WILDERNESS VISITOR MANAGEMENT PRACTICES: A BENCHMARK AND AN ASSESSMENT OF PROGRESS

Alan E. Watson[1]

Abstract-In the short time that wilderness visitor management practices have been monitored, some obvious trends have developed. The managing agencies, however, have appeared to provide different solutions to similar problems. In the early years, these problems revolved around concern about overuse of the resource and crowded conditions. Some of those concerns exist today, but they may be overshadowed by feelings that inadequate budgets and workforce are the primary hindrances to wilderness management. The differences in solutions used are largely due to differences in policies guiding the various agencies. Continued monitoring of wilderness visitor management practices is needed.

Wilderness management in the United States is relatively young. The Wilderness Act of 1964 (P.L 88-577) established legislative protection for 9.1 million acres (54 areas) that prior to 1964 were only partially protected. Legislation over the subsequent years has increased the amount of land in the National Wilderness Preservation System to just over 89 million acres. The 470 units exist in 44 States and are managed by four Federal agencies. Only the USDA Forest Service, the USDI National Park Service, and the USDI Fish and Wildlife Service were intended to manage wilderness at the time of the original Wilderness Act. Subsequent legislation in 1976 (P.L. 94-579) added the USDI Bureau of Land Management as a potential wilderness management agency.

As new wilderness areas have been designated recently (the number of designated areas has nearly doubled since 1983), new wilderness managers have necessarily come into existence. The quality of wilderness recreation opportunities depends upon how well current and future wilderness managers are able to do their part. This paper assesses wilderness visitor management practices in the United States. As part of the Benchmark 1988 Assembly, this paper looks at past and current situations and points out opportunities and needs for improved management, policy, education, research, and legislation. It identifies barriers or constraints to needed improvements and suggests ways that our baseline of knowledge can be improved.

HISTORY OF WILDERNESS VISITOR MANAGEMENT

In the literature, studies of wilderness visitor management are newer than wilderness management itself. Documenting what wilderness managers are doing and thinking dates back less than 10 years (Bury and Fish 1980; Fish and Bury 1981; Godin and Leonard 1979). The studies during that time emphasized assessment of interagency differences in how use control was viewed and what problems managers encountered.

Godin and Leonard (1979) used survey information from 35 Forest Service and Fish and Wildlife Service wilderness managers to determine the eight most serious management problems. They concluded that only one problem was consistently considered serious by at least half of the managers contributing responses: site deterioration attributable to overuse of the resource. Eighty percent of the managers said this was a serious problem. The second most mentioned problem, by 40 percent of the managers, was confusion over the meaning of wilderness. Not only were visitors confused with restriction of permissible actions, but managers did not seem to be in harmony with legislation and agency policy. Some managers reported that the appropriate wilderness ethic was lacking in much of the user public and in a substantial portion of managers.

Research Social Scientist, Wilderness Management Research Unit, Intermountain Research Station, U.S. Department of Agriculture, Forest Service, Missoula. MT.

The remaining six of the eight problems were boundary designations (31 percent), user conflicts (29 percent), vehicle and other equipment use (23 percent), disaster control (17 percent), disagreement between legal uses and the wilderness concept (17 percent), and the lack of wilderness resource and use data over time (11 percent).

Bury and Fish (1980) and Fish and Bury (1981) through a 1978 survey of wilderness managers, identified several differences in management among the agencies. They described the National Park Service (NPS) wilderness managers as more likely to initiate use of control measures to prevent anticipated resource damage. At the time of the survey, 84 percent of NPS areas had use control of some type in place. NPS wilderness managers frequently assigned campsites and limited the number of people who could enter an area at a given time. Fish and Bury (1981) cited USDI policy that extensively reviewed regulatory controls available. In this policy review of alternatives for controlling use levels and impacts, little mention was made of indirect methods of use control. This policy and subsequent management actions taken reflect the National Park Service's historical commitment to maintain balance in their dual charge of resource preservation and visitor access.

National forest managers were more likely to defer use control until problems of overuse appeared as a result of resource change or visitor complaints. Fish and Bury (1981) found that 66 percent of national forest wilderness areas had programs to control use. In 1978 the approach most widely used by the Forest Service was to minimize regulatory control, opting for more indirect use control methods such as providing public information on impacts of behavior and alternative places to go.

The U.S. Fish and Wildlife Service, in contrast with the other two management agencies, does not place priority on recreational access. In fact, this agency is much more likely to initiate use controls because recreation use interferes with other values of wilderness (Fish and Bury 1981).

Washburne and Cole (1983) surveyed all National Wilderness Preservation System Units in 1980; exploring much more than the extent of use controls. They concluded that most of the National Wilderness Preservation System components shared common problems. Resource degradation and loss of solitude were reported as problems in a majority of areas. They found, however, that consistent responses to common problems were rare. There appeared to be major differences in how the Federal agencies responded to these similar problems. Like Fish and Bury (1981.), they reported that the National Park Service typically had more aggressive visitor management programs. More national parks had established carrying capacities and had initiated regulations to control the amount and types of recreational use in wilderness. On the other hand, the U.S. Fish and Wildlife Service and the Bureau of Land Management were characterized as particularly passive wilderness administrators. Few areas administered by these agencies had established carrying capacities, and regulations were very rare.

Washburne and Cole (1983) reported that use of national forest wilderness areas was more often believed to exceed carrying capacity than use of NPS areas. The national parks, however, were more likely to ration use to maintain optimal use levels, Crowding and resource damage were more pronounced on national forests than in the national parks, but the resource preservation objectives of NPS led to control before damage occurred. In 1980, Washburne and Cole (1983) saw a need for increased management action for national forest wilderness areas.

Shortly after Washbume and Cole surveyed all National Wilderness Preservation System areas in 1980, Roggenbuck and Watson (1981) intensively examined wilderness management in the two eastern Regions of the Forest Service. Their interest was to further establish a baseline of information for identifying management problems and measuring progress toward Regional objectives.

As found in earlier studies, Forest Service managers in the two eastern Regions regarded crowding, the need for carrying capacity estimates, and the need for use dispersal methods as their most serious problems. Even though crowding was perceived to be a problem by 13 of the 29 managers responding, only 3 areas had an imposed use ceiling and no manager assigned campsites. Six managers did report alteration of access routes to the wilderness to modify use, and 12 reportedly had programs to disperse use. Carrying capacity estimates had been produced for 5 of the 20 areas. Managers also reported little use monitoring or environmental impact monitoring despite their reports of overuse and crowding in many areas.

Additional problems frequently cited included vandalism, off-road recreation vehicles, budgets, and workforce in the South (Region 8). Site impacts and the need for information on amount of use occurring were most frequently cited, after crowding and use dispersal problems, in the Eastern Region (Region 9).

THE CURRENT SITUATION

Robertson (1984) provided some more recent information on wilderness management in the Southwestern Region of the Forest Service. Managers reported overcrowding and overuse as major management problems, exceeded now, however, by inadequate funding.- The need to establish carrying capacities was mentioned, but infrequently, despite low frequency of having established estimates of carrying capacities.

Watson and others (1987) recently surveyed 38 Forest Service wilderness managers in the Southern Region. In this attempt to update the 1981 Forest Service wilderness manager study, overuse of wilderness was again overshadowed only by the need for increased funding and workforce, just as in the western study by Robertson. Only 5 of 38 managers reported programs to disperse use, and only 6 of 38 have established estimates of recreational carrying capacity. In both the East and West, about half monitor the amount of use received, but most are not satisfied with the accuracy of estimates that are being produced.

The need for reliable estimates of use cannot be overemphasized. The National Forest Management Act does not specifically mandate wilderness use monitoring. There are regulations (36 CFR 219,18(a)), however, that require 'periodic estimates of the maximum levels of use permissible." These estimates imply upper limits of wilderness supply. These estimates of permissible use levels would be related directly to actual use levels experienced, and subsequent impacts, Accurate measurement of use is therefore necessary (Watson and others 1987).

Current information on management practices of other agencies is not available. There has been successful testing of lighthanded management methods more recently in NPS backcountry (Huffman and Williams 1987, Krumpe and Brown 1982, Peine 1988) possibly suggesting a greater acceptance of this approach than in the past, though follow-up adoption has not been evident.

OPPORTUNITIES AND NEEDS

Forest Service District rangers usually have many responsibilities besides wilderness management, and these concerns likely reflect general cutbacks in availability of funds and people in the face of increased demands on District resources. District level budgets in general would likely have to be increased to provide the staff support that District managers would like for wilderness management.

But, in this time of great budget demands, the more appropriate need may be for education. Managers need to be educated in effective management of wilderness within budget and workforce constraints. In 1983 Washburne and Cole indicated that the Forest Service needed more active wilderness management. More recent studies have shown that there are still needs for establishment of use monitoring systems, estimation of acceptable levels for social interactions, and programs to change user behavior to reduce impacts.

The opportunities to improve wilderness management are abundant. One of the most important is probably the opportunity for information exchange about management practices. The rapidly increasing use of computers opens new doors for information exchange. Information on specific management strategies that has previously been printed and subject to limited distribution can now be available to many, accessible through computer networks. For example, the recent publication 'Managing Wilderness Recreation Use: Common Problems and Potential Solutions' (Cole and others 1987) provides evaluations of alternative management practices used to solve common wilderness management problems. This information could be made available to personnel in a computerized form. Within the Forest Service, personnel could access such information through the Data General System. External users could be provided access to the information through a call-up service or mail-out diskette. Continuous update of information could occur, and recording of user feedback would be beneficial.

'Wilderness Management -A Five Year Action Program' (University of Idaho 1983) emphasized the need for educating the public about wilderness values. Increased emphasis on telling visitors why programs are initiated or continued would likely improve compliance with adopted practices. Also, increased cooperation with membership groups, such as the Wilderness Society and the Sierra Club, on management issues should lead to more mutually acceptable practices.

Use monitoring systems exist. However, the technology needs to be evaluated and communicated to managers. Emphasis is highly desirable concerning integrated systems that include cost effective sampling plans and methods for accomplishing data analysis. New technology has produced mechanical use measurement devices that can be calibrated fairly precisely for application in a variety of environmental and user situations. Photography and visual observation methods of checking accuracy and compliance

have been tested and reported. Of great importance to managers will be the accuracy and costs of systems reviewed.

The Limits of Acceptable Change (LAC) (Stankey and others 1985) framework for wilderness planning and management brings together years of carrying capacity and public involvement work. Currently, managers apparently need methods of establishing management objectives and dealing with social and environmental overuse and abuse problems. The diffusion and adoption of LAC or the Visitor Impact Management Framework (Graefe and others 1987) in wilderness management offers tremendous opportunity for increased consistency in management and methods for evaluating progress. Increased understanding and adoption of these planning and management concepts should also lead to increased emphasis on social and environmental monitoring systems.

CONSTRAINTS OR BARRIERS

Effective technology transfer channels among Forest Service wilderness managers have been documented by considerable research. Roggenbuck and Watson (1981); Watson and others (1987); Watson and Roggenbuck (1983) suggest that wilderness managers will be most responsive to information channels originating within their respective Regions. Memos, letters, and other interpersonal communication from a Region's wilderness specialist or from the Forest Supervisor's office can help delineate important management ideas from the barrage of information that District rangers receive about the many aspects of their job. Also, training sessions that incorporate and demonstrate cost effective procedures for monitoring use and impacts, educating visitors, and sharing information among managers promise to be productive technology transfer tools.

The greatest barriers to improved wilderness management are managers' perceptions of the prohibitive cost of programs. Innovative methods that are not cost prohibitive must be developed, evaluated, and presented to managers through personal and localized channels (Watson and Roggenbuck 1983).

FUTURE STRATEGIES TO INCREASE KNOWLEDGE

There is a noticeable lack of information on wilderness management in agencies other than the Forest Service. A joint effort by all concerned agencies to assess wilderness management is strongly recommended between now and the 1995 Renewable Resources Planning Act (RPA) update. The intention would be to provide updated information on management policies and practices of agencies other than the Forest Service.

Continued monitoring of problems all wilderness managers face is also recommended. Managers are going to be more receptive to technology transfer tools that address problems that they acknowledge exist. If problems of low priority to the managers need to be addressed, a campaign must be undertaken to increase the perceived importance of selected problems. This situation exists now with the need to increase use of existing visitor use estimation procedures. If managers do not perceive use estimation as an important activity, they will not be particularly responsive to attempts to transfer use estimation technology.

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