: Thank you very much for your help. If you would like to receive a summary of the results of this survey, please write your name and address on the back of the return envelope. Please make any further comments about the Arkansas River and its management on the inside front cover of this questionnaire.

APPENDIX C: COVER LETTER #1

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Department of Forestry
School of Forestry and Wildlife Resources
Blacksburg, Virginia 24061-0324 USA
(703) 231-5482 FAX (703) 231-3330

Dear Arkansas River User:

Recently we talked with you along the Arkansas River and asked for your help on a study of river management. As you know, rivers like the Arkansas are precious resources, and the American people are placing more and more demands upon them. For example, the Arkansas River provides water for irrigation of agricultural lands and draws tourists from throughout the country for whitewater rafting and for fishing. Management of the river to protect its natural qualities but also to provide services for people is a difficult task. To do this job better, managers need information from you, the river user.

We would greatly appreciate your help if you would take the time necessary to carefully complete the enclosed questionnaire. The questions deal with your visit to the Arkansas River and your opinions on its management and use. Please send the questionnaire back to us in the self-addressed, stamped envelope as soon as possible. We want the opinions of a truly representative group of people, and so have scientifically chosen a sample of Arkansas Rivers users. But, the sample will be good only if those people we have contacted are responsive.

The questionnaire has an identification number for mailing purposes only. Your response will be held in strictest confidence. All results will be analyzed in such a way that your answers on any single question cannot be identified with you.

This is a good opportunity for you to express your views on a significant regional and national issue. If you would like a copy of the results, print your name and address on the back of the return envelope.

Your help in this study is greatly appreciated.

Sincerely,

Joseph W. Roggenbuck

Joseph W. Roggenbuck
Associate Professor of
Forest Recreation

APPENDIX D: REMINDER POSTCARD

Dear River User:

Your participation in the Arkansas River Study is very important. If you have not already returned the questionnaire we sent you recently, we would appreciate your doing so as soon as possible.

I thank you for your cooperation in this study.

SINCERELY,

Joseph W. Roggenbuck

Joseph W. Roggenbuck
Associate Professor, Forest Recreation

APPENDIX E: COVER LETTER #2

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Department of Forestry
School of Forestry and Wildlife Resources
Blacksburg, Virginia 24061-0324 USA
(703) 231-5482 FAX (703) 231-3330

Dear Arkansas River User:

You should recently have received a survey sent to a sample of the many Arkansas River users. Your name was randomly selected for this study. Your participation in it is essential if the results are to be useful in guiding future decisions about the management of the river.

You may be affected by the increasing recreational use of the Arkansas River and by management actions taken by the public agencies. The resource agencies should know the preferences and opinions of the people who will be most directly influenced by their activities. This study is an opportunity for you to express your personal experiences and feelings as a user.

As of today, we have not received your completed questionnaire. We hope that it is in the mail or that you will take the time to complete the enclosed copy. If you would like to know what other users think about the river, please print your name and address on the back of the return envelope.

Sincerely,

Joseph W. Roggenbuck

Joseph W. Roggenbuck
Associate Professor of
Forest Recreation

APPENDIX F: TABLES

TABLE 2. Student's t-test of the average age (in years) of tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	318	37.30	9.64	-1.79	1085	.074
Tourists	769	38.50	10.26			

TABLE 3. Student's t-test of the educational levels (in years) of tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	318	15.34	1.76	-.70	1085	.49
Tourists	769	15.42	1.85			

TABLE 4. A chi-square test for gender differences of local users versus tourists in the Arkansas Headwaters Recreation Area.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Male	200	(62.9)	501	(65.0)	701	(64.4)
Female	118	(37.1)	270	(35.0)	388	(35.6)
Column Totals	318	(29.2)	771	(70.8)	N=1089	

chi-square=.428, p=.513

TABLE 5. A chi-square test for the marital status of local users versus tourists in the Arkansas Headwaters Recreation Area.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Single	67	(41.9)	126	(32.6)	193	(35.3)
Married	93	(58.1)	261	(67.4)	354	(64.7)
Column Totals	169	(29.3)	387	(70.7)	N=547	

chi-square=4.303, p=.038, phi=.089

TABLE 6. A chi-square test of the number of locals and tourists that floated each of the five river segments in the Arkansas Headwaters Recreation Area.

River Segment	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
1	32	(10.1)	65	(8.4)	97	(8.9)
2	143	(45.0)	309	(39.8)	452	(41.3)
3	10	(3.1)	31	(4.0)	41	(3.7)
4	86	(27.0)	224	(28.8)	310	(28.3)
5	47	(14.8)	148	(19.0)	195	(17.8)
Column Totals	318	(29.0)	777	(71.0)	N=1095	

chi-square=5.204, p=.267

TABLE 7. A chi-square test for the type of river trip taken by locals versus tourists in the Arkansas Headwaters Recreation Area.

Private/ Commercial	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Outfitted Boater	234	(77.7)	635	(86.7)	869	(84.1)
Private Boater	67	(22.3)	97	(13.3)	164	(15.9)
Column Totals	301	(29.1)	732	(70.9)	N=1033	

chi-square=12.958, p=.000

TABLE 8. Student's t-test (locals versus tourists) of the number of hours spent today (day of contact) on the Arkansas River in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	311	3.37	1.41	-0.21	1073	0.835
Tourists	764	3.39	1.46			

TABLE 9. A chi-square test of the type of group local versus tourist users were boating with in the Arkansas Headwaters Recreation Area.

Group Type	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
By Yourself	10	(3.2)	18	(2.4)	28	(6.2)
Family	68	(21.8)	342	(44.7)	410	(38.1)
Friends	140	(44.9)	216	(28.2)	356	(33.1)
Club/Organ.	59	(18.9)	111	(14.5)	170	(15.8)
Friends and Family	34	(10.9)	72	(9.4)	106	(9.8)
Friends and Club	1	(0.3)	2	(0.3)	3	(0.3)
Column Totals	312	(29.0)	765	(71.0)	N=1077	

chi-square=54.608, p=.000

TABLE 10. Student's t-test of the number of people in the group of local/tourist boaters on the Arkansas River in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	294	24.55	24.76	1.38	999	.17
Tourists	707	22.44	20.88			

TABLE 11. A chi-square test for differences in the breakdown of local users versus tourists on whether the Arkansas River trip was their first one.

First Trip	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	135	(42.7)	514	(67.3)	649	(60.1)
No	181	(57.3)	250	(32.7)	431	(39.9)
Column Totals	316	(29.3)	764	(70.7)	N=1080	

chi-square=56.208, p=.000, phi=.228

TABLE 12. Student's t-test of the number of float trips on the Arkansas River of tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	307	14.40	39.74	2.62	1064	.01
Tourists	759	7.28	41.29			

TABLE 13. Student's t-test of the number of years since first whitewater trip on the Arkansas River for experienced tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	175	5.39	4.44	0.62	442	0.53
Tourists	269	5.11	4.56			

TABLE 14. A chi-square test of the number of whitewater trips ever by local users versus tourists.

Number of Trips	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
1-2	116	(37.2)	403	(53.4)	519	(48.6)
3-5	72	(23.1)	152	(20.1)	224	(21.0)
6-10	41	(13.1)	56	(7.4)	97	(9.1)
11-20	15	(4.8)	31	(4.1)	46	(4.3)
More Than 20	68	(21.8)	113	(15.0)	181	(17.0)
Column Totals	312	(29.2)	755	(70.8)	N=1067	

chi-square=27.096, p=.000, Cramer's V=.159

TABLE 15. A chi-square test of how many rivers floated by local users versus tourists.

Number of Rivers	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
0	114	(27.1)	306	(39.8)	420	(38.9)
1-2	94	(30.0)	205	(26.7)	299	(27.7)
3-5	41	(13.1)	133	(17.3)	174	(16.1)
6-10	31	(9.9)	45	(5.9)	76	(7.0)
11-20	15	(4.8)	38	(4.9)	53	(4.9)
More than 20	18	(5.8)	41	(5.3)	59	(5.5)
Column Totals	313	(29.0)	768	(71.0)	N=1081	

chi-square=9.280, p=.098

TABLE 16. A chi-square test for whether the float trip was the primary purpose of the trip from home for locals versus tourists in the Arkansas Headwaters Recreation Area.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	256	(82.6)	364	(47.6)	620	(57.7)
No	54	(17.4)	400	(52.4)	454	(42.3)
Column Totals	310	(28.9)	764	(71.1)	N=1074	

chi-square=110.30, p=.000

TABLE 17. A chi-square test of the number of local users versus tourists that belong to a river running club.

Belong to Club	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	21	(13.0)	22	(5.7)	43	(7.8)
No	140	(87.0)	366	(94.3)	506	(92.2)
Column Totals	161	(29.3)	388	(70.7)	N=549	

chi-square=8.569, p=.003, phi=.124

TABLE 18. A chi-square test of the number of local users versus tourists that belong to an outdoor recreation club.

Belong to Club	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
No	138	(85.7)	318	(82.2)	456	(83.2)
Yes	23	(14.3)	69	(17.8)	92	(16.8)
Column Totals	161	(29.4)	387	(70.6)	N=548	

chi-square=1.022, p=.312

TABLE 19. A chi-square test of the number of local users versus tourists that belong to a conservation organization.

Belong to Organization	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	125	(78.1)	287	(74.2)	412	(75.3)
Yes	35	(21.9)	100	(25.8)	135	(24.7)
Column Totals	160	(29.3)	387	(70.7)	N=547	

chi-square=.957, p=.328

TABLE 20. A chi-square test of how local users versus tourists rate whitewater boating as an outdoor recreational activity.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
My Favorite	18	(11.3)	40	(10.4)	58	(10.7)
One of My Favorites	97	(60.6)	251	(65.4)	348	(64.0)
Prefer Others	45	(28.1)	93	(24.2)	138	(25.4)
Column Totals	160	(29.4)	384	(70.6)	N=544	

chi-square=1.150, p=.563

TABLE 21. A chi-square test of how much money local users versus tourists have invested in river running equipment.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
$50 or Less	114	(76.0)	279	(73.2)	393	(74.0)
$51-$100	6	(4.0)	17	(4.5)	23	(4.3)
$101-$500	2	(1.3)	17	(4.5)	19	(3.6)
$501-$2000	13	(8.7)	30	(7.9)	43	(8.1)
$2001-$5000	12	(8.0)	27	(7.1)	39	(7.3)
$5000 or More	3	(2.0)	11	(2.9)	14	(2.6)
Column Totals	150	(28.2)	381	(71.8)	N=531	

chi-square=3.636, p=.603

TABLE 22. A chi-square test of local users versus tourists that used an Arkansas Recreation Area brochure as an information source when planning their trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	4	(2.5)	39	(10.0)	43	(7.8)
No	157	(97.5)	350	(90.0)	507	(92.2)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=8.986, p=.003, phi=.128

TABLE 23. A chi-square test of local users versus tourists that used a Southcentral Colorado Tourism Region brochure as an information source when planning their trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	2	(1.2)	26	(6.7)	28	(5.1)
No	159	(98.8)	363	(93.3)	522	(94.9)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=6.978, p=.008, phi=.113

TABLE 24. A chi-square test of local users versus tourists that used the Colorado Tourism Board as an information source when planning their trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	9	(5.6)	44	(11.3)	53	(9.6)
No	152	(94.4)	345	(88.7)	497	(90.4)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=4.280, p=.039, phi=.088

TABLE 25. A chi-square test of local users versus tourists that used a Colorado Chamber of Commerce as an information source when planning their trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	3	(1.9)	30	(7.7)	33	(6.0)
No	158	(98.1)	359	(92.3)	517	(94.0)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=6.906, p=.008, phi=.112

TABLE 26. A chi-square test of local users versus tourists that used a travel agent as an information source when planning their trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	1	(0.6)	17	(4.4)	18	(3.3)
No	160	(99.4)	372	(95.6)	532	(96.7)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=5.056, p=.024, phi=.096

TABLE 27. A chi-square test of local users versus tourists that used an auto club as an information source when planning their trip.

	Locals N	Locals (col. %	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	2	(1.2)	23	(5.9)	25	(4.5)
No	159	(98.8)	366	(94.1)	525	(95.5)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=5.725, p=.017, phi=.102

TABLE 28. A chi-square test of local users versus tourists that used a motel or resort as an information source when planning their trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	7	(4.3)	61	(15.7)	68	(12.4)
No	154	(95.7)	328	(84.3)	482	(87.6)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=13.499, p=.000, phi=.157

TABLE 29. A chi-square test of local users versus tourists that used magazines as information sources when planning their trip.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	16	(9.9)	63	(16.2)	79	(14.4)
No	145	(90.1)	326	(83.8)	471	(85.6)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=3.625, p=.057, phi=.081

TABLE 30. A chi-square test of local users versus tourists that used newspapers as information sources when planning their trip.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	19	(11.8)	13	(3.3)	32	(5.8)
No	142	(88.2)	376	(96.7)	518	(94.2)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=14.871, p=.000, phi=.164

TABLE 31. A chi-square test of local users versus tourists that used friends/relatives as information sources when planning their trip.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	123	(76.4)	223	(57.3)	326	(62.9)
No	38	(23.6)	166	(42.7)	204	(37.1)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=17.749, p=.000, phi=.180

TABLE 32. A chi-square test of local users versus tourists that used personal experiences on the river as information sources when planning their trip.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	69	(42.9)	85	(21.9)	154	(28.0)
No	92	(57.1)	304	(78.1)	396	(72.0)
Column Totals	161	(29.3)	389	(70.7)	N=550	

chi-square=24.924, p=.000, phi=.213

TABLE 33. A chi-square test of the most important information source for local users versus tourists in the Arkansas Headwaters Recreation Area.

Information Source	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Outfitter Brochure	22	(14.7)	62	(17.6)	84	(16.7)
Friends/ Relatives	76	(50.7)	148	(41.9)	224	(44.5)
Personal Experience	25	(16.7)	39	(11.0)	64	(12.7)
Other	27	(18.0)	104	(29.5)	131	(26.0)
Column Totals	150	(29.8)	353	(70.2)	N=503	

chi-square=10.257, p=.016

TABLE 34. A chi-square test of where local users versus tourists obtained their most useful trip planning information.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
At Home	118	(77.6)	164	(44.9)	282	(54.5)
Enroute	6	(3.9)	53	(14.5)	59	(11.4)
After Arrival	28	(18.4)	148	(40.5)	176	(34.0)
Column Totals	152	(29.4)	365	(70.6)	N=517	

chi-square=46.983, p=.000, Cramer's V=.301

TABLE 35. A chi-square test of how helpful local users versus tourists found their trip planning information.

How Helpful	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Very	78	(56.5)	201	(55.2)	279	(55.6)
Somewhat	53	(38.4)	152	(41.8)	205	(40.8)
Not Very	7	(5.1)	11	(3.0)	18	(3.6)
Column Totals	138	(27.5)	364	(72.5)	N=502	

chi-square=1.479, p=.477

TABLE 36. A chi-square test of users' knowledge of the river's managers.

Number Correct	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
0 Right	56	(35.7)	172	(44.3)	228	(41.8)
1 Right	87	(55.4)	180	(46.4)	267	(49.0)
2 Right	14	(8.9)	36	(9.3)	50	(9.2)
Column Totals	157	(28.8)	388	(71.2)	N=545	

chi-square=3.877, p=.143

TABLE 37. Student's t-test of the total expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	133	245.19	556.35	-8.62	465.00	0.00
Tourists	334	1023.62	1396.17			

TABLE 38. Student's t-test of the total restaurant expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	17.23	30.01	-8.17	468	0.00
Tourists	341	78.48	129.52			

TABLE 39. Student's t-test of the total retail food expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	5.62	11.95	-4.95	468	0.00
Tourists	341	25.83	72.78			

TABLE 40. Student's t-test of the total lodging expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	14.07	50.17	-6.14	468	0.00
Tourists	341	86.38	201.57			

TABLE 41. Student's t-test of the total retail expenditures for non-durable goods for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	5.57	11.88	-5.95	468	0.00
Tourists	341	25.58	58.99			

TABLE 42. Student's t-test of the total automobile expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	15.09	18.84	-7.60	468	0.00
Tourists	341	59.26	102.84			

TABLE 43. Student's t-test of the total other transportation expenditures for tourists an local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	3.77	42.79	-2.91	468	0.004
Tourists	341	32.99	171.84			

TABLE 44. Student's t-test of the total photographic expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	6.49	18.57	-2.10	468	0.036
Tourists	341	15.43	72.59			

TABLE 45. Student's t-test of the total outfitter/guide expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	50.27	62.03	-3.81	468	0.00
Tourists	341	85.79	139.31			

TABLE 46. Student's t-test of the total attraction expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	0.40	2.99	-5.28	468	0.00
Tourists	341	11.28	37.75			

TABLE 47. Student's t-test of the total other expenditures for tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	3.05	16.79	-1.83	468	0.07
Tourists	341	18.42	152.92			

TABLE 48. Student's t-test of the total expenditures per day for tourists and local users in the Arkansas River Valley. [1]

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	129	101.44	143.71	-5.00	465	0.00
Tourists	338	204.46	299.18			

[1] These expenditures do not represent per person per day expenditures because some respondents paid for themselves and others.

TABLE 49. Student's t-test of convenient location cited as the reason for visit by tourists and local users in the Arkansas River Valley.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	154	3.73	1.11	2.75	520.00	0.01
Tourists	368	3.41	1.24			

TABLE 50. Student's t-test of the importance of "new area" as the reason for tourists and local users choosing the Arkansas River.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	147	2.47	1.36	-2.81	516.00	0.005
Tourists	371	2.85	1.39			

TABLE 51. Student's t-test of the importance of "being with friends" as the reason for tourists and local users choosing the Arkansas River.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	150	3.73	1.17	3.42	419	0.001
Tourists	371	3.30	1.53			

TABLE 52. Student's t-test of the importance "availability of recreational opportunities" as the reason for tourists and local users choosing the Arkansas River.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	151	2.88	1.38	-2.03	523.00	0.04
Tourists	374	3.13	1.24			

TABLE 53. A chi-square test of local users' and tourists' participation in a hiking activity.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	124	(95.4)	281	(89.2)	405	(91.0)
Yes	6	(4.6)	34	(10.8)	40	(9.0)
Column Totals	130	(29.2)	315	(70.8)	N=445	

chi-square=4.294, p=.038, Phi=.098

TABLE 54. A chi-square test of local versus tourist participation in a biking activity.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	123	(94.6)	261	(82.3)	384	(85.9)
Yes	7	(5.4)	56	(17.7)	63	(14.1)
Column Totals	130	(29.2)	317	(70.9)	N=447	

chi-square=11.484, p=.000, Phi=.160

TABLE 55. A chi-square test of local users' and tourists' participation in an ORV activity in the Arkansas Headwaters Recreation Area.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	119	(92.2)	251	(82.6)	370	(85.5)
Yes	10	(7.8)	53	(17.4)	63	(14.5)
Column Totals	129	(29.8)	304	(70.2)	N=433	

chi-square=6.829, p=.126

TABLE 56. A chi-square test of local versus tourist participation in four-wheel driving on backcountry roads.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	82	(61.7)	92	(26.7)	174	(36.4)
Yes	51	(38.3)	253	(73.3)	304	(63.6)
Column Totals	133	(27.8)	345	(72.2)	N=478	

chi-square=50.758, p=.000, Phi=.326

TABLE 57. A chi-square test of local versus tourist participation in sightseeing activities.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	118	(95.2)	259	(82.2)	377	(85.9)
Yes	6	(4.8)	56	(17.8)	62	(14.1)
Column Totals	124	(28.2)	315	(71.8)	N=439	

chi-square=12.282, p=.000, Phi=.167

TABLE 58. A chi-square test of local versus tourist participation in picnicking activities.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	100	(75.2)	189	(57.1)	289	(62.3)
Yes	33	(24.8)	142	(42.9)	175	(37.7)
Column Totals	133	(28.7)	331	(71.3)	N=464	

chi-square=13.215, p=.000, Phi=.169

TABLE 59. A chi-square test of local versus tourist participation in swimming or sunbathing activities.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	121	(93.8)	263	(85.1)	384	(87.7)
Yes	8	(6.2)	46	(14.9)	54	(12.3)
Column Totals	129	(29.5)	309	(70.5)	N=438	

chi-square=6.351, p=.012, Phi=.120

TABLE 60. A chi-square test of local versus tourist participation in wildlife viewing.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	91	(70.0)	143	(43.3)	234	(50.9)
Yes	39	(30.0)	187	(56.7)	226	(49.1)
Column Totals	130	(28.3)	330	(71.7)	N=460	

chi-square=26.536, p=.000, Phi=.240

TABLE 61. A chi-square test of local versus tourist visitation to museums and/or education centers.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
No	122	(93.8)	220	(68.5)	342	(75.8)
Yes	8	(6.2)	101	(31.5)	109	(24.2)
Column Totals	130	(28.8)	321	(71.2)	N=451	

chi-square=32.342, p=.000, Phi=.268

TABLE 62. A chi-square test of local versus tourist willingness to participate in biking activities on future visits if opportunities were provided.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Would Not	50	(38.2)	102	(31.4)	152	(33.3)
Probably Would	59	(45.0)	116	(35.7)	175	(38.4)
Definitely Would	22	(16.8)	107	(32.9)	129	(28.3)
Column Totals	131	(28.7)	325	(71.3)	N=456	

chi-square=11.999, p=.002, Cramer's V=.162

TABLE 63. A chi-square test of local versus tourist willingness to participate in four-wheel driving on backcountry roads on future visits if opportunities were provided.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Would Not	25	(18.9)	28	(8.6)	53	(11.6)
Probably Would	56	(42.4)	111	(34.3)	167	(36.6)
Definitely Would	51	(38.6)	185	(57.1)	236	(51.8)
Column Totals	132	(28.9)	324	(71.1)	N=456	

chi-square=16.441, p=.000, Cramer's V=.190

TABLE 64. A chi-square test of local versus tourist willingness to participate in picnicking activities on future visits if opportunities were provided.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Would Not	35	(26.7)	53	(16.9)	88	(19.8)
Probably Would	50	(38.2)	124	(39.5)	174	(39.1)
Definitely Would	46	(35.1)	137	(41.1)	183	(41.1)
Column Totals	131	(29.4)	314	(70.6)	N=445	

chi-square=6.196, p=.045, Cramer's V=.118

TABLE 65. A chi-square test of local versus tourist willingness to participate in swimming and sunbathing activities on future visits if opportunities were provided.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Would Not	91	(71.7)	181	(59.5)	272	(63.1)
Probably Would	23	(18.1)	75	(24.7)	98	(22.7)
Definitely Would	13	(10.2)	48	(15.8)	61	(14.2)
Column Totals	127	(29.5)	304	(70.5)	N=431	

chi-square=5.731, p=.057, Cramer's V=.115

TABLE 66. A chi-square test of local versus tourist willingness to participate in rock collecting activities on future visits if opportunities were provided.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Would Not	95	(74.2)	173	(55.3)	268	(60.8)
Probably Would	24	(18.8)	101	(32.3)	125	(28.3)
Definitely Would	9	(7.0)	39	(12.5)	48	(10.9)
Column Totals	128	(29.0)	313	(71.0)	N=441	

chi-square=13.684, p=.001, Cramer's V=.176

TABLE 67. A chi-square test of local versus tourist willingness to participate in wildlife viewing activities on future visits if opportunities were provided.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Would Not	29	(20.9)	27	(8.4)	56	(12.2)
Probably Would	52	(37.4)	136	(42.5)	188	(41.0)
Definitely Would	58	(41.7)	157	(49.1)	215	(46.8)
Column Totals	139	(30.3)	320	(69.7)	N=459	

chi-square=13.990, p=.001, Cramer's V=.175

TABLE 68. A chi-square test of local versus tourist willingness to participate in evening campfire programs on future visits if opportunities were provided.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Would Not	74	(54.4)	124	(38.9)	198	(43.5)
Probably Would	42	(30.9)	131	(41.1)	173	(38.0)
Definitely Would	20	(14.7)	64	(20.1)	84	(18.5)
Column Totals	136	(29.9)	319	(70.1)	N=455	

chi-square=9.374, p=.009, Cramer's V=.144

TABLE 69. A chi-square test of local versus tourist willingness to visit museums and education centers on future visits if opportunities were provided.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Would Not	51	(36.2)	70	(21.4)	121	(25.9)
Probably Would	69	(48.9)	167	(51.1)	236	(50.4)
Definitely Would	21	(14.9)	90	(27.5)	111	(23.7)
Column Totals	141	(30.1)	327	(69.9)	N=468	

chi-square=15.019, p=.000, Cramer's V=.179

TABLE 70. A chi-square test of the kind of river trip local versus tourist users would prefer.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Backcountry	193	(62.1)	468	(62.2)	661	(62.1)
Rural	100	(32.2)	239	(31.7)	339	(31.9)
Developed	18	(5.8)	46	(6.1)	64	(6.0)
Column Totals	311	(29.2)	753	(70.8)	N=1064	

chi-square=.050, p=.975

TABLE 71. A chi-square test of the kind of trip local versus tourist users received the Arkansas River.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Backcountry	85	(27.4)	251	(33.2)	336	(31.5)
Rural	101	(32.6)	265	(35.1)	366	(34.4)
Developed	124	(40.0)	239	(31.7)	363	(34.1)
Column Totals	310	(29.1)	755	(70.9)	N=1065	

chi-square=7.259, p=.027, Cramer's V=.082

TABLE 72. Student's t-test of "amount willing to pay for a day of boating" by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	149	13.25	20.07			
				-2.15	491	0.03
Tourists	344	17.70	23.29			

TABLE 73. Student's t-test of "amount willing to pay for a day of fishing" by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	148	2.51	6.19	-4.17	483	0.00
Tourists	337	6.61	13.01			

TABLE 74. Student's t-test of "amount willing to pay for use of picnic areas" by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	148	1.66	4.57	-0.34	494	0.74
Tourists	348	1.80	3.69			

TABLE 75. Student's t-test of "amount willing to pay for rustic camping" by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	153	5.46	6.02	-2.61	493	0.01
Tourists	342	7.19	8.30			

TABLE 76. Student's t-test of "amount willing to pay for developed camping" by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	149	8.47	9.43			
				-3.08	484	0.00
Tourists	337	11.62	12.35			

TABLE 77. A chi-square test of local versus tourist willingness to float a section of the river that has fewer rapids and lower use in order to protect the river and the experience.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Would Not	82	(53.2)	240	(64.3)	322	(61.1)
Probably Would	58	(37.7)	109	(29.2)	167	(31.7)
Definitely	14	(9.1)	24	(6.4)	38	(7.2)
Column Totals	154	(29.2)	373	(70.8)	N=527	

chi-square=5.713, p=.057, Cramer's V=.104

TABLE 78. A chi-square test of local versus tourist willingness to schedule their trip for mid-week rather than for a weekend to protect the river and the experience.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Would Not	25	(16.4)	53	(16.7)	88	(16.6)
Probably Would	77	(50.7)	149	(39.5)	226	(42.7)
Definitely	50	(32.9)	165	(43.8)	215	(40.6)
Column Totals	152	(28.7)	377	(71.3)	N=529	

chi-square=6.299, p=.043, Cramer's V=.109

TABLE 79. A chi-square test of local versus tourist support for manipulating the river's water level to benefit boating.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	81	(58.3)	235	(68.9)	318	(65.8)
No	58	(41.7)	106	(31.1)	164	(34.2)
Column Totals	139	(29.0)	341	(71.0)	N=480	

chi-square=4.972, p=.026, phi=.102

TABLE 80. Student's t-test of local versus tourist support for scheduling 'no boat' times in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	154	3.12	1.24	2.08	534	0.04
Tourists	382	2.87	1.25			

TABLE 81. Student's t-test of local versus tourist support for providing shower facilities in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	154	2.59	1.12	-2.22	532.00	0.03
Tourists	380	2.84	1.21			

TABLE 82. A chi-square test of whether local versus tourist noticed any damage to the river environment that bothered them.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	27	(17.2)	53	(14.0)	80	(14.9)
No	130	(82.2)	326	(86.0)	456	(85.1)
Column Totals	157	(29.3)	379	(70.7)	N=536	

chi-square=.903, p=.342

TABLE 83. A chi-square test of what local versus tourist feel is the cause of the environmental damage.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Recreational Use	14	(35.0)	10	(11.2)	24	(18.6)
Non-Recreational Use	12	(30.0)	36	(40.4)	48	(37.2)
Don't Know	14	(35.0)	43	(48.3)	57	(44.2)
Column Totals	40	(31.0)	89	(69.0)	N=129	

chi-square=10.294, p=.006, phi=.282

TABLE 84. A chi-square test of local versus tourist feelings about the need for more controls to prevent environmental damage to the river.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Yes	77	(53.5)	157	(45.6)	234	(48.0)
No	67	(46.5)	187	(54.4)	254	(52.0)
Column Totals	144	(29.5)	344	(70.5)	N=488	

chi-square=2.495, p=.114

TABLE 85. Student's t-test of "litter along the river" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	159	1.67	0.95	2.21	538	0.02
Tourists	379	1.47	0.75			

TABLE 86. Student's t-test of "obstructions in the river" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	159	1.47	0.75	2.21	534.00	0.03
Tourists	377	1.33	0.67			

TABLE 87. Student's t-test of "human waste along river" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	15	1.35	0.87	3.00	532	0.00
Tourists	375	1.13	0.50			

TABLE 88. Student's t-test of "too many rules and regulations" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	158	1.36	0.80	2.40	532	0.02
Tourists	376	1.19	0.59			

TABLE 89. Student's t-test of "not enough enforcement of river rules" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	158	1.39	0.86	2.90	528	0.00
Tourists	372	1.18	0.51			

TABLE 90. Student's t-test of "too much enforcement of river rules" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	158	1.27	0.75	2.76	528	0.01
Tourists	372	1.09	0.45			

TABLE 91. Student's t-test of "too many recreational facilities along the river" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	158	1.18	0.60	2.13	526	0.03
Tourists	370	1.08	0.35			

TABLE 92. Student's t-test of "lunch sites occupied by others" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	155	1.72	1.11	3.27	507	.00
Tourists	354	1.40	0.76			

TABLE 93. Student's t-test of "wait at rapids for others to pass through" cited as a problem by tourists and local users in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	159	1.97	1.19	3.21	532	.00
Tourists	375	1.63	0.95			

TABLE 94. A chi-square test of whether locals versus tourists selected a time or section to avoid problems in the Arkansas Headwaters Recreation Area.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	20	(6.8)	25	(3.6)	45	(4.5)
No	273	(93.2)	674	(96.4)	947	(95.5)
Column Totals	293	(29.5)	699	(70.5)	N=992	

chi-square=5.034, p=.025

TABLE 95. Student's t-test of the number of people on the boat of locals versus tourists.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	155	5.85	2.12	0.57	541	0.57
Tourists	388	5.73	2.00			

TABLE 96. Student's t-test of the number of people on river trip of locals versus tourists.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	158	22.24	18.81	0.17	530	0.86
Tourists	374	21.92	19.71			

TABLE 97. A chi-square test of whether local users versus tourists in the Arkansas Headwaters Recreation Area felt that the number of people on their boat was acceptable.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Makes No Difference	18	(11.8)	36	(9.5)	54	(10.2)
Acceptable	130	(85.5)	334	(88.6)	464	(87.7)
Not Acceptable	4	(2.6)	7	(1.9)	11	(2.1)
Column Totals	152	(28.7)	377	(71.3)	N=529	

chi-square=.987, p=.611

TABLE 98. A chi-square test of whether local users versus tourists felt that the number of people on their trip was acceptable.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Makes No Difference	30	(18.6)	93	(24.3)	123	(22.7)
Acceptable	123	(76.4)	277	(72.5)	400	(73.7)
Not Acceptable	8	(5.0)	12	(3.1)	20	(3.7)
Column Totals	161	(29.7)	382	(70.3)	N=543	

chi-square=2.891, p=.236

TABLE 99. Student's t-test of the number of people seen at put-in by locals versus tourists.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	308	49.55	66.50	0.96	1059	0.34
Tourists	753	45.23	66.23			

TABLE 100. Student's t-test of number of people seen on the river by locals versus tourists.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	305	77.58	111.18	1.91	1046	0.064
Tourists	743	63.70	95.92			

TABLE 101. Student's t-test of number of people seen at take-out by locals versus tourists.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	303	64.84	94.56	1.79	1037	0.08
Tourists	736	53.81	79.30			

TABLE 102. A chi-square test of how the number of people seen at the take-out points compared with expectations for locals versus tourists.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Far Fewer Than Expect	13	(4.1)	34	(4.5)	47	(4.4)
Fewer Than Expect	34	(10.8)	71	(9.5)	105	(9.8)
About Expected	156	(49.4)	363	(48.4)	519	(48.7)
More Than Expected	50	(15.8)	147	(19.6)	197	(18.5)
Far More Than Expect	49	(15.5)	72	(9.6)	121	(11.4)
No Expectation	14	(4.4)	63	(8.4)	77	(7.2)
Column Totals	316	(29.6)	750	(70.4)	N=1066	

chi-square=13.908, p=.016, Cramer's V=.114

TABLE 103. A chi-square test of how local users versus tourists felt about the number of people seen at put-in sites.

	Locals N (col. %)	Tourists N (col. %)	Row Totals N (%)
Would Like To See A Lot More People	3 (1.0)	6 (0.8)	9 (0.8)
Would Like To See A Few More People	7 (2.2)	25 (3.3)	32 (3.0)
# Was About Right	201 (63.8)	546 (71.4)	747 (69.2)
Few Too Many People	61 (19.4)	130 (17.0)	191 (17.7)
Far Too Many People	43 (13.7)	58 (7.6)	101 (9.4)
Column Totals	315 (29.2)	765 (70.8)	N=1080

chi-square=12.242, p=.016, Cramer's V=.106

TABLE 104. A chi-square test of how local users versus tourists felt about the number of people on the river.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Would Like To See A Lot More People	1	(0.3)	6	(0.8)	7	(0.7)
Would Like To See A Few More People	13	(4.2)	33	(4.3)	46	(4.3)
# Was About Right	176	(56.2)	477	(62.5)	653	(60.7)
Few Too Many People	67	(21.4)	160	(21.0)	227	(21.1)
Far Too Many People	56	(17.9)	87	(11.4)	143	(13.3)
Column Totals	313	(29.1)	763	(70.9)	N=1076	

chi-square=9.256, p=.055, Cramer's V=.093

TABLE 105. A chi-square test of how local users versus tourists felt about the number of people seen at take-out sites.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Would Like To See A Lot More People	1	(0.3)	6	(0.8)	7	(0.7)
Would Like To See A Few More People	9	(2.9)	16	(2.1)	25	(2.3)
# Was About Right	196	(62.4)	531	(70.1)	727	(67.9)
Few Too Many People	55	(17.5)	145	(19.2)	200	(18.7)
Far Too Many People	53	(16.9)	59	(7.8)	112	(10.5)
Column Totals	314	(29.3)	757	(70.7)	N=1071	

chi-square=21.089, p=.000, Cramer's V=.140

TABLE 106. Student's t-test of % of time locals versus tourists were in sight of other boat trips.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	159	53.13	35.03	1.70	544	0.09
Tourists	387	47.41	36.03			

TABLE 107. A chi-square test of whether local users versus tourists felt that the percentage of time that they were in sight of boats from other river trips was acceptable.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Makes No Difference	22	(13.9)	75	(19.4)	97	(17.8)
Acceptable	93	(58.9)	239	(61.9)	332	(61.0)
Not Acceptable	43	(27.2)	72	(18.7)	115	(21.1)
Column Totals	158	(29.0)	386	(71.0)	N=544	

chi-square=5.966, p=.051, Cramer's V=.105

TABLE 108. A chi-square test of how well locals versus tourists felt the people in their group/boat got along.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Extremely Well	124	(82.1)	315	(84.2)	439	(83.6)
Pretty Well	24	(15.9)	43	(11.5)	67	(12.8)
Indifferent	3	(2.0)	16	(4.3)	19	(3.6)
Column Totals	151	(28.8)	374	(71.2)	N=525	

chi-square=3.247, p=.197

TABLE 109. A chi-square test of how local users versus tourists felt about the number and behavior of other groups they saw on the river.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Neither Disturbed Me	204	(64.6)	570	(74.0)	774	(71.3)
Behavior Disturbed Me	10	(3.2)	24	(3.1)	34	(3.1)
# of People Disturbed Me	92	(29.1)	161	(20.9)	253	(23.3)
Both Disturbed Me	10	(3.2)	15	(1.9)	25	(2.3)
Column Totals	316	(29.1)	770	(70.9)	N=1086	

chi-square=10.735, p=.013, Cramer's V=.099

TABLE 110. A chi-square test of whether locals versus tourists perceived conflicts between different user groups.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
No	119	(74.4)	319	(82.6)	438	(80.2)
Yes	41	(25.6)	67	(17.4)	108	(19.8)
Column Totals	160	(29.3)	386	(70.7)	N=546	

chi-square=4.872, p=.027, phi=.094

TABLE 111. A chi-square test of local versus tourist feelings about the need for more management controls to prevent conflicts between different user-groups on the river.

	Locals		Tourists		Row Totals	
	N	(col. %)	N	(col. %)	N	(%)
Yes	32	(23.0)	64	(20.7)	96	(21.4)
No	107	(77.0)	245	(79.3)	352	(78.6)
Column Totals	139	(31.0)	309	(69.0)	N=488	

chi-square=.304, p=.582

TABLE 112. A chi-square test of whether the locals' versus tourists' guide discussed the natural features and history of the river during the trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Not At All	6	(4.8)	10	(3.2)	16	(3.7)
Briefly	40	(32.3)	58	(18.6)	98	(22.5)
Somewhat	43	(34.7)	100	(32.1)	143	(32.8)
Often	28	(22.6)	117	(37.5)	145	(33.3)
Extensively	7	(5.6)	27	(8.7)	34	(7.8)
Column Totals	124	(28.4)	312	(71.6)	N=436	

chi-square=15.176, p=.004, Cramer's V=.187

TABLE 113. A chi-square test of whether the guide's discussion of the natural features and history of the river increased the locals' versus tourists' overall enjoyment in the trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Not At All	9	(7.3)	15	(4.9)	24	(5.6)
A Little	47	(38.2)	73	(23.8)	120	(27.9)
Quite a Bit	37	(30.1)	107	(34.9)	144	(33.5)
A Great Deal	27	(22.0)	108	(35.2)	135	(31.4)
Most Enjoyable	3	(2.4)	4	(1.3)	7	(1.6)
Column Totals	123	(28.6)	307	(71.4)	N=430	

chi-square=13.673, p=.008, Cramer's V=.178

TABLE 114. Student's t-test of whether the locals versus tourists felt safe or unsafe with their river guide.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	115	5.83	1.43	-2.32	398.00	0.02
Tourists	285	6.18	1.29			

(note: 5=quite safe, 6=extremely safe)

TABLE 115. A chi-square test of how local users versus tourists rate the water level of the river for an enjoyable trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Perfect	17	(11.0)	43	(11.2)	60	(11.2)
Superior	34	(21.9)	97	(25.3)	131	(24.3)
Good	71	(45.8)	175	(45.7)	246	(45.7)
Acceptable	24	(15.5)	46	(12.0)	70	(13.0)
Substandard	9	(5.8)	22	(5.7)	31	(5.8)
Column Totals	155	(28.8)	383	(71.2)	N=538	

chi-square=1.552, p=.817

TABLE 116. Student's t-test of the locals' versus tourists' satisfaction with the river managers of the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	154	3.62	0.74	-2.61	527.00	0.01
Tourists	375	3.82	0.78			

TABLE 117. Student's t-test of locals' versus tourists' satisfaction with choice of outfitter in the Arkansas Headwaters Recreation Area.

	Number of Cases	Mean	Standard Deviation	T-Value	Degrees of Freedom	2-tail Probability
Locals	137	4.14	0.97	-2.61	487	0.01
Tourists	352	4.38	0.78			

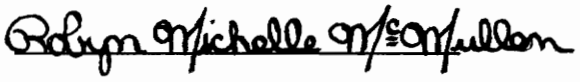
TABLE 118. A chi-square test of how local users versus tourists rated their river trip.

	Locals N	Locals (col. %)	Tourists N	Tourists (col. %)	Row Totals N	Row Totals (%)
Perfect	56	(17.8)	145	(18.7)	201	(18.5)
Superior	143	(45.5)	396	(51.1)	539	(49.5)
Good	101	(32.2)	210	(27.1)	311	(28.6)
Acceptable	12	(3.8)	19	(2.5)	31	(2.8)
Substandard	2	(0.6)	5	(0.6)	7	(0.6)
Column Totals	314	(28.8)	775	(71.2)	N=1089	

chi-square=4.970, p=.290

VITA

The author of this paper was born in Barberton, Ohio, on July 25, 1962. Her childhood was spent in the small, suburban town of Evans, New York, located on the shore of Lake Erie, where she attended Lake Shore Central public schools, graduating with honors in June of 1980. She received a Bachelor's of Science in Forestry with distinction from the University of Kentucky in 1985, and subsequently spent the next few years in a variety of jobs, including teaching nature studies in a recreation program at a local park in Angola, New York, and working with a geographical information systems project and at environmental education camps while at the Tennessee Valley Authority's Land Between the Lakes in Kentucky and Tennessee. Since 1989 she has been enrolled as a graduate student in Virginia Polytechnic Institute and State University's forestry department, participating also in a cooperative education program with the U.S.D.A. Forest Service. Her course-work has emphasized geographical information systems and natural resource management.



Robyn Michelle McMullen