



Educational needs assessment of tree and woodland programs in Minnesota

Results from a 2020 study

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Summary

The interests of current and potential participants are essential in determining which educational programs are offered by outreach and Extension organizations. In October 2020, the University of Minnesota Extension Forestry team gathered responses to an educational program needs assessment survey. The survey was developed and delivered through the University of Minnesota's Qualtrics system and questions focused on educational topics related to trees and woodlands. In total, 314 respondents completed the survey from a variety of locations across Minnesota.

Results showed that the most popular topics were woodland management, wildlife, and tree and plant identification. When analyzed across different demographics (e.g., woodland owners versus non-woodland owners; gender; age), there were not any noticeable differences in the popularity of these topics. Similarly, these topics were generally ranked highest in popularity as found in a 2016 needs assessment. Within each of these main topics, subtopics that showed the greatest interest included selecting, planting, and protecting trees; managing woodlands for non-game species; and Minnesota's native plant communities. Survey respondents indicated comfort and proficiency with participating in online learning.

Not surprisingly, respondents preferred virtual learning formats during the COVID-19 pandemic. When asked about learning preferences after COVID-19 pandemic ends, the most preferred class format was a field day. Respondents indicated continued interest in online webinars even after the pandemic ends. When asked a word affinity question, the four most common words that characterized individuals were "nature lover", "conservationist", "steward", and "woodland owner". The four most common words that did not characterize individuals were "Future forest land investor/developer", "master", "novice", and "advisor".

These findings will inform future tree and woodland educational programs in Minnesota. Topics of interest align well with current programs offered by the University of Minnesota Extension, including the Master Woodland Owner, Forest Pest First Detector, and Master Naturalist programs. Future Extension forestry faculty and staff capacity would fit well by focusing on topics in demand by learners, namely woodland management, wildlife, and tree and plant identification. The survey also revealed opportunities for new programs focused around topics such as managing woodlands for wildlife, the history of Minnesota forests, and the impacts of climate change to Minnesota forests.

Introduction

In October 2020, the University of Minnesota Extension Forestry team gathered responses to an educational program needs assessment survey. The purpose of the survey was to elicit feedback from our target audiences about topics of greatest interest to them for future educational offerings. Important to this survey was also to assess interest and comfort in different educational delivery formats (e.g., online versus in-person) both during and after the COVID-19 pandemic.

Learner preferences are an important type of data to inform educational program offerings. With recent staffing changes to the University of Minnesota Extension Forestry team, these results will be used to inform the development of new programs, expansion of existing programs, and identify opportunities in Extension Forestry programming in Minnesota.

Methods

The survey was developed and delivered through the University of Minnesota's Qualtrics system. The questions focused on educational topics related to trees and woodlands but the survey was not restricted only to woodland owners. Respondents were recruited through social media channels and email lists including the Master Woodland Owner, MyMinnesotaWoods, Minnesota Invasive Species Advisory Council, and Aquatic Invasive Species Detectors. The survey was announced first in an email on Oct. 7, 2020 to the Master Woodland Owner email list. It was closed on Oct. 31, 2020.

The survey had three sections. The first section asked respondents to select up to three choices for tree and woodland topics they were interested in learning more about:

- Agroforestry
- Building and maintaining trails for hiking, biking, and riding
- Climate change and how trees store carbon
- Insects and disease of trees
- Invasive species
- Minnesota's forest history and ecology
- Non-timber forest products
- Planning for woodlands
- Tax programs and financial incentives for woodland owners
- Timber harvesting
- Tree and plant identification
- Wildlife
- Woodland management

The second section probed more deeply into the respondent's interest in the main topics identified in the first section. For each main topic, a list of subtopics was provided and the respondent was asked to indicate their interest (very interested, somewhat interested, not at all interested). The number of subtopics listed for each main topic ranged between four and seven.

The second section of the survey asked about educational delivery preferences. These questions focused on the comfort of respondents with different educational delivery formats (e.g., online versus in-person) both during and after the COVID-19 pandemic. Another suite of questions asked about how respondents prefer to learn about upcoming events organized by UMN Extension Forestry and what barriers respondents have to learning about trees and woodlands.



A third section asked basic demographic information such as:

- Past participation in UMN Extension programs,
- Willingness to volunteer to help others learn about trees and woodlands,
- Whether or not the respondent is a woodland owner, helps others manage their woodland, or is interested in becoming a woodland owner,
- State and county of home residence,
- Age,
- Gender,
- Annual household income, and
- Race and ethnicity.

The fourth and final section asked detailed information to respondents if they indicated they were woodland owners. Questions included:

- State and county of woodland property,
- Property size,
- Whether or not the property is currently enrolled in a tax incentive program, and
- Woodland owner conservation organizations they belong to.

Given the online format of this survey, it is important to note its possible bias toward internet users. Those who seek information online are more likely to have seen our invitation to complete the survey and would be included on our invite list. This could potentially influence responses, including popularity of online vs in-person formats.

Results and Discussion

In total, 314 respondents completed the survey. The results are presented based on each of the four sections of the survey.



Learner topic preferences

The most popular topic was woodland management, where 42.5% of respondents indicated it was in their top three topics they were interested in learning more about. The second most popular topic was wildlife and tree and plant identification (30.3%; Figure 1). Results indicating a broad spectrum of interests for this audience.

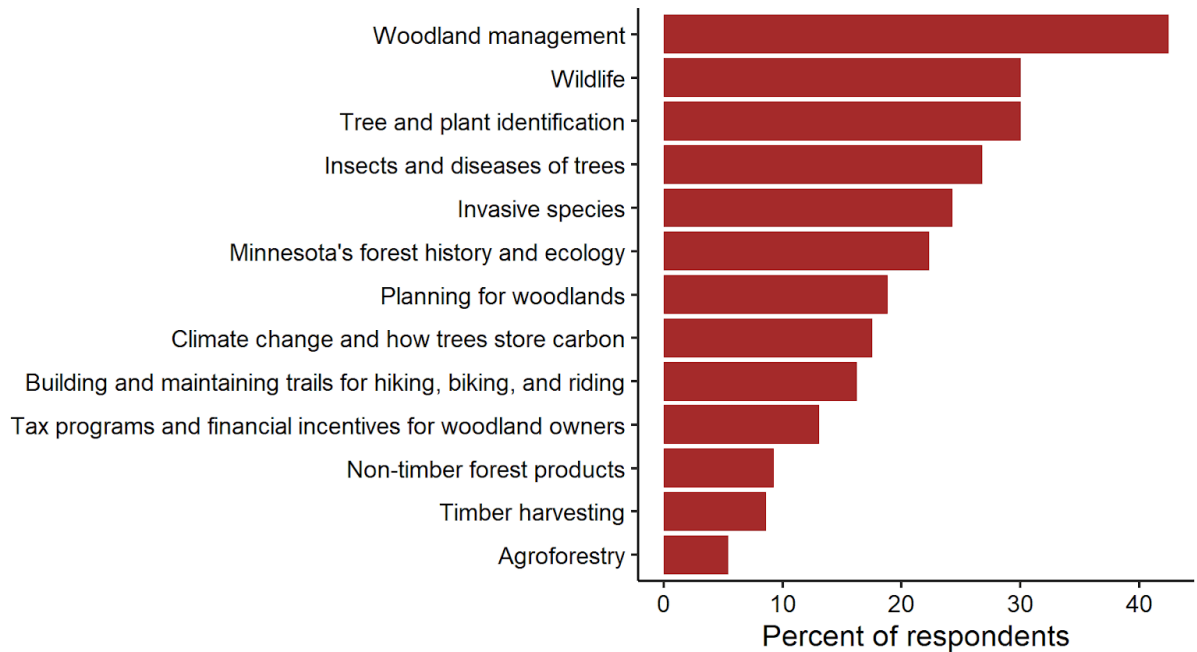


Figure 1. Tree and woodland topic preferences reported in top three choices by survey respondents (n = 314).

Trends in the popularity of topics were generally similar across a wide range demographics. For most demographic categories, woodland management, wildlife, tree and plant identification, insects and diseases of trees, or invasive species ranked in the top three preferred topics. Wildlife was often ranked the second most preferred topic for many respondents (Table 1).

Table 1. Tree and woodland topic preferences by demographics.

Demographic	First preferred topic	Second preferred topic	Third preferred topic
WOODLAND OWNERSHIP			
Woodland owners (n = 198)	Woodland management (n = 106)	Wildlife (n = 59)	Tree and plant identification (n = 58)
Non-woodland owners (n = 59)	Tree and plant identification (n = 27)	Wildlife (n = 26)	Insects and diseases of trees (n = 23)
GENDER			
Men (n = 156)	Woodland management (n = 81)	Wildlife (n = 52)	Insects and diseases of trees (n = 44)
Women (n = 89)	Tree and plant identification (n = 41)	Woodland management (n = 32)	Wildlife (n = 31)
RACE			
White (n = 228)	Woodland management (n = 106)	Wildlife (n = 78)	Tree and plant identification (n = 74)
American Indian or Alaska Native, Black or African American, Asian, or Native Hawaiian or Pacific Islander (n = 5)	Each with two responses: Woodland management; Wildlife; Tax programs and financial incentives for woodland owners; timber harvesting		
ETHNICITY			
Not Hispanic or Latino (n = 200)	Woodland management (n = 93)	Wildlife (n = 73)	Tree and plant identification (n = 62)
Hispanic or Latino (n = 2)	Timber harvesting	Each with one response: Insects and diseases of trees; Tax programs and financial incentives for woodland owners; Woodland management; Planning for woodlands	

PAST UMN EXTENSION PROGRAM PARTICIPANTS			
Master Naturalists (n = 70)	Tree and plant identification (n = 38)	Minnesota's forest history and ecology (n = 30)	Woodland management (n = 22)
Master Woodland Owners (n = 47)	Woodland management (n = 22)	Wildlife (n = 17)	Each with 14 responses: Minnesota's forest history and ecology; Insects and diseases of trees
Forest Pest First Detectors (n = 29)	Insects and diseases of trees (n = 15)	Each with 12 responses: Invasive species and Tree and plant identification	
Master Gardeners (n = 20)	Insects and diseases of trees (n = 14)	Woodland management (n = 11)	Tree and plant identification (n = 10)
Assessing Vegetation Impacts from Deer volunteers (n = 7)	Wildlife (n = 4)	Each with three responses: Minnesota's forest history and ecology and woodland management	
AGE			
18 to 54 years (n = 61)	Wildlife (n = 27)	Woodland management (n = 25)	Invasive species (n = 22)
55+ years (n = 183)	Woodland management (n = 87)	Tree and plant identification (n = 60)	Wildlife (n = 55)
NATURAL RESOURCE PROFESSIONALS			
Natural resource professionals (n = 74)	Woodland management (n = 34)	Insects and diseases of trees (n = 32)	Invasive species (n = 27)



For those that indicated interest in **woodland management** as a main topic, the subtopics that respondents indicated most interest were (Figure 2):

- Selecting, planting, and protecting trees (71%) and
- Cost share assistance (54%).

Subtopic: Woodland management

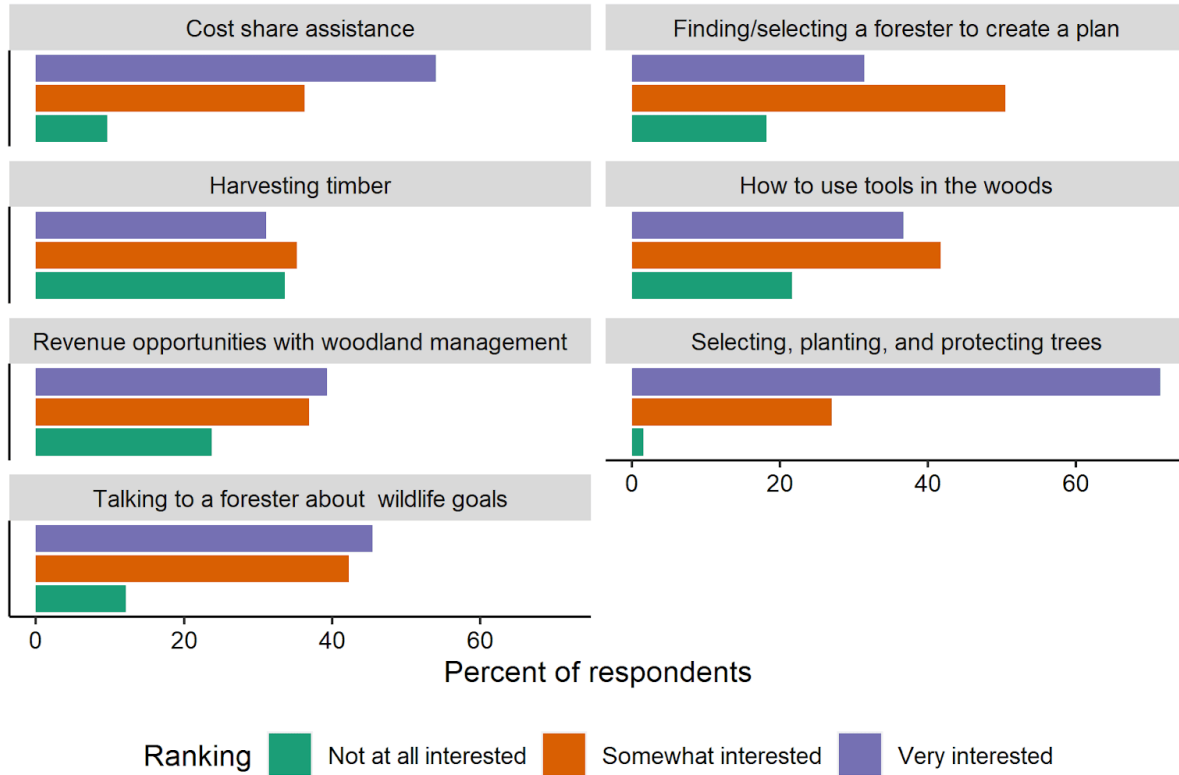


Figure 2. Subtopic preferences reported by survey respondents related to woodland management (n = 133).

For those that indicated interest in **wildlife** as a main topic, the subtopics that respondents indicated most interest were (Figure 3):

- Managing woodlands for non-game species (71%),
- Monitoring wildlife in woodlands (68%),
- Managing woodlands for game species (64%),
- Tools and techniques to observe wildlife (56%), and
- Endangered and threatened species (51%).

Subtopic: Wildlife

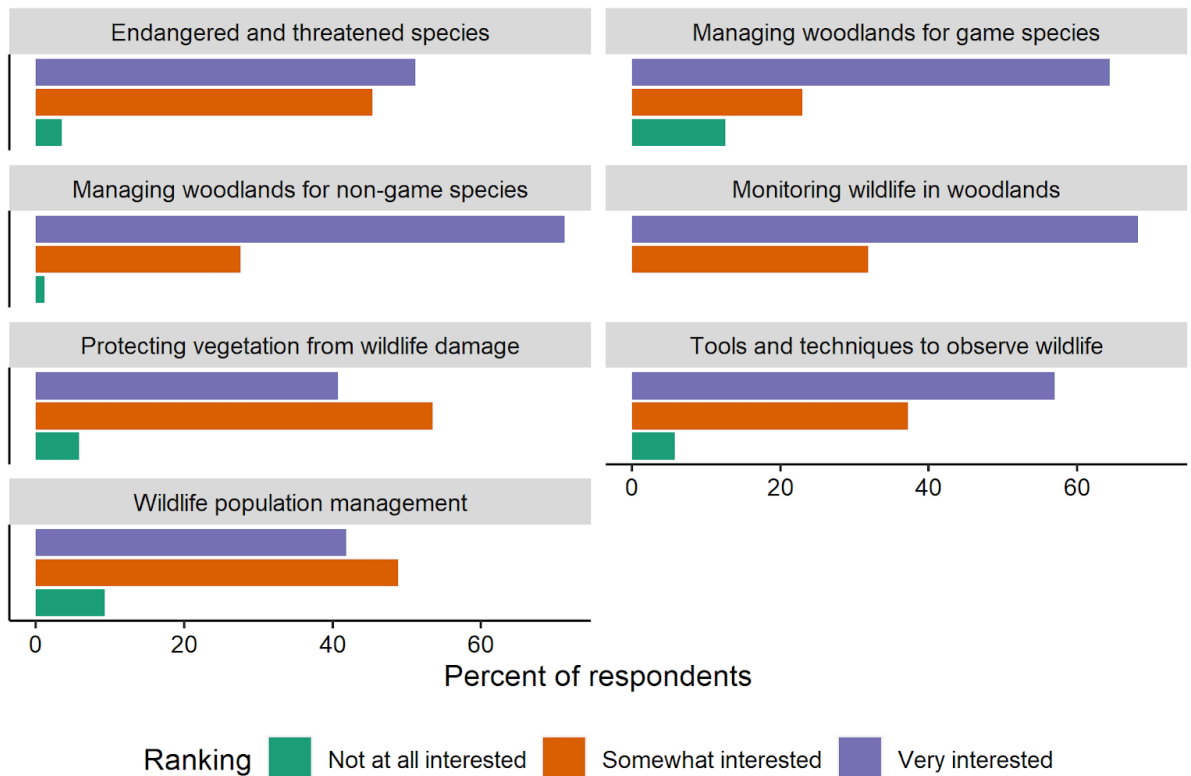


Figure 3. Subtopic preferences reported by survey respondents related to wildlife (n = 94).

For those that indicated interest in **insects and diseases** as a main topic, the subtopics that respondents indicated most interest were (Figure 4):

- Managing woodlands to lessen damage from insects and diseases (80%),
- How to identify and report invasive insects and diseases (77%),
- Biology of invasive insects and diseases (58%), and
- Biology of native insects and diseases (56%).

Two respondents highlighted an interest in learning about specific diseases of eastern white pine.

Subtopic: Insects and diseases

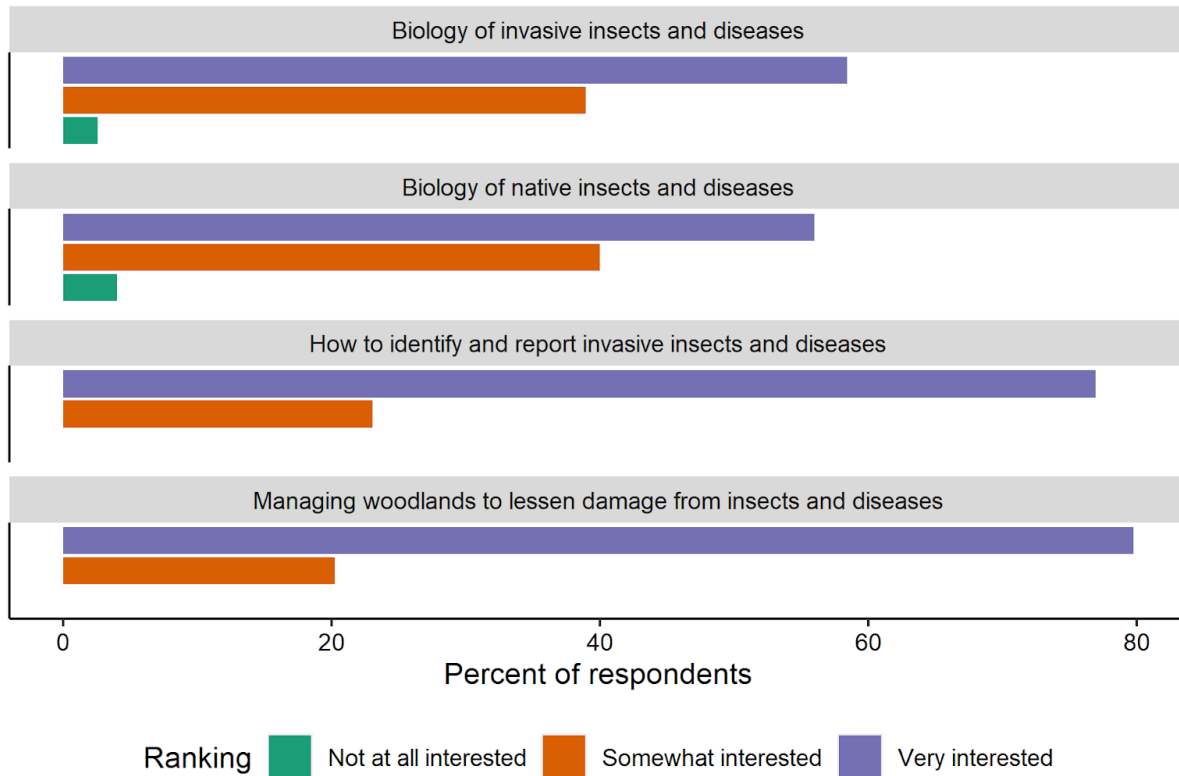


Figure 4. Subtopic preferences reported by survey respondents related to insects and diseases of trees (n = 84).

For those that indicated interest in **tree and plant identification** as a main topic, the subtopics that respondents indicated most interest were (Figure 5):

- Minnesota's native plant communities (86%),
- Use of tree and plant identification keys (76%).
- Apps and technology for tree identification (69%), and
- Winter tree identification (67%)

Subtopic: Tree identification

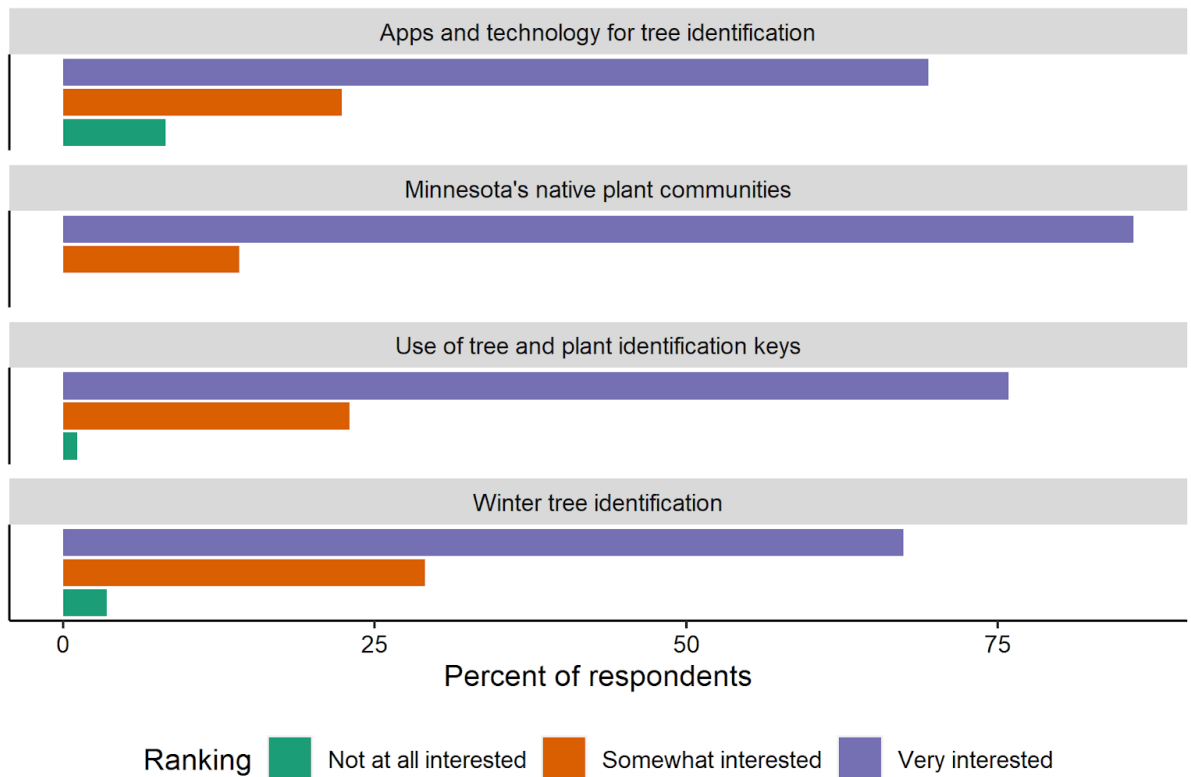


Figure 5. Subtopic preferences reported by survey respondents related to (tree and plant identification (n = 94).

For those that indicated interest in **invasive species** as a main topic, the subtopics that respondents indicated most interest were (Figure 6):

- Managing woodlands to lessen damage from invasives (90%),
- Invasive plants (90%),
- How to identify and report invasive species (78%),
- Herbicide use to control invasive plants (64%),
- Invasive diseases (62%), and
- Invasive insects (61%).

Two respondents highlighted an interest in learning about the costs of invasive plant management.

Subtopic: Invasive species

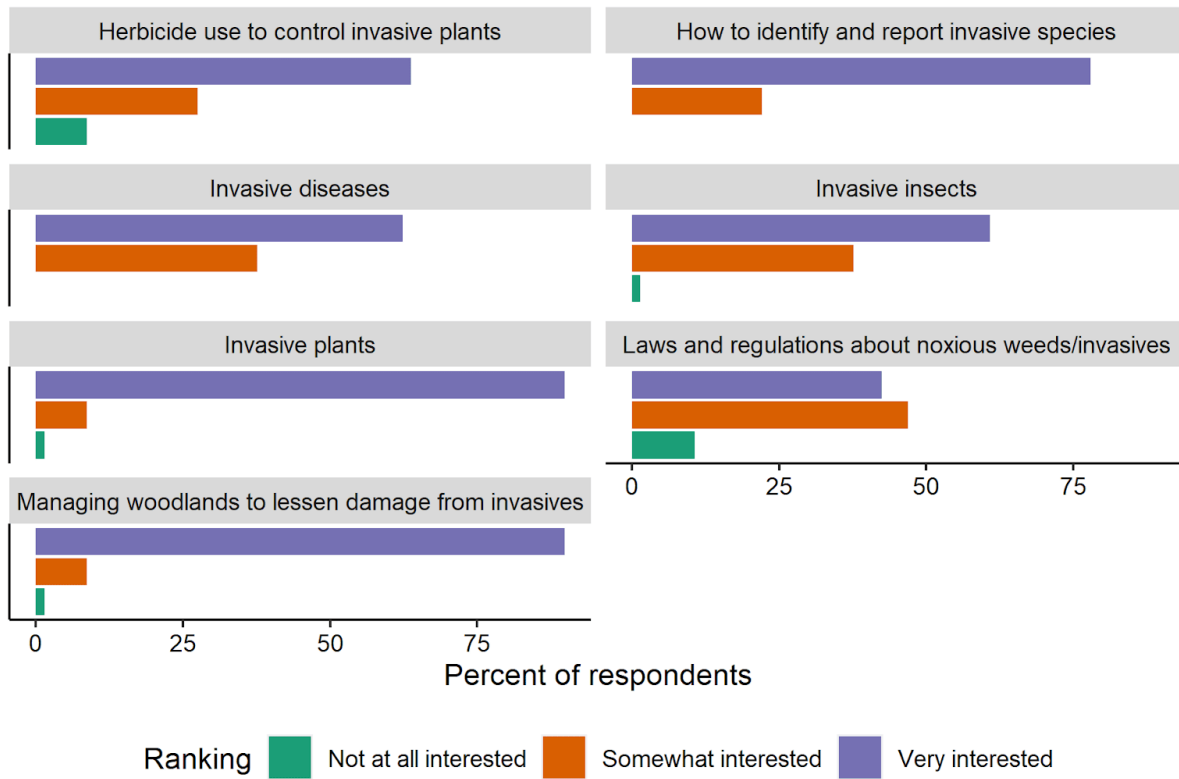


Figure 6. Subtopic preferences reported by survey respondents related to invasive species (n = 76).

For those that indicated interest in **Minnesota’s forest history and ecology** as a main topic, the subtopics that respondents indicated most interest were (Figure 7):

- History of Minnesota forests pre-settlement (92%),
- Minnesota's native plant communities (82%),
- Indigenous knowledge of Minnesota forests (82%),
- Impacts of climate change to Minnesota forests (67%),
- Stresses to trees and woodlands (61%), and
- How trees and woodlands grow (60%).

Other comments from respondents highlighted an interest in learning about historical fire regimes in Minnesota and old growth forests.

Subtopic: Minnesota's forest history and ecology

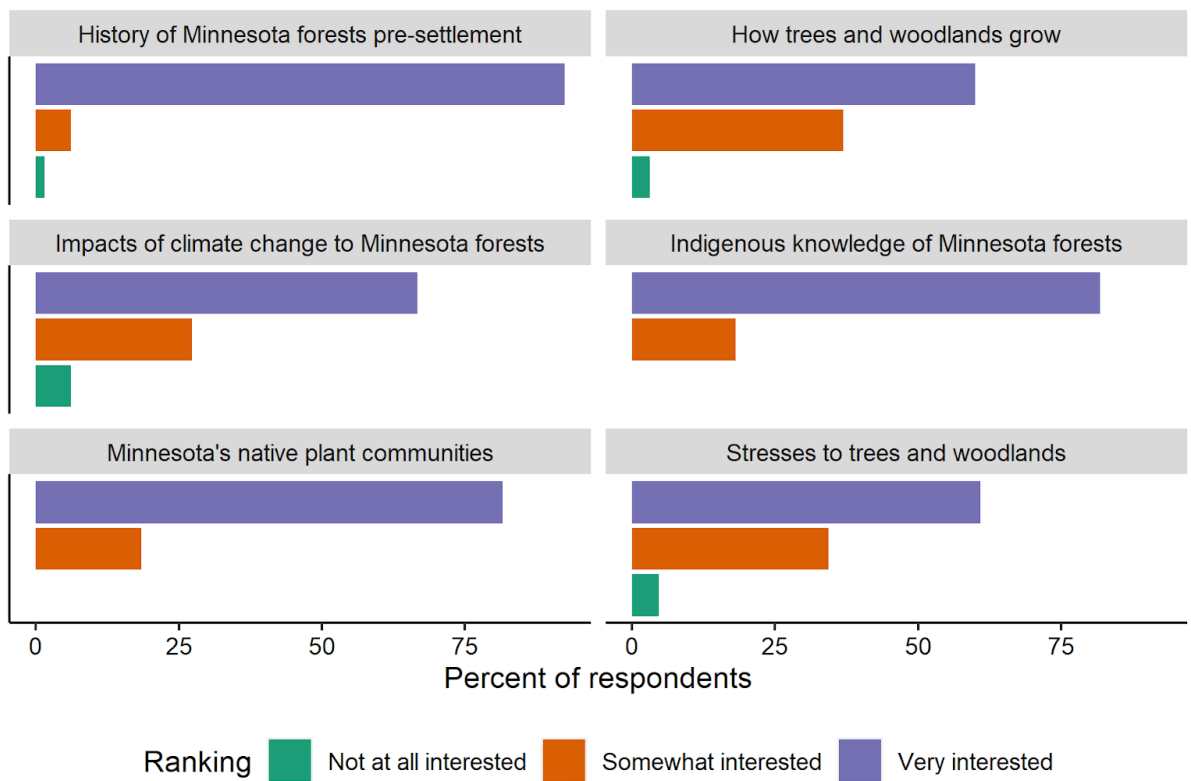


Figure 7. Subtopic preferences reported by survey respondents related to Minnesota’s forest history and ecology (n = 70).

For those that indicated interest in **planning for woodlands** as a main topic, the subtopics that respondents indicated most interest were (Figure 8):

- Talking with a forester about woodland goals (61%)

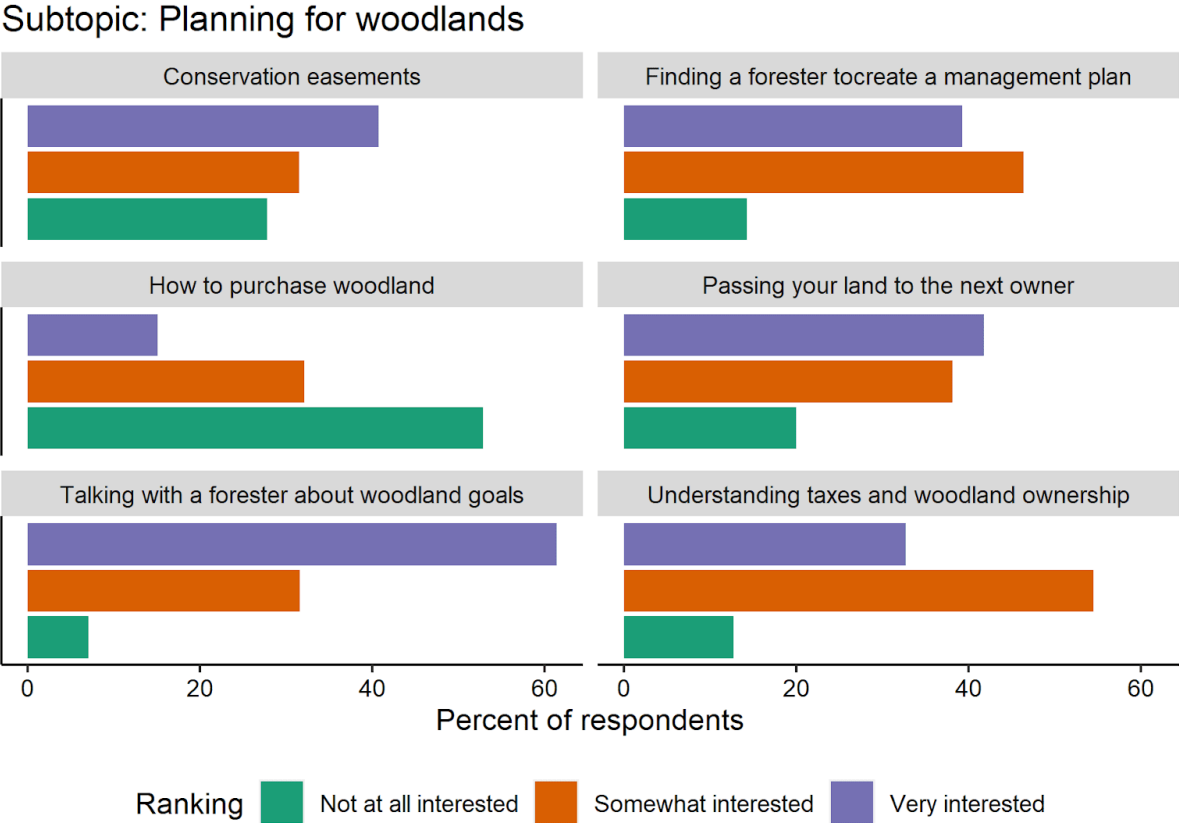


Figure 8. Subtopic preferences reported by survey respondents related to planning for woodlands (n = 59).

For those that indicated interest in **climate change and carbon** as a main topic, the subtopics that respondents indicated most interest were (Figure 9):

- What trees will survive and thrive in a future climate (98%),
- Impacts of climate change to Minnesota forests (96%), and
- Managing woodlands for carbon (56%).

Subtopic: Climate change and carbon

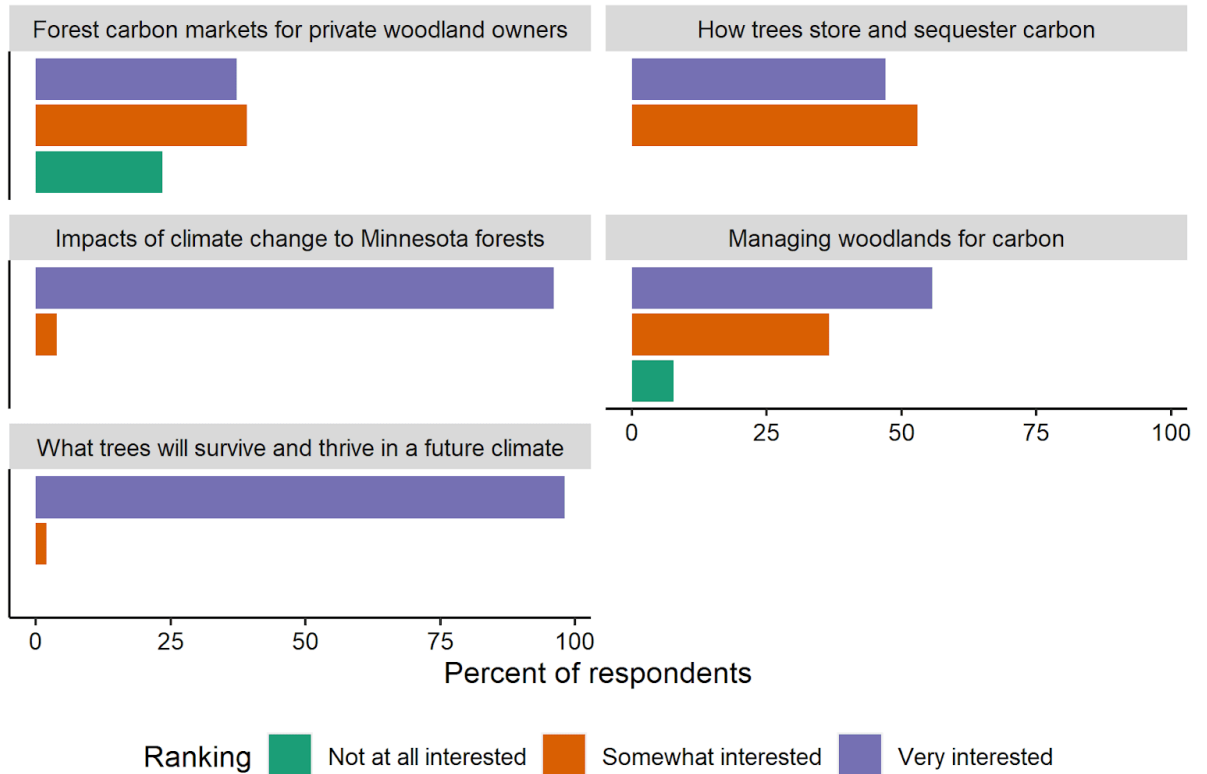


Figure 9. Subtopic preferences reported by survey respondents related to climate change and how trees store carbon (n = 52).

For those that indicated interest in **building and maintaining trails** as a main topic, the subtopics that respondents indicated most interest were (Figure 10):

- Maintaining existing trails (71%) and
- Building and designing new trails (70%)

Subtopic: Building and maintaining trails

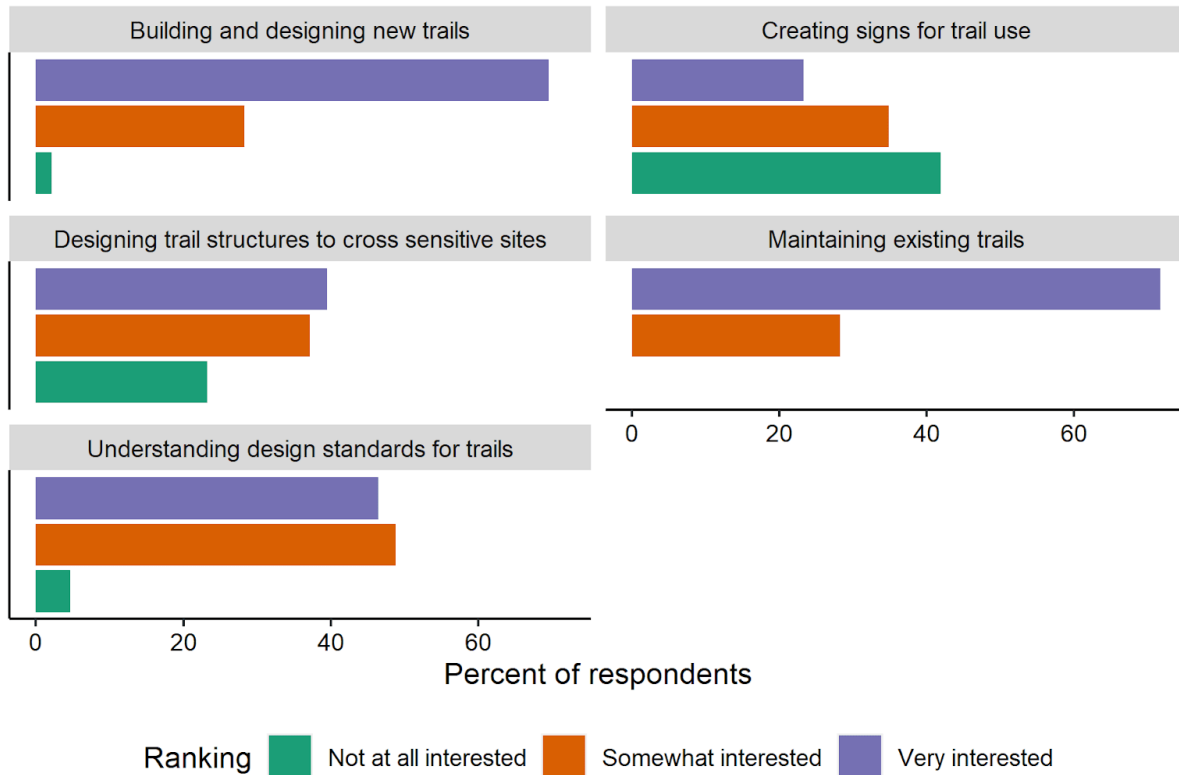


Figure 10. Subtopic preferences reported by survey respondents related to building and maintaining trails for hiking, biking, and riding (n = 51).

For those that indicated interest in **tax programs and financial incentives** as a main topic, the subtopics that respondents indicated most interest were (Figure 11):

- Understanding taxes and woodland ownership (89%)
- Tax incentive programs for woodland owners (83%)
- Cost share assistance for woodland management (73%)
- How to obtain a plan and set goals for woodlands (63%)

Subtopic: Tax programs and financial incentives



Figure 11. Subtopic preferences reported by survey respondents related to tax programs and financial incentives for woodland owners (n = 41).

For those that indicated interest in **non-timber forest products** as a main topic, the subtopics that respondents indicated most interest were (Figure 12):

- Other edibles (e.g., berries, fruits, and nuts; 69%) and
- Edible mushrooms (58%)

Subtopic: Non-timber forest products

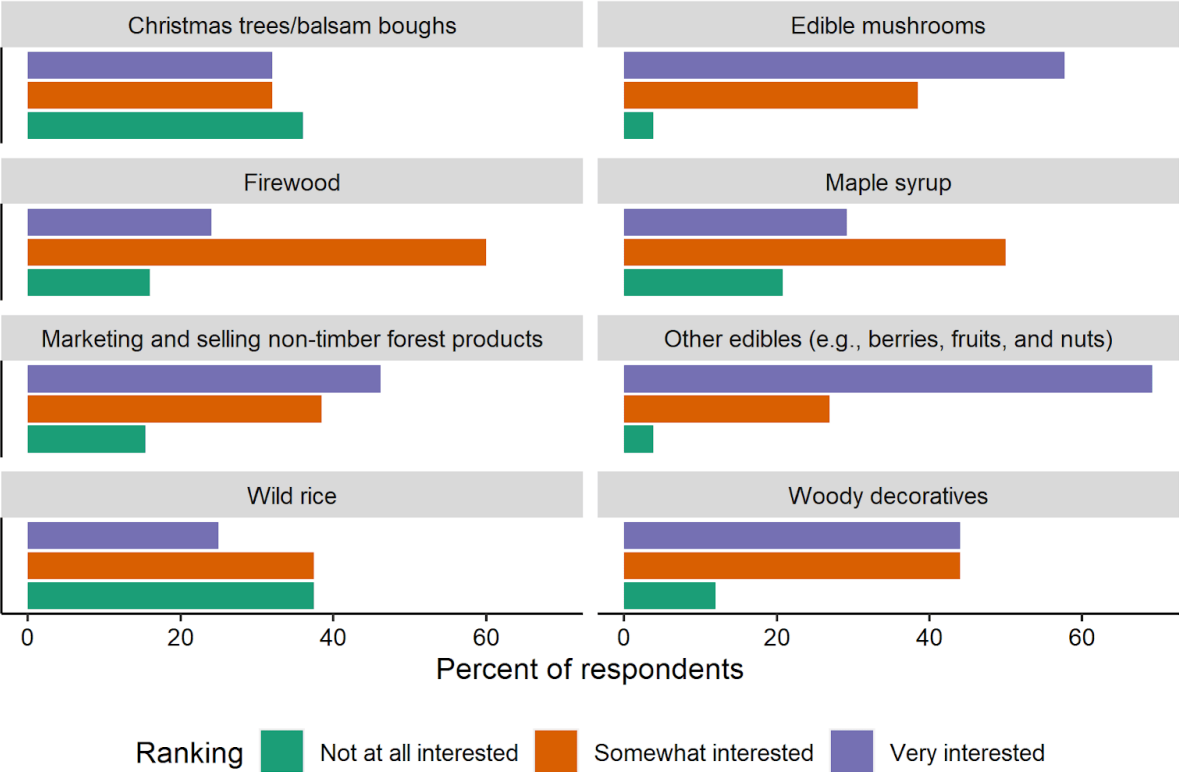


Figure 12. Subtopic preferences reported by survey respondents related to non-timber forest products (n = 29).

For those that indicated interest in **timber harvesting** as a main topic, the subtopics that respondents indicated most interest were (Figure 13):

- Finding and selecting foresters/logger (73%),
- Determining the value of timber (72%),
- Guidelines used by loggers when harvesting timber (69%),
- Designing a timber sale (62%),
- What to include in a timber sale contract (64%)

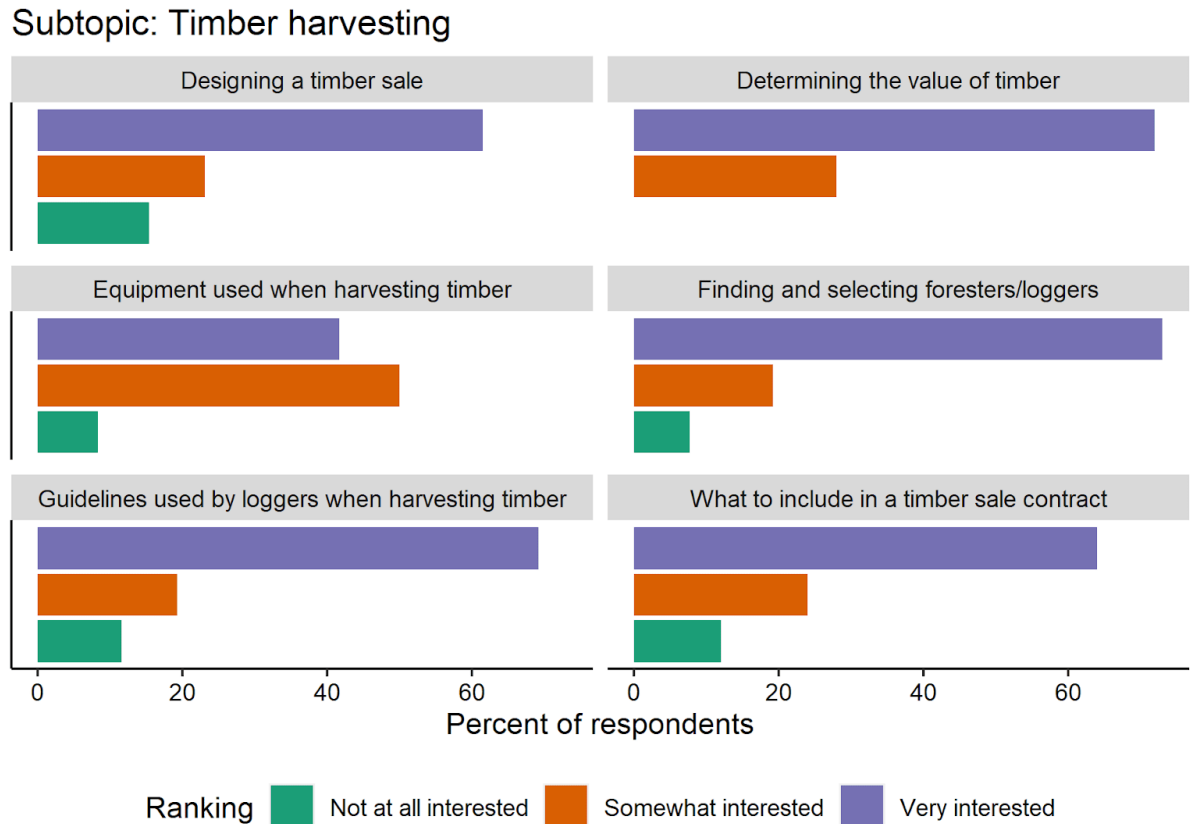


Figure 13. Subtopic preferences reported by survey respondents related to timber harvesting (n = 27).

For those that indicated interest in **agroforestry** as a main topic, the subtopics that respondents indicated most interest were (Figure 14):

- Forest farming (64%)

Subtopic: Agroforestry

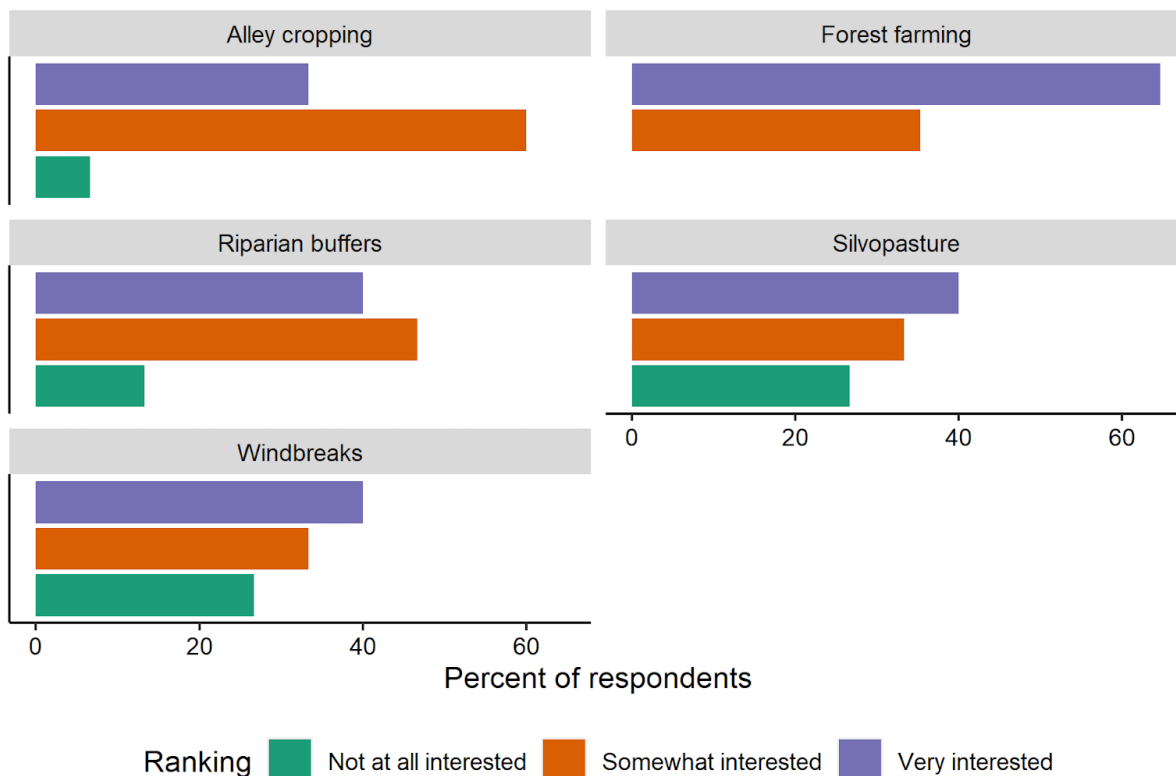


Figure 14. Subtopic preferences reported by survey respondents related to agroforestry (n = 17).

Understanding how learners desire educational content across multiple topics can assist Extension professionals in designing and delivering educational programs. Here are the 15 most common main topic pairs that were identified in the survey, ranked by their number of occurrences:

1. Woodland management and wildlife (n = 120)
2. Woodland management and insects and diseases of trees (n = 118)
3. Woodland management and Minnesota’s forest history and ecology (n = 113)
4. Woodland management and tree and invasive species (n = 109)
5. Woodland management and tree and plant identification (n = 108)
6. Tree and plant identification and insects and diseases of trees (n = 104)
7. Woodland management and building/maintaining trails (n = 100)
8. Tree and plant identification and Minnesota’s forest history and ecology (n = 99)

9. Tree and plant identification and tree and invasive species (n = 95)
10. Wildlife and insects and diseases of trees (n = 92)
11. Woodland management and tax programs/financial incentives (n = 91)
12. Wildlife and Minnesota's forest history and ecology (n = 87)
13. Woodland management and non-timber forest products (n = 86)
14. Woodland management and timber harvesting (n = 86)
15. Wildlife and invasive species (n = 83)

Learner educational delivery preferences

Survey respondents indicated comfort and proficiency with participating in online learning. Most indicated they have access to a computer with reliable internet connection to participate in online learning (Figure 15). Due to the online nature of this survey, these results likely reflect participants well-acquainted with the internet. The survey instrument likely excluded respondents with poor or no internet connection.

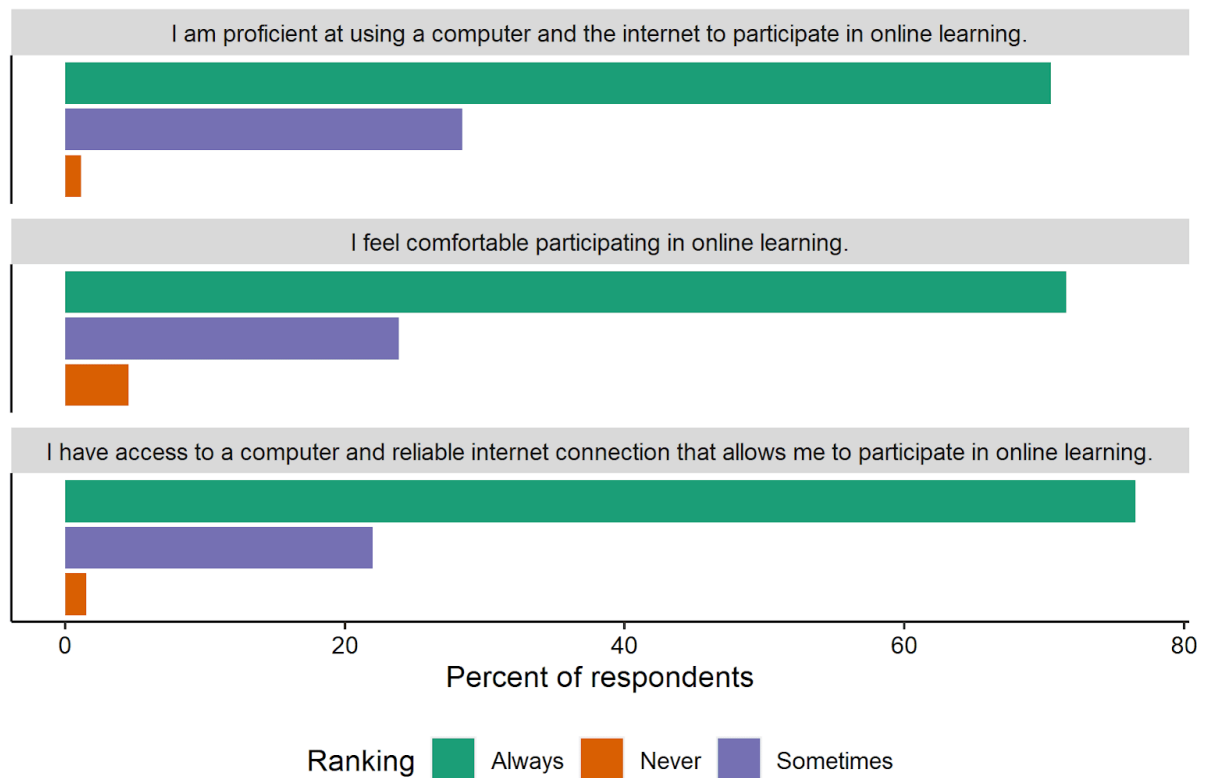


Figure 15. Survey responses about comfort and access to online learning (n = 264).

During the COVID-19 pandemic, the most preferred class format was an online webinar (one-hour presentation; Figure 16). The second and third most preferred formats were an online course (work at your own pace) and field day (half-day event mostly outdoors). The least preferred formats during the COVID-19 pandemic were in-person indoor meetings, half-day in length.

After the COVID-19 pandemic ends, the most preferred class format was a field day (half-day event mostly outdoors; Figure 16). The second and third most preferred formats were an online webinar (one-hour presentation) and in-person indoor meeting, half-day in length (10 or fewer people). The least preferred format following the COVID-19 pandemic was an in-person indoor meeting, half-day in length (11 to 50 people).

Despite the popularity of virtual programs throughout the COVID-19 pandemic, it is important to note the continued interest in online webinars after the pandemic ends. During the pandemic, respondents indicated more preference for online webinars, online courses, and a blend of online courses with discussion in real time. After the pandemic ends, respondents indicated more preference for in-person indoor meetings and field days.

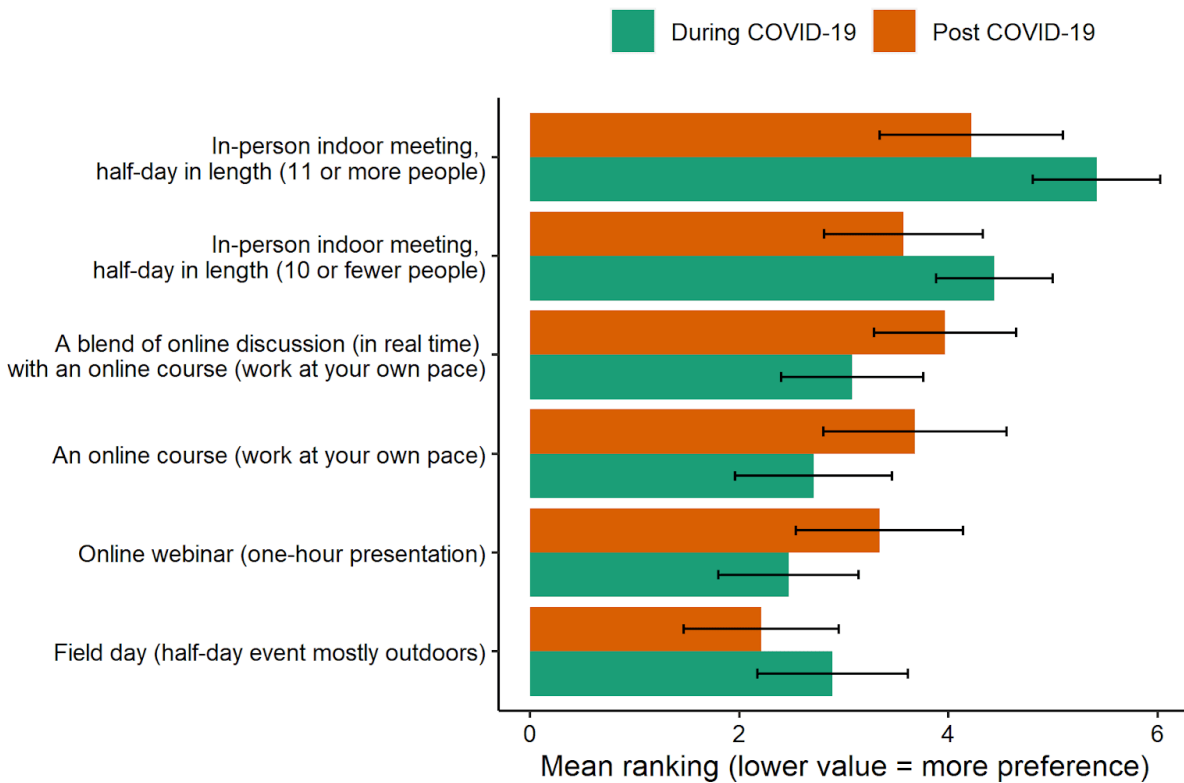


Figure 16. Survey responses about participation in educational programs during and after the COVID-19 pandemic (n = 241).

Respondents indicated they prefer to learn about upcoming events organized by the University of Minnesota Extension Forestry Team in the following ways, ranked by most to least preferred: email newsletters, websites or blogs, printed newsletter, and social media (Figure 17).

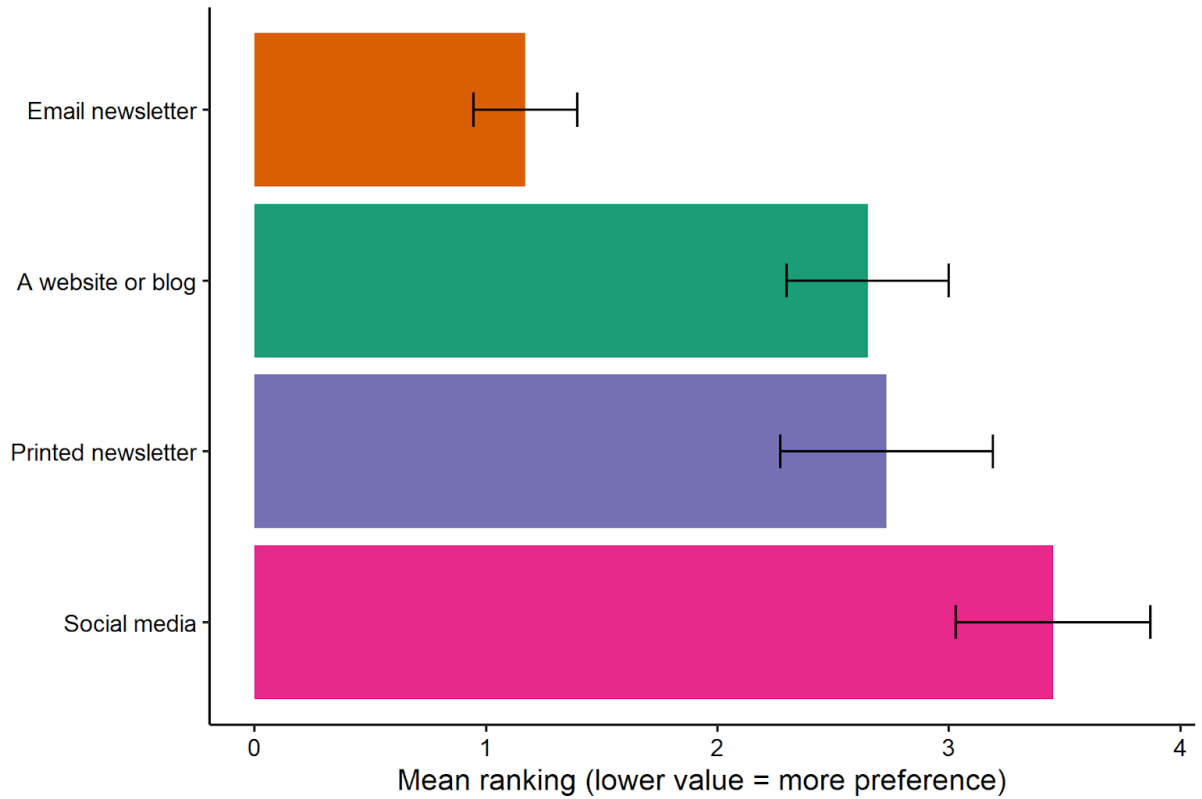


Figure 17. Survey responses about how participants prefer to learn about upcoming events organized by the University of Minnesota Extension Forestry Team (n = 220).

Respondents indicated several barriers for learning about trees and woodlands (Figure 18). The barriers that emerged here were themes about limited time, lack of access to the internet, long distances between residence and where classes are held, and competing work and home priorities.

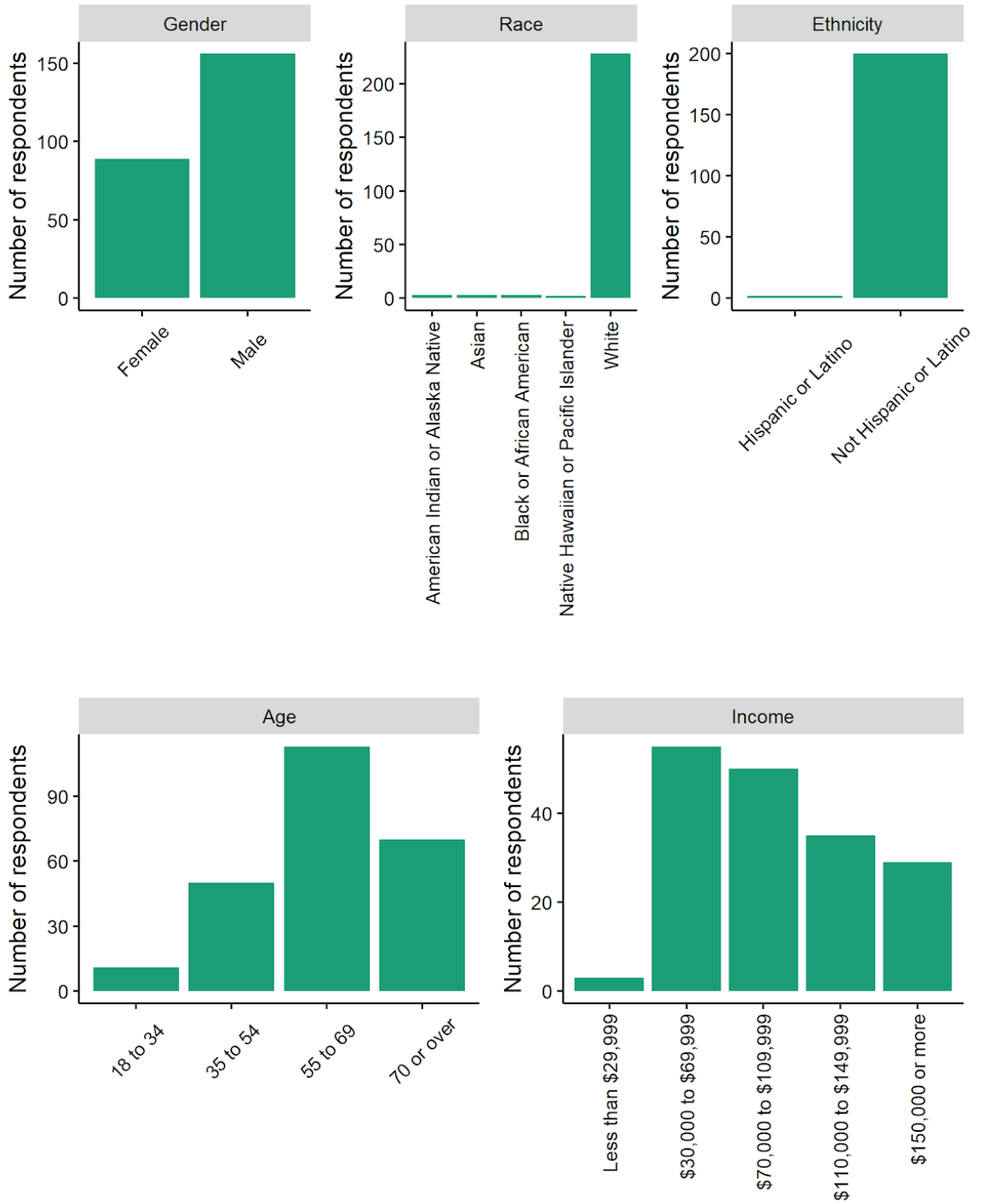


Figure 19. Demographics of survey respondents by gender, race, ethnicity, age, and income.

Respondents indicated many experiences participating in programs offered by the University of Minnesota Extension in the past. The most common past experiences included online webinars (34.2% of total respondents; n = 105), the Master Naturalist program (22.8%; n = 70), and the Master Woodland Owner program (15.3%; n = 47; Figure 20).

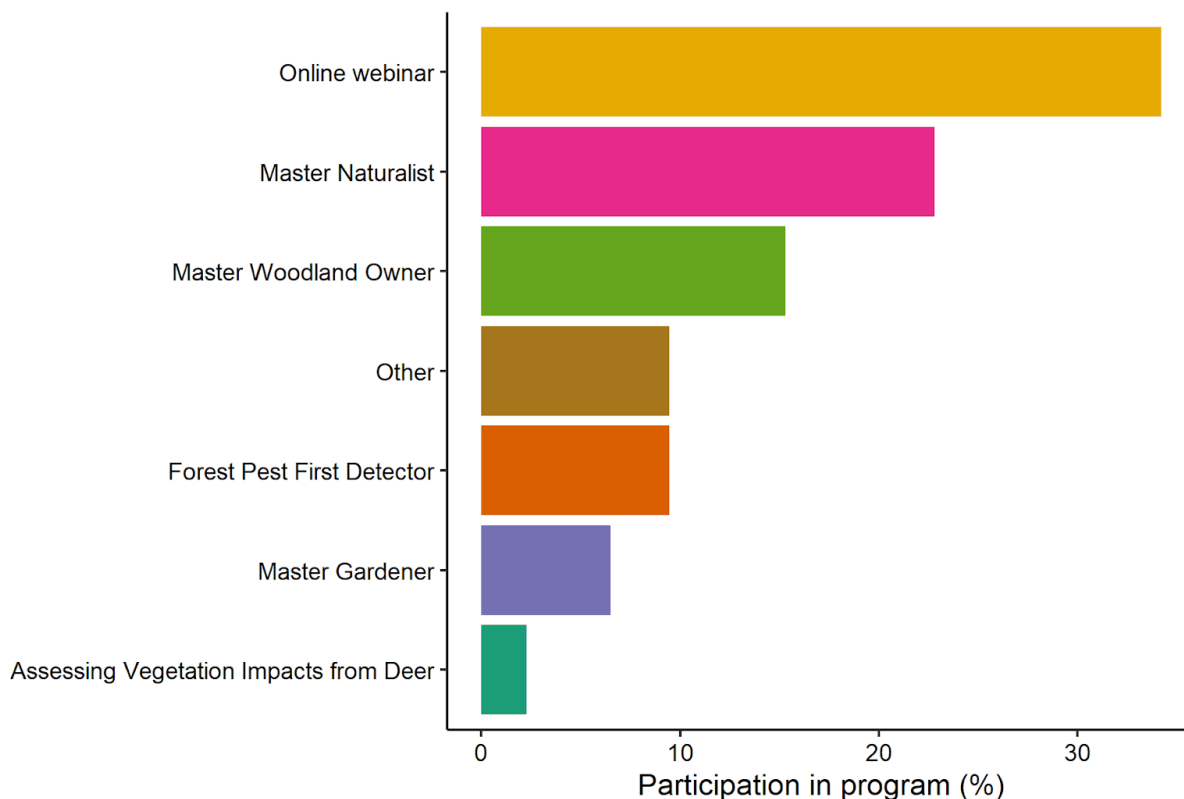


Figure 20. Survey responses about past participation in University of Minnesota Extension programs (n = 307).

When asked which conservation organizations survey respondents belonged to, the most common organizations were the Minnesota Forestry Association (n = 44), Minnesota Tree Farm (n = 26), and Minnesota Women’s Woodland Owner Network (n = 11).

Word affinity assessments can reveal how program participants identify with a cause or issue. This can help Extension professionals in developing, delivering, and branding education program offerings. We asked survey respondents to consider 14 unique words and asked them if the word characterizes or does not characterize their relationship with trees and woodlands. The four most common words that characterized individuals were “nature lover”, “conservationist”, “steward”, and “woodland owner”. The four most common words that did not characterize individuals were “Future forest land investor/developer”, “master”, “novice”, and “advisor” (Table 2). These results further reinforced a preference for non-consumptive uses of trees and woodlands that are passive. For example, words like “nature”, “conservation”, and “steward” are less active than words like “developer” and “woodland manager”.

In total, 119 survey respondents indicated they participated in one of three core educational programs offered by UMN Extension (Master Woodland Owner, Master Naturalist, and Master

Gardener). Twelve of these respondents (10% of total) indicated that the word “Master” characterized them. Fifty-five of these respondents (46% of total) indicated that the word “Master” did not characterize them.

Table. 2. Word affinity rankings from survey respondents to 14 words that characterize or do not characterize their relationship with trees and woodlands.

This word characterizes me	This word definitely does not characterize me
“Nature lover” (n = 212)	“Future forest land investor/developer” (n = 184)
“Conservationist” (n = 203)	“Master” (n = 140)
“Steward” (n = 192)	“Novice” (n = 118)
“Woodland owner” (n = 180)	“Advisor” (n = 105)
“Environmentalist” (n = 153)	“Woodland manager” (n = 86)
“Volunteer” (n = 152)	“Woodland owner” (n = 52)
“Advocate” (n = 150)	“Preservationist” (n = 49)
“Naturalist” (n = 138)	“Environmentalist” (n = 38)
“Preservationist” (n = 106)	“Naturalist” (n = 38)
“Woodland manager” (n = 92)	“Volunteer” (n=33)
“Novice” (n = 57)	“Advocate” (n=23)
“Advisor” (n = 54)	“Steward” (n = 9)
“Master” (n = 24)	“Conservationist” (n = 5)
“Future forest land investor/developer” (n = 23)	“Nature lover” (n=2)

The majority of respondents indicated they were *somewhat willing* to volunteer to help others learn about trees and woodlands (62.5% of respondents; n = 160), followed by *not at all willing* (20.3%; n = 52) and *very willing* (17.2%; n = 44).

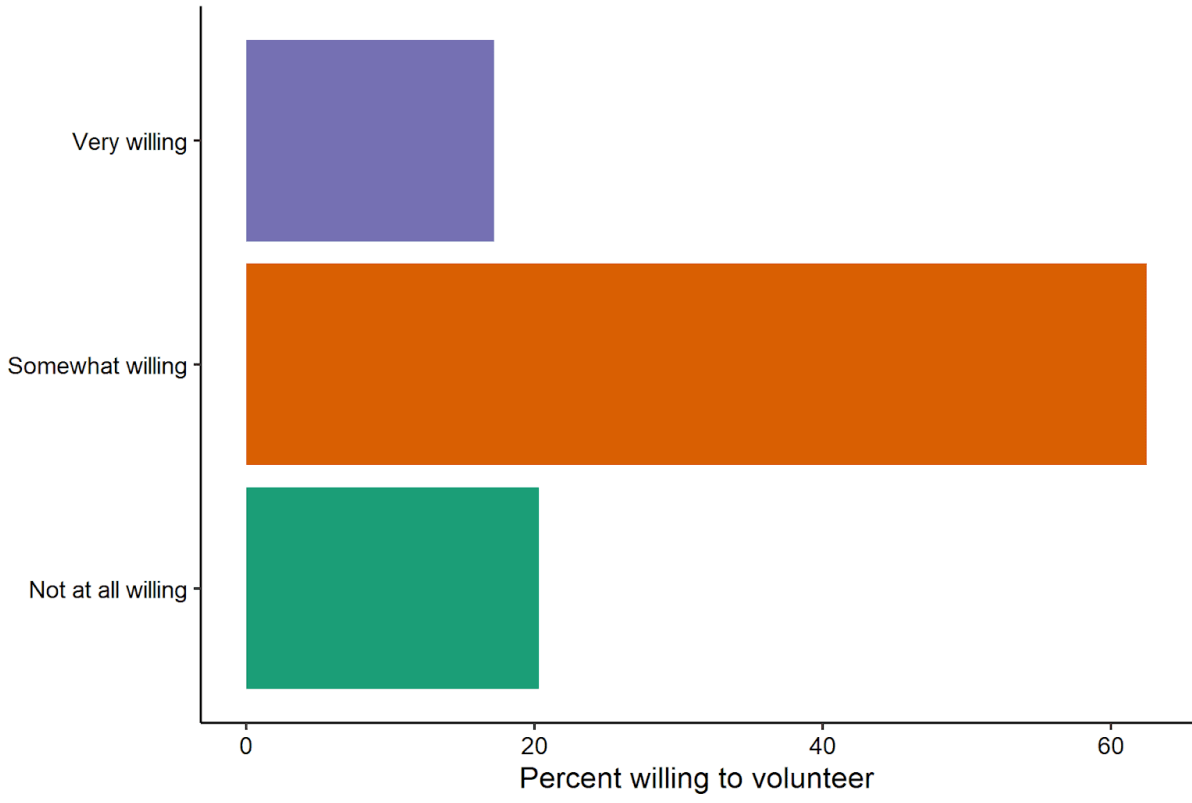


Figure 21. Survey responses about willingness to volunteer to help others learn about trees and woodlands (n = 256).

Woodland property characteristics

The average Minnesota woodland property size reported in the survey was 106 acres. This was much larger than the average size of 29 acres as evidenced in National Woodland Owner Survey data from Minnesota that includes all woodlands greater than one acre in size (Sass and Butler 2020). The smallest woodland property reported in this survey was 0.5 acres and the largest was 2,300 acres (Figure 22).

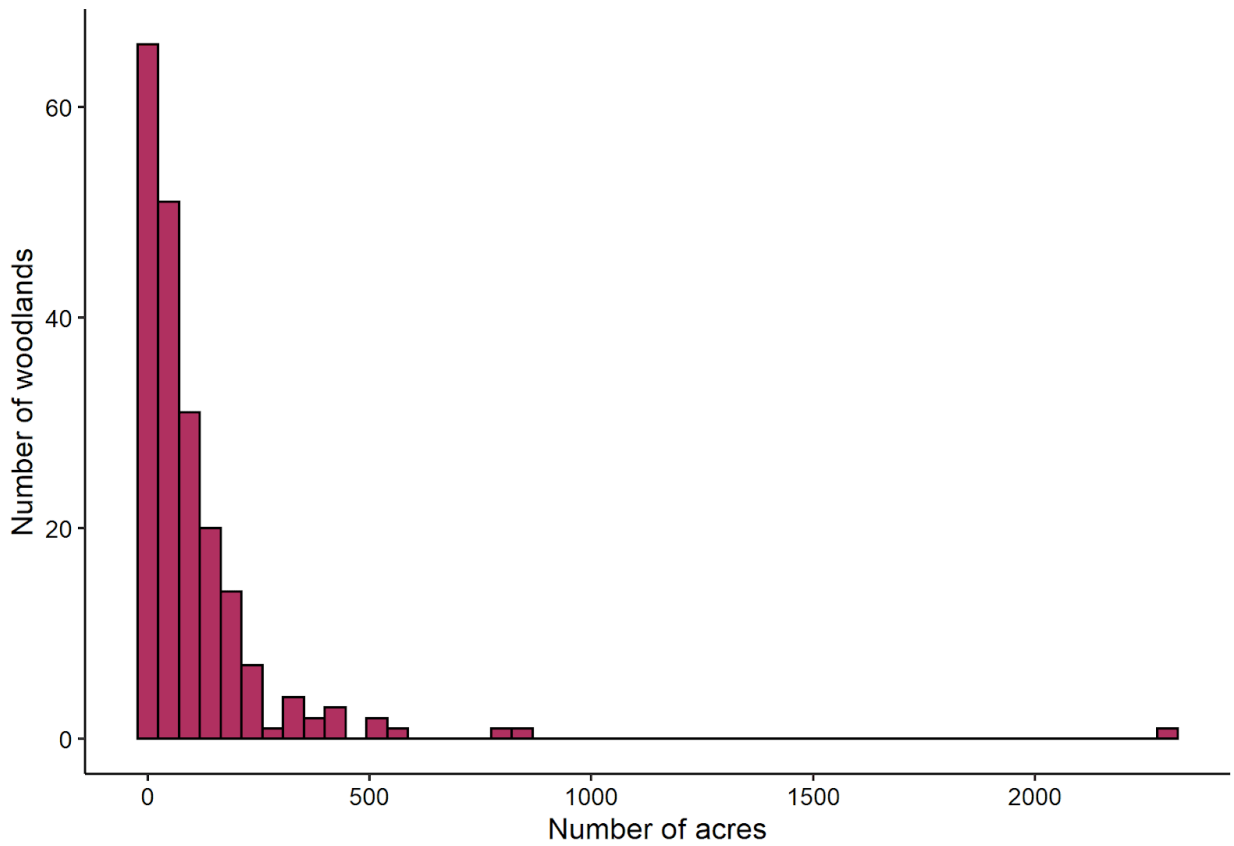


Figure 22. Distribution of property sizes of Minnesota woodlands reported in the survey (n = 208).

In total, 208 respondents owned woodlands in Minnesota, followed by Wisconsin (n = 5) and four other states (n = 4). The majority of woodlands were located in St. Louis County (n = 20), followed by Crow Wing (n = 13) and Cook and Itasca counties (n = 12). The majority of woodland owner residences were located in Hennepin County (n = 20), followed by Ramsey (n = 13) and St. Louis counties (n = 12; Figure 23).

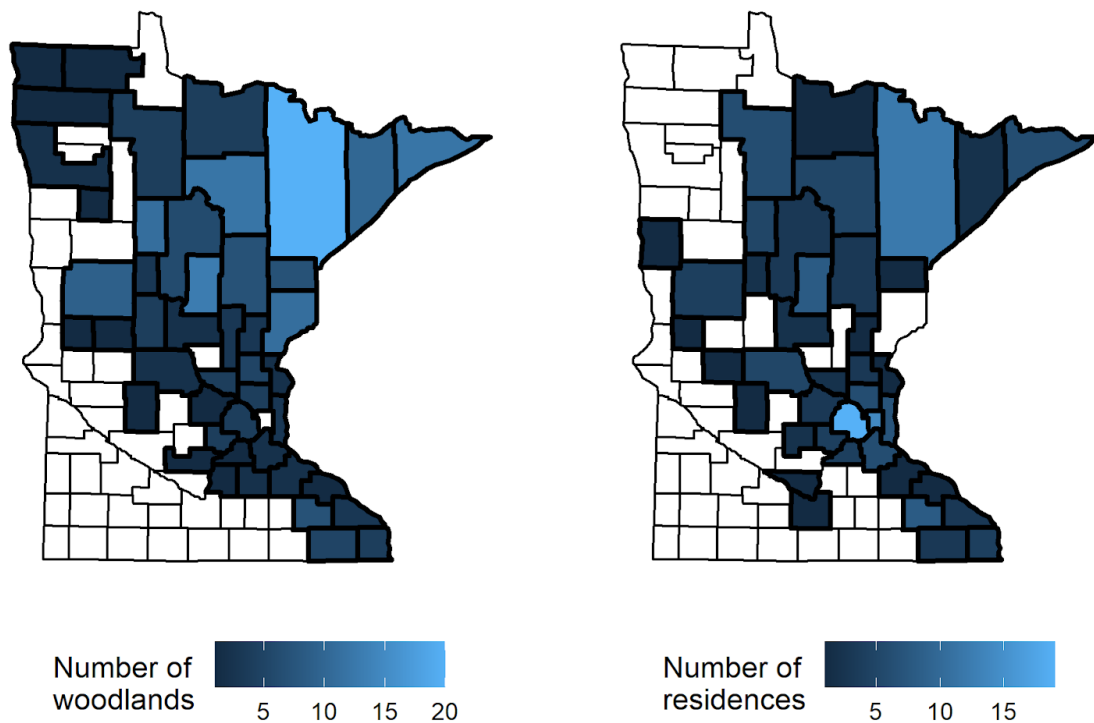


Figure 23. Distribution of number of woodlands by county in Minnesota (left; n = 208) and number residences (right; n = 168).

In total, 36% of woodland owners (n = 72) reported that their woodland was currently enrolled in a tax incentive program, such as the Minnesota Sustainable Forests Incentive Act (SFIA) SFIA or 2C classification.

Implications for UMN Extension programming

These findings will inform future tree and woodland educational programs in Minnesota offered by the University of Minnesota and its partner organizations. Topics that respondents expressed interest in learning more about are included in current programs offered by the UMN Extension, such as the Master Woodland Owner, Forest Pest First Detector, and Master Naturalist programs. Future Extension forestry faculty and staff capacity would be well suited if focused in the areas of woodland management, wildlife, and tree and plant identification—the three most popular topics identified in this survey.

Demographics for respondents in this survey were similar to previous evaluations and assessments conducted by UMN Extension Forestry. Respondents were primarily male, White, and 55 years of age or older. Reported income was somewhat lower compared to recent evaluations of UMN Extension Forestry programs, namely the Master Woodland Owner program. While demographics were largely the same, there was an increase in popularity of using online tools for learning. While these results are in part a reflection of the online format of this survey, preferences for digital learning may have also been brought by the COVID-19 pandemic. Increased comfort in online learning by participants

can allow forestry Extension and outreach educators to design programs that appeal to diverse learners across a large geographic region. While online learning was popular, the most preferred class format after the COVID-19 pandemic ends was a field day/outdoor event. This highlights the desire for experiential programs based in Minnesota's forests and other natural areas.

When compared to a 2016 needs assessment delivered to Minnesota natural resources professionals and woodland owners (Sagor 2017), similarities existed for the most popular topics. Although the main topic names were not the same in the 2016 and 2020 surveys, preferences for topics were generally the same. The three broad topics with the highest levels of interest in 2016 were forest health and invasives (analogous to "insects and diseases of trees" and "invasive species" in the 2020 survey), silviculture and forest management (analogous to "woodland management" in the 2020 survey), and forest dependent wildlife (analogous to "wildlife" in the 2020 survey). From 2007 to 2012, Extension forestry professionals reported teaching more topics related to forest health and invasives, intergenerational land transfer, and climate change effects (Sagor et al. 2014). None of these topics ranked in the top three main topics, but showed moderate interest when compared with other topics.

The survey also revealed opportunities for new programs. These topics included managing woodlands for wildlife (both non-game and game species), the history of Minnesota forests (including what Minnesota forests looked like pre-settlement and indigenous knowledge), and the impacts of climate change to Minnesota forests (including which species will thrive in a future climate. Along with input from event evaluation forms and attendance data, the University of Minnesota Extension Forestry team will use these results to inform future program development.

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Appendices

Appendix 1: Individual comments from needs assessment survey sorted into themes.

The following comments were written in response to the question “Do you have any additional comments for us?” These selected comments have been summarized into three themes.

Theme 1: Tree and woodland topics

Forest ecology and management

- “Information for **establishing new woods** - I planted acreage 12 years ago - would be good to see plans for maintaining at 20, 30 years, etc.”
- “Would be interested in learning **tree identification** and **long term management**.”
- “**Native herbaceous and deciduous understory plants** are important to me as well.”
- “Less focus on trees as a rotational crop. More on the **ecology of forests**.”

Finding professional help

- “I am looking for a resource listing that could **help me find an engineer(?)** who could advise me on where to locate a house, septic, well on my property. Also seeking advice on foundation options. I want very much to work with my woodland in selecting sites and solutions for building.”
- “**How can we find loggers** to harvest mature aspen when we are located so far from the mills?”
- “Seeing hundreds of loads off pulp and logs on the highways in northern Minnesota, would be nice to know about the **wood using industries in Minnesota**, species and product produced.”

Financial assistance and tax incentives

- “I would like to see the U of MN Ext collaborate with the State to create a database of Tax Program managed forests with plans that could be continuously updated online and possibly linked to **financial assistance / cost share program** and other resources. Also use the U of MN Ext networks to help woodland owners plan group educational activity events like plantings, or trail-making and work with DNR for supplies/equipment.”
- “Information on **grant and cost share funding** opportunities for private woodland management would be helpful.”
- “Where do I find more information on how to apply for the MN woodland **tax incentives??**”

Climate change

- “I am concerned about **climate change** and its impact on our woodlands.”
- “I’m very concerned about the impact of **climate change** and how to “prepare” for the future preservation of woodlands. This includes the unique Tamarack species which are threatened by insect disease.”

Tree pests and diseases

- “My property is under attack from **oak wilt**. I am watching 100+ year old oaks die annually. What can be done? I have plowed and carefully moved firewood but it seems inevitable.”
- “Tools and guidance on pesticide applications and **integrated pest management** would be nice additions to the Extension portfolio.”

Wildlife

- “Several years ago, the Univ of WI had a wonderful online course regarding **wildlife management**. I would be interested in courses in a similar format”.
- “Would like to see the **harvest for habitat** seminars such as was done in Aitkin county years back.”

Urban forestry

- “Don't forget the **urban environment**. Whether it's individual property owners with just a few trees or a city dealing with replanting after the loss of Elm, Ashes, and Birches, it's all important to the overall ecology of our region.”
- “Yes, I have to go to other states and forestry schools to learn about **urban forestry**, I think Minnesota should have an active role and teaching program for urban forestry. This is the forestry of the future.”

Theme 2: Barriers to learning/volunteering

- “While we still actively work in our woods, my husband's and my ages (80 and 90) are the biggest deterrent to hands-on involvement.”
- “Thanks for sending the survey. Only reason I say I won't volunteer is my limited available time. I'd certainly allow people to come here to talk to them.”
- “As I mentioned I’m a senior so any mobility issues are a problem, especially on field trips. If you can describe the terrain better I maybe can bring a scooter, or golf cart so I can participate.”

Theme 3: Learning methods and course formats

- “Hands on, experiential is my preferred method of learning. I also learn well through personal contact with others.”
- “Actual classes (not internet) in western Minnesota -- haven't been very many in the last 4/5 years!!!”



- “Interested in schedules of upcoming classes, events.”
- “I’m a retired middle school science teacher. I believe all children (and society) could benefit from strengthening our outdoor environmental curriculum.”
- “Please consider events in different parts of the state if doing in person field trips. Thanks.”
- “Field days are by far the best way for me to get practical information that helps me manage my woodland. I would like to see many more of these in Minnesota.”
- “Master Woodland Owners class was outstanding in my opinion. Very informative and well done. Enjoyed it very much.”
- “The Master Woodland Owner coursework was an excellent experience for me, and I look forward to further advanced learning and sharing opportunities that may come available in the future. Thank you!”
- “Master Woodland Class was extremely useful. It is something I use all year long, and would recommend that class to anyone interested in woodlands.”

Appendix 2: Survey instrument.



Default Question Block

The University of Minnesota Extension Forestry Team is interested in learning what you value in relation to educational programs about trees and woodlands. This survey should take you 10 minutes to complete. It will close on Oct. 30 2020 at 11:59 p.m.

Thank you in advance for completing this survey. Participation is voluntary and you may opt out of the survey at any point. Your name is not associated with the answer to any question nor will it be used in any summaries. If you have questions, please contact Matt Russell at russellm@umn.edu or 612-626-4280.

Which of the following topics are you most interested in learning more about?
Select **up to three top choices**.

- Agroforestry
- Building and maintaining trails for hiking, biking, and riding
- Climate change and how trees store carbon
- Insects and diseases of trees
- Invasive species
- Minnesota's forest history and ecology
- Non-timber forest products
- Planning for woodlands
- Tax programs and financial incentives for woodland owners
- Timber harvesting
- Tree and plant identification
- Wildlife

Woodland management

You indicated an interest in **agroforestry**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Alley cropping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Forest farming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Riparian buffers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Silvopasture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Windbreaks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **building and maintaining trails**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Building and designing new trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creating signs for trail use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Designing trail structures to cross sensitive sites (e.g., stream crossings)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintaining existing trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding design standards for trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **climate change and how trees store carbon**.

Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Forest carbon markets for private woodland owners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How trees store and sequester carbon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts of climate change to Minnesota trees and forests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing woodlands for carbon storage and sequestration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What trees will survive and thrive in a future climate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **insects and diseases of trees**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Biology of invasive insects and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biology of native insects and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to identify and report invasive insects and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing woodlands to lessen damage from insects and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very interested	Somewhat interested	Not at all interested
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **invasive species**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Herbicide use to control invasive plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to identify and report invasive species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Invasive insects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Invasive diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Invasive plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Laws and regulations about noxious weeds and invasive species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing woodlands to lessen damage from invasive species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **Minnesota's forest history and ecology**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
History of Minnesota forests pre-settlement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How trees and woodlands grow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very interested	Somewhat interested	Not at all interested
Impacts of climate change to Minnesota forests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indigenous knowledge of Minnesota forests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minnesota's native plant communities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stresses to trees and woodlands (e.g., drought, disturbances)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **non-timber forest products**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Christmas trees/balsam boughs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Edible mushrooms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Firewood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maple syrup	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marketing and selling non-timber forest products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other edibles (e.g., berries, fruits, and nuts)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wild rice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Woody decoratives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **planning for woodlands**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Finding a forester to help me create a management plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to purchase woodland	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preserving your woodland legacy through conservation easements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preserving your woodland legacy by passing your land to the next owner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talking with a forester about woodland management plans and goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding taxes and woodland ownership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **tax programs and financial incentives for woodland owners**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Cost share assistance for woodland management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to obtain a plan and set goals for woodlands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operating a woodland as a business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very interested	Somewhat interested	Not at all interested
Tax incentive programs for Minnesota woodland owners (e.g., SFIA and 2C)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding taxes and woodland ownership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **timber harvesting**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Determining the value of timber	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Designing a timber sale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equipment used when harvesting timber	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding and selecting foresters and/or loggers for your project.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guidelines used by loggers to sustain forest resources when harvesting timber	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What to include in a timber sale contract	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **tree and plant identification**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
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	Very interested	Somewhat interested	Not at all interested
Apps and technology to assist with tree and plant identification	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minnesota's native plant communities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use of tree and plant identification keys	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Winter tree identification	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **wildlife**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Endangered and threatened species management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing woodlands for game species (e.g., deer, grouse, turkey)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing woodlands for non-game species (e.g., birds)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring wildlife in woodlands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protecting vegetation from wildlife damage (e.g., deer browse)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife population management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools and techniques to observe wildlife on my property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very interested	Somewhat interested	Not at all interested
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You indicated an interest in **woodland management**. Please indicate your level of interest in each of the following subtopics.

	Very interested	Somewhat interested	Not at all interested
Cost share assistance for woodland management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding and selecting a forester to create a management plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Harvesting timber	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to use tools in the woods (e.g., hand tools, chainsaws)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Selecting, planting, and protecting trees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Revenue opportunities with woodland management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talking to a forester about woodland management goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe): <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Due to the COVID-19 pandemic, many educational programs are currently being offered in an online format. Indicate how much you agree with the following statements:

Always	Most of the time	Never
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	Always	Most of the time	Never
I have access to a computer and reliable internet connection that allows me to participate in online learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am proficient at using a computer and the internet to participate in online learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable participating in online learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Assuming the health concerns regarding COVID-19 continue (e.g., social distancing, limitations on in-person gatherings), which class formats would you be most likely to attend? Consider the content on a general topic related to trees and woodlands. Rank the formats by dragging them so the most preferred is on top and the least preferred is on bottom.

Online webinar (one-hour presentation)

An online course (work at your own pace)

A blend of online discussion (in real time) with an online course (work at your own pace)

Field day (half-day event mostly outdoors)

In-person indoor meeting, half-day in length (10 or fewer people)

In-person indoor meeting, half-day in length (11 or more people)

Now, assume the conditions in a non-COVID-19 world with no restrictions on in-person gatherings. Which class formats would you be most likely to attend? Consider the content on a general topic related to trees and woodlands. Rank the formats by dragging them so the most preferred is on top and the least preferred is on bottom.

Online webinar (one-hour presentation)

An online course (work at your own pace)

A blend of online discussion (in real time) with an online course (work at your own pace)

Field day (half-day event mostly outdoors)

In-person indoor meeting, half-day in length (10 or fewer people)

In-person indoor meeting, half-day in length (11 to 50 people)

Indicate how you prefer to learn about upcoming events organized by the University of Minnesota Extension Team. Rank the formats by dragging them so the most preferred is on top and the least preferred is on bottom.

Email newsletter

Printed newsletter

Social media (e.g., Facebook, Twitter, Instagram)

A website or blog

Think about your own individual experiences as they relate to trees and woodlands. For each of the following words, drag it into either the category “**This word characterizes me**” or “**This word definitely does not characterize me**”. It is also okay not to place some words in either category.

Items

Steward

Volunteer

Advisor

Master

This word characterizes me

- Nature lover
- Advocate
- Conservationist
- Preservationist
- Environmentalist
- Woodland owner
- Woodland manager
- Naturalist
- Novice
- Future forest land investor/developer

This word definitely does not characterize me

What are some of the barriers you have for learning about trees and woodlands? For example, this could include limited time or poor internet connection for online learning.

If you have participated in any University of Minnesota Extension programs in the past, please select them below.

- Master Woodland Owner
- Master Naturalist
- Master Gardener
- Forest Pest First Detector
- Assessing Vegetation Impact from Deer (AVID)
- Online webinar
- Other (please describe)

How willing are you to volunteer to help others learn about trees and woodlands?

Not at all willing

Somewhat willing

Very willing

Have you ever worked as a natural resource professional, including for yourself?

Yes

No

Are you a woodland owner or do you help manage a woodland for others?

I am a woodland owner.

I am a woodland owner and help manage woodlands for others.

I am not a woodland owner, but I help manage a woodland for others.

I am not a woodland owner.

How many acres is your woodland?

In what county(ies) and state(s) is your woodland property located?

Is your woodland currently enrolled in a tax incentive program (e.g., SFIA or 2C for Minnesota woodland owners)?

- Yes
- No
- Don't know

If you belong to any of the woodland owner conservation organizations below, please select them.

- Minnesota Forestry Association
- Minnesota Women's Woodland Owner Network
- Minnesota Tree Farm
- Other

Describe in two to three sentences how you help others manage their woodlands (i.e., on woodlands not owned by you).

Are you interested in becoming a woodland owner in the future?

- Yes
- Maybe
- No

If yes or maybe, the University of Minnesota Extension is interested in following up with you. Leave your name and email address only if you are willing to answer a few questions we have for you about your interests in owning woodlands.

The following questions allow us to tailor our content to meet your needs. If you would rather not share this information, choose "Prefer not to answer" for each question.

In what county and state is your home residence? Leave blank if you prefer not to answer.

What is your gender?

- Male
- Female
- Non binary/third gender
- Prefer to self-describe
- Prefer not to answer

What is your age?

- 17 or under
- 18 to 34
- 35 to 54
- 55 to 69
- 70 or over
- Prefer not to answer

What was your entire household income last year, before taxes?

- Less than \$29,999
- \$30,000 to \$69,999

- \$70,000 to \$109,999
- \$110,000 to \$149,999
- \$150,000 or more
- Prefer not to answer

Which of the following racial categories describe you? Select all that apply.

- American Indian or Alaska Native
- Black or African American
- White
- Asian
- Native Hawaiian or Pacific Islander
- Prefer not to answer

Select one of the following ethnic categories:

- Not Hispanic or Latino
- Hispanic or Latino
- Prefer not to answer

This is the final question. Do you have any additional comments for us?