MONITORING SOCIAL OUTCOMES OF FOREST MANAGEMENT

IN THE SOUTHWESTERN CROWN-OF-THE-CONTINENT

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Executive Summary

To measure social sustainability impacts in the Southwestern Crown (SW Crown) landscape, we used a survey instrument to ask residents who lived in or near the study area a series of questions about their engagement, satisfaction, and trust in National Forest management. The survey was administered by mail and responses were collected over the internet or via a hardcopy questionnaire. We had a response rate of 42.4% and a final sample of 770 responses. We found widespread, local support for multiple-use management, but with the majority of respondents being very or somewhat dissatisfied with current management. Residents agreed overwhelmingly that mechanical thinning is an acceptable and effective tool for reducing wildfires and risk to communities and also showed ubiquitous support for post-fire salvage logging. Residents also supported prescribed burning as a way to manage wildfire but were divided when it came to letting wildfires burn even if there is no threat to lives or property. Results showed residents lacked trust with Forest Service managers and this was directly related to the level of management satisfaction.

National Forest managers seeking to bolster trust might take opportunities to talk about their efforts to balance multiple interests in their decisions. Making more transparent the myriad goals, and the decision-making process which considers tradeoffs may help bolster trust currently lacking among residents. Managers should capitalize on instances where public input has shaped decisions to share that process and outcome with constituents. Perhaps more importantly, when public comment has been deemed non-substantive or did not alter decisions, managers should work even harder to communicate how the input was reviewed and evaluated, and why it was ultimately not used to change management plans. Managers should also consider alternative mechanisms for public engagement, such as self-guided tours around proposed project areas, newspaper articles, and more one-on-one interactions. Managers should champion the thinning and salvage logging they are doing on the landscape. Managers should feel empowered to use more prescribed fire on the landscape, but take concerted efforts to communicate with the public and to minimize smoke impacts. We see a clear need not for vastly different management, but for improved relationships between area residents and national forest managers. These relationships will most likely improve through increased communication channels, public involvement in decisions, and transparency. Finally, the baseline data on public perceptions of forest management collected here will allow forest managers to measure their improvement on these issues over time.

Contents

Introduction

The USDA Forest Service (FS) has historically placed a strong emphasis on managing for ecological and economic outcomes. Complementing these efforts, the 2012 planning rule included a new emphasis on management strategies that promote social sustainability. Specifically, the FS is focused on promoting vibrant communities through management that supports communities' network of relationships to support culture, traditions, and activities that connect people to the land (36 CFR 219.19). The definition of social sustainability in the planning rule mirrors themes in the broader social sustainability literature of fostering social justice, community agency, equity, sense of place, security, human dignity, democratic processes, and respecting the culture and values of a community in tandem with initiatives that promote environmental sustainability (Weingaertner et al. 2014[1]).

In 2010, Congress approved the Collaborative Forest Landscape Restoration Program (CFLRP; 16 USC §7303) under which the FS would award special funding to a collection of landscapes nationally to conduct forest restoration. The chosen National Forests had to have an existing collaborative group of citizens to work with and required multi-party ecological, economic, and social monitoring to track the impacts of the program. The Southwestern Crown of the Continent Collaborative (SWCC) was one of the original ten landscapes to

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[1] Weingaertner, C., & Moberg, A. (2014). Exploring Social Sustainability: Learning from Perspectives on Urban Development and Companies and Products. *Sustainable Development*, (22), 122-133. doi.org/10.1002/sd.536

receive this ten-year stream of funding. To measure social sustainability impacts in the Southwestern Crown (SW Crown) landscape, we used a survey instrument to ask residents who lived in or adjacent to the study area, a series of questions about their engagement, satisfaction, and trust in National Forest management.

The objectives of the 2018 Seeley-Swan and Blackfoot Area National Forest Management Survey, developed by the Collaborative with input from the authors of this report, were to:

- Add to the FS social sustainability knowledge base;
- Meet the CFLRP requirement for social monitoring;
- Provide feedback for managers on their work and communities;
- Collect data to potentially inform management changes through adaptive management; and
- Identify ways for the FS to improve communication with local communities.

More specifically we examined:

- Perceptions about national forest management goals;
- Views about satisfaction with national forest management;
- Opinions about possible future national forest management activities; and
- Participation in and preferences for public input into national forest management.

The survey was designed to help policy-makers and planners quantify public opinions about federal national forests that are close to the homes of survey respondents. The mail and internet-administered survey provides a rigorous, representative sample by which to gauge current public opinion.

Methods

The survey was developed over several years by members of the SWCC Socioeconomics Working Group and with input from FS managers about what they were interested in learning from their constituents. We also drew from other recent forest management surveys and social science literature. The final survey contained 29 questions and was reviewed and approved by both the US Office of Management and Budget (OMB #0596-0245) and the University of Montana's Internal Review Board (IRB #79-18).

University of Montana's Bureau of Business and Economic Research (BBER) administered the survey on behalf of the Southwestern Crown Collaborative (SWCC) from May 13, 2018, through July 24, 2018. Of note, the previous fire season was record setting, especially in the survey area, due to unprecedented smoke impacts from the Rice Ridge and other fires; while interpreting these results, readers should keep in mind that the timing of the survey may have elevated fire concerns relative to other aspects of forest management. The survey was administered by mail and responses were collected over the internet or via a hardcopy questionnaire. Our initial random sample included 2,220 residents who lived in or adjacent to the SW Crown landscape. We had a response rate of 42.4% for a final sample size of 770 responses. This response rate is on the higher end for rigorously conducted, address-sampled, mail and internet-administered surveys.

The demographics of the respondents are shown in Table 1. Questions were asked on a five-point Likert scale. To account for non-response bias, responses were weighted to reflect population ratios taken from the U.S. Census Bureau's American Community Survey 2016 for age proportions of the study area (U.S. Census

Bureau 2017[2]), then calibrated to population control totals by U.S. Census Bureau block group population (ages 18 +), gender, age, 2017 household income and educational attainment. Responses had a confidence interval of +/-4.9%.

Table 1: Respondent Demographics

Characteristic		2016 ACS 5-yr Estimate	Unweighted Responses (5)	Weighted Responses (%)
Gender	Male	50.3%	64.3%	50.3%
	Female	49.4%	35.3%	49.4%
	Other	0.3%	0.4%	0.3%
Age	18-34	13.6%	4.0%	13.6%
	35-49	16.5%	10.3%	16.5%
	50-64	38.6%	32.6%	38.6%
	65 +	31.3%	53.1%	31.3%
2017 Household Income	< $50,000	61.3%	52.7%	61.3%
	$50,000 - $99,999	27.5%	33.8%	27.5%
	$100,000 +	11.2%	13.5%	11.2%
Education Attainment	HS diploma or less	44.9%	24.9%	44.9%
	Some college or AA degree	28.9%	36.0%	28.9%
	Bachelors +	26.2%	39.1%	26.2%
Community	Lincoln	27.7%	22.3%	27.7%
	Condon	23.9%	20.0%	23.9%
	Seeley Lake	27.4%	50.7%	27.4%
	Ovando	21.0%	7.0%	21.0%

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[2] U.S. Census Bureau. 2017. American Fact Finder: Table B01001, 2012-2016 American Community Survey 5-Year Estimates. Washington, D.C., USA.

Results

Goals and Objectives

Overall, people favored multiple-use management of the National Forests (Figure 1). Over 90% of residents felt that goals relating to wildfire risk and fish and wildlife habitat were important or very important. Over 80% thought personal use of wood, reducing invasive weeds, and commercial timber production were important or very important. Over 60% of residents thought access, both motorized and non-motorized, preserving old growth, and reducing non-native fish species were important or very important. The lowest ranked goal was "reintroducing fire as a natural forest process," but even this goal was important or very important to over half of residents.

Q3: Forest Management Goals
How important/unimportant are the following goals...

Figure 1. Importance scores for various forest management goals.

We conducted a principle component factor analysis with varimax rotation to see if these diverse goals could be "lumped" into categories. Results showed that all these goals fit into three general types of interests: (i) wildfire management, (ii) managing for 'naturalness,' and (iii) resource extraction and motorized use. Items included in the "Wildfire" group were: (a) reducing risk to communities from wildfire, (b) reducing occurrence

of large wildfires, and (c) reducing risk to private property from wildfires[3]. Items included in the "Naturalness" group were (a) maintaining quality habitat for native wildlife, (b) supporting healthy streams for native fish populations, (c) reintroducing fire as a natural forest process, (d) reducing non-native invasive weeds, (c) preserving old growth, (d) reducing non-native fish species, and (e) supporting non-motorized access opportunities[4]. Items included in the "Extraction" group were (a) allowing use of the forest to collect firewood, timber, or logs for personal use, (b) production of commercial timber products, and (c) supporting motorized access opportunities[5]. Importance scores for all three types of goals were high with high agreement on "Wildfire" and slightly more disagreement on the other two, "Naturalness" and "Extraction" (Figure 2).

We also conducted a k-means cluster analysis to see if people naturally fell into different "camps" based on which goals they thought were important or very important. We found that the vast majority of residents (92%) favored 'multiple-use.' People in this group deemed naturalness goals important, wildfire goals very important, and extractive goals as very important. A very small group (8%) of residents agreed with the majority with respect to the importance of 'wildfire' and 'naturalness,' but saw 'extraction' as less important. Overall, there was strong agreement among residents that National Forests should provide a wide range of benefits to local people and communities.
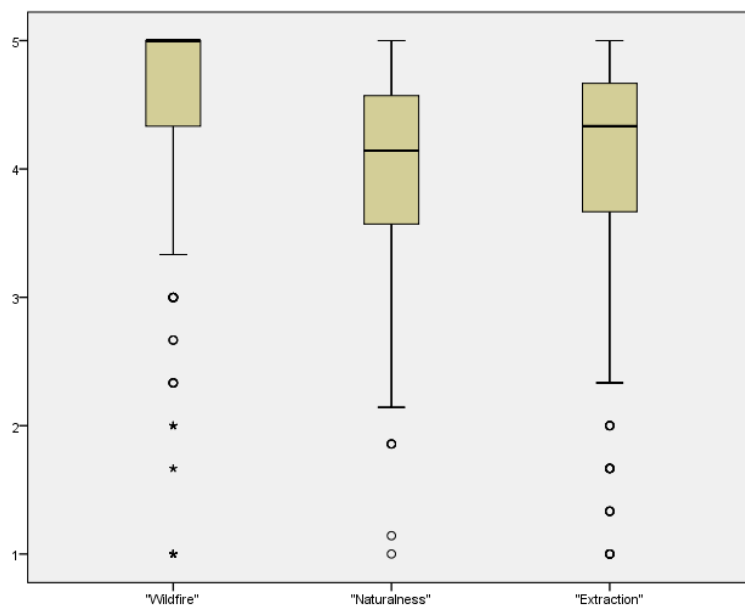

Figure 2. Using principle component factor analysis, we identified three "types" of forest management goals that people viewed similarly. These three groups were "wildfire," "naturalness," and "extraction." Here, box-plots show the importance scores (y-axis) for the three forest management goals (x-axis). For each component, the mean is indicated by the horizontal line dividing each box; half the scores were greater than or equal to this value, while half were less. The box represents the middle 50% of scores. Hollow circles indicate suspected outliers, while asterixis represent true outliners. The error bars, or whiskers, indicate the high and low bounds of the first and fourth quartile of responses.

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[3] The Cronbach scale reliability analysis showed the "Wildfire" items fit very well together (α = .839)

[4] The Cronbach scale reliability analysis showed the "Naturalness" items fit well together (α = .774)

[5] The Cronbach scale reliability analysis showed the "Extraction" items fit well together (α = .736)

Satisfaction and Approval of Managers

Overall satisfaction with National Forest management in the areas was bimodally distributed, with the majority being very or somewhat dissatisfied, and just under a third being somewhat satisfied (Figure 3).
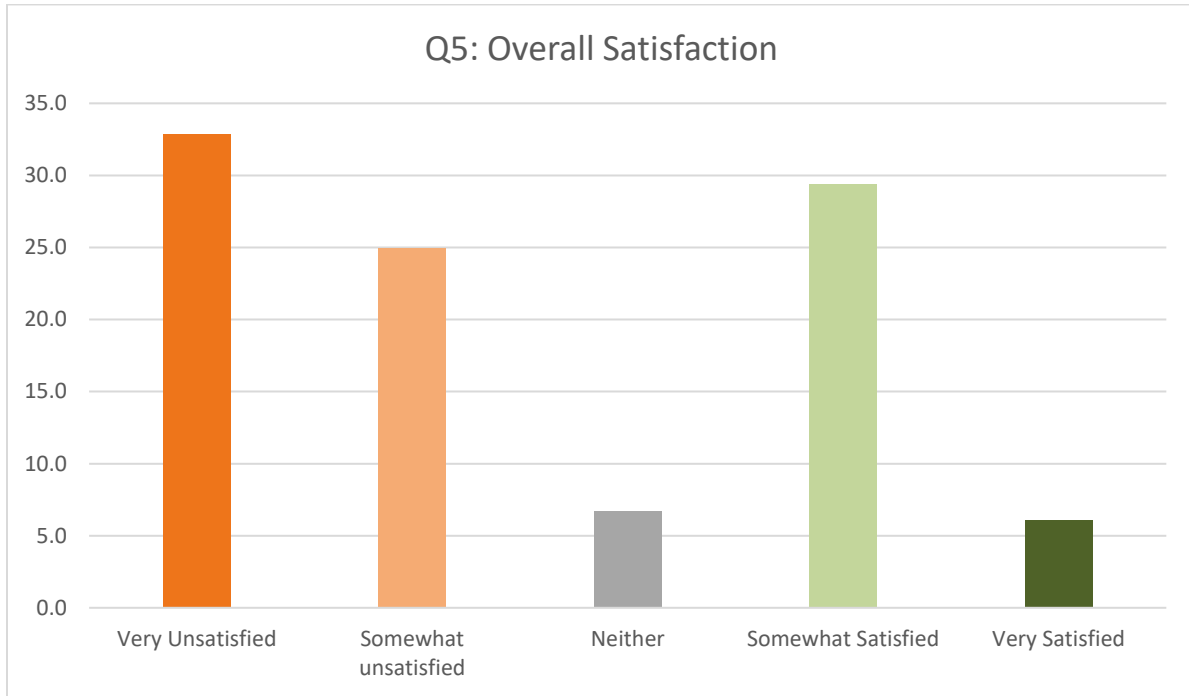

Figure 3. Overall satisfaction with National Forest management in the area.

When asked whether or not they felt forest managers were doing a good job meeting forest management goals, respondents were generally divided or responded negatively (Figure 4). The highest approval ratings came for managing for fish and aquatic habitat, and providing recreation experiences, with just over 50% of residents agreeing or strongly agreeing that managers have done a good job. Residents were split when asked to evaluate manager performance toward goals such as wildlife habitat, reducing non-native fish species, managing roads for recreational access, aesthetics, and invasive weed control. Residents tended to disagree that managers had done a good job supporting economic health of local communities, supporting the forest products industry, managing for ecological health, and addressing wildfire risks, costs, and natural processes.

Q6: Managers
Managers have done a good job...

Figure 4. "Job approval" of managers across a range of forest management goals.

Residents were generally in agreement about priorities for future management of National Forests around their community. Specifically, they favored continued multiple-use management where forests provide a variety of benefits, from timber production to opportunities for solitude. In one notable exception, 50% disagreed that forests should be kept wild (Figure 5) whereas over 30% agreed they should.
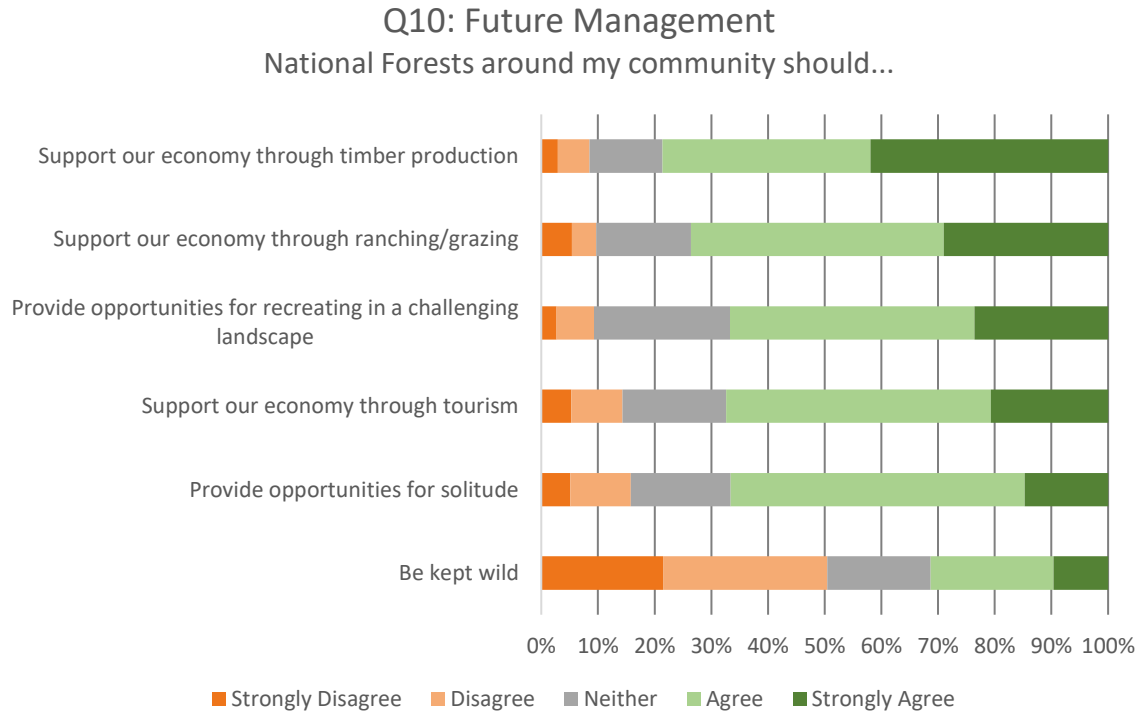
Q10: Future Management
National Forests around my community should...

Figure 5. Resident agreement toward general forest management objectives.

Wildfire

Residents felt very strongly about wildfire management and agreed overwhelmingly that mechanical thinning is an acceptable and effective tool for reducing wildfires and risk to communities (Figure 6). Over 80% of residents wanted to see more thinning near communities and over 70% wanted to see thinning conducted in areas farther from communities. Additionally, there was almost ubiquitous support for salvage logging, with 95% of residents favoring extraction after disturbances. However, clear cuts, as a silvicultural treatment, were very unpopular with only 30% approval.
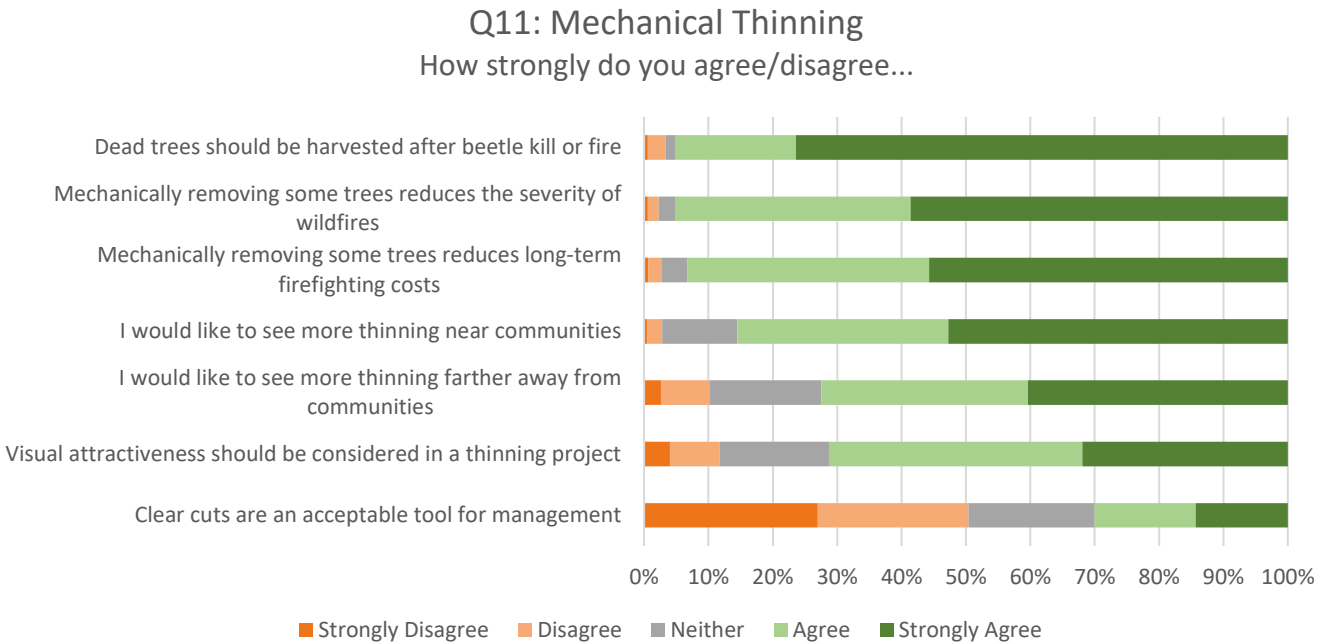

Figure 6. Resident agreement with statements about mechanical thinning.

Residents also accepted and supported prescribed burning as a way to manage wildfire (Figure 7). Most (67%) felt prescribed burns were an acceptable tool for management and 50% agreed that smoke from prescribed burns was justified. Residents were divided when it came to letting wildfires burn even if there is no threat to lives or property, with 42% disagreeing or strongly disagreeing, and 48% agreeing or strongly agreeing.
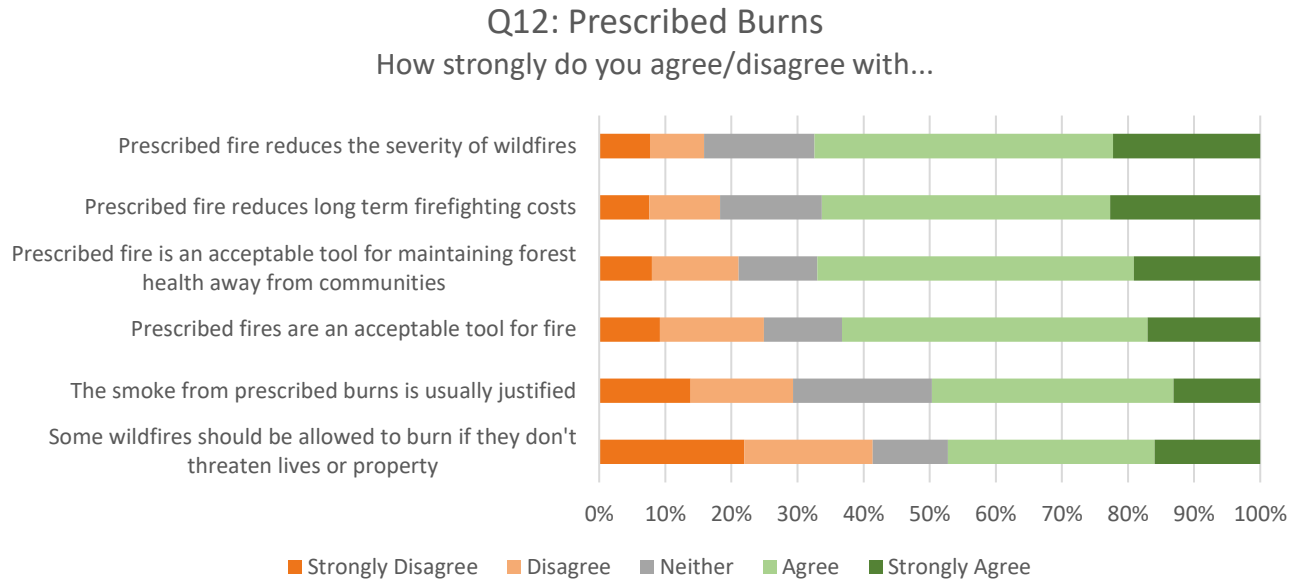
Q12: Prescribed Burns
How strongly do you agree/disagree with...

Figure 7. Resident agreement with statements about prescribed burning.

Public Engagement

When it came to opportunities to comment on and influence forest management decisions, many residents disapproved of current engagement efforts (Figure 8). While 39% of residents believed there was sufficient opportunity to comment on management, very few (16%) felt that comments were seriously considered, and most (51%) felt that decisions were already made prior to the public comment period.
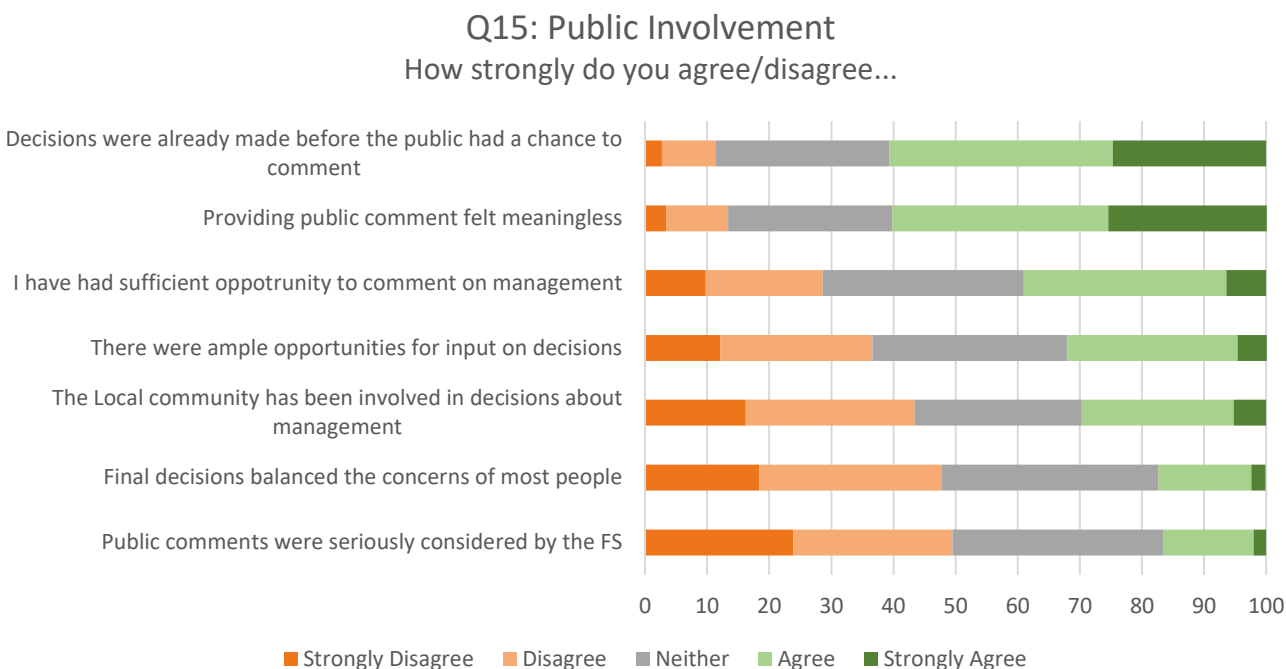
Q15: Public Involvement
How strongly do you agree/disagree...

Figure 8. Resident perspectives on public engagement opportunities.

In previous research, these public engagement questions have grouped into two broad categories of engagement: (i) opportunities for public input (i.e., "Process Control"), and (ii) public influence over management decisions (i.e., "Decision Control"). Process Control exists when procedures provide opportunities for residents to voice opinions, whereas decision control exists when residents can exert influence over outcomes[6]. A PCA factor analysis and scale reliability checks (i.e., Cronbach's alpha) confirmed a similar grouping among SWCC residents: the items grouped under "Process Control" included (a) I have had sufficient opportunity to comment on management, (b) there were ample opportunities for input on decisions, and (c) the local community has been involved in decisions about management[7]. The items grouped under "Decision Control" included (a) public comments were seriously considered by the Forest Service, (b) final decisions balanced the concerns of most people, (c) decisions were already made before the public had a chance to comment (reverse coded), and (d) providing public comment felt meaningless (reverse

[6] For detail, see: Lauer, F.I., Metcalf, A.L., Metcalf, E.C., & Mohr, J.J. (2017). Public engagement in social-ecological systems management: An application of social justice theory. Society and Natural Resources, 31(1), 4-20. https://doi.org/10.1080/08941920.2017.1364456.

[7] The Cronbach scale reliability test showed the "Process Control" items fit very well together (α = .880)

coded)[8]. These two "composite variables," Decision Control and Process Control, are used later to understand factors associated with resident satisfaction with forest management in the area (see "satisfaction" section below).

Results showed that residents may not be engaging in the decision-making process despite seeing opportunities to do so (Figure 9). Besides talking with neighbors, public meetings had the most common participation, yet only 10% of people reported attending public meetings frequently. Similarly, only 8% of people frequently submitted written comments, and 5% frequently engaged in citizen advisory groups. Managers should be aware that the residents regularly attending public meetings and submitting comments may only represent a small subset of the overall population. However, despite low levels of participation, results suggest that residents do in fact care about management issues enough to be talking to their neighbors. Minimal public involvement could be attributed to people feeling that their comments are insignificant or that decisions were already made before the public comment period, although more research is needed to fully disentangle these dynamics (again, see satisfaction discussion below).

Q13: Public Involvement
Have you been involved in NF decision making process by...
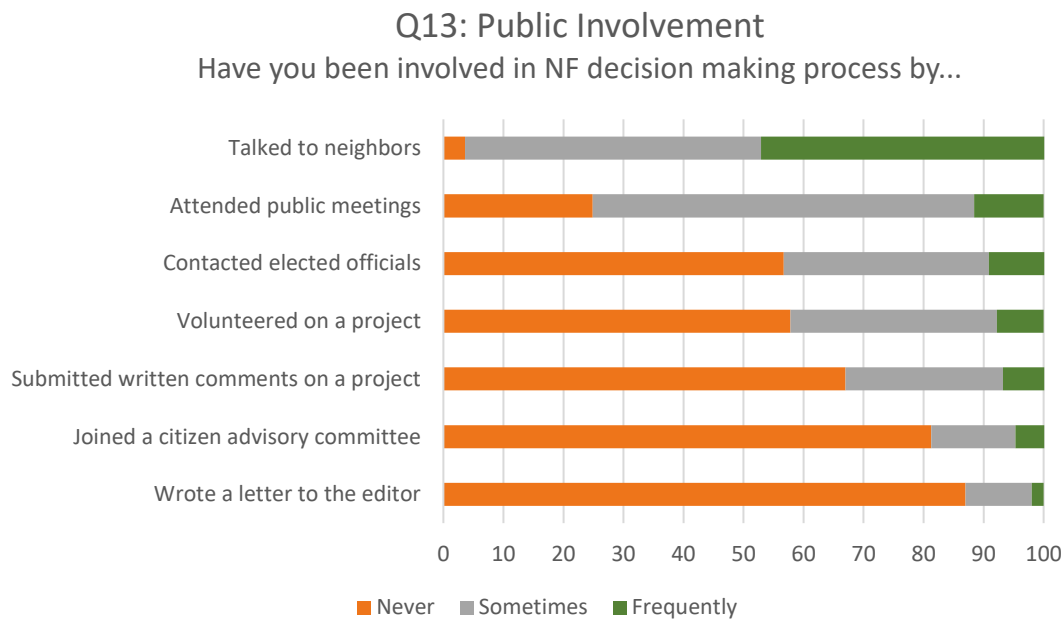
Figure 9. Resident activity across public engagement opportunities.

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[8] The Cronbach scale reliability test showed the "Decision Control" items fit very well together (α = .821)

Respondents favored more traditional methods of communication such as local and regional newspapers over digital methods such as social media and emails. They also preferred in-person discussions such as public meetings and field trips (Figure 10).

Q17: Types of Communication
How useful are the following types of communication...

Figure 10. Preferred sources of information.

Trust

Results showed residents lacked trust with Forest Service managers (Figure 11). For instance, residents perceived that managers do not share similar goals for the forests and that managers are not sensitive to the local impacts of 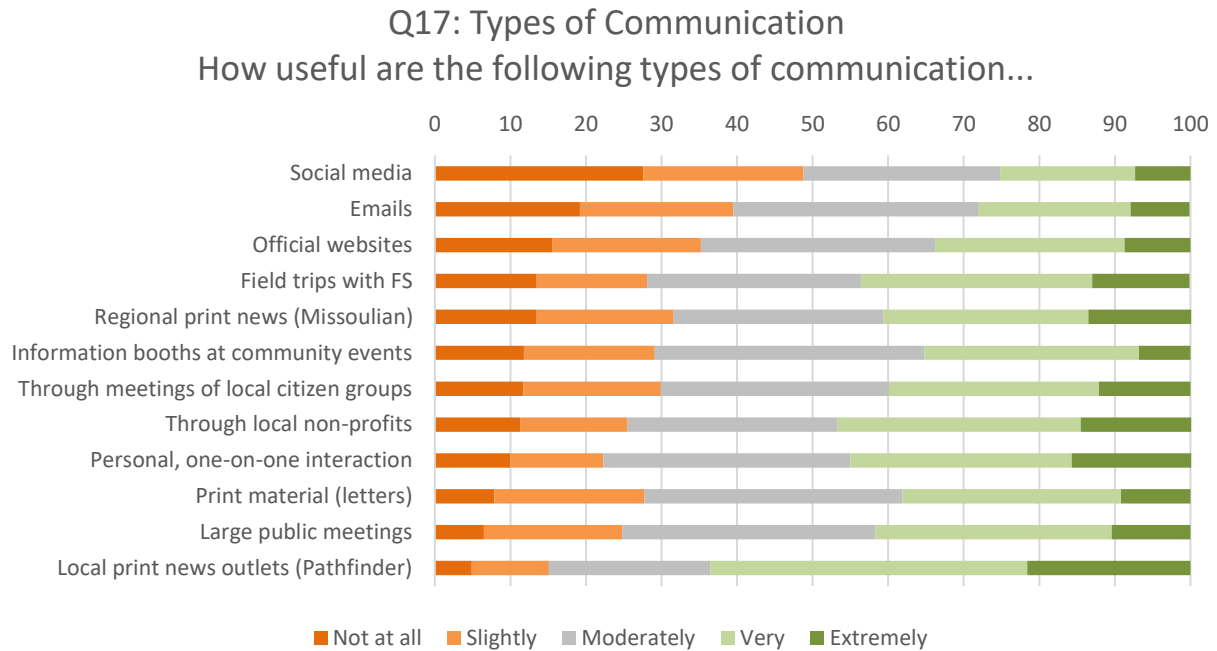their decisions, despite results indicating many overlapping goals (Question 3). This presents an opportunity for managers to foster trust by highlighting current projects that align with community goals for management. Additionally, people do think that managers are knowledgeable about management techniques, often referred to as the "ability" aspect of trust. A k-means cluster analysis showed residents clearly separated into three groups based on levels of trust: low, medium, and high. Groups were generally even, with 33% in the low trust group, 31% in the medium trust group, and 36% in the high trust group. Within each group, forest managers "ability" was ranked highest, followed by their sensitivity to local impacts of their decisions, and then sharing similar goals as residents. Lowest ranked in all groups was a generic statement "I trust Forest Service managers to make proper decisions about management" (Figure 12).
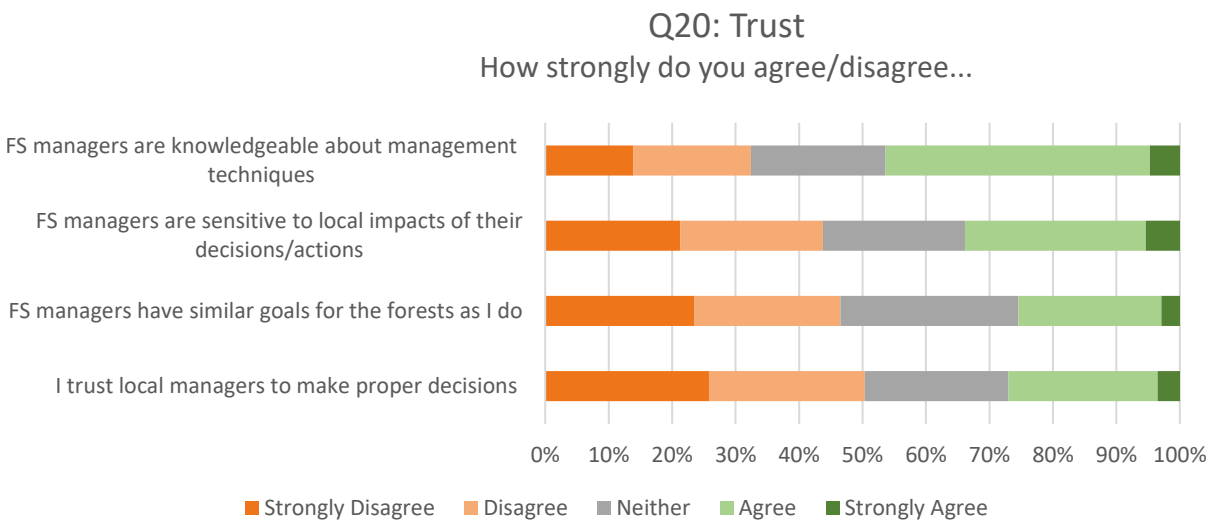

Figure 11. Resident agreement with "trust" statements about Forest Service managers.
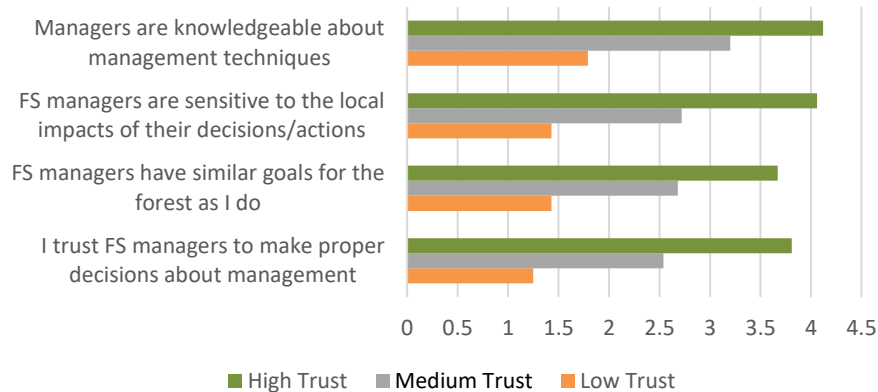
Cluster Analysis of Trust

Figure 12. Agreement with trust statements within low, medium, and high trust groups.

Satisfaction

We were curious how several dimensions of public attitudes and beliefs might be associated with overall satisfaction with National Forest management in the SWCC (Q5, above). To investigate, we conducted a multivariate linear regression to establish correlations between several of the factors measured in the survey and satisfaction. Some variables had a stronger relationship with satisfaction than others (indicated by larger coefficient values along arrows in Figure 13), while other variables were not significantly related to satisfaction (grey ovals in Figure 13). Overall, trust was most strongly associated with satisfaction, with a beta value of 0.479. The analysis revealed that Decision Control was also strongly related to satisfaction, however, Process Control was not significantly related.

In this regression analysis we separated management actions into two areas: anthropocentric management and biocentric management. Anthropocentric management actions included:

- managing roads for recreational access,
- managing for forest health,
- reducing risks of large wildfires near communities,
- reducing wildfire management costs,
- supporting the forest products industry,
- supporting the economic health of local communities,
- providing quality recreation experiences,
- managing for visual attractiveness, and
- controlling invasive weeds.

Biocentric management actions included:
- managing roads for wildlife habitat,
- managing for quality wildlife habitat,
- managing for quality fish/aquatic habitats,
- reducing non-native fish species, and
- reintroducing fire as a natural process.

Residents who believed anthropocentric management goals were being met were significantly more satisfied than those who thought these goals needed further attention. We found a similar, but less strong relationship between biocentric goals and satisfaction, suggesting satisfaction overall is more strongly influenced by people's evaluation of the anthropocentric goals above, rather than the biocentric. Gender had only a small impact on satisfaction, with women being slightly less satisfied than men. When controlling for all variables in the model, we found that satisfaction was unrelated to the age of the resident and the number of years they have lived in the community. Additionally, satisfaction was not significantly different based on seasonal versus year-round residency.
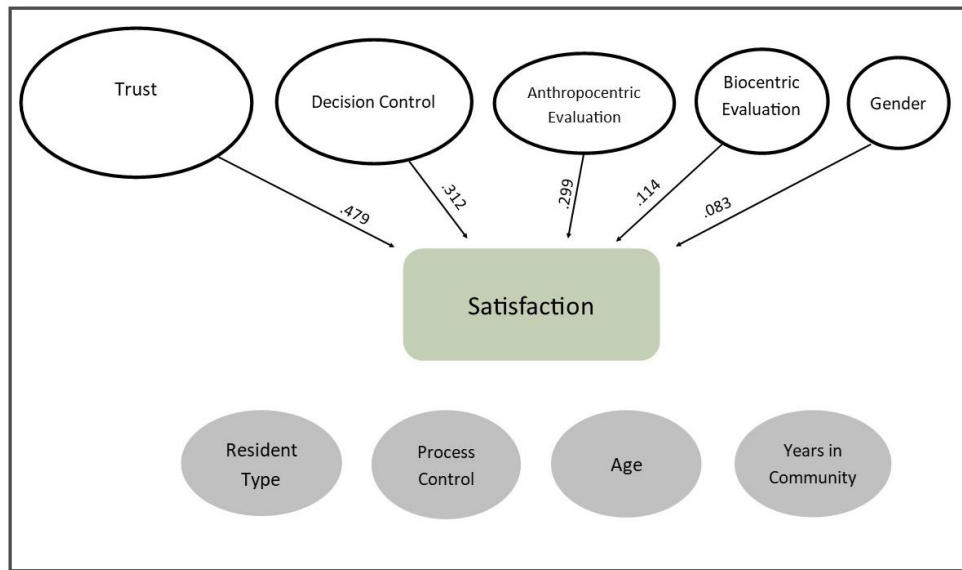

Figure 13. The relationship between variables and satisfaction is indicated with solid lines. Gray variables had no influence on satisfaction.

Management Implications

Residents in the Southwest Crown landscape feel strongly about forest management. Over half of residents agreed or strongly agreed that every goal we asked about was important. As a result, we failed to identify different "camps" of residents who supported some goals and opposed others, contrary to popular characterizations of "timber beasts" and "environmentalists." Instead, the vast majority of residents shared multiple-use goals for nearby national forests. Despite a number of statistical tests to identify different "clusters" or "groups," we were unable to identify any substantial schism among respondents, save for a very small (8%) group who felt extraction-related goals were less important (but not unimportant). We recognize that National Forests are managed at the federal level and all US citizens have a say in management decisions, not just local residents, although local residents are more likely to be directly and more immediately impacted by those decisions. Forest managers are also limited by laws and regulations, funding, and administrative goals that are often developed at the federal level. Still, managers should be aware there is widespread, local support for multiple-use.

Although there was widespread agreement that most management goals were important, satisfaction with achieving those goals was more mixed. The majority of residents were very or somewhat dissatisfied, while

almost one-third were somewhat satisfied. Residents seemed to be more satisfied with fish, wildlife and recreation management outcomes rather than timber and fire, although satisfaction across goals was not high. Results from the regression analysis indicated that satisfaction was most strongly related to trust: residents indicating high levels of trust in FS managers also reported higher levels of satisfaction. Importantly, trust can be multifaceted, combining elements of competence, shared values, and benevolence (i.e., the idea that someone will look out for your interests even when you're not providing oversight). Our results suggest most residents view FS managers as highly competent, but do not feel they share similar values. This is a clear opportunity for forest managers to bolster trust and, in turn, satisfaction. Our results indicate that the vast majority of the public holds goals for the National Forests that mirror FS goals and mandates. National Forest managers seeking to bolster trust might capitalize on opportunities to talk about their efforts to balance multiple interests in their decisions. Making more transparent the myriad goals, and the decision-making process which considers tradeoffs may help bolster this element of trust currently lacking among residents.

Satisfaction was also significantly and substantially related to aspects of public engagement. As demonstrated in previous research (Lauer et al. 2018[9]), giving residents the opportunity to voice their opinions is important, but satisfaction with management is much more dependent on the public seeing how their comments have *actually influenced* management decisions (i.e., decision control). This, like trust, can be addressed through more concerted efforts to communicate clearly and frequently. Managers should demonstrate instances where public input has shaped decisions to share that process and outcome with constituents. Harder, but perhaps more importantly, when public comment has been deemed non-substantive or did not alter decisions despite deep consideration, managers should work *even harder* to communicate how the input was reviewed and evaluated, but ultimately not used to change management plans. Our results here support past research that indicates communicating and emphasizing the value of public input, rather than simply providing opportunity for it, is the key to bolstering satisfaction.

Although residents were dissatisfied with fire management and support for the forest industry, there are opportunities here, too. Residents showed overwhelming support for thinning, and almost all residents (95%) support salvage logging. These are remarkable numbers that provide avenues for bolstering satisfaction with management, but also suggest challenges when these tools are inadequate for achieving desired outcomes. For example, because the public is highly supportive of thinning and salvage logging, managers should champion the thinning and salvage logging they are doing on the landscape. On the flip side, there seems to be such overwhelming support for these management actions that the public may expect them to be done even when they might be biophysically ineffective or ecologically inappropriate. Managers should be keenly aware that the public expects to see these actions and plan to communicate when they are not being used.

In contrast to many anecdotes and assumptions we hear from managers and researchers alike, residents were generally supportive of prescribed fire, but smoke remained a concern. Managers should feel empowered to use more prescribed fire on the landscape, but take concerted efforts to communicate with the public and to minimize smoke impacts. For example, managers might include the public in the evaluation, measurement, and discussion of smoke impacts, rather than assuming the public will believe managers' assertion that smoke impacts were either not harmful or simply worth the trade-off.

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[9] Lauer, F.I., Metcalf, A.L., Metcalf, E.C., & Mohr, J.J. 2018. Public engagement in social-ecological systems management: An application of social justice theory. Society and Natural Resources 31(1):4-20. https://doi.org/10.1080/08941920.2017.1364456.

Overall, these results suggest the public is united in their support for multiple use of national forestland, although they are divided on how well those lands are managed. There do not seem to be clear "camps" of people who view national forestland differently. Instead, we see satisfaction varying based on perceived levels of trust, public engagement, and resource condition, with the former two being more strongly related to satisfaction than the latter. As a result, we see a clear need not for vastly different management, but for improved relationships between area residents and National Forest managers. These relationships will most likely improve through increased communication channels, public involvement in decisions, and transparency with respect to decision making. Mangers should evaluate their current efforts against the public's desire for information via local newspapers, print material, and one-on-one interaction (rather than digital modes of communication). In these ways, forest managers can better understand local values and objectives, incorporate public input into management decisions, and capitalize on the widespread shared goals in the area to bolster trust and satisfaction with management.

Appendix A: Detailed Responses

This appendix contains the "Total" responses for those questions that were not open-ended. For complete cross tabulations by gender, age, income, education, and community see the accompanying methods report completed by University of Montana's Bureau of Business and Economic Research. Questions for which there were 5 possible responses, (e.g. "very unimportant", unimportant, "neither", "important", and "very important") the positive responses were lumped together (i.e., "very important" with "important") and the negative responses were as well (i.e., "very unimportant" with "unimportant"). Responses within a question are sorted by level of support or agreement, with most support on top.

Q1: Are you the adult age 18 or older in your household who will have the next birthday? (This question was asked to ensure an unbiased sample of adults and is not summarized here)

Q2: Have you participated in any of the following activities on National Forests in the last five years?

Hiking/Walking	81.0%
Driving for pleasure	75.4%
Viewing wildlife	70.4%
Relaxing	67.9%
Fishing	62.1%
Hunting	54.4%
Developed camping	35.2%
Snowmobiling	34.7%
Cross-country skiing	24.7%
Bicycling	20.1%
Downhill Skiing	12.1%

Q3: How important or unimportant are the following forest management goals (%)?

	Unimportant (%)	Neither (%)	Important (%)
e. Reducing risk to communities from wildfires	2.5	2.5	95.1
a. Maintaining quality habitat for native wildlife	1.7	6.9	91.4
d. Reducing occurrence of large wildfires	3.8	4.9	91.3
j. Allowing use of the forest to collect wood for personal use	3.7	5.1	91.2
b. Supporting healthy streams for native fish	4.2	5.9	89.9
f. Reducing risk to private property from wildfires	4.6	6.1	89.3
g. Reducing non-native, invasive weeds	4.6	7.4	88.0
k. Production of commercial timber products	6.7	7.4	85.9
l. Supporting non-motorized access opportunities	11.7	12.7	75.6
m. Supporting motorized access opportunities	13.8	16.6	69.6
h. Preserving old growth trees	14.9	18.9	66.2
i. Reducing non-native fish species	18.1	23.2	58.8
c. Reintroducing fire as a natural forest process	34.8	15.5	49.7

Q4: How important or unimportant are the following goals for managing National Forest roads?

	Unimportant (%)	Neither (%)	Important (%)
d. Maintaining road access for fire-fighting	4.4	5.4	90.3
b. Maintaining all roads that provide public access	8.8	10.7	80.5
e. Maintaining road access for timber harvesting	9.2	11.2	79.7
c. Decreasing erosion from roads into streams	8.3	15.5	76.2
a. Reducing the impact of roads on wildlife	28.6	25.9	45.5

Q5: Overall, how satisfied or unsatisfied are you with the management of National Forests in your area?

Unsatisfied	Neither	Satisfied
59.0	8.1	32.9

Q6: In the past five years, National Forest managers in my area have done a good job…(%)

	Disagree (%)	Neither (%)	Agree (%)
d. Managing for quality fish/aquatic habitats	17.7	25.8	56.5
l. Providing quality recreation experiences	26.5	20.1	53.4
c. Managing for quality wildlife habitat	18.5	32.2	49.2
a. Managing roads for recreational access	33.7	18.1	48.2
e. Reducing non-native fish species	18.4	45.4	36.1
m. Managing for visual attractiveness	34.0	30.1	35.8
b. Closing or removing roads to improve wildlife habitat	27.5	38.3	34.1
n. Controlling invasive weeds	37.5	28.7	33.9
k. Supporting the economic health of local communities	44.2	23.2	32.6
j. Supporting the forest products industry	48.6	22.0	29.4
f. Managing for ecological forest health	48.8	23.4	27.9
h. Reducing risks of large wildfires near communities	55.1	13.8	21.0
g. Reintroducing fire as a natural forest process	49.5	30.4	20.1
i. Reducing wildfire management costs	61.6	21.4	17.0

Q7-9: In general, what do you think of the current….in your National Forests?

	Too little (%)	Just right (%)	Too much (%)
7. Current number of roads	40.8	45.5	13.6
8. Current amount of money spent on suppressing fires	38.8	16.3	49.7
9. Current level of tree densities	5.9	21.1	73.1

Q10: I believe the National Forest lands around my community should…

	Disagree (%)	Neither (%)	Agree (%)
c. Support our economy through timber production	8.5	12.9	78.6
d. Support our economy through ranching/grazing	9.7	16.7	73.6
e. Support our economy through tourism	14.3	18.3	67.4
f. Provide opportunities for recreating in a challenging landscape	9.3	24.0	66.8
b. Provide opportunities for solitude	15.8	17.6	66.6
a. Be kept wild	50.4	18.2	31.3

Q11: How strongly do you agree or disagree with these statements?

	Disagree (%)	Neither (%)	Agree (%)
a. Mechanically removing some trees (thinning) reduces the severity of wildfires	2.3	2.5	95.2
g. Following fire or beetle kill, dead trees should be harvested	3.3	1.6	95.0
b. Mechanically removing some trees (thinning) reduces long-term firefighting costs	2.8	3.9	93.4
c. I would like to see more forest thinning near communities	2.8	11.7	85.4
d. I would like to see more forest thinning in areas farther away from communities	10.2	17.3	72.3
e. Visual attractiveness should be considered when designing a thinning project	11.7	17.0	71.3
f. Clearcuts are an acceptable tool for forest management	50.4	19.6	30.0

Q12: How strongly do you agree or disagree with these statements?

	Disagree (%)	Neither (%)	Agree (%)
g. Spraying herbicides on weeds along roads is acceptable as part of a weed management strategy	10.5	9.4	80.1
d. Prescribed fires reduce the severity of wildfires	15.9	16.7	67.5
b. Prescribed fires are an acceptable tool for maintaining forest health in areas farther away from communities	21.1	11.9	67.0
c. Prescribed fires reduce long-term firefighting costs	18.3	15.4	66.3
a. Prescribed fires are an acceptable tool for fire prevention near communities	24.9	11.8	63.2
i. The Forest Service provides an adequate amount of recreation infrastructure (trails, campgrounds, etc.)	27.1	16.6	56.3
f. The smoke from prescribed burns is usually justified	29.3	21	49.6
h. Aerial spraying of herbicides on weeds is acceptable as part of a weed management strategy	32.4	18.3	49.4
e. Some wildfires should be allowed to burn if they don't threaten people's lives or property	41.4	11.4	47.3

Q13: Have you been involved in National Forest decision making processes using any of the following means?

	Never (%)	Sometimes (%)	Frequently (%)
b. Talked to neighbors	3.6	49.3	47.2
a. Attended public meetings	24.9	63.5	11.6
c. Contacted elected officials	56.7	34.2	9.2
f. Volunteered on a project	57.8	34.4	7.8
e. Submitted written comments on a project	67.0	26.2	6.9
g. Joined a citizen advisory committee	81.3	14.0	4.8
d. Wrote a letter to the editor	87.0	11.0	2.0

Q14: Before receiving this questionnaire, how familiar were you with these programs and groups?

	Not familiar (%)	Somewhat familiar (%)	Very familiar (%)
b. The Southwestern Crown Collaborative	56.4	30.9	12.7
a. The USFS Collaborative Forest Landscape Restoration Program	47	41.2	11.7

Q15: How strongly do you agree or disagree with the following statements? Over the past five years…

	Disagree (%)	Neither (%)	Agree (%)
e. Decisions were already made before the public had a chance to comment	11.4	27.9	60.7
f. Providing public comment felt meaningless	13.4	26.4	60.3
a. I have had sufficient opportunity to comment on Forest Service management	28.6	32.4	39.0
b. There were ample opportunities for public input on Forest Service decisions	36.6	31.4	32.1
c. The local community has been involved in decisions about Forest Service management	43.4	26.9	29.7
g. Final decisions balanced the concerns of most people	47.8	34.9	17.2
d. Public comments were seriously considered by the Forest Service	49.5	34.0	16.5

Q16: How could the Forest Service better involve residents like you? (open-ended question, not summarized here)

Q17: How useful, if at all, do you find the following types of communication used by Forest Service managers?

	Not at all useful (%)	Slightly useful (%)	Moderately useful (%)	Very useful (%)	Extremely useful (%)
i. Local print news outlets (e.g., Pathfinder, Blackfoot Valley Dispatch)	4.9	10.2	21.4	41.9	21.6
a. Personal, one-on-one interaction	10.0	12.3	32.7	29.3	15.8
k. Through local non-profit organizations (e.g. Blackfoot Challenge, Clearwater Resource Council, Swan Valley Connections, Trout Unlimited, etc.)	11.3	14.2	27.8	32.2	14.6
j. Regional print news outlets (e.g., Missoulian, Independent Record)	13.5	18.1	27.8	27.1	13.6
d. Field trips with Forest Service	13.5	14.6	28.3	30.6	12.9
l. Through meetings of local citizen groups (e.g., Southwestern Crown Collaborative, Lolo or Lincoln Restoration Committee)	11.7	18.2	30.2	27.8	12.1
c. Large public meetings	6.5	18.3	33.5	31.3	10.4
h. Print material (e.g. letters, brochures)	7.9	19.8	34.2	28.9	9.2
g. Official websites	15.5	19.7	31	25.1	8.7
e. E-mails	19.2	20.3	32.4	20.2	7.8
f. Social media (e.g., Facebook, Twitter)	27.6	21.2	26	17.9	7.3
b. Information booths at community events (e.g. farmer's markets, festivals)	11.8	17.3	35.7	28.4	6.8

Q18: Are there any other ways you would like to receive communication from the Forest Service? (open-ended question, not summarized here)

Q19: How strongly do you agree or disagree with the following statements about the environment?

	Disagree (%)	Neither (%)	Agree (%)
d. Forests have value, whether people are present or not	4.7	5.4	89.9
c. Nature has as much right to exist as people	14.4	17.6	68.0
a. Wildlife, plants, and people have equal rights to live and develop	25.0	13.7	61.4
b. The primary value of forests is to generate income	35.1	26.5	38.4
e. Nature's primary value is to provide products useful to people	38.0	26.6	35.4
f. The primary value of forests is as a resource for human livelihoods	53.0	25.9	21.1

Q20: How strongly do you agree or disagree with the following statements about local Forest Service managers?

	Disagree (%)	Neither (%)	Agree (%)
g. I personally know and interact with local Forest Service employees	18.0	35.6	46.5
b. Forest Service managers in my area are knowledgeable about forest management techniques	32.4	21.2	46.3
e. My interactions with Forest Service managers in my area have been generally positive	25.1	30.5	44.4
c. Forest Service managers in my area are sensitive to the local impacts of their decisions/actions	43.8	22.4	33.9
d. Forest Service managers in my area do a good job communicating with the public	41.0	26.6	32.4
f. I trust local Forest Service managers to make the proper decisions about forest management	50.3	22.6	27.0
a. In general, Forest Service managers have similar goals for the forests as I do	46.5	28.0	25.4

Q21: How strongly do you agree or disagree with the following statements about interacting with people in general?

	Disagree (%)	Neither (%)	Agree (%)
b. People are generally interested in their own welfare	11.8	17.8	70.4
c. One has to be alert or someone is likely to take advantage of you	20.6	29	50.4
a. You can't be too careful dealing with people	18.4	32	49.7

Q22: How many years have you lived in the local community?

Mean: 27 years

Q23: Do you live in the Southwest Crown (Swan, Blackfoot, and Clearwater Valleys) year-round or seasonally?

Q24: In what year were you born? (Only provided in cross-tabulations)

Q25: What is your gender? (Only provided in cross-tabulations)

Q26: What is the highest level of school you have completed? (Only provided in cross-tabulations)

Q27: What was your 2017 household income before taxes? (Only provided in cross-tabulations)

Q28: How much of your income do you generate through the use of National Forest Lands (e.g., timber harvesting, non-timber forest products such as berries or firewood, outfitting, working for the Forest Service, photography, other recreation)?

	None (%)	Very Little (%)	Some (%)	About half (%)	Most (%)	Almost all (%)	All (%)
Total	64.7	10.7	12.2	3.5	2.9	4.8	1.2

Q29: Thank you for completing this survey. If there are any other issues or input you would like to share, please include them in the space below or contact us directly. (Open-ended question, not summarized here)