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Caring For The Land: Indigenous Practices, Community Values, Changes Over Time, and Building Values-Based Environmental Initiatives

A Report from the "Weaving Indigenous knowledge systems and Western science towards conservation and management of wildlife and the environment" Project

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November 2021



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ACKNOWLEDGEMENTS

Our work encompasses many nations and treaty areas across so-called Canada. We acknowledge, with gratitude, the land on which the Universities where our research teams work reside:

The University of Guelph and York University are located on the lands and territory of the Mississaugas of the Credit, which are subject to the Dish With One Spoon Wampum Belt Covenant.

The University of British Columbia, Okanagan Campus is located on the unceded territory of the Syilx (Okanagan) Nation.

We thank all of the participants who took the time to share their knowledge and experiences with us. The last two years, 2020 and 2021 were hard years on all of us, and we appreciate the willingness of every community to contribute to this project at this time, and to sit with us on Zoom or the phone since we could not gather in person.

Several other people guided this project and contributed in invaluable ways, including Carmen Chelick and Jade Steel who provided fundamental support with interview design, inviting communities, editing and testing the questionnaire, and carrying out a substantial number of interviews. We also thank project partners Susan Chiblow, Samantha Noganosh, Nadine Perron, Cory Kozmik for guidance and support, Charles Anderson for testing the questionnaire, and Heather Patterson for making the map.

Funding for this project was provided by “Cultural Keystone Wildlife in a Changing World: Weaving Together Indigenous Knowledge, Cultural Preservation, and Conservation” project (New Frontiers in Research Fund, Social Sciences and Humanities Research Council) (to ATF, JNP and DM), a SSHRC Knowledge Synthesis Grant (to EB, JNP, DM and STF), and the Guelph University Institute for Environmental Research (to JP, AM, EB, DM, AF).

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OUR APPROACH AND POSITIONALITY

The purpose of this research project (interviews, reports, and subsequent articles) is to listen to and elevate the perspectives, experiences, and knowledge of Indigenous communities across so-called Canada. With the information so graciously shared with us, our intention is to advocate for Indigenous Knowledge, research methodologies, and priorities in ecological monitoring, research, and decision-making - in a good way.

Our research team consists of both Indigenous and non-Indigenous researchers from biology, law, and environmental sciences, environmental professionals, and Indigenous Knowledge holders with lived experience in Anishinaabe ways of knowing.

At the core of our research approach is partnership, respect, and reciprocity among Indigenous and non-Indigenous partners to ensure that the knowledge, concerns, and priorities shared throughout our work are not misinterpreted or appropriated, and are based on the perspectives and needs of everyone.

Ultimately, we aim to generate environmental research, policy, and decision-making that holds deliberate and respectful space for Indigenous Peoples to share their knowledge, traditions, and values; an approach that will, ultimately, ensure important decisions are made with all of the available tools and knowledge, and are in the best interest of all human and non-human relations.

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EXECUTIVE SUMMARY

Western scientific approaches to environmental conservation are falling short of protecting and preserving the natural world. Achieving more effective and equitable environmental conservation practices and policies involves shifting from a human-centric, top-down perspective of environmental conservation to a more holistic, values-driven perspective that respects and cares for all living beings equally. Indigenous Peoples from around the globe exemplify ethic- and values-based approaches to environmental care - rooted in responsibility, respect, and reciprocity - and, through self-determination and empowerment, can guide Western society towards a fundamental shift in environmental perspectives and approaches.

In this report, we summarize interview responses of Indigenous participants from 12 First Nation and Métis communities in (so-called) Canada related to the ways in which they - as individuals or communities - care for the land. We highlight 1) the values, teachings, and customs that are inherent to their community's environmental care, 2) how these values and practices have changed over time, 3) how to create environmental monitoring and research programs that better align with community values and customs, and 4) how outsiders can help care for the land.

The underlying theme of these discussions was that the way Indigenous Peoples care for the land is rooted in core values - like, respect, responsibility, reciprocity, gratitude, mindfulness, humility, and agency - which are rooted in natural law, and are learned through the intimate relationships Indigenous Peoples have with the land. As a result, colonialism, environmental change, and modernization have negatively changed how Indigenous Peoples and their communities care for the environment, as their connection to the land and opportunities to learn and practice these values have been affected. However, more recent efforts across communities towards cultural revitalization and reconnection with the land has started to restore traditional values and practices. To ensure these core values remain prominent in all environmental programs, participants expressed the need to create environmental monitoring and/or research programs that foster connections among youth and Elders and provide opportunities to be on the land and use traditional languages. Opportunities like this are critical to maintaining and/or reconnecting people with the important teachings and values that guide how the land should be cared for. When asked how people from outside the community can help care for the land, participants emphasized the need to prioritize community concerns, support community initiatives through funding, training, or logistical support, and to educate themselves on the culture and history of the communities they are working with.

Environmental conservation that recognizes and adopts values like respect and reciprocity, and acknowledges that all living beings have a spirit and are connected, has potential to heal our relationship with the land. Maintaining and fostering respectful and reciprocal relationships between people and the land will ensure these values-based approaches to caring for the land - and the land itself - will be maintained into the future.

INTRODUCTION

The persistence and severity of environmental degradation and biodiversity loss around the world clearly demonstrates that current, Western-science-based approaches to environmental conservation and decision-making are not sufficient (Wildcat 2009, McGregor et al. 2020, Milgin et al. 2020). As such, Western scientists are increasingly calling on Indigenous expertise to inform environmental monitoring, research, and policy, recognizing that approaches dictated by Indigenous laws, values, and knowledge systems have a proven and critical role in protecting biodiversity and entire ecosystems, worldwide (Garnett et al. 2018, Schuster et al. 2019). However, current attempts to include Indigenous Knowledge (IK) in environmental work are often extractive, minimizing sacred knowledge to singular datapoints, and/or forcing IK into Western scientific frameworks that maintain a human-centric, top-down perspective of human-environment interactions and environmental governance (e.g., McGregor 2002, Binnema and Niemi 2006, Giles et al. 2016, Hanrahan 2017, Ban and Frid 2018). Neither of these approaches acknowledge the holistic ways of knowing of Indigenous Peoples or leave space for the values, beliefs, and underlying worldview that are inseparable from the knowledge itself (Kimmerer 2013, Berkes 2017). Respectful and deliberate inclusion of Indigenous values and worldviews into environmental practices and policies - guided by Indigenous Peoples - has potential to reconcile our relationship with the land and each other (e.g., Turner and Spalding 2013, Artelle et al. 2018, Whyte 2017a, Chan et al. 2018, McGregor 2018, 2020, Milgin et al. 2020).

While Indigenous knowledge systems are diverse, Indigenous worldviews share many philosophical and spiritual underpinnings that exemplify ethical and sustainable relationships with the natural world (Turner and Spalding 2013, Berkes 2017, Whyte 2017a). Indigenous knowledge systems arise from deep connections and ongoing interactions with the places they inhabit, resulting in extensive knowledge of their environment and what it needs to be healthy (i.e., place-based; Artelle et al. 2018, Chan et al. 2018, Diver et al. 2019). Indigenous Peoples view the land as having spirit and agency and often understand nature and all living creatures as our kin as opposed to inferior beings to humans (Kimmerer 2013, Bhattacharyya and Slocombe 2017, Martinez 2018). This kincentric (i.e., family-like) perspective leads to a sense of responsibility to care for, nurture, and protect the land as one would care for a relative, and environmental practices, policies, and governance that are rooted in respect, reciprocity, and gratitude (McGregor 2009, Milgin et al. 2020, Bhattacharyya and Slocombe 2017, Whyte 2017b). Fundamentally, it is these values and underlying principles that differentiate Indigenous philosophies of environmental care from Western scientific practices of “natural resource extraction” and environmental “management”. Decolonization of environmental decision-making and governance requires a transformational shift in the way Western society interacts with and views the environment (Chan et al. 2018, McGregor 2018, 2020). Environmental policies and practices must acknowledge the agency and spirit of non-human beings, the responsibility of humans to the land and future generations, and must afford respect and justice to all relations if society is to rebalance human-environment relationships and

redefine what it means to live sustainably (Turner and Spalding 2013, Artelle et al 2018, McGregor 2018, 2020, Milgin et al. 2020).

Objectives

The aim of this report is to articulate the foundations of the values-based approach Indigenous Peoples adopt when caring for the land, while also providing guidelines and tangible examples that can inform and inspire future environmental initiatives that are rooted in care and Indigenous values. We summarize perspectives and knowledge related to five primary themes: 1) the teachings and values that underly the deep connections Indigenous Peoples have with the land and the ways in which they care for it, 2) tangible examples of practices, programs, or policies from different communities that exemplify these values and teachings, 3) how these values and practices meant to care for the land have changed over time, 4) practical elements that need to be prioritized in on-the-ground environmental initiatives to ensure they align better with community values and conceptions of how to care for the land, and 5) how outsiders can help care for the land.



METHODS

Context

This work began as a partnership between several First Nations, namely Magnetawan First Nation in Ontario and, subsequently, Gitanyow First Nation in BC, as well as university researchers who hosted the workshop with Anishinabek communities in November 2019. During the 2019 workshop, we discussed cultural keystone species and their value to communities, environmental concerns and community priorities - impacts of climate change, aerial forest spraying, how to weave knowledge systems - and identified any further research priorities (summarized in Gallant et al. 2020, Patterson et al. 2020, Menzies et al. 2021). Discussions and outcomes of the 2019 workshop led us to explore a handful of themes further: 1) best practices for braiding knowledge systems, 2) the cultural keystone species concept (with communities that were not part of the initial workshop), 3) how to better connect communities, and 4) Indigenous approaches to caring for the land, which is the focus of this report (see Box 1 for interview questions related to this theme). The other themes are discussed in separate reports that included the same research methods and communities (Bowles et al. 2022a, 2022b, Menzies et al. 2022).

Interviews

University ethics approval was obtained for this project from the University of British Columbia Okanagan (H19-01453), Mount Allison University (protocol #102582), and the University of Guelph (REB #20-10-014). Either semi-directed individual interviews or sharing circles (based on requests by participants) were held with members of 12 Indigenous communities, across so-called Canada, between November 2020 and May 2021 (BC - Heiltsuk First Nation; AB - Kikino Métis Settlement, Fort McMurray First Nation; ON - Magnetawan First Nation, Garden River First Nation, Wiikwemkoong Unceded Territory, Shawanaga First Nation, Whitefish River First Nation, Nipissing First Nation; QC - Cree Nation of Mistissini; NB - Elsipogtog First Nation) (Figure 1). These communities span several culture groups: Haízaqv, Métis, Plains Cree/Chipewyan, Anishinabek, James Bay Cree and Mi'kmaw (Figure 1).

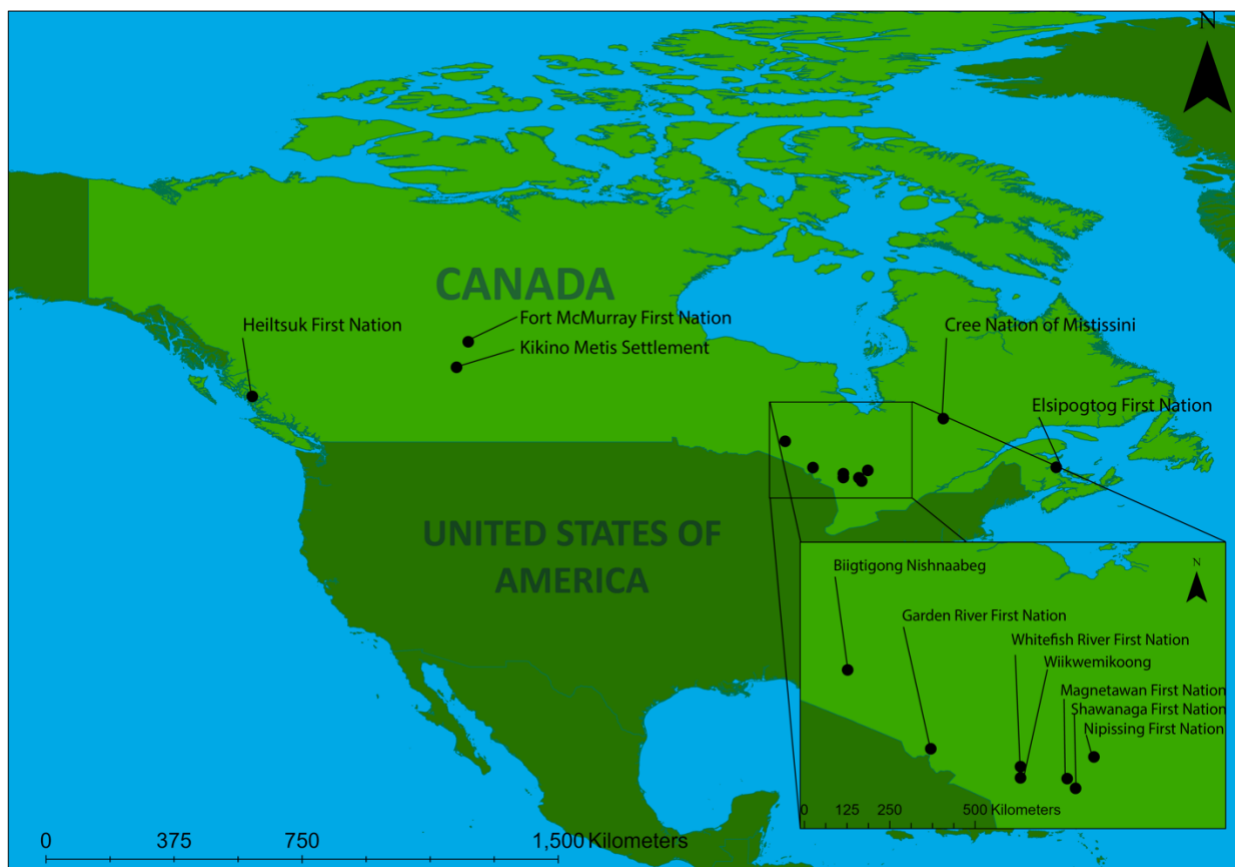


Figure 1: *Map showing the communities where participants in our study are from.*

We reached out to communities in which we had pre-existing personal contacts and research partnerships, asking if their community was interested in participating. To provide as much information as possible, we sent generic invitations with a project description, a copy of our consent forms, and the interview questions to 49 individual communities and to 5 larger governing bodies, either to their lands manager or other individuals who we knew or were referred to (e.g., Métis Nation of Ontario, Manitoba Métis Federation), to allow them to consider if they wanted to participate. An additional eleven Nations or governing bodies expressed interest, but either communication was dropped, timelines for internal applications were incongruent with ours, or community capacity was overwhelmed due to COVID-19. We initially planned to interview one Elder, one youth (aged 19-30) and one representative from a lands department (or equivalent) from each community, but several communities did not feel comfortable with this approach and, instead, preferred to have sharing circles (i.e., a knowledge sharing approach, Arsenault et al. 2018) and/or suggested a different number/breakdown of participants based on who they considered to have appropriate expertise. Therefore, we interviewed anywhere between 1 person from a community up to 12. We sent honoraria and tobacco to each participant as was appropriate or desired by the community interviewee (\$100 to each Elder and \$50 to each lands representative and youth) along with one tablet (Galaxy Tab A8) to facilitate virtual connectivity due to the COVID-19

pandemic. However, tablets were, ultimately, not used for this purpose and were presented as a gift to the community; when participants needed assistance with virtual connectivity, a community member facilitated this on a personal or lands department computer. Finally, it is worth noting that some interviewees explicitly stated that, while they were selected by someone in their community to participate, they were only representing their own views and not speaking for their community.

Transcription and Quote Tables:

We completed 27 interviews/sharing circles, which took anywhere from one to two and a half hours, with 40 participants in total, including Indigenous community members and non-Indigenous community lands managers (2 people). Free, prior, and informed consent was obtained at the start of each interview, and participants were informed that they could withdraw their content, not answer questions, or discontinue interviews at any time without consequence. Interviews or sharing circles were recorded on Zoom (video and audio), saved only on the researchers hard drive, and transcribed by goTranscript (<https://gotranscript.com/>). Every interview transcript was read, corrected, and anonymized (unless participant wanted to be identified by name) by a single coder (JSK). Subsequently, a thematic analysis using inductive and deductive coding was completed on anonymized transcripts using NVivo software (<https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>). Two individuals (authors JSK and AKM) coded interviews based on pre-determined themes (i.e., CKS, weaving knowledge systems, community values, connecting communities), splitting the themes so both individuals coded the entire interview, selecting quotes that fell into only their themes of interest. Throughout the process, subsequent codes were added to each over-arching theme, as needed. Often, themes from one set of questions emerged in another. In these situations, coders and report authors discussed where best to place that content so that as many perspectives as possible were shared, and duplication of responses was minimized. Most content that is shared for a given theme, came from questions about that theme. Questions and responses discussed herein are a subset of the complete questionnaire, which addressed several themes. We have tried to reflect all of the themes and perspectives that were shared with us by selecting representative quotes.

Box 1: Interview questions about caring for the land and community values

- How do people from your community take care of plants, animals, and/or other aspects of the environment that are important to your community?
 - Has this changed over time? (e.g., within your lifetime?)
 - What do you like or not like about how people care for plants, animals or other parts of the environment in your territory?
 - What do you think people from outside your community can do better to work with your community to help take care of plants, animals and the environment?
- Indigenous guardianship is a term used to describe Indigenous community programs that care for plants, animals, and the environment, through monitoring and management that prioritizes Indigenous knowledge systems and values. Some important values might include ensuring youth involvement, training opportunities, intergenerational knowledge transfer, Elders involvement, time out on the land, identification of wildlife and signs, etc. What are important values that should be prioritized in such programs or initiatives that are meant to care for animals, plants or other aspects of the environment?
- Do you have any examples you would like to share where values in your community have been prioritized in guardianship programs (caring for plants, animals, or other aspects of the environment, wildlife and environmental monitoring or management)?

RESULTS AND DISCUSSION

The following is a summary of responses from interview participants describing the values and beliefs that are inherent to the ways they - as individuals, a community, and/or as a nation - interact with and care for the environment, as well as examples of practices, programs, or policies from their community that prioritize these values. Participants also provided specific recommendations regarding elements that need to be prioritized in the design and implementation of environmental monitoring and research to better reflect a values-based approach to caring for the land. Finally, participants described how caring for the land has changed over time, due to colonization but also revitalization and modern technology, and discussed how people outside of the community - both Indigenous and non-Indigenous - can help care for the land. We note that several of the themes we discuss in this report overlap with the themes discussed in our report about weaving knowledge systems (Bowles et al. 2022b); the importance of prioritizing respect, reciprocity, and good relationships emerged both when discussing how to care for the land and how to work across knowledge systems.

We used the term “value” because we were interested in understanding the principles and beliefs that guide the customs and practices of Indigenous communities in relation to environmental caretaking. Generally, values are defined as a person’s, community’s, or society’s standards of behaviour, or what they consider to be good, desirable or important (from merriam-webster.com). However, it is important to note that we did not define the word “value” for participants and, instead, we allowed them to interpret what it meant for themselves. Some participants shared what they interpreted a value to be: “...values are anything that has helped our place-based community, our people evolve in this area”. Others just shared responses according to their interpretations without sharing what that was. As a result, while we call the themes we share, below, “values”, we acknowledge that some responses could be defined as ethics (e.g., responsibility), principles (e.g., interconnection), practices (e.g., mindfulness, moderation), and philosophies (e.g., agency of the land).

Caring for the land

When we asked participants “how do people from your community take care of the plants, animals, land, and waters”, instead of identifying specific approaches or values that were important, most participants described it as part of themselves and embedded within their intimate relationship with the land. They explained that the instructions and/or teachings related to caretaking are rooted in the natural law, they are part of creation, and are learned through creating and maintaining strong relationships with culture, language, and the land.

“It's part of you, it's part of your life. It's part of your mind, it's part of your heart. That you are truly a guardian and protector and steward of the land.”

“The best way to explain this is like, when we look at the environment, the environment teaches us. The environment actually teaches us what we're supposed to do to keep it intact. The animals teach us how to interact with them to keep them intact and us intact. The environment tells us these things, and we develop our language around that.”

“I've always asked myself how did you become to know the Creator when my dad and my mom never actually sat me down and start talking about what the Creator does? I don't know where I picked it up, you don't know how you learned it, and then you finally you just realized it's inherent, right in the language and the words that you use. When we go back in the woods, when I go back into the land, when I go back and started talking about it, I feel this sense of unity with the trees, I feel this sense of unity with all the plants and the medicines...”

They stressed that environmental caretaking is not a precise “method” that is written down or enforced, but is a set of values and beliefs that are passed down from generation to generation. It is expressed and conserved through the inherent rights, customs, and practices of Indigenous Peoples.

“The difference between the natural law and respect that people have for the environment and for one another and their natural law - it doesn't have to be in writing. It doesn't have to be enforced. That goodwill to help each other out and to look after your environment is something that you're taught from generation to generation.”

“How do we take care of the animals? Well, it's carried through our traditions and our ceremonies and passed down through our knowledge systems, and from our Elders.”

"Membership practicing their traditional inherent rights of hunting, fishing, harvesting, and even practicing the commercial harvesting of fur-bearing animals, fishing... all of these aspects. By doing all of these things, we're using our value systems to do it right, and that is taking care of everything."

“For us, even just the act of harvesting medicine is medicine. There's [a] really complex and holistic system that goes on within harvesting something. There's the act of doing it and there's the relationship that you build with those plants or animals or whatever it is, and then there's the familial highs that you get with

**processing those plants and animals and your family is
processing all of that together.”**

Overall, these responses reflect an approach to caring for the land that is inherently tied to and governed by the land and all of creation. In stark contrast to the colonial perspective of environmental management, Indigenous Peoples do not govern or “manage” the land, they manage their relationships with the land, which governs their beliefs and customs. This captures the critical link between people and place, the teachings the land provides, the learning that occurs over generations, and the importance of Indigenous customs and practices for sustaining and caring for the land.

Values and Teachings that Guide Caretaking

Beyond general descriptions of what it means to care for the land, participants identified many important teachings and values that are inherent to the ways Indigenous Peoples live their lives, care for the land, and maintain good relationships with the land and each other.

It is important to note, first, that a handful of participants could not identify the values that relate to how they or the community care for the land, either because there are too many, it is too complex, or one participant that felt, in their view, their community had no, collective community values anymore.

“For us, values are anything that has helped our place-based community, our people evolve in this area. That's a multitude of things. That's essentially like saying, what's valuable to a plant? Well, I don't know, let's see. Earth needs water, air, microbes in the soil, and sunlight, and carbon dioxide, and water. The values, it's impossible.”

“It's all-encompassing. There can't be one value. That's what I always grasp. It's very deep.”

“I'd have to say, not really [no underlying values]. For me, I do, but for the community, no.”

The remainder of this section describes 9 values that the rest of the participants described as being foundational to the ways they - as individuals and/or their communities - care for the land.

1. The land, itself, as a value

While it might not be considered a value by everyone, a handful of participants identified specific aspects of the environment (e.g., animals, medicines, water), themselves, as an important community value. While these responses did not

describe, specifically, how values guide relationships with the land or practices meant to care for the land, they highlight the importance of particular aspects of the environment, and that protecting these aspects are central to how the land is cared for.

"As Nipissing people, we're fishing people. You can go on the journals and read about us in the canoes, fishing. As fishing people as Ojibwe, that's the lake, the fishery is who we are, and without it, we wouldn't exist. And without it, we won't exist. Yes, it's one of our highest values."

"Again, one of the real values that I talked about earlier is the medicine, the value of the medicine."

"That value that I feel for the moose is way beyond anything that I could ever express to anybody. Even if I tried to teach it, I think I would miss the point."

"The important value is clean water, clean air."

2. Responsibility

Many participants described a sense of responsibility as a value that drives the need to care for the land, regardless of the approach that is taken. Some described this as a responsibility to creation and the Creator, to live well, to learn, to respect the land, in return for everything the land provides. Others described a sense of responsibility to future generations; to ensure the land, which is borrowed from future generations, is healthy and intact for generations to come. Both perspectives underly a need to play a positive and active role in the well-being of the land.

"What I've heard from the Elders when I started out as Chief was... 'It's our territory. We were given responsibility to look after that land by the Creator. We enjoy the land. We live on the land, and the land provides us with everything that we need to live, but then we pass it on to the next generation'."

"The values of protecting our resources for generations that come, I think are pretty strong right now, and being taught to the young people. Fortunately, young people want to learn. They have a hunger and a thirst for saying, "I want to learn more about our tradition. I want to learn more about our culture, and I want to learn more about walking a good path and having a healthy life for me and my family."

"Often that type of caretaking looks like various different approaches but more often than not, it's respecting various seasonal responsibilities. Harvesting within season, harvesting

when we know it's right and appropriate to do so despite having access essentially like status First Nation people.”

“As a young person, I feel like it is my responsibility to learn those things and to have connections to those areas. That's a very important value, especially in prioritizing and caring for them because if you don't know the name... That's stuff that I learn: what they are and learn about their responsibilities. What do they do that keeps the environment healthy and thriving and what do they offer? Because I just hear this teaching of like, animals just keep giving and giving and giving; humans, we just keep taking. It's such a different way of being, to flip that around and... joining them and just being giving and loving and giving.”

3. Respect

A core value that guides Indigenous Peoples relationships with the land and the ways in which participants and their communities care for the land is respect. It was specifically mentioned in the quotes below - described as not disrupting the land, leaving it as is, not capitalizing on it - but was also inherent to many of the quotes shared throughout describing other values. Respecting the land involves not being wasteful (moderation), giving thanks for what it provides (gratitude), being mindful of your potential impacts (mindfulness), respecting your position within creation (humility), and giving back to the land as much as you take (reciprocity), all of which are described further, below.

“I can say first and foremost, people respect the community, respect the plant, animals, and one way that they do is offering”

“I think those values of stewardship and respect for the lands definitely come into play when it comes to monitoring. We walk lightly, we don't move or disrupt things, so monitoring is very much monitoring with our eyes, not so much moving things or disrupting things.”

“Values that we place on the animals, on the wildlife. Those values extend to the forest as well and beyond, and to the ocean. So, thinking about values like respect, we're having respect for the area that these plants are in and respecting the plants themselves and that leading into the kind of principle”

- William Housty

"We respect animals, we give thanks. When we do a killing, you use every part of that animal because they gave their life for you. It's almost an unsaid teaching that you respect the land. You don't

go and you don't disrupt it. You leave it as it is. It's a body of its own. It's a living, breathing system of its own that we're part of.

We are not above, we are not below, we are just a part of it.

There's no capitalizing on it, I guess. Also, you're not better than the animals that you're hunting, they can kill you. You're not better than the trails that you're walking on, you can trip, fall. You're not above anything. That's huge-- from all Indigenous culture-- is that connection to the land and not seeing it as less. It's greater than our own being."

4. Reciprocity

Many participants identified reciprocity as a fundamental, core value that guides their relationships with the land and, in turn, the ways they care for it. It was most commonly described as a give-and-take between people and the land, and the idea that if you take care of the land, the land will take care of you in return. It was pointed out that sometimes the land needs people to be healthy; for example, in some cases, the act of harvesting something (i.e., taking from the land) advances their life cycle (i.e., gives back to the land).

"Understanding that something is taking care of us, therefore, we ensure that that thing is able to continue to take care of us, so we take care of it in return"

Values like reciprocity: If you're going to go there and take some, do something to enhance it when you leave, help it out somehow, help the resource out somehow."

"When I think of the plants, I think of the relationships that we have and how some people will foster those relationships by one, picking the plants, but they also help maintain the plant life cycle, so they'll help spread the seeds, for example, if they know there's some plants that need humans now at this point to help spread or pollinate or whatever."

5. Moderation

Another core value that was mentioned by most participants was the need for moderation. Participants described this guiding value as taking only what is needed, taking only when there is a purpose for it, and preserving the environment for the next generation. Some participants described this as being sustainable and/or responsible.

"I keep coming back to that moderation thing; only take what you need."

“If you're going to harvest, don't take all of it. Take enough for yourself but leave it so there's enough for other people or enough for it to replenish itself sort of thing”

- William Housty

“Despite having access essentially like status First Nation people. We still only hunt or fish based on our needs. We take as much as we need and nothing more. That's one way to identify how we take care of our community.”

“... there's talk about living within the medicine wheel, living within the circle, and that journey of life. I've noticed that people that commented in there were saying, "You do things for a reason." You don't just cut trees down because you think it's a nice thing to do, or you'll get your picture taken, saying, "Look at how good I am at cutting trees." You don't just take fish and game.

This is something I learned from our Elders many years ago, including our parents. If you're going to take that, then it's for a specific purpose. Then you're going to eat it, put it on your table and you're going to feed your family, but hunting is not a sport. That's one of the values. You're hunting to maintain your tradition, but because you're going to make use of every part of that animal as best you can. That's the value that I think is instilled in young people. It is not hunting for a rack so you can hang it on your wall and say, "Look at my nice trophy." It's because you're hunting for food and maintaining your tradition.”

“I know that you're also supposed to never take the first one that you see and that's part of the teaching where-- the first one is just to show you that it's there, and when you look closer, you'll find more, and you're not supposed to take that first one because it was kind of like the beacon. That's just the teaching that I've been given.”

6. Gratitude

Participants also described gratitude towards the land and the gifts it provides as a value that guides how they care for the land. Not only acknowledging all that the land provides but expressing gratitude before and/or after harvest. This gratitude drives a need to respect, care for, and give back to the land.

“Gratitude. Being grateful for what the Creator has given us and, to acknowledge that is important.”

“We're not entitled to these gifts, for example, like moose or fishing or whatever. But that they're gifts from the Earth and

from the animals, and we need to treat them as such, and we need to not be selfish and take these gifts all for ourselves”

7. Humility

Many participants emphasized the need for humility; to understand that humans are not above anything else. To care for the land, we must manage our own behaviour and relationships with creation, as opposed to managing creation itself. Humility also allows us to listen to the land, hear the teachings, and learn from them.

“Having that respect, understanding that humans are not above anything else. We are the last of creation, and we are the baby of creation. So all of creation is out there to support our existence, not the other way around.”

- Sue Chiblow

“I guess those original instructions and those teachings that we're not separate from the environment and we're not above anything that's in the environment. That's a really important value that I think the greater society should be trying to implement. We don't manage the resources. We actually technically manage our relationship to the resources.”

“Creation is higher than us. We didn't put ourselves higher than the animals or the plants or any of those things. Even the knowledge that sits in the sky world. That's a reminder of our role and responsibility.”

“That's one of the reasons that the Creator gave you two ears and one mouth, so you can listen instead of talk.”

8. Acknowledging Agency of the Land

Related to humility is the need to understand that the land has spirit and agency and can manage itself. Participants emphasized that the land speaks a language, it knows how it is supposed to be, and we just have to listen and not interfere. Acknowledging this guides the ways in which participants and their communities care for the land.

“The plants have spirit, the animals have spirit, all wildlife have spirit, and so on.”

“I've never heard Indigenous People say, ‘We manage it.’ I've said that a few times myself, ‘We manage, we manage...’ but really, we don't manage the environment. We try to contribute in a helpful way. The environment actually manages itself. It managed itself for a long time before mankind tried to manage it.”

“We let the nature be the way it was meant to be and we don't interfere with that”

- Sue Chiblow

“It's what we were taught when we were young. Listen to the wolves, listen to this, and listen to that. We listened to what I call the ice drums. That's the water movement that moves under the water. You hear those big groaning sounds. Everything has a spirit and everything speaks a language. It's just which of those languages do we interpret and understand?”

9. Mindfulness

Another value that emerged was the need to be mindful; being mindful that actions have consequences and that these actions can impact the health and connections within the natural world. Participants emphasized the need to reflect on the bigger picture before acting and making decisions for the environment.

“Being very mindful where you are and what you're doing, being very careful where you're stepping because you might be stepping on something that is of value. Mindfulness is really important.”

“I guess that's an important value is seeing the bigger picture that everything is interconnected and that we're involved in that and that we affect that interconnectedness. How do we affect that? Also, what happens if you remove one of those animals? How does that affect the other animals? How does that affect the plants and the waters? I've been told that when we take things that the other plants and animals will actually mourn the loss of their relative in that sense. It's a very traditional way of thinking or old school way of thinking, but I like to apply that to things because it does make me think of the consequences of what that - taking that thing or that animal or that plant from the environment - what that does to the environment.”

“Everything that we do is interconnected. No matter what decision-makings that we have when it comes to improving the quality of our environment and wildlife, we do so in consideration of what our effect has because we value our land, we hunt, we fish, we do everything out in the land. In every decision-making that we do, everything around us is considered.”

“We believe that everything is interconnected and no matter what we do something is affected. We try to keep that in mind to try to minimize any damage that we may cause on our hunting grounds.”

“We try to understand the environment and appreciate that for every action you take, that there's going to be a reaction.”

While we presented these values separately, it is important to acknowledge that they are all interconnected and, together, underly the role of Indigenous Peoples in the natural world and the ways in which they care for the land.



Values in Practice

In addition to sharing the values that guide how they care for the land, participants shared specific examples of practices and/or programs from their communities that exemplify the values shared above.

Illustrating reciprocity through creek walks:

“Reciprocity. A good example of that is where people would go to the creeks that their family ‘own’ and they would go there at two different times of the year. They would go in the springtime before the salmon come back and access the creek and say, ‘Well, maybe it’s raining too hard, it’s going to impact the rains when they’re [salmon] in the creek. So, we’re going to fall a couple of trees into the river and slow the river flow down.’ Or maybe ‘there’s too much wood debris in the river and we’re going to remove some’.

It’s really, giving back to the salmon so that they have an opportunity to come back and have a safe, sustainable area to spawn in. In return, you take some of those salmon for yourself, for the winter.”

- William Housty

“... it was an actual job within our community especially for women to take care of the creeks and to clear them and to clean them”

Reciprocal relationships between people and sweet grass:

"In terms of reciprocity, for example, if I'm to harvest a certain plant, it's to do it in a way that won't damage those plants. Even specific harvesting methods actually aerate the soil or allow for roots to create more of that plant. A cool example of that is sweetgrass because if you actually leave sweetgrass to just grow on its own, it actually does less."

“It doesn't do as well as a patch of sweetgrass that has consistent people harvesting from that patch. It actually does better when people do that. Over time, you figure out what works for certain plants and what doesn't, so taking that time to learn what that plant needs, then you're able to harvest sustainably."

Demonstrating respect and reciprocity while harvesting sea asparagus:

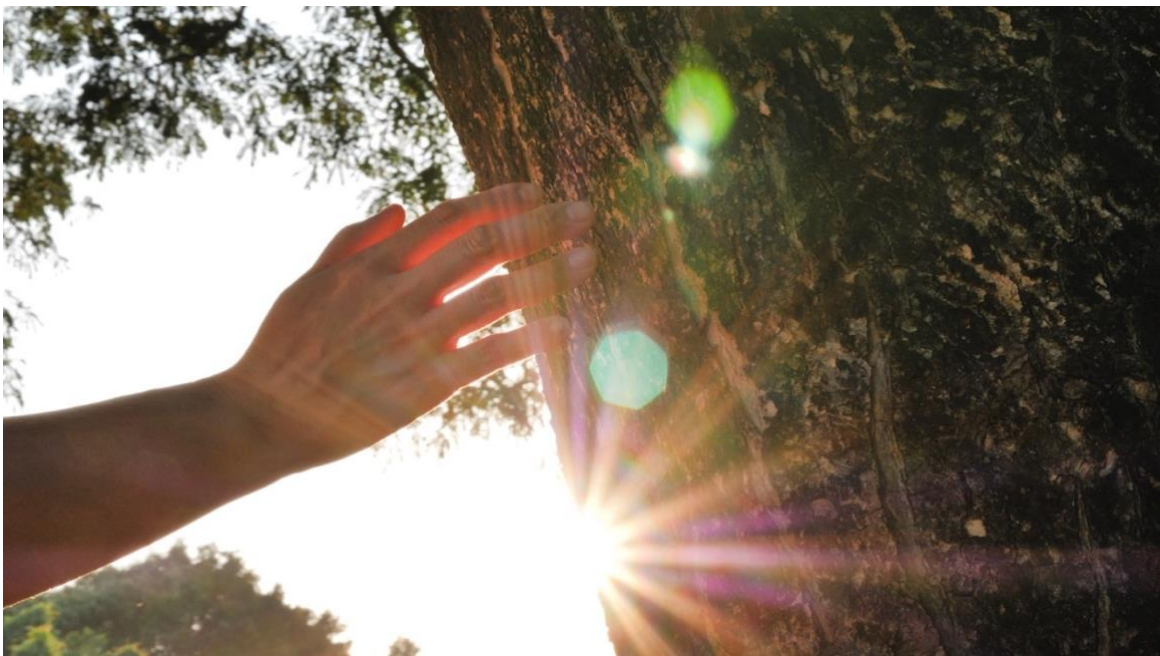
"I was thinking about certain areas like certain plants like sea asparagus where you were also taught that you don't cut your nails before you go pick sea asparagus because you don't pull them out of the ground, you pop them with your nail so that the roots stays in there so they can regrow. I've talked to people who have gone to certain areas to harvest sea asparagus. Outside folks have been in there and they have just ripped them right out of the ground, so they're just completely gone, they don't regrow."

- William Housty

Harvesting cedar bark in moderation and with gratitude:

"I'm thinking about when we harvest the cedar bark for weaving and things like that. There's a golden rule that you only take one strip off a tree so that the tree can regrow, and you don't kill the tree. We always were taught that when you go, you always tell the tree what you're going to do and how are you going to utilize the tree and that you always take the one strip off it, and then you leave it alone. Then, eventually, that grows back around into itself sort of thing. That was really the respect, value, example on the forest where you're taking but not killing. That's really the reverse value of commercial harvest in the modern society where like, fisheries or anything, you take everything."

- William Housty



Harvesting maple syrup with respect and moderation:

"I'm part of a group that produces maple syrup every spring. We go every year and we harvest the maple water and we make maple syrup. That's something that's guarded pretty closely. We watch that. The person I work with, we've never yet cut one tree down. In the last 20 years, we've only taken the trees that have already fell down, that have matured and have died. We use those for our fuel. That's one of the values too, we don't just cut a bunch of trees down. In this book or this report, someone was saying, My grandmother told me 'Don't go along and just knock everything down, like trees and that, and just kill them for a pastime. Those are there put on the earth for us to use.'"

Reciprocity and responsibility to future generations achieved through a walleye hatchery:

"One of the biggest ones that I feel really represents a lot of the perspective or goals that people from Shawanaga have: this fish hatchery. The walleye population had started declining, community was looking at it and realizing that there was a decline. Basically, between 15, 20 years ago, they started implementing this fish hatchery. During the traditional harvest, going down to the river, they started just taking the fish that were being harvested, taking some additional other ones and milking them, and then actually hatching those fry and releasing them back. They create this hatchery program that's just all funded, none of it is through other sources, they don't sell any of the fry, it's just all basically funded through the band. Then those fry are given back basically to the river to create a sustainable food source. Everyone in the community just gets so pumped about the walleye hatchery, and just the work that's being done there. It's pretty nice too because even when they started, within the last 10 years, they started putting in rules about it too, to make it even more sustainable."

Demonstrating responsibility for the land and to future generations through advocacy:

"I was so pleased with the youth in my community to stand up against uranium mining proposed project years ago. They stated their opposition. Not only did they talk about it but they did something to show their opposition... see, the message got through the young people that after we're gone, you're going to be here. You got to protect the environment for your generation and

your children and your grandchildren and the generations of Cree before that to come. That's one example I really liked and really made me happy to hear the young people speak against the uranium mining proposed project in Mistissini territory. They were definitely caring about the plants, about the animals, and the other aspects of the environment. The air that we breathe, the water that we drink, and the land that we enjoy, they were definitely protecting that. That's one example I will remember for the Cree value in my community was very strong. I was very pleased with that. I watched one of the speakers that spoke against the uranium mining proposed project in Eeyou Istchee."

How Caring for the Land has Changed Over Time

Next, we discussed how these values, traditional practices, and relationships with the land have changed over time. While we intended to discuss 'how' this has changed, many participants shared 'why', specifically discussing the impacts of colonialism and environmental change.

"I think they've [ways we care for the environment] changed for reasons out of our control. Obviously, the most obvious reasons are colonialism, settler colonialism, residential schools, having that line of knowledge transfer broken. That had a huge impact on our old ways, and I think we're doing the best that we can to salvage those things, but a lot has been lost, and that's really sad."

"Many of our people lost their language and their culture and the knowledge of those medicines, so pretty devastating, but again, fortunately, it's coming back in a good way."

"We're caught up in another society that didn't come from our original government."

Participants emphasized that these changes over time have created a disconnect between the ways people live their lives now and the traditional values and beliefs of their community. Specifically, relationships with the environment have changed due to a general shift in society towards greed, capitalism, and ownership of land.

"Some people have no choice, but to remove themselves from their communities and their cultural systems in order to be players in a capitalistic society that is generated for commodity and consumerism. Those don't really conform well with First Nation's values and traditional beliefs in which ownership and materialism was not a thing. Our value was measured on how much we could give back to our community or other people. When we have to make those choices on where we have to choose and where the

future is inevitably the momentum is going. When we leave our communities, leave those systems, we're changing how we care for the animals and the systems. It's definitely shown in terms of just this knowledge of how to respect nature and coincide with it is being washed out in a way. The result of this and the expansion of other ideals that are not in conformity with nature's laws, we're slowly degrading our environments, fragmenting, and we're really choosing a world that is either in conjunction with nature or divergent from it."

"I think our community has walked in a way where we're looking like the story of the crow, always gathering shiny things, wanting to be the first one to pick it up. So, it's a nice way of saying there is greed that comes and there's no one sharing, and to break that mold is going to be a long process."

"There wasn't a propensity by a First Nation to say, 'I have to own that land'. It's, 'I enjoy that land and I just have to take care of that land'. Throughout history, people started to move more towards ownership versus being a part of the land."

"Industry's got everybody so worked up in that system of work, work, work, we don't take the time and make the time to learn cultural ways of life, to keep it as you know it."

Other participants described changes to governance structures that directly affect how land is allocated and cared for, with more traditional individual- or family-based responsibility to care for certain areas fading.

"There used to be some of these areas for harvest between certain plants, it used to be hereditary. Only certain people could go here and some people can go there and you couldn't just go wherever you wanted. I was thinking about certain plants like highbush cranberry, for example belonged only to the chief's wives. You weren't just allowed to go pick the cranberries, you have to get permission to go to these certain areas to access. Over time, that knowledge of who owned those got lost a little bit when we all amalgamated together. We still have knowledge of where these areas are, and who used to own them, but not as stringent with management that way. We're more shifted to a more communal collaborative management of plants that was done originally through, the land use plan."

- William Housty

"Well, each individual was tallyman is responsible to look back to that piece of land that is theirs. That's a family trapline system."

The sad part is there's been change of tallymen over the years. Young people are getting to be tallymen. Sometimes they misuse or misunderstand the role of tallymen. His role, he misunderstands it. Sometimes he feels that it's their moose, it is their caribou, it's their Canada Geese... and nobody else would come and hunt or ravage my trapline. They misunderstand their role. Their role is to manage.”

Participants also discussed the impacts that climate change and overpopulation have had on the community's ability to care for the land. While some spoke of adaptations, many spoke of a disconnect between traditional ways of caring for the land and what the land needs now.

“When I speak about knowledge transfer now, I feel a little bit like we have a bit of a disconnect. There's things that are happening with climate change, and there's things that are happening on the land that are making our Elders see things differently. When they would go out and they would expect to see this looked like this so that they could share that with us, maybe things look different now. I think our Elders are adapting to the changes as well as trying to teach us from history, but then things are changing, so we're also learning to adapt.”

“We're going further and further for traditional uses, and it's only because of the impact on the environment. Last year, we added this to the wettest summer on my record. Then this year, we had no snow. It's incredibly different. Growing up here, I noticed the tremendous difference and changes compared to when I was a youth. Many, many changes. Many changes and different types of animals, too. We have a lot of animals that are left. For instance, we have no porcupines anymore. There's no, this stuff, skunks around here. Of course, moose within reach. The other animals, it's all different now. Like I said, it's too many people here hunting too. It's harder for us”

“It is changing, there's such an influx of, you know, three times the population when I was growing up. But most of them, they don't know, they wouldn't have grown up with it, they're not in the sugar bush, they don't fish, they're not by the water. You do see a change over time because they just didn't grow up with it, and in some cases, I don't think some people, it's like they don't care. They don't live there, they didn't plan on living there, it's not their land, they don't care, they just do whatever.”

– Deborah McGregor

Another societal change that has affected how communities care for the land is the advent of modern tools and technology. Some participants talked about the negative effects of modernization, like less time spent outdoors and the pollution associated with

gas-powered vehicles, while others identified positive effects, like the capacity to practice their culture in modern ways.

“Instead of doing something outdoor and build on a beautiful day like this one day like this, they’d rather watch a movie. Definitely, there's a change in the community because of the modern-day technology.”

“There's more resource pressure on areas that have become more accessible by machine, whether that be like cars or ATVs or snow machines or whatever. I know my grandfather tells stories about like, oh, how he used to hike or horseback ride into certain areas to do forestry or to go hunting or whatever. Now, the area that he used to go was right off the highway, so it's a lot more accessible by road. Also, I know most of us, when we go hunting, we're driving those hunting routes instead of where we would traditionally walk them. I'm sure the pressure on the areas has changed, as well as probably the amount of pollution and stuff that's coming from those vehicles. Either walking or horseback riding is a lot more environmentally friendly, obviously, than like using gas-powered things”

“I think I did share on that a little bit how our people utilizes modern-day tools that we use to take care of the lands, the animals, and our medicines. Back then, I believe from my understanding we used a lot of tools that are from the animals, like the bones and whatnot, furs and all other things ranging from wood. With the modern tools that we have like chainsaws, skidoo, it changed a lot of the ways how we interact with our traditional practices. It does blends pretty well when it comes to helping preserving our culture.”

While there was a lot of discussion on negative changes - loss of culture, knowledge, connections to the land - many participants also discussed the positive changes that they have observed more recently associated with efforts to revitalize culture, reconnect to the land, and taking back the responsibility to ensure the environment is healthy for the next generations.

“People are getting more aware of reconnecting and taking back responsibility to take care all that is here on mother earth, the plants and animals”

“I have to give a large shout-out to our Elders and to our young people, because I'm noticing a trend in Canada that our young Indigenous people are becoming more and more active. There's a large movement I've noticed across the country, to actually do

something about the environment, to actually hold the politicians and those that are using environment for economic purposes to be accountable. We're seeing more recycling, we're seeing more accountability."

"I've even seen a ton of learning of the culture coming back to the community. With that, there's just such good almost like correlations or they almost feed off each other when you're learning the culture again, you're learning. I guess they go almost hand to hand, like the care for the environment and the care for the land. Even within my two years here [Shawanaga], the amount of culture that has been able to be learned within members and within the community has really increased. That has allowed the lands department to be able to do more stuff and increase there too. It definitely has been an upward trend, I guess you could say to just definitely being out on the land more and just gaining that culture back and then gaining that awareness and the caring sort of aspect back."

"I think it has changed over time for the better for both ourselves and both within throughout the land and the waters as well. Definitely, as climate change has been very much like well known. There's been a lot of conversations, a lot of dialogue, a lot of research. Specifically within our community that we've done a lot more work to try to mitigate our impact on the environment and ultimately trying to sustain the things that we are harvesting. Whether it be the fish population, navigating different processes for ensuring we still have deer and moose to hunt in the fall. Also again the plants that we harvest, trying to ensure that we are only taking exactly what we need. Also trying to figure out what is our responsibility to ensure that we still have access to the plant in the next 5 to 10 years."

Creating Values-led Environmental Programming

In many instances of environmental research, monitoring, and/or management, Indigenous Knowledge is reduced to singular data points and is considered analogous to data Western scientists collect. However, Indigenous Knowledge is more than just knowledge; it is a complex network of knowledge, beliefs, traditions, and values, imbedded in relationships with culture and place. As such, environmental programming, aimed at effectively and respectfully infusing Indigenous Knowledge into the process, must prioritize more than just knowledge extraction and data collection. In this section, we summarize values, principles, and practices that participants indicated should be prioritized when designing and/or implementing formalized environmental monitoring and research programs that are meant to care for the land in a good way. The aim of

this discussion was to generate tangible and practical recommendations to help environmental professionals create practices and programs that align with a more holistic perspective of Indigenous Knowledge, community values, and good relationships with the land.

In some cases, participants said it was hard to identify a single priority and that all of the examples we provided in our question (see Box 1, Question 2) were equally important.

“It's kind of hard to prioritize anything because they're all important [youth and Elder involvement, time on the land, knowledge transfer, training opportunities].”

“... youth involvement is important to your community or intergenerational knowledge transfer, training opportunities, building capacity...”

Other participants shared their perspectives on specific practices or actions that can be taken to create more holistic and values-driven environmental monitoring and research initiatives that better connect people to place, to each other, and to the values we described above. We share 7 of the major themes that emerged, below.

1. Protect culturally important species and places:

Some participants emphasized the value of focusing monitoring or research on things that are important to the community, like medicines, wetlands, and water. Protecting culturally important species and places will allow them - and the teachings and culture that are intimately tied to them - to persist into the future.

"Again, one of the real values that I talked about earlier is the medicine, the value of the medicine. We have to make sure that those medicines are protected. You can't have herbicides and pesticides being sprayed all over the place and expect to still have your medicines after and expect to have healthy animals and expect to have healthy people. Those are, I think, being watched and monitored really closely by those responsible for doing that, our enforcement people and our administrative people."

“We need to make sure that we're creating an environment that moose are present and whatever that means because those are very important resource for this community and all communities, and because they're in decline. It's all about how we can manage the system in whatever way possible to do that”

“That's the reason why we chose water as a first priority [in our community monitoring]. Obviously, everything in life needs water, but everything also needs air too, but we chose water because that's the first encounter you have as a human being. Every human being, no matter what color, race, or whatever, are all born from that sacred water lodge, so everybody comes from the water lodge. That's why we started off with focusing on water.”

- Sue Chiblow

“In our area we have a lot of very dense wetlands, so, therefore, we have very high reptile populations with species at risk that fill them, and so recognizing that that's a specific importance, making sure we can promote that type of population persistence across time is important for that community because those are the maintenance workers of those wetlands systems that run the rest of the system, that the rest of the resources depend on and therefore, they depend on, right?”

2. Prioritize youth and Elder participation:

Nearly all interview participants expressed that teaching the youth is one of the highest priorities for the community. Therefore, creating opportunities for youth to be involved in environmental monitoring and research, and providing the time and space for them to learn about the land and their culture was a top priority. Also, ensuring youth are involved in discussions surrounding the environment could ensure more long-term continuity in the decisions that have been made in the past is held within the community.

“Probably teaching our young ones is one of the highest and most important values... a lot of Indigenous communities have, most people have, honestly. It's instilling those connections and non-verbal experiences and understandings with our young ones, and I think that's also the most effective.”

“Considering our history, it's important to provide a setting that can reconnect them [youth] with their land and their culture, and allow them to develop how they choose to identify themselves as, with all knowledge provided to them, because they deserve that opportunity.”

“Having young people there and to have that knowledge and that history so when they get older and they're at an experience where they're like, "Wait, we've tried this already and it didn't work. We don't need to do this again," that kind of background knowledge is so important. Having youth involved is so key.”

In addition to youth, participants expressed that Elders and knowledge holders must also be involved in on-the-ground initiatives and discussions related to the environment. They can provide necessary guidance and knowledge regarding the way things used to be, how they are changing, and what we should strive for in the future.

“The Elders, obviously, Elders. The Elders are deemed very important, you know, high on their priority list to look after all of the land and plants and animals.”

“It's important to seek understanding from the Elders because they're the ones that have seen the land change the most and, also, the land users who are using the land, and they're seeing those changes. But, also, for the youth to understand why protecting and managing the land in a significant way is important.”



3. Create opportunities for intergenerational knowledge transfer:

Beyond including youth and Elders in programs and discussions related to the environment, most participants emphasized the importance of creating opportunities for knowledge, customs, and practices to be passed down from the Elders to the youth. This was identified as a necessary process for ensuring the

values we discussed above are passed down and driving the relationships between people and the land.

“Every time you step foot in a forest with someone, a knowledge holder, the class is in session and making sure that there's opportunities for younger people to experience - be out on the land and on the water - with knowledge holders and Elders so that they have the avenue to learn and to carry on those values. We always are taught that we're born with these values, it just sometimes takes the opportunity to see them in action, to implement them within yourself.”

- William Housty

“... the intergenerational knowledge transfer. It's not just one family teaching their youth, it's a community gathering and you're getting knowledge from different families.”

“Once the next generation's received, I don't want to say training, but the advice from our Elders and our knowledge keepers, once that traditional knowledge is passed on, I think everything will take care of itself, but the key is we have to keep that knowledge.”

Two participants shared examples of programs in their community that prioritize time and space for intergenerational knowledge transfer.

"I believe it was 2018, we had the opportunity to build a birchbark canoe. This wiigwaasjiimaan was entirely built from trees. Everything about it has been harvested from the trees in the territory. That opportunity to be immersed in such a unique process of harvesting birchbark alone, just the birchbark alone was unbelievable. It also really opened up our eyes, for all of us that were harvesting in July of 2018, that Anishinaabek science has always been part of the way that we govern ourselves. It's always been ingrained in our values. It's part of who we are as Anishinaabe people. The difference between Anishinaabe science and Western science is that we don't separate ourselves from the work that we do. We're impacted by that work in our emotions, and our feelings are as valid as the work that we do, or the data that we collect. When we were harvesting the birch trees, we were all having these conversations about finding a birch tree that's 16 to 20 feet tall, straight standing without any branches, any imperfections along the bark with being about three feet in diameter, a circumference of about six feet at, hoping for that. To find a tree like that in our territory is extremely difficult, to say the very least. Hearing the stories from the Elders that the last two generations before me that didn't have that experience of building a birchbark canoe, but they remembered their parents and their grandparents talking about it. That at one point we used to have

birch trees here that could build more than one canoe a year ... Then just thinking about how important it is for those stories to be shared from one generation to the next. Thinking about youth engagement, intergenerational dialogue. Also at the same time, creating that safe space where people feel that it's okay to share. It's okay to talk about the science, the Anishinaabek science that they carry while also at the same time addressing the impacts of colonization."

"Every year, Shawanaga puts on a youth hunt in the fall for moose and deer. It's mostly Shawanaga and then Wasauksing members that show up, but we open it to youth from communities from all over. Even just youth and some other people that are from communities here but haven't really grown up here or maybe they live down in Toronto or something like that - we'll have members come up and join the youth hunt. It's a really good one, because they're actually going out with the Elders, the Elders are showing them where the lines are for the animal tracks and setting up and then during that, they're talking about sustainable harvest. Especially now with the declines of moose and everything like that in recent years, we've started to be like being more selective on what is actually harvested during that hunt. It's really teaching really good practices about sustainable harvesting. We're seeing firsthand the moose decline, so we're basically reacting to it right away sort of thing, which is really good."

4. Foster connections to the land:

Intimate relationships to the land and culture were described as being central to the ways that participants and their communities care for the land; important teachings and values come from the land, instructions on how to care for the land emerge through strong relationships and connections to the land. So, opportunities to spend time on the land - to have the time and space necessary to reconnect with important teachings and customs - was identified as a critical priority. Specifically, using environmental monitoring and research programs as an avenue to connect community members with the land, and to demonstrate that the community is actively caring for and protecting what is important to them.

"We need to go on the land, go to our camps, and go in the bush and connect with the land. Feel the medicines that are there and how therapeutic that is to be on the land without our computers, without our cell phones, without all this stuff. Just enjoy what nature has to offer and the connection with your family and your friends, that becomes really good quality time."

“We as a Cree People always believe that the land is the best healing that we can go for. Not only because it's like the fresh air and whatnot but because there is value in being out there. The people connection to the land, we learn from it. There is many things that the land can teach us.”

“Going forward, one of our biggest values is trying to be on the land more. That's just to make awareness that Nipissing First Nation is actively constantly doing something, they're going to see a boat here or see a net being pulled there, they're doing research here. That's valuable to us to let people know that we're actively being stewards in our land when other agencies perhaps cannot at the time”

“If you don't practice it, you're not going to learn it. If somebody doesn't pick blueberries, you're never going to know how hard it is to pick blueberries. You don't know the hard work that it takes to do some task like that, but you gotta learn it. Learn it the hard way for you to-- so it's instilled in you.”

One participant described land-based learning and community hunts as examples of initiatives in their community used to get youth connected with the land and customs.

“They're incorporating land-based learning into schools. It's not just about the classroom anymore. When it comes to community hunts, it's not just about hunting, they're teaching the youth about the environment, the properties of the different plants and the trees, the medicine properties. It's like a hands-on learning.”

5. Use of traditional language:

Participants also identified the use of traditional language as a critical value, since knowledge of the land is embedded in the language. It would be difficult to create a program that is meant to help in understanding the land without using traditional language. This is another reason why Elder involvement is important as, in many cases, they are also the language keepers.

“The language teaches us our value, the language teaches us our spirituality, the language teaches us the environment, and how those things are really connected together.”

“The language is the knowledge of the land. Like blueberry pie is like the longest word, I think, in Anishinaabemowin because it explains the entire process in the word. When you're describing the land and how you see it, and how you experience it, the descriptors of what that experience looks like are tied within that

language. Even some of that is hard to convey or translate into English and not always available to everybody”

"Incorporating language and stories. Much of the language and the stories, you can't really-- they're so interconnected that it's hard to tease out what is important and what isn't. If you just incorporate all of it into that monitoring program or that guardianship program, then I think that it's probably the best thing to do if possible.”

“Right now with the Elder’s involvement, that’s pretty important because of their connection to the land and especially if they’re language keepers. So learning about their perspective of our connection to the land through our native language.”

6. Gain community support:

Building a sense of community surrounding any environmental monitoring or research was another value identified by participants. Creating opportunities for outreach and transparent communication to ensure community buy-in - not a top-down situation - will help projects move forward in a good way.

“I think community involvement is very important because when you get buy-in from the whole community, then you have a whole team working on one thing once we all have the same goals or priorities, and that's really important, so we're able to share that in our community outreach.”

“Governance looks very different in that sense. It wasn't a top-down process. Anything top-down doesn't work that well there. You don't get buy-in from the community. They actually actively start to resist it, and find it annoying, and ignore it.” Deborah McGregor

“When you can get a community to believe in themselves and the work they do and face their fears, amazing things start to happen. The only way you can do this - people have to change their attitude. Once you change your attitude and your outlook at any go from negative to positive amazing opportunities come your way. You don't even have to ask for it because you've already put it out there because you're including everybody in the process.”

One participant described how their community gained the trust and support of the community which improved the outcome of their species at risk program.

“Before we had this [Species at Risk] program, people would kill a rattlesnake thinking that that was threatening to them. We now

know - and we educated the community - that our massasauga rattlesnakes are at risk ... It's not just enough to say, "Well, the population is very low" and whatever. They're like, "Well, of course, it is, we've been killing them because they're going to bite us or our dogs or something." I think we were able to, like I said, go back to our teachings and find out, what role did these play for us in our community? It even helped us come to that holistic value again. We know that the rattlesnake protects our berries, because of everything having a role. Then we're able to look at that holistic circle of things. In the beginning, that's what we needed to do. We needed to go back to roots and to our history and show the community, why were those things important to us and our indigenous values? Then when we're able to bring in the scientific knowledge of it all, I think that adds some fun"

7. Build Good Relationships:

Finally, participants identified a need to exemplify important community values in our relationships with each other. Achieving more respectful and reciprocal relationships would make environmental monitoring and research programs more robust by bringing more experiences and perspectives together. The need to build good relationships was a critical component of our discussions on "how" to weave knowledge systems, which is discussed in greater detail in our report on that topic (Bowles et al. 2022b).

"I think there's two prevailing heads when it comes to First Nations and non-Indigenous societies almost to the point where some stakeholders and groups of these societies are scared to even engage or interact with each other. I see this and I think we need to remove those barriers and really remove these preconceived tensions perhaps that don't exist. Then that meaningful engagement and working together with projects and basically creating case studies for your region, I think that's the excellent way of doing it. Sitting down and looking over each other's values and needs, and essentially, what are your asks, and how are you going to amend that to, and to realize that there's no other option but to move forward really."

"Conservation and environmental protection is so much more about the people than the actual wildlife itself. It's just so much about working with the people in the area. There's already so many people especially within the community that are those caretakers, but basically having that disjunct differences between the community and non-community members just makes it even harder to do stuff. I think yes, working with the people first and

basically having both those different perspectives, seeing through the community, but then also to non-community basically.”

How Outsiders Can Help Care for the Land

Finally, we asked all participants how they thought “outsiders” to their community - both Indigenous and non-Indigenous - could help their community care for the land. Our aim with this question was to provide tangible recommendations, both broad and specific, detailing how environmental professionals and the public could support Indigenous Peoples in the role they play as caretakers of the land.

As we discussed above, in the context of values that need to be prioritized on the ground, the majority of participants emphasized the need to build respectful and reciprocal relationships with Indigenous Peoples so that everyone can work together to care for the environment. Environmental professionals need to shift away from the idea of “consultation” and work towards “partnership”, non-Indigenous people need to reflect on and challenge their worldview, and everyone needs to work towards more honest and frequent communication about environmental monitoring and research that affects the lives and lands of Indigenous Peoples.

"I think building a relationship with the community, both like mine and others, but that's very honest and very sincere from the beginning, and it's not focused on any one thing or any one goal, like the goal should just be honest and sincere relationship building so that you feel comfortable, and it's less like a business relationship or a contractual relationship and more like a friendship. Even though you might go into it like having an end goal in mind, the way to get that goal should be a sincere friendship building instead of just saying what they want to hear or making them feel like they can trust you to then not follow up on that relationship afterwards. That's a relationship that's important to have with not just Chief and Council or like the band office staff but also with the actual knowledge holders and the Elders and the land users. Because, yes, Chief and Council can change or build land staffs can change, and it's important that the people that you're getting the information from feel like they can trust you and feel like it's being put toward a good thing."

“They need to remove the whole concept surrounding the idea of consultation and shift to more of a meaningful engagement and involvement versus, "We're going to blow up your land, but here's our plan, may or may not work out for you but now I can check off my blocks because I've told you". That's what it needs to shift

away from. There needs to be a more meaningful approach that involves the First Nation with regards to how their land is going to be disturbed, or even their traditional territory is going to be disturbed, inclusive of the knowledge that they hold of that land, including the value systems.”

“Being able to build relationships with those people who are knowledge keepers, and instilling almost like trust, trust that they can share this information with you and teach you this, and trust that you will uphold those teachings and you won't just go and be like, ““Oh, I know how to do it. I can teach this person,”” and then you're teaching them the wrong way. I think the values of trust are definitely a huge consideration.”

“The scientists, if they do come in, will have to be very open and ready to completely dismantle their way of thinking and their worldview and be ready for that to be a thing. It's okay that they have a different worldview. I think that we can come together and use both of those [knowledge systems] to create something great, but we definitely need to learn from each other in that context.”

“I would say having an openness, but as well, I expect that our community members here would give just as much respect to our biologists as our biologists to give to them. Having that open-mindedness and that holistic view is really important to just absorb everything that we know and see and hear.”

Many participants emphasized the need for non-Indigenous people to educate themselves on the history, culture, knowledge systems, and values of each community to ensure partnerships are founded on truth and mutual understanding. Part of this education involves acknowledging the role of Indigenous Peoples as caretakers of the land, respecting the knowledge Indigenous Peoples hold, and being open to learning about Indigenous customs and teachings.

“Our young people are saying, ‘We have to educate larger society, we have that responsibility.’ Canadians have a responsibility to learn about the history, the true history of Canada, not the history I learned in school, which was the US history, but the Canadian history.”

“What I'm hearing is that education is important. That all Canadian people have a responsibility to educate ourselves about the history of Canada. A big part of history is, of course, the Indigenous history, and how important the affinity is that the First

Nation people have to land, that connection to the land. People that really understand that are people that work with the land.”

“I feel that when non-Indigenous people actually participate in our ceremonies, they start to have a better understanding of who we actually are.”
- Sue Chiblow

“Being open to our world view because that's so important and how we actually conduct ourselves in the bush knowing that we actually don't see us humans as more important than any of these creatures or these spirits. Knowing that we are on the same level, even sometimes underneath them because we keep destructing their ability to do their responsibilities. I think people outside our community should be learning about those things and learning about those teachings.”

“With every step, there's opportunity to damage something. So, just understanding the importance of what's here and realizing that it's not by fluke that the territory is fairly pristine here. It's because we've protected so much of it, and just valuing that, that the land has been protected for the use of everybody and just respecting them, finding a way to work within that.”
- William Housty

“Which is one of the things sometimes that's lacking and it wasn't that long ago, I think that it was still lacking to recognize Indigenous knowledge as important, that it is there, that it exists, that it's existed for a long time, and for it to be recognized. Sometimes even not that long ago, it's still in some ways more of science used to validate indigenous knowledge in a way.”

Participants expressed the need for outsiders to acknowledge that communities have their own priorities and environmental professionals should seek to understand what those are, how to better support ongoing initiatives, and how to help build community capacity. Participants had different perspectives on what is needed in terms of support, varying from increased funding and training opportunities, to greater communication and engagement, to supporting cultural retention in order to maintain strong connections to the land. But, overall, the main message was to listen to the community and find ways to work towards their priorities.

“Allow our community to say what we need. I think people coming in and saying, "It looks like you guys need this," or, "I will give you this if--" yes, it's allowing this community to ask or to see what is needed and help in whichever way that is, which is, I guess, sovereignty being able to enact whatever our race and whatever our traditional law states that that's what we need”

“It's important to understand the First Nations' concerns and research priorities even though you may have your own-- and it may seem like they won't fit, it's important to make sure that you're incorporating those into the work that you're doing”

“The biggest thing we have is capacity issues. I find that there's a lot of funding opportunities out there, but it's, "Here's \$100,000, figure out how to do it," there's no internal training. There's no structure to build a team around it, business aspects of it and how it can connect.”

“This might not be a thought in some people's minds, but for us, we're a very small community, and capacity is a thing. We might want to build these programs, but without having the proper people or without being able to train people, or without people being interested, we're only as good as people we have to do monitoring. I think capacity is another thing. As well, I think along with capacity comes education and that outreach thing because if you get the younger people interested in conservation and stewardship, then maybe they have a post-secondary career in that and then they can come back in and be a conservation officer or something here.”

“They [outsiders] could come to our community more often and ask us and they tells us what's the science going on now here in this area as we don't have the data. They have monitoring. They have air monitoring, they have water level monitoring, we don't have that. When you could tell us that, and then we would know from science. We would know what's going on, but we could help them and make it better because we've lived here. This is our land. We've lived here and we know what makes it better. With their help, with their instruments, and their help to make things better, we could work better.”

“If they're undertaking a project, we'll then consider the Indigenous groups because it affects us differently. It's not just we like to look at the trees, it's affecting the culture and traditional way of life. It's beyond just including them in something but actually taking meaningful steps towards co-management and including Indigenous knowledge and what it means and how to connect with those.”

- Sue Chiblow

“I really think governments can support great initiatives that are based around culture retention. You see all kind of recreation grants, municipality, other grant that teaches our kids, it revolves around transfer of knowledge and culture retention. Everything from plants, animals, to harvesting, to producing the stuff... Yes, I think governments can really help.”



SUMMARY AND RECOMMENDATIONS

When asked to articulate how they care for the land - as individuals and/or as a community - participants described it as guided by creation, natural law, and being inherent to who they are, their culture, and their connections to the places they live. These intimate relationships between the land and the people, maintained over generations, underly environmental practices that are rooted in responsibility - to the land and future generations -respect, reciprocity, humility, moderation, gratitude, mindfulness, and agency (summarized in Figure 2, below). Participants shared cultural practices and environmental programs that exemplify these values, such as giving back to fish by clearing brush from creeks, only taking as much cedar bark or maple syrup as needed, creating a fish hatchery to give back to the population and ensure fish for future generations, and taking responsibility for the land by advocating against development. Participants discussed the negative effects that colonialism, environmental change, and modernization have had on their connections to the land and ability to care for it in a good way, but also discussed how cultural revitalization and reconnection to the land has begun to restore values-based care of the land.

Participants also shared how outsiders can help care for the land and the values that need to be prioritized in on-the-ground environmental programs; based on these discussions, we generated a list of practical guidelines that would support the creation of environmental programming that aligns with community values. Most participants expressed the need to foster connections among people, with the land, and with language, to maintain connections to important teachings and values that guide how we should care for the land (summarized in Figure 2). Participants expressed the value of youth involvement, getting guidance from Elders, creating opportunities for intergenerational knowledge transfer, connecting community with the land and language, and engaging people in environmental initiatives to build community. All interviews, regardless of the participant, place, or culture, emphasized the foundational, intimate relationships between environmental values, customs, practices of Indigenous Peoples and the environment. To create environmental monitoring and research programs that accurately captures Indigenous worldviews and values, we must listen to the natural world and, to do so, safeguard those strong, spiritual connections between Indigenous Peoples and their lands.

Based on insights regarding community values, how to generate values-led environmental programs and policies, and how outsiders can help communities care for the land, we recommend the following:

1. **Community priorities need to be identified, acknowledged, and allowed to guide all environmental work.** Participants emphasized the need to focus on culturally important species and places and the need to support on-going initiatives with



added funding, training, capacity building, logistical support (e.g., access to equipment), communication, and collaboration.

2. **All stages of environmental programs or research (e.g., study design, implementation, interpretation of information) should create opportunities for community members to connect to the land, important knowledge and teachings, and to each other.** Ensure environmental monitoring and research programs provide an avenue for community members to observe, experience, and learn about the land, transfer knowledge from Elders and Knowledge Holders to youth and others, connect with traditional language, and exercise Indigenous rights and responsibilities to care for the land.
3. **The first priority of environmental monitoring and research has to be creating and maintaining good relationships, with the land and each other.** Find ways to cultivate and prioritize respect, reciprocity, humility, and gratitude in personal and professional relationships. As a first step, ‘outsiders’ must educate themselves on the history and culture of the community they are working with prior to engaging.

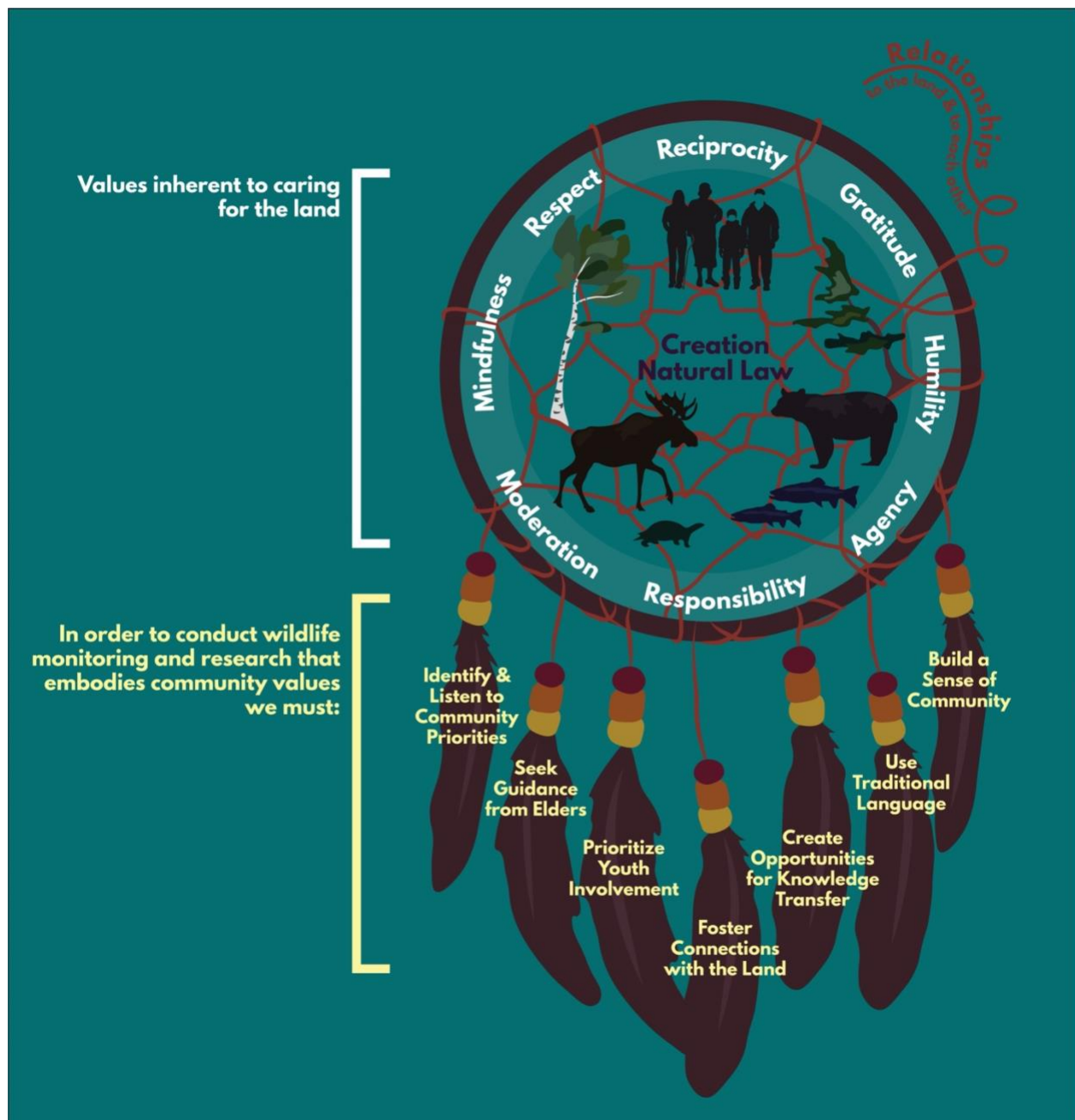



Figure 2: A summary of the values participants shared as being inherent to caring for the land (top) and those that need to be prioritized in environmental monitoring and research (bottom). Participants spoke of these values coming from creation and the natural law - depicted in the centre - and relationships with the land and their culture is what allows them to learn and practice these values - depicted by the relationships thread weaving things together.

LITERATURE CITED

- Arsenault, R., Diver, S., McGregor, D., Witham, A. and Bourassa, C., 2018. Shifting the framework of Canadian water governance through Indigenous research methods: Acknowledging the past with an eye on the future. *Water*, 10(1), p.49.
- Artelle, K. A., J. Stephenson, C. Bragg, J. A. Housty, W. G. Housty, M. Kawharu, and N. J. Turner. 2018. Values-led management: the guidance of place-based values in environmental relationships of the past, present, and future. *Ecology and Society* 23(3):35. DOI: 10.5751/ES-10357-230335
- Ban, N.C. and Frid, A., 2018. Indigenous peoples' rights and marine protected areas. *Marine Policy*, 87, pp.180-185.
- Berkes, F., 2017. *Sacred Ecology*. Routledge.
- Bhattacharyya, J. and Slocombe, S., 2017. Animal agency: wildlife management from a kincentric perspective. *Ecosphere*, 8(10), p.e01978.
- Binnema, T.T. and Niemi, M., 2006. 'let the line be drawn now': Wilderness, Conservation, and the Exclusion of Aboriginal People from Banff National Park in Canada. *Environmental History*, 11(4), pp.724-750.
- Bowles, E., Khan, J.S., Menzies, A.K., McGregor, D., Ford, A.T., and J.N. Popp. Cultural Keystone Species. A report from the "Weaving Indigenous Knowledge systems and Western Science for conservation and management of wildlife and the environment" project. January 2022a.
- Bowles, E., Menzies, A.K., Khan, J.S., McGregor, D., Ford, A.T., and J.N. Popp. Perspectives on if, when, and how to braid Indigenous Knowledge and Western Science in environmental research, monitoring, and management. A report from the "Weaving Indigenous Knowledge systems and Western Science for conservation and management of wildlife and the environment" project. January 2022b.
- Chan, K.M., Gould, R.K. and Pascual, U., 2018. Editorial overview: relational values: what are they, and what's the fuss about?. *Current Opinion in Environmental Sustainability*, 35, pp.A1-A7.
- Diver, S., Vaughan, M., Baker-Médard, M. and Lukacs, H., 2019. Recognizing "reciprocal relations" to restore community access to land and water. *International Journal of the Commons*, 13(1).
- Gallant, M., Bowles, E., Patterson, H. & Popp, J. N. 2020. Anishinaabe knowledge, concerns, and priorities related to climate change: A report from the "connecting guardians in a changing world" workshop. Magnetawan First Nation: Magnetawan First Nation, Mount Allison University.
- Garnett, S.T., Burgess, N.D., Fa, J.E., Fernández-Llamazares, Á., Molnár, Z., Robinson, C.J., Watson, J.E., Zander, K.K., Austin, B., Brondizio, E.S. and Collier, N.F.,

2018. A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability*, 1(7), p.369.
- Giles, A., Fanning, L., Denny, S. and Paul, T., 2016. Improving the American eel fishery through the incorporation of indigenous knowledge into policy level decision making in Canada. *Human ecology*, 44(2), pp.167-183.
- Hanrahan, M., 2017. Water (in) security in Canada: national identity and the exclusion of Indigenous peoples. *British Journal of Canadian Studies*, 30(1), pp.69-90.
- Kimmerer, R.W., 2013. *Braiding sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants*. Milkweed Editions.
- Martinez, D., 2018. Redefining sustainability through kincentric ecology: Reclaiming Indigenous lands, knowledge, and ethics. *Traditional Ecological Knowledge: Learning from Indigenous Practices for Environmental Sustainability*, pp.139-174.
- McGregor, D., 2002. Traditional ecological knowledge and the two-row wampum. *Biodiversity*, 3(3), pp.8-9.
- McGregor, D., 2009. Honouring our relations: An Anishnaabe perspective. *Speaking for ourselves: Environmental justice in Canada*, 27, pp.27-41.
- McGregor, D., 2018. Reconciliation and environmental justice. *Journal of Global Ethics*, 14(2), pp.222-231.
- McGregor D, Whitaker S, and M Sritharan. 2020. Indigenous environmental justice and sustainability. *Current Opinion in Environmental Sustainability*. 43: 35, 35-40.
- Menzies, A.K., Bowles, E., Gallant, M., Patterson, H., Kozmik, C., Chiblow, S., McGregor, D., Ford, A.T., & Popp, J. 2021. "I see my culture starting to disappear": Anishinaabe perspectives on the socioecological impacts of climate change and future research needs. In Press at FACETS.
- Menzies, A.K., Bowles, E., Khan, J.S., McGregor, D., Ford, A.T., and J.N. Popp. Connecting Nations to enhance communication, collaboration, and capacity building related to environmental monitoring. A report from the "Weaving Indigenous Knowledge systems and Western Science for conservation and management of wildlife and the environment" project. January 2022.
- Milgin, A., Nardea, L., Grey, H., Laborde, S. and Jackson, S., 2020. Sustainability crises are crises of relationship: Learning from Nyikina ecology and ethics. *People and Nature*, 2(4), pp.1210-1222.
- Patterson, H., Bowles, E. & Popp, J. N. 2020. Environmental and sociocultural impacts of glyphosate-based herbicides used in forestry: Perspectives from indigenous knowledge and western science. Magnetawan First Nation, Ontario: Magnetawan First Nation.
- Schuster, R., Germain, R.R., Bennett, J.R., Reo, N.J. and Arcese, P., 2019. Vertebrate biodiversity on indigenous-managed lands in Australia, Brazil, and Canada equals that in protected areas. *Environmental Science & Policy*, 101, pp.1-6.

- 
-
- Turner, N. and Spalding, P.R., 2013. "We might go back to this"; drawing on the past to meet the future in northwestern North American Indigenous communities. *Ecology and Society*, 18(4).
- Whyte, K. 2017a. Indigenous climate change studies: Indigenizing futures, decolonizing the Anthropocene. *English Language Notes*, 55(1), pp.153-162.
- Whyte, K. 2017b. What Do Indigenous Knowledges Do for Indigenous Peoples? Forthcoming in *Keepers of the Green World: Traditional Ecological Knowledge and Sustainability*. Edited by Melissa K. Nelson and Dan Shilling. Available at SSRN: <https://ssrn.com/abstract=2612715>
- Wildcat, D.R. 2009. *Red Alert!: Saving the Planet with Indigenous Knowledge*. Fulcrum Publishing, CO, USA. 128 pp.

