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*Campaign to save the Current and
Jacks Fork Rivers – Again!*

Comments Offered to the National Park Service *by Friends of Ozark Riverways*

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The Current and Jacks Fork Rivers in Trouble

In this paper we comment in some depth on Alternatives A, B, and C plus the “Do nothing” alternative. These alternatives were presented to the public by the National Park Service pursuant to its development of a new general management plan for Ozark National Scenic Riverways. Friends of Ozark Riverways offers nine specific policies dealing with, among other issues, resource degradation problems which have developed on the riverways in recent decades. Some of these policies also deal specifically with persistent user conflicts and the appropriate levels of user activity needed to preserve the high quality and natural character of the park for future generations.

The “**do nothing**” alternative is not viable because it implies continued neglect of abusive practices on the riverways, and this contravenes the fundamental mission of the National Park Service.

Alternative C establishes conditions that would cause incremental conversion of this predominantly natural area into an expanding developed area offering activities that depend heavily on visitor services, entertainment, and facilities reminiscent of urban environments. Ultimately, such development would become self-propagating and the natural or wild character that once prevailed in this part of the Ozarks would disappear. We reject Alternative C.

Alternative B is essentially the same as Alternative C, except that the development starts out smaller, and subsequent growth probably would lag behind Alternative C by several years. We also reject Alternative B.

Alternative A is the only alternative that is consistent with the purposes and vision of the riverways at the time it was conceived by the National Park Service and as it was established by Congress. This alternative readily accommodates the policies and practices that *Friends of Ozark Riverways* advocates. Our policy recommendations are intended to eliminate the abusive practices that have plagued the riverways in recent decades, to restore the riverways to their former high state of natural and scenic beauty, and to reduce the incidence of user conflict.

Summary of Management Changes Proposed by *Friends of Ozark Riverways*

- Close all extraneous man-made bank openings and restore these areas to their native vegetation. This policy would help restore and maintain critically important native habitat on the river banks.
- Permanently close all unofficial and extraneous river access roads, and obliterate those road segments that cross park land. We recommend a schedule of incremental closings at the rate of eight per year. Currently, there may be more than 75 such unauthorized river access points. This policy would help restore and maintain important riparian habitat.
- Ban the operation of ATVs and dirt bikes off of legally designated state and county roads within the boundaries of the park.
- Ban the use of mobile campers on river banks except in official park campgrounds designed to accommodate such camping units. This policy, too, would help restore and maintain important native riparian habitat.
- Control and moderate trail riding on ONSR land by implementing the following measures:
 - a. Reconstruct and re-align horse trails at a sufficient distance from natural water courses (rivers, creeks, sink holes, and other bodies of water) to preclude the pollution of rivers and creeks from horse droppings. Exceptions would be permitted only at official equestrian river crossings.
 - b. Reduce the total number of river crossings;
 - c. Limit trail access to gravel bars; and
 - d. Establish reasonable controls on the size and frequency of trail riding parties.
- Control the frequency and number of non-motorized watercraft (canoes, rafts, tubes, etc.) on the rivers to alleviate crowding caused by large clusters of such watercraft and the absence of temporal spacing at the put-in points.
- Place a year-round ban on the use of recreational power boats above Two Rivers, a ten horsepower limit (suitable for johnboating) between Two Rivers and Van Buren, and a 25 horsepower limit below Van Buren.
- Place enforceable restrictions on the playing of radios or recorded music so that one person's desire for such entertainment in the park shall not diminish other visitors' enjoyment of the park.

By contrast with the previous eight issues, we have a welcome opportunity to preserve one place on Ozark National Scenic Riverways that has retained its truly wild character even as a hundred years of change has taken place in the surrounding countryside. This is the back country portion of the old Big Spring State Park, a 3,400 acre primitive area representative of the pristine hills and forests that once dominated this part of the Ozarks. It is a tract truly worthy of being preserved in its wild state. **We urge the National Park Service to recommend this area for designation as a national wilderness area.**

Mission and Schedule for the Development of the New Management Plan

The National Park Service is now midway through its six year schedule to develop a new general management plan for Ozark National Scenic Riverways (ONSR). This will become the second such plan since the park was established in 1964. We are now in the second public comment period, wherein the Park Service has presented three alternative futures for the park and has asked for public comments and questions at five public meetings held in the last week of June. In the materials circulated at the public meetings, the National Park Service stated the statutory purposes of Ozark National Scenic Riverways. Two of these purposes are

- (to) *preserve and protect in an unimpaired condition the unique scenic and natural values, processes, and unspoiled settings derived from the clean, free-flowing Current and Jacks Fork rivers and the springs and caves and their karst origins;* (and)
- (to) *provide for uses and enjoyment of the outdoor recreational opportunities **consistent with the preservation of the natural riverways resources.*** (Bold highlight added)

The National Park Service has beautifully described the exceptional nature of this park:

- *The national riverways contains 134 miles of clear, free-flowing, spring-fed rivers. These include the Jacks Fork and Current rivers, which are two of only three Outstanding National Resource Waters in Missouri.*
- *The ... karst landscape supports an amazing variety of natural features, including a world-class spring system that is unparalleled in North America. The national riverways features the largest spring in the national park system, six first-magnitude springs and spring complexes, and more than 350 other springs. The cave system is equally impressive with more than 338 recorded caves – one of the highest densities of any national park system unit.*
- *The ancient Ozark Highlands is an important center of biodiversity in North America, including more than 200 endemic species. The large variety of species found within Ozark National Scenic Riverways is due to the rich array of aquatic, terrestrial, and subterranean habitats concentrated within its river corridors.*

The Park Service also briefly summarized the stewardship problems we referred to above:

- *Ongoing natural resource management issues include water quality degradation from recreational use (e.g., human waste from floaters, soil erosion from off-road vehicles, horse manure, and exhaust from motorboats); habitat fragmentation and trail proliferation from illegal off-road vehicles; the spread of nonnative invasive plant and animal species; visitor-related disturbances to wildlife; and land uses and activities that occur outside the boundary that impact national riverways resources, including water quality.*

Unfortunately, this is pretty much everything the Park Service has told the public about resource abuses. No where did the Park Service quantify them or show on a map how extensive they have become. To its credit the Park Service did publish photographs depicting crowding and rough-housing on the rivers, but in our view, the Park Service has generally failed to provide sufficient information on

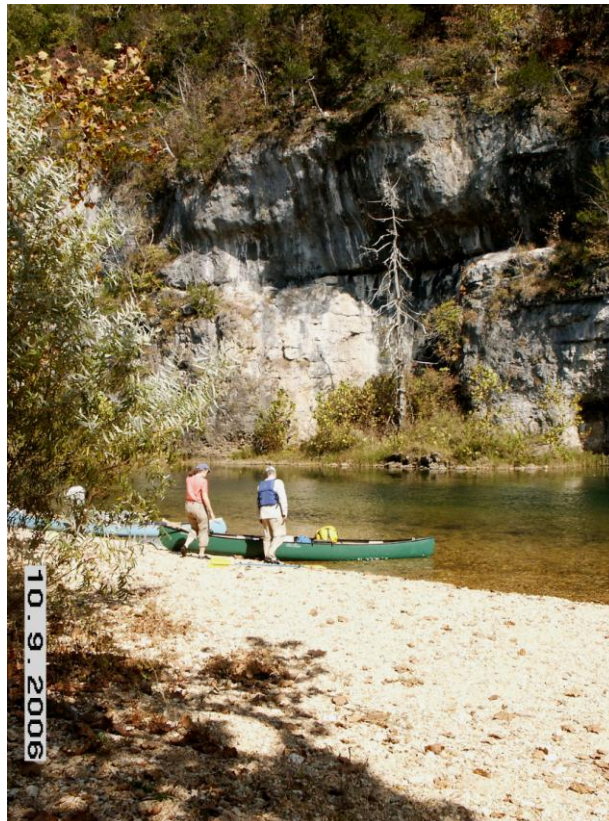
the abusive practices for the public to develop an appreciation for the need for more and better regulation of troublesome activities.

Estimating the Impact Severity Associated With Various User Activities and Land Use Practices

We made a list of all the user activities we were aware of that regularly occur on Ozark National Scenic Riverways. Next, we estimated the severity of their impacts on the natural resources and amenities of the park plus any adverse impact on the visitor's enjoyment of the park. We considered three levels of impact:

- 1 Activity that produces no lasting adverse impact;
- 2 Activity that may produce lasting adverse impact depending on the frequency of occurrence and user behavior;
- 3 Activity that generally produces lasting adverse impact.

We also performed a similar exercise looking at the impacts of land use practices inside the ONSR boundaries. Then we focused on developing policies to manage the problems that we deemed to be especially important. This analysis appears in the appendix at the end of this document.



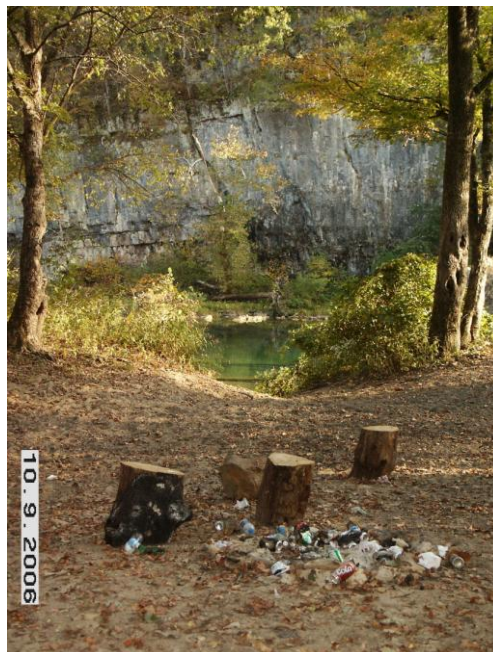
What is the lasting impact of this activity?

Discussion of Management Policies Proposed by Friends of Ozark Riverways

I Management policies for dealing with the most serious level of impact, i.e., those land use practices and user activities that cannot be mitigated and are difficult to regulate:

1. **Excessive numbers of bank openings [p. 18, row 50].** These openings create fragmentation of habitat used by riparian birds, mammals, insects, and unique vegetative communities. This loss of natural bank vegetation also degrades the scenic quality of the river and increases the vulnerability of river banks to erosion, particularly during floods. Finally, they create opportunities for illegal river access by land vehicles, especially ATV's.
2. **Excessive numbers of river access points [p.18, rows 54 & 55].** The National Park Service originally envisioned one river access point approximately every seven or eight miles. This translates into 18-20 access points to cover the total 134 mile length of the riverways. The Current and Jacks Fork are swift running rivers. A 7-8 mile trip can easily be paddled in a few hours unless the river is unusually low. The Park Service could also achieve an average 7-8 mile spacing by creating a few shorter runs balanced by a few longer runs. If the average spacing were reduced to five miles, then 28 access points would be required. Today there are 25 official river access points.

By 1991, the combined number of official (25) and illegal access points on the riverways had exceeded 100 (averaging one access point every 1.3 miles).

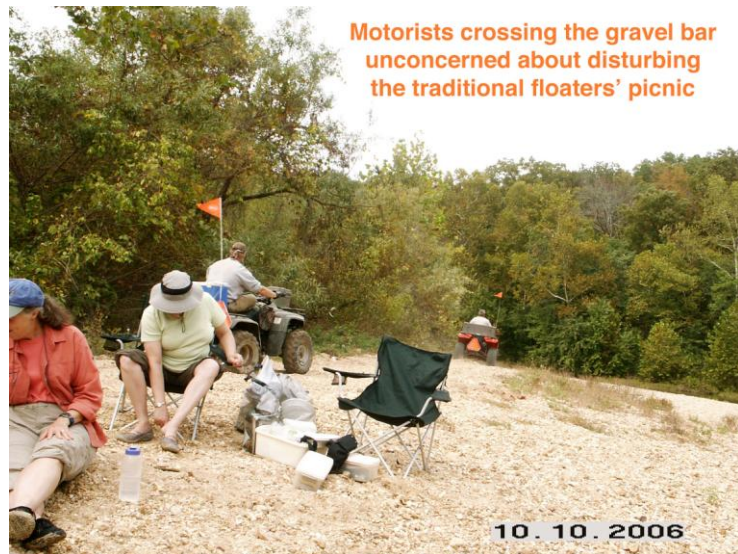
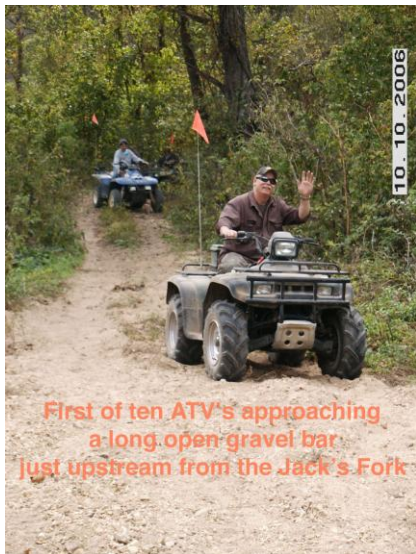


Illegal river access road and ramp at Twin Rocks

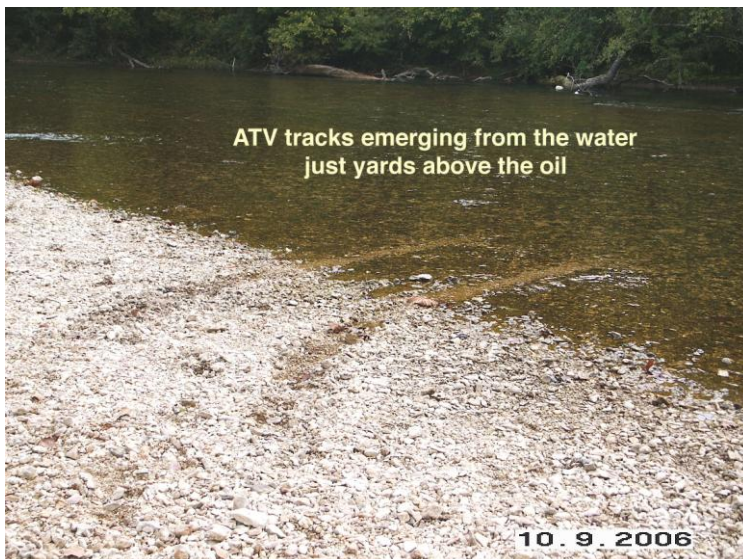
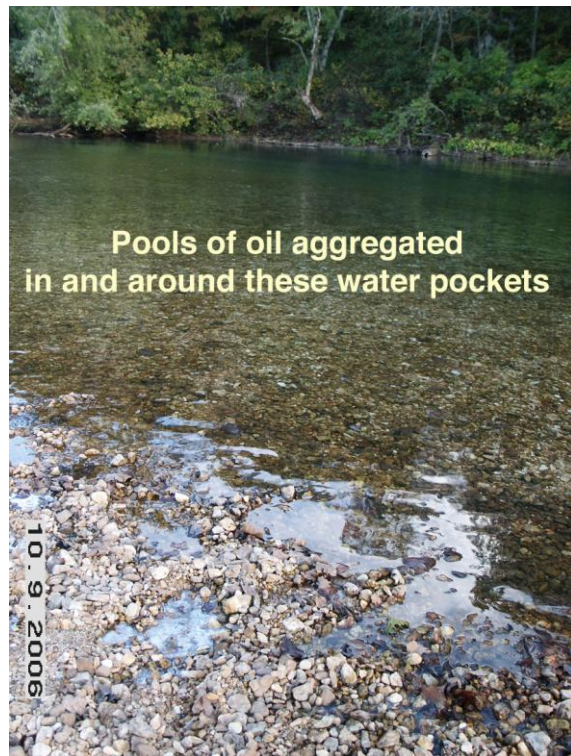
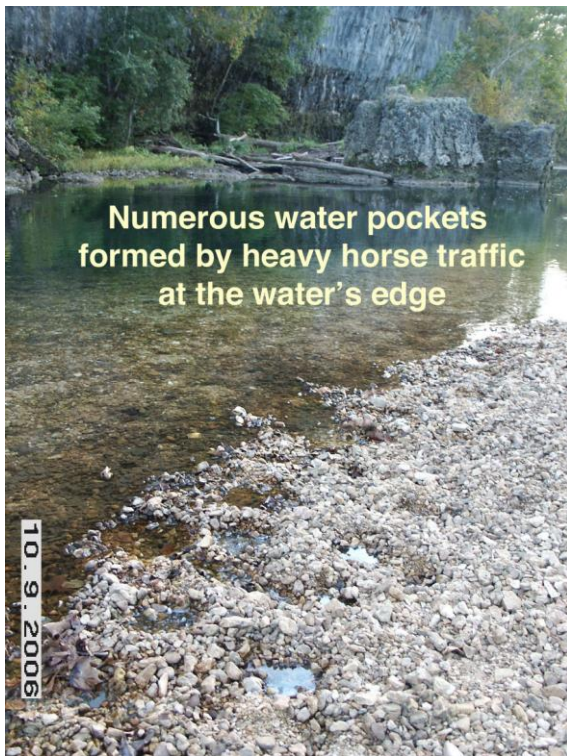
At this density of river access, a floater would, on average, pass two or three access points every hour. Each access point interrupts the sense of remoteness and enjoyment of the natural setting. **By way of contrast, the 135 mile long Buffalo National River has 22 graded access roads and perhaps ten additional two-track roads. There are no other roads providing access to the Buffalo River.**

All of the illegal access points on ONSR are extraneous, and Friends of Ozark Riverways urges that they be closed and the natural vegetation restored. Access reduction at an incremental rate of eight closures per year would complete the work in the tenth year, and it would allow current users plenty of time to adjust to the changes in their river access routes.

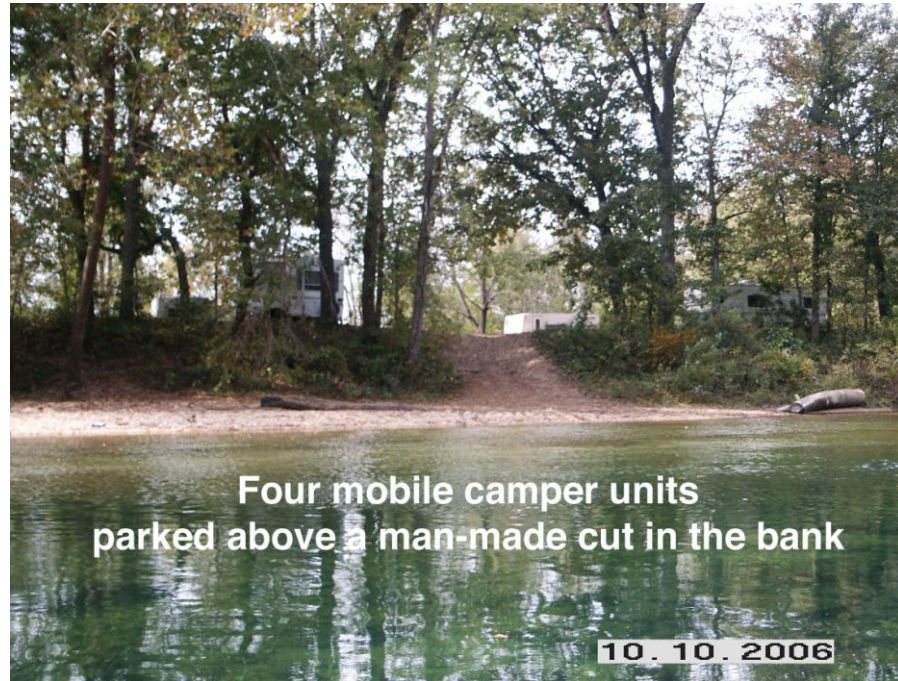
3. **Operation of ATVs and dirt bikes off-road [p. 17, rows 34 & 35].** These sport vehicles cause erosion wherever they go off-road. They are highly destructive to both aquatic and terrestrial native wildlife habitats. Tearing through pristine places for the fun of making noise or leaving their marks or disrupting the peaceful environment of one of Missouri's most beautiful natural places may be strong motivators for this particular user group. Many, of course, are good people who are simply out joy riding, but they seem oblivious to the destruction they leave behind as well as the rude and unwelcome visits they pay on campers, picnickers, and visitors, many of whom came to the riverways especially to find peaceful solitude in a predominantly natural setting. No matter what actually motivates ATV and dirt bike riders, there is no legitimate place for their vehicles (other than for personal transportation on regular county and state roads) in a park that is managed for its natural, scenic, and peaceful character.



Traces of ATV Use at Twin Rocks on the Current River



4. **Camping in mobile campers on or near the river bank [p. 17, row 32].** Two important conservation goals on the riverways are the maintenance of vegetative closure on the banks and restoration of flood plain forests. Both provide vital habitat for native riparian communities of birds, mammals, insects, and amphibians; and the cover itself is an important natural community. **The native biodiversity on the riverways depends largely on the integrity of these natural riparian communities. This is one reason why the number of river access points must be reduced and why the park's campgrounds must be restricted to less fragile areas.**



Placing mobile campers on an open field is an anathema to the restoration and protection of the natural landscape. Furthermore, these mobile campers could never get into these locations without using illegal access. **The creation of a notch in the bank and establishment of a mud ramp is nothing less than vandalism of the park's natural features, and the presence of mobile campers obliterates any semblance of a natural riparian environment along this stretch of river.**

II Management policies for dealing with land use practices and user activities which can be moderated to achieve substantially lower levels of adverse impact:

1. **Trail riding [p. 17, rows 36 & 37].** Although trail riding is a beloved, traditional, and widely enjoyed form of outdoor recreation, it is practiced at unusual extremes on Ozark National Scenic Riverways. Trail riding parties can range in size from fewer than five horses to as many as a thousand! All of the official trails are located within a five mile radius of Two Rivers campground. They extend up the Current River as far as Jerktail Landing and five river miles up the Jacks Fork. The Jacks Fork horse trails then continue for another six miles along a stretch of river that is outside the boundaries of Ozark National Scenic Riverways. This stretch runs through the town of Eminence and beyond. **In many places these trails follow the banks of the rivers and cross the rivers at eleven different fords in an area where there are only four official river access points.**

The main impacts of trail riding are elevated levels of fecal coliform pollution of the rivers, compaction and destruction of river bank soils and vegetation, disturbance of aquatic habitats, and conflicts between user groups.

Following the discovery in 1998 of significant fecal coliform pollution on a five river-mile reach of the Jacks Fork, "the U.S. Geological Survey, in cooperation with the National Park Service, (began) a study to better understand the extent and sources of microbial contamination within the Jacks Fork from Alley Spring to the mouth," a distance of approximately 15 river miles. This includes the entire stretch of river, noted above, that is outside the boundary of ONSR. Here is an excerpt taken from the 2006 findings of this study:

*Results indicate that recreational users (including boaters and swimmers) are not the primary source of fecal coliform bacteria in the Jacks Fork; rather, the presence of fecal coliform bacteria is associated with other animals, of which horses are the primary source. Increases in fecal coliform bacteria densities in the Jacks Fork are **associated with cross-country horseback trail-riding events.*** (Bold highlighting was added.)

IN SOME POLLUTED AREAS, THE NATIONAL PARK SERVICE HAS FOUND IT NECESSARY TO POST SIGNS WARNING VISITORS NOT TO SWIM IN THESE WATERS. In addition, nearly every gravel bar in the vicinity of horse trails, has been disturbed by divots created by horse hoofs and abundant piles of horse droppings. These effects create conflicts between the visitors who go to the gravel bars to picnic, relax, and set up camp, and the horse traffic that despoils these areas. Finally, as with ATVs and dirt bikes in rivers, horses break down the gravel structures on the river bottoms. These structures are crucial to the breeding, sheltering, and feeding of many species of fish, amphibians, and invertebrates.



Bank clearing on a horse trail that follows the bank of the Current River inside the boundaries of Ozark National Scenic Riverways



Trail riders crossing the Jacks Fork. Photo taken from the web site of Cross Country Trail Ride, LLC

Friends of Ozark Riverways believes that these problems could be alleviated by moving horse trails a sufficient distance away from natural water courses (rivers, creeks, and sink holes), with exception only at official equestrian river crossings; by limiting trail access to gravel bars; and by reasonably controlling the size of trail riding parties. **We urge the National Park Service to study the feasibility of implementing these methods for the preservation of the river resource and for the greater enjoyment of both equestrians and those who stay primarily on the rivers and gravel bars.**

Horse Trail Map Published on the Web by Cross Country Trail Ride, LLC



III Management policies for dealing with crowding and user activities which mainly detract from other users' enjoyment of the riverways:

1. **Floating in congested areas [p. 16, row 6].** The rivers within Ozark National Scenic Riverways generally flow through deep, entrenched meanders which frequently turn sharply as they approach the numerous sheer, rock faced bluffs. One minute the floater may find him or herself in the midst of a large cluster of other floaters, and a few minutes later round a bend and see no signs of other people for 10 or 15 minutes. It is like a game of hide-and-seek; everyone gets a turn at experiencing the perception of peaceful solitude and remoteness even as the total population of floaters on that day might be large. The key to this wonderful experience is the maintenance of adequate spacing between clusters.

Achieving these quality experiences for the river visitor is a management challenge. It may be possible to control the perception of crowding by regulating the size of float groups and the temporal spacing of float parties at put-in points. The preponderance of floaters on typical summer days use rental watercraft, so effective controls might be feasible by regulating the activity of commercial canoe liveries at the rivers. We believe the crowding problem can be solved, perhaps with the help of skilled traffic control engineers. **In any case we urge the National Park Service to take more aggressive control of float traffic for the greater enjoyment of all floaters.**



2. **Power boating [p. 16, row 18].** Few things are as disruptive to floaters' peace and enjoyment of the river as the roar of a speeding power boat that is approaching, and the waving of power boat passengers as if everyone else on the river is enjoying their fun. Most other river users are not enjoying their fun; they actually are quite perturbed by it. **Accordingly, we recommend a year-round ban on recreational power boating above Two Rivers, a ten horsepower limit (suitable for johnboating) between Two Rivers and Van Buren, and a 25 horsepower limit below Van Buren.** By comparison, the power limit on the 135 mile Buffalo National River in northern Arkansas is ten horsepower everywhere except on sections of the river that run through wilderness areas. On these sections power boats are not permitted.

Power boating, sailing, and big boat fishing are the typical water activities that one finds on recreational lakes. Less than 50 miles east of Van Buren is Lake Wappapello, an area

containing 44,000 acres of land and water, where opportunities for unrestricted power boating are abundant.

3. **Playing of radios or other electronic sound equipment [p. 16, row 17].** If any kind of noise is more annoying than power boats, it may very well be the programmed sounds of talking radios, raucous radio ads, and recorded music. These man-made sounds can easily drown out the sounds of nature – sounds that are integral to the unique ambiance created by these riverways. For many visitors, going to the river means getting away from the mundane sounds found everywhere in cities, cars, and all manner of man-made public spaces.



Many visitors come eagerly anticipating the bright sounds of bubbly riffles; the exciting sounds of rapids; the splash of turtles jumping into the water, the splash of fish jumping out of the water, maybe even the splash of a startled beaver or otter, or, perhaps, the songs and calls of birds, frogs, and insects. One certainly cannot find this repertoire of natural sounds in town.

Because sound reflects so well from the surface of water, one can often hear the conversations of people on rivers or lakes who are hundreds of feet away. Thus, it is almost impossible to keep radio and musical sounds private. **We urge the National Park Service to place enforceable restrictions on the use of radios or recorded music in the park so that one person's desire to have radio or musical entertainment shall not impinge on other visitors' rights to enjoy natural sounds on the river.**

IV Big Spring Wilderness:

One place on Ozark National Scenic Riverways that has retained its truly wild character is the back country portion of the original Big Spring State Park, a 3,400 acre primitive area that is representative of the pristine hills and forests that once dominated this part of the Ozarks. When Big Spring was established as a state park in the 1920's, this wonderful stretch of rugged hills and forest was set apart, *de facto*, from the more developed parts of the park. Today we have the opportunity to permanently protect this special remnant of the original Ozark wilderness. **We urge the National Park Service to recommend this area for designation as a national wilderness area.** This should be an easy and welcome decision for the National Park Service.

Conclusions

The “do nothing” alternative is not viable because it implies continued neglect of abusive practices on the riverways. Such neglect violates the National Park Service’s primary mission, which is to protect and preserve the natural resources including the park’s native biodiversity, its extraordinary geological and hydrological features, its water quality, its scenic beauty, its generally wild character, and the opportunities the park affords visitors to find solitude in nature. This part of the mission statement is not merely a permission that allows the National Park Service to protect its resources; it is a positive obligation incumbent upon the National Park Service. We question how such extensive abuses were able to take hold in this park in the first place under National Park supervision. If, over the years, the Park Service has intentionally agreed to relax its stewardship policies and allow exceptions and accept solutions to user group conflicts that resulted in further degradation of the park resources, then **IT IS TIME FOR SUCH LAPSES IN RESPONSIBLE MANAGEMENT TO END.**

Alternatives B & C would create conditions that would produce incremental conversion of this predominantly natural area into a vast playground for activities that depend heavily on visitor services, entertainment, and facilities reminiscent of urban environments. Ultimately, such development would become self-propagating, and the natural or wild character that once prevailed in this part of the Ozarks would disappear. Ozark National Scenic Riverways would, in the end, become just a memorial to the wild character that once prevailed here, and one might imagine ultimately the construction of a museum and interpretive program to recall those days when it was actually here. Today’s management plan might be able to sustain boundaries keeping the natural areas separated from the developed areas, but only for a few years. By the time the National Park Service were ready to start working on its next management plan, growing pressures from the first round of development would create more demands for still more development. We need only recall the growth of abuses on this park that have already occurred on the National Park Service’s watch. **WE IMPORE THE NATIONAL PARK SERVICE NOT TO GO DOWN THIS PATH.**

The National Park Service has, for decades, resisted enforcement of the scenic easements it holds on much of the adjoining private lands, thus neutralizing the very purposes for which the easements were created. **We do not see this style of management as an example of “being a good neighbor”. We see it as a pattern of negligence and irresponsibility in caring for the park it is charged with protecting. What possible reason could people who are familiar with these historical lapses find to trust the National Park Service to resist pressures for more park development from one decade to the next under alternatives B & C?**

Alternative A is the only alternative that is consistent with the purposes and vision of the riverways at the time it was conceived by the National Park Service and as it was established by Congress. The National Park Service certainly should strive to protect the purposes for which the park was established, if for no other reason than to restore the trust of the people of the United States.

Comments prepared by Jerry Sugerman
for *Friends of Ozark Riverways*

July 8, 2009

Appendix

Estimates of Impact Severity

A		B	C	D	E	F	G
Impact of User Activities and Land Use Practices on Ozark National Scenic Riverways							
1	2	IMPACT ON THE PARK'S WILDLIFE HABITATS, NATURAL FEATURES, SCENIC LANDSCAPES, AND OTHER CONSERVATION VALUES			IMPACT ON OTHER VISITORS' ENJOYMENT OF THE PARK		
		No lasting adverse effects	May produce lasting adverse impacts depending on frequency or user behavior	Generally has lasting adverse impact on the park's natural amenities and wildlife habitat	No adverse effects	May adversely affect other visitors' enjoyment of the park	Generally has an adverse effect on other visitors' enjoyment of the park
3	VISITOR ACTIVITIES						
4							
5	a: camping in developed campgrounds	Y			Y		
6	a: canoeing, kayaking, rafting, or tubing in congested areas	Y					Y
7	a: canoeing, kayaking, rafting, or tubing in relatively quiet areas	Y			Y		
8	a: fishing from open river banks	Y			Y		
9	a: fishing in or on the river (i.e., in a boat)	Y			Y		
10	a: hiking on authorized trails	Y			Y		
	a: john boating with engines having a maximum of 10						
11	horsepower	Y				Y	
12	a: observation of wildlife	Y			Y		
13	a: operation of ATVs on county roads	Y				Y	
14	a: operation of dirt bikes or motorcycles on county roads	Y				Y	
15	a: photography	Y			Y		
16	a: picnicking	Y			Y		
17	a: playing of radios or other music or sound generating devices	Y					Y
18	a: power boating with engines having greater than 10 horsepower	Y					Y
19	a: roudy or lewd behavior	Y					Y
20	a: swimming	Y			Y		
	a: trail riding in parties OF 1-20 horses on trails set back from rivers, creeks, sink holes, and other bodies of water on appropriate soils, ground cover, and grade at a distance sufficient to prevent equine body wastes from flowing into and polluting any natural water course	Y					
21					Y		

	A	B	C	D	E	F	G
22							
23	Impact of User Activities and Land Use Practices on Ozark National Scenic Riverways						
24	IMPACT ON THE PARK'S WILDLIFE HABITATS, NATURAL FEATURES, SCENIC LANDSCAPES, AND OTHER CONSERVATION VALUES			IMPACT ON OTHER VISITORS' ENJOYMENT OF THE PARK			
	VISITOR ACTIVITIES	No lasting adverse impacts	May produce lasting adverse effects on the park depending on frequency or user behavior	Generally has lasting adverse impact on the park's natural amenities and wildlife habitat	No adverse effects	May adversely affect other visitors' enjoyment of the park	Generally has an adverse effect on other visitors'
25							
26							
27	a: exploration of accessible cave openings on bluff faces		Y		Y		
28	a: camping in tents on congested gravel bars		Y				Y
29	a: camping in tents on open gravel bars		Y		Y		
30	a: trail riding in parties of 21-100 horses on trails set back from rivers, creeks, sink holes, and other bodies of water on appropriate soils, ground cover, and grade at a distance sufficient to prevent equine body wastes from flowing into and polluting any natural water course		Y			Y	
31							
32	a: camping in mobile campers on or near the river bank			Y			Y
33	a: fishing from unstable or heavily vegetated river banks			Y	Y		
34	a: operation of ATVs off-road			Y			Y
35	a: operation of dirt bikes or motorcycles off-road			Y			Y
36	a: trail riding in parties of more than 100 horses on trails set back from rivers, creeks, sink holes, and other bodies of water on appropriate soils, ground cover, and grade at a distance sufficient to prevent equine body wastes from flowing into and polluting any natural water course						
37	a: horseback riding on trails that follow the river bank			Y			Y
38				Y			Y

	A	B	C	D	E	F	G
	Impact of User Activities and Land Use Practices on Ozark National Scenic Riverways						
	LAND USE PRACTICES INSIDE THE BOUNDARIES OF THE PARK	IMPACT ON THE PARK'S WILDLIFE HABITATS, NATURAL FEATURES, SCENIC LANDSCAPES, AND OTHER CONSERVATION VALUES			IMPACT ON OTHER VISITORS' ENJOYMENT OF THE PARK		
		May produce lasting adverse effects on the park depending on other factors	Generally has lasting adverse impact on the park's natural amenities and wildlife habitat		May adversely affect other visitors' enjoyment of the park, especially in crowded conditions	Generally adversely affects other visitors' enjoyment of the park	
		No adverse effects		No adverse effects			
39							
40							
41							
42		Y					Y
43	c: trash left behind by park users						
44							
45	c: river access points, single bank, averaging 5 miles apart; total number required: 28	Y				Y	
46	c: river access points, single bank, averaging 7 miles apart; total number required: 20	Y			Y		
47	c: river access points, single bank, averaging 8 miles apart; total number required: 18	Y			Y		
48	c: unauthorized or illegal private road and trail access down to the rivers	Y					Y
49							
50	c: bank openings (habitat fragmentation)		Y				Y
51	c: degraded aquatic habitats		Y			Y	
52	c: loss of forest cover on the flood plain		Y				Y
53	c: loss of terrestrial habitats to extensive high use developed areas		Y				Y
54	c: river access points, single bank, averaging 1 mile apart; total number required: 135		Y				Y
55	c: river access points, single bank, averaging 3 miles apart; total number required: 45		Y				Y
56	c: soil compaction in high use areas		Y			Y	
57	c: use of impervious ground cover for parking areas		Y			Y	
58	c: use of impervious ground cover for roads		Y		Y		
59	c: water pollution caused by human body waste		Y				Y