RECREATION EXPERIENCE MANAGEMENT ZONES
FOR WHITewater BOATING
IN THE LOWER DESCHUTES RIVER CANYON

by

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A RESEARCH PAPER
submitted to
THE DEPARTMENT OF GEOGRAPHY

in partial fulfillment of
the requirements for the
degree of
MASTER OF SCIENCE
June 1980
Directed by
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ABSTRACT. Rapid increases in the recreational use of the Lower Deschutes River Canyon threaten the quality and diversity of downriver recreational experiences. The concept of recreation experience management is discussed and recreation experience management zones for whitewater boating are delineated and described.

INTRODUCTION

The recreational use of whitewater rivers is increasing dramatically. In the 1970's, whitewater recreation on many rivers doubled or tripled. The future of river recreation is not hard to discern. Many consider river running to be at the take-off point in popularity occupied by downhill skiing in the 1950's.¹

Rivers, whether placid, scenic, or wild, are a very limited resource, and the existing supply is under great pressure from a multitude of users. This pressure has resulted in resource damage, conflicts among users, and deleterious changes in the character of the recreation experience.
Recreational experiences are now a focal point of interest for resource managers. Providing quality recreation experiences is an essential component and major product of public recreation management. The type of recreational experience, and the level of use intensity, has become the central issue in the management of the study area chosen for this report: the lower 100 miles of the Deschutes River Canyon in Central Oregon.

Serious concern about unfavorable alteration of recreation experiences in the Lower Deschutes River Canyon has culminated in demands by political leaders, organized groups, and individuals, for responsible management agencies to resolve these problems.\(^2\) This report examines recreation experience management zones for downriver whitewater recreation in the Lower Deschutes River Canyon.

**Problem Statement**

In the past decade, downriver recreation use of the Lower Deschutes River Canyon increased by over 300 percent. During the primary use season of 1979, 30,000 people took river trips on the Lower Deschutes River.\(^3\) Because use limits do not exist for river recreation in the canyon, this surge in popularity of the river corridor has rapidly overtaxed the limited resources of managing agencies. Complaints of crowding, overuse, and resource degradation, challenge river managers to create functional and effective
approaches for managing the river corridor. The jurisdiction and responsibility for the management of the river corridor is complex and fragmented, which impedes the development of a coordinated recreation management plan for the lower 100 miles of the river corridor.

The Bureau of Land Management (BLM) is the federal agency with responsibility for administering the public lands comprising 45 percent of the area adjacent to the river. They suggest that the foremost unresolved question in the management of the Lower Deschutes River Canyon is, "...the experience level or overall philosophy for management of the entire canyon." The central query is, "What type of outdoor recreation experience should be managed for - wilderness, highly developed, or somewhere in between?"  

Research Objectives

The principal objective of this research is the delineation of experience management zones along the lower 100 miles of the Deschutes River Canyon. This objective is designed to augment the process of ascertaining the appropriate experience level for resource management in the river canyon. The motivating purpose is to facilitate the preservation of quality recreational experiences and the maintenance of a diversity of river experiences within the context of legislative intent, operational practicality, and resource capability.
Criteria employed in the designation of river segments include: existing ownership patterns, extent of development in the river corridor, location and extent of vehicle access to the river for the public, visitor use patterns, and general physical characteristics of the river corridor.

A secondary objective of this research is to encourage examination of the concept and applicability of recreation experience management in the Lower Deschutes River Canyon by responsible management agencies, private interests, and the public.

BACKGROUND

Geographic Context

The study area is the lower 100 miles of the Deschutes River in Central Oregon. The river has its origins near Crater Lake and flows northward 238 miles to its confluence with the Columbia (Fig. 1).

The Deschutes River Canyon was formed from deep dissection, scouring and gouging by massive and intense flows of glacial meltwater. Results of this intense landform erosion reveal a spectacular geologic history. Fossil remains of rhinoceros, crocodiles and camels give mute evidence of life before the volcanic period of the Cascades. A tropical rainforest once flourished in this now desert environment.5
Figure 1

DESHUTES BASIN
and
STUDY AREA
Situated adjacent to the western flank of the Deschutes Umatilla Plateau, the river is bounded on the west by the eastern slopes of the Northern Cascades. The high plateaus have been deeply dissected by the entrenchment of the river valley into the steep canyon walls. The high scenic quality of the canyon, the even flow characteristics of the river, and prime fishing areas all contribute to the reputation and popularity of the lower Deschutes River Canyon as an outdoor recreation mecca.

**Regional Demand**

The Lower Deschutes River Canyon is a regionally utilized recreation resource. Oregonians comprise 90 percent of the user population. Of all visitors, 43 percent originate in the Portland metropolitan area, other western Oregon areas contribute 12 percent, with eastern Oregon accounting for 35 percent of visitor use.6

In 1978, nearly 180,000 recreationists visited the Lower Deschutes River Canyon. In 1979, primarily as a result of revised angling regulations this number dropped to approximately 140,000.7 Despite this overall decline in visitor use, whitewater boating use increased by 15,000 people over the 1978 season, (Figs. 2a,2b).

**RESEARCH PROCEDURE**

The procedure employed in this research was designed to facilitate a geographic assessment of downriver whitewater recreation in the Lower Deschutes River Canyon.
Interviews were conducted with river management personnel from the BLM, the River Programs Section of the State of Oregon Division of Parks and Recreation, the State Fish & Wildlife Department, and the State Water Resources Department. Visitor use data was obtained from the BLM and reviewed to gain familiarity with the patterns of river recreation during the prime use season. Reports of visitor management and environmental assessments of proposed developments were reviewed to ascertain approaches to river management previously considered by resource managers. Management proposals, such as the BLM Advisory Board Management Plan were obtained and reviewed to develop a perspective of the recent history of river management philosophy for the Lower Deschutes River Canyon. These sources were combined with field research investigations of the river corridor to develop criteria for the design and description of recreation experience management zones for the Lower Deschutes River Canyon.

The procedure used in this study is as follows:

1) Base data on land ownership was obtained from county government tax maps and the BLM. This information was then mapped at a scale of 1" = 1 mile.

2) Existing land use in the river corridor was ascertained and mapped at a scale of 1" = 1 mile.

3) Vehicular access to the river corridor was ascertained by field checking the river corridor and mapping locations at a scale of 1" = 1 mile.
4) Data on visitor use for the river canyon was acquired from the BLM. Downriver recreational use was segregated and reviewed for patterns, distributions, and concentrations along the river corridor.

5) Three whitewater raft trips were conducted along the corridor of the lower 100 miles of the Deschutes River. Verification of access, general land use, and development was obtained during these trips.

6) Recreation experience management zones were delineated based upon consideration of the above data elements.

THE CONCEPT OF RECREATION EXPERIENCE MANAGEMENT

The management of recreational resources for specific types of experiences has existed for some time. One resource may be managed to accommodate high density experiences, such as an amusement park, another resource may be managed to accommodate a low density experience such as wilderness. In the first case large numbers of people interact in an individually selected and mutually acceptable environment. In the second case the resource is managed to accommodate few people with minimal provision of facilities or services. The recreational experiences are maintained and preserved under the selected management strategy. These examples are essentially poles of a recreational experience continuum.

In the case of the Lower Deschutes River Canyon, the appropriate recreation experience level has not been defined.
Given the existing circumstances of continued increasing use of the river corridor, the absence of management for specific experience levels results in the elimination of low density types of recreation experiences. What may be occurring is a form of displacement as visitor numbers and densities preclude low intensity experiences.

A diversity of downriver recreation experiences are threatened by the inability of responsible management agencies to determine their overall objectives. This research augments the process of ascertaining where along the river corridor it is suitable to zone recreational experiences, locations, types, and intensities.

Typically, public resource management agencies turn to legislative directives for some guidance in determining the type of recreational experience to provide. The legislative mandate for the Lower Deschutes River Canyon can be viewed as being encompassed within the scope of the State Scenic Waterways Act. This legislation provides that scenic waterways shall be administered in such a manner as to protect and enhance the values which caused such scenic waterways to be included in the system. The lower 100 miles of the Deschutes River is a designated state scenic waterway. Within this context the preservation of quality recreational experiences can be considered a primary objective. It is within this context that the recreation experience management zones described and delineated in this research are developed.
State Scenic Waterways Act

In 1970, the lower 100 miles of the Deschutes River was designated a scenic waterway under the provisions of the State Scenic Waterways Act, ORS 390.805-390.925. The policy of the act provides that many of the free-flowing rivers of Oregon and lands adjacent to such rivers possess outstanding scenic, fish, wildlife, geological, botanical, historic, archeologic, and outdoor recreation values of present and future benefit to the public. It is also the policy of the State of Oregon to preserve for the benefit of the public selected parts of the state's free-flowing rivers.

The waters of the Lower Deschutes River have been declared as having the highest and best uses of recreation, fish and wildlife. The river has not been declared navigable. The declared highest and best uses of the waters of the river ensure the legitimacy of high priority being given to recreation management strategies.

This legislation requires that primary emphasis in the administration of scenic waterways shall be given to protecting the esthetic, scenic, fish and wildlife, scientific, and recreation features, based on the special attributes of each river area.

Under rules and regulations adopted for the administration of state scenic waterways varying intensities
of protection or development have been established. Accordingly, the lower 100 miles of the Deschutes River has been classified as a Recreational River Area and small segments of existing urban and commercial developments are classified as River Community Areas.

**Recreational River Areas** - These are designated scenic waterways or segments thereof that are readily accessible by road or railroad, that may have some development along their shorelines and related adjacent lands, and that may have undergone some impoundment or diversion in the past. These areas will be administered to allow continuance of compatible river-oriented public outdoor recreation opportunities, to the extent that these uses do not substantially impair the natural beauty of the scenic waterway or diminish its esthetic, fish and wildlife, scientific, and recreation values.

**River Community Areas** - These are designated areas of a scenic waterway, perhaps on only one bank of the river, where density of structures or other developments, already existing or provided for precludes application of a more restrictive classification.

This legislation is the principal mandate for State of Oregon resource management of the Lower Deschutes River Canyon. All state agencies with responsibility for administration or regulation of rivers within the scenic waterway system are required to adhere to the policies set forth in the Act. A plan for the management of downriver
recreation based upon the segmentation of the river corridor into experience management zones adheres to the concept of establishing varying intensities of protection or development based on the special attributes of each area described in Section 390.845 of the Act.

MANAGEMENT INTERESTS

Political Jurisdiction

At the present time five management agencies have direct responsibility for the administration of the Lower Deschutes River Canyon:

1) **Division of State Parks and Recreation** - The River Programs Section administers the State Scenic Waterways Act and rules and regulations promulgated therefrom. Authority is granted under ORS. 390.805 - 390.925.

2) **State Marine Board** - This agency has authority to promulgate rules for all boating use, and may initiate a permit system or use limitations. Authority is granted under ORS 488.830.

3) **State Department of Fish and Wildlife** - This agency regulates fishing permits, length of season, bag limits, methods of taking fish, and wildlife. The department formulates general policies and programs for the states fish and wildlife resources. Authority is granted under ORS 496.146.
4) Confederated Tribes of the Warm Springs Indians - Authority for tribal participation in management or regulation is granted under Article V Section 1 (a) and (1) of the constitution and by-laws of the tribe.

5) U.S. Department of the Interior, Bureau of Land Management - The BLM administers public lands in the river corridor, provides recreational facilities, campgrounds, boat ramps, road access and maintains these facilities. Grazing leases are issued and administered by the BLM for lands within the river corridor. The agency holds in public trust 45 percent of lands adjacent to the river within the scenic waterway. Authority is granted under the Federal Land Policy and Management Act (43 USC 1737).

In addition to the five principal management agencies, local government maintains jurisdiction over land use and zoning. Jefferson, Wasco, and Sherman counties border the corridor of the lower 100 miles of the Deschutes River. Land within the boundaries of the scenic waterway (one-fourth mile on both sides of the river) are primarily zoned for exclusive farm use by the local governments.

Special Interest Groups

Private landowners are a major special interest group within the river corridor. Over forty private landholders own and control 40 percent of land riparian
to the stream. This very substantial private landholding accounts for 78 miles of river frontage.

Organizations representing private and commercial recreational interests comprise an important faction of river interests. River managers must consider such groups, and their special concerns.

THE DELINEATION OF RECREATION MANAGEMENT ZONES

The location and intensity of river recreation in the Lower Deschutes River Canyon directly relates to, the degree and extent of development, land use and ownership patterns, visitor use patterns, and road access. From consideration of these criteria, three recreation experience management zones for downriver whitewater boating in the river canyon are delineated, (Fig. 3).

Vehicular access to the river corridor for the public at large is provided by, point access, by a road paralleling the river on the right bank for 35 miles, and major highway arteries that cross the river in three locations above the mouth of the river (Fig. 4). The interaction of boaters, and road traffic, in part defines the type and character of the available recreation experience, and in turn contributes to the delineation of recreation management zones.

River traffic flow data provide insight within which to assess intensity of activity along the river corridor, (Fig. 5). A comparison of total recreation uses to boating use, by specific river location, illustrates the
River Segment Three:
Roadless with Motors

River Segment Two:
High Access

River Segment One:
Roadless and Motorless

Figure 3
RIVER MANAGEMENT ZONES

Warm Springs Bridge
Pelton Dam
Macks Canyon
Locked Gate
Columbia River

scale in miles
Figure 4
GENERAL RIVER ACCESS
- Paved Road
- Gravel Road
- Railroad

COLUMBIA RIVER
Deschutes State Park
Macks Canyon
Hwy 197
Hwy 216
Sherars Bridge
Maupin
Locked Gate
Hwy 197
North Reservation Boundary
North Junction
Warm Springs Indian Reservation
Hwy 26 Gateway
Warm Springs Bridge
Hwy 97
North Reservat Boundary
Warm Springs Bridge
BOATERS EMBARKING
River Mouth-Deschutes Park
Macks Canyon
Beavertail
Pinetree
Buckhollow
(Mandatory portage)

BOATERS DEBARKING
Sherars Falls
Maupin City Park
Maupin-upstream access road
Locked Gate
South Junction
Gateway
Warm Springs Bridge Area

Figure 5
RIVER BOATING TRAFFIC FLOW 1979 Estimate
Launch | Takeout

(thousands) 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9
relationship between boating use and other forms of recreation visitation in the river canyon (Fig. 6). Knowledge of visitor use and density is particularly important for future assessment of the appropriate experience level that management agencies are striving to ascertain.

General land use and development are discussed in the sections describing the delineated river segments. The relationships of ownership patterns to downriver whitewater boating are also described in the discussion of each river segment.

The delineation of recreation management zones for whitewater boating in the Lower Deschutes River Canyon is predicated upon the notion that a diversity of quality recreational experiences can be preserved, enhanced, or recreated within the river corridor. A fuller understanding of the interaction between the river recreationist and the river canyon environment can be gained and facilitated by the thoughtful consideration of recreation experience management zones and the criteria from which they are developed.

RECREATION EXPERIENCE ZONES

River Segment One: Roadless and Motorless

This 37 mile river segment extends from the boat ramp above Warm Springs Bridge at Highway 26 to the Locked Gate six miles upstream from the City of Maupin. This river section provides the opportunity for river experiences which are essentially roadless and motorless.
Figure 6
COMPARISON OF TOTAL RECREATIONISTS TO TOTAL BOATERS

* 1979 estimate

35 30 25 20 15 10 6 2 0 2 4 6 8 10 15 20

MAUPIN ACCESS ROAD
SHERARS FALLS
MACKS CANYON
BEAVERTAIL
PINETREE
BUCKHOLLOW
MAUPIN
SHERARS FALLS-TO MACKS CANYON
DECHUTES PARK-MOODY-KLOAN
There are three point access locations in this section of the river corridor. They are located at the boat ramp upstream of the Hwy 26 bridge at Warm Springs, 10 miles downstream at the Gateway-Trout Creek camping area, and at South Junction a few miles downstream from Gateway-Trout Creek. Boat ramps are not provided at South Junction. A public access road does not enter the river canyon from the south until 10 miles downstream at Trout Creek. Powerboats are prohibited from the upper 29 miles of this river segment. The powerboat border corresponds with the northern boundary of the Warm Springs Indian Reservation. This is presently the only section of river in which motors are prohibited.

Land ownership in this river segment is public, private and Indian, (Fig. 7). The upper 29 miles of the west bank in this river segment is owned by the Warm Springs Indian Tribes. These lands are prohibited from the use of downriver boaters, thus concentrating river camps on the east side of the river corridor. Public and private lands are interspersed, and most private land is not available for public recreation use.

Development downstream of the urban and commercial node at Warm Springs is primarily small scale irrigated agriculture, pasture for grazing, and small clusters of recreational housing, (Fig. 8). These are considered compatible existing uses. The Oregon Trunk Railroad which enters the river canyon at Trout Creek operates on the east side until it reaches North Junction, where it
Figure 7

River Segment One:
Land Ownership and Distribution

Public Land

WARN SPRINGS
INDIAN RESERVATION

scale in miles
Figure 8
River Segment One:
Land Use and River Development
- major camps
- structures
- agriculture
- pumps and pipes
- major highway
- gravel road
- power line

scale in miles
crosses the river and continues for 80 miles downstream to the confluence of the Deschutes and Columbia Rivers.

Visitor use of this section of the river has increased substantially each year for the past decade. In 1978, a total of 16,271 boaters floated a portion of the river from Warm Springs to Sherars Falls. Fifty percent, or 8,135 boaters started their river trips from Warm Springs. Ten percent, or 1,627 boaters initiated their river trips at Gateway-Trout Creek, and twelve percent, or 1,952 boaters started their river trips at South Junction. This river segment accounts for 72 percent of river traffic on the portion of the river above the mandatory portage at Sherars Falls. Approximately 11,700 boaters used this portion of the river in 1978.

River camping concentration areas are located above and below Whitehorse Rapids, which is located between South Junction and North Junction. The location of rail track on the east bank, prohibition of use of Indian land on the west bank, prohibition of use of private land, downriver travel and camp patterns minimize the area of suitable camp sites. Congestion in this section of the river is compounded by the distribution of private lands and public lands above and below the Whitehorse Rapids area.

River Segment Two: High Access

This 35 mile river segment extends from the Locked Gate six miles upstream from the City of Maupin to Macks Canyon. This river segment provides the opportunity for
river experiences associated with high density, high access, and interaction with land based recreationists. Motors are allowed throughout this river segment. All river trips in this river segment must portage the falls at Sherars Bridge or end their trips upstream of this location.

Automobile vehicle access is provided parallel to the river for the entire length of this river segment. Access to the road adjacent to the river is provided at Maupin via Highway 97 and at Sherars Bridge via Highway 216. The bridge across the river at Sherars Falls is the last river crossing by road to the confluence with the Columbia River.

River segment two is subdivided into three parts. These three subdivisions correspond to the three distinct road sections within this river segment. Subsections would extend from Locked Gate to the Maupin City Park and Boat Ramp, from the Maupin City Park to Sherars Falls–Buckhollow Creek, and from Sherars Falls–Buckhollow Creek to Macks Canyon. These subsections are six miles, twelve miles, and seventeen miles in length, respectively. Future consideration of use limitations in the river corridor should assess the utility of access control points within these subsections.

Land ownership in river segment two is public and private, and interspersed, (Fig. 9). In the section from Sherars Falls to Macks Canyon riverbank lands on both sides
Figure 9
River Segment Two: Land Ownership and Distribution

- Public Land

scale in miles
of the river are almost entirely public. The access road to Macks Canyon which parallels the road on the east bank generally precludes suitable camping locations for river based travelers. Land adjacent to the river in the upstream portions of this river segment are split nearly equally among public and private control.

Development in this river segment is limited to the River Community Area around the City of Maupin, the Oaks Springs Fish Hatchery near Sherars Falls, BLM campgrounds at Beavertail and Macks Canyon, and small roadside facilities for picnicking and sightseeing, (Fig. 10). The Oregon Trunk Line Railroad operates on the west side of the river corridor in this river segment.

Visitor use of river segment two is the highest and most extensive. Due to the ease of access to the river corridor in this segment, recreationists, especially bank fisherman, concentrate along this river segment. Automobile campers use the campgrounds at Beavertail and Macks Canyon. Ease of access provides the opportunity for day length river trips between the boat ramps three miles upstream from Maupin, to Sherars Falls, a distance of approximately 15 miles. This section of the river has the largest concentration of major rapids on the river and several commercial outfitters cater to the day trip river recreationist.

Twenty-eight percent of river trips above Sherars Falls originate along the river access road upstream
Figure 10
River Segment Two:
Land Use and River Development
- major camps
- structures
- power lines
- gravel road
- paved road

scale in miles
from the City of Maupin. This amounted to 4,556 boaters in the 1978 season. Although motors are allowed in this portion of the river, jet boats comprise only 1 percent of river use in the portion of river above Sherars Falls. Rubber rafts account for 79 percent of river craft, drift boats 13 percent, and canoe-kayak comprise another 6 percent of river traffic above Sherars Falls. Below Sherars Falls the composition of river craft shifts substantially with jetboats comprising 25 percent, driftboats 25 percent, and rubber rafts 39 percent of river traffic.

Primary user conflicts occur as a result of mixing jet powered craft and motorless rafts and drift boats. User interactions between downriver boaters and land based recreationists also influences the recreational experience in this river segment.

Below Sherars Falls there are three primary boat launch locations. Fourteen percent enter at Pinetree, eleven percent enter at Beavertail and fifty-six percent enter the river at Macks Canyon. River traffic in the subsection below Sherars Falls is operated both upstream and downstream for jetboat traffic. An estimated 18,000 persons boated some portion of river segment two in 1979.

River Segment Three: Roadless, With Motors

This 25 mile river segment extends from the BLM campground at Macks Canyon to the confluence of the Deschutes River with the Columbia River. This river
segment provides the opportunity for river experiences that are roadless, but allow motors.

There is one public access location in river segment three, which is located at Macks Canyon. Boaters may however put into the river at the mouth of the Deschutes River from the west bank. In this segment no public access road parallels the river. Powerboats are allowed throughout this river segment.

Land ownership in river segment three is divided between public and private. Public land is primarily concentrated within the first several miles below Macks Canyon (Fig. 11). Several isolated public land parcels are located downstream of the concentration area in the Macks Canyon vicinity. Large blocks of private land are located in river segment three. Major landholders include the Eastern Oregon Land Company, and a private individual, A. Sharp. Most land adjacent to the river in the lower 12 miles of river segment three are prohibited from use by river recreationists.

Development in this river segment is very limited. Land use is primarily associated with grazing of cattle. Major power lines and towers cross the river in at least six locations within this river section, (Fig. 12). The Oregon Trunk Railroad operates on the west bank of the river. The Deschutes State Park and campground is located on the east bank approximately one-half mile upstream from the mouth of the river.
Figure 11
River Segment Three
Land Ownership and Distribution
■ Public Land

scale in miles
Figure 12
River Segment Three: Land Use and River Development
- major camps
- agriculture
- pumps and pipes
- power lines
- cable line
- gravel road

scale in miles
Visitor use of this river segment is generally associated with boaters. In 1978, due to a poor steelhead fishing season and subsequent closure of this section of the river to angling, visitation was substantially down from previous years. In the section of river from Sherars Falls to the Mouth only 3,000 boaters were counted in the 1978 use season. This number represented a decrease of nearly 9,000 boaters from the 1977 season. Data for boating use in the 1979 season for the river section below Macks Canyon was not acquired by agency personnel. Much of this river segment is without major rapids except the lower seven miles of the river. Due in part to the absence of continuous concentrations of major rapids areas in this river segment, whitewater boating is not the principal visitor use for boaters. Early in the season, from April to July a large proportion of river traffic is associated with whitewater boating exclusively. During August and September, the boating fishermen far outnumber whitewater boaters.

CONCLUSIONS

River recreation in the Lower Deschutes River Canyon is increasing rapidly. At some point in time it appears necessary to adopt some form of visitor control management. This research has been designed to facilitate a geographic analysis of river recreation in
the river corridor. Unlike land based recreation which is a fixed location activity, river recreation must be examined in both spatial and temporal dimensions. River recreation within the river corridor undergo fluctuations in use concentrations relative to time of season, fishing conditions, and regulatory actions. A thorough examination of these fluctuations yield useful perspectives on the dynamics of river recreation in the Lower Deschutes River Canyon.

It is imperative that resource managers concerned with use related problems within the river corridor understand the potential utility of recreation experience management zones. These zones have been devised to ensure and enhance the preservation of recreational experience diversity within the river corridor. The criteria selected for consideration in this report were carefully examined to assess their contribution to a description of the 'situational aspects' of river recreation in the Lower Deschutes River Canyon. As such they provide insight for the development of comprehensive recreation management for the river corridor. It is intended that this report will nurture consideration of the concept of recreation experience management and contribute to the preservation of a truly unique resource for the benefit of present and future generations.
FOOTNOTES


