Landowner and Visitor Response to Forest Landscape Restoration:

The Chequamegon-Nicolet National Forest Lakewood Southeast Project

Final Report

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Spread Eagle Barrens in Florence County - Wisconsin State Natural Area and Dunbar Barrens in Marinette County - Wisconsin State Natural Area: Paul Gobster, USFS, Northern Research Station

Chequamegon-Nicolet National Forest - Lakewood-Laona Ranger District Photos: Anna Haines, University of Wisconsin – Stevens Point and Emily Usher, Purdue University

Focus Group Photos 1, 2, 3, page 37; USFS, Northern Research Station; and Photos 4, 5, page 37: Paul Gobster, USFS, Northern Research Station

MAP

Map of Survey Area: Michael Mills, University of Wisconsin - Stevens Point

Cover Photo: *Spread Eagle Barrens in Florence County-Wisconsin State Natural Area*

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Executive Summary

This report is intended to support the ongoing pine barrens restoration work in the Lakewood-Laona Ranger District on the Chequamegon-Nicolet National Forest (CNNF). The report provides the results from 2016 surveys and focus groups examining landowner and visitor attitudes toward forest management treatments, communication, and restoration project outcomes; their forest values; their levels of trust in the United States Department of Agriculture Forest Service (USFS) and local agency personnel; and potential impacts of restoration on the recreational, aesthetic, and social dynamics of nearby communities.

Photo 1: Chequamegon-Nicolet National Forest - Lakewood-Laona Ranger District

Key Findings

LANDOWNER SURVEY

- The majority of landowners (>74%) indicated that the seven management goals that restoration activities are aimed at achieving (e.g., preventing wildfire, managing wildlife habitat, managing timber) were important or very important to them.
- The majority of landowners (> 61%) agreed each of the four treatments (prescribed fire, mechanical treatment, logging, and active management) were acceptable or totally acceptable.
- Nearly all respondents valued the CNNF for aesthetics (98.5%), biodiversity (98.3%), and its life-sustaining properties (e.g., ability to provide clean water and air, 97.8%).
- The CNNF was also highly valued for subsistence (51.9%), spiritual (66.7%), and cultural (75%) reasons.
- About three-quarters of the respondents agreed/strongly agreed that the project would improve wildland game habitat (70.2%), remove unwanted/invasive species (72.8%), and promote the growth of desirable plant species (77%).
- There was a high degree of uncertainty with regard to project outcomes, with large proportions of landowners (>40%) responding that they had no strong opinion or didn't know what the project would accomplish, including whether the project would result in successful restoration of the landscape to pine barrens.
- About a third of respondents indicated agreement with "I am proud of the way the Chequamegon-Nicolet National Forest is managed" (38.7%) and more than 60% agreed/strongly agreed that they trusted USFS and local staff to make decisions with regard to prescribed fire, mechanical treatment, timber management, and oversight of logging operations.

LANDOWNER FOCUS GROUPS

- The main topics from the focus groups included Northwoods Identity, Visual Diversity, Forest Health, Forest Use and Effective Management.
- Participants looking at unfamiliar landscapes were uncomfortable and wary about what it would mean to hunting, recreation, and other activities they were involved in at their property. This sentiment contrasted with the familiar landscapes of dense woods.
- Participants highlighted viewshed potential and the possibility of finding a "sweet spot" in amount of canopy cover.
- Game and non-game habitat heavily influenced landscape preference for recreational use.

VISITORS

- Most visitors are from nearby areas (up to about 2 hours away), are repeat visitors, and have been visiting for over 10 years.
- Like landowners, the majority of visitors (70%-89.8%) indicated that all seven management goals were important or very important to them.
- The majority of visitors found each of the four management treatments used to accomplish goals on the CNNF to be acceptable or totally acceptable (60.9%-80%).

- The percent of visitors who agreed/ strongly agreed that the landscape would be restored to pine barrens was 52.2%.
- Large proportions of visitors agreed or strongly agreed that the project would achieve other positive outcomes, including whether it would positively impact forest scenery (83.6%), improve game and non-game habitat (86.6% and 83.6%, respectively), and reduce the risk of wildfire (85%).
- More than one-third of visitors were uncertain whether restoration activities would result in an escaped prescribed fire (37.9%) or lower traffic safety on roads (34.9%).

COMMUNICATION PREFERENCES

Several opportunities for communicating with landowners and visitors, identified by asking respondents their communication preferences on the survey questionnaire along with focus group results, include:

- Provide ways to educate landowners and visitors about management treatments through newsletters or other types of publications, signage, and interpretive walks. Some of the suggestions might involve short-term projects for interns or others to implement.
- Communicate with landowners directly, for example, the Lakewood-Laona Ranger District could provide a way for landowners and others to sign up for regular emails about specific projects or the forest in general.
- Frame communication about restoration and management activities in ways that are accessible (easy to read, little to no jargon), transparent, and ways that make use of the 5 topics identified through the focus group results: visual diversity, Northwoods identity, forest health, forest use, and effective management.

Photo 2: Chequamegon-Nicolet National Forest - Lakewood-Laona Ranger District

Introduction

Landscape-scale forest restoration is increasingly advocated as an alternative approach to forest management, particularly for landscapes where traditional silvicultural systems and objectives are at odds with that landscape's natural disturbance patterns and other environmental and social conditions (Stanturf et al. 2012). Such is the case with the pine barrens ecological communities of the Great Lakes Region. Pine barrens are fire-dependent savannas occurring on dry soils dominated by low grasses and shrubs and scattered with single trees and clumps of pine and oak (Curtis, 1959). Historically, American Indian tribes, like the Menominee in what is now Wisconsin, maintained these areas through their use of fire. Logging, fire suppression, tree planting, and development have radically changed the structure of this historical landscape and severely diminished its presence across the region, but recent initiatives are working to restore these landscapes for the diverse values they provide as well as to increase their resilience to predicted stresses related to climate change.

In 2013 ecologists from the Northern Research Station and Chequamegon-Nicolet National Forest (CNNF) began the Lakewood Southeast (LSE) Project, a landscape-scale effort to restore 37,000 acres of pine barrens and associated northern dry forests near Lakewood, Wisconsin (Sturtevant et al., 2014). A research-management collaboration was formed around three principal issues aimed at determining the effects and success of restoration treatments: ecosystem consequences (fire risk and soil properties), vegetation changes (species diversity, tree regeneration and invasives), and wildlife diversity (pollinators and openland birds). Some areas within the LSE are identified in project documents for intensive restoration practices involving cutting, slash removal, and reintroduction of fire to the landscape. The LSE area lies within a matrix of scattered low-density residential development, and the team of ecologists and managers requested a social assessment to complement their efforts. The need for such an assessment is underscored in a recent Community Wildfire Protection Plan that identifies the area as a High Risk Community for wildfire. Plan objectives identified the reduction of fuels near private property as high priority (Town of Riverview, 2013). Yet while landowners may recognize the risk and the resulting need for active forest management, little is known about how those who live or visit the area

Photo 3: Spread Eagle Barrens in Florence County - Wisconsin State Natural Area

might feel about changes in the landscape as parts of it are restored to the much more open conditions of the historical pine barrens.

The LSE project presented a unique opportunity for social scientists from the Northern Research Station (NRS) and University of Wisconsin – Stevens Point to document landowner responses to forest restoration in the larger context of wildfire and climate change issues. Social data were collected from landowners in the spring and from visitors in the summer of 2016, before restoration treatments in the study area began. This report is intended to support management efforts on the CNNF, and to provide baseline information about landowner and visitor forest-related values, attitudes, and opinions related to management, treatments, and communication. These baseline data allow for longer-term study of the relationships between forest restoration activities and stakeholder values, attitudes, and opinions.

Photo 4: Dunbar Barrens in Marinette County - Wisconsin State Natural Area:

Data Collection

Three methods were used in this research: 1) a landowner survey questionnaire to collect data from local and regional landowners with Oconto and Marinette Counties, 2) a visitor survey to collect information from visitors to adjacent recreation sites, and 3) three focus groups with area landowners to collect further information about visual preferences related to restoration. UWSP partners were responsible for all data collection.

Survey Methods

LANDOWNER SURVEY

A four-wave mail survey was conducted, whereby a questionnaire packet, reminder postcard, replacement questionnaire, and second reminder postcard were sent to potential respondents over an eight-week period in spring 2016. For those landowners that still did not respond to the questionnaire after this sequence of mailing, we sent a short postcard-questionnaire to test non-response bias. The postcard-questionnaire contained a small subset of questions that asked why they chose not to complete the full questionnaire, how important management goals on the CNNF were to them, activities they participated in on the Forest, their age, gender, and time spent on their property each year.

A random sample of 1,200 owners was taken from a total of 10,560 landowners who lived within a 10-mile radius of the LSE area (Figure 1) and whose property was bigger than ¼-acre. The ¼-acre limit was used to facilitate understanding landowners who could potentially take actions on their own lands that contribute to landscape scale conservation goals. A census was also taken of the thirty-four landowners whose property was adjacent to the areas identified for intense restoration effort. Thirty-one of the initial 1,200 surveys mailed were returned undeliverable, for a total initial sample size of 1,169. Because the sample included only landowners with ¼-acre or more, results may not be representative of renters or owners of small land holdings in the region.

VISITOR SURVEY

Visitors were surveyed at two recreational sites over 12 days during the summer and fall of 2016. Two sites selected in cooperation with CNNF staff were chosen for proximity to the LSE area and the likelihood of visitors being present. Two survey administrators were located at Chute Pond, a 167-acre park owned by Oconto County on the shore of Chute Pond and the Oconto River. This site includes amenities for mixed-use recreation (fishing, boating, hiking, ATV) and 74 campsites. One survey administrator was located at Bagley Rapids; a USFS owned campground located on the Oconto River including 30 campsites and basic amenities (picnic area, boat landing, and drinking water).

To include the full spectrum of visitors, the campgrounds were surveyed systematically across days (weekdays/weekends) and times (morning/afternoons). Survey administrators asked visitors at a central location in the campground/park to complete the survey questionnaire onsite. Administrators also gave visitors the option to fill out the survey questionnaire on their own time, and return it in an addressed and stamped envelope.

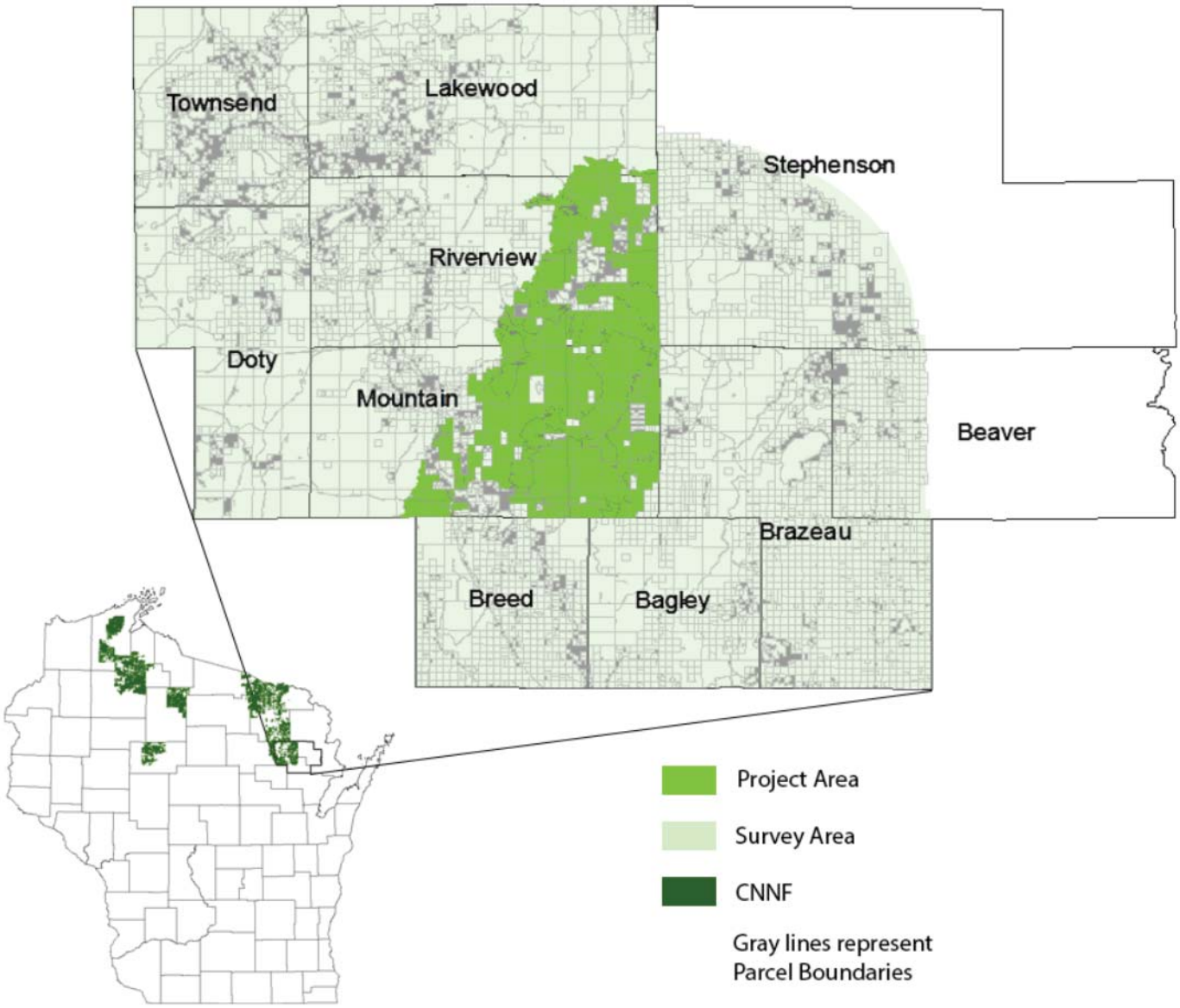


Figure 1: Map of Study Area

SURVEY QUESTIONNAIRE DESIGN

Landowner Questionnaire

Design of an eight-page landowner survey questionnaire was led by UWSP partners, in consultation with staff from the CNNF and NRS. Responses that will be discussed in this report pertain to: survey participants' demographic information and participation in recreation on the CNNF; landowners' values for the forest, replicated from previous research studies; importance of CNNF management goals to landowners; the acceptability and effectiveness of general management tools; views about outcomes from the LSE project; views about and levels of trust in Forest managers related to a variety of actions and issues; and attitudes toward communication and communication preferences with regard to the Forest.

Landowners' forest values were based on items developed by Clement and Cheng (2011) and Roulston and Coufal (1991). Fourteen values were measured using 5-point Likert-type items, where respondents indicated the extent to which they valued the forest for each on a scale from 1=strongly disagree to 5=strongly agree.

To measure the importance of CNNF management goals to respondents, a brief (one-paragraph) description of the LSE project, its goals, and methods to achieve them was provided. Respondents were asked to rate their perceived importance of seven management goals derived by the research team from the LKSE Final Environmental Impact Statement on scale of a 1=very unimportant to 5=very important. Following this, two questions asking respondents to indicate the acceptability (1=totally unacceptable to 5=totally acceptable) and effectiveness (1=very ineffective to 5=very effective) of four management tools (prescribed fires, mechanical treatment, logging, active management) used to achieve project goals.

Respondents were asked to indicate their agreement (1=strongly disagree to 5=strongly agree) with 16 potential positive and negative outcomes related to the LSE project and associated management activities. These items were also drawn from the Final Environmental Impact Statement.

Trust in the USFS was assessed with 11 items within three categories (Lijeblad et al. 2009): shared norms and values, willingness to endorse, and perceived efficacy. Two additional questions were asked that directly addressed shared values and shared desired outcomes of forest management. All were measured using the same 5-point agreement scale used throughout the survey.

Finally, several sets of questions about respondents' attitudes toward communication with the USFS were included. The first assessed the extent to which respondents agreed that the USFS provides clear and understandable information about management activities, project outcomes, and stakeholder involvement in decisions. Four items asked participants about their satisfaction with public participation processes (one item on the 5-point agreement scale) and the extent to which they were involved in decisions related to CNNF management (three items measured using a 3-point scale where 1=never, 2=occasionally, and 3=often). Two final sets of questions asked respondents to check, from a list of 8 items, all ways they have learned about CNNF activities in the past, and how they prefer to learn about them in the future.

The full landowner questionnaire can be found in Appendix A.

Photo 5: Chequamegon-Nicolet National Forest - Lakewood-Laona Ranger District

Visitor Questionnaire

A five-page visitor survey questionnaire used a condensed set of questions from the landowner questionnaire related to demographics, forest values, National Forest management goals, and management tool acceptability and effectiveness. There were also five questions related to visiting the Forest, including the distance traveled to the site, annual frequency of visitation, years the respondent had been visiting the site, seasons when they visited, and frequency of participation in 16 activities on Wisconsin public forests. The full visitor questionnaire can be found in Appendix B.

Photo 6: Chequamegon-Nicolet National Forest - Lakewood-Laona Ranger District

Survey Analysis

Where appropriate, means and standard deviations are provided for survey response. The number and percent of responses are provided for each item. While statistical comparisons between adjacent and regional residents would be useful, the low number of adjacent landowners does not allow for such comparison. Response percentages reported here reflect the total number of respondents who chose a response to a given item. For items where "don't know" was a potential response, these were also removed from the total number of responses for purposes of calculating frequencies, means, and standard deviations. More detailed tables of information about items can be found in Appendix C.

Focus Groups

Three focus groups were held with the intent to understand how forest restoration might affect the social, aesthetic, and recreational dynamics of adjacent communities. Focus groups can provide nuanced and detailed information about people's perceptions and allow participants to generate new ideas through discussions and interactions. The focus group discussions centered on participants' responses to a set of five photographs that portrayed scenes of forests representing a range of management treatments for pine barrens and northern dry forests. Scenes ranged from a dense, closed canopy forest to an open landscape with scattered trees. Focus group moderators asked participants to rate each scene on a five-point scale (low to high) for how well they felt the conditions represented would provide scenic beauty, livability, and recreational opportunities in the project area. For each response dimension (e.g., scenic beauty), each participant made the ratings independently from others in their group, then joined in a moderated group discussion about their ratings before moving on to

rating the next response dimension (see section 3.3 for further information).

Participants in the three focus groups were comprised of survey respondents who indicated their interest by returning a separate postcard that was included in the landowner survey packet. Because the postcards included their name and contact information, they were mailed separately from the survey questionnaire to maintain the confidentiality of their survey responses. Ninety-nine survey respondents returned these postcards, and all were invited to attend a focus group in their area. The focus groups were held in three locations in Wisconsin to accommodate permanent and seasonal owers: Oconto Falls in Oconto County, De Pere in Brown County, and West Bend in Washington County. Each focus group was recorded, transcribed and analyzed using constant comparison analysis (Glaser and Strauss, 1967; Onweugbuzie, 2009) in Excel. Constant comparison analysis includes three coding stages; open, axial and selective coding. Open coding involved assigning themes to related statements. Each open coding theme included multiple statements addressing the theme. In the axial coding stage, themes from the open coding stage were grouped into unique sub-topics, and selective coding further categorized the sub-topics into topics.

Photo 7: Chequamegon-Nicolet National Forest - Lakewood-Laona Ranger District

Results

Landowner Survey Results

RESPONDENT DEMOGRAPHICS

The overall response rate for the survey was 43% (n=499), and 61.7% of adjacent landowners responded (n=21). Respondents were mostly white (98%) and male (62%), and close to half of respondents were retired (48%). The majority of respondents were long-term property owners, with 70% owning their property for more than 11 years. Forty-two percent of owners spent fewer than three months at their property each year, 16% spent 3-6 months at their property, and 24% were full-time landowners. Table 1 has complete demographic results of respondents and those from the non-response bias check. While the number of responses to the non-response bias check postcard is too low to provide meaningful statistical comparisons, on average they were younger and more likely to be women than respondents. Further, respondents may over-represent those who are year-round residents. The majority of people who sent back the non-response bias postcard resided on their land fewer than six months a year (87%).

Table 1: Landowner Survey Respondent Characteristics

Age	**Respondent n**	**%**	**Non-response n**	**%**
26-35	13	2.6	-	0
36-45	27	5.4	1	4.3
46-55	97	19.4	11	47.8
56-65	168	33.7	7	30.4
66 and older	181	36.3	4	17.4
No answer	13	2.6		
Gender				
Male	302	60.5	13	56.5
Female	111	22.2	12	34.3
No answer	86	17.2		
Education				
Some high school	14	2.8		
High school/GED	136	27.3		
Some college	103	20.6		
Two year degree	66	13.2		
Four year degree	96	19.2		
Graduate degree	58	11.6		
No answer	26	5.2		
Retirement Status				
Retired	178	35.7		
Not retired	196	39.3		
No answer	125	25.1		
Years property owned				
Less than 1, 1-5	67	13.2		
6-10	80	16.0		
11-25	146	29.3		
More than 25	191	38.3		
No answer	15	0.03		
Months spent on property each year				
Fewer than 3	209	41.9	11	47.8
3-6 months	81	16.2	9	39.3
More than 6 months, less than 12	31	24.1	1	4.4
Year round resident	120	24.0	2	8.7
No answer	55	11.0		

PARTICIPATION IN ACTIVITIES ON THE CHEQUAMEGON-NICOLET NATIONAL FOREST

Respondents were asked to check all of the activities they participate in on the CNNF. Eighty-nine individuals did not choose any activity, but the percentages reported here include all 499 respondents. The most common activities were viewing scenery (54.3%, n=271), hunting (45.1%, n=225), hiking (42.3%, n=211), and wildlife/bird watching (41.9%, n=209) (Figure 2).

Activities in which fewer than 20% of respondents participated included picnicking (13.4%, n=67), camping (13%, n=65), cross-country skiing (12.4%, n=62), mountain biking (10.4%, n=52), and running (7%, n=35). There were no appreciable differences between respondents and non-respondents with regard to activities on the forest.

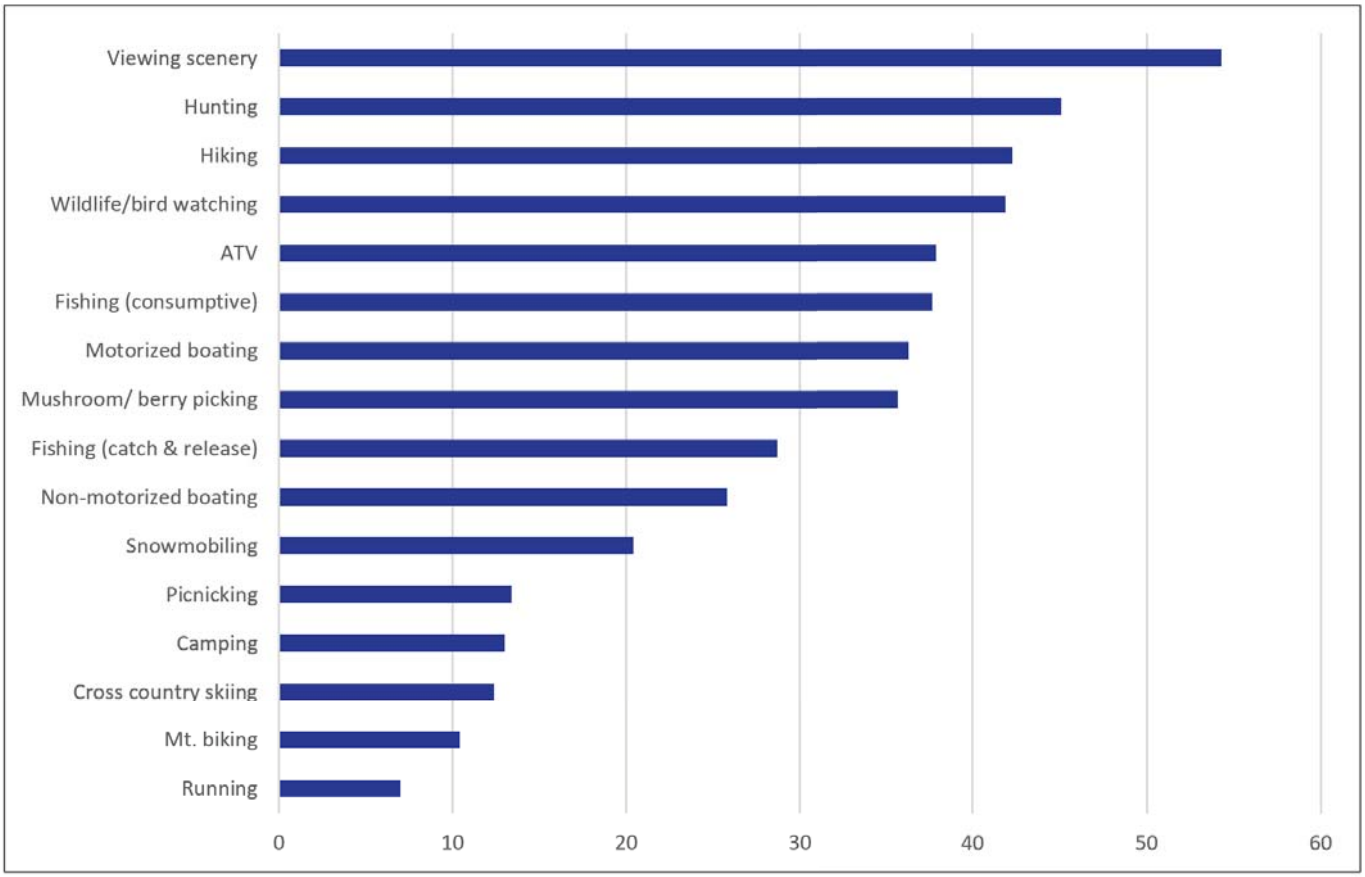


Figure 2: Landowner respondents participating in each activity on the CNNF (%)

PERCEPTIONS OF MANAGEMENT GOALS

Respondents were asked how important seven management goals of the LSE project were to them (Figure 3). The project restoration goals include: manage timber/logging, increase species diversity, reintroduce habitats, manage wildlife habitat, manage fisheries, prevent wildfire, and manage roads in the forest. The majority of respondents (>74%) indicated that all seven were important or very important to them. Managing wildlife habitat, managing fisheries, and preventing wildfire were important or very important to over 87% of respondents.

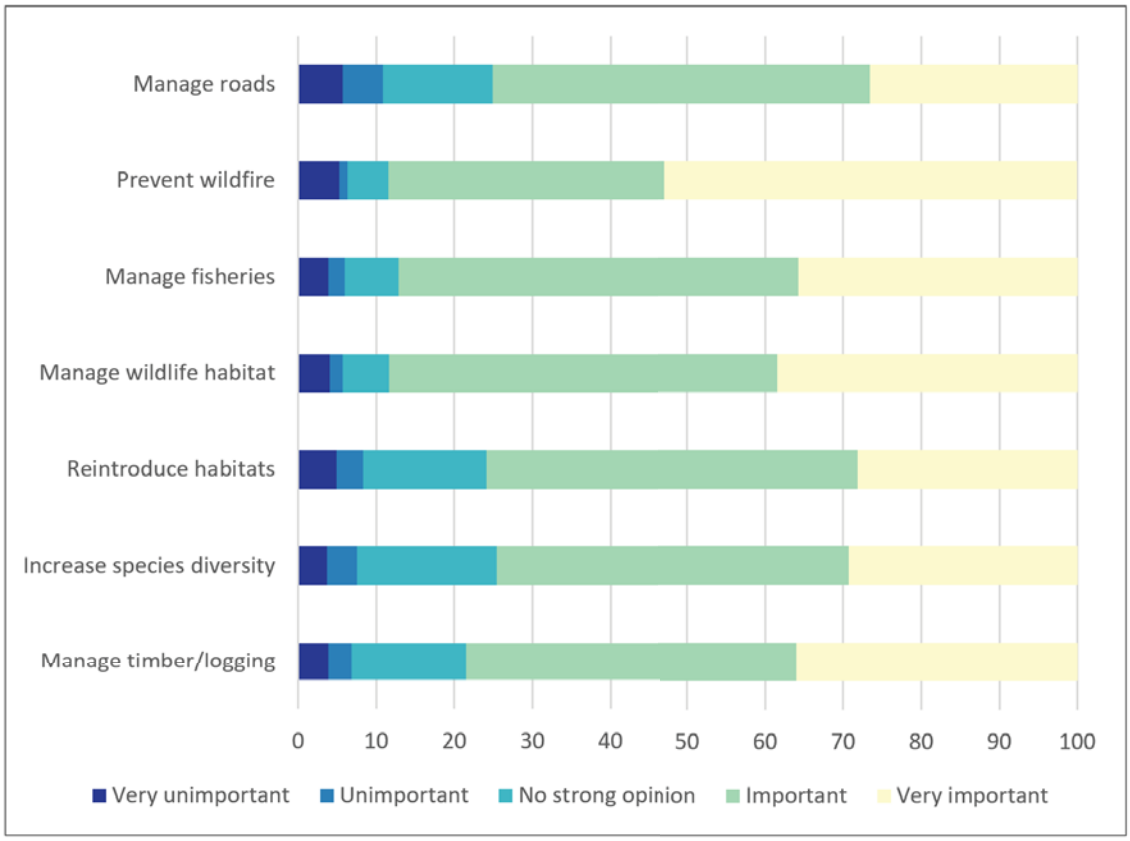


Figure 3: Importance of forest management goals to survey respondents (%)

PERCEPTIONS OF GENERAL FOREST MANAGEMENT TREATMENTS

Respondents were asked how acceptable and how effective four treatments used to achieve management objectives on the CNNF were to them (Figures 4 and 5). The treatments included prescribed fire, mechanical treatment, logging, and a more general term - active management. While the majority of respondents (> 61%) agreed each of the four treatments were acceptable or totally acceptable, a larger proportion of individuals had neutral opinions about prescribed fire (26.4%) and mechanical treatment (28.7%) than logging (16.6%) or active management (14.1%). Compared to how respondents rated acceptability, fewer rated the same treatment as effective or very effective for the goals of the LSE project, and a larger proportion had no strong opinion. Again, however, the majority (>50%) indicated each treatment was effective or very effective.

FOREST VALUES

Respondents indicated the extent to which they agreed or disagreed with 13 statements reflecting different types of forest values (Table 2). While a large majority of respondents indicated they agreed or strongly agreed with most of the value statements (Figure 6), less than half (46.5%) held a subsistence value for the CNNF, 61.4% held a spiritual value, and 61.5% held an intrinsic value for the CNNF. The CNNF was most highly valued (i.e., respondents agreed/ strongly agreed with value statements) for aesthetics (93.4%), biodiversity (92%), and its life-sustaining properties (91%).

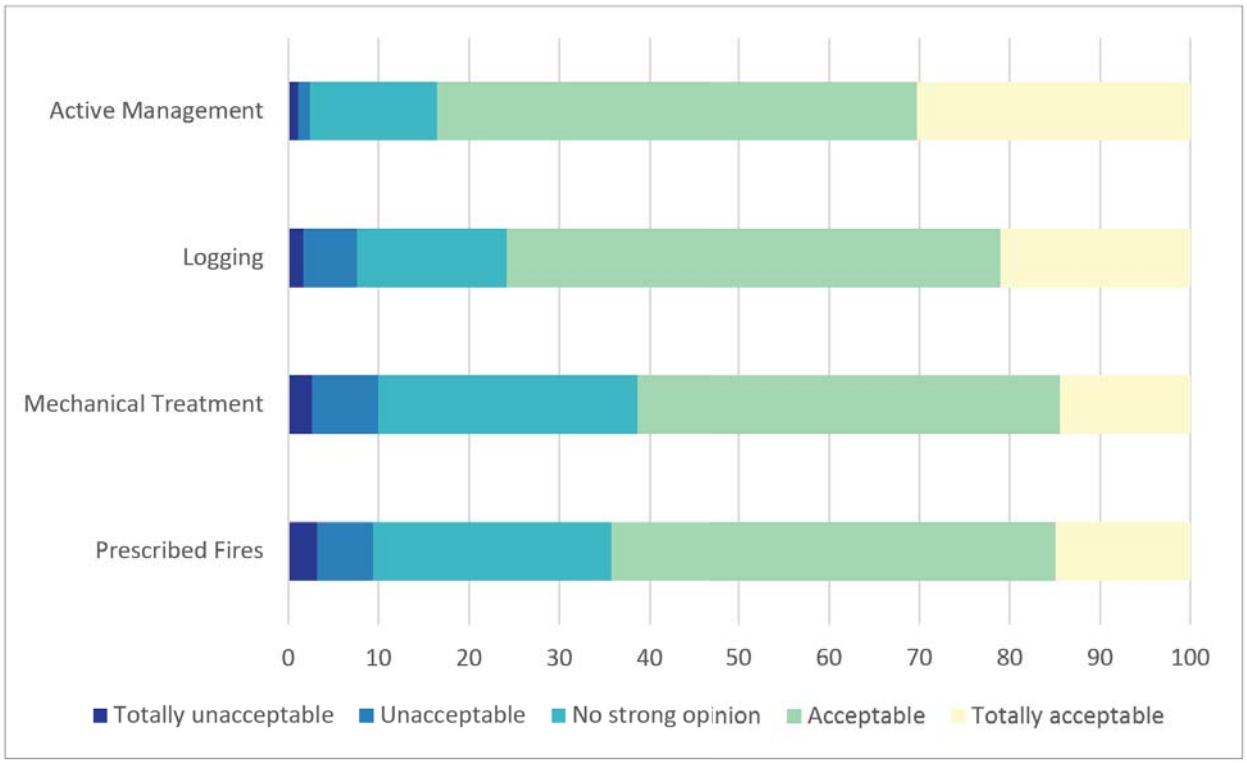


Figure 4: Landowner survey respondents' rating of acceptability of forest management practices on the CNNF (%)

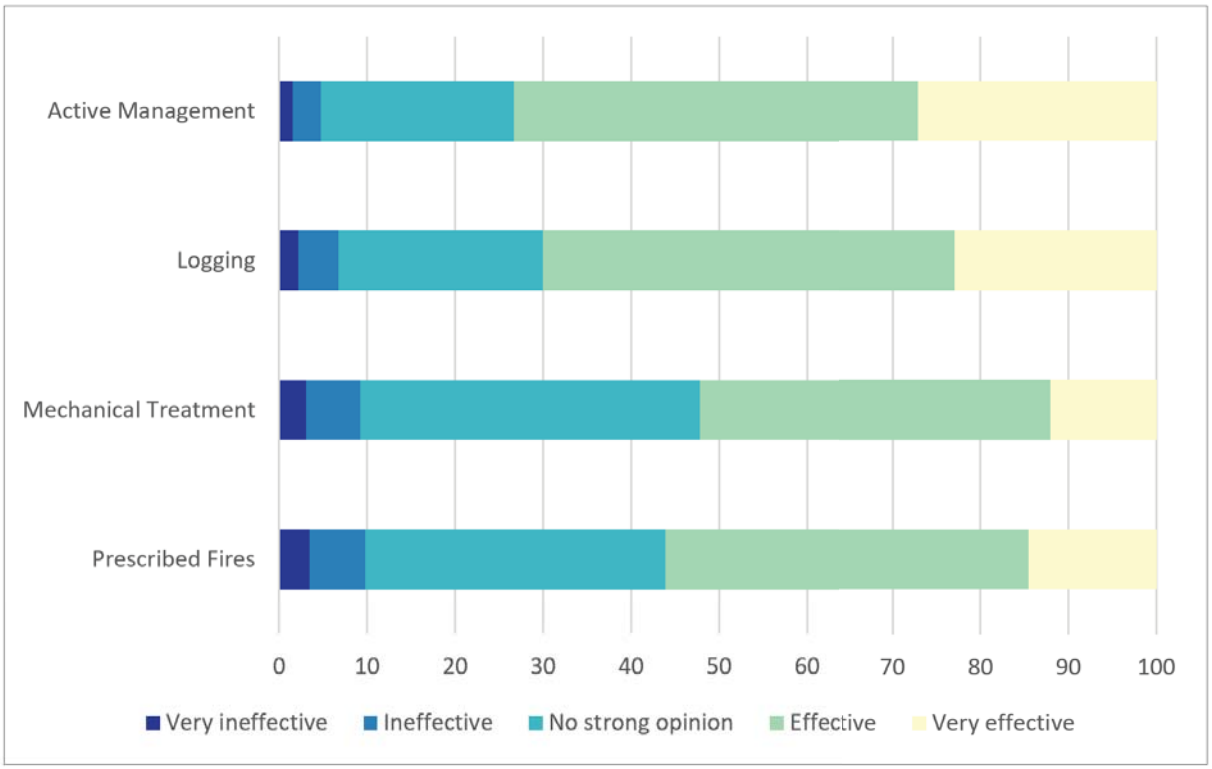


Figure 5: Landowner survey respondents' rating of the effectiveness of forest management practices to achieve LSE project goals (%)

*Table 2: Forest values and statements used to evaluate each**

Value	Statement
Aesthetic	I enjoy the forest scenery, sights, sounds, smells, etc.
Biodiversity	It provides a variety of fish, wildlife, plant life, etc.
Cultural	The forest is a place for me to continue and pass down the wisdom and knowledge, traditions and way of life of my family.
Economic	The forest provides timber, fisheries, minerals or tourism opportunities such as outfitting and guiding.
Future	The forest allows future generations to know and experience the forest as it is now.
Historic	The forest has places and things of natural and human history that matter to me, others, or the nation.
Intrinsic	It exists, no matter what I or others think about the forest.
Learning	We can learn about the environment through scientific observation or experimentation.
Life-sustaining	The forest helps produce, preserve, clean, and renew air, soil, and water.
Recreation	The forest provides a place for my favorite outdoor recreation activities.
Spiritual	The forest is a sacred, religious, or spiritually special place to me or I feel reverence and respect for nature there.
Subsistence	The forest provides necessary food and supplies to sustain my life.
Therapeutic	The forest makes me feel better, physically and/or mentally.

***From: Rolston and Coufal (1991), Clement and Cheng (2011). Value labels listed in the left column were not included on the survey.**

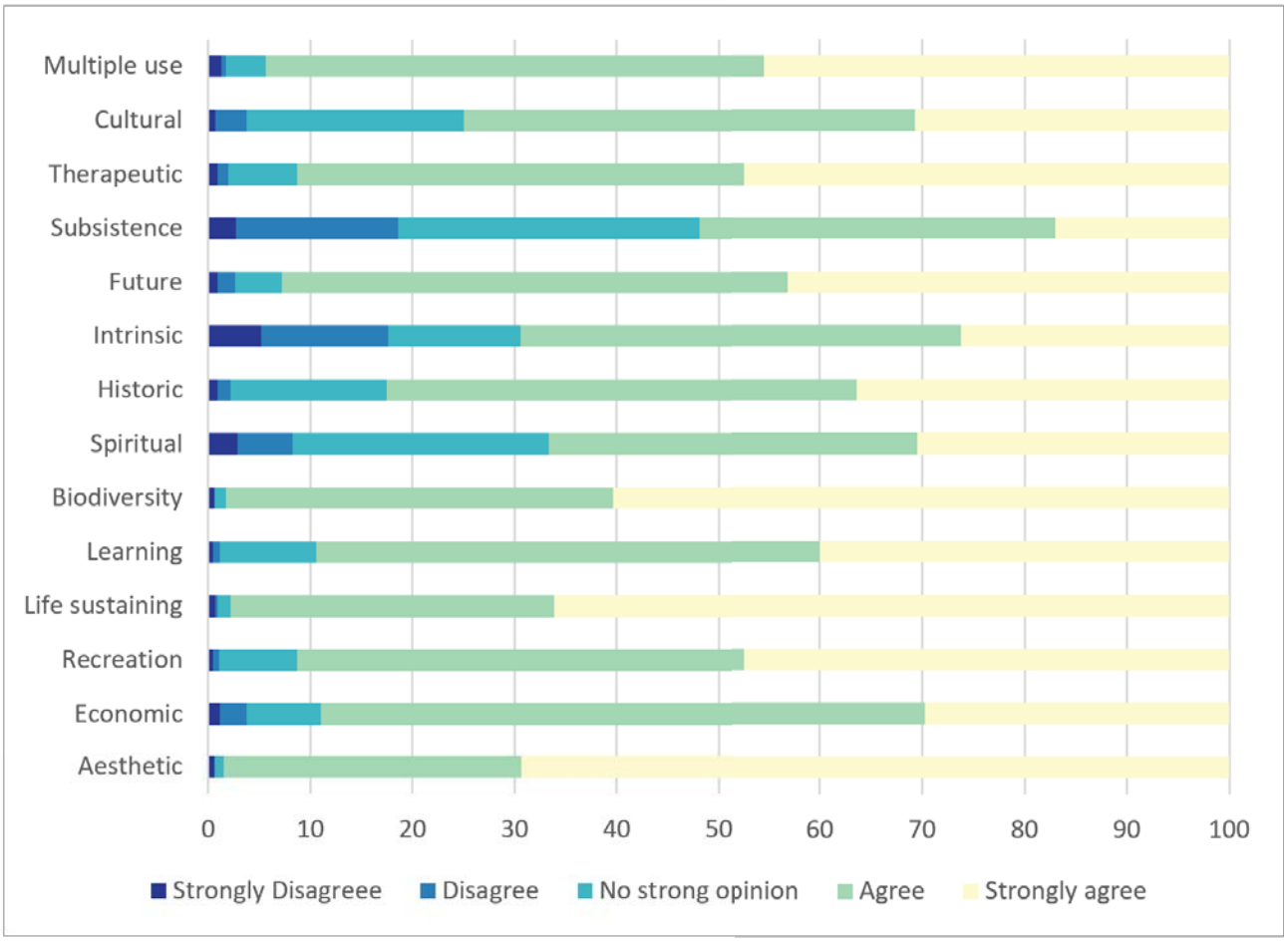


Figure 6: Landowner survey respondents' forest values (%)

LAKEWOOD SOUTHEAST PROJECT OUTCOMES

Respondents rated a series of 16 statements about potential outcomes of management activities for the LSE project (Figure 7). Four statements were worded such that agreement would indicate negative outcomes from project activities. Nearly one-third (29.3%) of respondents agreed or strongly agreed that the project would result in an escaped prescribed fire, while 33.6% had no strong opinion. Only 18.2% disagreed or strongly disagreed, and 18.9% didn't know. Respondents also had mixed feelings regarding project activities lowering traffic safety on roads. Twenty-two percent agreed/strongly agreed that activities would lower safety, while 32.2% had no strong opinion, 26.5% disagreed/strongly disagreed, and 19.3% didn't know.

The remaining 12 statements were worded such that agreement indicated positive outcomes from LSE project activities. With the exception of three statements, between 52% and 67% of respondents agreed or strongly agreed with these positive outcomes. About three-quarters of the respondents agreed/strongly agreed that the project would improve wildland game habitat (70.2%), remove unwanted/ invasive species (72.8%), and promote the growth of desirable plant species (77%). About half (48.9%) agreed that the landscape would be restored to pine barrens. The highest proportion of "don't know" responses were with regard to whether project activities would increase property values: nearly one-quarter (23.5%) of respondents indicated they didn't know.

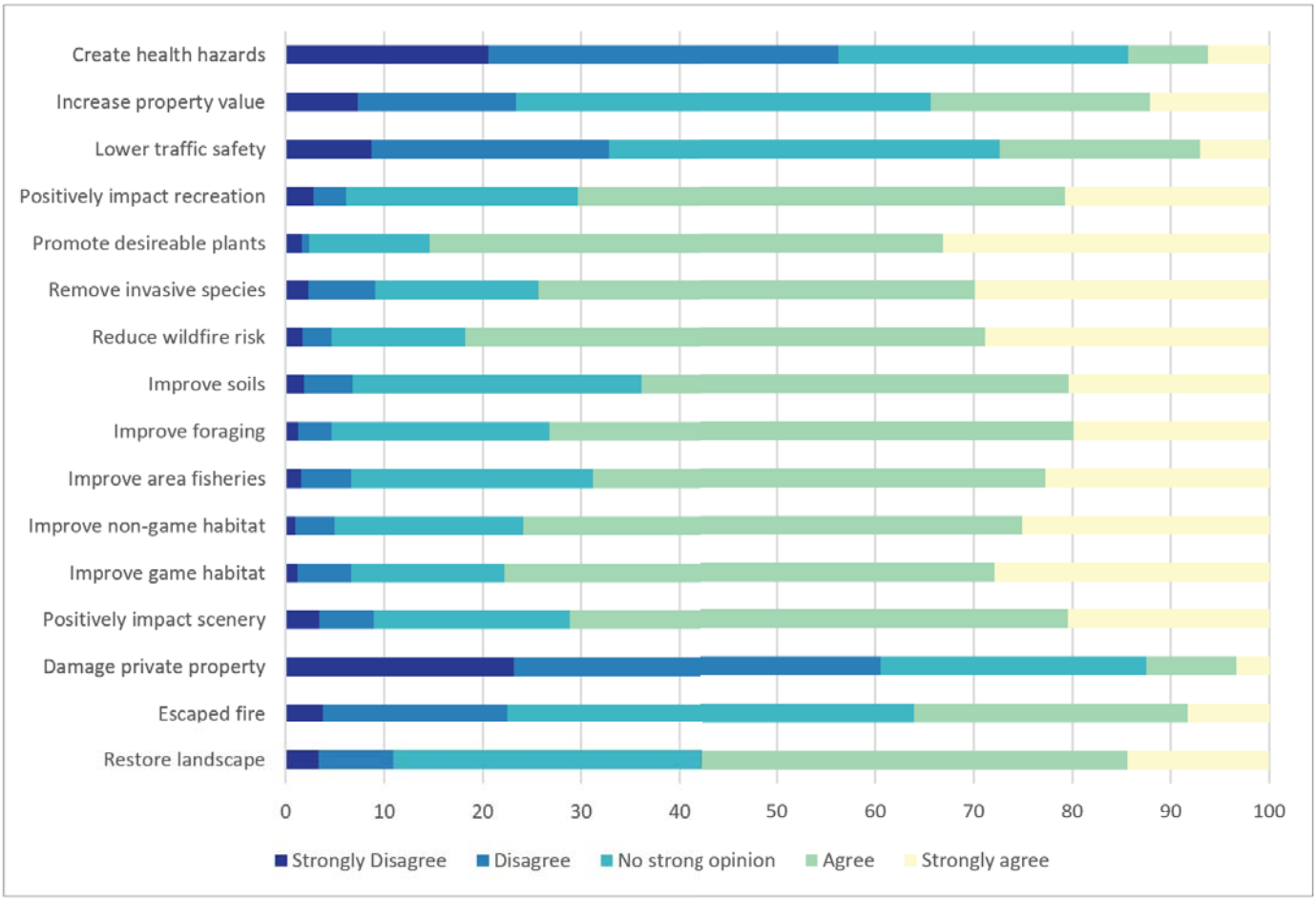


Figure 7: Landowner survey respondent attitudes toward LSE project outcomes (%)

US FOREST SERVICE COMMUNICATION AND TRUST

Respondents indicated their level of agreement with 11 statements related to communication with staff on the Chequamegon-Nicolet National Forest, and two statements about sharing values and desired outcomes with the USFS in general (Figure 8). The statements were worded such that higher levels of agreement indicated more positive views of USFS and staff. Of those responding to the agreement scale for each item, at least 40% of respondents agreed/ strongly agreed with 8 of the statements, and the statement with the highest proportion of respondents indicating agreement was "I believe that forest fires

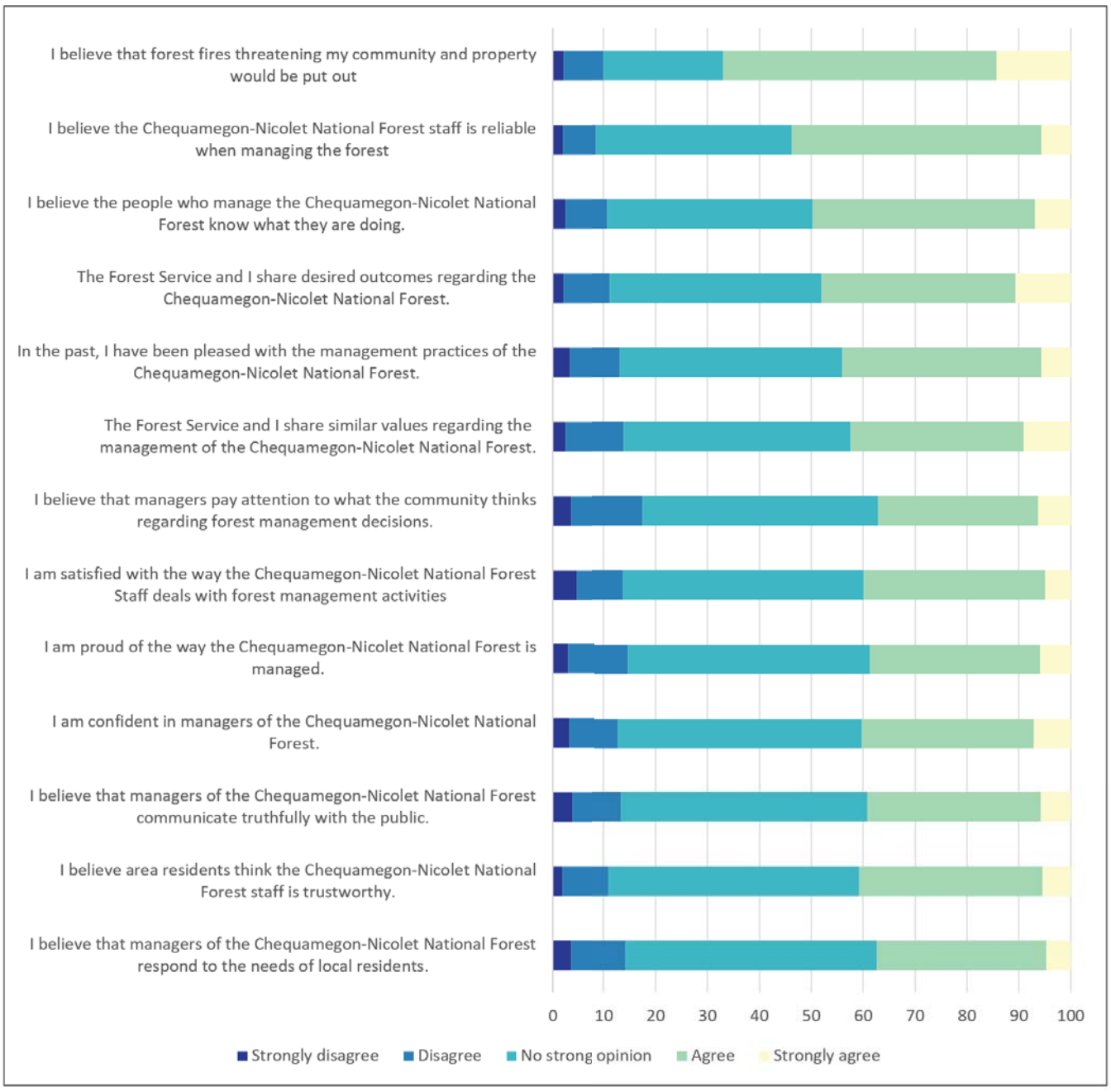


Figure 8: Landowner survey respondent attitudes about communication with CNNF staff, trust in USFS (%)

threatening my community and property would be put out" (66.9%). Of those responding to the question, the percentage of people with no strong opinion about each statement was, on average, about 43% (range 23.6-48.4%).

Respondents were asked their level of agreement with regard to 1) trust in USFS and 2) trust in local staff (Table 3) to make management decisions regarding the following topics: use of prescribed fire, removal of mechanical vegetation, timber marking and sales, and oversight of logging operations. Again, higher levels of agreement indicated higher levels of trust. Over half (58.4-64.6%) agreed/strongly agreed that they trusted USFS and local staff to make decisions with regard to these four management topics. For each topic, approximately one-quarter (22.5%-27.4%) had no strong opinion.

Table 3: Trust in USFS and Chequamegon-Nicolet staff with regard to management topics

		Strongly disagree	Disagree	No strong opinion	Agree	Strongly agree	n	Mean	Std. Dev.
USFS	Use of prescribed fire	6.0	10.4	22.5	52.42	8.7	414	3.4	1.0
	Use of mechanical vegetation removal	4.7	9.1	24.6	53.2	8.4	406	3.5	0.9
	Timber marking/sales	7.1	10.8	23.7	49.14	9.3	409	3.4	1.0
	Oversight of logging ops.	6.5	10.0	22.4	51.12	10.0	401	3.5	1.0
Local CNNF Staff	Use of prescribed fire	5.1	6.9	26.1	52.79	9.1	394	3.5	0.9
	Use of mechanical vegetation removal	2.5	7.1	25.8	55.3	9.3	396	3.6	0.9
	Timber marking/sales	3.9	7.2	27.4	51.54	10.0	390	3.6	0.9
	Oversight of logging ops.	4.3	6.6	26.1	52.03	10.9	394	3.6	0.9

Respondents also rated the clarity and understandability of information provided by the USFS. Information items included: information regarding the four general forest treatments (prescribed fire, mechanical treatment, logging and timber sales, and active management); information related to three types of community participation in management decisions; and information about the outcomes, risks, and benefits of management projects in general and the LSE project specifically (Figure 9). For each statement, the greatest proportion of respondents (39%-44.1%) selected "no strong opinion." 28.4% of respondents disagreed/strongly disagreed with the clarity of information regarding the community participation in management decisions item, while the range of remaining disagree/strongly disagree responses ranged from 21.7% (communication about the LSE project) to 26.2% (logging/timber sales). Other than this exception, a higher proportion of respondents agreed/strongly agreed with each statement than disagreed (range 27.5% to 35.6%).

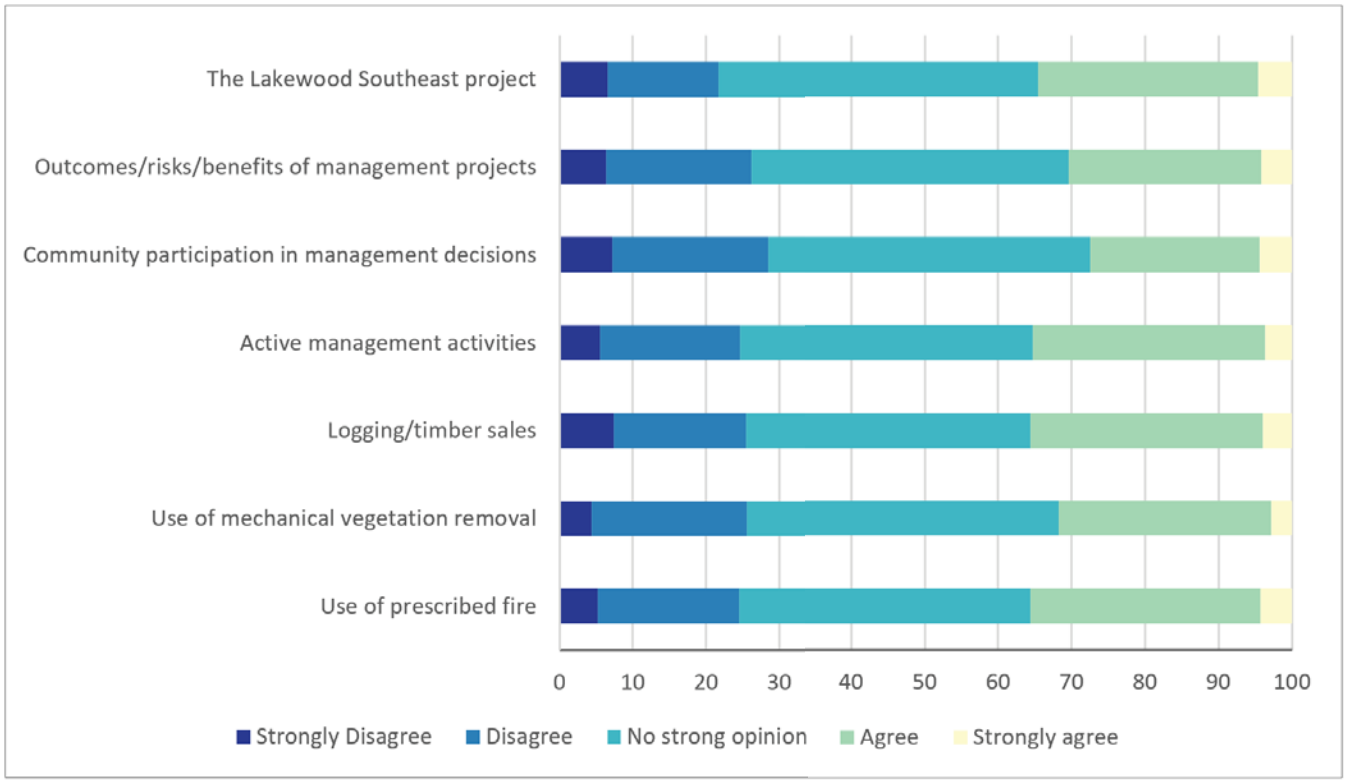


Figure 9: Landowner survey respondents' attitudes about the clarity of communication from the USFS (%)

Respondents were also asked their level of satisfaction with public participation processes regarding management on the Chequamegon-Nicolet National Forest, followed by communication channels through which they have learned about and would prefer to learn about forest management activities. As with previous questions, most people (59.1%) had no strong opinion with regard to their satisfaction with communication. A larger proportion, however, disagreed/strongly disagreed that they were satisfied (23.7%) than agreed/strongly agreed (17.1%). When asked to indicate all of the ways they had heard about forest management activities on the Forest, most (38.5%) responded they hadn't learned about activities through any of the seven channels (Table 4). The two most common channels were newspaper articles (30.1%) and letter correspondence from the USFS (27.1%). Social media and email were the least common methods (3% and 3.4%, respectively). In contrast, 38.7% of respondents indicated email communication was one of their top three preferred communication channels, second only to newspaper articles (43.3%). These communication preferences may be related to the fact that nearly half of the respondents were over the age of 56.

Finally, respondents were asked about the level of engagement they had with forest management decisions, including providing written comments, speaking with agency personnel, and attending public meetings about forest management plans/projects. The vast majority of respondents had never provided comments (91.2%), spoken with someone at the USFS (81.2%) or attended a meeting (85.8%).

Table 4: Landowner survey respondents' communication use and preferences

	Have learned about management activities		Communication preferences	
	#	%	#	%
Letter correspondence from Forest Service	135	27.1	336	67.3
Conversations with FS personnel	60	12.0	79	15.8
TV/Radio programming	76	15.2	120	24.0
Public meetings with USFS	25	5.0	136	27.3
Newspaper articles	150	30.1	216	43.3
Email	17	3.4	193	38.7
Social media	15	3.0	58	11.6
None	192	38.5	--	--

Visitor Survey Results

RESPONDENT DEMOGRAPHICS

A total of 72 people agreed to complete the visitor survey questionnaire. Forty-two respondents were from Chute Pond and thirty were from Bagley Rapids. The majority (78.2%) of respondents were over 35, with nearly 40% over the age of 56 (Table 5). Women comprised 41.7% of respondents, and men comprised 48.6%. Respondents were well-educated, with 57% holding some type of college degree (two-year, four-year, or graduate). Almost half (48.6%) of respondents owned property, and 6.9% owned a vacation home. Fewer than half (n=35) of the respondents identified the type of area their primary residence was located, but of those the majority were from rural areas (26.4% of all respondents). Not all respondents answered all the questions so % totals do not add to 100.

Table 5: Visitor Survey Respondent Characteristics

Age	N	% *
Under 25	6	8.3
26-35	4	5.6
36-45	13	18.1
46-55	16	22.2
56-65	17	23.6
66 and older	11	15.3
Gender		
Male	35	48.6
Female	30	41.7
Education		
Some high school	2	2.8
High school/GED	10	13.9
Some college	14	19.4
Two year degree	16	22.2
Four year degree	15	20.8
Graduate degree	10	13.9
Retirement Status		
Retired	13	18.1
Type(s) of property owned		
Primary residence	24	33.3
Vacation with home	5	6.9
Other	6	8.3
Type of area		
Urban	11	15.3
Suburban	5	6.9
Rural	19	26.4
*% of total respondents, not just those answering the question.		

VISITATION INFORMATION

The majority (84.7%) traveled between zero and two hours to visit the site, and 8.3% traveled more than three hours (Table 6). Most visited the area fewer than 5 times a year (72.2%), and 5.6% visited more than 25 times a year. Over half (54.2%) have been visiting the area for over 10 years. While respondents visited in all three seasons, the most common time was in summer (90.3%), followed by spring (73.6%), fall (63.9%), and winter (23.6%).

Table 6: Visitor information

Hours Traveled to Area	n	%
Less than one hour	19	26.4
1-2 hours	42	58.3
2-3 hours	5	6.9
more than 3	6	8.3
Years Visiting Area		
0-2	14	19.4
3-5	10	13.9
5-10	9	12.5
10+	39	54.2
Visits per Year		
1-5	52	72.2
6-12	9	12.5
13-25	6	8.3
25+	4	5.6
Seasons Visiting Area		
Winter	17	23.6
Spring	53	73.6
Summer	65	90.3
Fall	46	63.9

VISITOR PARTICIPATION IN ACTIVITIES ON THE CHEQUAMEGON-NICOLET NATIONAL FOREST

This question differed slightly from the landowner survey version: instead of a check-all-that-apply question, respondents were asked how often they did a particular activity in Wisconsin's public forest, with options including "never," "sometimes," and "often." Included in reported results are those who reported participating in an activity "sometimes" or "often." The activities visitors participated in most often included camping (90.3%), viewing scenery (82%), hiking (77.8%), and picnicking (77.8%). They least often participated in cross country skiing (22.3%), snowmobiling (22.2%) and running (13.9%) (Figure 10). Note that surveys were conducted in the summer, thus responses may be skewed and over-represent visitors who participate in summer recreational activities only. Further, the intercept surveys may have been conducted in areas where people were not participating in the other activities.

The majority of visitors who completed the questionnaire were familiar (61%) or very familiar (23%) with the CNNF. Only 16% indicated they were unfamiliar/very unfamiliar.

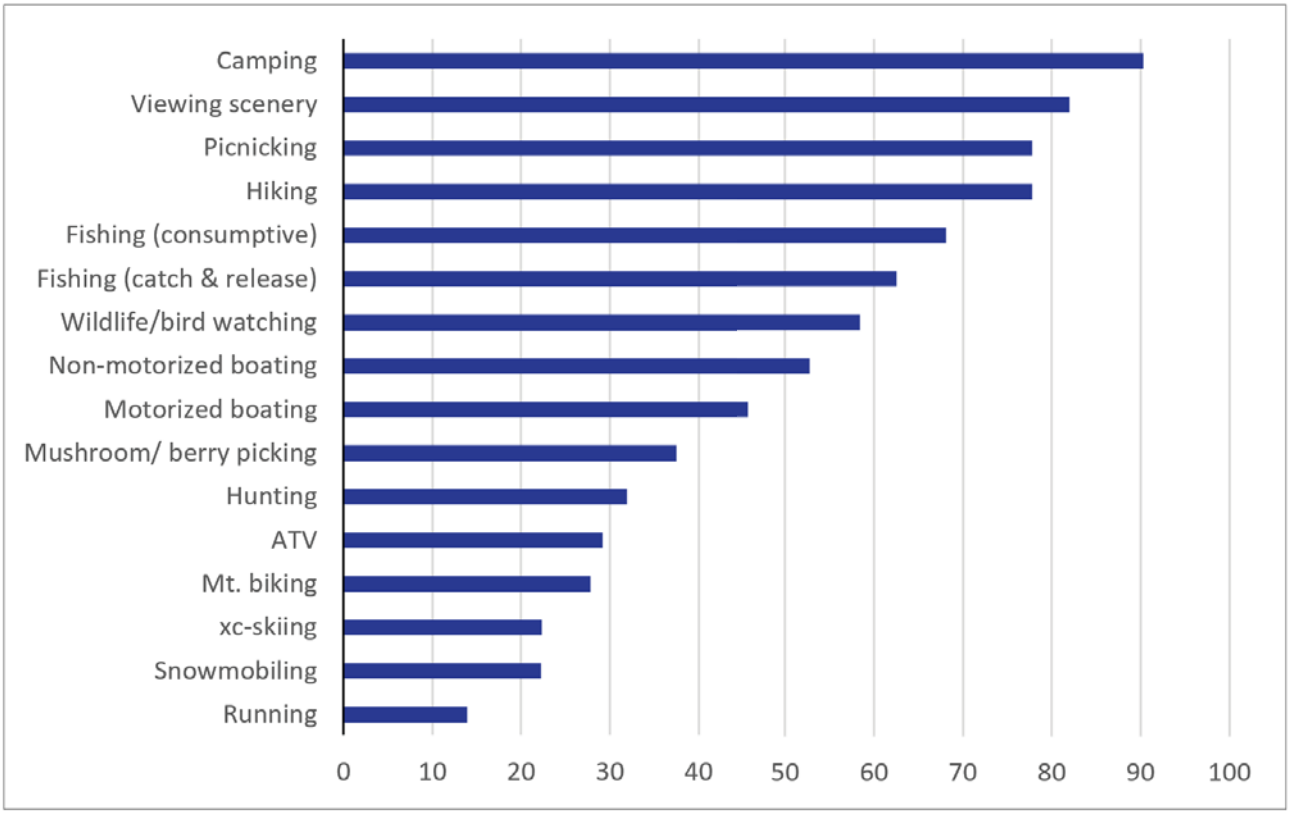


Figure 10: Visitor participation in activities (%)

VISITOR PERCEPTIONS OF MANAGEMENT GOALS

Visitors responded that all seven management goals for the LSE project were important or very important (range 68-86.1%). More than 80% of visitors responded that managing wildlife habitat (86.1%), preventing wildfire (80.6%) and managing fisheries (80.5%) were important or very important (Figure 11).

VISITOR PERCEPTIONS OF GENERAL FOREST MANAGEMENT TREATMENTS

The majority of visitors found each of the four management treatments used to accomplish goals on the CNNF to be acceptable or totally acceptable, in the following descending order: active management (80%), logging (71.5%), prescribed fire (67.1%) and mechanical treatment (60.9%) (Figure 12).

Visitors were also asked how familiar they were with each management treatment. They were most familiar with logging (52.9%) and least familiar with mechanical treatment (28.6%). Slightly more (52.1%) than half of visitor respondents were familiar with prescribed fire, while slightly less (47.9%) were familiar with active management.

VISITOR VALUES FOR FORESTS

Of the 13 forest values, more than 90% of visitor respondents valued the CNNF for aesthetic (97.1%), life-sustaining (97.1%), and biodiversity (95.6%) values. The statement the least percentage of visitors indicated they agreed or strongly agreed with was the subsistence value (66.6%), though this is still a strong majority. Several statements had low percentages of visitors indicating "don't know": subsistence (4.3%), intrinsic (2.9%), future (2.9%), spiritual (1.5%) and therapeutic (1.4%) (Figure 13).

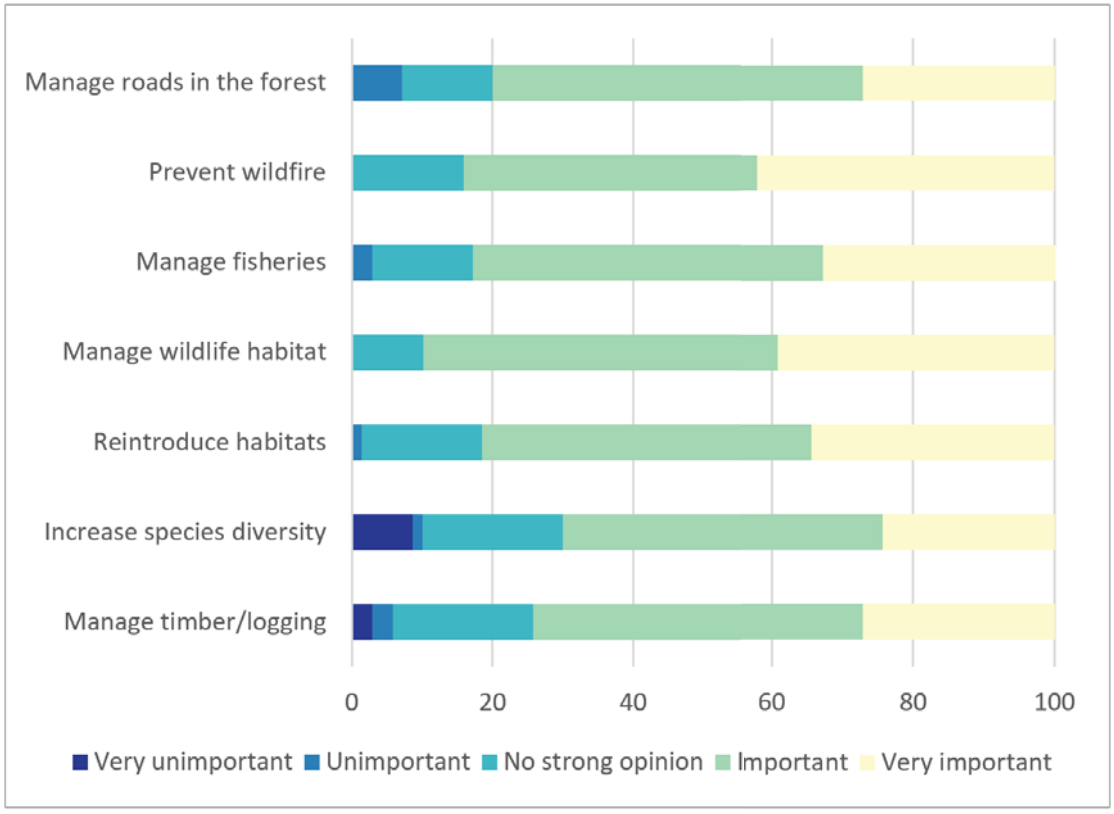


Figure 11: Importance of forest management goals to visitors (%)

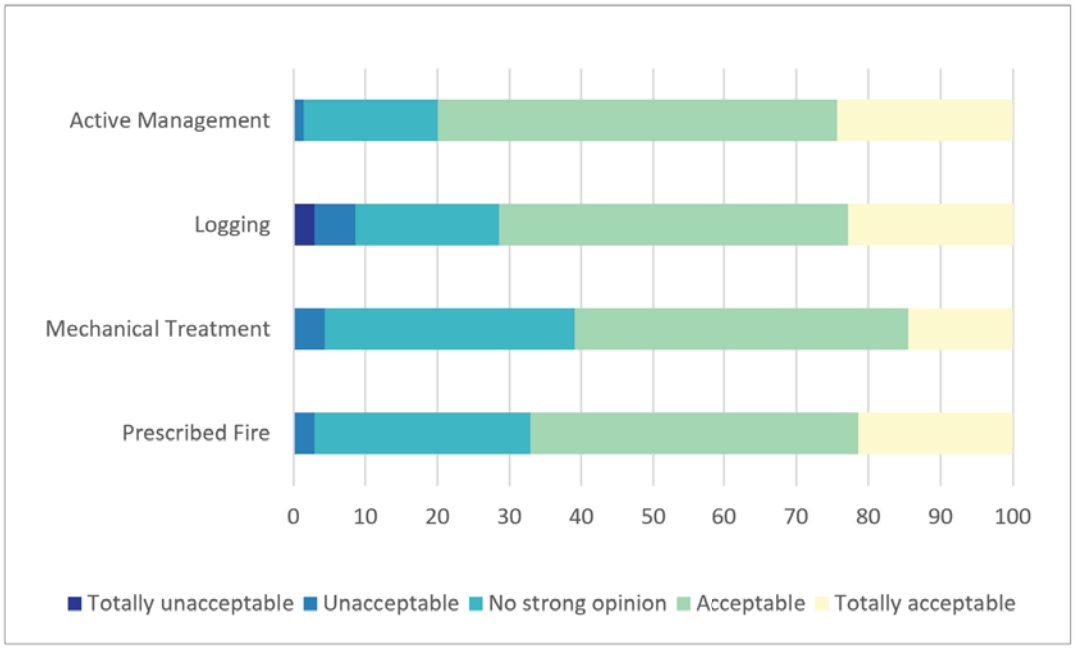


Figure 12: Acceptability of management treatments on CNNF (%)

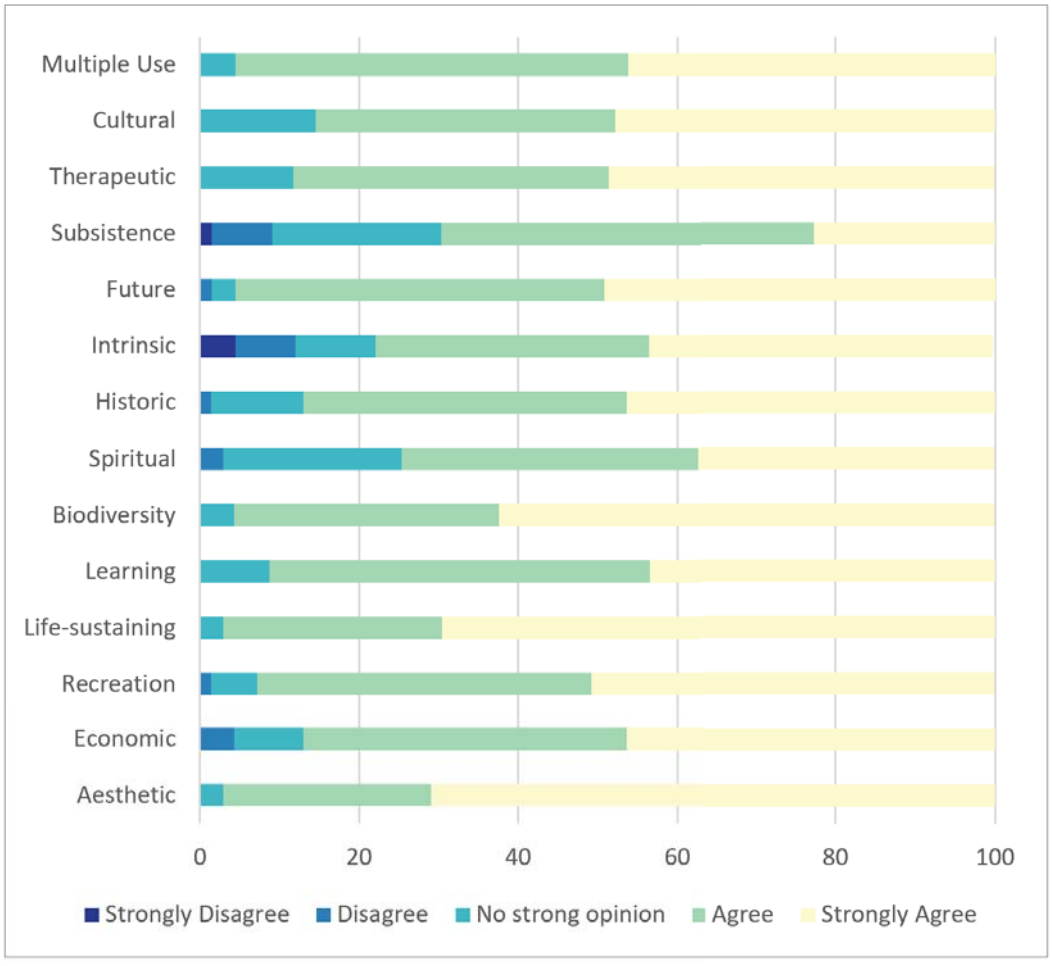


Figure 13: Visitor values of CNNF (%)

LAKEWOOD SOUTHEAST PROJECT OUTCOMES

As with the landowner survey, there were 16 statements about potential outcomes of management activities for the LSE project, four of which were worded such that agreement would indicate negative outcomes from project activities (Figure 14). Almost 42.4% of respondents agreed or strongly agreed that the project would result in an escaped prescribed fire, while 25.8% had no strong opinion. Only 19.7% disagreed or strongly disagreed, and 12.1% didn't know. Respondents also had mixed feelings regarding project activities lowering traffic safety on roads. One-third agreed/strongly agreed that activities would lower safety, while 16.7% had no strong opinion, 31.8% disagreed/strongly disagreed, and 18.2% didn't know.

The 12 remaining statements were worded such that agreement would indicate positive outcomes from LSE project activities. With two exceptions, between 70.1% and 86.6% of respondents agreed or strongly agreed with these positive outcomes. While 48.5% of visitors felt that the LSE projects would increase the value of their property, it is likely that this statement did not apply broadly to visitors. The percent of visitors who agreed/strongly agreed that the landscape would be restored to pine barrens was 52.2%.

Focus Group Findings

Findings from the three focus groups show that participants discussed the gradient of forest canopy cover conditions in terms of livability, scenic beauty, and recreation use.

The results from the preference worksheets indicate that photo 1 was the most preferred landscape in all response dimensions and the order of preference for the remaining photos was photo 3, photo 2, photo 4, and photo 5 (Figure 15). Nine of the 12 participants identified photo 1 as the most desirable landscape and 3 participants indicated photo 3 was the most preferred.

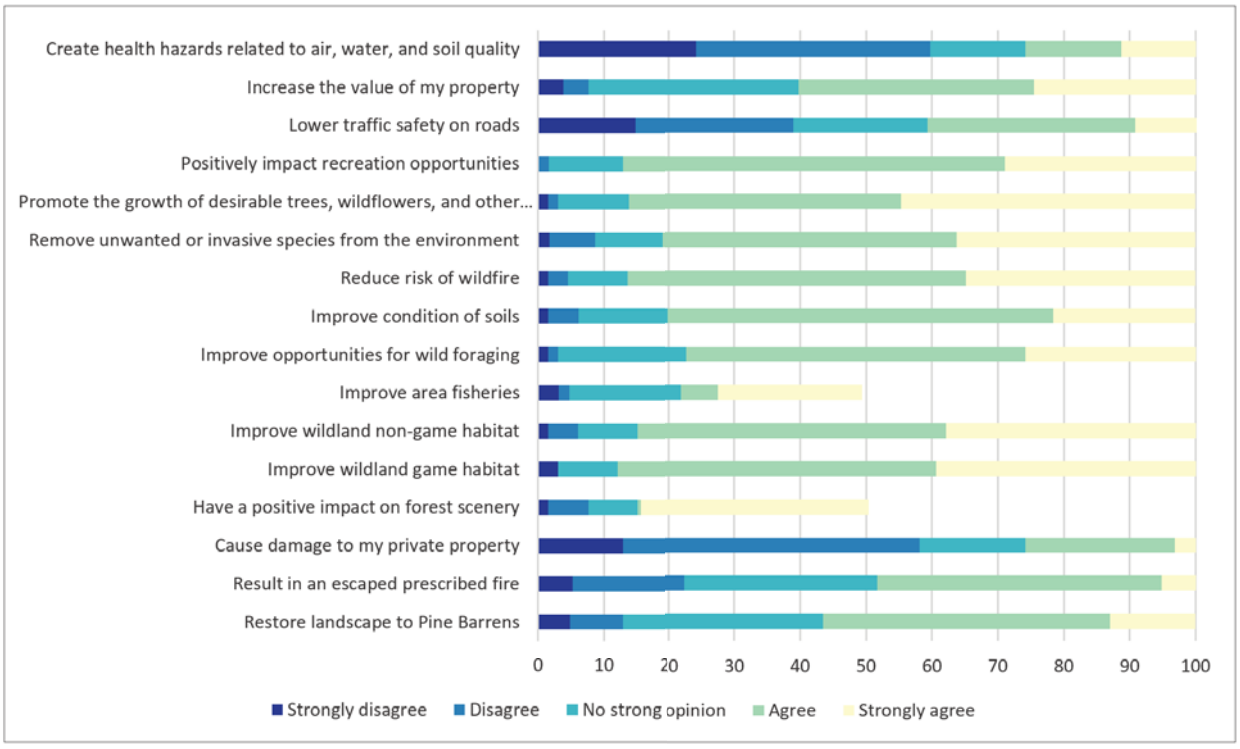


Figure 14: Visitor attitudes toward LSE project outcomes (%)

	***Photo 1*** Photo 1 is the densest photo in the gradient of canopy cover and depicts a common landscape in the CNNF.
	***Photo 2*** Photo 2 is the next photo in the gradient of canopy cover. We selected this photo to display a landscape that has a moderate amount of canopy cover and forest density. Similar to photo 1, this landscape is common in the CNNF.
	***Photo 3*** Photo 3 was selected because it continues the gradient of canopy cover and varies in amount of open land and closed canopy. This landscape is found in the CNNF.
	***Photo 4*** Photo 4 illustrates an open landscape with clusters of trees in the foreground. We chose this photo because it portrays an open landscape, but retains clusters of canopy cover. This landscape is not common in the CNNF.
	***Photo 5*** Photo 5 shows an extremely open landscape with trees on the horizon that provide no canopy cover. This photo includes the least amount of canopy cover and is an uncommon landscape in the CNNF.

Figure 15: Focus group photos and forest landscape descriptions

The main topics from these focus groups include Northwoods Identity, Visual Diversity, Forest Health, Forest Use and Effective Management.

NORTHWOODS IDENTITY

Northwoods Identity consists of sub-topics including family connection to the area, privacy issues and familiarity with the landscape. Northwoods Identity had a strong impact on livability preference, a moderate impact on preference for scenic beauty and a mild impact on recreational use.

When discussing recreational use of each forest scene, landscape familiarity was influential. Participants looking at unfamiliar landscapes (photos 4 and 5) were uncomfortable and wary about what it would mean to hunting, recreation, and other activities they were involved in at their property. This sentiment contrasted with the familiar landscapes of dense woods. Many participants identified photo 1 as the landscape most similar to their property and expressed concern over lack of familiarity with species in the new pine barren habitat. In terms of livability preferences, participants highlighted the isolated nature of the area as well as familiarity and family ties with the landscape. Participants voiced concern over a general trend of increasing populations, changing demographics and decreasing privacy in the area.

Photo 8: Focus Group Photo 4

Photo 9: Focus Group Photo 5

Photo 10: Focus Group Photo 1

VISUAL DIVERSITY

This main topic includes discussion of habitat variation, openness and viewshed potential. We found Visual Diversity to have a strong impact on scenic beauty preference, and a moderate impact on both preference for recreational use and livability preference.

Visual Diversity played an influential role on recreational use and livability and participants recognized a wide variety of recreational activities. Participants cited Visual Diversity as beneficial for both hunting purposes and viewing potential then discussed optimal amounts of canopy cover for different activities. Many comments focused on habitat variation as it pertains to species diversity and a good mix of canopy cover. Viewing distance had positive influences on viewshed potential, but only with the combination of open space and canopy cover. Participants highlighted viewshed potential in all photos, but photo 4 and 5 are less preferable, indicating a “sweet spot” in amount of canopy cover. In terms of scenic beauty, habitat variation and viewing potential were the most prominent attributes while participants cite species diversity and elevation as beneficial characteristics. Forest density again evoked various degrees of preference in terms of scenic beauty.

FOREST HEALTH

The main topics we found for Forest Health included wildlife health and habitat, ecosystem processes and forest pests and disease. Forest Health had a strong impact on both preference for recreational use and scenic beauty and a moderate impact on livability preference.

Game and non-game habitat heavily influenced landscape preference for recreational use. Participants acknowledged forest succession and regeneration as an ecological process that influences recreational activities. When assessing livability, game and non-game habitats were drivers of preference. Participants also mentioned forest succession as a beneficial process for the landscapes with less canopy cover. Forest Health topics addressed when discussing scenic beauty of the gradient of landscapes focused largely on effects of forest succession and game habitat. Participants also commented on the effects of forest pests and diseases.

FOREST USE

The main topics for Forest Use included motorized vehicle use versus preservation values and economics. Although Forest Use did not appear to have any impact on livability and only mild impact on scenic beauty, it had a strong impact on preference for recreational use.

Of the three categories of preference discussed in the focus group, Forest Use had the most influence on the topic of recreation. Participants acknowledged a trend of increasing use of motorized vehicles and discussed social and ecological effects of motorized vehicles in the region. The theme of Forest Use was not as pronounced when discussing preferences for livability, but the influences of the tourist economy were recognized. Relating to scenic beauty, Forest Use was not as evident of a theme as in recreational use.

EFFECTIVE MANAGEMENT

Participants addressed the Effective Management main theme by discussing natural resource regulation, political influences, and forest management. Effective Management had a moderate impact on recreational use and livability preference and a mild impact on scenic beauty. Participants addressed Effective Management in all preference categories but felt it did not have a strong impact on a specific landscape or preference category. Participants expressed Effective Management as an overarching concern with the influence that politics have on forest management.

Participants expressed concern over specific projects that aim to change a previously forested area to a grassland. Participants also raised concerns over management decisions accounting for natural processes, effective and appropriate use of Forest Service resources relating to the pine barren area and LSE project as a whole. This theme touches on the importance of effective use of funding to reach forest management objectives. The final topic addressed in the theme of Effective Management was the influence political climate had on forest management. Participants were aware of how politics can affect the flow of funding for forest management projects and expressed concern with the ability to continue active management under the threat of a defunded project. Focus group participants felt that ineffective project management and fiscal uncertainty had the potential to affect recreational opportunities, livability and scenic beauty of an area and thus were of great concern to area landowners.

Discussion and Conclusions

Overall, our research found that landowners and visitors felt that forest management goals (e.g., reintroducing habitats, preventing wildfire, etc.) were important, with very few respondents indicating any were unimportant. However, one-fifth of visitors had neutral attitudes about the importance of timber/logging and increasing species diversity. With regard to the acceptability of treatments, most landowner and visitor respondents found each to be acceptable, but a large proportion of each sample had no strong opinion with regard to prescribed fire and mechanical treatment. This offers managers an opportunity to shape these neutral attitudes.

Visitors and landowners also had a number of similar values for the forest. However, there was a more than 10% difference between landowners and visitors with regard to subsistence values (51.9% vs. 69.7%). Given that the majority of visitor respondents traveled less than two hours to get to the site where they were surveyed, and more than a quarter traveled less than one hour, it is likely that they have similar levels of familiarity with the CNNF as landowners. Thus, these differences are somewhat interesting and could be further explored. Managers, however, can use these results to highlight that the array of values CNNF provides are recognized by stakeholders.

Photo 11: Spread Eagle Barrens in Florence County-Wisconsin State Natural Area

Visitors and landowners responded differently, too, to the set of questions assessing their opinions on the Lakewood Southeast Project outcomes. More visitors than landowners agreed that restoration practices would have negative results, including: result in an escaped prescribed fire (48.3% vs. 36.1%), cause damage to private property (25.8% vs. 15.5%), lower traffic safety on roads (40.8% vs. 27.4%), and create health hazards (25.8 vs. 14.3%). However, more visitors than landowners also agreed that restoration practices would have positive outcomes, including positively impacting on recreation (87.1% vs. 70.3%), and increasing property values (40.8% vs. 27.4%). One difference that was larger, in terms of agreement frequency, was the impact on aesthetics: 71.5% of landowners agreed that the project would positively impact forest scenery, while only 35.3% of visitors agreed. Again, there are opportunities to shape attitudes about project outcomes, and target communication that emphasizes the safety of practices.

While over one-quarter (27.3%) of landowner survey respondents indicated they prefer to attend public meetings with USFS personnel, only 5% said they had done so. Managers may benefit from additional public meetings that are held for purposes of general discussion of forest management and trust-building,

Photo 12: Chequamegon-Nicolet National Forest - Lakewood-Laona Ranger District

rather than for specific projects. Further, while 38.7% said they would like to receive emails from USFS, only 3.4% indicated they have learned about management activities through this method.

The focus groups represented the qualitative research part of this project. Our analysis of the focus group discussions identified five topics of importance: visual diversity, Northwoods identity, forest health, forest use, and effective management. These topics were derived from three two-hour conversations with landowners and indicate ways in which managers and researchers can frame landscape restoration to appeal to landowners directly. These topics, for example, can be used in communications with landowners.

There were mixed findings related to communication and trust of US Forest Service staff. We found that just over one-third of respondents indicated agreement with "I am proud of the way the Chequamegon-Nicolet National Forest is managed" (38.67%) and more than half agreed/strongly agreed that they trusted USFS (60.55%) and local staff (62.77%) to make decisions with regard to these four management topics.

A critical finding is that only about half (48.9%) of the responding landowners agreed that the landscape would be restored to pine barrens. During the focus group discussion, some participants were skeptical about whether they would see a pine barrens restored in the future, noting that politics could influence funding, and priorities could change on the National Forest.

Another important finding is the high number of neutral or don't know responses to management questions. Thus, this neutrality opens an opportunity to the Forest Service to communicate with landowners on what, when, and how they manage public forests.

Several opportunities include:

- Provide ways to educate landowners and visitors about management treatments through newsletters or other types of publications, signage, and interpretive walks. Some of the suggestions might involve short-term projects for interns or others to implement.
- Communicate with landowners directly, for example, the Lakewood-Laona Ranger District could provide a way for landowners and others to sign up for regular emails about specific projects or the forest in general.
- Frame communication about forest management and restoration in ways that are accessible (easy to read, little to no jargon), transparent, and makes use of the 5 topics identified through this work: visual diversity, Northwoods identity, forest health, forest use, and effective management.

Photo 13: Chequamegon-Nicolet National Forest - Lakewood-Laona Ranger District

Appendix A

Landowner Survey

Landowner Survey

Property Use and Goals

To gain a better understanding of your opinions about management activities in the Chequamegon-Nicolet National Forest, we would like to know how you use the Chequamegon-Nicolet National Forest and how you manage your own property.

1. Why do you own your property?
Check all that apply

- I live here year round, this property is my primary residence.
- I own this property because I enjoy the isolated and rural environment it provides.
- I own this property because it provides me with recreation and game opportunities (hunting, fishing, hiking).
- I own this property because it provides me with additional income.
- I own this property because I grew up in the area.
- I own this property because my family lives in the area.
- Other (please specify)

2. Which of the following activities occurred on your property within the past 5 years?
Check all that apply

- Improved habitat for game species (deer, turkey, etc.)
- Improved habitat for non-game species (birds, etc.)
- Improved habitat for pollinators (bees, etc.)
- Cut or removed trees for sale
- Cut or removed trees for personal use
- Reduced fire hazards
- Improved forest for recreation use
- Improved forest for scenic beauty
- Other (please specify)

3. How do you use the forest?
Check all that apply

	The Chequamegon-Nicolet National Forest	Your personal property
Hunting		
Fishing (for consumption)		
Fishing (catch and release)		
Non-motorized boating		
Motorized boating		
ATV		
Snowmobiling		
Mountain biking		
Cross-country skiing		
Camping		
Hiking		
Running		
Wildlife/bird watching		
Viewing scenery		
Picnicking		
Mushroom/berry picking		
Other (please specify) _____		

4. Please indicate the likelihood of the following actions occurring on your property within the next 10 years.

	Very Unlikely	Unlikely	No Strong Opinion	Likely	Very Likely	Property is too small to subdivide
Subdivide my property to create multiple lots for sale						
Subdivide my property for children or heirs						
Sell my property						
Give property to my heirs						

5. What future goals do you have for your property?

Feel free to use additional paper if necessary

Please turn page to continue survey

1

Landowner Survey

Forest Values

6. We'd like to know what you think about forests.
Please indicate your level of agreement with each statement.

	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
The primary value of a forest is to provide resources, such as timber and minerals to people who depend on them for their way of life.						
Forests have value regardless of people being present.						
Nature's primary value is to provide products useful to people.						
I feel that I am part of the natural world that includes plant, animal and aquatic systems.						
Forests are valuable only if they produce jobs and income for people.						
I often feel a sense of oneness with the natural world around me.						
Humans have the right to modify the natural environment to suit their needs.						
I have a deep understanding of how my actions affect the natural world.						
My personal welfare is independent of the welfare of the natural world.						
Nature has as much of a right to exist as people.						

7. We'd like to know what you value in forests.
I value the forest because...

	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
I enjoy the forest scenery, sights, sounds, smells, etc.						
The forest provides timber, fisheries, minerals or tourism opportunities such as outfitting and guiding.						
The forest provides a place for my favorite outdoor recreation activities.						
The forest helps produce, preserve, clean, and renew air, soil, and water.						
We can learn about the environment through scientific observation or experimentation.						
It provides a variety of fish, wildlife, plant life, etc.						
The forest is a sacred, religious, or spiritually special place to me or I feel reverence and respect for nature there.						
The forest has places and things of natural and human history that matter to me, others, or the nation.						
It exists, no matter what I or others think about the forest.						
The forest allows future generations to know and experience the forest as it is now.						
The forest provides necessary food and supplies to sustain my life.						
The forest makes me feel better, physically and/or mentally.						
The forest is a place for me to continue and pass down the wisdom and knowledge, traditions and way of life of my family.						
The forest can successfully be managed for multiple uses including timber, wildlife, recreation and spirituality.						

Landowner Survey

Lakewood Southeast Project

Many questions in this survey will ask you about the actions of the Lakewood Southeast Project in the Chequamegon-Nicolet National Forest. The following is short description of the project and a few questions regarding your opinions about the Lakewood Southeast Project.

The *Lakewood Southeast Project* is a US Forest Service forest management program that includes active management of 37,000 acres of the Chequamegon-Nicolet National Forest in the Lakewood-Laona Ranger District of Oconto County, Wisconsin. This management plan involves management activities including timber harvest, prescribed fire, road work and mechanical thinning to achieve the desired forest conditions in the Chequamegon-Nicolet National Forest. This project will reintroduce habitats (pine barrens, savannas, and northern dry forests) to increase species diversity, manage for fish and wildlife habitat, timber products, road access to the forest and wildfire risk reduction.

If you are interested in learning more about the Lakewood Southeast Project, information is available at:
www.fs.usda.gov/project/?project=33426

8. How important are the management goals of the Chequamegon-Nicolet National Forest to you?

	Very Unimportant	Unimportant	No Strong Opinion	Important	Very Important
Manage timber/logging	☐	☐	☐	☐	☐
Increase species diversity	☐	☐	☐	☐	☐
Reintroduce habitats	☐	☐	☐	☐	☐
Manage wildlife habitat	☐	☐	☐	☐	☐
Manage fisheries	☐	☐	☐	☐	☐
Prevent wildfire	☐	☐	☐	☐	☐
Manage roads in the forest	☐	☐	☐	☐	☐

9. Please indicate how *acceptable* you think each of these forest management tools are for the Chequamegon-Nicolet National Forest

	Totally Unacceptable	Unacceptable	No Strong Opinion	Acceptable	Totally Acceptable
Prescribed Fires	☐	☐	☐	☐	☐
Mechanical Treatment	☐	☐	☐	☐	☐
Logging	☐	☐	☐	☐	☐
Active Management	☐	☐	☐	☐	☐

10. Please indicate how *effective* you think each of these forest management tools are for the goals of the Lakewood Southeast Project.

	Very Ineffective	Ineffective	No Strong Opinion	Effective	Very Effective
Prescribed Fires	☐	☐	☐	☐	☐
Mechanical Treatment	☐	☐	☐	☐	☐
Logging	☐	☐	☐	☐	☐
Active Management	☐	☐	☐	☐	☐

Please see reference page for management tool definitions

Please turn page to continue survey

Landowner Survey

Treatment Acceptance

To better understand your thoughts about management activities in the Chequamegon-Nicolet National Forest, please answer the following questions about management actions and outcomes of this project.

11. Please indicate your level of agreement for each of these statements regarding the outcomes of the management and projects in the Chequamegon-Nicolet National Forest.

The Lakewood Southeast Project will...	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
Restore landscape to the Pine Barrens	☐	☐	☐	☐	☐	☐
Result in an escaped prescribed fire	☐	☐	☐	☐	☐	☐
Cause damage to my private property	☐	☐	☐	☐	☐	☐
Have a positive impact on the forest scenery	☐	☐	☐	☐	☐	☐
Improve wildland game habitat (deer, turkey etc.)	☐	☐	☐	☐	☐	☐
Improve wildland non-game species habitat (birds, frogs, turtles, etc.)	☐	☐	☐	☐	☐	☐
Improve area fisheries	☐	☐	☐	☐	☐	☐
Improve opportunities for wild foraging (mushroom, berries)	☐	☐	☐	☐	☐	☐
Improve condition of soils	☐	☐	☐	☐	☐	☐
Reduce risk of wildfire	☐	☐	☐	☐	☐	☐
Remove unwanted or invasive species from the environment	☐	☐	☐	☐	☐	☐
Promote the growth of desirable trees, wildflowers and other vegetation	☐	☐	☐	☐	☐	☐
Positive impact recreation opportunities	☐	☐	☐	☐	☐	☐
Lower traffic safety on roads	☐	☐	☐	☐	☐	☐
Increase the value of my property	☐	☐	☐	☐	☐	☐
Create health hazards related to air, water and soil quality	☐	☐	☐	☐	☐	☐

12. What are your biggest concerns regarding the restoration and management of the Chequamegon-Nicolet National Forest?

Feel free to use additional paper if necessary

13. What are your biggest concerns regarding the future of the Chequamegon-Nicolet National Forest?

Feel free to use additional paper if necessary

Landowner Survey

Restoration and Management

Many landowners manage woodland vegetation on their property, while others do not. We are interested in understanding motivations and obstacles private landowners have regarding management of their private property. Please answer the following questions regarding your personal motivations and obstacles to managing your property.

	None	Some	Most	All
14. How much of your property do you actively manage?	☐	☐	☐	☐

	No	Yes
15. Do you participate in Wisconsin's Managed Forest Law program?	☐	☐

16. Do you enjoy managing the landscape on your property?

Please indicate how enjoyable each activity is for you. Mark an X for each question.

	1	2	3	4	5
In my household, caring for the lawn and garden immediately surrounding my residence typically is a...	Very undesirable chore		Neutral		Very enjoyable hobby
In my household, managing my trees and woodland property typically is a...	Very undesirable chore		Neutral		Very enjoyable hobby

17. If you have managed or restored your property, or are considering it, how important are each of the following motivations?

	Very Unimportant	Unimportant	No Strong Opinion	Important	Very Important
Provide habitat for wildland game species	☐	☐	☐	☐	☐
Provide habitat for non-game wildlife	☐	☐	☐	☐	☐
Concern over loss of rare habitats	☐	☐	☐	☐	☐
Land is not suitable for other options	☐	☐	☐	☐	☐
Financial assistance was/is available	☐	☐	☐	☐	☐
Educational purposes	☐	☐	☐	☐	☐
Additional income	☐	☐	☐	☐	☐
Preserve or maintain natural beauty	☐	☐	☐	☐	☐
Leave forests for future generations	☐	☐	☐	☐	☐
Other (please specify)	☐	☐	☐	☐	☐
Other (please specify)	☐	☐	☐	☐	☐

18. How much of an obstacle is each of these items to managing your private property?

	No Obstacle	Small Obstacle	No Strong Opinion	Large Obstacle	Major Obstacle
Property is not suitable for management	☐	☐	☐	☐	☐
No interest in restoring rare habitats	☐	☐	☐	☐	☐
Dislike government programs	☐	☐	☐	☐	☐
Not "outdoors" oriented	☐	☐	☐	☐	☐
Unaware of any programs	☐	☐	☐	☐	☐
Not enough information to make decisions	☐	☐	☐	☐	☐
Local agencies are not helpful	☐	☐	☐	☐	☐
Physical/health constraints	☐	☐	☐	☐	☐
I do not know how	☐	☐	☐	☐	☐
Cannot afford to manage my property	☐	☐	☐	☐	☐
Not enough time to manage my property	☐	☐	☐	☐	☐
Other (please specify)	☐	☐	☐	☐	☐

19. What does forest management mean to you?

Feel free to use additional paper if necessary

Please turn page to continue survey

Landowner Survey

Agency Trust

We would like to understand your level of trust with the Forest Service in your area.

	No	Yes
20. Do you know any Forest Service personnel at the Chequamegon-Nicolet National Forest?		

	Never	Occasionally	Often
21. If yes, how often do you interact with them?			

22. Based on your observations and experiences, please indicate your level of agreement for each statement regarding management and personnel of the Chequamegon-Nicolet National Forest

	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
I am satisfied with the way the Chequamegon-Nicolet National Forest Staff deals with forest management activities						
I believe that managers of the Chequamegon-Nicolet National Forest communicate truthfully with the public.						
I believe that managers of the Chequamegon-Nicolet National Forest respond to the needs of local residents.						
I am proud of the way the Chequamegon-Nicolet National Forest is managed.						
I am confident in managers of the Chequamegon-Nicolet National Forest.						
I believe that managers pay attention to what the community thinks regarding forest management decisions.						
I believe area residents think the Chequamegon-Nicolet National Forest staff is trustworthy.						
In the past, I have been pleased with the management practices of the Chequamegon-Nicolet National Forest.						
I believe the people who manage the Chequamegon-Nicolet National Forest know what they are doing.						
I believe that forest fires threatening my community and property would be put out						
I believe the Chequamegon-Nicolet National Forest staff is reliable when managing the forest						
The Forest Service and I share similar values regarding the management of the Chequamegon-Nicolet National Forest.						
The Forest Service and I share desired outcomes regarding the Chequamegon-Nicolet National Forest.						

Please indicate your level of agreement for each statement

23. I trust the United States Forest Service as an *agency* to make proper decisions regarding...

	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
The use of prescribed fire						
The use of mechanical vegetation removal						
Timber marking and sales						
Oversight of logging operations						

24. I trust the local Forest Service personnel, as *individuals* to make proper decisions regarding...

	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
The use of prescribed fire						
The use of mechanical vegetation removal						
Timber marking and sales						
Oversight of logging operations						

Landowner Survey

Agency Communication

Based on your observations and experiences, please indicate your level of agreement for each statement regarding communication and public participation with the Forest Service.

25. When communicating with the community, the Forest Service provides the public with clear and understandable information regarding...

	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
The use of prescribed fires in the Chequamegon-Nicolet National Forest	☐	☐	☐	☐	☐	☐
The use of mechanical treatment in the Chequamegon-Nicolet National Forest	☐	☐	☐	☐	☐	☐
Logging and timber sales in the Chequamegon-Nicolet National Forest	☐	☐	☐	☐	☐	☐
Active management activities in the Chequamegon-Nicolet National Forest	☐	☐	☐	☐	☐	☐
Community participation in management decisions in the Chequamegon-Nicolet National Forest	☐	☐	☐	☐	☐	☐
Outcomes, risks and benefits of management projects in the Chequamegon-Nicolet National Forest	☐	☐	☐	☐	☐	☐
The Lakewood Southeast Project *(refer to p.5 for description)*	☐	☐	☐	☐	☐	☐

26. Please indicate your experience with the Chequamegon-Nicolet National Forest regarding public participation in management decisions and your level of satisfaction.

	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree
I am satisfied with the public participation process regarding management decisions in the Chequamegon-Nicolet National Forest**.**	☐	☐	☐	☐	☐

	Never	Occasionally	Often
I provide written comments on forest management projects	☐	☐	☐
I speak with agency personnel about forest management plans	☐	☐	☐
I attend public meetings regarding management plans	☐	☐	☐

27. Please mark any ways you have learned about management activities on the Chequamegon-Nicolet National Forest.

- ☐ Letter correspondence from the Forest Service
- ☐ Conversations with Forest Service Personnel
- ☐ TV/Radio programming
- ☐ Public Meetings with the Forest Service
- ☐ Newspaper articles
- ☐ Email
- ☐ Social media (Facebook/Twitter)
- ☐ None

28. What are the top three ways you would prefer the staff of the Chequamegon-Nicolet National Forest to communicate with you about forest management

- ☐ Letter correspondence
- ☐ Conversation with Forest Service Personnel
- ☐ TV/Radio programming
- ☐ Public Meetings
- ☐ Newspaper articles
- ☐ Email
- ☐ Social media (Facebook/Twitter)
- ☐ Other (please specify)

Please turn page to continue survey

Landowner Survey

Demographic Information

How old are you?

- ☐ 25 or under
- ☐ 26-35
- ☐ 36-45
- ☐ 46-55
- ☐ 56-65
- ☐ 66 or older

What is your highest level of education?

- ☐ Some high school
- ☐ High school or GED
- ☐ Some College
- ☐ 2 year degree
- ☐ 4 year degree
- ☐ Graduate degree

What is your gender?

- ☐ Male
- ☐ Female

What is your approximate combined family income

- ☐ Under $24,999
- ☐ $25,000-$49,999
- ☐ $50,000-$74,999
- ☐ $75,000-$99,999
- ☐ More than $100,000

Are you retired?

- ☐ Yes
- ☐ No

How many years have you owned this property?

- ☐ Less than one year
- ☐ 1-5 years
- ☐ 6-10 years
- ☐ 11-25
- ☐ More than 25

If you are not a year round resident, how long does it take you to travel to your property?

- ☐ Less than 15 minutes
- ☐ 15-60 minutes
- ☐ 1-2 hours
- ☐ More than 2 hours

How many months of the year do you live on this property?

- ☐ Year-round resident
- ☐ More than 6 months
- ☐ 3-6 months
- ☐ Fewer than 3

If you are a seasonal resident, what season(s) do you spend most of your time in this residence?

- ☐ Winter
- ☐ Spring
- ☐ Summer
- ☐ Fall

What is (or was) your main occupation?

- ☐ Private company, business or individual
- ☐ Private not-for-profit, tax exempt or charitable organization
- ☐ Government (federal, state, county, municipal or tribal)
- ☐ Business owner
- ☐ Family business or farm
- ☐ Other

Which political philosophy is most aligned with yours?

- ☐ Very conservative
- ☐ Conservative
- ☐ Politically neutral
- ☐ Liberal
- ☐ Very liberal

What is your ethnicity?

- ☐ African American
- ☐ Asian
- ☐ Hispanic/Latino
- ☐ Native American
- ☐ Pacific Islander
- ☐ White
- ☐ Other _____

If you have any additional thoughts or comments about restoration, forest management or this survey, please write them below:

Feel free to use additional paper if necessary

When completed, please return the survey to us in the postage-paid return envelope.

8

Appendix B

Visitor Survey

Date_____

Location_____

VISITOR SURVEY

1. How long did it take you to travel to this area?

- Less than one hour
- 1-2 hours
- 2-3 hours
- More than 3 hours

2. Approximately how many times a year do you visit this area?

- 1-5 times a year
- 6-12 times a year
- 13-25 times a year
- 25 or more times a year

3. How many years have you been visiting this area?

- 0-2 years
- 3-5 years
- 5-10 years
- More than 10 years

4. What season(s) do you visit this area?

Check all that apply

- Winter
- Spring
- Summer
- Fall

5. How often do you recreate in Wisconsin's public forest?

	Never	Sometimes	Often
Hunting			
Fishing (consumption)			
Fishing (catch/release)			
Non-motorized boating			
Motorized boating			
ATV			
Snowmobiling			
Mountain biking			
Cross-country skiing			
Camping			
Hiking			
Running			
Wildlife/bird watching			
Viewing scenery			
Picnicking			
Mushroom/berry picking			
Other *(please specify)*			

6. Do you own property?.....*If no, skip to next page* Yes ☐ No ☐

*****If you answered "NO" to question 6, please skip to the next***

Questions 7-12 refer to your primary residence

7. Please indicate what type(s) of property you own

Check all that apply

- Primary residence
- Vacation (with home)
- Vacation (no home)
- Other *(please specify)*

8. What type of area is your primary residence located?

- Urban
- Suburban
- Rural

9. Do you manage the outdoor area of your primary residence?

Yes ☐ No ☐

11. What is the outdoor landscape of your primary residence?

Check all that apply

- Wooded
- Lawn/grass
- Flower garden
- Vegetable garden
- No yard
- Other *(please specify)*

12. Please indicate your response to the following statemnt with an X

In my household, caring for the lawn and garden immediately surrounding my residence typically is a...

1----------2----------3----------4----------5

Very undesirable chore — Neutral — Very enjoyable hobby

Please turn page to continue survey 1

Visitor Survey

Forest Values

13. We'd like to know what you think about the value of Wisconsin's public forests.

Please indicate your level of agreement with each statement.

	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
The primary value of a forest is to provide resources, such as timber and minerals to people who depend on them for their way of life.						
Forests have value regardless of people being present.						
Nature's primary value is to provide products useful to people.						
I feel that I am part of the natural world that includes plant, animal and aquatic systems.						
Forests are valuable only if they produce jobs and income for people.						
I often feel a sense of oneness with the natural world around me.						
Humans have the right to modify the natural environment to suit their needs.						
I have a deep understanding of how my actions affect the natural world.						
My personal welfare is independent of the welfare of the natural world.						
Nature has as much of a right to exist as people.						

14. We'd like to know what you value in Wisconsin's public forests.

I value the forest because...	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
I enjoy the forest scenery, sights, sounds, smells, etc.						
The forest provides timber, fisheries, minerals or tourism opportunities such as outfitting and guiding.						
The forest provides a place for my favorite outdoor recreation activities.						
The forest helps produce, preserve, clean, and renew air, soil, and water.						
We can learn about the environment through scientific observation or experimentation.						
It provides a variety of fish, wildlife, plant life, etc.						
The forest is a sacred, religious, or spiritually special place to me or I feel reverence and respect for nature there.						
The forest has places and things of natural and human history that matter to me, others, or the nation.						
It exists, no matter what I or others think about the forest.						
The forest allows future generations to know and experience the forest as it is now.						
The forest provides necessary food and supplies to sustain my life.						
The forest makes me feel better, physically and/or mentally.						
The forest is a place for me to continue and pass down the wisdom and knowledge, traditions and way of life of my family.						
The forest can successfully be managed for multiple uses including timber, wildlife, recreation and spirituality.						

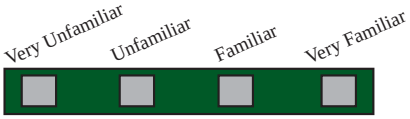
Visitor Survey

Restoration in the Chequamegon-Nicolet National Forest

The questions in this portion of the survey ask your opinion regarding different forest management techniques used to restore areas of the Chequamegon-Nicolet National Forest. Below is a short into to the project and information to help you answer the following questions. For additional information and definition of terms, please refer to the handout.

The US Forest Service will soon begin working on a forest restoration project that will include active management of 37,000 acres in the Chequamegon-Nicolet National Forest. The objectives of this project includes: to reintroduce historic habitats (pine barrens), reduce wildfire risk, increase species diversity, manage for fish and wildlife habitat, manage timber production and road access. This management plan will utilize timber harvests, logging, prescribed fires, mechanical thinning and continuous active management to achieve objectives and desired forest conditions in the Chequamegon-Nicolet National Forest.

15. How familiar are you with this area of the Chequamegon-Nicolet National Forest?



16 . How familiar are you with these forest management techniques?

	Very Unfamiliar	Unfamiliar	No Strong Opinion	Familiar	Very Familiar
Prescribed Fires					
Mechanical Treatment					
Logging					
Active Management					

17. How important are the management goals of the Chequamegon-Nicolet National Forest to you?

	Very Unimportant	Unimportant	No Strong Opinion	Important	Very Important
Manage timber/logging					
Increase species diversity					
Reintroduce habitats					
Manage wildlife habitat					
Manage fisheries					
Prevent wildfire					
Manage roads in the forest					

18. Please indicate how acceptable you think each of these forest management tools are for the Chequamegon-Nicolet National Forest

	Totally Unacceptable	Unacceptable	No Strong Opinion	Acceptable	Totally Acceptable
Prescribed Fires					
Mechanical Treatment					
Logging					
Active Management					

19. What does forest management mean to you?

Please turn page to continue survey

Visitor Survey

Treatment Acceptance

To better understand your thoughts about management activities in the Chequamegon-Nicolet National Forest, please answer the following questions regarding management actions and your opinions about the outcomes of this project.

20. Please indicate your level of agreement for each of these statements regarding the outcomes of the management actions and projects in the Chequamegon-Nicolet National Forest.

Forest management projects in the Chequamegon-Nicolet National Forest will...	Strongly Disagree	Disagree	No Strong Opinion	Agree	Strongly Agree	Don't Know
Restore landscape to pine barrens						
Result in an escaped prescribed fire						
Cause damage to private property						
Have a positive impact on forest scenery						
Improve wildland game habitat (deer, turkey etc.)						
Improve wildland non-game species habitat (birds, frogs, turtles, etc.)						
Improve area fisheries						
Improve opportunities for wild foraging (mushroom, berries)						
Improve condition of soils						
Reduce risk of wildfire						
Remove unwanted or invasive species from the environment						
Promote the growth of desirable trees, wildflowers and other vegetation						
Positive impact recreation opportunities						
Lower traffic safety on roads						
Increase property value						
Create health hazards related to air, water and soil quality						

21. What are your biggest concerns regarding the restoration and management of the Chequamegon-Nicolet National Forest?

22. What are your biggest concerns regarding the future of the Chequamegon-Nicolet National Forest?

Visitor Survey

Demographic Information

How old are you?

- ☐ 25 or under
- ☐ 26-35
- ☐ 36-45
- ☐ 46-55
- ☐ 56-65
- ☐ 66 or older

What is your gender?

- ☐ Male
- ☐ Female

Are you retired?

- ☐ Yes
- ☐ No

What is your highest level of education?

- ☐ Some high school
- ☐ High school or GED
- ☐ Some college
- ☐ 2 year degree
- ☐ 4 year degree
- ☐ Graduate degree

What is your approximate combined family income

- ☐ Under $24,999
- ☐ $25,000-$49,999
- ☐ $50,000-$74,999
- ☐ $75,000-$99,999
- ☐ More than $100,000

What is (or was) your main occupation?

- ☐ Private company, business or individual
- ☐ Private not-for-profit, tax exempt or charitable organization
- ☐ Government (federal, state, county, municipal or tribal)
- ☐ Business owner
- ☐ Family business
- ☐ Other

Which political philosophy is most aligned with yours?

- ☐ Very conservative
- ☐ Conservative
- ☐ Politically neutral
- ☐ Liberal
- ☐ Very liberal

What is your ethnicity?

- ☐ African American
- ☐ Asian
- ☐ Hispanic/Latino
- ☐ Native American
- ☐ Pacific Islander
- ☐ White
- ☐ Other _____

What town, city or municipality and zipcode do you live in?

Town, city or municipality	State	Zip code

If you have any additional thoughts or comments about restoration, forest management or this survey, please write them below:

Appendix C

Landowner Survey Frequencies, Means, and Standard Deviations

Table A1: Importance of Forest Management Goals to Survey Respondents

	VU	U	NSO	I	VI	Item Total	Mean	St.Dev
Manage timber/logging	18	14	69	199	169	469	4.04	0.99
	3.84	*2.99*	*14.71*	*42.43*	*36.03*	*100*		
Increase species diversity	17	18	83	210	136	464	3.93	0.98
	3.66	*3.88*	*17.89*	*44.78*	*29.31*	*100*		
Reintroduce habitats	23	16	74	224	132	469	3.91	1.01
	4.90	*3.41*	*15.78*	*47.76*	*28.14*	*100*		
Manage wildlife habitat	19	8	28	236	182	473	4.17	0.92
	4.02	*1.69*	*5.92*	*49.89*	*38.48*	*100*		
Manage fisheries	18	10	32	240	167	467	4.13	0.92
	3.85	*2.14*	*6.85*	*51.39*	*35.76*	*100*		
Prevent wildfire	25	5	25	168	251	474	4.30	1.01
	5.27	*1.05*	*5.27*	*35.44*	*52.95*	*100*		
Manage roads	27	24	66	228	125	470	3.85	1.05
	5.74	*5.11*	*14.04*	*48.51*	*26.60*	*100*		
Column Total	147	95	377	1,505	1,162	3,286		
	4.47	*2.89*	*11.47*	*45.86*	*35.36*	*100*		

Measured on 1-5 scale, where 1=Very Unimportant (VU), 2=Unimportant (U), 3=No strong opinion (NSO), 4=Important (I), and 5=Very important (VI). Italicized numbers are the % of individuals who chose each response for each item. Item total reflects number of people answering each item.

Table A2: Acceptability of Forest Management Tools

	TU	U	NSO	A	TA	Item total	Mean	St.Dev
Prescribed Fires	15	29	124	232	70	470	3.67	0.91
	3.19	*6.17*	*26.38*	*49.36*	*14.89*	*100*		
Mechanical Treatment	12	34	133	217	67	463	3.63	0.91
	2.59	*7.34*	*28.73*	*46.87*	*14.47*	*100*		
Logging	8	28	78	258	99	471	3.87	0.87
	1.70	*5.94*	*16.56*	*54.78*	*21.02*	*100*		
Active Management	5	6	66	250	142	469	4.10	0.76
	1.07	*1.28*	*14.07*	*53.30*	*30.28*	*100*		
Column Totals	40	97	401	957	378	--	--	--
	2.14	*5.18*	*21.41*	*51.09*	*20.18*	*100*		

Measured on 1-5 scale, where 1=Totally unacceptable (TU), 2=Unacceptable (U), 3=No strong opinion (NSO), 4=Acceptable (I), and 5=Totally acceptable (TA). Italicized numbers are the % of individuals who chose each response for each item. Item total reflects number of people answering each item.

Table A3: Effectiveness of Forest Management Tools

	VI	I	NSO	E	VE	Item total	Mean	St.Dev
Prescribed Fires	16	29	157	191	67	460	3.57	0.93
	3.48	*6.30*	*34.13*	*41.52*	*14.57*	*100*		
Mechanical Treatment	14	28	176	183	55	456	3.52	0.89
	3.07	*6.14*	*38.60*	*40.13*	*12.06*	*100*		
Logging	10	21	107	217	106	461	3.84	0.90
	2.17	*4.56*	*23.21*	*47.07*	*22.99*	*100*		
Active Management	7	15	102	215	126	465	3.94	0.87
	1.51	*3.23*	*21.94*	*46.24*	*27.10*	*100*		
Column Totals	47	93	542	806	354	--	--	--
	2.55	*5.05*	*29.42*	*43.76*	*19.22*	*100*		

Measured on 1-5 scale, where 1=Very ineffective (VI), 2=Ineffective (I), 3=No strong opinion (NSO), 4=Effective (E), and 5=Very effective (VE). Italicized numbers are the % of individuals who chose each response for each item. Item total reflects number of people answering each item.

Table A4: Forest values

	SD	D	NSO	A	SA	Item Total	Mean	St.Dev
Aesthetic	3	0	4	138	328	473	4.67	0.56
	0.63	*0.00*	*0.85*	*29.18*	*69.34*	*100*		
Economic	5	12	33	269	135	454	4.14	0.75
	1.10	*2.64*	*7.27*	*59.25*	*29.74*	*100*		
Recreation	2	3	35	203	219	462	4.37	0.69
	0.43	*0.65*	*7.58*	*43.94*	*47.40*	*100*		
Life Sustaining	3	1	6	147	307	464	4.63	0.59
	0.65	*0.22*	*1.29*	*31.68*	*66.16*	*100*		
Learning	2	3	42	220	178	445	4.28	0.70
	0.45	*0.67*	*9.44*	*49.44*	*40.00*	*100*		
Biodiversity	3	0	5	177	282	467	4.57	0.59
	0.64	*0*	*1.07*	*37.90*	*60.39*	*100*		
Spiritual	13	25	115	166	140	459	3.86	1.01
	2.83	*5.45*	*25.05*	*36.17*	*30.50*	*100*		
Historic	4	6	70	212	167	459	4.16	0.79
	0.87	*1.31*	*15.25*	*46.19*	*36.38*	*100*		
Intrinsic	23	55	57	191	116	442	3.73	1.13
	5.20	*12.44*	*12.90*	*43.21*	*26.24*	*100*		
Future	4	8	21	228	198	459	4.32	0.72
	0.87	*1.74*	*4.58*	*49.67*	*43.14*	*100*		
Subsistence	12	71	132	156	76	447	3.48	1.03
	2.68	*15.88*	*29.53*	*34.90*	*17.00*	*100*		
Therapeutic	4	5	31	203	219	462	4.36	0.73
	0.87	*1.08*	*6.71*	*43.94*	*47.40*	*100*		
Cultural	3	14	97	202	140	456	4.01	0.84
	0.66	*3.07*	*21.27*	*44.30*	*30.70*	*100*		
Multiple Use	6	2	18	226	210	462	4.37	0.70
	1.30	*0.43*	*3.90*	*48.92*	*45.45*	*100*		
Column Totals	87	205	666	2,738	2,715	--	--	--
	1.36	*3.20*	*10.39*	*42.71*	*42.35*	*100*		

Measured on 1-5 scale, where 1=Strongly disagree (SD), 2=Disagree (D), 3=No strong opinion (NSO), 4=Agree (A), and 5=Strongly agree (SA). Italicized numbers are the % of individuals who chose each response for each item. Item total reflects number of people answering each item.

Table A5: Attitudes toward LSE project outcomes

	SD	D	NSO	A	SA	Item Total	Mean	St.Dev
Restore landscape to pine barrens	13	30	124	171	57	395	3.58	0.94
	3.29	*7.59*	*31.39*	*43.29*	*14.43*	*100*		
Result in an escaped prescribed fire	14	70	155	104	31	374	3.18	0.96
	3.74	*18.72*	*41.44*	*27.81*	*8.29*	*100*		
Cause damage to my private property	89	144	104	35	13	385	2.32	1.03
	23.12	*37.4*	*27.01*	*9.09*	*3.38*	*100*		
Have a positive impact on scenery	14	23	83	211	85	416	3.79	0.94
	3.37	*5.53*	*19.95*	*50.72*	*20.43*	*100*		
Improve wildland game habitat	5	23	66	211	118	423	3.98	0.87
	1.18	*5.44*	*15.60*	*49.88*	*27.90*	*100*		
Improve wildland non-game habitat	4	16	78	206	102	406	3.95	0.83
	0.99	*3.94*	*19.21*	*50.74*	*25.12*	*100*		
Improve area fisheries	6	20	96	180	89	391	3.83	0.89
	1.53	*5.12*	*24.55*	*46.04*	*22.76*	*100*		
Improve foraging opportunities	5	14	90	217	81	407	3.87	0.81
	1.23	*3.44*	*22.11*	*53.32*	*19.90*	*100*		
Improve condition of soils	7	19	112	166	78	382	3.76	0.90
	1.83	*4.97*	*29.32*	*43.46*	*20.42*	*100*		
Reduce risk of wildfire	7	12	56	218	119	412	4.04	0.83
	1.70	*2.91*	*13.59*	*52.91*	*28.88*	*100*		
Remove unwanted or invasive species	9	27	66	177	119	398	3.93	0.97
	2.26	*6.78*	*16.58*	*44.47*	*29.90*	*100*		
Promote the growth of desirable plants	7	3	52	222	141	425	4.15	0.78
	1.65	*0.71*	*12.24*	*52.24*	*33.18*	*100*		
Positively impact recreation	11	13	92	194	81	391	3.82	0.89
	2.81	*3.32*	*23.53*	*49.62*	*20.72*	*100*		
Lower traffic safety	32	89	147	75	26	369	2.93	1.03
	8.67	*24.12*	*39.84*	*20.33*	*7.05*	*100*		
Increase the value of my property	26	57	150	79	43	355	3.16	1.07
	7.32	*16.06*	*42.25*	*22.25*	*12.11*	*100*		
Create health hazards	76	132	109	30	23	370	2.44	1.09
	20.54	*35.68*	*29.46*	*8.11*	*6.22*	*100*		
Column Totals	325	692	1,580	2,496	1,206	--	--	--
	5.16	*10.99*	*25.08*	*39.63*	*19.15*	*100*		

Measured on 1-5 scale, where 1=Strongly disagree (SD), 2=Disagree (D), 3=No strong opinion (NSO), 4=Agree (A), and 5=Strongly agree (SA). Italicized numbers are the % of individuals who chose each response for each item. Item total reflects number of people answering each item.

Table A6: Communication with and trust in USFS and CNNF staff

	SD	D	NSO	A	SA	Item Total	Mean	St.Dev
I am satisfied with the way the Chequamegon-Nicolet National Forest Staff deals with forest management activities	17	33	170	128	18	366	3.27	0.87
	4.64	*9.02*	*46.45*	*34.97*	*4.92*	*100*		
I believe that managers of the Chequamegon-Nicolet National Forest communicate truthfully with the public.	13	33	164	115	20	345	3.28	0.86
	3.77	*9.57*	*47.54*	*33.33*	*5.80*	*100*		
I believe that managers of the Chequamegon-Nicolet National Forest respond to the needs of local residents.	12	36	163	110	16	337	3.24	0.84
	3.56	*10.68*	*48.37*	*32.64*	*4.75*	*100*		
I am proud of the way the Chequamegon-Nicolet National Forest is managed.	11	44	175	123	22	375	3.27	0.85
	2.93	*11.73*	*46.67*	*32.80*	*5.87*	*100*		
I am confident in managers of the Chequamegon-Nicolet National Forest.	11	34	166	117	25	353	3.31	0.86
	3.12	*9.63*	*47.03*	*33.14*	*7.08*	*100*		
I believe that managers pay attention to what the community thinks regarding forest management decisions.	12	47	153	104	21	337	3.22	0.89
	3.56	*13.95*	*45.40*	*30.86*	*6.23*	*100*		
I believe area residents think the Chequamegon-Nicolet National Forest staff is trustworthy.	6	30	159	116	18	329	3.33	0.79
	1.82	*9.12*	*48.33*	*35.26*	*5.47*	*100*		
In the past, I have been pleased with the management practices of the Chequamegon-Nicolet National Forest.	12	36	158	141	21	368	3.33	0.85
	3.26	*9.78*	*42.93*	*38.32*	*5.71*	*100*		
I believe the people who manage the Chequamegon-Nicolet National Forest know what they are doing.	9	30	144	156	25	364	3.43	0.84
	2.47	*8.24*	*39.56*	*42.86*	*6.87*	*100*		
I believe that forest fires threatening my community and property would be put out	8	30	89	202	55	384	3.69	0.88
	2.08	*7.81*	*23.18*	*52.60*	*14.32*	*100*		
I believe the Chequamegon-Nicolet National Forest staff is reliable when managing the forest	7	23	134	171	20	355	3.49	0.78
	1.97	*6.48*	*37.75*	*48.17*	*5.63*	*100*		
The Forest Service and I share similar values regarding the management of the Chequamegon-Nicolet National Forest.	8	39	149	114	31	341	3.35	0.88
	2.35	*11.44*	*43.70*	*33.43*	*9.09*	*100*		
The Forest Service and I share desired outcomes regarding the Chequamegon-Nicolet National Forest.	7	31	138	127	36	339	3.45	0.88
	2.06	*9.14*	*40.71*	*37.46*	*10.62*	*100*		
Column Totals	133	446	1,962	1,724	328	4,593		
	2.90	*9.71*	*42.72*	*37.54*	*7.14*	*100*		

Measured on 1-5 scale, where 1=Strongly disagree (SD), 2=Disagree (D), 3=No strong opinion (NSO), 4=Agree (A), and 5=Strongly agree (SA). Italicized numbers are the % of individuals who chose each response for each item. Item total reflects number of people answering each item.

Table A7: Landowner survey respondents' attitudes about the clarity of communication from USFS

	SD	D	NSO	A	SA	Item total	Mean	St.Dev
Use of prescribed fire	17	63	130	102	14	326	3.10	0.94
	5.21	*19.33*	*39.88*	*31.29*	*4.29*	100		
Use of mechanical vegetation removal	14	68	137	93	9	321	3.05	0.89
	4.36	*21.18*	*42.68*	*28.97*	*2.80*	100		
Logging/timber sales	24	59	127	103	13	326	3.07	0.97
	7.36	*18.10*	*38.96*	*31.60*	*3.99*	100		
Active management activities	18	63	132	104	12	329	3.09	0.93
	5.47	*19.15*	*40.12*	*31.61*	*3.65*	100		
Community participation in management decisions	23	68	141	74	14	320	2.96	0.95
	7.19	*21.25*	*44.06*	*23.13*	*4.38*	100		
Outcomes/risks/benefits of management projects	20	62	136	82	13	313	3.02	0.94
	6.39	*19.81*	*43.45*	*26.20*	*4.15*	100		
The Lakewood Southeast project	20	46	133	91	14	304	3.11	0.94
	6.58	*15.13*	*43.75*	*29.93*	*4.61*	100		
Column totals	136	429	936	649	89			
	6.07	*19.16*	*41.80*	*28.99*	*3.97*			

Measured on 1-5 scale, where 1=Strongly disagree (SD), 2=Disagree (D), 3=No strong opinion (NSO), 4=Agree (A), and 5=Strongly agree (SA). Italicized numbers are the % of individuals who chose each response for each item. Item total reflects number of people answering each item.

References

Clement, J., & Cheng, A.S. (2011). *Using analysis of public value orientations, attitudes, and preferences to inform National Forest planning in Colorado and Wyoming*. Applied Geography, 21:393-400.

Curtis, J.TY. (1959). *Vegetation of Wisconsin: An Ordination of Plant Communities*. Madison: University of Wisconsin Press.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine

Lijeblad, A., Borrie, W. T., & Watson, A. E. (2009). *Determinants of trust for public lands*: *fire and fuels management on the Bitterroot National Forest*. Environmental Management, 43(4), 571-584.

Onwuegbuzie, A. J., Dickinson, W. B., Leech, N. L., & Zoran, A. G. (2009). A qualitative framework for collecting and analyzing data in focus group research. *International Journal Of Qualitative Methods*, 8(3), 1-21.

Rolston, H., & Coufal, J. (1991). A forest ethic and multivalue forest management. *Journal of Forestry*, 89(1): 35-40.

Stanturf, J., Lamb, D., & Madsen, P. Eds. (2012). *Forest Landscape Restoration: Integrating Natural and Social Sciences*. New York: Springer.

Sturtevant, B., Kern, C., & Donner, D. (2014). *Restoring Northern Dry Forest and Barren Communities*: *NE Sands Project*. Executive Summary. Northern Research Station, Rhinelander, WI.

Town of Riverview, WI. (2013). *Town of Riverview Community Wildfire Protection Plan 2014-2018: An Action Plan for Wildfire Mitigation*.