

Building Connections among Lands, People and Communities: A Case Study of Benefits-Based Management Plan Development for the Gunnison Gorge National Conservation Area

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Introduction

Purpose of Study

This paper demonstrates how a Benefits-Based Management paradigm has been useful in guiding management plan development for an internationally significant natural resource – the Gunnison Gorge National Conservation Area (GGNCA) in Colorado. Through a program of survey research, a database on benefits desired by various stakeholder groups was created. It was utilized to assist in describing the current state of production of the GGNCA for recreation experiences, and as a basis for articulating the likely results of different planning scenarios for the resource. As a case example of the application of a Benefits-Based Management paradigm to recreation land use planning, we trace the conceptual flow between science and application as a collaborative planning process sought to articulate land use consequences and performance indicators for a public scoping process. Our ambition is to demonstrate the power of the benefits-based paradigm in successfully engaging the citizenry in vision-setting for significant natural resources, and communicating the results of complex land management decisions to stakeholders.

The Gunnison Gorge National Conservation Area

The GGNCA was created in 1999 under Public Law 106-76, and is administered by the U.S.D.I Bureau of Land Management. It is situated in southwestern Colorado approximately ten miles northeast of the city of Montrose and seven miles east of the city of Delta. Its 62,844 acres support a rich mosaic of unique geologic features, vegetation and wildlife, and support multiple human uses including fishing, hunting, camping, hiking, rafting, kayaking, livestock grazing and off-road vehicle use. The interior 17,784 acres of the NCA is the Gunnison Gorge Wilderness, embracing a renowned white water fishery and rafting/kayaking resource. The Wilderness includes the Gunnison Gorge immediately downriver of the Black Canyon of the Gunnison National Park.

The GGNCA Management Plan Development Process

In the fall of 2001, a nine-step process for developing a publicly endorsed management plan was initiated (U.S.D.I., 2004). The specific steps included: (1) planning issues identification, (2) planning criteria development, (3) data and information collection, (4) management situation analysis, (5) alternatives formulation, (6) alternatives assessment, (7) preferred alternative selection, (8) management plan selection, and (9) implementation and monitoring. Currently, the planning process for the GGNCA is in the final stages of Step 8. To assist in the process, a public scoping and collaboration program was implemented. The program included dissemination of natural and social science information through newsletters, a web-site (www.ttsa.com/Gunnison), press releases, open houses and communications with a public focus group. At the heart of social science information was a data base of demographic, perceptual and attitudinal profiles of existing recreation clientele (Knopf et al., 2002) constructed under a benefits-based management paradigm (Driver 1996). This paradigm, as well as the resultant data base, shaped many elements of the public scoping process and the eventual expression of land use options.

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The Benefits-Based Management Paradigm

The Benefits-Based Management approach to the planning and management of outdoor recreation resources has been well documented in the literature. Much of the consolidation of perspectives on this approach can be attributed to the work of B.L. Driver and associates (Driver et al., 1991). In essence, the focus is on conceptualizing and quantifying the *public benefits* that should be affiliated with any particular resource, and then on organizing management systems to ensure the *production* of these benefits. A *benefit* can be defined as “a change in the condition of individuals or groups of individuals (e.g., families, communities, societies, natural ecosystems) that is viewed as more desirable than a previously existing condition” (Driver et al., 1991). Under this conception, benefits can be understood as being manifested at four levels of production: at the *individual or personal* level (e.g., new skill sets, enhanced self-esteem, closer family bonds), at the *social* level (e.g., reduced violence in schools, pride in local community, lower levels of required public mental health care infrastructure), at the *economic* level (e.g., small business development, lower absenteeism at work), and at the *environmental* level (e.g., protection of endangered species, erosion-free trails, developing advocacy for environmental protection programs).

Under the Benefits-Based Management paradigm, such benefits are *produced* by introducing management actions at three spheres of influence: managing the supply of *activity* opportunities (e.g., white water rafting, camping, off-highway vehicle running, picnicking), managing the portfolio of *experience* opportunities (e.g., solitude, stress reduction, achievement, learning, exploration), managing the character of the *environmental setting* (e.g., environmental primitiveness, support facilities, information/interpretive programs, ambient noise levels).

From a land management perspective, total commitment to a Benefits-Based Management approach requires six essentials. First, there is a shift in the *raison d’être* for recreation and tourism management. The focus becomes one of producing value added changes in individuals, communities, and societies -- rather than simply being purveyors of campgrounds, picnic areas, and hiking trails. Second, there is a focus on developing explicitly-stated *management objectives*. For any particular resource, these objectives seek to ensure the production of specific benefit portfolios by targeting specific activity, experience and setting opportunities. Third, these objectives are directly linked to an articulation of : (a) *specific setting prescriptions* that are required to produce these opportunities (e.g., maximum of four encounters with other hikers per hour, metered whitewater river launches, eradication of invasive species) and (b) specific *management actions* required to achieve these prescriptions in order to produce these opportunities (e.g., rationing of trail use through maximum number of daily permits, presence of law enforcement official at whitewater launch sites, prescribed burns in south-facing lower canyons). Fourth, marketing programs are mounted to facilitate the accomplishment of specified objectives. Fifth, monitoring programs are implemented to ensure that management actions are adopted and marketing programs are effective. When they are not, adaptation of management actions occurs. Sixth, there is a commitment to engage all key service provider partners. Representatives from each of the three key sectors – local host communities, private sector recreation/tourism businesses and industries, and all public recreation providers – are engaged in joint development and implementation of the plan.

Methods

Application of the paradigm to the GGNCA Planning Process

It is important to note that recreation plan development for the GGNCA was but one component of a larger planning process relating to all aspects of environmental management of a scarce national resource (U.S.D.I. 2004). As with any comprehensive natural resource planning effort, the scoping process simultaneously accommodated multiple dimensions of analysis. These dimensions included such diverse themes as geology, soils, mineral and energy resources, water resources, climate and air quality, noise, vegetation, forestry resources, fish and wildlife, aquatic resources, land and ecosystem health, access and transportation, rangeland resources, cultural and paleontological resources, visual resources, fire management, socioeconomic resources, and environmental justice. Thus, the production function for recreation management was one of many simultaneous equations to solve during the planning process for the NCA.

Nonetheless, the basic conception of the Benefits-Based Management paradigm guided the whole of management plan development in general. A sixteen month process of collaboration with key stakeholders produced four land management alternatives that articulated different combinations of resource uses that resulted in different portfolios of benefits to individuals, communities, society and the environment itself (U.S.D.I. 2003). One alternative (Alternative A) communicated the benefits of continuing current management practices. A second alternative (Alternative B) communicated the benefits of placing primary emphasis on maintenance and protection of natural values over and above that required by existing protective laws or policy. A third alternative (Alternative C) communicated the benefits of placing emphasis on increasing cash flow and economic stability in surrounding communities. A fourth alternative

(Alternative D) communicated the benefits of emphasizing the natural, cultural, scenic, wilderness, and recreational resources for which the GGNCA and Wilderness were designated from a legislative perspective. After a public scoping process, the fourth alternative was generally embraced. With appropriate modifications, it was re-formulated and included in the Proposed Resource Management Plan/Final EIS for the GGNCA, which was published for a 30-day review and protest period on January 23, 2004 (U.S.D.I. 2004).

While the broader planning effort was advantaged by the Benefits-Based Management perspective, this paper focuses explicitly on the manifestation of the perspective in building the recreation-related components of the plan. In particular, the paper traces the developmental link between the generation of a Benefits-Based Management data base on current GGNCA recreational users, and the ultimate expression of a Benefits-Based Management framework in the draft final management plan.

The GGNCA Benefits-Based Management Data Base

A Benefits-Based Management database was built through on-site and mail surveys of a representative sample of 413 GGNCA users during the 2001 and 2002 summer use seasons (Knopf et al. 2002). The primary focus was to amass data in six domains: activity patterns and preferences, desired psychological experiences, preferred environmental settings, economic expenditures, judgments about the benefits of recreation participation, and perceptions of the desirability of alternative management actions. In addition, data were collected on recreation use history, information utilization patterns, satisfaction levels and sources, management zone preferences, image ratings, and a host of demographic variables such as gender, education, income and race/ethnicity. Complete details pertaining to data base development, data base dimensionality, procedures for analysis, and analysis results are captured by Knopf et al. (2002).

Results

Searching for a Benefits-Based Management Structure

One of the primary tenets of the Benefits-Based Management paradigm is that different recreational settings supporting different recreational activities will generate different recreational benefit portfolios. The data base that was generated provided the potential to examine these production functions in the context of the GGNCA. To inform the management plan development process, the data were partitioned into sub-samples of users preferring different GGNCA management zones for their experience. Then, differences in key Benefits-Based Management domain variables were illuminated.

Conceptually, the goal was to use the data base to inform the construction of a Benefits-Based Management grid to describe the current production for each management zone within the GGNCA (Table 1). Put another way, the goal was to use one grid for each GGNCA management zone – to illuminate (a) what specific products are being delivered from each zone at this time and (b) what management actions and monitoring activities are needed to ensure the delivery of these outcomes. As a collection, these grids would represent what is being produced – and what would continue to be produced – by Alternative A of the draft management plan (status quo management). Once the grids for Alternative A were specified, the grids could then be conceptually adjusted to reflect the different portfolio of management outcomes that would emanate from each of the remaining three management alternatives (Alternatives B through D). In short, the grids served to expedite the communication of benefits and other management outcomes – as well as the management interventions needed to achieve them – for every management alternative and for every GGNCA management zone presented in the draft management plan.

Table 1 - Benefits-Based Management Grid

Recreation Use Zone	Psychological Experiences	Setting Conditions	Benefits to be Maintained	Management Actions
<u>Activities</u>		<i>Physical Setting</i>	<i>Individual/Personal</i>	<u>Monitoring Actions</u>
		<i>Social Setting</i>	<i>Household/Community</i>	
		<i>Managerial Setting</i>	<i>Economic</i>	
			<i>Environmental</i>	

The discussion that follows traces the flow from generation of data to the ultimate expression of a completed grid that captures the management production function of a desired planning alternative for a specific GGNCA management zone. The data presented here are limited in scope, and are selected solely to illustrate the process. For more detail, we invite exploration of other resources (Knopf et al. 2002, U.S.D.I. 2003 and U.S.D.I. 2004).

For this discussion, consider the partitioning the data base into three sub-samples of recreationists: those preferring the Inner Canyon Wilderness Management Zone (Management Unit A-6 of U.S.D.I. 2003), those preferring the Lower Gunnison River Corridor Management Zone (M.U. A-16), and the those preferring the Flat Top-Peach Valley Management Zone (M.U. A-4). The Inner Canyon Wilderness zone features premium whitewater river running opportunities and Gold-Medal trout fishing opportunities in a pristine and wilderness-protected setting. The Lower Gunnison River zone features a largely flat-water river experience in a semi-primitive, more pastoral setting, with motorized shore access for boating, camping and walk-wade fishing. The Flat Top-Peach Valley zone features adobe lands adjacent to primary access roads, with predominantly motorized use (ATV, dirt bike, 4WD) and strong evidence of resource modification by off-highway vehicle activities.

Table 2 - Desired Benefits by Zone

Expressed Benefits	Zone Means			Significant Differences ^c
	Inner Canyon Wilderness <i>n</i> =80	Lower Gunnison <i>n</i> =22	Flat Top- Peach Valley <i>n</i> =23	
<i>Individual^a</i>				
Health/Fitness	3.7	3.2	3.7	
Self-Actualization	2.9	2.2	2.7	LG<IC,WH
Skill Development	3.2	2.7	3.5	LG<IC,WH
Connectedness with Nature	4.1	3.7	2.9	WH<IC,LG
Social Relationships	3.3	3.1	3.8	
<i>Household/Community^b</i>				
Community Involvement	2.5	2.5	3.0	
Family Bonding	3.3	3.2	4.0	IC,LG<WH
<i>Economic^b</i>				
Work Productivity	2.3	2.0	3.3	IC,LG<WH
Improve Local Economies	3.1	2.9	3.7	IC,LG<WH
<i>Environmental^b</i>				
Awareness of Natural World	4.3	4.0	3.1	WH<LG,IC
Protection of Cultural History	3.8	3.4	2.7	WH<LG,IC

^aScale: 1=not at all desirable to 5=extremely desirable; items developed via a factor analysis of 21 benefit items

^bScale: 1=not at all important to 5=extremely important

^cSignificant differences at the $p<.05$ level (MANOVA model univariates)

Benefit Portfolios

The first step was to begin to conceptualize benefit portfolios that define the core production of each zone. A display such as that of Table 2 can be used to conceptualize the dimensionality of the portfolios. The table displays mean scores for self-reports of perceived benefits affiliated with the respondent's preferred management zone - by each of the four primary benefit domains: individual or personal, community or social, economic and environmental. A picture emerges of both similarities and differences. Users from all zones are particularly attuned to the capacity of the resource to deliver experiences that generate health, meaningful social relationships, and opportunities for positive development of youth. However, users of the Inner Canyon and Lower Gunnison seem significantly more attuned to the power of building connections with nature than those of the Flat Top-Peach Valley area. Those of the Lower Gunnison clearly attached less importance to the skill development and self-actualization dimensions, suggesting that management need be concerned less with activity programming and information/education programs that are related to these dimensions. The West Highland users attach greater importance to the economic impacts of their activities on local communities, yet other data suggests that their own personal contributions might be less than imagined. On average, the typical Flat Top-Peach

Valley user group spent \$281 within 100 miles of the GGNCA for their trip, while Inner Canyon groups spent \$1058. On the whole, one might suggest that the Inner Canyon zone is particularly adept at producing benefits such as improved health, social relationships, skills, connections with nature, self-actualization, youth opportunities, and improved local economies. The Lower Gunnison zone might offer a similar portfolio, but with less potential for advances in skill development and self-actualization. The Flat Top-Peach Valley zone might be less noted for its nature-related benefits, and more for its focus on family experiences and social relationship capacity building. Such insights formed the nucleus for decision-making on the primary ingredients of the benefits portfolio that would ultimately be represented through Alternative A of the draft management plan.

Activity Opportunities

The Benefits-Based Management paradigm calls for the specification of activities to be emphasized within each zone, since activity styles are directly deterministic of benefits that can be produced. Within the GGNCA, data is available on existing use patterns including activity type. Through the visitor survey, however, intelligence was also gained on what kinds of activity opportunities they would like to see favored -- in the context of the benefits they desire. Inner Canyon users favored fishing (67%), camping (59%), and river running (52%). Lower Gunnison users favored fishing (75%), hiking (50%), and river running (42%). Flat Top-Peach Valley users favored camping (62%), picnicking (52%), and off-highway vehicle driving (51%). Clearly, the Flat Top-Peach Valley users carry a different activity portfolio interest than users of the two river-based management zones.

Experience Opportunities

Historically, research has shown strong variation in psychological experiences desired by recreational users across different use management zones in the backcountry (Driver 1996). In the case of these three GGNCA management zones, the desired experiences were noted more for their consistency than distinctions. Borrowing from Driver (1996), a battery of 29 desired experience items was included in the mail survey. Through factor analysis, the 29-item inventory was reduced to clusters of items measuring five central domains: Experiencing Nature, Stress Release, Discovery/Learning, Affiliation, and Introspection. Importance scores were computed for each scale based on a five-point scale ranging from Not At All Important (1) to Extremely Important (5). Scores on all five scales were stable across the three management zones, except for Experiencing Nature. Scores for the Inner Canyon and Lower Gunnison users were significantly higher (mean scores = 4.1 and 3.9, respectively) than scores for the Flat Top-Peach Valley users (3.2). In general, scores for the Stress Release, Discovery/Learning and Affiliation scales were consistently high (average of 4.0, 3.9 and 3.3, respectively) while scores for the introspection scale were more moderate (2.7).

Environmental Setting Features

Included in the mail survey were scales to measure eleven dimensions of recreation setting variability as defined by the Recreation Opportunity Spectrum (Manning 1999). For each dimension, respondents were asked to report whether they would like to see the referent variable reduced, left as is, or increased in order to enhance their desired recreational experience. Significant differences across use zones emerged for six of the eleven variables (Table 3). In general, the Flat Top-Peach Valley users tended to favor a setting that would facilitate more facility development, higher use levels, more motorized use, more highly maintained facilities and greater access to the backcountry via trails. Furthermore, they would be inclined to witness fewer forms of visitor controls. On the other hand, users from all three zones showed consistent partiality to leaving sensations of remoteness, degree of naturalness, amount of information programs, and level of road maintenance at their current levels. Users from all three zones were consistent in their desire for increased resource management staff presence.

Desired Management Actions

Embedded in the mail survey were nearly one hundred measures to help resource managers know where efforts might be directed to maximize the flow of benefits to users. Respondents were asked to rate environmental, social and facility/service challenges that ran interference with their desired experiences in their preferred zones. They were also asked to rate the importance and performance of specific management actions in light of their desired experiences. Table 4 is illustrative of the insights that emerged from analyses of these measures.

Seven of the highest scored of fifteen possible environmental challenges are presented. Litter, vegetation impact and trash dumping are the most frequently cited challenges. From the standpoint of managerial intervention, it seems that attention is needed in all zones, but particular focus is needed on the litter and trash dumping phenomena in the Flat Top-Peach Valley zone at this time. As such data are consulted for insight, it is important to recognize the importance of maintaining

steady state management in arenas where visitors do not detect challenges, while making accommodations to direct new resources to arenas where visitors do detect challenges.

Table 3 - Desired Setting Preferences by Zone

Setting Preferences ^a	Zone Means			Significant Differences ^b
	Inner Wilderness <i>n</i> =80	Canyon Lower Gunnison <i>n</i> =22	Flat Top-Peach Valley <i>n</i> =23	
Remoteness	1.9	1.9	2.0	
Naturalness	1.7	1.8	2.0	
Facility Development	2.0	2.0	2.2	IC,LG<WH
Staff Services	2.1	2.1	2.2	
Use Levels	1.9	1.9	2.2	IC,LG<WH
Visitor Controls	2.1	2.0	1.6	WH<IC,LG
Information Programs	2.1	2.0	2.0	
Motorized Use	1.6	1.8	2.1	IC,LG<WH
Road Maintenance	2.1	1.9	2.1	
Facility Maintenance	2.1	2.1	2.2	IC,LG<WH
Trail Access	2.1	2.1	2.4	IC,LG<WH

Table 4 - Physical Environment Concerns by Zone

Environmental Concerns ^a	Zone Means			Significant Differences ^b
	Inner Wilderness <i>n</i> =80	Canyon Lower Gunnison <i>n</i> =22	Flat Top-Peach Valley <i>n</i> =23	
Litter	1.8	1.7	2.5	IC,LG<WH
Vegetation Impacts	1.7	1.3	1.4	
Trash Dumping	1.5	1.3	2.8	IC,LG<WH
Fire Rings	1.6	1.3	1.4	
Airplanes Flying Overhead	1.6	1.3	1.5	
Vandalism	1.4	1.1	2.1	IC,LG<WH
Human Body Waste	1.5	1.1	1.2	WH,LG<IC

^aScale: 1=not a problem to 5=very serious problem

^bSignificant differences at the $p<.05$ level (MANOVA model univariates)

Again, the data in Table 3 is for illustrative purposes only. In the case of the GGNCA, to gain a comprehensive understanding of needed management action to enhance the delivery of benefits to existing users, responses to all of the nearly one hundred measures incorporated in the data base were analyzed (Knopf et al. 2002). It is also important to underscore that this data only has the capacity to inform the planning team about the current state of GGNCA production from the perspective of the actual respondents. The data base does not have the capacity to directly capture the flow of benefits to other stakeholders (local governments, educational systems, small business) although inferences might be made on how management actions might impact such systems.

Assembling a Benefits-Based Management Grid

Table 5 illustrates, at the most primordial level, how insights from data analysis can be used as a basis for assembling a Benefits-Based Management Grid. For a particular resource management zone (Flat Top-Peach Valley), the grid in Table 2 provides the conceptual scaffolding for amassing insight that can be gleaned from even the most limited pieces of data highlighted in this paper. In a most rudimentary way, the grid highlights how the production capacity from a particular management unit – as well as the management action required to sustain that production – can be swiftly synthesized and communicated to stakeholders.

Table 5 - First Level Benefits-Based Management Grid for GGNCA Management Unit A-4

Recreation Use Zone	Psychological Experience	Setting Conditions	Benefits to be Maintained	Management Actions
Flat Top-Peach Valley (GGNCA Management Unit A-4)	Stress release Discovery/learning	Physical Setting Motorized Natural appearing Largely unmodified Access to remote regions	Individual/Personal Mental health/fitness Skill development Social	Increased litter collection Visitor information and education programs to diminish depreciative behavior
Activities Four-wheel driving ATV/dirt bike riding Camping Picnicking	Affiliation/ socialization	Social Setting High social contact Support facilities to encourage social interaction	Household/Community Community involvement Family bonding	Increase fines for trash dumping Implement campfire safety and ethics program
		Managerial Setting Abundant support facilities Highly maintained facilities Strong information and education programs Few visitor controls	Economic Increased work productivity Improved local economies	Continue erosion and vegetation impact management programs
			Environmental Increased awareness of natural world relationships	Monitoring Actions Implement methods to assess whether desired experiences are met Develop methods for evaluating the role of permit allocations in maintaining carrying capacity

The approach represented here served as the heart of the methodology for developing and communicating recreation production functions to GGNCA stakeholders throughout the collaborative planning process. With the insights available from data analysis (Knopf et al. 2002), Benefits-Based Management Grids could be constructed for specific recreation management zones to capture the current state of GGNCA production as required by Alternative A (existing state) of the planning process. Then, these baseline grids could be adjusted by conceptualizing how the products – and required management actions – would vary under the assumptions of the alternate planning scenarios (Alternative B – emphasizing natural values, Alternative C – emphasizing economic values, and Alternative D – emphasizing the natural, cultural, scenic, wilderness, and recreational resources for which the GGNCA and Wilderness were designated from a legislative perspective). Importantly, as the process evolved, efforts were made by the planning team to incorporate *performance measures* into the grids. For example, a desired experience outcome for a particular zone might be “stress release”. The corollary performance indicator might be “Eighty percent of participants will score either a 3 or a 4 on a four-point *stress release* survey measurement scale (1= poor performance of the resource, 4= excellent performance of the resource)”. In addition, the management team would have to consider defining monitoring actions for management activities to ensure the production of targeted benefits from the zone.

Table 6 - Benefits-Based Management Grid: GGNCA Management Unit 2 Zone 1

<u>Recreation Use Zone1</u>	<u>Desired Future Conditions</u>	<u>Benefits and Values to be Maintained</u>	<u>Management Actions</u>
Management Unit 2 (Flat Top-Peach Valley OHV Recreation Area) Zone MU 2-1: Falcon Road OHV Play Area Open OHV use area located within NCA's west boundary on Falcon Road near Olathe. Activities: Cross-country ATV, dirt bike riding and vehicle "play."	Physical Setting: Front country adjacent to primary access road; and rural private lands; resource modification by OHV activities very evident; surrounded by natural-appearing environment. Number Social Encounters: moderate to high degree of contact with people on roads (see 30 or more groups per day near roads and 15 or more groups away from roads.) Average group size seen is 3-5 people. Managerial Setting: On-site management controls and regulations are numerous and easy to see; simple visitor information facilities are present. Increased vehicle patrols and visitor contacts. New facilities would include NCA entrance kiosk, OHV staging area, informational, regulatory, boundary, and directional signing, fences, barricades, etc. Facilities would be designed to be vandal-resistant, easy to maintain, and able to accommodate high degree of use.	Provide 80% of participants moderate to high (3-4 on 4-point probability scale) attainment of the following outcomes while engaged in play area Dirt Bike and ATV riding: Experiences: Developing your skills and abilities. Enjoying risk-taking adventure. Enjoying being with friends and family. Benefits: Individual: Reduced stress. Increased sense of adventure. Greater family bonding. Household and Community: Enlarged sense of community dependence on public lands. Greater community involvement in recreation and other land use issues. Economic: Increased local tourism revenue Environmental: Improved respect for privately-owned lands.	Travel Management: Open OHV area; for safety reasons, cross-country motorized and mechanical vehicle travel would be permitted only for ATVs, mountain bikes, and motorcycles. Large passenger cars, trucks, and other automobiles would be considered for use on certain routes in these open areas, to be selected during collaborative process after ROD is effective. Camping: In designated areas only. Camping could be eliminated or otherwise restricted if monitoring shows adverse impacts to soils, water, vegetation, or other values. Until areas are designated, these areas would be for day use only. Stay Limit: 7 days, once areas are designated. Campfires: No open fires would be allowed; stoves and/or charcoal in grills or fire pans would be allowed. No firewood collecting would be allowed. Maximum Group Size: 25; organized group permits would be required for groups over 25 people. Competitive Events: Motorized and nonmotorized competitive events would be permitted on a case-by-case basis. Maximum group size limits for participants and spectators, vehicle types and number limits, selection criteria, special terms, conditions, and other stipulations for commercial, organized group, and competitive permits would be developed based on individual proposals, safety, site capacity, resource conditions, user satisfaction levels, and other factors such as season and type of use. Permit issuance and permit terms and conditions would be subject to management discretion and availability of BLM staff and other resources to administer, conduct compliance on, and monitor impacts of events. Target Shooting: Would not be permitted Commercial and Private Permits: Existing Commercial Permits: None New Commercial Permits: BLM would allow new permits if activities appropriate to zone. Private Permits: Individual private permits would not be required. Organized group permits would be required for groups over 25 people.

Table 6 - (continued)

<u>Recreation Use Zone1</u>	<u>Desired Future Conditions</u>	<u>Benefits and Values to be Maintained</u>	<u>Management Actions</u>
Management Unit 2 (Flat Top-Peach Valley OHV Recreation Area) Zone MU 2-1: Falcon Road OHV Play Area (continued)	Land management practices, such as grazing, vegetation treatments are evident but tend to fit in with natural landscape.	Greater community ownership in/stewardship of area.	Facilities and Signs : BLM would remove existing Falcon Road OHV staging area BLM would add new OHV staging area/parking area west of existing Falcon Road water storage tank. BLM would add new NCA information kiosk and parking area at site of old Flacon Road staging area. Boundary, informational, regulatory, and directional signs¹. Fences, rock barricades, etc., to: protect private lands¹; contain OHV play in open area; protect special status species, unique soils, etc; and allow success of restoration measures¹ Trail Construction: Open area. Trail Maintenance: Would be conducted as needed. Areas impacted by unauthorized uses would be closed, either temporarily or permanently as needed, and rehabilitated. This maintenance would be accomplished within funding capabilities and would be implemented where appropriate. Visual Resource Management: VRM Class IV. Recreation Opportunity Spectrum: ROS Unit II (semi-primitive motorized).
Implementation and Monitoring Actions:	Develop and implement methods to assess and monitor visitor satisfaction levels and resource conditions. Set zone carrying capacity based on desired resource condition and visitor satisfaction levels. Set specific regulations for appropriate OHV “play” and travel on designated routes to enhance visitor safety and protect resources. Regulations would include temporary closures for periods when soils are too wet for travel. Develop maximum group size and vehicle limits, selection criteria, and special regulations for commercial, organized group, and competitive permits based on carrying capacities, resource conditions, etc¹. Analyze need for additional trails, recreation facilities, resource protection measures, etc. to enhance visitor safety, protect resources; and provide diversity of trail uses (single-track, ATV, mountain bike, dirt bike, etc.)¹ Develop (cooperatively with CDOW) criteria and process for establishing no-hunting areas within zones.¹ Educate visitors and users about responsible OHV play and regulations regarding resource damage. Provide maps, brochures, and website information.¹		

¹(From U.S.D.I. 2004, p. 4-60,61)

Grids for each of the four planning alternatives were published in the *Draft Resource Management Plan and Environmental Impact Statement* in March of 2003 (available on-line at www.ttsa.com/Gunnison). Following a ninety-day public comment period, and consideration of the over 600 letters of public comment received, a Preferred Alternative was developed and published in the *Proposed Resource Management Plan and Final Environmental Impact Statement* in January of 2004 (also available on-line at www.ttsa.com/Gunnison). Once the results of a thirty day public review and protest period are known, the proposed plan becomes considered for approval through a Record of Decision.

The Preferred Alternative represented in the proposed plan is a refinement of Alternative D from the draft plan issued in March of 2004. In making the refinements, consideration was given to the public comments and rewording for clarification. Ultimately, the Preferred Alternative narrative included fourteen (14) Benefits-Based Management Grids to capture the distinct recreation production functions of fourteen specific zones within the GGNCA (U.S.D.I 2004). While each of the grids are available on-line (www.ttsa.com/Gunnison), Table 6 replicates information from one of the smallest

grids – that of the Flat Top-Peach Valley Management Unit’s Falcon Road OHV Play Area (M.U. 2, Zone 1 from U.S.D.I. 2004). All the core elements of the benefits-Based Management are represented, including management zone, benefit portfolio (at individual, household/community, economic, environmental levels) activity opportunities, experience opportunities, environmental setting features (physical, social, managerial), desired management actions, and needed monitoring activities. Where possible, performance indicators were established within the grid (e.g., average group size: 3-5 people; developing skills: 80% of participants score 3-4 on a four point probability scale). The grid stands as an excellent representation of how insight from social science research can give shape to a useful tool for expressing the consequences of various land use planning alternatives as management plans are developed.

Planning Implications

The GGNCA planning process can serve as a model for the incorporation of the Benefits-Based Management paradigm into the land use planning process. Benefits-Based Management grids such as those described in this paper served well as communication devices throughout the entire stakeholder involvement and public scoping process of GGNCA management plan development. They created a focal point for the expression of the ultimate benefit portfolios that would be produced for each recreation land use management zone under different assumptions of management goals. They served well in articulating the collections of recreation activities, recreation experiences, environmental settings, management actions, and monitoring activities required to create a targeted benefit portfolio. And, they served as useful frameworks for introducing the need to develop performance indicators around which future monitoring and assessment programs could be built.

It is our hope that experiences gained through the development of the GGNCA planning process will inform planning efforts at other natural resource sites of national and international significance. The recreating public, the public lands, and the communities that embrace them will be the ultimate beneficiaries.

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