Indigenous Agroforestry

Survey Report

INDIGENOUS
AGROFORESTRY
NETWORK

Table of Contents

01 Introduction

05 Agroforestry Systems and Practices

06 Survey Approach

07 Survey Data & Takeaways

16 Conclusions

17 Acknowledgments

18 References Cited

19 Appendices
Appendix A: Survey questions
Appendix B: Survey data
Appendix C: Methods for analysis

Indigenous Agroforestry Survey Report

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Introduction

Indigenous Agroforestry Network

The **Indigenous Agroforestry Network** is intended to improve mutual understanding and cooperation between tribal natural resource programs, Indigenous agroforestry practitioners, intertribal organizations, and other allied groups and initiatives that prioritize Indigenous self-determination, ways of knowing, health, and well-being. The Indigenous Agroforestry Network is geographically focused on the Northwest United States but welcomes support, collaboration, and opportunities for connection across the country.

With guidance and leadership from Indigenous Agroforestry Network participants, the Indigenous Agroforestry Network will provide opportunities for:

- Building trust and relationships to support the emergence of a network of Indigenous agroforestry practitioners
- Co-creating a shared vision and the Indigenous Agroforestry Network organizational structure that attracts and sustains involvement of new Indigenous Agroforestry participants and facilitates ongoing knowledge-sharing and learning
- Developing and curating events, programs, and workspaces for knowledge-sharing and learning
- Developing and implementing educational programs with an emphasis on experiential learning and mentorship for Indigenous youth

The Indigenous Agroforestry Network is supported through a project called "**Building a Community of Practice for Tribal Agroforestry Producers and Youth in the Pacific Northwest**" aimed at supporting improved understanding of and equitable participation and inclusion of tribes and Indigenous agroforestry producers in United States Department of Agriculture (USDA) programs and services related to agroforestry, including new and existing programs, services, and technologies. The Indigenous Agroforestry Network is intended to be a space for collaboration and communication among partners and practitioners and inform the activities associated with the project. While the geographic focus of the project is the Northwest (including Northern California, Oregon, and Washington), we recognize the importance and benefit of collaboration and knowledge exchange from beyond our region and welcome partners and collaborations nationwide. The project is lead by Ecotrust in collaboration with the USDA National Agroforestry Center, Intertribal Nursery Council, USFS Pacific Southwest Research Station, USFS Research & Development, USFS Forest Management Service Center, Heritage University, Hoopa Valley Tribal Forestry, California Polytechnic State University, Cal Poly Humboldt, Oregon State University, and Washington State University Extension.

Many project partners are also organizers of the Indigenous Agroforestry Network. The Indigenous Agroforestry Network organizers include:

Stephanie Gutierrez, Forest and Community Program Director, Ecotrust:
Stephanie is a member of the San Carlos Apache Tribe, and works at the nexus of Indigenous foods, fibers, medicines, and forest stewardship. She co-leads the Forests and Ecosystem Services team at Ecotrust, and is the lead organizer for the Indigenous Agroforestry Network, and is based in Portland, Oregon.

Amanda Squiemphen-Yazzie, Community Outreach Coordinator, Ecotrust:
Amanda, Wasco, Navajo, Yakama and Citizen of Warm Springs Nation, supports project and partnership coordination and outreach for the Indigenous Agroforestry Network.

Jessica Douglas, Indigenous Community Engagement Manager, Ecotrust:
Jessica is a member of the Confederated Tribes of the Siletz Indians and works at Ecotrust to support tribal engagement and outreach for the Indigenous Agroforestry Network.

Daniel Lipe, Ph.D., Associate Professor, Environmental Science Management, Cal Poly Humboldt:
Dr. Lipe is a registered Western Band Cherokee tribal member and an Associate Professor at Cal Poly Humboldt in the environmental science management department.

Frank Lake, Ph.D., Research Ecologist, USFS PSW Research Station:
Dr. Lake is a Karuk descendent and researcher of restoration ecology and incorporation of Indigenous knowledge into landscape management at the USDA Forest Service Pacific Southwest Research Station.

Don Motanic, Tribal Forestry Consultant (retired):
Don, Confederated Tribes of Umatilla Indian Reservation, is self-employed after retiring from a 44-year tribal forestry career with the Bureau of Indian Affairs and the Intertribal Timber Council.

Jessica Black, Ph.D., Heritage University:
Dr. Black is the Director of the Center for Indigenous Health, Culture & the Environment, an Associate Professor of Environmental Science and Studies, and the Chair of the Science Department at Heritage University.

Jeremiah Pinto, Ph.D., Research Plant Physiologist/Tribal Nursery Specialist, Intertribal Nursery Council:
Dr. Pinto works for the USFS-managed Intertribal Nursery Council to support and improve native plant nursery cultural practices.

Kate MacFarland, Agroforester, USDA National Agroforestry Center:
Kate is an agroforester for the USDA National Agroforestry Center.

Badege Bishaw, Ph.D., Courtesy Faculty, Forest Ecosystems & Society, College of Forestry, Oregon State University:
Dr. Bishaw focuses in the areas of Agroforestry, International Forestry, and Sustainable Natural Resources at Oregon State University.

Patrick Shults, Extension Forester, Washington State University Extension:
Patrick develops agroforestry pilot projects to benefit land managers in Washington State.

Tribal Sovereignty

Ecotrust works with tribes and Alaska Native organizations from Northern California to Southeast Alaska. Our focus areas beyond agroforestry and forestry include mariculture, aquaculture, and fisheries. Ecotrust has an Indigenous Leadership Program that since 2001 has given the Indigenous Leadership Award to Indigenous peoples from across our bioregion.

In our work, Ecotrust is committed to equity, economy, and the environment. Beyond that in our tribal work, we uplift tribal self-determination as a guiding principle. This is grounded in acknowledgment of tribal histories in the lands and waters where we work and the self-determination and sovereignty of tribes over their lands and waters. Our project work is rooted in the principle of uplifting tribes through respect and collaboration in ways that build their capacity to manage their lands and waters.

We use the language of tribes and Alaska Native corporations because these are the primary entities we work with in the Western United States. We also use the words Native and Indigenous when referring to groups of Indigenous people or Indigenous peoples when discussing nations, but we prefer to use the specific names of a person's tribal affiliation whenever possible. While we often work with the governments of tribes, we frequently also work with tribal cultural and environmental leaders who may not be elected or employed by their tribes.

Indigenous Land Management

The Indigenous Agroforestry Network is grounded in the understanding that Indigenous land management practices are holistic, integrated, and, while rooted in thousands of years of experience and knowledge, continue to adapt and evolve with and for current and future generations. These Indigenous knowledge systems and practices inform much of contemporary western agroforestry systems and practices. Similarly, Indigenous groups around the world and across North America inform contemporary agroforestry systems and practices. Many global Indigenous groups have long histories of managing crops together with trees or under forest canopies. Examples of Indigenous land management outcomes that may intersect with agroforestry systems and practices in the Northwestern US include:

- Tending of huckleberry bushes in the high elevation mountains
- Harvesting of bark off living cedar trees in temperate forests near the Pacific Ocean
- Careful pulling of cedar roots from the grounds of drier, higher elevations on the eastern slopes of mountains
- Harvesting of many types of roots in the early spring
- Fire use
- Riparian buffer management
- Forest farming, harvesting of medicinal and edible plants

For many tribes and Indigenous groups, agroforestry can connect to the restoration of forests, farms, ranches, fire regimes, and cultural practices. The reimplementation of cultural fire regimes helps restore the structure, composition, and culturally and ecologically valuable functions of forest, shrub, and grassland habitats. Additionally, this process serves to teach tribal ecological knowledge and fire ecology to tribal youth and adults.

Agroforestry

Agroforestry, as defined by the USDA, is the intentional integration of trees or shrubs with crop and/or animal production to optimize the environmental, economic, and social benefits.

That broad definition allows for many different ways of combining trees, crops, and livestock to reflect both the ecologies and the needs of different places and people.

Agroforestry has the potential to uplift customary gathering and management practices by tapping into new and underutilized programs and services that support agroforestry. Agroforestry systems and practices have many climate and environmental benefits that support carbon sequestration, biodiversity, and overall health of lands, waters, plants, fungi, animals, and community.

Agroforestry Systems and Practices

Silvopasture

Silvopasture is the intentional integration of trees, forage, and grazing animals on the same land in a mutually beneficial way such as:

- Tree and livestock in forested rangeland
- Pecan trees providing shade for livestock

From a Indigenous-led agroforestry practice, silvopasture can incorporate native ungulates and cultural foods such as:

- Mountain goats
- Bighorn sheep
- Moose, elk, deer
- Domestic livestock and waterfowl

Riparian Buffers

Riparian buffers are areas of trees, shrubs, and other plants adjacent to bodies of water or wetlands that are managed differently than the surrounding landscape, primarily for conservation benefit. Tribes have a long and ongoing connection to managing riparian areas through the close relationship between tribal villages, communities, camps, and bodies of water. From an Indigenous lens of agroforestry practice, riparian buffers can incorporate cultural values as part of restoration work.

Alley Cropping

Alley cropping is an agroforestry practice in which agricultural or horticultural crops are grown between widely spaced rows of woody plants. This can take the form of row-based crops that are intermixed between orchards or other trees. Alley cropping can diversify farm and ranch income, increase crop production by providing protection and conservation benefits to crops, improve landscape aesthetics, enhance wildlife habitat, and support tribal resources for food, basketry materials, medicines, and other cultural uses.

Forest Farming

Forest farming, or multi-story cropping, is defined by the USDA as “the cultivation of high-value crops under the protection of a managed tree canopy.” It is a practice in which existing forest stands are intentionally and intensively managed to create an appropriate environment for growing understory crops. In the context of Indigenous agroforestry, the goal of this management is to support the growth of cultural resources including:

- Fungi and mushrooms
- Medicinal plants
- Grasses, ferns, and shrubs for basketry
- Shrubs and woody plants for berries, nuts
- Deciduous and evergreen hardwoods for acorns, nuts, berries, and fuelwood
- Conifers for seeds, boughs, and lumber

Windbreaks

Within the context of USDA-defined agroforestry, windbreaks "are linear plantings of trees and shrubs designed to provide economic, environmental and community benefits." These play an important role in protecting tribally valued resources from harsh winds and extreme weather, such as freezing temperatures, heat, and desiccating winds.

Survey Approach

- What is our reason for creating this survey?
- What is the summary of our survey questions?
- What was our approach to this survey?
- How was the survey developed? How were the questions developed?
- How did we conduct outreach for this survey?
- What were our incentives?

This project responds directly to feedback from Indigenous agroforestry practitioners and related program staff that more effort is needed to reduce gaps, barriers, and opportunities for Indigenous agroforestry practitioners. We gathered input from Ecotrust and partners' previously funded USDA projects, including "PNW Tribal Agroforestry" and "Building a Tribal Forestry Workforce in the PNW and Beyond." Further, the USDA Equity Action Plan released in February recognizes this issue, explicitly directing USDA to "take steps to remove barriers to access USDA programs, expand Tribal self-determination policies, and incorporate Indigenous values and perspectives in program design and delivery" (USDA, 2022).

The technical assistance, knowledge-sharing, and outreach activities we will pursue are built with and informed by trusted relationships with Indigenous agroforestry practitioners and diverse partnerships. The Indigenous Agroforestry Survey was created to evaluate how to improve agroforestry programs and services that would support customary Indigenous gathering and land management practices.

The survey questions were developed in collaboration with project partners and Ecotrust staff including:

- **Stephanie Gutierrez**
- **Denise Chin**
- **Jessica Douglas**
- **Amanda Squiemphen-Yazzie**
- **Kenadi Smith**

The Hoopa Climate Resilience Report, Tribal Forestry Workforce Development Report, and Intertribal Nursery Council Tribal Nursery Assessment Report were referenced and utilized to inform the survey questions and process. The survey assessed the understanding of agroforestry systems and practices across self-identifying Indigenous peoples and staff and gauged their level of interest, practice, and awareness relating to agroforestry systems and practices. Demographic information was collected to help understand affiliations, where survey participants reside, their age, and gender identity/identities and to gain an understanding of what outreach gaps exist in terms of target audience.

The Indigenous Agroforestry Network and the survey team conducted outreach to survey participants by utilizing various outreach techniques through direct email, Instagram, the Indigenous Agroforestry newsletter, Ecotrust's email newsletter, and tabling and presentations at conferences. The Indigenous Agroforestry Network project staff provided tool kits to those who were interested in supporting the outreach for the survey that consisted of email and social media templates, images, phrases, and words to use for various communication strategies. Survey participants were able to opt into a raffle drawing to encourage survey participation.

The Indigenous Agroforestry Survey was open for six months, from January 2024 through June 10, 2024. Overall, the survey received 195 responses. Denise Chin and Kenadi Smith, part of Ecotrust's Measurement and Evaluation team, started the initial survey analysis, cleaned data, and reviewed it to identify key themes. For further description of methods, please see Appendix C.

Survey Data and Takeaways

Descriptive Statistics

The survey had a total of 195 respondents. Based on these responses, we found that a majority identified as women (121, 67%). Several respondents identified as two-spirit (6%) and non-binary (4%). The respondents were mostly from younger age groups, with 52% reporting that they were 40 years old or younger. While the majority of respondents came from the Western US, specifically Washington or Oregon, the survey reached a wide range of audiences, as far as Texas and Rhode Island, and even internationally, with some residing in Canada and American Samoa.

Table 1: Top 5 tribes represented in the survey

Most named tribal affiliations	Number of respondents
Confederated Tribes of Warm Springs	12
Confederate Tribes and Bands of Yakama Nation	8
Confederated Tribes of the Umatilla Indian Reservation	8
Spokane Tribe of Indians	6
Confederated Tribes of Siletz Indians	6

Of the 195 total respondents, 151 (77%) identified that they had tribal affiliations. The analysis team found that at least 83 tribes were represented across North and South America. Table 1 displays the top five most represented Indigenous groups among survey respondents. There were 12 respondents who were affiliated with the Confederated Tribes of Warm Springs, followed by Yakama and Umatilla (8 respondents each), and Spokane and Siletz (6 each).

Table 2: Top tribes that respondents work with

Most reported tribes with whom respondents work
Confederated Tribes and Bands of Yakama Nation
Confederated Tribes of Umatilla Indian Reservation
Spokane Tribe of Indians
Confederated Tribes of Warm Springs
Confederated Tribes of the Colville Reservation

Table 2 displays the top tribes with whom respondents said they work with. The Yakama, Umatilla, Spokane, Confederated Tribes of Warm Springs, and Colville Tribes each had 5 respondents attributing working with them. Using the Rural-Urban Commuting Area Code (RUCA) dataset by the USDA[1], we found that of the respondents, 82% (135) were in an urban ZIP code, and the remaining 18% (29) were rural.

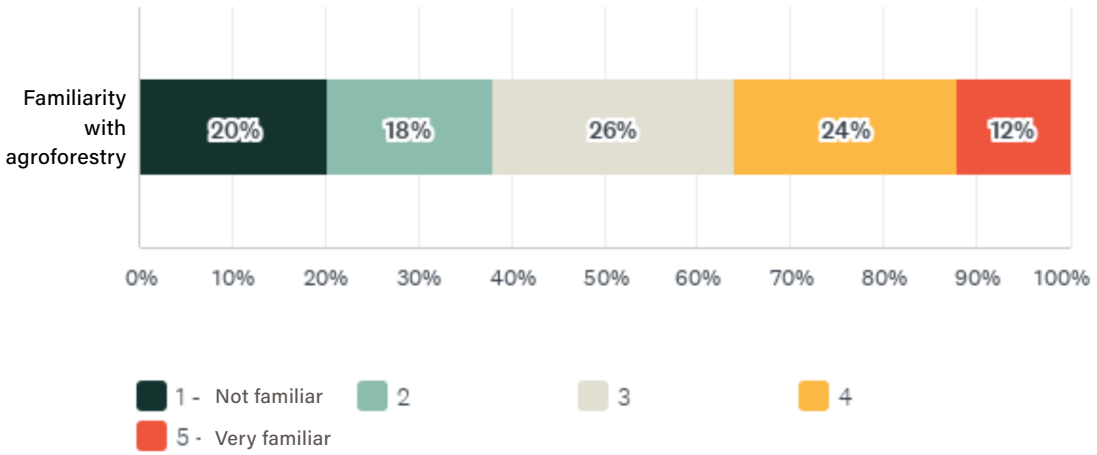

Chart 1 above shows the following results of respondents' familiarity with the term and concept of agroforestry. Of those who responded, 38% (73 respondents) said that they were slightly or not at all familiar with agroforestry; 36% (69 respondents) said that they were familiar or very familiar with agroforestry; and 26% (50 respondents) said they were somewhat familiar.

1 https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/

Chart 2: Degree of Interest in Agroforestry

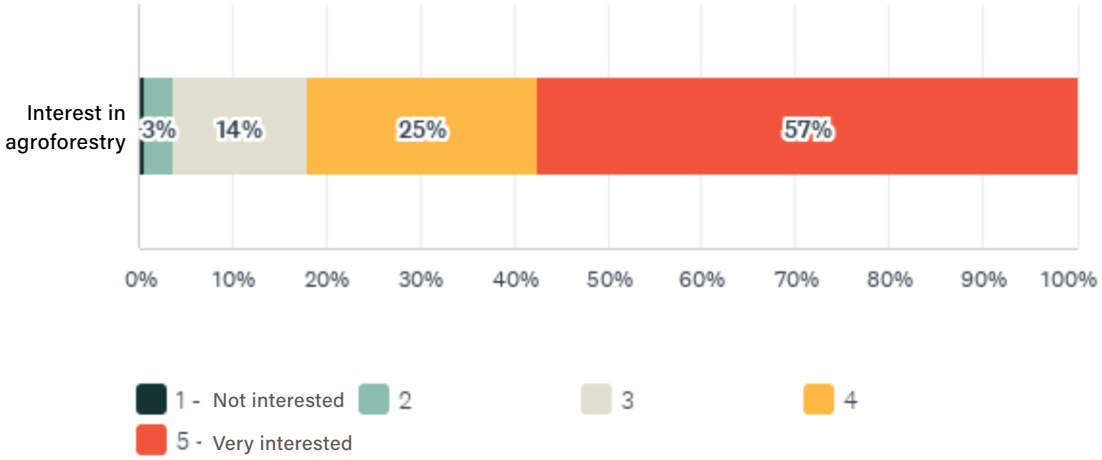

Chart 2 shows the level of interest in learning about agroforestry in general. Most respondents are interested: 82% (160) respondents said that they were interested/ very interested in agroforestry. The remainder said that they were somewhat interested (14%, 28 respondents) and slightly or not interested (4%, 6 respondents).

Chart 3: Top 4 Degree of Interest in Learning Opportunities

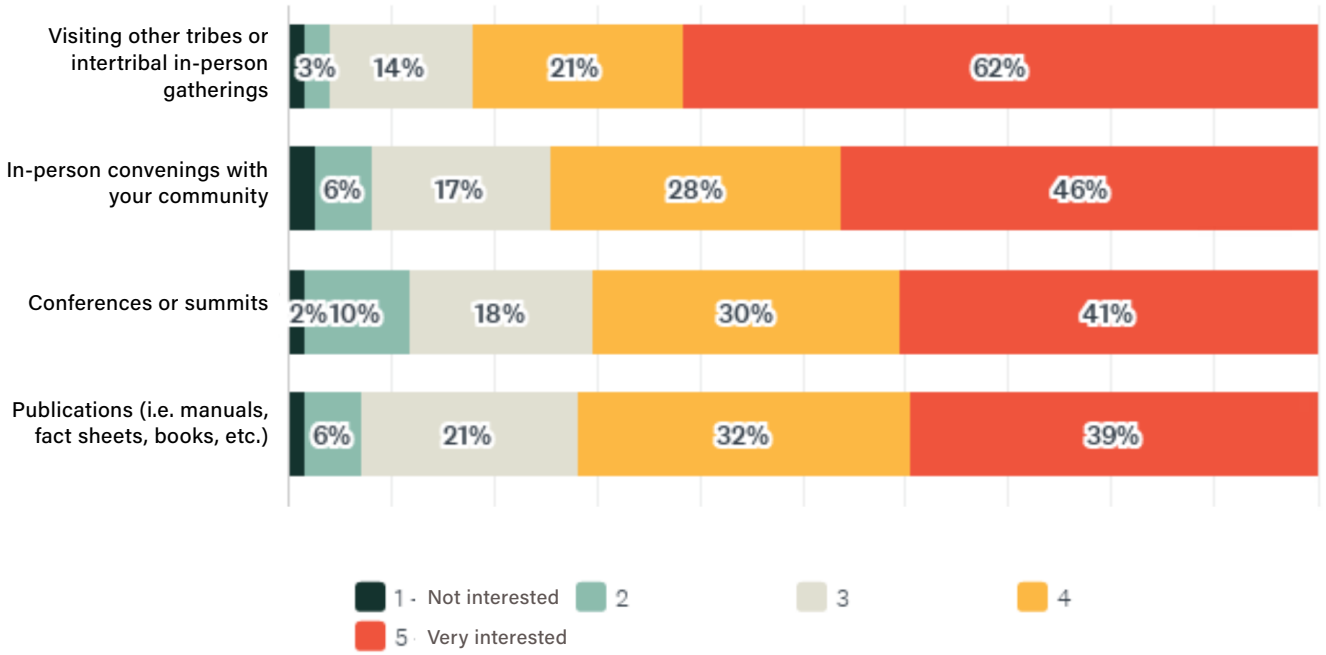

Chart 3 shows the top four learning opportunities that responders showed interest in, based on a longer list provided in the survey. The top learning opportunities that respondents chose were all related to meeting or convening in-person, followed by having published materials such as manuals and fact sheets to refer to as

learning material. Most respondents were interested in visiting other tribes or intertribal in-person gatherings (160 respondents); followed by in-person convenings with their own communities (145 respondents); and conferences or summits (137 respondents). A majority of respondents (140) were also interested in having publications such as manuals, fact sheets, and books as learning materials.

The following is a list of additional suggestions for ways of learning that respondents provided in the survey:

- Community-led learning opportunities
- Curriculum:
    - Focused on development of tribal codes, laws, policies
    - Self-paced
    - Certification opportunities
    - Youth-centered intergenerational workshops
- A brick-and-mortar location run by Indigenous people

Chart 4: Familiarity in agroforestry practices

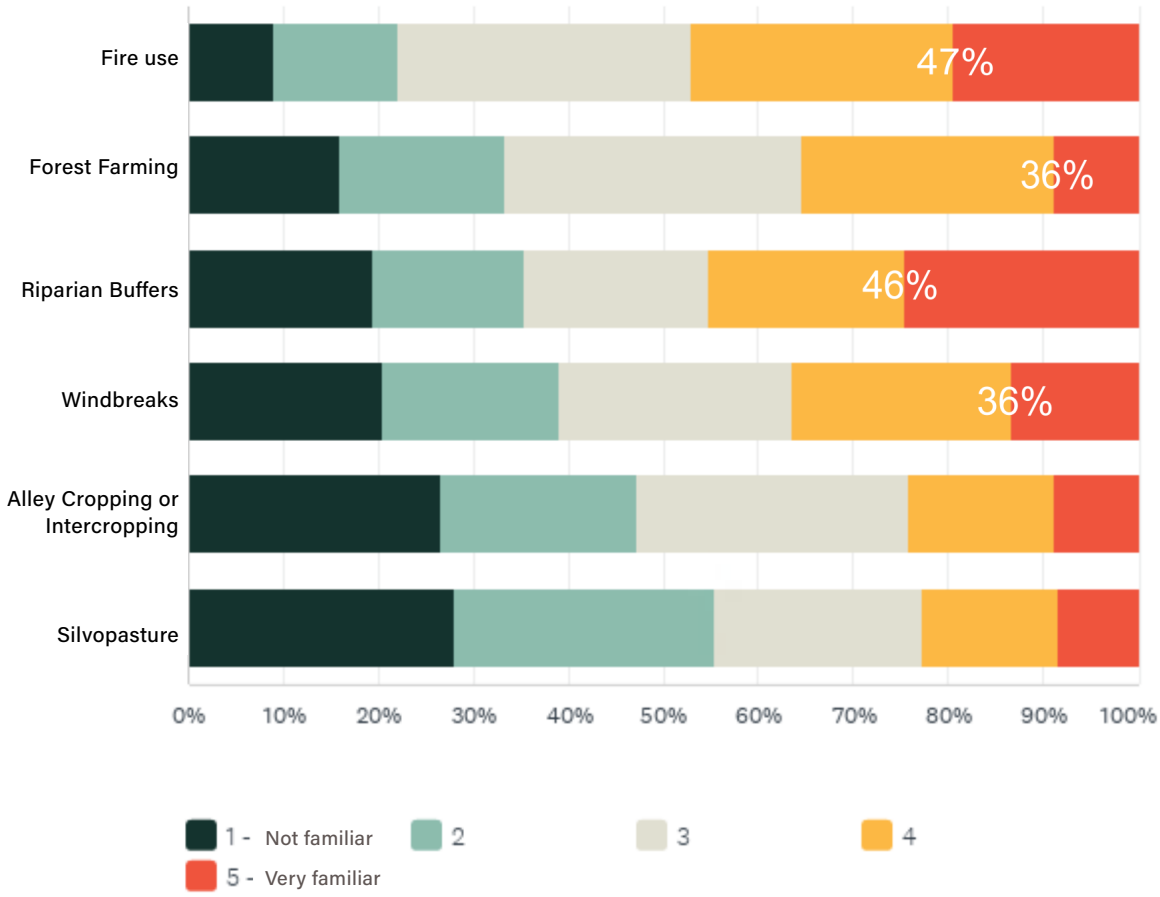

Chart 4 displays agroforestry practices and respondents' degree of familiarity with each of them. Fire use, forest farming, and riparian buffers appeared to be practices in which respondents were most familiar with. For fire use, 46% of respondents

said that they were either familiar or very familiar with this practice. This is followed by riparian buffers, where 46% of respondents said that they were either familiar with or very familiar with this practice. About the same percentage of respondents said that they were familiar with forest farming and windbreaks (36% each).

Respondents were asked for other words/terms that they used to describe Indigenous agroforestry. The two most common terms used were "cultural burning" and "regenerative agriculture." Other terms mentioned include "prescribed fire", "fire use", "dune restoration", "tideland practices", "traditional ecological knowledge", "forest farming", "permaculture", and "3 sisters gardening".

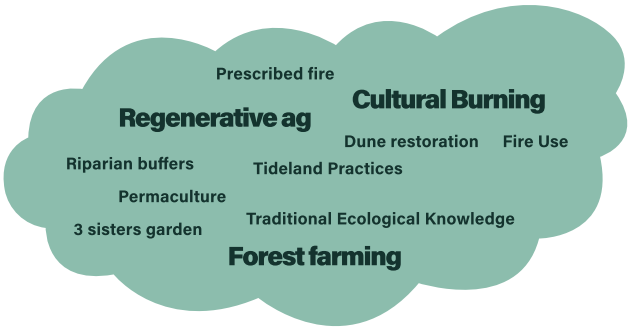

Figure 1:
Word cloud of words/terms that respondents used to describe Indigenous agroforestry

Chart 5: Interest in agroforestry practices

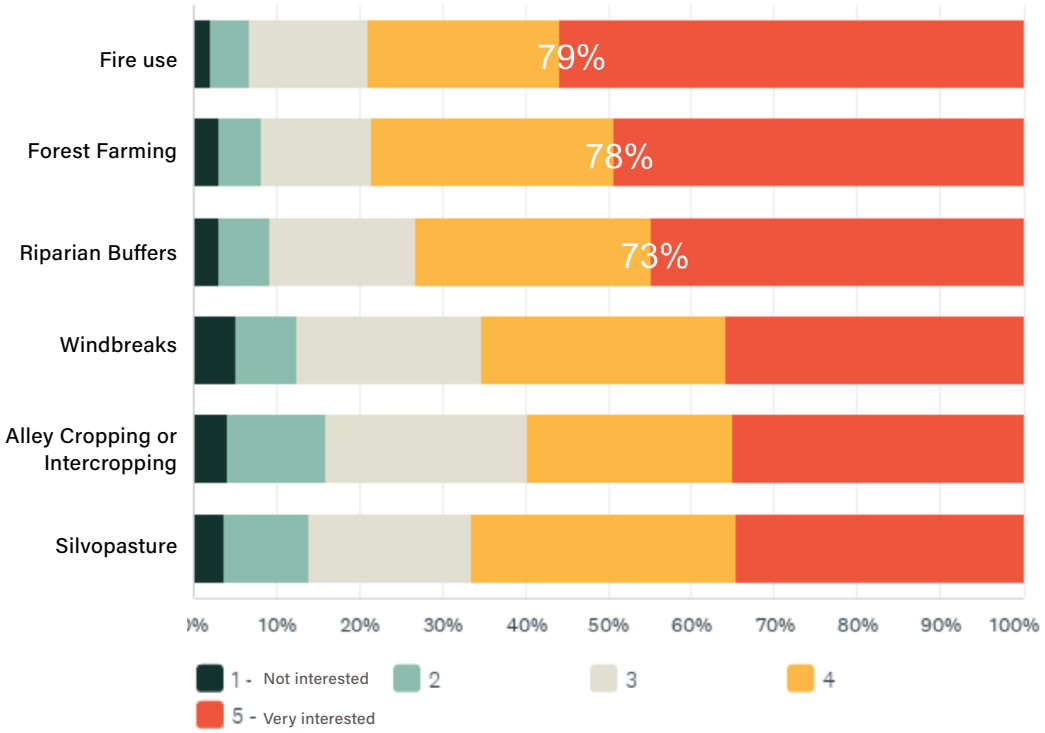

Chart 5 provides a look at the degree of respondents' interest in agroforestry. Most respondents were familiar with fire use, where 79% said that they were either

interested or very interested in this practice. For forest farming, 78% of respondents said that they were either interested or very interested in this practice, and 73% of respondents said that they were either interested or very interested in riparian buffers. From Charts 4 and 5, we can deduce that respondents had most familiarity and interest with the following agroforestry practices: fire use, riparian buffers, forest farming, and windbreaks.

We focused on the breakdown of respondents and their relationship with land, whether through land ownership or access to land in other ways. Of the total respondents, 64 said that they owned land, all of which said that they utilized it for some form of gathering and/or traditional practices. Of the landowners, most were either interested or very interested in forest farming (80%), fire use (78%), and riparian buffers (73%). Of the remaining respondents, 128 said that they accessed land in several ways: the three most common types of land access was federal land not owned by a tribe (42%), land owned by their tribe (41%), and state land not owned by a tribe (36%).

The survey also provided an open section for respondents to provide additional comments related to Indigenous agroforestry. Many respondents noted their interest in training and networking opportunities, certificate opportunities, and also suggested involving tribal members living on and off the reservation in learning and educational events. Several also left comments expressing their desire to continue their involvement with the Indigenous Agroforestry Network and collaborate on other existing work.

Meaning-Making from the Survey

Ecotrust led partners through a meaning-making session to interpret data from the survey through the larger contextual lens of Indigenous agroforestry.

Takeaways from Meaning-Making Session

The project team and partners made several insightful takeaways about the observed data. The following is a summary of their responses, organized thematically. See Table 1 for a summary.

1. Demographics

Partners had several thoughts about the demographics of respondents, notably that the majority identified as Indigenous women, were relatively young (52% were under 40 years of age), and from the Western US states (Washington and Oregon).

Women made up 67% of respondents who self-identified in the survey.

In a field that is known to be male-dominated, partners noted that this is an interesting insight, wondering how much of it translates to practice. It led the team to think about whether capturing the male perspective could provide different results. The team also discussed future outreach and the needs of women in agroforestry and how more activities could be focused on this audience.

Over half of respondents were 40 years of age or younger.
Partners wondered about the older generations within tribes and Indigenous communities and future ways to capture their input. Including more methods of responding to the survey, e.g., paper surveys, elderly given assistance to complete surveys (see lessons learned in next section), is one consideration for future surveys that might capture more respondents who are older.

Geographic representation skewed to the Western US (namely Washington and Oregon). Most respondents were from urban areas.
With the majority of respondents representing the states of Washington and Oregon, partners suggested disaggregating the data to just these states for more nuanced results. On the other hand, others also wondered how the results might change if there were a broader eastern and midwestern demographic. By doing a ZIP code analysis using data from the USDA RUCA, we found that most respondents lived in urban areas. Partners found this to be interesting, as agroforestry is typically a rural activity. The analysis team noted that this could be a data issue and is open to using different reference dataset to check against these ZIP codes. On the other hand, the project team also noted that according to the 2020 census data, Indian Health Services estimates 87% of American Indians/ Alaska Natives live in urban areas (IHS).

2. Interest and familiarity with fire use
Respondents were both most interested and most familiar with fire use as a practice in agroforestry. Partners noted this strong interest, thinking through helpful resources to offer and lessons to learn from tribes that want to use fire to restore prior conditions and build climate/wildfire resilience. This finding helped the team narrow future offerings related to agroforestry practices, noting that fire use would take precedence over others agroforestry practices named in the survey. Partners also had bigger questions to consider in fire use. For example, one partner suggested considering the intersection of restoration, risk reduction, and Indigenous agroforestry in managing tribal lands and how climate change is altering fire patterns, leading to more frequent fires, especially in areas west of the Cascades (Anonymous, Indigenous Agroforestry Survey, 2024).

3. Ways of learning
Respondents were most interested in in-person connections as a way of learning more about agroforestry. Based on this finding, partners noted that future opportunities of learning could be more intentional and catered to this desire to be in-person. Some noted the desire for certification opportunities. Respondents also named additional learning avenues, including a dedicated physical space owned by an Indigenous community that could host learning sessions.

4. Varying scales at which agroforestry practices are being implemented
In viewing the survey results, partners pointed out various ways respondents might view the practices described and the scale in which it may happen for respondents might differ. This could range broadly from the backyard to community level. In

addition, future efforts should also consider land use types, land managers, etc. when describing agroforestry and offering opportunities related to agroforestry practices.

5. TEK (Traditional Ecological Knowledge) and western science
Partners noted that this survey, especially questions asking respondents about different terms used or known to be Indigenous agroforestry, brought forward reflections that Indigenous agroforestry and its practices may not always fit nicely into the boxes of western science. Indigenous agroforestry is based in culturally specific values and TEK, rather than specific practice typologies. Some comments from respondents raised concerns about conflicts with "colonial governments" and "white supremacy in popular foraging" and "rewilding" affinity groups, as well as the protection of Indigenous data and knowledge and implementation of research frameworks that support Indigenous data sovereignty.

6. Agroforestry and the wider political, socioeconomic context
In the larger political and socioeconomic context, partners noted that USDA programs and funding landscape related to Indigenous agroforestry is constantly changing. With data from this survey, partners noted the need to adapt and adjust to changes that commonly occur with funding and the need for ways to continue supporting this work despite the changing exterior factors.

Many tribes have programs and services managed by the Bureau of Indian Affairs (BIA). One suggestion to support tribes in removing the BIA from tribal programs is to provide technical assistance, funding, and added staff capacity to help tribes develop Agriculture and Rangeland Management Handbooks. These handbooks are a necessary component in the process of removing BIA oversight and management of some tribal programs.

Table 3 below summarizes the takeaways as discussed above.

Table 3: Takeaways from Meaning Making Session

1. Demographics	**Age, older generation, gender** • What does the older generation within tribes and Indigenous communities think of agroforestry? • Respondents were mostly female in a field that is known to be a traditionally male-dominated industry. **Geographical scope** • Would it be helpful to look at the responses provided by only the respondents who are in WA, CA, and OR? • How much would things change if there was more representation from Eastern or Midwest regions? • Survey showed high urban representation (could have been influenced by the ZIP code analysis)
2. Fire use	• Future efforts should consider the intersection of restoration, risk reduction, and Indigenous agroforestry in managing tribal lands, and how climate change is altering fire patterns, leading to more frequent fires, especially in areas west of the Cascades. • What resources can we offer and what can we learn from tribes that want to use fire to restore prior conditions (e.g., oak savannah) and build climate/wildfire resilience? Can agroforestry be a motivator/maintenance tool in these areas? • Based on respondents' interest, future initiatives could focus on this specific practice.
3. Ways of learning	• We should consider being intentional about providing many ways of learning about agroforestry through this project. • We should consider opportunities to gear trainings based on what folks need or are interested in.
4. Varying scales at which agroforestry practices are being implemented	• We should consider how Indigenous agroforestry is implemented at smaller scales, backyard scales, and urban and community scales. • It is also a reminder to think across scales as well as across land use types, land managers, etc. when we think about how we describe agroforestry.
5. TEK and western science	• We must acknowledge that Indigenous agroforestry does not always nicely fit into the boxes of western science. • Indigenous agroforestry is based in culturally specific values and TEK, rather than specific practice typologies. • Respondents expressed concerns about conflicts with colonial governments and white supremacy in popular foraging and "rewilding" affinity groups.
6. Agroforestry and the wider political, socioeconomic context	• USDA programs and funding landscapes are constantly changing, and we must recognize the need to adapt to these changes. • Many tribes have programs and services managed by the Bureau of Indian Affairs (BIA). One suggestion to support tribes in removing the BIA from tribal programs is to provide technical assistance, funding, and added staff capacity to help tribes develop Agriculture and Rangeland Management Handbooks. These handbooks are a necessary component in the process to remove BIA oversight and management of some tribal programs.

Conclusion

Partners agreed that the survey was helpful and informative, validating questions about increasing access to programs and services related to Indigenous agroforestry. The survey also affirmed the need to increase connection and community. The results provided good guiding material for moving forward and confirmed that the objectives of the program remain the right ones. The responses to interest and familiarity in agroforestry practices like fire use and forest farming, for example, will help the team conduct more targeted outreach. The survey validates the importance of ongoing work, i.e., using a crosswalk framework to look for overlaps between USDA programs and land manager interests to see if more resources may be available.

Questions that partners agreed could probe the respondents further include motivators for interest in agroforestry: what were respondents' motivation for their involvement? Partners also identified a question on the barriers that one might face to applying agroforestry practices.

The project team and partners agreed that there could be improvements in the distribution and dissemination of the survey that would better capture respondents who were less comfortable with digital surveys. For example, paper surveys could reach older demographics. Partners also discussed other types of qualitative surveys, such as in-person surveys, as well as ground-truthing with specific communities to reinforce analysis findings.

The team identified several next steps following the analysis from this survey. For one, partners expressed a desire to dive more deeply into the data, such as understanding the correlation between farm size and agroforestry practices and agroforestry practices based on land ownership (private, federal, tribal, etc.). Partners also requested an abridged version of this new information that we learned from the survey, such as a one- or two-page summary of these findings that could be used for future opportunities, such as funding applications.

A major finding that will be used to push forward future efforts for this work is to prioritize forest farming and fire use curriculum over other forms of agroforestry. Additionally, prioritizing the top learning opportunities (e.g., training, curriculum development, and establishing demonstrations) that were identified based on respondents' interests in the survey.

And finally, the partners and project team both agree that working alongside existing work in complementarity can move agroforestry efforts along even more significantly. The team is committed to identifying synergies and incorporating findings into existing and parallel work, such as ongoing Indigenous land management projects with USDA programs and partners, as well as non-USDA entities; informing upcoming Indigenous Agroforestry Network learning and connection opportunities; and tapping into existing networks, such as Agroforestry Northwest (workshops in coastal Oregon for mushroom cultivation) and the Agroforestry Coalition.

Acknowledgments

The Indigenous Agroforestry Network would like to sincerely acknowledge and thank all the organizations and individuals who took the time to review the data and provide valuable feedback through the listening sessions. Your contributions to the survey analysis were instrumental in enhancing the quality of the survey report.

Your thoughtful insights have helped us better understand the perspectives of survey participants and have been crucial in refining our findings and recommendations.

We would like to specifically recognize our project partners and the following individuals and organizations for their contributions:

- **Emily Luscombe**, Natural Resources Director, Intertribal Agriculture Council
- **Naomie Peasley**, Technical Assistance Specialist, Intertribal Agriculture Council
- **Hannah Hemmelgan**, Assistant Director, University of Missouri Center for Agroforestry
- **Pedro Torres**, National Tribal Liaison, Outreach and Partnerships Division, Natural Resources Conservation Service
- **Erin Taylor**, Soil Conservationist at USDA, Natural Resources Conservation Service
- **Samanta Bosco**, Ph.D., Lecturer, Nelson Institute for Indigenous Peoples and the Environment, Department of Forest and Wildlife Ecology, College of Agriculture and Life Sciences, University of Wisconsin–Madison

We deeply appreciate your support and commitment to improving our understanding of the topic at hand. Thank you for your time, effort, and collaboration.

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Appendices

Appendix A: Survey questions

Indigenous Agroforestry Survey

Thank you for participating in the Indigenous Agroforestry Survey. This online survey should take about 15 minutes to complete. We invite those who self identify as Indigenous agroforestry practitioners or work closely with tribal natural resource staff, tribal members, and descendants. Participation is voluntary and responses will remain anonymous unless you indicate otherwise. The survey will first introduce agroforestry concepts and definitions and a series of questions will follow.

Feedback collected from this survey will be used to inform how best to shape program opportunities and services that support Indigenous agroforestry. Information gained will contribute to the larger Indigenous Agroforestry project led by Ecotrust in collaboration with USDA National Agroforestry Center, Intertribal Nursery Council, USFS Pacific Southwest Research Station, USFS Research & Development, USFS Forest Management Service Center, Heritage University, the Hoopa Valley Tribe, Cal Poly Humboldt, Washington State University Extension, and Oregon State University. The project is funded through the U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA) American Rescue Plan Technical Assistance Investment (ARPTAI). More information and resources about agroforestry and the project will be included at the end of the survey.

You will be prompted to enter your contact information for the raffle and you may select whether or not you would like to be informed about this survey's results and Indigenous Agroforestry Network updates. Y ou must answer all questions to be eligible for entry into the raffle.

For questions about the survey and project please reach out to Stephanie Gutierrez, Forest and Community Program Director, Ecotrust at sgutierrez@ecotrust.org.

What is Agroforestry?
"Agroforestry," as defined by the U.S. Department of Agriculture, is an intentional, integrated, interactive, and intensive approach to managing trees, shrubs, crops and/or animal production to support environmental, economic, and social benefits. That broad definition allows for many different ways of combining trees, shrubs, crops, roots, and livestock to reflect both the ecologies and the needs of different places and people.

What is Indigenous Agroforestry?

"Agroforestry" is a term and system of practices that share similar holistic and integrated management views as historic and contemporary Indigenous stewardship.

The term "Indigenous agroforestry" connects contemporary agroforestry systems and practices with Indigenous traditional gathering and management practices.

In drawing parallels between Indigenous traditional gathering and management systems with contemporary agroforestry, we can increase access to resources and services related to agroforestry that protect and cultivate culturally significant materials and sites for Tribes and Indigenous groups while honoring holistic, integrated management goals.

Examples of Indigenous agroforestry in the Northwest stretch from the coast to the valleys and interior and include the tending of wild huckleberry bushes, protecting cedar trees for pulling bark, or advocating to protect a hillside where culturally important roots are harvested.

For more information about Indigenous agroforestry view see the link to the Pacific Northwest Tribal Agroforestry storymap at the end of this survey.

1. Please rank how familiar you are with the term and concept of agroforestry, from (1) not familiar to (5) very familiar.

1 - Not familiar	2	3	4	5 - Very familiar
○	○	○	○	○

Other (please specify):

* 2. Please rank how interested are you in learning more about agroforestry, generally, from (1) not interested to (5) very interested.

1 - Not Interested	2	3	4	5 - Very Interested
○	○	○	○	○

Other (please specify):

* 3. To help us better understand how best to create learning opportunities for you to learn about agroforestry, please rank how interested you would be in the following learning opportunities, from (1) not interested to (5) very interested. Please use the comment box to describe additional ideas you'd like to prioritize.

	1 - Not interested	2	3	4	5 - Very interested
Publications (i.e. manuals, fact sheets, books, etc.)	○	○	○	○	○
Webinars	○	○	○	○	○
In-person convenings with your community	○	○	○	○	○
Visiting other tribes or intertribal in-person gatherings	○	○	○	○	○
Conferences or summits	○	○	○	○	○
Curriculum or lesson plans	○	○	○	○	○

Other (please specify):

* 4. The following is a list of some Indigenous and western agroforestry practices and their definitions.

Silvopasture: The intentional integration and management of trees, grazing animals, and other forageable plants or fungi. Some examples may include: integrating livestock and forest management for first foods and cultural burning; a woodland, forest, or forest edge that is managed to produce forage, livestock, basketry materials, and trees simultaneously.

Riparian Buffers: Management and/or restoration areas that are adjacent to a stream, river, lake, or wetland. These spaces, often with trees, shrubs, and other plants are intentionally managed for plants, animals, and fungi while supporting erosion control, bank stabilization, and nutrient runoff control. Some examples may include using riparian buffers to support the restoration of beaver, lamprey, or salmon habitat; planting of wapato, camas, willows, and other cultural materials/plants.

Forest Farming/Gathering Practices: Deliberate cultivation of crops under a canopy of trees. The tree canopy is often modified to provide levels of light that favor growth and enhanced production of understory crops. Crops may include edibles (fruits/berries, vegetables, nuts, mushrooms, etc.) tapping trees for syrup, nursery or landscaping plants, woodland herbal/medicinal plants, and culturally relevant/basketry plants. A tree farm or plantation is not considered forest farming unless understory crops are intentionally cultivated underneath the canopy of trees.

Alley Cropping or Intercropping: Alley cropping includes the cultivation of crops and other plants in between rows of trees/shrubs. Intercropping is the deliberate cultivation of trees

with crops or forages on the same field but does not need to be in defined rows and alleys.

Windbreaks, Shelterbelts, and Hedgerows: Rows of trees and shrubs that are used to create a more favorable environment for soils, crops, livestock, wildlife, and people. In some cases, they are designed to slow wind, while other times they are designed for visual screening, snow management, odor control, shade for livestock/buildings/people, enhancing pollination, field/property borders, etc.

Fire-use: Clearing vegetation/debris, burning piles, hazardous fuel reduction, rejuvenating plants, fungi and animal habitat, improving forage quality-conditions, or tribal activity associated with Indigenous fire stewardship such as prescribed-fire and cultural burning.

Please rank how familiar you are with each agroforestry practice, from (1) not familiar to (5) very familiar. Use the comment box below to describe practices that you think may be considered agroforestry, but are not captured by silvopasture, riparian buffers, forest farming, alley or intercropping, windbreaks, or fire-use.

	1 - Not familiar	2	3	4	5 - Very familiar
Silvopasture	◯	◯	◯	◯	◯
Riparian Buffers	◯	◯	◯	◯	◯
Forest Farming	◯	◯	◯	◯	◯
Alley Cropping or Intercropping	◯	◯	◯	◯	◯
Windbreaks	◯	◯	◯	◯	◯
Fire-use	◯	◯	◯	◯	◯
	◯	◯	◯	◯	◯

Other (please specify):

* 5. Please rate your current level of interest in the following agroforestry practices, from (1) not interested to (5) very interested

	1 - Not interested	2	3	4	5 - Very Interested
Silvopasture	◯	◯	◯	◯	◯
Riparian Buffers	◯	◯	◯	◯	◯
Forest Farming	◯	◯	◯	◯	◯
Alley Cropping	◯	◯	◯	◯	◯
Windbreaks	◯	◯	◯	◯	◯
Fire-use	◯	◯	◯	◯	◯
	◯	◯	◯	◯	◯

Other (please specify):

10. Please use this comment box below to provide any additional feedback, concerns, or questions for our agroforestry team:

Indigenous Agroforestry Survey

Demographic Information:

The following questions are to help us better understand our survey demographic. Responses are optional.

11. Please select the answer choice most applicable to you:

- ◯ Tribal member/citizen
- ◯ Tribal staff (non-tribal member)
- ◯ Tribal member & tribal staff
- ◯ Non-tribal person
- ◯ Prefer not to disclose

12. If you are a tribal member, please share your tribal affiliation:

13. If you work for a tribe, please share what tribe(s) you work for:

14. Please select the state that you reside in

Other (please specify)

15. What is your age?

- ◯ 18-24 25-30 31-40
- ◯ 41-54 55+
- ◯ Prefer not to disclose
- ◯
- ◯
- ◯

16. What is/are your gender identity/identities?

- ◯ Woman
- ◯ Two-Spirit
- ◯ Non-binary
- ◯ Man
- ◯ Prefer not to disclose
- ◯ Prefer to self-describe (please use the box below)

Self-description:

17. Would you like to be notified about this survey's results and other Indigenous Agroforestry Network opportunities, events, and updates?

- ◯ Yes
- ◯ No

18. What is your first and last name?

19. What is your email to stay in contact about this survey's results and other Indigenous Agroforestry Network opportunities, events, and updates?

20. ~~~~~R affle Entry~~~~~~~~

Please provide your name and relevant contact information below. Your survey responses will remain anonymous.

We will use this information to notify you if you are a raffle winner and if you selected "Yes" to receiving notices about future Indigenous Agroforestry opportunities, surveys, events, and other updates.

Name	
Address	
Address 2	
City/Town	
State/Province	
Zip/Postal Code	
Country	
Email Address	
Phone Number	

Thank you for your participation in the Indigenous Agroforestry survey!

Visit the links below to learn more about agroforestry:

Indigenous Agroforestry Network - Northwest

Indigenous Agroforestry Network newsletter - Sign up here

Pacific Northwest Tribal Agroforestry storymap

USDA Forest Service National Agroforestry Center

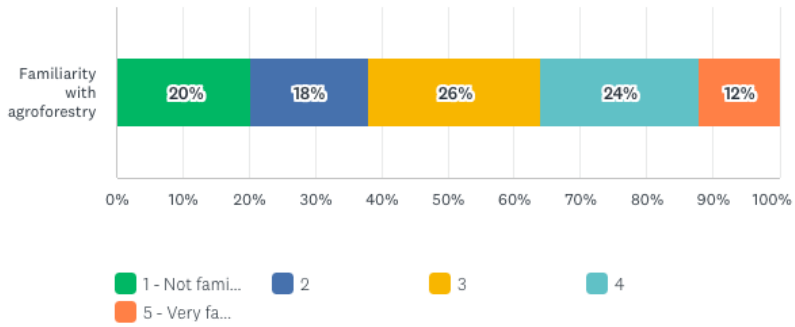
USDA National Agroforestry Center - Agroforestry Practices

Appendix B: Survey data

Q1

Please rank how familiar you are with the term and concept of agroforestry, from (1) not familiar to (5) very familiar.

Answered: 192 Skipped: 3

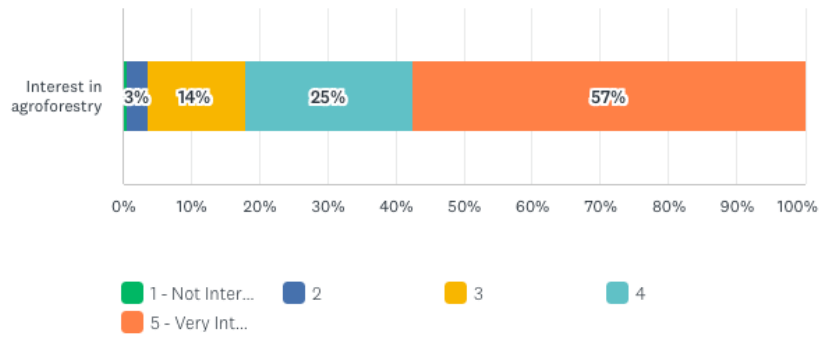


	1 - NOT FAMILIAR	2	3	4	5 - VERY FAMILIAR	TOTAL	WEIGHTED AVERAGE
Familiarity with agroforestry	20% 39	18% 34	26% 50	24% 46	12% 23	192	3.26

Q2

Please rank how interested are you in learning more about agroforestry, generally, from (1) not interested to (5) very interested.

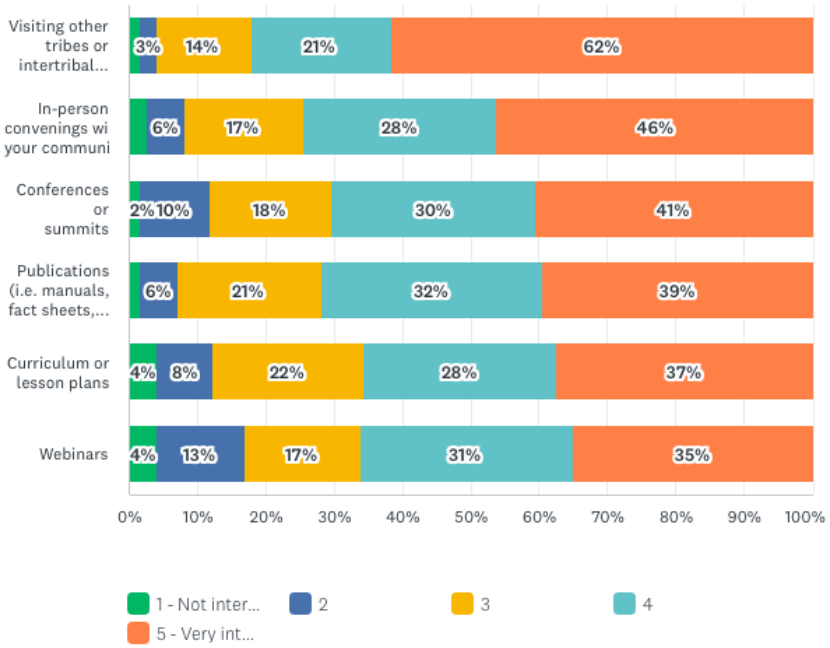
Answered: 195 Skipped: 0



Q3

To help us better understand how best to create learning opportunities for you to learn about agroforestry, please rank how interested you would be in the following learning opportunities, from (1) not interested to (5) very interested. Please use the comment box to describe additional ideas you'd like to prioritize.

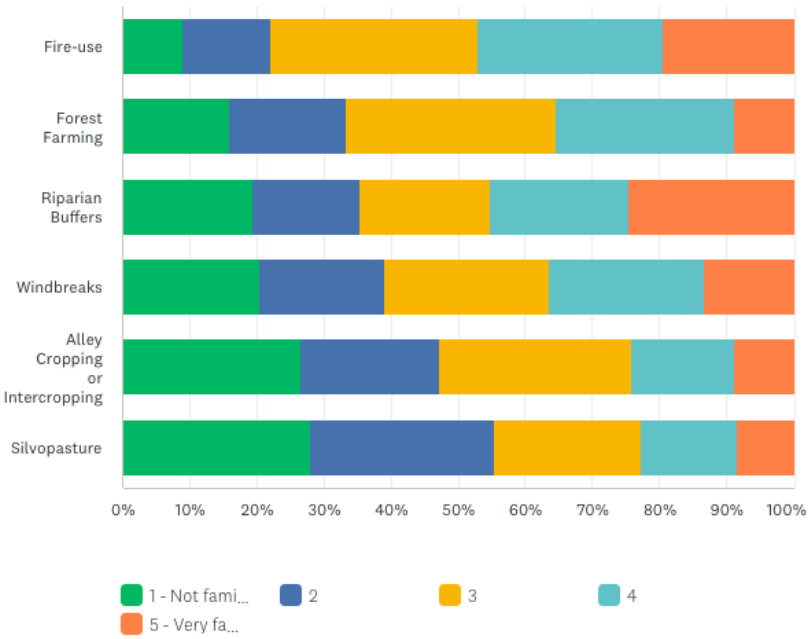
Answered: 195 Skipped: 0



Q4

Familiarity with agroforestry practices

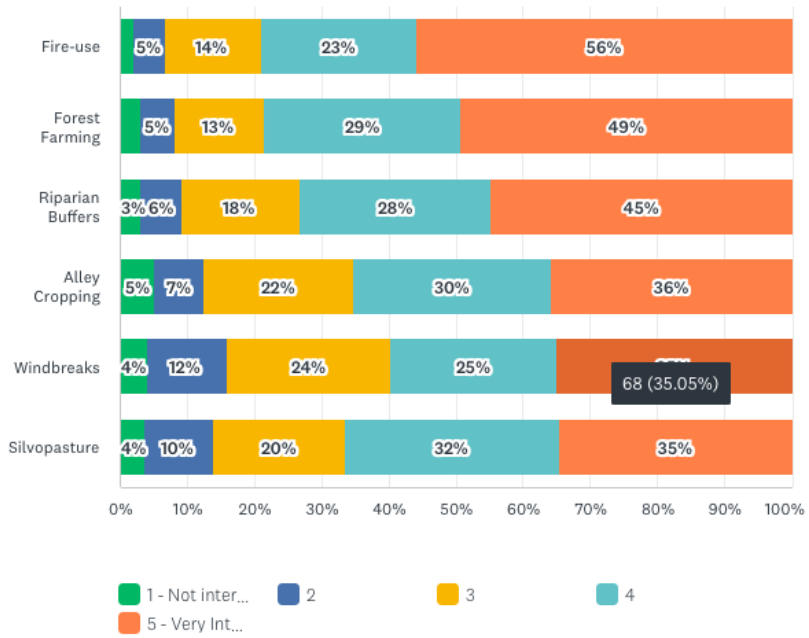
Answered: 195 Skipped: 0



Q5

Interest in the following agroforestry practices, from (1) not interested to (5) very interested

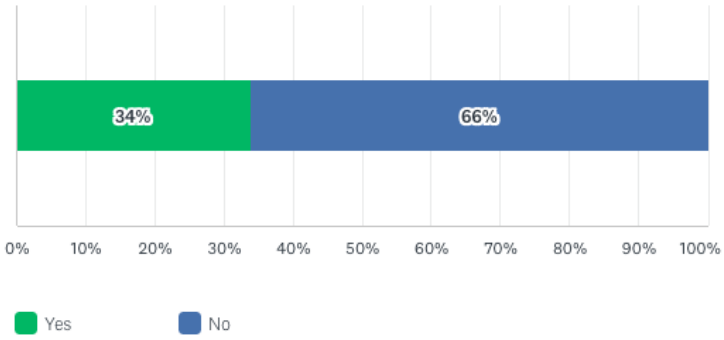
Answered: 195 Skipped: 0



Q6

Do you own land?

Answered: 189 Skipped: 6

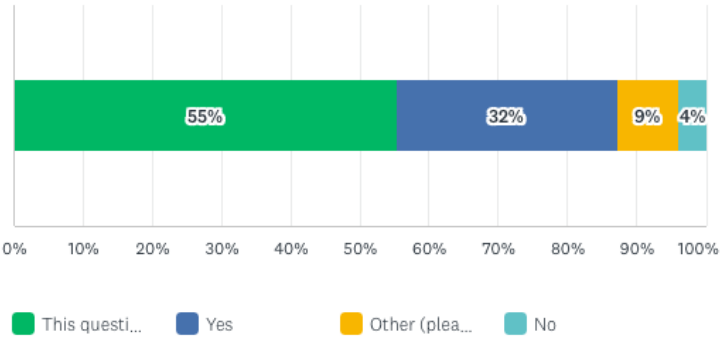


ANSWER CHOICES	RESPONSES	
Yes	34%	64
No	66%	125
TOTAL		189

Q7

If yes, are you interested in implementing agroforestry practices on your land?

Answered: 182 Skipped: 13

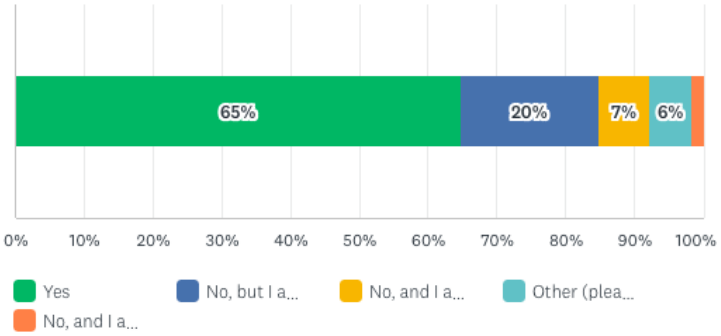


ANSWER CHOICES		RESPONSES	
This question does not apply to me		55%	101
Yes		32%	58
Other (please specify)	Responses	9%	16
No		4%	7
TOTAL			182

Q8

Do you utilize land for gathering and/or traditional practices?

Answered: 191 Skipped: 4

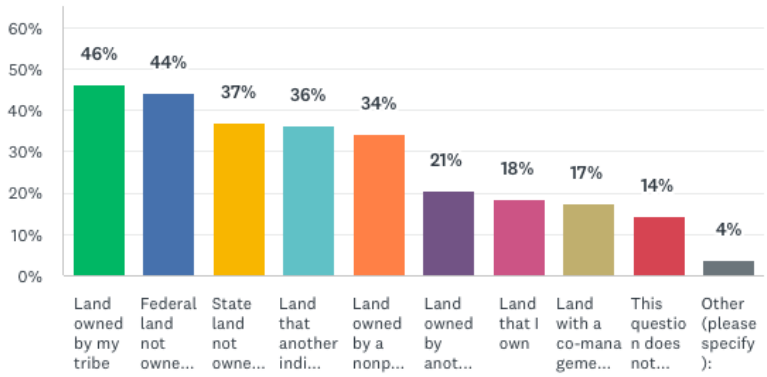


ANSWER CHOICES		RESPONSES	
Yes		65%	124
No, but I am interested		20%	38
No, and I am unsure if I am interested		7%	14
Other (please specify):	Responses	6%	12
No, and I am not interested		2%	3
TOTAL			191

Q9

What land type do you utilize for gathering and/or traditional practices? Select all that apply.

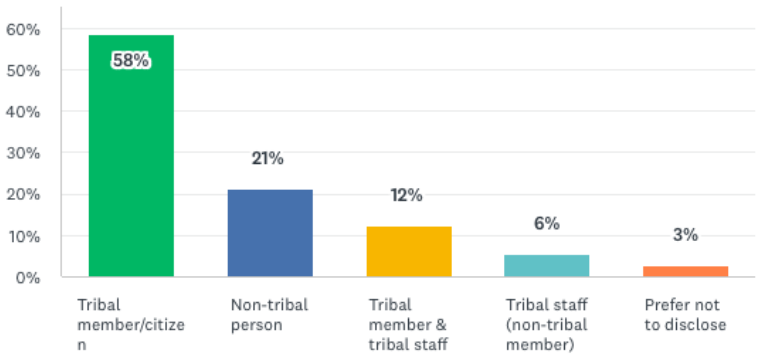
Answered: 190 Skipped: 5



Q11

Please select the answer choice most applicable to you:

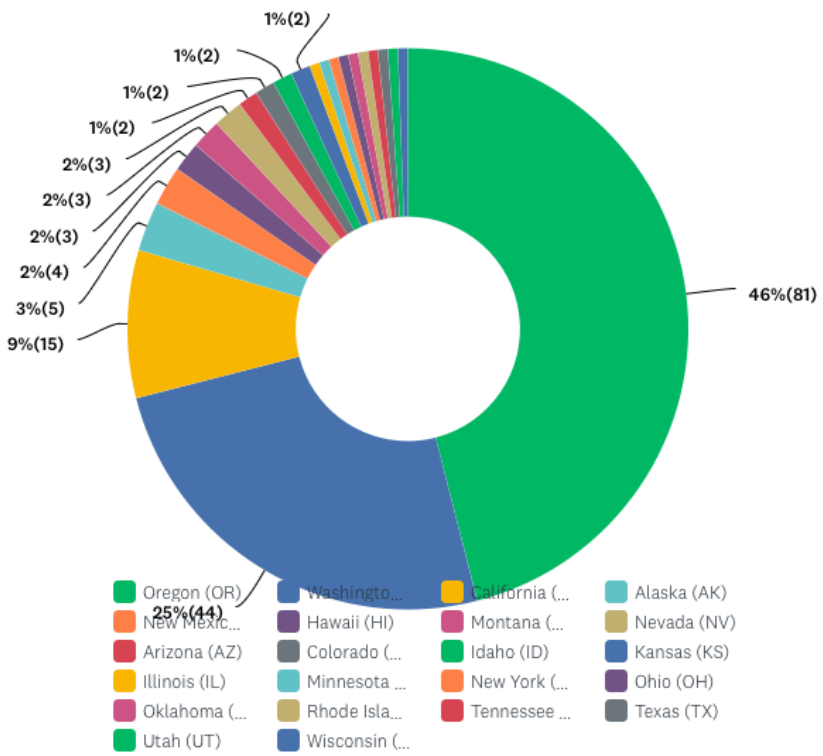
Answered: 180 Skipped: 15



Q14

Please select the state that you reside in

Answered: 176 Skipped: 19

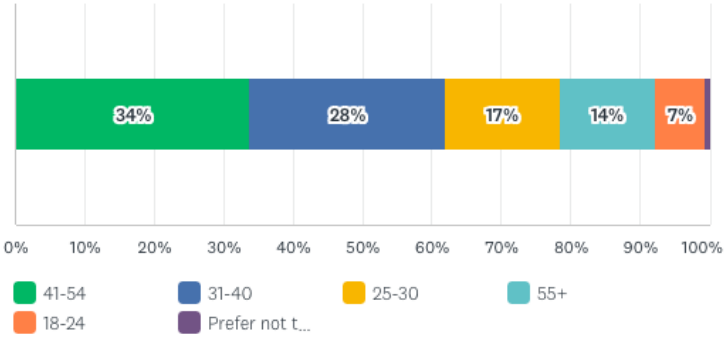


ANSWER CHOICES	RESPONSES	
Oregon (OR)	46%	81
Washington (WA)	25%	44
California (CA)	9%	15
Alaska (AK)	3%	5
New Mexico (NM)	2%	4
Hawaii (HI)	2%	3
Montana (MT)	2%	3
Nevada (NV)	2%	3
Arizona (AZ)	1%	2
Colorado (CO)	1%	2
Idaho (ID)	1%	2
Kansas (KS)	1%	2
Illinois (IL)	1%	1
Minnesota (MN)	1%	1
New York (NY)	1%	1
Ohio (OH)	1%	1
Oklahoma (OK)	1%	1
Rhode Island (RI)	1%	1
Tennessee (TN)	1%	1
Texas (TX)	1%	1
Utah (UT)	1%	1
Wisconsin (WI)	1%	1
TOTAL		176

Q15

What is your age?

Answered: 181 Skipped: 14

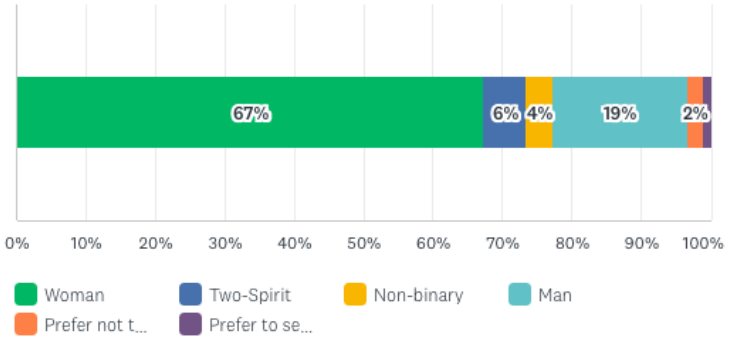


ANSWER CHOICES	RESPONSES	
41-54	34%	61
31-40	28%	51
25-30	17%	30
55+	14%	25
18-24	7%	13
Prefer not to disclose	1%	1
TOTAL		181

Q16

What is/are your gender identity/identities?

Answered: 180 Skipped: 15



ANSWER CHOICES	RESPONSES	
Woman	67%	121
Two-Spirit	6%	11
Non-binary	4%	7
Man	19%	35
Prefer not to disclose	2%	4
Prefer to self-describe (please use the box below)	1%	2
TOTAL		**180**

Appendix C: Methods for analysis

SurveyMonkey provided preliminary descriptive statistics that we use in the charts in this report. For open-ended questions in the survey, the analysis team tagged and sorted each response, then tabulated them. Tags that appeared repetitively rose to the top. The team used this method to determine the number of tribes represented in the survey, tribes that respondents work with, additional terms used to describe Indigenous agroforestry, additional suggestions for ways of learning about Indigenous agroforestry, and additional comments that respondents might have included at the end of the survey. Information gathered from the additional comments section include follow-ups with the team for outreach purposes.

In addition to descriptive data, the project team consulted with partners and other experts in the field to learn what they would like to have parsed out from data collected in this survey. Partners and experts expressed a desire to see more analysis on the demographics of respondents, particularly the tribes and Indigenous groups represented, and whether respondents resided in urban or rural areas; respondents' relationship to land, whether owned or other ways of access; as well as ways in which they would like to learn more about Indigenous agroforestry. The analysis team used these as guidance to conduct further analysis of the data. Partners also provided meaningful insight that was used as starting points during the meaning making session. A synthesis of this can be found in the Meaning Making section of this report.