

# Managing outdoor recreation: Case studies in the national parks

**Robert E. Manning**, University of Vermont, USA, robert.manning@uvm.edu;  
**Laura E. Anderson**, University of Vermont, USA

The popularity of outdoor recreation continues to grow worldwide. However, there is little systematic information on how to manage outdoor recreation in ways that protect park resources and the quality of the visitor experience. This paper describes development of classification systems of outdoor recreation-related problems and management strategies and practices. Management problems include impacts to park resources (soil, vegetation, water, air, wildlife, historical/cultural resources, soundscapes, night skies), impacts to the quality of the visitor experience (crowding, conflict, depreciative behavior), and impacts to park facilities (trails, campsites, attraction sites, roads/parking lots, and interpretive facilities/programs). Management strategies include limiting use, increasing the supply of recreation opportunities, reducing the impact of visitor use, and hardening park resources and the quality of the visitor experience. Management practices include information/education, rationing/allocation, rules/regulations, law enforcement, zoning, and facility development/site design/maintenance. These classification systems are then combined into a series of four matrices that can be used to help guide outdoor recreation management. One of the matrices is shown in Figure 1 as an example.

The paper uses a series of case studies drawn from the US National Park System to illustrate use of the management matrices. For example, one of the case studies addresses management of the Colorado River in Grand Canyon National Park. The Colorado River is the heart of Grand Canyon and offers visitors a world-class whitewater river trip. However, increasing use of the river was causing impacts to the limited number of campsites along the shore (Impacts to Campsites), many of the areas iconic side canyons and other attraction sites (Impacts to Attraction Sites), and some of the Canyon's archeological and historical sites (Impacts to Historical/Cultural Resources). The growing amount and diverse types of use were also causing crowding at campsites and on the river (Crowding) and conflict between motorized and nonmotorized boaters (Conflict). A new management plan is relying on the twin strategies of Limiting Use and Reducing the Impact of Use, and has implemented a coordinated suite of management practices, including spatial and temporal zoning of the river (Zoning), regulation of the number and type of boating trips (Rules and Regulations; Rationing/Allocation), ranger patrols to enforce regulations (Law Enforcement), a lottery system to allocate permits to noncommercial boaters (Rationing/Allocation), and an intensive program of public education (Information/Education).

The paper concludes with the following series of principles for managing parks and outdoor recreation that are drawn from the management matrices and case studies:

1. Parks and related outdoor recreation areas must be managed in ways that provide outdoor recreation opportunities but also protect park resources and the quality of the visitor experience.
2. Outdoor recreation management should be guided by a management-by-objectives framework.
3. Outdoor recreation management is an iterative, adaptive process.
4. Outdoor recreation should be managed within a three-fold framework of concerns: resources, experiences, and management.
5. The Recreation Opportunity Spectrum should be used to help ensure diversity in outdoor recreation opportunities.
6. Outdoor recreation can impact parks and related areas in many ways, including park resources, visitor experiences, and park facilities and services.
7. Outdoor recreation can be managed using four basic strategies.
8. Outdoor recreation can be managed using six basic categories of management practices.
9. Outdoor recreation management problems can be addressed by more than one management strategy or practice.
10. Outdoor recreation management strategies and practices can address multiple problems.
11. Outdoor recreation management practices can be used to advance more than one management strategy.
12. Outdoor recreation management strategies can be advanced by more than one management practice.
13. Where possible, a reinforcing program of outdoor recreation practices should be used.
14. Managers should think systematically, comprehensively, and creatively about the range of practices that might be used to manage outdoor recreation.
15. Outdoor recreation management practices should not be used simply because they are familiar or administratively expedient.
16. Potential unintended and undesirable consequences of outdoor recreation management practices should be identified and avoided.
17. Good information is needed to effectively manage outdoor recreation.
18. Management of outdoor recreation should be as informed as possible by understanding the cause of the impact or problem.
19. Outdoor recreation management decisions should be considered within the context of larger geographic scales.
20. Outdoor recreation management should focus on the impacts of recreation use, not use itself.

Management Practices	Problems															
Strategies Practices	Impacts to Resources								Impacts to Experience			Impacts to Facilities/Services				
Limit Use	Soil	Vegetation	Water	Wildlife	Air	Soundscapes	Night Sky	Historical/Cultural	Crowding	Conflict	Deprecatative Behavior	Attraction Sites	Trails	Campgrounds/Campsites	Roads/Parking	Interpretive Facilities/Programs
Information/Education	1	7	13	19	25	31	37	43	49	55	61	67	73	79	85	91
Rationing/Allocation	2	8	14	20	26	32	38	44	50	56	62	68	74	80	86	92
Rules/Regulations	3	9	15	21	27	33	39	45	51	57	63	69	75	81	87	93
Law Enforcement	4	10	16	22	28	34	40	46	52	58	64	70	76	82	88	94
Zoning	5	11	17	23	29	35	41	47	53	59	65	71	77	83	89	95
Facility Development/ Site Design/Maintenance	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96

Figure 1. Management matrix for the strategy of limiting use

21. Limiting use is generally a last outdoor recreation management option.
22. Limiting or rationing outdoor recreation use requires consideration of how limited opportunities for use will be allocated.
23. Indirect outdoor recreation management practices are generally preferred over direct management practices.
24. Intensive outdoor recreation use usually demands intensive management.
25. When and where warranted, outdoor recreation management should be designed to reach visitors before they arrive at parks and outdoor recreation areas.
26. The list of outdoor recreation activities that need management consideration continues to evolve and expand.
27. The list of park and outdoor recreation «resources» that need protection continues to evolve and expand.
28. Variations in outdoor recreation management practices continue to evolve and expand.
29. Outdoor recreation management can impact the quality of the visitor experience both positively and negatively.
30. Caution should be used when dispersing visitor use as an outdoor recreation management practice.
31. Partnerships between park and related outdoor recreation management agencies and other groups and entities can be helpful in managing outdoor recreation.
32. Responsibility for managing outdoor recreation should be jointly shared by managers and researchers.
33. Quality in outdoor recreation is most appropriately defined as the degree to which recreation opportunities meet the objectives for which they are designed.
34. Management of outdoor recreation should be conducted proactively, not reactively.
35. Managers must exercise their professional judgment in outdoor recreation management.
36. A strong program of management is vital to maintaining the quality of parks and outdoor recreation.

The material outlined in this paper has been developed into a book recently published by CAB International.