

Native Plants and Foods: Summative Evaluation Report



Transforming American Indian and Alaska Native STEM Learning via Indigenous Knowledge Translation, Education, and the Environment [NSF DRL #1812543]

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Creating an Understanding (Overview)

The Swinomish Indian Tribal Community, Garden Raised Bounty (GRuB), Feed Seven Generations, Urban Indian Health Institute (UIHI), and Oregon State University were awarded a 5-year Innovations in Development grant from the National Science Foundation Advancing Informal STEM Learning (NSF-AISL) program entitled *Transforming American Indian and Alaska Native STEM Learning via Indigenous Knowledge Translation, Education, and the Environment* [NSF DRL #1812543]. The partnership aimed to address increasing threats to Native lands and traditions in the Coastal Salish region by implementing a multidimensional, multigenerational model aimed at intersecting traditional ecological knowledge (TEK) with western science to promote: (a) environmental sustainability awareness, (b) increased STEM knowledge and skills across various scientific domains, and (c) STEM fields and workforce opportunities within Coast Salish communities.

The Project Storytellers (external evaluators)¹, led by Native Pathways (Laguna, NM) and Reimagine Research Group (Corvallis, OR), through a partnership with the Oregon State University STEM Research Center, conducted an ongoing process evaluation designed to understand, document, and support the partnership pathway in achieving their goals. The cross-cultural team brings together Indigenous and western evaluation perspectives to ensure a balanced approach to the development of instruments and protocols, data collection, analysis, interpretation and reporting. The current report reflects summative evaluation in support of the following evaluation questions:

1. How do all the components of the project (13 moon activities, train-the-trainer workshops, toolkit, and community of practice) work together to support learning and engagement around Indigenous knowledge of First Foods and plants?
2. To what extent are intended learning outcomes achieved around knowledge and awareness of First Foods and plants from Indigenous perspectives?

¹ Using an Indigenous-based worldview, our evaluators embrace the idea of seeing our evaluation process as storytelling, thus 'Project Storytellers' is more appropriate than the use of 'external evaluation' as this is a western, colonial mindset.

3. To what extent and in what ways does a cultural resources framework² engage Indigenous Coast Salish community members and other community partners in engaging in traditional knowledge, First Foods and plants?
4. What are the key processes and components that best support the development of a place-based Indigenous environmental education program and an Indigenous-based Community of Practice?

Preparing the Ground (Process and Methods)

Summative evaluation of the project involved both qualitative and quantitative methods. Three audiences were represented in the summative evaluation of this project: 1) the project leadership team, representing staff from the partner organizations; 2) interns who worked alongside the partner organizations to aid in the development and facilitation of resources; and 3) resource users who were educators and learners either in classrooms or in community settings. The bulleted areas below show the breakdown of evaluation activities by audience in chronological order.

- **Project leadership team**
 - PhotoVoice and Talk Story at the Annual Meeting in Winter 2020
 - Talk Story during site visit in Winter 2020 (Medicine of the Trees 13 Moons workshop)
 - Talk Story during site visit Fall 2022 (Cedar teachings workshop)
 - Talk Story at the Annual Meeting in Winter 2022
 - Talk Story for Evaluation Planning in Spring 2022
 - Talk Story at the Annual Meeting in Fall 2023
- **Project Interns**
 - Interviews during a site visit in Fall 2022
 - Interviews during a site visit in Fall 2023
- **Resource users (educators and learners)**
 - Surveys for workshop facilitators (given by the project leadership team) 2022-23
 - Surveys for workshop participants (given by the project leadership team) in 2020 & 2022
 - Surveys for portal users in 2023
 - Focus groups for portal users in 2023

² While the term “cultural resources framework” was used in the original grant language, the project team has evolved in their learning and no longer uses this term as it reflects something static. The language we use instead is specific to each community partnership and resource developed, and centers around the concepts of food sovereignty, nation-building, cultural identity and language revitalization, and culturally responsive curriculum.

During the **PhotoVoice** activity, evaluators invited members of the project leadership team to capture and share images that spoke to each person’s individual understanding of the project’s key goals. The image sharing activity was followed by a Talk Story dialogue, using the images as a springboard for conversation. The **Talk Story** process is similar to a focus group but is more fluid and emergent, in that it’s a dialogue that unfolds organically, while also focusing on a few key areas. This process includes an interactive dialogue around key areas based on the goals of the evaluation but is not scripted in ways that confine the direction of the dialogue; it's organic and emerges the way it needs to emerge, giving voice to the participants, rather than being “driven” by the Project Storytellers’ agenda. This process emphasizes storytelling, a key Indigenous value, rather than dissecting the dialogue into separate areas, and utilizes interactive and arts-based approaches to engage multiple modalities. Talk Story dialogues and interviews were recorded with permission from all participants, and then transcribed into Word documents using an external transcription service. The transcripts were then uploaded into Dedoose (www.dedoose.com), a content analysis software program, and then analyzed for emergent themes. Surveys were administered via Qualtrics or Google Forms, and closed-ended responses were downloaded into Excel and analyzed for descriptive statistics. Open-ended responses were reviewed in Excel and analyzed for emergent themes. Coding of qualitative data was done collaboratively between an Indigenous and non-Indigenous team member to support the inclusion and balance of worldviews in the analysis. Interrater reliability is carried out through a consensus building process in which codes are determined and applied through collective dialogue.

Celebrating the Harvest (Findings)

The following sections share a summary of evaluation findings related to three areas of work: 1) teacher and community workshops, 2) the Native Plants and Foods Curriculum Portal, and 3) the project leadership team’s collaborative partnership. Early in the project, the project leadership team developed a diagram which illustrates their desired outcomes for this work based on local plants and their teachings. Each outcome is metaphorically tied to a medicine plant that serves an important purpose both on its own and in the part it plays to support the broader ecosystem— just as each outcome, and each aspect of the group’s work, holds value both individually and collectively. The Project Storytellers utilized this framework as a central guide in interpreting data to align the findings with intended project outcomes.

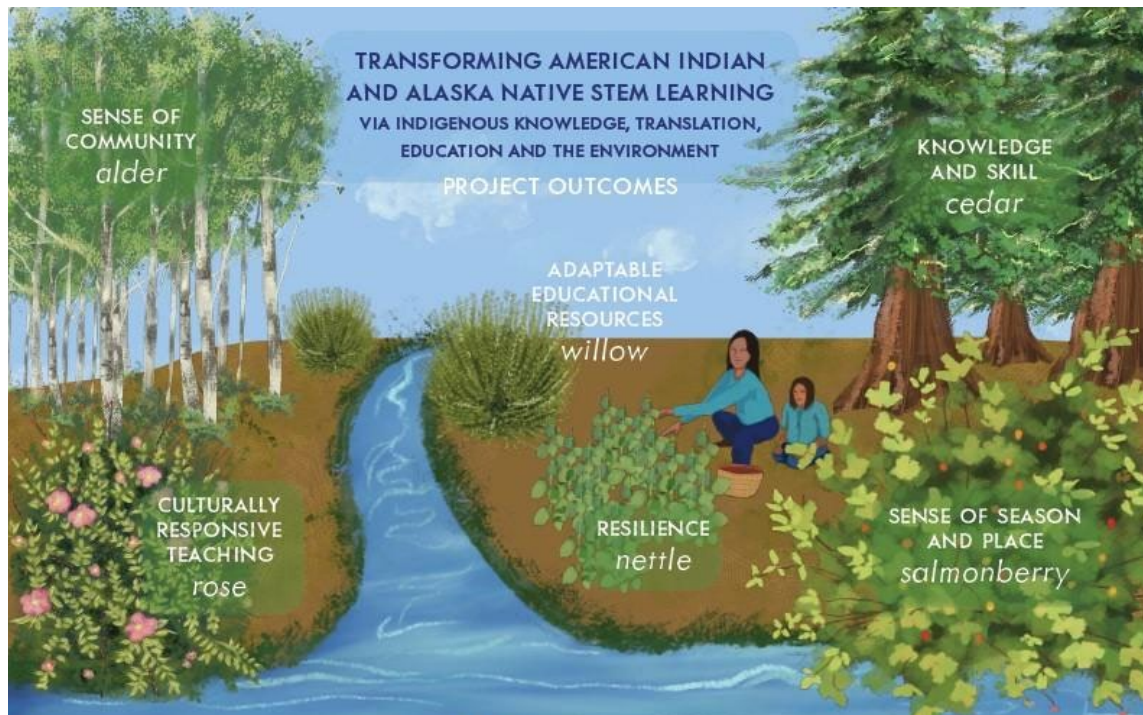


Figure 1. Illustration created by the Native Plants and Foods project team, showing how the project outcomes reflect local plant teachings and relate to each other within a place-based ecosystem.

Teacher Trainings and Community Workshops

From Spring 2020 to Winter of 2023, project leaders at GRuB, Swinomish, and Feed 7 Generations conducted 10 Plant Teaching trainings for teacher practitioners and 133 workshops with community members (Pre-K to Elders) using materials from the Native Plants and Foods Portal resources. Recruited through word of mouth and the project leadership team’s connections with teacher networks throughout the Pacific Northwest, educators and community members gathered to hone their knowledge about the roles and uses of local native plants, practice skills that they could take back to their communities, and come together to celebrate their connection to place, land, and culture. Alongside the workshops and trainings, the GRuB team also maintained yearly intern cohorts (9 interns in total) who supported the work as workshop developers, facilitators, admin supports, and project team members.

Whenever possible, workshops would occur in-person on site at GRuB’s facility in Olympia, WA, or in community spaces at the Swinomish or Muckleshoot tribal communities, allowing participants to experience plant teachings in season and in the natural habitat of the plants. However, early in this grant, public health restrictions due to the COVID-19 pandemic meant the team needed to abandon their in-person model and pivot to online environments, a challenge that the team met with grace and

flexibility. Starting in March 2020, workshops were moved online and materials were delivered directly to each participant’s home so that workshops could be held synchronously via Zoom. In-person engagement restarted in 2022.

Evaluation activities around these gatherings included facilitator and participant surveys conducted by the project leadership team and Talk Story reflections with interns conducted by the Project Storytellers.

General feedback

Participants in the workshops and trainings had overwhelmingly positive things to say about the impact of their participation upon themselves and their learners. In end-of-year surveys given to teacher participants in the Plant Teaching trainings, 100% indicated that the **amount of material, length** of the workshop, amount of group **discussion and interaction**, and **opportunity to ask questions** were “just right”³. Additionally, many respondents stated that **the educational resources and classes supported them in their career**⁴. Participants also felt that the **workshops contributed to their confidence in topics** specific to each workshop. When rating their confidence before and after the trainings on a five-point scale (where 1 = none and 5 = complete confidence), participants indicated an average increase of about 1 point⁵ as a result of their participation.

Positive outcomes were also seen as a result of the community workshops. In post-workshop surveys⁶ (n=130), facilitators gave the lessons an average rating of at least 3.8 on a four-point scale, indicating that they felt the lessons substantially **increased students’ knowledge and skill, increased students’ sense of community, and increased students’ sense of season and place** (see Table 1 above).

³ Taken from 2020 (n=76) and 2022 (n=181) Tend participant surveys. Rated on a 3-point scale of “too little”, “just right”, and “too much”.

⁴ Taken from teacher participant surveys administered in 2020 (n=36). Subsequent surveys did not include this question.

⁵ Taken from 2020 and 2022 Tend participant surveys. 2020 participants scored nearly a full point higher on average (+0.95, n=76), while 2022 participants scored nearly a point and a half higher on average (+1.4, n=181).

⁶ Taken from 2022 and 2023 facilitator surveys administered immediately after each lesson (n=130). Ratings on a 4-point scale where 1 = “Not at all”, 2 = “A little bit”, 3 = “Yes, somewhat”, and 4= “Absolutely”.

Rose: Culturally responsive teaching

Through Talk Story dialogues, Project Storytellers heard from community members who shared their perceptions around how the community workshops incorporated culturally responsive teaching approaches. In their approach to teaching, the Plant Teaching **workshops were a conduit for amplifying and exchanging cultural knowledges**. While participants engaged in learning about the plants and practices associated with them, they were also encouraged to share their own experiences, stories, and cultural significance as a part of the learning space. For example, during one workshop, a participant described the following observation:

“That last activity with the cream cheese and hemlock ... I would like to introduce that activity [back home]. I think it’s important especially when there’s some plant medicines that people are connected with and have life experience with—it becomes like a cultural exchange. You know, it kind of brings something out with other people.”

Participants described how the workshops **facilitated intergenerational learning**, passing knowledge on from one generation to the next generations. The project leadership team relied on community-based resources to develop and strengthen their outcomes framework and gathered significant input from Elders to ensure the **curriculum aligned with cultural values**.

Nettle: Resilience

For some participants, the intentionality of creating an intergenerational learning environment within the workshop is not only a culturally responsive teaching practice, but also an act of resilience representing a way that **traditional knowledge and practices are preserved and transferred to the next generations**. In a similar way, the workshops for some participants have contributed to a sense of **community healing by embracing the idea of holistic wellbeing for all relatives**, including humans, plants, animals, and other parts of the natural world.

The most obvious connection between the workshops and the area of “resilience” is the leadership team’s grace in **pivoting from an online model to a virtual model** that still sought to meet the needs of its community: continuing to teach educators and community members about plant teachings, providing a space for connectedness amidst the stress and isolation, creating opportunities for connection and healing at a critical time, and encouraging participants and each other to practice self and community

Table 1. Facilitator perceptions of lesson effectiveness in supporting specific outcomes* Total of 130 respondents	
Question	Mean
Was the lesson effective in increasing student knowledge and skill?	3.86
Was the lesson effective in increasing students' sense of community?	3.83
Was the lesson effective in increasing students' sense of season and place?	3.88

**Average rating across all workshops on a 4-point scale where 1= “Not at all”, 2= “A little bit”, 3= “Yes, somewhat” and 4= “Absolutely”. n=130.*

care. During a 2021 Talk Story with the project leadership team that centered around their response to the pandemic-informed, one team member described exactly how challenging it was in the following quote:

“It’s a lot more work for us as educators even though you would think we’re not traveling as much. Preparing all the online resources and then mailing things to people is just a tremendous amount of work. So, I think everybody’s feeling tired. It’s just a lot on top of the emotional and social challenges of this time.”

Alder: Increased sense of community

Just as teacher participants expressed an increased sense of community through the training, community participants in workshops also described a strong sense of community within spaces created by the project team. Community gatherings were described as **“a medicine for people”** and a **“kinship space”** where people come together to bond. Others described workshops as a **space to celebrate, uplift, and bring together talented individuals and their work** toward the purpose of sharing and amplifying plant teachings with their community. As the project progressed, the project leadership team noticed **building interest from community members** who have decided to join in the effort by contributing their food, resources, time, and effort (for example, donations of deer and elk meat, smoked oysters, or volunteer labor to help set up workshops).

During the pandemic, virtual workshop topics began to fold in elements that addressed social emotional health, and taking part in the workshops became a way for many to maintain a sense of community connection from afar. Monthly Zoom calls allowed participants to connect with a **“network of plant knowledge holders”** and share their practice and resources with each other. Additionally, through virtual engagements that continued even after the pandemic restrictions were lifted, community members who were homebound described feeling **a sense of connection to their community and its teachings.**

Cedar: Growing knowledge and skills

As was stated in the “General Feedback” section above, teachers, interns, and community members in workshops overwhelmingly indicated that the workshops helped them to **gain confidence in their knowledge and skills around each topic.** One member of the project leadership team shared an example of how the workshops can help even young learners expand their understanding of complex topics like climate change while sharing traditional practices and incorporating cultural knowledge. For example, one participant shared the following reflection:

“This is one of the things that we presented to the preschoolers about clams. We took clams there and we got to eat them and touch them and identify them and all that. So, we do what’s in season right then. And it’s also a way to teach them a little bit about how the climate is changing because it used to be that this was available at this time of year but now we’re seeing at different times so we

have to be more aware and be out there. So helping preschoolers grasp that about climate change at a young age is tricky but it's really fun. And it's just so encouraging to see how much they like, and we teach the Lushootseed words for all the different things we do. And we are only there once a week, but it's amazing how much they remember when we come back. So it's really encouraging to see the little ones learning."

Interns specifically spoke about **building confidence in their professional skills** through their experiences with the project. One intern shared how the project leadership team created a kind and encouraging environment that allowed them to blossom as a young professional, as shared below:

"When I first started, we had a staff meeting where we were supposed to be doing goals, for whatever reason I was feeling overwhelmed and inadequate- imposter syndrome- I had a breakdown. I said 'I don't know if I'm the one who's supposed to be here'. It was them assuring me, 'you are pursuing this and got your own funding, now you're here this summer and it's going to be great'; them boosting my confidence and supporting me so I could share it back out, and that was a big growth thing for me. I've become a better teacher and public speaker and am trusting myself: that I can speak about this, and I can do this."

Salmonberry: Increased sense of season and place

A defining element of each workshop and training was **situating learning within a particular season and place**. By being out on the land and engaging multiple sensory experiences of a place (in situ or even virtually), participants were given the opportunity to practice observing and connecting with nature in an intentional way. Some participants described **continuing their seasonal practices after the workshop ended**. One member of the project leadership team shared a story about how a group of Elders wanted to continue collecting and canning medicine plants and had already made plans for another session, as shared in the following quote:

"We've also been able to encourage a lot of harvesting and wild foods. Which has been a real joy to see people interacting on their own. I think it's giving people a little bravery. You know having the classes all the time but then actually remembering the knowledge from the classes and going out and harvest[ing] in your own landscape and your community spaces and gardens that really need that stewardship. So that's been cool and we're working with our Elders right now to do some kind of Fall canning, cooking kind of demo stuff. Because when you go to the Tribal garden we have Elders there and they're just ready to go."

Willow: Adaptable resources

The workshops and trainings faced a true test of adaptability when presented with restrictions related to the COVID-19 pandemic. Partners found ways to continue supporting their mission and goals in meaningful ways through collectively working together and being innovative in rethinking their programming, such as pivoting to using **social media platforms** to continue programming or developing **take-home activities and kits** for community members. A lasting benefit of this approach was broadening audiences via online platforms as one partner suggested below:

“And so we're revisioning and it's exciting and we're learning a lot because technology And we're looking toward our younger generation which makes us so happy we're even going to hopefully feature some really young children because they're on Zoom. They're going to be hopefully going to the website and going to social media and we want young teachers providing that information so we're even thinking kiddos. So that's exciting and something very new.”

In addition to the new social media platforms, the team continued to facilitate some limited virtual programs even as pandemic restrictions were lifted, which allowed them to accommodate remote, restricted, or homebound participants. And as the project gained exposure, a handful of communities began to reach out for permission to adapt the resources to their own tribes, regions, or contexts: there is now a version of *Tend, Gather, Grow* that incorporates Native Alaskan plants and languages; and a substance abuse center near Port Gamble, WA, has led workshops based on the materials as a way for their patients to recenter and reconnect with their culture, and to weave in a sense ceremony on the path to recovery.

Table 2. Top 10 portal resource downloads as of June 20, 2024:

- Plant Teachings for Growing Social-Emotional Skills (n=973)
- Tend, Gather, and Grow Plant Guide (n=803)*
- Cultural Ecosystems Field Guide (n=375)*
- Tree Communities (n=370)*
- Cedar Teaching Box (n=354)
- Wild Food Traditions (n=290)*
- Native Infusion (n=249)
- Career Connected Learning Toolkit (n=245)*
- 13 Moons Curriculum (n=148)
- Herbal Apothecary (n=145)*

**Items marked with an asterisk are a part of Tend, Gather, and Grow.*

Native Plants and Foods Portal

The Native Plants and Foods Curriculum Portal (<https://nativeplantsandfoodsportal.org>) was a key deliverable of the project. Launched in October 2022, the portal is a repository for the array of curricula and resources created by the project team and community partners that will continue to be a resource beyond the life of this grant. Resources are freely available to anyone who may choose to download and use them; the only requirements are that users register an account and pass a brief quiz that tests basic

knowledge around safe, respectful harvesting and practices that honor medicine plants, places, and cultures. This section of the report will share evaluation findings about the learning materials and resources provided within the portal, as well as evaluation findings related to the portal structure.

General feedback

According to Google analytics, the portal has hosted 6,428 different site visitors as of June 15th, 2024. It is difficult to determine exactly how many visitors are in turn actively using portal resources in their practice as teachers or learners, but analytics show that **984 different users** have made at least one download between October 2022 and June 2024, with users averaging five downloads per person. Nearly all users who have made downloads (n=984) are **based in the United States or Canada**, with just a small handful coming from Indonesia (n=6), Malaysia (n=2), and Hungary (n=1).

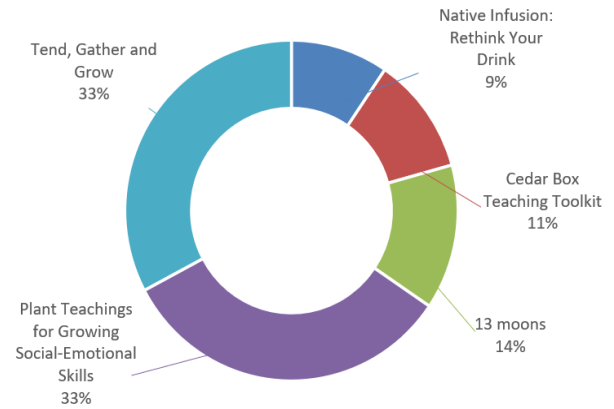


Figure 2. Percentage of survey respondents who have used each of the available resource packages.

In Fall of 2023 the Project Storytellers worked with the project leadership team to disseminate a survey to all registered portal users to understand what users saw as the strengths, challenges, opportunities, and key drivers of the portal’s resources. Most of the feedback was positive, with the bulk of users' challenges being related to the navigation and signup process. Among the 48 survey respondents, **around half had challenges with navigation**; respondents noted that the issues could be resolved with the addition of a search bar or bookmarking system. Those who indicated a challenge during the signup process also cited having trouble satisfactorily completing the requisite survey to access the learning materials. However, this level of challenge may be appropriate given the purpose of the survey to ensure that users have a basic understanding of safe and respectful practices needed to engage with the materials and the natural resources and cultural knowledges involved.

The survey also asked respondents to reflect on their individual use and experience around the portal materials. A full third of respondents had used **Tend, Gather, and Grow** and **Plant Teachings for Social Emotional Learning**, respectively. About 10% each had used Native Infusion, 13 Moons, or the Cedar Box teaching toolkit in their work. **All respondents reported that the lessons supported the desired learning outcomes to some level**, with about 75% stating that the lessons absolutely increased their sense of season and place, increased sense of community, and increased participants’ knowledge and skills.

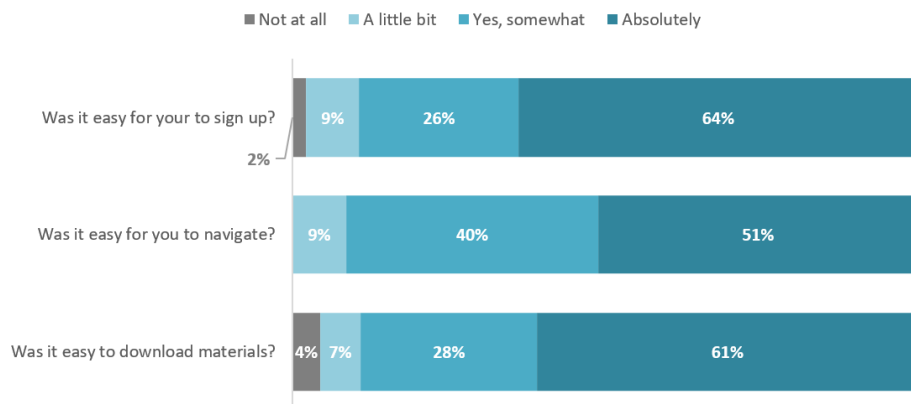


Figure 3. Responses to survey questions about website navigation.

When reviewing the plant teaching outcomes in the sections below, it should be noted that most respondents (n=48) are reflecting on their experience with either Tend, Gather, and Grow (42%) or Plant Teachings for Growing Social-Emotional Skills (48%) resources.

Rose: Culturally responsive teaching

In open-ended responses, nine (9) respondents expressed how they felt that the portal resources **center Indigenous knowledge and identity** by incorporating Indigenous ways of knowing, sharing information that is both sourced from and supported by Native communities, weaving traditional ecological knowledge with western science, and revitalizing traditional knowledge around foods and medicines.

Nettle: Resilience

Five (5) respondents shared how they felt the portal helped to **strengthen learners’ identities and sense of belonging** by grounding learners in their connections to ancestors, centering relationships between plant teachings and each teaching’s community of origin, giving students choices to follow their interests, and creating an environment where everyone is both a learner and teacher.

Elements of resilience also came up when respondents talked about the use of **storytelling to rekindle relationships for learners** (n=25). By sharing stories from local communities, encouraging stories from participant’s cultures/communities, and sharing history of the land and its caretakers, the resources served as a reminder for learners of the strengthened sense of identity that can come from engaging or re-engaging in the cultural aspects of traditional plant teachings alongside the scientific interest. And also to acknowledge that their ancestral stories and teachings are still with them.

Alder: Increased sense of community

Ideas around **nation building and the revitalization of traditions** (shared by 19 respondents) were both a demonstration of resilience and indicator of an increased sense of community for participants. Examples included how respondents felt that the resources strengthened learners' connections to local places and people, sustained Indigenous practices and values, revitalized learning about holistic approaches to health, contributed to cultural revitalization, and helped to seed and support communities of practice for like-minded educators.

Cedar: Increased knowledge and skill

Respondents praised the portal resources for their **desirable topics and content** (n=13) in their connections to season and place, how they show nature as a source of wellbeing, that they amplify and honor Indigenous knowledge systems, and how they highlight traditional medicines.

They also felt that the portal contained **high quality products** (n=11): the resources contained detailed info, contained info from reliable sources, used clear and simple language, used beautiful art and visuals, and videos had great production quality.

The resources also **presented learners with new learning experiences** (n=6) by helping to shift perspectives of human roles and relationships to the natural world, bridging understandings between Western and Native perspectives (for both Native and non-Native learners), sparking conversations about social-emotional learning and wellbeing, and inspiring continued learning for Elders by igniting new interests.

Salmonberry: Increased sense of season and place

Respondents felt that the resources **deepened learners' connection with nature** (n=11). By sparking learners' interests in the natural world and physically bringing learners into the field to engage and learn from the land, respondents saw what they described as deepened awareness of season and place among their students.

Willow: Adaptable resources

Many respondents praised the materials for how **accessible and easily adaptable** they are to different learners and contexts (n=14). Respondents described how the resources were accessible for a broad range of ages (for pre-K through adult), and that they were easily adoptable as either full curriculum sets or individual lessons that you could "plug and play" as a supplement for existing educational curricula. Some participants described using the materials in a wide variety of learning environments, including community classes, elementary schools, college lectures, and personal learning.

Collaborative Partnership

The work that emerged through the current grant was formed in part by strengthening the ties between previous partnerships and relationships. Trusted partnerships are essential to this work, and the journey to build collaborative partnerships is vital to understanding what it takes to be a ‘good relative’ to and with Indigenous communities. The work of these collaborative partnerships have been documented over the course of the project through Talk Story discussions held between 2020-2023. Report findings from those discussions have been consolidated and summarized in the following section, whereas the original reports can be found in the Appendices. As in the previous sections, findings are aligned to the plant-based project outcomes model.

Rose: Culturally responsive teaching

One of the key successes of this project has been working in partnership to **revitalize cultural practices and knowledge, strengthen cultural resilience, and support nation-building and food sovereignty**. The work of this grant has been key in sustaining cultural teachings, bringing in new perspectives and practices to communities, and bringing hope by having children learn their culture and language, and gain opportunities to improve the wellbeing of their communities’ ecosystems. One way that this work was able to flourish was through **joining plant knowledge with cultural knowledge and personal storytelling** to allow culturally responsive teaching to take place in the community. For example, one project partner shared how they are *“doing the work not only for the short-term outcomes, but to create a prosperous environment for future generations.”*

There is recognition amongst the partners that “seeds” from this project can be given new life in new locations with care and tending from new partners. A foundational example of this lies in the project’s **train-the-trainer format**, wherein community and school district leaders have been trained to teach other educators effective and culturally responsive uses of the portal resources. While evaluation of that longer-term impact is outside the scope of this project, the partners hope that this model has sparked a ripple effect, bringing the project’s resources and teachings to many more in the coming years and decades. Approaching the end of this grant, partners agreed that the direct work of this grant will not continue in the same format but that over time there will be new changes and new partnerships will form. The partners have thought about how they could share this work and one possible mechanism is through sharing their experience through different mediums, such as a film or social media.

Nettle: Resilience

Resilience in this partnership has been demonstrated through efforts to sustain traditional, holistic ways of knowing and being through investments in people and processes. There have been many external factors influencing change over the course of this grant, including the COVID-19 pandemic and numerous staff and partner turnovers that have impacted some of the work. Bringing in new team members has been key to expanding and sustaining the work. One of the key outcomes of this project was **working with communities and additional partners to revitalize Indigenous food systems**.

Participants' perspectives were changed due to learning the principles of Indigenous food sovereignty and nation-building, which allowed participants to see the deep connection between well-being as it relates to self, family, community and the natural world.

Across the project, there has been tremendous growth and capacity-building through interns as they have **grown their leadership skills and abilities to teach and engage with their community** around traditional plant and food revitalization. Many who came into this work learned about the continued need to shift policies to ensure food sovereignty. There is a continued resistance by federal and state institutions to allowing Tribes access to their traditional lands, which poses challenges to community members who want to access foods and plants on their ancestral homelands in order to support the continuation of their lifeways. There are several policies that prevent Native people from continuing to access and practice their traditional foodways. The partners of this grant recognize that this project can be a platform for changing the future and well-being of Indigenous peoples by advocating for change through greater access, policy shifts, and “land back” movements.

Also echoing the theme of resilience is the effect this partnership had in **feeding the growth of new efforts**. During this project, plant teachers in this partnership were approached by several Indigenous communities across North America who were inspired by the work and sought to implement similar efforts around food sovereignty in their own regions. Recognizing that there was a need to be filled, several plant teachers joined together to start an organization called Tahoma Peak which aims to answer the call and provide consulting services in that arena. And in a different way, the support of this project helped to highlight the work and capabilities of project partner Feed 7 Generations, which is now fully funded by a USDA grant that will help amplify and sustain their efforts into the future. The following quotes from partners reflect what they see as the gifts and strengths of the partnership, and help illustrate this area of resilience:

“Life’s work and evolution through time. Knowing this work will be ongoing; as it was started before the grant, so will it continue long into the future.”

“Doing this work in deep relationship with each other, with our work, and with our communities. Nourishing echo there helps to nourish the quality of the work and keep it going.”

Alder: Increased sense of community

The partners of this project recognize the deep importance of community and share a sense of pride for being able to accomplish the amount of work they did, especially given that COVID challenged the connectedness of community. During COVID lockdowns, it was challenging for partners to navigate how to safely engage with other team members, community members, and community partners and to carve a path toward sustainability. And yet, despite the challenge, a social network analysis project led by project partner Urban Indian Health Institute provided snapshots of the partners’ networks in 2020

and 2022 and demonstrated **increased connectivity and growth of the network** around Indigenous plants and foods teachings. By the end of the study, 89 surveys were distributed to unique Tribes and organizations over the two-year period.

Partners highlighted the **ability to share resources with their communities**, such as through the Story Map or the Native Foods and Plants Curriculum websites as another element that contributed to an increased sense of community. Another aspect that partners enjoyed was **watching the community grow**, such as through the recent addition of the virtual Cedar Box experience, or through a new partnership with Washington Sea Grant.

From an Indigenous worldview, the idea of “community” extends to more than human relatives. For example, the apothecary at Swinomish is one area that has grown alongside the expansion of buildings and gardens. Many community participants and partners deeply appreciated what the apothecary can offer to the community in terms of **reconnecting to traditional knowledge and local plant relatives**, and community members have seen positive benefits to their health alongside which they have shared with the partners of the grant. For example, one community member shared that they have completely moved away from western medicines, having done so by making lifestyle changes supported by teachings from this project that have addressed the root causes of their illness.

One area of interest amongst participants of programs, trainings and workshops is building a community of practice that can share resources and ideas with one another. Through these actions, lifelong partnerships are built that will continue to grow and nourish the work. This partnership has helped to reinforce trust and reciprocity among the partners, which will serve the community practitioners as they move forward through their pathway together, visiting with previous partners, and continuing the process of building out personal networks through the connections that each person brings. One significant example of building the community of practice was amplified through the leadership team’s visit to Ho’oulu ‘Āina, a 100-acre nature preserve in Kalihi valley on the island of O’ahu, cared for by Kōkua Kalihi Valley Comprehensive Family Services, a nonprofit community health center and Federally Qualified Health Center. This work honors a deep commitment to restoring land, culture, and language through revitalizing traditional plant and food knowledges, sustaining the health of their land and communities through nation-building and food sovereignty. The leadership team and evaluators spent time at Ho’oulu ‘Āina in November 2023, as part of a planning meeting. The time was spent connecting to land and place, sharing knowledge and stories, and stewarding the land together by harvesting the ‘ōlena (turmeric), which is a traditional medicine plant. The team visited the apothecary and learned about their process for supporting community well-being by providing the community with access to traditional medicines, as well as reigniting and continuing the traditional knowledge of growing, processing, and preparing the plant. This provided opportunities for shared learning and ignited future pathways of collaboration and partnership.

Cedar: Increased knowledge and skill

When partners were able to come together as part of the annual gathering, one of the highlights shared was recognizing **the sheer amount of individual and project wide work** that has been accomplished. However, at the second leadership gathering in 2022, after COVID had kept much of the team safely distanced, there was a significant turnover of staff for one of the partner organizations. During COVID, it was hard to gauge how many educators were being served and to figure out how to reach a broader audience using previous in-person based metrics, and so the team made a shift to **incorporate social media and digital interactions** in their community engagement approaches. There was also interest in understanding the effect of project resources on the knowledge and skill of participants. Evaluation practices were adopted to inform the leaders around how educators and learners perceived their increased knowledge and skills while also allowing programs to be changed and adapted as needed. As a result, **evaluation was woven into programs** and it was powerful in allowing community voices to be centered and allowing space to hear the needs and voices of community members.

One of the challenges around increasing the skills and knowledge of others is **figuring out how to respectfully share plant knowledge** in a way that can be modeled for other communities while also respecting the proprietary knowledge of each community. For this partnership, addressing that challenge meant many hours of consulting with traditional knowledge holders about customs and protocols.

Salmonberry: Increased sense of season and place

The work of this grant allowed a multitude of people to reconnect with more sustainable foodways and **learn sustainable practices for living in relationship and reciprocity** with (rather than extracting from) nature. The outcome of Salmonberry has some relationship across Nettle (resilience) when it comes to community healing - where tribes that have historically been divided due to violence from colonialism and boarding schools have joined together in collaboration and learning. Not only have participants in workshops and trainings increased their sense of connection to the land in a deep meaningful and personal way, but they have also created bonds with other people along their journey of reconnecting with the land and healing themselves. A gift that the leadership shared from this collaborative partnership was the knowledge that has been shared and amplified by Elders, which provides **opportunities for transferring knowledge to younger generations around connections to season and place**. The leadership team has also stated the foundation for programmatic efforts have centered teachings around plants and animals which have also served as a source of strength for the team through some difficult times and personal challenges.

Willow: Adaptable resources

Out of the many challenges of COVID, this team **pivoted to provide an online platform** for materials. One example that was quite successful was that of the Story Map project, which showcased the many new collaborations and served to communicate the many stories and connections that have emerged through this collaborative partnership. Numerous resources were adapted to fit different contexts. For example, the social-emotional learning and plant teachings resources are being adapted to incorporate the learnings of Alaskan Tribal communities in a special edition of this resource designed specifically for their community members. Future directions for this work will include making **adaptations to fit the needs of other communities**, ensuring a fit to each one's local environment, plants, foods, cultures, and languages.

Evaluator Reflections

This section is written from the Project Storyteller (evaluator) perspective, as we feel it is central to a collaborative, Indigenous-based evaluation process to share the learning that has resulted from our participation in this project. While western evaluation paradigms often situate evaluators as “external” and “objective,” an Indigenous paradigm centers being in relationship and building trust, which cannot be done from an external position. Our evaluation approach centers on participating in project meetings, program activities, and place-based learning alongside the project partners, and to document the learning through shared spaces, dialogues, and ongoing reflections. This process has deepened the Project Storytellers' own learning to help tell and amplify the partnership's story.

Lessons learned and considerations

One of the key considerations and limitations that emerged through the Native Plants and Foods partnership pathway stems from the western concept of “external evaluation.” This project included researchers, internal evaluators, and external evaluators, which can lead to an environment of both siloing the project partners and over-evaluating Tribal communities. A collaborative, Indigenous-based evaluation paradigm centers the value of relationship, which takes time, trust-building, and presence within a community. For partnerships that engage with many Tribal communities and programs, there is not often the support or resources for “external” evaluators to spend significant time in building relationships and these efforts can become transactional or extractive. Additionally, during the COVID-19 pandemic, Project Storytellers were mindful to not reach out to Tribal community partners for evaluation activities as they were focused on caring for their community. One approach is to support training and mentoring of local team members around evaluation, so that they can embed evaluation and reflective practices in their work. We saw examples of this being done by the 13 Moons and Tend, Gather, Grow partners. In the **Being Mindful (Recommendations)** section below, we will share some

thoughts on how NSF might consider rethinking or reframing the role of “external evaluator” for future projects that center Tribal communities and Indigenous ways of knowing.

The following were additional challenges for the Project Storytellers:

- A core value of Tribal communities is the notion of reciprocity that is part of growing and strengthening relationships and goes beyond a transactional offering of a stipend or gift card.
- The Project Storytellers are not part of the communities who participated in this project and live at great distances from where the work is happening, which posed further challenges to meaningful engagement.

Key Takeaways

1. **How do all the components of the project (13 moon activities, train-the-trainer workshops, toolkit, and community of practice) work together to support learning and engagement around Indigenous knowledges of First Foods and plants?**

The Coast Salish / Swinomish Native Plants and Foods partnership models a community-centered, place-based curriculum that centers Indigenous ways of knowing, nation-building and food sovereignty. The partnering organizations worked deeply with community members and cultural knowledge holders to understand needs, develop program activities, and center cultural protocols and core values. The project outcomes model (Fig. 1) reflects the ways in which the project leads centered local knowledge, plant teachings, and place-based learning to guide their work. One of the unique aspects of the partnership was being able to adapt culturally responsive activities and curriculum across the lifespan, from early childhood education (pre-K settings) through higher education, community education, adult learning, and Elders (e.g. through the Swinomish senior home apothecary). This reflects a holistic model of intergenerational learning that aligns with community core values around holistic learning and transfer of knowledge. In all these settings, community members reconnected their relationship to their traditional foods and plants, deepened their knowledge of cultural practices and lifeways, and engaged in language learning throughout the holistic process, which is essential to restoring and rekindling understanding around First foods and plants.

2. **To what extent are intended learning outcomes achieved around knowledge and awareness of First Foods and plants from Indigenous perspectives?**

This was a positive outcome of the Coast Salish / Native plants and foods partnership. All the project programs and resources (13 Moons, Cedar Box, Native Infusion: Rethink your Drink, Tend/Gather/Grow, and Plant Teachings for Growing Social Emotional Skills) were developed in partnership with community members and cultural knowledge holders, and centered Indigenous

ways of knowing, being, and doing throughout the development of each program. Evaluation data suggests that the teacher training workshops, community workshops, and Internship programs were particularly successful in supporting increased knowledge and awareness of First Foods and plants, their harvesting and uses from Indigenous perspectives and worldviews. Elements that supported this learning included connecting to place, spending time on the land, centering cultural values and language, learning alongside cultural knowledge holders and teachers and creating multiple ways of connecting, including online and virtual formats for those who preferred engaging from home or needed to stay isolated due to COVID restrictions and health concerns.

3. To what extent and in what ways does a cultural resources framework engage Indigenous Coast Salish community members and other community partners in engaging in traditional knowledges, First Foods and plants?

As shared in the footnote on p. 2, one of the shifts in the project was to move away from the “cultural resources framework” language that was used in the original proposal, as the work was process-based and unique to each community partner. As stated above in Q1 and Q2, holistic processes were used within the overall project and reconnected community members to cultural knowledge around First foods and plants.

4. What are the key processes and components that best support the development of a place-based Indigenous environmental education program and an Indigenous-based Community of Practice?

The following processes were documented as wise practices for supporting place-based, Indigenous-centered learning and building an Indigenous-based Community of Practice:

- Starting from relationship building with community partners, educators, and cultural knowledge holders.
- Collaborating with new partners and communities (“ripple effect”) by grounding in local knowledges, plants, and sense of place, while building off the existing materials and processes, e.g. Plant Teachings for Growing Social and Emotional Skills).
- Centering learning in place and based on seasonal cycles.
- Utilizing traditional language tied to plants and foods.

Being Mindful (Recommendations)

The following recommendations around “being mindful” were developed based on the findings of the evaluation process. This concept is a key reflection of Pueblo Core values, which reflects the worldviews of our Project Storytellers members. Being mindful is associated with **caretaking** (being careful with all

that you do when you walk out the doors of your home; being intentional with your actions, to cause no harm, and to step back from harm's way), **respect** (considering the whole environment, being considerate of all ways of knowing, openness to learning, finding goodness in all); and **thoughtfulness** (think before you act, take caution to reflect on the whole environment). These core values are seeded in this simple western Keres word of '*Shrau'meh*'. The deepness of this word is said out of love for those you care about. It is a notion of having respect for your family, your tribe and yourself. In the environment of our reporting, it simply translates into being mindful of the program's pathway from a holistic worldview, including partnerships, programming, future pathways, and the impacts on audiences and partners, including funders. Informed by the data and insights gathered to date, our recommendations are shared around three components: 1) the teacher trainings and community workshops; 2) the Native Plants and Foods curriculum portal; and 3) future collaborative partnerships.

Teacher Trainings and Community Workshops

- **Engaging more Elders directly in teaching, emphasizing Elders as knowledge holders.** A few participants in the portal evaluation expressed appreciation for how the portal resources help to sustain traditional knowledge by passing it down to current and future generations. While the resources were developed alongside community elders and knowledge holders, participants noted a culturally significant opportunity to more directly involve elders as facilitators of this intergenerational learning. As one participant put it, "I think what I would recommend that can be changed or strengthened is getting more Elders involved that know of these medicines and can help [teach] ... For traditionally, ... that's how you really get rights to go out and harvest."

Native Plants and Foods Curriculum Portal

Many of the recommendations articulated in this section relate to areas for growth: creating new spaces, new supplements, exploring new topics, and supporting future leaders. Through all these strategies, there is potential for the team to **attract new audiences and deepen relationships** with existing audiences.

- **Consider offering a regular space for connection and fellowship to educator users.** Many of the portal's teacher users expressed a desire to connect with other educators who are applying these resources in a facilitated manner, so that they can share ideas and work through challenges with each other. These opportunities could be virtual or in-person, depending on the needs of audiences and the capacity of the project team.
- **Refining ways of accessing portal resources.** Many participants noted a need for improved navigation on the website such as including internal links to related content, implementing a search bar function, and introducing a personal bookmarking system. Some shared a desire for more "quick" versions of resources like the Plant Teachings for Social-Emotional Learning flip

cards. A few respondents mentioned a desire for more cost affordable printed materials.

- **Growing the curriculum portal’s resources.** Participants had several ideas for supplements to the current set of resources, including: art-based activities, more “pop-in” resources (ex: flash cards or flip cards), shareable stories about plants’ cultural significance, and example worksheets. Some educators hoped for a dedicated teacher’s guide to facilitating the lessons, working with Native cultural educators, and introducing gardening/cultivation practices to youth. A few educators appreciated the “plug and play” nature of the existing resources and expressed interest in seeing a complete curriculum package related to some of these topics.
- **Exploring new topics around Native plants and food teachings.** Buoyed by the Rethink Your Drink resources on the portal, some participants suggested that the team could explore more health and wellness topics in the context of Native plant and food teachings; perhaps exploring topics aimed at serving health science and community wellness educators.

Recommendations for Future Collaborative Partnerships (General)

- **Find ways to support place-based adaptations for other communities.** There is a great deal of interest from other Tribal communities in following a similar process of amplifying traditional knowledges and practices related to First plants and foods. Together the team can determine what support they can offer to other communities who have expressed interest in adapting the resources to their own tribes and regions. With the creation of the Tahoma Peak partnership, the team has already begun to address this need.
- **Continue to support the growth of future leaders.** Participation in this project had positive personal impacts for the partners and interns who learned and grew together over the course of these years. Investing in future leaders is an act of Nation building. It is an investment in the wellbeing of a whole community, not just the individual. The internship model was highly successful and is essential to supporting Indigenous youth in building pathways as leaders in their communities.
- **Consider alternative models for “external evaluators.”** The role of an external evaluator does not align well with Indigenous-led programs, as the resources and structure limit the ability to deeply engage with each community. Recommendations include streamlining the evaluation process so there is not an overburden of evaluation between “internal” and “external” teams; supporting mentorship and training of local Indigenous evaluators; embedding reflective/evaluative processes into the programming; engaging Native youth in evaluative practices from their cultural lens; and creating a broader Storytelling team that engages partners from many different perspectives, including Elders, project leadership, researchers, and evaluators.
- **Build in significant time and resources to visit and learn from communities doing similar work.** The richest learning emerged through site visits to each other’s communities, both within and beyond the partnership. Spending time in each other’s communities and learning from one another builds relationships and trust that ultimately supports sustainability and growth of this work through “cross-pollination.”

Appendix A. Portal Evaluation Survey Instrument

Native Plants and Food Portal Evaluation

This portal was built to serve Northwest Native and regional communities. It includes Indigenous knowledge, stories, and traditions and is intended to uphold and uplift tribal sovereignty, cultural ecosystems, and indigenous knowledge. Our hope is that this information supports educators and students as they build meaningful relationships with plants, local places, and communities.

We are trying to understand how you have used the portal and the resources within it. Your response can help us improve the resources we provide.

This survey should take 5-8 minutes to complete. By clicking the “Next” button below you are giving us permission to use your responses in an anonymous way for internal project and funder reporting, and for guiding changes and improvements. If you have questions about this survey, please reach out to evaluator Victoria Bonebrake at victoria@reimaginegroup.com. If you have questions about the portal or its resources, please email Jamie Donatuto at jdonatuto@swinomish.nsn.us or Diana Rohlman at Diana.Rohlman@oregonstate.edu.

Native Plants and Food Portal Evaluation

1. First, we'd like to ask your permission for some related things. We promise not to share your contact info or use it for other purposes.

- Check this box (and share your contact info) if you give us permission to use your registration survey responses as part of this evaluation project.** When you first signed up for the portal, we asked you a few questions about how you planned to use the resources. By checking this box we will be able to use those responses in an anonymous way to help us better understand how these resources are being used.
- Check this box (and share your contact info) if you want to sign up for email updates when new educational materials are available.** We promise not to spam you or share your contact info with anyone outside our organization.
- Check this box (and share your contact info) if you would like to enter the drawing for a Native Plants and Foods gift bundle.** One winner will receive a gift bundle of Native Plants and Foods themed swag. Completed surveys must be submitted by midnight on September 9th, 2023 in order to enter.
- Check this box (and share your contact info) if you would like to participate in a focus group to go deeper into how we can improve the portal.** Selected participants will receive a \$50 gift card as thanks for your time.

2. Contact Info

Name:

Email:

Native Plants and Food Portal Evaluation

3. Please rate your experience with the Native Plants and Foods website on a scale of 1 (Not at all) to 4 (Absolutely).

	Not at all	A little bit	Yes, somewhat	Absolutely
Was it easy for you to sign up for the Native Plants and Foods Portal?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Was it easy for you to navigate the portal website and access materials?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Was it easy for you to download the materials in order to use them?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 4. Which resource(s) have you used? Select all that apply.

- 13 Moons
- Plant Teachings for Growing Social-Emotional Skills
- Tend, Gather and Grow
- Native Infusion: Rethink Your Drink
- Cedar Box Teaching Toolkit

Native Plants and Food Portal Evaluation

* 5. We'd like for you to give detailed feedback on just one resource you've used. Which resource do you want to focus on today?

- 13 Moons
- Plant Teachings for Growing Social-Emotional Skills
- Tend, Gather and Grow
- Native Infusion: Rethink Your Drink
- Cedar Box Teaching Toolkit

6. Which audience(s) did you use this resource with? Select all that apply.

- Myself, for personal development
- Early Childhood (Pre-K)
- Grades K-5
- Grades 6-12
- Adults (ages 18-54)
- Elders (ages 55+)

Native Plants and Food Portal Evaluation

7. What did you like most about {{ Q4 }}?

8. What changes did you make, if any, to better fit {{ Q4 }} to your learning environment?

9. How did you incorporate knowledge of the students' cultural backgrounds, language(s), values, and/or practices into the lesson (e.g. did you share a story today; did you touch on what it means to honor cultural property rights)?

Native Plants and Food Portal Evaluation

10. Rate your experience with {{ Q4 }} on a scale of 1 (Not at all) to 4 (Absolutely).

1- Not at all 2- A little bit 3- Yes, somewhat 4- Absolutely N/A

Was the lesson effective in increasing participant **knowledge and skill**?

Was the lesson effective in increasing participants' **sense of community**?

Was the lesson effective in increasing participants' **sense of season and place**?

11. What kinds of impacts or outcomes were you hoping for with {{ Q4 }}?

12. Was the resource effective in achieving those outcomes?

Native Plants and Food Portal Evaluation

13. What changes to this resource, if any, do you suggest?

14. What other topics or resources would you like to see on this portal?

15. Do you have any final thoughts that you want to share?