

Tracking collaboration: forest planning and local participation on the San Juan National Forest, Colorado

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ABSTRACT The proliferation of community-based collaborative approaches to public land management and planning has spawned many questions regarding issues of community representation and the effects of participation for local residents. This paper presents a longitudinal assessment of local resident participation in collaborative forest planning on local community–forest relations in southwestern Colorado. Using survey data of participants involved in the San Juan National Forest’s forest plan revision community study groups from 1998 to 2003, we assess participation in terms of community representation and the effects of community-based collaboration upon individuals’ forest uses, forest values, and the level and form of involvement in forest management and planning activities. Results show that community representation remains slanted towards existing active stakeholders, and that while forest values, uses, and frequencies of involvement change little, participants cite positive effects in terms of the development of new knowledge, personal relationships, and greater confidence to engage in forest management affairs.

Keywords: collaboration; participation; social capital; national forests; forest planning; Colorado

Introduction

Over the past decade, the proliferation of community-based collaborative (CBC) approaches to public land management and planning in the US has attracted much scholarly attention (Selin *et al.* 1997, Paulson 1998, Wilson 1999, 2003,

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Kellert *et al.* 2000, Weber 2000, Wondolleck and Yaffee 2000, Brick *et al.* 2001, Gray *et al.* 2001, Baker and Kusel 2003, Kusel and Adler 2003). By shifting the locus of public land use discussions from the national arena to local community-based forums, proponents argue that collaboration can improve management decisions, increase public participation, and overcome political gridlock. In contrast, critics argue that localising management discussions favours resource-extraction industries by undercutting the authority of national environmental regulations and organisations (McCloskey 1996, Coggins 1998, Brick *et al.* 2001).

Despite the increasing endorsement of collaboration by federal resource management agencies (US Department of Agriculture [USDA] Forest Service 1995, 2000), local governments, and other public land interest groups, debates continue to swirl over who stands to lose or gain from the spatial re-working of public land use decision-making that CBCs imply (Wondolleck and Yaffee 2000). Key questions centre on the issue of local participation, in terms of both the voices and the viewpoints representing the “community” (Brosius *et al.* 1998, Gibson and Koontz 1998) and the effects of participation on local social and community–forest relations (Gray *et al.* 2001, Wilson 2003). However, the rapid proliferation of CBCs has tended to outpace efforts to evaluate their resultant impacts (Kenney 1999, Conley and Mooto 2003). This is due in part to the dynamic nature of CBCs, the complex place-based contexts in which they occur, and the relatively long time horizons for adopting and implementing resource management plans on public lands (Crawford and Wilson 2005).

This article addresses these issues through an assessment of local participation in a collaborative forest-planning effort for the San Juan National Forest (SJNF) in southwest Colorado. We examine two aspects of participation: (1) the extent to which the community is represented, and (2) the effects of participation upon local community–forest relations, defined here in terms of participants’ forest uses and values, and the levels and forms of involvement in forest-planning and management processes. In so doing, the study addresses broader theoretical issues implicit in the claims made by proponents of CBCs. These include the notion that CBCs improve forest management and ameliorate local conflict by offering a more inclusive venue for local input and enhancing community capacity or social capital (Kemmis 1990, 2001, Wondolleck and Yaffee 2000, Daniels and Walker 2001).

We do not attempt to measure the effectiveness of the CBC in terms of “final” outcomes (e.g. local conflict resolution or the quality of forest management) in part because it was still ongoing at the time of study. Rather we focus on what many proponents point to as the preconditions for success: enhanced quality and quantity of community participation in public land use management and planning. Our interest in social capital, therefore, has less to do with more conventional measures of the concept such as quantifying individual memberships in civic groups or organisations (see Putnam 2000). Instead we explore the way emerging relationships and knowledge gained from the collaborative experience shape the manner and extent to which local residents engage in SJNF management affairs.

We draw upon primary survey data collected from local resident participants in the SJNF Community Study Groups, an ongoing community-based collaborative effort to revise the SJNF forest plan. The Study Groups occurred from 1996 to

1998 and reconvened in 2005. By observing participants in 1998 and 2003, our analysis tracks the intermediate effects of participation in the SJNF Study Groups on local community–forest relations over the five years since the initial Study Group meetings ended in 1998. To assess these effects, we examined three general questions. First, to what extent are Study Group participants representative of local stakeholders (defined as members of social groups or organisations with stated interests in forest management) and/or the general population of the SJNF region? Second, how do forest uses and values differ among participants and have they changed since participation in the Study Groups? Third, has participation in the Study Groups improved social capital in ways that effect community involvement in national forest management and planning processes?

In what follows, we first describe the study site in greater detail and discuss the data and research methods used before presenting the survey results. We conclude with a discussion of the study's implications for collaborative planning on national forests more generally and potential directions for future research.

Study site and context

The SJNF covers approximately 8500 km² across seven counties in southwestern Colorado (Figure 1). With a regional population of approximately 80,000 in 2000,

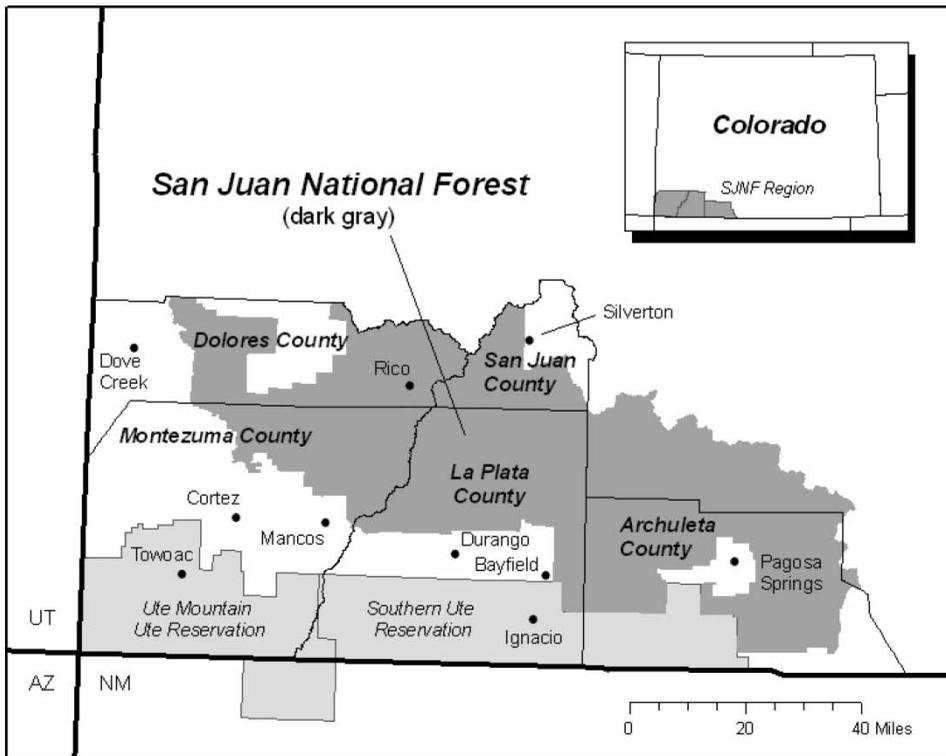


Figure 1. The San Juan National Forest region in Southwest Colorado.

the majority of residents live in several small and mid-sized communities located along the forest's southern boundary. The largest of these include the cities of Pagosa Springs in Archuleta County, Durango and Bayfield in La Plata County, and Cortez in Montezuma County. The vast majority of the Study Group participants resided in these three counties, which, for the purposes of this research, we define as the SJNF region.

Similar to the experiences of rural communities throughout the US Intermountain West, the SJNF region experienced an intensification of New West socioeconomic transformations in the early 1990s (Crawford and Wilson 2005). The decline of traditional resource-extraction-based industries contrasted sharply with rising tourism and recreation-based economies in many rural West communities (Rasker 1994, Riebsame *et al.* 1997). This economic restructuring was driven by rapid population growth associated with ex-urban amenity-based migration composed primarily of retirees, second-home owners, and individuals involved in footloose or relocating industries. While the precise manifestation of these dynamics across the rural West differs greatly by place-based contexts (Nelson 2001, Shumway and Otterstrom 2001, Crawford and Wilson 2005), in southwestern Colorado they served to exacerbate conflicts over national forest land use priorities (Larmer 1996, Wilson 2006).

In partial response to these conflicts, SJNF officials initiated a series of community-based Study Groups in 1996. These were fashioned after an earlier collaborative project, the Ponderosa Pine Forest Partnership (PPFP). Initiated in 1992, the PPFP brought together a diverse array of stakeholders with SJNF managers in an effort to revive the local timber industry via forest restoration projects designed to improve the ecological health of the SJNF. Encouraged by the early success of the PPFP, SJNF planners sought to create a similar shared-learning environment within which Forest Service officials and local residents could engage as part of the public scoping preparations for the federally mandated revision of the comprehensive forest plan. The SJNF Forest Plan Revision Community Study Groups were the result. Beginning in 1996, after widely publicising an open invitation to all interested residents, local participants met with SJNF officials in Study Group forums to discuss forest planning issues, share their varied knowledge base, values, management priorities and desired futures, learn about current management practices and potential alternatives; and explore points of special interest, conflict, and consensus (Richard and Burns 1998). In 1998, the forest plan revision process came to a halt, due in part to the 1998 Appropriations Act, which included a nationwide moratorium on forest planning until new planning regulations could be drafted. The process was later delayed by budget shortfalls and a catastrophic wildfire. New national planning regulations were released in 2004 and the Study Groups and the forest plan revision process resumed in January 2005.

Data and methods

Data for this study derive from written and telephone surveys of local resident Study Group participants conducted between 1997 and 2003, and over 12 months of participant observation. In 1998, a written survey was administered to 108 participants. In 2003, a telephone survey targeted the same population.

Both surveys examined selected demographic and occupational data as well as qualitative assessments of participants' experiences. The more detailed 2003 survey provided new and richer information on forest uses, forest values, and various indicators of social capital. Given the study's focus on local residents, other participants with official SJNF connections – US Forest Service and state officials – were excluded from the survey.

In 2003, we successfully located 74 of the 108 participants from the 1998 written survey. Of those located, four were deceased and another 11 either declined to participate or failed to complete the phone survey. The majority of the results discussed below represent the responses of 59 individuals who completed the telephone survey in 2003 (54.6% of the original 108). The phone survey consisted of closed and open-ended questions. Respondents were encouraged to elaborate upon and explain their answers, thereby providing valuable contextual information that aided interpretation. Questions focused on the following themes: (a) basic socio-demographic information, (b) primary forest uses and values, (c) frequency and types of involvement in forest management and planning processes, (d) knowledge gained via the Study Group meetings, (e) levels of engagement with other participants, (f) views of SJNF management, and (g) likelihood to participate once the planning process resumes. We elicited responses for each theme. Participants were asked to gauge changes in behaviours or opinions for selected themes in the five years since the close of the initial Study Group meetings in 1998. For certain themes, such as (c) frequency and type of involvement, the data allowed us to test for statistical significance. For most other themes, we relied on qualitative assessments of combined survey and interview data. In essence, our descriptive and interpretive analysis examines a process of community-based collaboration at an intermediate stage, since a final revised forest plan had not been completed in 2003.

Results

Community representation

Our survey data describe characteristics of Study Group participants as reported in the 1998 written and 2003 phone surveys. We compared these with general population characteristics where possible using Census 2000 data to assess the question of community representation (Table 1). Results from the 1998 written survey show that participants were disproportionately male and overwhelmingly white. Compared with the regional population, they were heavily overrepresented in resource-extraction industries and heavily underrepresented in the construction, manufacturing, trade, and transportation industries. In fact, resource-extraction employment was the highest among participants even though it was the lowest for the regional population. Participants were slightly underrepresented in services and professional employment.

Results from the 2003 survey (Table 1) are for a sample ($n = 59$) of the entire population ($n = 108$) of local resident participants. Due to concern over sample bias, we compared sample frequencies with those reported for the entire Study Group population in the 1998 written survey and found no significant differences.

Table 1. Community representation.

Characteristics	Study Group participants ^a	Regional population ^c
<i>Sex</i> ^a		
Male	74.1	50.3
Female	25.9	49.7
<i>Race and Hispanic/Latino</i> ^a		
White	100.0	80.5
Hispanic/Latino	0.0	10.9
Native American or other	0.0	8.6
<i>Employment by industry</i> ^a		
Resource extraction (agriculture, forestry, mining, fishing/hunting)	31.0	4.6
Construction, manufacturing, wholesale/retail trade, transportation/ utilities	19.7	38.1
Services and professional Amenities (lodging, food services, recreation, entertainment, arts)	28.2	34.3
Public administration	14.1	13.7
	7.0	4.7
<i>Age structure</i> ^b		
18–34	0.0	22.6
35–44	14.0	15.9
45–54	24.5	16.2
55–64	33.3	9.6
65+	28.1	11.1
<i>Highest education level</i> ^b		
No high school diploma	0.0	12.8
High school diploma	7.0	26.5
Some college	28.1	23.7
College degree	35.1	25.1
Graduate degree	29.8	11.9
<i>Household income</i> ^b		
< US\$25,000	7.8	32.4
US\$25,000–50,000	31.3	31.8
US\$51,000–100,000	39.2	26.7
> US\$100,000	21.6	9.1
<i>Land owned in SW Colorado</i> ^b		
0 acres	0.0	na
<3 acres	24.6	na
3–35 acres	35.1	na
>35	40.3	na
<i>Years resided in SW Colorado</i> ^b		
0–5	0.0	na
6–10	17.0	na
11–20	18.6	na
21–30	17.0	na
30+	47.4	na

^aData from 1998 written survey of the total 108 participants. $n = 71$ for employment due to exclusion of 37 retirees.

^bData from 2003 phone survey of 59 participants.

^cData from Census 2000 Summary Files 1 & 3. Employment percentages sum to less than 100.0 due to exclusion of a small category (other services).

For example, gender and employment percentages were very similar with only small differences. These consistencies gave us confidence that the 2003 data would be adequate to address questions of community representation with a richer set of descriptors that were not present in the 1998 data.

Results showed participants to be disproportionately in the older age categories with roughly 60% aged 55 or older. In fact, 24.6% of all the original participants ($n = 108$) were retired (not shown in table). This coupled with the fact that 28.1% of the sample ($n = 59$) was aged 65 or older suggests a strong overrepresentation of retirees. No participants in the sample could be considered young adults. Participants reported high levels of education and household income compared with the regional population. All but one respondent owned land in southwestern Colorado, and the modal size class for landholding was greater than 35 acres. Respondents tended to have lived in the region for a long time with almost half having resided locally for at least 30 years. Thus, few respondents were associated with the large inflow of New West migrants to the region during the 1990s.

To ascertain whether Study Group participants included the full range of local SJNF "stakeholders", we conducted personal interviews to identify key informants for various local interest groups using a snowball technique. Matching these data with the survey data, we found that, indeed, existing and active stakeholders from local environmental, timber, livestock, commercial and non-commercial recreation, and land development interests were all present. These were individuals who had been active in past management and planning processes. Again, significant absences included representatives from local indigenous populations, including the Ute Mountain Ute, Southern Ute and Navajo nations among others.

In terms of expanding this base of stakeholders, the survey data revealed that approximately 19% of total respondents claimed that Study Groups represented their first foray into national forest management issues. This evidenced an expansion of local participation beyond those with established and active public land management interests, but did not increase diversity in socio-economic terms. The vast majority of these respondents tended to be retirees who otherwise fitted the dominant demographic profile.

These results suggest that while the Study Group participants include most of the key local stakeholder groups concerned with SJNF issues, they are not representative of the general population in the SJNF region. In sum, Study Group participants tended to be male, white, older (including many retirees), highly educated, to garner higher incomes, to own at least three acres of land, and to be long-time residents of the region. Most notably, employed participants tended to be engaged in resource-extraction employment in a much higher proportion than the general population.

Forest uses and activities

The dominant uses of the SJNF by Study Group participants were for recreational activities (Table 2). During cold months, cross-country skiing was most frequently cited followed by hunting and motorised recreation (primarily snowmobiling). During warm months, hiking was the most frequently cited activity followed by

Table 2. What is your primary use of the SJNF? ($n = 59$).

Primary use of forest during warm months	% response	Primary use of forest during cold months	% response
Hiking	23.7	Skiing	49.2
Horseback riding	16.9	Hunting	13.6
General recreation	13.6	Motorized recreation	13.6
Backpacking/camping	11.9	Hiking	6.8
Grazing/logging ^a	10.2	General recreation	5.1
Hunting/fishing	8.5	Logging	1.7
Motorized recreation	6.8	Horseback tourism ^a	1.7
Outfitting ^a	3.4	None	8.5
Wildcrafting	1.7		
Trail development	1.7		
Mountain biking	1.7		

^aCommercial uses.

horseback riding and general recreation. Resource-extraction-oriented activities – grazing and logging – were the primary activities for only 10.2% of respondents' forest uses during warm months and 5.1% of uses during cold months.

In both the warm and cold seasons, only 9.6% and 12% of respondents, respectively, noted that their primary activities on the SJNF had changed by 2003 compared with their activities during the 1996–1998 period of the Study Groups. For these few citing changes, explanations typically involved a transition from highly active outdoors recreation to more sedentary forms of viewing and appreciating the forest landscape. In most cases, this was due to life changes such as health problems linked to advancing age, starting a family, and/or shifts in employment. Recreation in its varied forms was clearly the primary activity for most respondents both during the Study Group period and at the time of the phone survey in 2003. Forest use patterns have remained largely stable for survey respondents.

Forest values

Responses regarding forest values were designed to measure the extent to which local participants personally value the SJNF regardless of their preferred types of forests uses and activities (Table 3). While it might be expected for uses and values to be positively correlated, this need not be the case. For example, a hypothetical individual may be engaged exclusively in non-commercial, recreational activities yet place a greater value on commercial uses (i.e. logging, grazing, mining, commercial tourism). An ordinal Likert-scale was used to measure forest values. For quantitative description, we converted the ordinal responses to numerical values ranging from 1 (valued lowest) to 5 (valued highest). The values receiving the highest mean responses included “the forest as a resource for future generations” (4.86), followed by “the forest as a resource for personal recreation” (4.85), “a provider of clean air and water” (4.81), “biodiversity and wildlife” (4.75), and “aesthetics” (4.71). Since the vast majority

Table 3. How do you value the forest? ($n = 59$).

How important is the forest to you in terms of these values (1 = low, 5 = high)?		What is the single most important value of the forest to you?	
Value	Mean score	Value	% response
Resources for future generations	4.86	Presence of biodiversity/wildlife	22.0
Personal recreation	4.85	Resources for future generations	13.6
Provision of water/clean air	4.81	Economic value	13.6
Presence of biodiversity/wildlife	4.75	Personal recreation	11.9
Pleasing aesthetics	4.71	Personal refuge	10.2
Personal refuge	4.56	Spiritual aspects	8.5
Cultural/historical landscapes	4.14	Provision of water/clean air	6.8
Spiritual aspects	4.11	All values are equally important	6.8
Commercial recreation	4.10	Pleasing aesthetics	5.1
Timber production	3.64	Intrinsic value of wilderness	1.7
Livestock grazing	3.46	Cultural/historical landscapes	0.0
Mining	2.81	Mining	0.0

of respondents do not use the forest for commercial purposes, results in this case generally suggest a positive correlation between uses and values. A caveat to this interpretation is that the forest “as a resource for future generations”, “biodiversity and wildlife”, and “aesthetics” all contribute to the forest’s economic value; however, contextual comments recorded during the survey revealed that a strong majority of respondents espoused non-commercial values, thereby supporting our interpretation.

When asked to identify their single *most* important forest value (Table 3), the rank order of participant responses shifted considerably. “Biodiversity and wildlife” received by far the highest number of responses as the most important value (22%), followed by “personal recreation” (13.6%) and the forest as an “economic resource” (13.6%). Because several participants did not identify a particular “economic resource” value, this category combines timber, grazing, agriculture, and commercial recreation. Nonetheless, values related to ecosystem health and non-economic amenities surpassed five other value categories. Neither “mining” nor “cultural/historic landscape” received any responses as the most important forest value, though these responses likely reflect the decline in the mining industry and absence of indigenous participants, respectively.

In terms of changes in values over the past five years, 88.5% of respondents stated that their forest values had remained the same. Of the remaining respondents, 8% responded that their values had changed while 3.8% stated that they were uncertain. Of those with changed values, two-thirds remarked that they had previously regarded the forest as a resource for timber production as their primary value. In each case, their most important value shifted to personal recreation. This shift was due to in part to the decline of the local timber industry. Similar to the changes in forest uses, other reasons given by respondents for changes in forest values tended to reflect demographic lifecycle processes rather than some factor related to their participation in the Study Groups.

Involvement in SJNF management

Changes in general levels of involvement with SJNF management issues over the past five years were mixed. Roughly equal numbers of respondents stated that their level of involvement had increased (30.5%) or decreased (28.8%) over the past five years. Another 37.3% claimed their level of involvement had remained about the same, while a small minority of respondents (3.4%) were uncertain.

Respondents were asked to estimate their average number of interactions per year with SJNF officials during the few years immediately before and after the Study Groups (Table 4). Interactions were defined as the number of letters/written comments submitted to the SJNF or attendances at public meetings related to SJNF issues. Responses were based on participant recollection of estimated average per year levels given the likelihood of inter-annual variability.

Higher levels of interaction after the Study Groups could be interpreted as a positive impact given the desirability of greater public involvement as argued by CBC proponents. Confounding factors would be period differences in the number of posted public meetings as well as the volume and intensity of identifiable forest management issues. In other words, if higher levels of interaction were indeed found, this could be due to period effects other than Study Group participation. To control for this situation, we examined the records of all proposed SJNF management actions dating back to the early 1990s that by law must be publicly posted and open to public inspection, comment, and attendance at specified public meetings. We found no systematic differences between the before and

Table 4. Levels of involvement in SJNF management (% responses, $n = 59$).

	Before the study groups	After the study groups
How many times per year did you interact with SJNF officials regarding forest management issues? ^a		
None	18.6	16.9
1–2	16.9	18.6
3–6	13.6	20.3
7 or more	50.9	44.2
How many meetings per year did you attend regarding SJNF management issues? ^b		
None	22.0	23.7
1–2	39.0	37.3
3–6	23.7	32.2
7 or more	15.3	6.8
Approximately how many letters or written comments per year did you send to SJNF officials regarding forest management issues? ^c		
None	23.7	25.4
1–2	37.3	35.6
3–6	25.4	18.6
7 or more	13.6	20.4

^aChi-squared = 1.18; d.f. = 3; $p = 0.76$.

^bChi-squared = 2.74; d.f. = 3; $p = 0.43$.

^cChi-squared = 1.47; d.f. = 3; $p = 0.69$.

after time periods and are therefore confident about the absence of confounding period effects.

Results revealed no statistically significant impact of Study Group participation on levels of interaction (Table 4). On the whole, the Study Groups had little if any effect on aggregate levels of involvement as defined here. Notably, numbers for the highest levels of interaction with SJNF officials dropped nearly seven percentage points, while numbers for the second-highest level of interaction increased by the same amount. This suggests that the aggregate volume of interaction may have actually decreased. While specific class percentages are different, a similar pattern is apparent for attendance at public meetings. Interestingly, this pattern is reversed for written interactions, where the highest level increased and was accompanied by a decrease in the second-highest level.

While the aggregate patterns reveal little change, a few individuals reported dramatic change in their personal behaviour. For these individuals, contextual information communicated verbally during the survey was crucial for understanding these dynamics. Life-cycle changes related to natality, morbidity, ageing, or occupational shifts were given to explain reductions in levels of involvement. Increases in involvement were marked by changes such as gaining employment in resource management or becoming retired and having more free time for hiking and other recreational activities in the forest that apparently helped to heighten interest in forest management affairs.

Networking with other participants

Another form of involvement examined was the extent to which individuals continued to engage with other local residents from the Study Group meetings. When asked whether “any relationships developed from the Study Groups . . . are important to you”, 42.4% replied “yes”, 54.2% replied “no”, and 3.4% were uncertain. Many of those who replied negatively qualified their answer by saying that they already knew many of the people at the meetings, therefore no *new* relationships emerged.

Those giving a positive response cited a wide range of examples of the ways they have continued to interact with other local Study Group participants. For some, the relations were primarily social. As one respondent commented, “There was one fellow we met who has a cabin near our [grazing] permit. Now, we meet for a steak fry every summer.” Others cited instances of how relationships forged in the collaborative meetings helped to create new bridges between diverse local interest groups, SJNF managers, and/or local government officials that facilitated progress on solving a variety of natural resource management problems. For example, one participant explained, “As a result of the Study Groups, I got to know a number of different people with different viewpoints. Folks from the Forest Service, environmentalists, county commissioners . . . Now, if you have a problem [with regards to forest management], you have a person to talk to, someone who will listen. Someone you know you can work with.” Still other respondents described how relationships begun in the Study Groups led to a new community-based effort in their neighbourhoods to reduce wildfire risk in the wildland/urban interface zone, or to become active in trail planning, or

increased the potential to resolve disputes related to livestock grazing and outfitting activities in the forest.

Knowledge and involvement

We also sought to identify the type and extent of knowledge gained through participation in the collaborative Study Group process and how this may have impacted on levels of involvement in SJNF management issues. We asked if there were any issues of forest management about which the participants learned a significant amount. If so, respondents were then asked to describe these issues. A large majority of respondents (72.9%) replied “yes” to the initial question. While respondents learned about multiple issues, we report results only for the single issue about which they felt they had learned the most. The specific type of knowledge learned was distributed quite evenly across a range of forest management areas (Table 5).

Two follow-up questions attempted to track the influence of this knowledge upon individual levels of involvement in SJNF management issues. When asked if this new knowledge led to an increase in the frequency of involvement, 45.8% responded “yes”, 50.8% responded “no” and 3.4% were uncertain. The quality of involvement was assessed by asking if this new knowledge gave Study Group participants more *confidence* to engage in forest management affairs. A majority of respondents (52.5%) noted that it did in fact wield such an effect. Another 40.7% of respondents said that it did not, and 6.8% were uncertain.

Views of SJNF management and future involvement

The final set of questions gauged local perspectives on the current management of the SJNF and the likelihood of participation in future Study Group meetings. Recall that this is particularly important due to fact that the Study Group meetings became stalled in 1998 for a period of several years, resuming in 2005. When asked in 2003 how satisfied they were with the way the SJNF is currently being managed, a majority (56%) indicated that they were either “somewhat satisfied” or “very satisfied” (Table 6). When asked if this level of satisfaction had changed

Table 5. What is the single issue of forest management about which you feel you learned the most? ($n = 59$).

Value	% response
General forest management	28.2
Wildlife and wilderness	17.9
Recreation and transportation	15.4
Logging, old growth issues, fire concerns	15.4
Livestock grazing	12.0
Other unspecified issues	10.3
Water quality and management	5.1
Other miscellaneous issues	2.6
Cultural resources	2.6

Table 6. Satisfaction with current management and likelihood of future participation ($n = 59$).

Satisfied with how the SJNF is currently being managed by the Forest Service?	% response	Likely to participate in Study Groups when they reconvene?	% response
Very satisfied	8.5	Very likely	55.7
Somewhat satisfied	47.5	Likely	23.0
Neutral	23.7	Uncertain	4.5
Somewhat unsatisfied	15.3	Unlikely	3.3
Very unsatisfied	5.1	Very unlikely	6.6

over the past five years, 55.9% of respondents replied that it had not changed. Of the 33.7% of respondents who stated that their level of satisfaction had changed and were willing to describe the nature of the change, roughly the same number indicated that their satisfaction had increased as those who indicated that their satisfaction had decreased. Finally, we asked participants how likely it was that they would participate when the Study Groups reconvened. A resounding majority (78.7%) stated that they were either “likely” or “very likely” to participate (Table 6).

Discussion

This case study underscores the complexity of what, at first glance, appears a rather straightforward proposition: to measure who participated and to what effect in a community-based collaborative planning effort on the San Juan National Forest. Results were decidedly mixed on both accounts, raising a number of additional questions regarding the evaluation of CBCs.

First, the results illustrate how the challenge of assessing community representation is linked to the difficulty of defining “community” itself (Brosius *et al.* 1998). When defined in terms of existing and active stakeholders in SJNF management and planning affairs, the Study Groups successfully accounted for most individuals. Local interests in timber, livestock, recreation (both economic and non-economic), and ecological preservation were indeed present. Moreover, the Study Groups effectively expanded local participation by drawing in a number of new resident participants in forest management and planning affairs for the first time.

However, when community representation is defined using regional demographic characteristics, the Study Group did not fare so well. When compared with regional figures, some groups were distinctly overrepresented (e.g. resource-extraction and agricultural interests based on occupation data) while others were significantly underrepresented (i.e. women, lower-income groups, and Latinos) or essentially absent (Native Americans and young adults). In the case of Native American populations, a clearly recognised local stakeholder group, SJNF planners sought input outside the Study Group process. This ensured some measure of contribution, but arguably altered the dynamics of collaborative interaction from what they might have been had representatives of the Ute Mountain Ute, Southern Ute, Navajo, or

other interested indigenous nations been present at meetings on a regular basis. Likewise, one may question how the collaborative learning dynamics might have changed with the participation of young adults.

This raises several questions. The first and foremost is what standard should be used to determine community representation? Most CBC practitioners tend to focus on stakeholders, but just who qualifies as such can be a contested issue. The case for a broader categorical definition of community is that it may lend greater legitimacy to the outcome of CBC planning efforts, though it undoubtedly complicates the process. While our study results do not settle this question, they do shed empirical light on the distinction between these two measures in the SJNF case.

A second question concerns the tools used in measuring participation in CBCs. The quantitative assessments used here are limited in that they fail to account for internal power relations within the group. As Goodwin demonstrates (1998), even a single participant – based upon their local social, economic, or political status or persuasive skills – may exert disproportionate influence over larger numbers of individuals holding different interests. Do certain voices, based on historical, cultural, or economic ties to the lands in question, carry more weight than others? And what are the effects of over-representation? In the SJNF case, despite the over-representation of those with resource-extraction interests, the overwhelming majority of participants still valued the SJNF for non-economic, ecological, or recreational reasons. Additional qualitative research is required to assess these questions.

Despite these difficulties in assessment, the issue of community representation remains vitally important, not just because CBC proponents stress how local input is improved via CBC processes, but because (1) the composition of participants shapes the effects of participation described in the second part of this study, and (2) as representatives of their communities, participants act as conduits through which these effects are disseminated through the community writ large. In short, as the results in the second part of the study demonstrate, local participation and the social effects of CBCs are inherently linked.

The second set of case study results speak to the effects of participation in terms of cultivating social capital. In the literature on collaboration, the terms “community capacity” (Burns 2001), “well-being” (Kusel 2001), and “cohesion” (Wilson 2006) are often deployed to describe the cultivation of individual and cross-institutional relationships of trust, reciprocity, and knowledge among CBC participants. As noted earlier, these relational elements differ from more conventional measures of social capital based on membership in civic groups or organisations (Putnam 2000), but are nonetheless important in shaping community–forest relations and the ability of communities to deal with land use conflicts. These relations can develop “horizontally” among local residents with diverse environmental values and interests, and “vertically” between local residents and representatives of organisations and government institutions at the local, state, and national scales. SJNF Study Groups exhibited the development of relations along both trajectories. Intra-community networks were evidenced by the 42% of respondents who indicated that personally important relationships with other local residents developed as a result of their participation in the Study Groups. The way these relationships are described reflects the forging of new networks

of communication and information sharing that facilitated spin-off efforts to address a variety of resource management problems via collaborative means. It also suggests that, among at least some participants, increased capacity for problem solving and the recognition of shared community-level interests occurred.

In terms of vertical cross-scale linkages, a vast majority of resident participants cited an increase in their knowledge and understanding of SJNF management issues, strategies, and jargon. For many participants (45.8%), this knowledge translated into an increase in involvement in SJNF management issues over the past five years. And, for a majority (52.5%), it strengthened their confidence to become involved in management and planning processes. These developments are vital for achieving what Daniels and Walker (2001) refer to as “collaborative learning”, whereby federal managers and local residents share their respective expert and local knowledge and experiences to produce new ideas and understandings of forest management problems and their potential solutions. They argue that the process both requires and contributes to “communication competencies” among participants. We suggest that these competencies are emblematic of new knowledge, networks, and increased confidence to engage in public discourse and debates demonstrated by Study Group survey respondents.

Another aspect of social capital is reflected in the fact that new relations, knowledge, and forms of engagement emerged among Study Group participants while primary forest uses and values did not. For Burns (2001) this is emblematic of “civic capacity”, the ability of community residents to tolerate and accommodate diverse viewpoints. In the 1998 survey, a majority identified “gaining a greater understanding about environmental values and perspectives different from my own” as the primary outcome of their experience in the Study Groups. Critics such as Coggins (1998) suggest that the inability of CBCs to effectively change ideological positions is a major failing of the enterprise. However, the very fact that participation in collaborative planning processes can lead to collaborative learning without threatening deeply held ideological viewpoints may help explain the overwhelming response of participants intending to take part in future Study Group meetings (see also Paulson 1998).

In sum, when measured in terms of forest uses, forest values, or frequency of involvement in forest management affairs, the experience of participation appeared to have little if any impact on local community–forest relations. However, in terms of forging new relationships, gaining knowledge of forest management, and developing new ways of engaging in national forest issues, the results support the notion that participation in the CBC did wield a positive effect for many local residents. By offering a unique longitudinal perspective on some of the intermediate effects and dynamics underlying an ongoing collaborative planning process, this study has addressed several of the challenges of evaluating CBCs noted. While the specific conditions in which CBC approaches are employed in national forest planning differ by place-based contexts, concerns over the effects of participation upon local residents and the way they engage in forest issues are shared by national forest managers and users across the United States. The approach of this study and its results extends beyond the SJNF to other national forests where community-based planning is occurring. With respect to the SJNF, future longitudinal research is required to track the extent to which this collaborative learning

becomes incorporated into the final forest planning document, thereby affecting local community–forest relations through the implementation of specific management practices and prescriptions in the forest itself.

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