Ethics in Community Based Monitoring and Knowledge Coproduction

A Report on Proceedings from the
Ethical Space for Knowledge Coproduction Workshop on Ethics in Community Based Monitoring

"We are building bridges not just between multiple knowledge systems, or different cultural perspectives, but we are building bridges amongst ourselves as people…"

–Dr. Fred Wrona, Chief Scientist, Alberta Environment and Parks

"… So we help build a bridge. And you have to work at it and find the right way, the right ingredients and mixtures to build that bridge."

–Chief Tony Alexis, Alexis Nakota Sioux First Nation

The workshop took place February 12-13, 2019 at the University of Alberta in Edmonton, Alberta on the traditional territories of Treaty 6 Nations and the homelands of the Métis peoples.

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Edited by Kelly Bannister, Karin Smith Fargey and Megan Spencer

Workshop held February 12-13, 2019, at the University of Alberta (Edmonton, Alberta) on the traditional territories of Treaty 6 Nations and the homelands of the Métis peoples.

Cover photo: View from the Workshop venue overlooking the North Saskatchewan River *Kisiskâciwani-sîpiy* (Cree). Willow dreamcatcher made by *KaPayuK O Nepowat*, Aaron J. Lee.

DREAMCATCHER ARTIST'S STATEMENT AND BIO

The dreamcatcher image used on the cover and as a header throughout this report was made by Aaron J. Lee, *KaPayuK O Nepowat*. It was gifted to one of the workshop co-facilitators at the end of the gathering. This photo was taken in a moment of reflection, looking through the window at the view we shared during the workshop of the North Saskatchewan River *Kisiskâciwani-sîpiy* (Cree) and the bridges across the river. The artist was contacted after the workshop to ask his permission to use this special image of his work. Permission was graciously given to include the dreamcatcher image, as well as the artist's statement, bio and contact information.

Aaron J. Lee, *KaPayuK O Nepowat*
(He Stands Alone/The Center Pole)

THE GRANDMOTHERS AND GRANDFATHERS WILLOW DREAMCATCHER

The Grandmothers and Grandfathers originally were so named because a tobacco offering was made with a prayer to Grandmother Willow Spirit for payment. The willow is cut and wrapped and cured before the webbing is done. The willow naturally shapes like an egg, which is like a sweat-lodge where we go to the womb of Mother Earth to purify our Spirit. The frame of the sweat-lodge is made of willow and the stones used are called the Grandfathers and that is where the name comes from. The webbing is the medicine of the Spider and is sacred geometry and works to protect ones dreams with that medicine. The stones are all gems and crystals that have their own knowledge to pass us.

ABOUT THE ARTIST

Aaron J. Lee, also called *KaPayuK O Nepowat*, is a member of the Ermineskin Cree Nation of Maskwacis, Alberta, Canada. He is from a family of artisans and has been sharing his artistic works since the Calgary 1988 Winter Olympics where he sold chokers. He is a graduate of the Native Cultural Arts Program at Portage College, Lac La Biche and was selected as one of six Alberta Artisans to represent at the 2010 Vancouver Winter Olympics. He served as chairman for Kiyanaw First Peoples showcase at Northlands Edmonton K Days. In June 2017 he sent a dreamcatcher via the Canadian Space Agency and Australian Space Agency thirty-six kilometres into the upper atmosphere with the RumbleSat Art In Space, Uproute Space Program. Contact: Creecanindian66@gmail.com

ACKNOWLEDGEMENTS

We offer deep gratitude to the Elders and Knowledge Holders for gifting knowledge and wisdom during the gathering. We give profound thanks to the keynote speakers, panel presenters, and all participants and staff for fulsomely participating and co-creating the content included in this report.

The workshop took place at the University of Alberta on the traditional territories of Treaty 6 Nations and the homelands of the Métis peoples. It was co-sponsored by Alberta Environment and Parks (AEP) Environmental Monitoring and Science (EMSD) Division and the University of Alberta *Tracking Change* Project.

The proceedings of the workshop upon which this report is based were documented with permission of participants through note-taking, charting, audio recording, and photography. Electronic copies of co-created charts and other workshop materials were shared back with all participants directly following the workshop for their personal reference and are not included here. All presentation summaries included in this report were reviewed and approved by the respective speakers. One summary could not be reviewed in time to include in the report due to unforeseen circumstances so space has been held in case it can be included in future. Any errors or omissions are unintentional. This report should be considered as a living document that will be adjusted as necessary to ensure it respectfully and accurately shares the intended information provided by those who contributed.

CITATION AND COPYRIGHT

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Workshop co-facilitators, Keynote speakers and Panel presenters, from left to right: Kelly Bannister, Kyra Northwest, Janelle Baker, Carla Davidson, Bill Snow, Michael Evans, Cleo Reece, Marsha Heavy Head, Debra Hopkins, and Karin Smith Fargey (missing: Matt Munson and Pierre Haddad)

KEY TERMS AND DEFINITIONS

Community based monitoring (CBM) – a process for communities to observe, track and respond to interests of common concern, collaboratively with external partners.

Knowledge coproduction – a way of respectfully braiding Indigenous, local and scientific ways of knowing to develop a holistic understanding of the status and trends of biocultural diversity in a given landscape. Done in an ethical way, the braiding of multiple ways of knowing leads to new insights and innovations for maintaining and enhancing biocultural diversity.

Knowledge coproduction in CBM – CBM based on knowledge coproduction provides a platform to address the concerns and interests of Indigenous peoples and local communities living with environmental change, whether due to climate change, industrial development, ongoing land uses, or some combination of these changes. Indigenous and local ways of knowing play a number of critical roles in CBM, from offering a baseline of historical data, against which contemporary environmental changes may be assessed, to providing a factual and holistic understanding of the relationship between different elements of biocultural diversity.

Ethical Space – a concept first introduced to research ethics by Cree scholar and educator Willie Ermine[1] and described as a metaphorical "space between the Indigenous and Western spheres of culture and knowledge."[2] Ethical space can be understood as an invitation to step outside of our own worldviews and assumptions and step into an undefined neutral zone that is an "abstract, nebulous space of possibility."[3] New possibilities exist *because* of our differences, thus ethical space is co-created together as we retain our autonomy and respect our differences.

Research Ethics – the study of the appropriate ethical standards for research involving humans and the establishment of appropriate governance mechanisms for such research (*e.g.,* policy, guidelines). Research ethics principles are intended to ensure research balances the need for scientific inquiry with the priority obligation to respect the human dignity and well-being of individuals and collectives. The overarching national research ethics policy in Canada is the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2, 2018).[4] The underlying value of TCPS2 is "Respect for Human Dignity," which is defined as a sensitivity to the inherent worth of all human beings.

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[1] Ermine 2000.

[2] Ermine et al. 2004:20.

[3] Ermine et al. 2004:20.

[4] The *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2, 2018) is available at: http://pre.ethics.gc.ca/eng/documents/tcps2-2018-en-interactive-final.pdf

Scientific integrity – the condition resulting from adherence to concepts of transparency, openness, high quality work, avoidance of conflict of interest and ensuring high standards of impartiality and research ethics). The Government of Canada*'s Model Policy on Scientific Integrity* provides a national reference point.[5] Scientific integrity principles are intended to:

- Set out expectations that support and promote scientific integrity in the design, conduct, management, review and communication of research, science, and related activities;

- Instill the virtues that underlie responsible conduct in research, science and related activities;

- Ensure all such activities are carried out in a manner consistent with all relevant and applicable standards of scientific excellence, research ethics, and responsible research conduct.

ACRONYMS

AEP	Alberta Environment and Parks
CBM	Community Based Monitoring
EMSD	Environmental Monitoring and Science Division
IKCMCS	Indigenous Knowledge, Community Monitoring and Citizen Science Branch
IWAP	Indigenous Wisdom Advisory Panel
OCAP	Ownership, Control, Access and Possession principles
TCPS2	Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans
TRC	Truth and Reconciliation Commission of Canada
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples

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[5] The Government of Canada's *Model Policy on Scientific Integrity* is available at:
https://www.ic.gc.ca/eic/site/052.nsf/eng/00010.html

EXECUTIVE SUMMARY

A two-day workshop *"Ethical Space for Knowledge Coproduction: Workshop on Ethics in Community Based Monitoring"* brought together 60 people from February 12-13, 2019 at the University of Alberta on the traditional territories of Treaty 6 Nations and the homelands of the Métis peoples. The gathering included ethics experts, scientists, community based monitoring (CBM) practitioners and Indigenous partners involved in knowledge coproduction.

The workshop was an opportunity for participants to build a common understanding of ethical space for knowledge coproduction, reflect on key ethical issues and solutions from their own experiences in environmental CBM, and contribute to a collective exchange among peers and partners. The two days were not intended to identify 'quick fixes' to problems and issues, rather, they were designed to support networking and dialogue within a growing community of practice, and to contribute to the development of draft *Ethical Guidelines for Community Based Monitoring and Knowledge Coproduction* to meet a practical need for ethical guidance that has been expressed by practitioners of CBM and knowledge coproduction in Alberta.

The first day focused on sharing information and identifying relevant ethical issues through keynote presentations, panel presentations and facilitated discussions. Two keynote speakers provided detailed examples of addressing ethical issues related to braiding of Indigenous knowledge and Western science. The keynotes were followed by two panels, comprised of a diversity of CBM practitioners from Indigenous communities, government and academia. Panel presentations provided 'snap shots' of CBM projects to highlight one or more important ethical issues of concern and offer first-hand experiences in addressing the issues.

The ethical issues raised in the keynotes and panel presentations were clustered into the following six themes to guide two subsequent interactive Working Sessions:

- Negative impacts of research and environmental monitoring programs on communities;
- Systemic barriers to authentic collaboration for knowledge coproduction/Working within a colonial framework;
- Lack of protection for Indigenous knowledge from misuse or misunderstanding;
- Use of coproduced knowledge or data for purposes not mutually-agreed;
- Conflicting accountabilities or responsibilities/Competing value systems; and
- Misunderstandings/losses through Indigenous language interpretation.

The suite of ethical issues was considered within two sets of ethical principles relevant to CBM and knowledge coproduction. One set of principles was derived from Western science, including:

- Scientific Rigor, Quality, and Impartiality
- Authorship & Due Credit
- Data Considerations
- Respect for Persons
- Concern for Welfare
- Justice

The other set was inspired by principles articulated by the Alberta Environment and Parks' Indigenous Wisdom Advisory Panel (IWAP),[6] including:

- Good faith
- Sharing
- Mutual Respect & Honour
- Kindness
- Generosity & Trust
- Humility & the Trickster

Through world café[7] style Working Sessions, participants considered which guiding principles were the most relevant and helpful in addressing the ethical issues. They also identified gaps in the ethical guidance and offered insights on how to address those gaps.

Participants reported that working with the set of Western scientific principles was generally more challenging than working with the set of IWAP-inspired emerging principles for knowledge coproduction, due partly to the anthropocentric and individualistic nature of the former compared with the more holistic and interrelated nature of the latter.

A number of salient insights that arose from the workshop are invaluable to inform the development of draft *Ethical Guidelines for Community Based Monitoring and Knowledge Coproduction*:

- The **interrelatedness of all life forms** needs to be acknowledged, and **respect for all life** needs to be forefront in CBM and knowledge coproduction, thus concepts of personhood and justice need to be extended beyond humans.
- **Indigenous languages** embody and convey the Indigenous knowledge of the land from which they arise, thus the choice of language, the way information is communicated and

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[6] Indigenous Wisdom Advisory Panel (IWAP) 2017.
[7] A description of the world café method is available at: http://www.theworldcafe.com/key-concepts-resources/world-cafe-method/

who is communicating all have vital influences on how knowledge is understood or misunderstood, interpreted or misinterpreted, and used or misused in CBM and knowledge coproduction.

- **Many Indigenous languages are predominantly verb-based**, thus ethical principles for CBM and knowledge coproduction are better understood as **living and ongoing actions** rather than as nouns, ideas or aspirations.

- **Intentional positive reciprocity** is a fundamental component of knowledge coproduction and should be grounded in **reciprocating positive relationships for mutual benefit** based on cyclical and balanced giving and receiving rather than a goal to take or accumulate.

- The **integrity of knowledge within its own knowledge system needs to be upheld** as a prerequisite for different knowledges to be respectfully brought together in knowledge coproduction.

- Knowledge coproduction cannot take place without the **protection of Indigenous knowledge systems** as prerequisite.

- More **time and support, combined with humility, good faith, and respect**, are needed in CBM and knowledge coproduction to co-create ethical space and develop an ongoing culture of equitable and ethical practice that can honor differences, resolve misunderstandings and overcome systemic Western scientific and colonial barriers that impede authentic collaboration.

Four individuals, who were designated as the Dedicated Listeners for the entire workshop, shared their personal reflections to increase the diversity of perspectives expressed. The Dedicated Listeners noted how the workshop itself demonstrated the co-creation of ethical space. They acknowledged the many colonial and systemic barriers to CBM and knowledge coproduction that were forefront in discussions, underscored the important role of Indigenous languages and involvement of Indigenous knowledge holders, and highlighted the need for a genuine commitment of good faith, time and resources to support relationship-building, learning about one another and positive reciprocity. Through their contributions, the Dedicated Listeners actively embodied and demonstrated the powerful role of listening, itself, as a vital part of the process of CBM and knowledge coproduction.

The event was generously supported through advice, protocol, prayer and presentations made by several Indigenous Elders and Leaders from First Nations and Métis communities in Alberta. This Report is a living record that will be adjusted as necessary to ensure it respectfully and accurately shares the intended information provided by those who contributed.

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OPENING, WELCOME AND BACKGROUND

1 Opening of Workshop

Chief Tony Alexis
Alexis Nakota Sioux Nation

The workshop began with opening remarks, a prayer and a song from Chief Tony Alexis of the Nakota Sioux First Nation.

Chief Alexis welcomed the participants to the workshop, sharing greetings from the Nations of Treaty 6 territory. He thanked Elder Elmer Ghostkeeper for lighting the smudge and offered a few words about this custom:

> *"As humans, sometimes our mind likes to be the boss of who we are, or our hearts or bodies want to be the boss. The smudge helps cleanse us and put us in the most holy state possible so that our spirit can be the boss and our mind, heart, and body will follow the sacred way. It is very important to begin this work with a smudge and a prayer."*

Chief Alexis acknowledged that all the workshop participants are gifted with the privilege of a good life, spirit, and experiences in our home life, with good teachings from our parents, grandparents, and others. We bring all of those experiences and teachings into this room—although there are only 30-40 people in the room physically, there are thousands of people gathered by extension. The room is a very special and sacred place, which is important information that Chief Alexis wanted to share with the group.

> *"We want to find something in common with one another, so that we can all stand together."*
>
> –Chief Tony Alexis

He reflected on what we as a group hoped to achieve in the next couple of days:

> *"We want to find something in common with one another, so that we can all stand together. Something that represents all the people – whether here, in academic institutions, or on the land – and we want to make sure that no one gets hurt. In the work that we do, we just want to go to work, do our job, and what do we want at the end of the day? We want to go home to our families, relax, enjoy life, let our guard down. But we have to step into this modern world, this common space where we have to share, share the space together no matter what we look like, who we are, what things we like and dislike. We have to find peace in this place."*

Chief Alexis shared a prayer song, passed down to him from his father, to ask for assistance in this work.

Chief Alexis described his international work in building cross-cultural awareness. He remembered one of the first workshops he hosted where he spoke about the entire history of his community, from the beginning of time to the present day. The feedback from participants was that it was 'information overload'. He learned that not everyone wanted to learn the entire history of Indigenous communities; what they wanted to know was how to work with them. Chief Alexis continued his work with Elders and academics, and they came up with a five-step strategy to build a bridge of how to work with Indigenous communities. He clarified that this approach didn't change who they were as Indigenous people and still honoured their teachers and Ancestors.

> *"And sometimes we have that mindset – when you're going into someone else's culture, someone else's city, country, family, or even my own brother's family, we think we're all the same. It is not so."*
>
> –Chief Tony Alexis

He shared a story that he used in one of these cross-cultural workshops, a story of a river:

> *"The sun comes out and you look at the river. There's trees hanging over on one side, there's a riverbank, dirt and rock, a little bit of grass, birds and animals. And the other side of the riverbank is exactly the same. The riverbank has a different slope, similar trees, and birds. But for us to believe that this bank is the same as that bank – it is not so. The river actually separates it. And sometimes we have that mindset – when you're going into someone else's culture, someone else's city, country, family, or even my own brother's family, we think we're all the same. It is not so. So we help build a bridge. And you have to work at it and find the right way, the right ingredients and mixtures to build that bridge, so that at the end of the day we can go visit our brothers or relatives or another country or city. I share that on behalf of all of the Elders in my community."*

Chief Alexis shared that the Elders in his community are offered tobacco and always come with all the knowledge that they have.

> *"They may not understand as much about modern society as we do, but they come in with their heart open and they put it right there. Sometimes in the way we work, we want to get business done, we want to get to the finish line, with no time for the protocols. But what I want to say on their behalf is that they are sharing with you ancient knowledge from a long time ago, and it is so precious, just like tobacco."*

He explained that when people pass judgment on the Elders' knowledge, challenging it or removing parts of it, it offends them and closes them off. Once the Elders are closed off, the relationship is over; the bridge is burnt, and it will take a long time to rebuild. Since the workshop brings together government, academia, and traditional knowledge holders, Chief Alexis expressed the importance of finding the right ingredients to build the bridge. And by extension when we leave the workshop and work with others, we train them and remind them how precious it is to be with an Elder. He warned that we have to be careful not to cause unnecessary strain or offense to the Elders.

He affirmed that participants were here to co-create a strategy—allowing us to be better with ourselves, in our jobs, and to do things right. He advised participants not to be afraid to make mistakes; this workshop is the opportunity to make them. He encouraged participants to make this space comfortable for everyone so that we can represent those who we love and the people who love us. If we do this, he believes we can leave the workshop with something that will become useful.

Chief Alexis gifted those listening with a final story about tobacco. He has observed that some people don't understand its purpose. Traditionally, tobacco was harvested throughout the whole year, and was specially chosen. It is offered to ask the spirits of those receiving the tobacco to come and help. Enough should be offered so that a ceremonial person could fill a pipe (which used to be a piece of wood and a stone) and sweetgrass or a smudge would be added on top of it. The Elders were taught by the spirits that the pipe instrument could be used like a telephone to have a conversation with the Creator and all the spirit helpers. He says that you don't have to accept a gift of tobacco; it is your choice. He recalls that when the intention for this workshop was shared with him – to gather a diversity of people to work together and create an ethics strategy – he accepted tobacco. In closing, he thanked the workshop organizers for the honour to share stories from his community and to share this space with the participants.

2 Welcome on behalf of Alberta Environment and Parks

Dr. Fred Wrona

Chief Scientist, Alberta Environment & Parks, and Assistant Deputy Minister Environmental Monitoring & Science Division, Alberta Environment & Parks

Fred Wrona welcomed everyone to the workshop on behalf of Alberta Environment and Parks (AEP), stating that this gathering represents a milestone achievement that even five years ago would not likely have taken place. As a scientist, the concepts of "ethical space" and "knowledge coproduction" and this idea of bringing multiple ways of knowing and multiple knowledge systems together to understand the environment were not part of his training. Fred expressed that we have arrived at very special place in history.

He thanked Chief Tony Alexis for his opening words and prayer and for his statement about building bridges. Fred says we are building bridges not just between multiple knowledge systems, or different cultural perspectives, but we are building bridges amongst ourselves as people. We each bring a history of where we come from, who we are, and how we've been trained. This history will inform the conversations taking place at the workshop, which will inform the outcomes.

Fred thanked the Elders for joining the workshop, many of whom had travelled a long way, and he acknowledged that the workshop took place on the traditional territories of the Treaty 6 Nations and the homeland of the Métis Nation of Alberta. He also thanked his colleagues in Alberta Environment and Parks and the University of Alberta's Tracking Change team, who have worked very hard to bring the event and the larger ethics initiative into being.

Fred expressed his privilege in holding the position of Chief Scientist with Alberta Environment and Parks. He accepted the position because he believed that change was needed in how Alberta responded to its environmental issues. The Chief Scientist position along with the two advisory panels – the Science Advisory Panel (SAP) and the Indigenous Wisdom Advisory Panel (IWAP) – were established through legislation. Alberta is the first jurisdiction in Canada, and perhaps internationally, to have legislation that requires a scientific and an Indigenous advisory panel to advise on provincial program directions.

He has been engaged in similar conversations to this workshop with the two Panels over the last year and is optimistic that Alberta Environment and Parks can move forward with the work at

hand. In particular, IWAP has provided advice on how to respectfully integrate the two knowledge systems to ensure that ethics are upheld in the integrity of the environmental monitoring information collected and the way it is evaluated, and how this information can be shared with the citizens of Alberta. The workshop will help advance the process of knowledge integration and will help inform how Alberta Environment and Parks can produce trusted, credible information through its environmental monitoring programs. Fred says that to do this properly we must uphold professional codes of practice and ethical standards and conduct the work in a respectful manner.

Fred explained that community based monitoring (CBM) is one mechanism by which the Alberta Environment and Parks can change how it collects scientific information:

> *"Involving and engaging communities is not just at the backend, but right from the outset."*
>
> – Dr. Fred Wrona

> *"We can begin to understand other ways of knowing in both the design and implementation of the program. Involving and engaging communities is not just at the backend, but right from the outset. All of this needs to be done in a collective manner."*

He underscored that the conversations over the next two days will be critical in laying a foundation for what types of ethical considerations and principles should be used to guide Alberta Environment and Parks in its future endeavors. The workshop participants will be encouraged to share their own experiences but also learn from one another.

Fred concluded that there will be many challenging days ahead, but also opportunities. He encouraged everyone to keep an open mind for how we can move forward and expressed hope that participants will become enriched and inspired by one another as a foundation is laid for integrating Western science and Indigenous knowledge systems.

Ethics workshop participants

3 Intention of the Workshop

Dr. Gleb Raygorodetsky

Executive Director, Indigenous Knowledge, Community Monitoring & Citizen Science Branch, Environmental Monitoring & Science Division, AEP

Gleb Raygorodetsky began by acknowledging that this workshop is not a culmination, but a step on the road to figuring out how scientists and Indigenous knowledge holders can work together in a respectful way. He recalled that the process began last year through a series of discussions guided by Dr. Kelly Bannister who is one of the co-facilitators of the workshop. Through those exchanges, a discussion paper was produced and guidance was sought from the Alberta Environment and Parks Indigenous Wisdom Advisory Panel (IWAP)[8] for developing a set of ethical principles to help define a space for knowledge coproduction.

Gleb explained that the name of their Branch – the Indigenous Knowledge, Community Monitoring and Citizen Science Branch (IKCMCS) – is somewhat misleading, because as a government agency they do not (and cannot) represent Indigenous knowledge. What they seek to do is to advance knowledge coproduction by respectfully braiding scientific and Indigenous ways of knowing to mobilize the best available knowledge from both systems to understand the environment. They aim to do this in a good way, by being respectful, ethical and transparent. As such, the intent of the workshop is to gather collective wisdom to articulate the fundamental principles that define ethical space for knowledge coproduction. As a first step in the process, Gleb expressed his hope that the workshop discussions will inform the development of draft *Ethical Guidelines for Community Based Monitoring and Knowledge Coproduction* for his Branch and Environmental Science and Monitoring Division (EMSD) of the Alberta Government.

> *"The intent of the workshop is to gather collective wisdom to articulate the fundamental principles that define ethical space for knowledge coproduction."*
>
> – Dr. Gleb Raygorodetsky

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[8] Indigenous Wisdom Advisory Panel (IWAP) 2017.

4 Designation of Listeners

Four individuals were invited to commit to the role of dedicated listening during the workshop. The individuals were chosen because of their diversity of perspectives and backgrounds to enable them to listen through 'different ears' and provide a unique reflection. The role of the Dedicated Listeners was to listen deeply throughout the workshop for what was most alive and resonant for them, rather than summarize what they heard during the workshop. They were asked to share back with all participants what they found most meaningful at the end of both days of the workshop. Their role was recognized by inviting each of them to introduce themselves and the perspectives from which they would be listening, and to receive a small stone to hold as a reminder of their listening commitment and responsibility.

> *The role of the Dedicated Listeners was to listen deeply through their 'different ears' throughout the workshop for what was most alive and resonant for them.*

The workshop's Dedicated Listeners shared the perspectives they were listening from:

- **Dr. Cristiana Simão Seixas**, a visiting researcher from Brazil at the University of Alberta who works in community-based conservation and social-ecological resilience;

- **Ms. Sara Cook**, a social scientist experienced in socio-economic and environmental planning, consultation, communication, capacity building and participatory action research;

- **Dr. Gleb Raygorodetsky,** an award-winning author and Indigenous ally who works in community-based climate change adaptation and mitigation, biocultural diversity and knowledge coproduction; and

- **Elder Almer Waniandy** of Fort McMurray Métis Local 1935, Métis Nation of Alberta.

5 About the Workshop

Dr. Kelly Bannister

Workshop Organizer and Co-Facilitator

5.1 Workshop Objectives, Overview and Background

Kelly Bannister thanked Chief Tony Alexis for his opening words and prayer and Elder Elmer Ghostkeeper for smudging and for his guidance in preparing the space to do this work in a good way. She also thanked Fred Wrona and Gleb Raygorodestky for their opening remarks. Kelly acknowledged that the gathering is on Treaty 6 territory and the homelands of the Métis peoples of Alberta. She welcomed the participants and reminded them that this was intended as a safe and intentional space for sharing and learning.

Objectives – The three main workshop objectives were summarized:

- To prioritize exchanges with one another on ethics in community based monitoring and knowledge coproduction;

- To document what is learned at the workshop for use by participants and for sharing with the public through formal reporting. Records would be made by note-taking, audio recording, photos and selective video recording of presenters (with permission); and

- To inform a process lead by the IKCMCS Branch, EMSD to develop draft *Ethical Guidelines for Community-Based Monitoring and Knowledge Coproduction.*

Based on two decades of experience working on the ethical and legal aspects of biocultural diversity research, Kelly has observed that conversations about ethical issues usually happen 'on the side' and in reaction to difficult situations that arise. In contrast, this workshop is an intentional space and opportunity for ethics to be the priority topic. She reinforced the workshop objective to inform the development of draft *Ethical Guidelines for Community Based Monitoring and Knowledge Coproduction* and indicated that the workshop discussions with active practitioners, knowledge holders, government, and scientists would be invaluable for the development of the *Ethical Guidelines*.

The intended focus for the first day was on identifying a suite of ethical issues that are most 'alive and in play' in community-based monitoring. The focus of the second day was on exploring the

ethical issues identified on Day 1 through interactive Working Sessions during which both Western scientific ethics principles and Indigenous ethics principles would be considered.

Four requests were made of participants regarding their time together during the workshop:

Be here

As much as possible, leave our worries, distractions, and burdens at the door. We are welcome to pick them up again and take them with us when we leave, or to leave them behind.

Be fully present

Mute our electronic devices and commit to fully being with one another in this space.

Practice self-care

Meet our needs. Come and go as we please to ensure we are getting the rest, movement, nutrition and hydration that we need to be well.

Be 'for' one another

Listen with care and make a personal commitment to be '*for*' one another, rather than opposed.

Try to release assumptions and judgments. If someone says something that we find triggering, let's try not to give in to our immediate reaction.

Try to listen with curiosity to what that person cares about, to what s/he is really trying to say.

Background on ethics in community based monitoring – An introduction to ethics and the importance of building ethical space for CBM and knowledge coproduction was provided. Ethics means different things to different people. The word 'ethics' comes from the root word 'ethos,' which refers to character. In academic use, ethics is considered a branch of philosophy that involves concepts of right and wrong conduct and responds to questions about human morality. In everyday use, ethics are about how we should live.

For the purpose of the workshop, ethics are understood as the capacity to know what harms or enhances the wellbeing of sentient creatures. Ethics are demonstrated in how we relate to one another and to the natural world, and ultimately, how we choose to treat one another. Our actions are influenced by our awareness, beliefs, and values.

> *"Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect."*
>
> –Chief Seattle, *Dkhw'Duw'Absh* (Duwamish) and *Dkhw'Suqw'Absh* (Suquamish) tribes

Three branches of ethics that are of particular relevance to CBM and knowledge coproduction were highlighted:

- **Research ethics**: formal procedures to decide how to act in research
- **Descriptive ethics**: ethical codes and guidelines
- **Relational ethics**: an approach to ethics that focuses on the nature of relationships

A generalized comparison of Western scientific ethics and Indigenous ethics can help identify key differences in awareness, beliefs, and values between the two systems (see figure). Western scientific ethics often manifest as sanctioned rules of good conduct and principles based on scientific integrity, which stem from the perspective of the autonomous individual (*i.e.*, I am doing the principle). By comparison, Indigenous understandings of ethics are inter-subjective and based in an understanding of interconnectedness and living in relationship with other humans and non-humans. Ethics are considered alive, happening within and through each person (*i.e.*, I am living the principle, or the principle is living through me).

Western scientific ethics	Indigenous ethics
Sanctioned Rules of Good Conduct	Living and Interrelational
Objectivity	Intersubjectivity
Scientific integrity	Integrity with worldview and cultural values
Social responsibility	Multigenerational responsibilities
Autonomous Individual	Interconnectedness
Minimize harms/maximize benefits	Being human with one another
"I am doing the principle"	"Principle is happening through me"

The dilemma of good intentions – It was suggested that many historical and current harms that have occurred within relations between Indigenous communities and Western scientists, have not been unintentional but involve arrogance and a lack of awareness. This underscores the need to understand that our virtuous ideas and good intentions may not translate into a good way of doing things when they are imposed on others.

> "Most of the harm in the world is done by good people, and not by accident, lapse, or omission. It is the result of their deliberate actions, long persevered in, which they hold to be motivated by high ideals toward virtuous ends."
>
> –Isabel Paterson (1943:241)

Ethical space for knowledge coproduction – It was proposed that one of the ways to address the problematic history of relations is by creating 'ethical space.' Ethical space is **not** the overlapping 'space of commonality' between two different ways of understanding the world, such as between Western science and Indigenous ways of knowing. Cree

scholar and educator Willie Ermine, who was the first person to apply the concept of ethical space to research ethics,[9] describes ethical space as "a space between the Indigenous and Western spheres of culture and knowledge." [10] Rather than understanding ethical space as commonality, Ermine's notion identifies the space *in between*—an alive space that is not necessarily 'mine' or 'yours.' Ethical space is an invitation to step outside of our own worldviews and assumptions and step into an undefined neutral zone, an "abstract, nebulous space of possibility."[11] Our differences are what we have in common and new possibilities exist *because* of our differences. Thus, ethical space is co-created together as we retain our autonomy and respect our differences. As Willie Ermine has explained,[12] the question is not "what do we do with *it*" because ethical space is not an "it." Ethical space is a verb, so the questions are "what we *do,"* and "what do we do *together*?"

Ethical space was adopted as a fundament concept in Chapter 9 of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2). Chapter 9, entitled *Research Involving The First Nations, Inuit and Métis Peoples of Canada,* is described as "mark[ing] a step toward establishing an ethical space for dialogue on common interests and points of difference between researchers and Aboriginal communities engaged in research."[13]

> *"Ethical space is an invitation to step outside of our own worldviews and assumptions and step into an undefined neutral zone, an "abstract, nebulous space of possibility."*
>
> –Dr. Kelly Bannister
> (quoting Willie Ermine)

A number of descriptions and models of ethical space have since been elaborated and were briefly described, for example by the Indigenous Circle of Experts as part of the Pathway to Canada Target 1 initiative,[14] and by Elder Dr. Reg Crowshoe in his work with the Alberta Energy Regulator.[15] Ethical space is embraced by the *Indigenous Knowledge, Community Monitoring and Citizen Science Branch, Environmental Monitoring and Science Division* as a key concept in knowledge coproduction and is understood as central to developing the *Ethical Guidelines for Community Based Monitoring and Knowledge Coproduction*.

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[9] Ermine 2000.
[10] Ermine et al. 2004:20.
[11] Ermine et al. 2004:20.
[12] Ermine 2015.
[13] CIHR, NSERC and SSHRC 2018:105.
[14] Parks Canada 2018.
[15] Alberta Energy Regulator 2017.

5.2 Why Ethical Guidelines for Community Based Monitoring Are Needed

The rationale and EMSD's need for developing *Ethical Guidelines* were summarized as follows:

Practical – There is a practical need for ethical guidance expressed by practitioners of CBM and knowledge coproduction that is not being met by existing ethics policies and guidelines in Alberta, nor supported by government policies and procedures.

Policy gap amid a wealth of guidance – Although there are a number of relevant ethics guidance documents and instruments in place and promoted within Canada, these are not meeting the practical needs expressed in Alberta.

Key guidance is offered by TCPS2, which is the national standard for research conducted by, or in association with, all academic institutions in Canada. Chapter 9 of TCPS2 offers 26 pages of specific guidance for research involving First Nations, Métis and Inuit peoples. Mandatory implementation of TCPS2 is through academic funding mechanisms and institutional research ethics review processes. Although some provincial governments have adopted TCPS2, the policy's implementation outside of research that directly involves an academic institution varies across the country, presumably due to lack of mechanisms (*i.e.,* a standardized research ethics review system) to facilitate compliance.

The most wide-spread ethical guidance related to engagement with Indigenous peoples in Canada includes:

- OCAP Principles (Ownership, Control, Access and Possession), which are widely used and promoted by Indigenous communities and organizations in Canada.[16]

- *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP), which was adopted by Canada in 2016.[17]

- Truth and Reconciliation Commission (TRC)'s Recommendations and Calls to Action, which were released in 2015 and endorsed by the federal and all other levels of government.[18]

Implementation guidance for these instruments is still actively under development across institutions and sectors.

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[16] First Nations Information Governance Centre 2014.
[17] United Nations General Assembly 2008.
[18] TRC 2015.

Window of opportunity – There is a window of receptivity and thus opportunity in Canada to develop *Ethical Guidelines* as part of AEP-EMSD's commitments to braiding scientific, Indigenous and local knowledges to inform decisions related to environmental monitoring and science, sustainable use of biodiversity, and the broader commitments to reconciliation.

Critical mass and tipping point – A tipping point is a critical moment in a complex situation in which a small influence or development produces a sudden large or irreversible change. A critical mass is an amount or level needed for a specific result or new action to occur. It was suggested that we have reached a tipping point in terms of the converging ecological, cultural, social, economic and spiritual crises on this planet. Moreover, with the openness expressed by current federal and provincial leaders, and the number of good hearts, good minds and animated spirits gathered in the room for the workshop, we have the critical mass to create necessary guidance for CBM and knowledge coproduction, which has the opportunity to set a precedent in our country.

5.3 Documenting Ethical Issues

Two methods were outlined to identify the key themes and ethical issues that participants felt were most relevant and pressing in CBM and knowledge coproduction.

Sticky issues in CBM and knowledge coproduction – Sticky notes were introduced as a simple method to document "burning or sticky ethical issues" that were top-of-mind. Participants were invited to write down responses to two prompts at any time during the workshop:
What is the burning ethical issue on your mind in this moment?
What do you think is the stickiest ethical issue facing practitioners of CBM and knowledge coproduction?

Sticky note contributions were collected on a large 'welcome board' and collated to identify important points of conversation and examine themes that emerged. Highlights were shared and a summary is found in Section 13.1.

Identifying key ethical issues – Note takers were asked to identify key ethical issues raised by presenters in the keynote and panel sessions. The issues were documented for use in two Working Sessions and are summarized in Section 13.2.

KEYNOTE PRESENTATIONS

SESSION CO-CHAIRS:

Karin Smith Fargey

Knowledge Coproduction Strategic Advisor, IKCMCS Branch, EMSD, AEP and Workshop Co-Facilitator

Kelly Bannister

Workshop Organizer and Workshop Co-Facilitator

Two Keynote speakers provided diverse examples of addressing ethical issues related to the braiding of Indigenous knowledge and Western science:

William Snow shared a *Stoney Nakoda Traditional Knowledge Approach to Studying Grizzly Behavior and Habitat* in the Kananaskis region of Alberta. He also offered a "linear holistic model" of ethical space and knowledge coproduction inspired by the writings of Vine Deloria Jr.[19]

Pierre Haddad shared his experience leading the Canadian Institutes of Health Team in Aboriginal Antidiabetic Medicines, which is a multipartite project researching the antidiabetic effects of plants used by First Nations peoples in Canada.[20] His presentation on *Ethically Combining Modern Science and Traditional Medicine to Optimize Diabetes Care and Prevention in Canadian First Nations* discussed opportunities and challenges in combining Indigenous knowledge and modern science to improve the prevention and management of diabetes. A major focus of Pierre's project was placed on reciprocal knowledge translation.

The Keynote presentations are summarized in this section.

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[19] Deloria 1970:20.

[20] For more information on the CIHR Team in Aboriginal Antidiabetic Medicines project, see:
http://www.taam-emaad.umontreal.ca/

6   A Stoney Nakoda Traditional Knowledge Approach to Studying Grizzly Behaviour and Habitat

William Snow

Consultation Manager, Stoney Tribal Administration, Stoney Nakoda Nation

William (Bill) Snow began his keynote presentation by discussing the recent reports of human-bear conflicts in the Kananaskis region in southwest Alberta. Black bear sightings in particular are on the rise near Calgary, Alberta—in September 2018, Alberta Fish and Wildlife officials trapped 10 black bears within a period of 10 days and relocated them away from a community west of Calgary. Other large animals, like moose, elk and deer, are being observed in the region's suburban areas, which Bill thinks is an indicator that wildlife and their habitats are under pressure.

Bill divided his presentation into two parts: in Part 1, he spoke to the challenges with bringing together Western science and traditional knowledge in collaborative research, drawing insights from a traditional use study of grizzly bears and their habitats in the Kananaskis region. In Part 2, he presented a "linear-holistic" model to suggest how Western science (or linear understanding) and traditional knowledge (or holistic understanding) interact, and may explain the non-implementation of traditional knowledge recommendations within a Western scientific system. One of the models offers an illustration of knowledge coproduction—the overarching theme of the workshop.

Part 1: Stoney Grizzly Study – Grizzly bear populations are declining across Western Canada and in 2014 they were designated as a threatened species under the Government of Canada's COSEWIC (Committee on the Status of Endangered Wildlife in Canada) listing. Seeking funding for a study focused on grizzly bears, the Stoney Nakoda Nation successfully applied to the Government of Canada's Aboriginal Fund for Species at Risk, and in 2015, members of the Stoney Nakoda Nation, Alberta Environment and Parks collaborated on a traditional use study of grizzly bear populations and habitat in the Kananaskis region ("the Grizzly Study").[21]

Bill indicated that a key goal was to apply Stoney Nakoda traditional knowledge to provide insight into potential management strategies for grizzly bears and their habitats. He explained that the final report offers management recommendations under six themes: ceremony, restricted activity,

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[21] Stoney Consultation Team and Stoney Tribal Administration 2016.

ongoing cultural monitoring, restricted development, connectivity, and cultural awareness. At the time of his presentation the only recommendation implemented was the ceremony. The other report recommendations are still under consideration by staff with Alberta Environment and Parks. Bill discussed three of these themes and spoke to the challenges with bringing together Western science and traditional knowledge.

Restricted activity – This recommendation suggests implementing a period of restricted activity in certain areas of Kananaskis to accommodate "special grizzly bear activities." The study partners brought different understandings of place to this recommendation. For example, traditional knowledge holders recognized that grizzly bears require certain areas of the landscape for "special activities," which should be avoided during certain times of the year. Within traditional knowledge, providing time and space for grizzly bears on landscapes is possible, whereas within Western science, it is more difficult to explain a relation between wildlife, landscapes and culture.

Connectivity – Issues with landscape connectivity across roads and railways in the Kananaskis region have existed for many years. As a partial remedy, this recommendation suggests that Alberta Parks would institute more wildlife crossings; however, Bill reminded workshop participants that balancing land development and access for wildlife is an ongoing challenge. While there are great examples of connectivity within Banff National Park, there are virtually no other large overpasses on the eastern slopes of the Rocky Mountains in Canada.

Ceremony – This recommendation suggests that the Stoney Nakoda peoples, with the help of the local community, conduct ceremonies to assist grizzly bears in continuing their relationship to special places on the landscape. In 2018, the Stoney Nakoda Nation with Alberta Parks and the Alpine Club of Canada conducted a ceremony at *Cuwapcîmcîyân kude bi* (Stoney), also called Indian Flats, a place of cultural significance to the Stoney people.

The Grizzly Study also addressed the history of relations between the Stoney Nakoda Nation and the Government of Canada. Oppressive policies towards the Stoney Nakoda peoples were primarily enacted between 1885 and 1961, which restricted their hunting rights, gathering, cultural practices and access to Banff National Park. Although many of these policies have been revoked, some are still in place. Members of Stoney Nakoda wanted to address this history as part of the Grizzly Study as a way to build cultural understanding among the study partners and ensure that the ethics of the past were not repeated. Cultural awareness sessions were hosted with the institutional partners and members of Stoney Nakoda to start building this understanding.

Part 2: Western science and traditional knowledge, models of interaction – Bill shared theoretical perspectives of how Western science and traditional knowledge systems interact with one another. He reviewed some defining characteristics of Western science and traditional knowledge, summarised below in the table of "Characteristics for Western science, Indigenous

knowedge and knowledge coproduction frameworks," and building on what Kelly Bannister shared earlier in the workshop.

CHARACTERISTICS FOR WESTERN SCIENCE, INDIGENOUS KNOWLEDGE, AND KNOWLEDGE COPRODUCTION FRAMEWORKS	

Western Science
- Linear orientation, isolated system, short-term focus
- Based on written tradition, time oriented
- Separation of "Mind, Body and Spirit" in understanding
- Learning based on the scientific method and extracting knowledge

Western Environment
- Dissemination of knowledge is dominated by Western science
- Other knowledge systems are to be oriented within a linear system
- Many parts of a linear system are not connected into a cohesive whole

Traditional Knowledge
- Holistic orientation, inter-related system, long-term focus
- Based on oral tradition, story oriented
- Inclusion of "Spirit" in understanding
- Learning based on cultural practice, teachings are given (*e.g.* dreams, visions)

Traditional Environment
- Knowledge based on story and land-based teachings
- Other knowledge systems and spiritual practices were respected
- A holistic system is inclusive of many parts, understanding of a whole environment, not siloed approach

Orientation
- Western environment must make space for Traditional Knowledge in the learning process
- Traditional environment must make space for Western science
- Time and space are afforded in teaching and research for each knowledge system

Coproduction
- A linear and holistic combined system is unexplored
- Continuation of a linear system or a non-linear relationship
- The control and prediction of a linear system must allow for the benefits of a holistic system, which then allows for more balance and harmony

Bill developed a visual interpretation of the Linear-Holistic Model described by Vine Deloria Jr. in his book *We Talk, You Listen; New Tribes, New Turf*:

> Because tribal society is oriented toward a center and non-Indian society is oriented toward linear development, the process might be compared to describing a circle surrounded with tangential lines. The points at which the lines touch the circumference of the circle are the issues and ideas that can be shared by Indians and other groups. There are a great many points at which tangents occur, and they may be considered as windows through which Indians and non-Indians can glimpse each other. [22]

Through a series of diagrams inspired by the Linear-Holistic Model, Bill described a suite of potential interactions between Western science (or Linear Understanding), traditional knowledge (or Holistic Understanding), and ethical/cultural space.

He explained that Western science follows a linear orientation and that learnings are based on the scientific method, whereas traditional knowledge takes a holistic orientation and bases learning on cultural practices and teachings. Referring to the first two diagrams in the series of Linear-Holistic Models, Bill explained that Western science (depicted as a straight, solid line) can meet with traditional knowledge (depicted as a circle), at points along its edge (the circle's circumference).
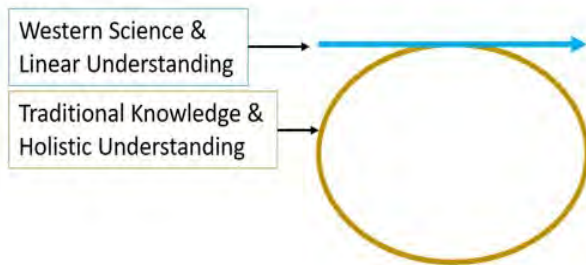
It is at these points of interaction where ethical/cultural spaces (depicted as circular nodes) exist—spaces where Western science and traditional knowledge systems can interact with one another. The first two Models show only two points of interaction between the straight line and circle, suggesting that the interactions between Western science and traditional knowledge are limited and selective. In these situations, one system also tends to remain dominant over the other.
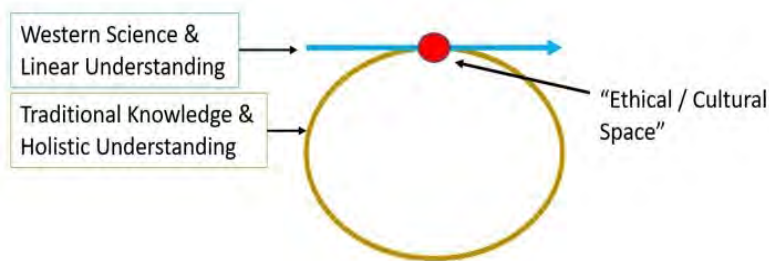
One way to reorient this approach is to encourage Western science and traditional knowledge to chart a new path forward, where no system dominates over the other. The third Model in the series, titled "Orientation & Coproduction," does not limit the emergence of ethical/cultural space to select points of interaction. Rather, ethical/cultural space expands and fills the entirety of the circle. A dotted line forays from the circle's outline towards its centre, representing a shared pathway of bringing the two systems

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[22] Vine Deloria Jr. 1970:12.

together. Bill suggested that this line should be understood as non-linear (not a straight line as shown in the diagram), as a knowledge coproduction journey might take many directions.

Since knowledge coproduction was used as a methodology in the workshop, Bill explained that participants would later be invited to (metaphorically) enter into this
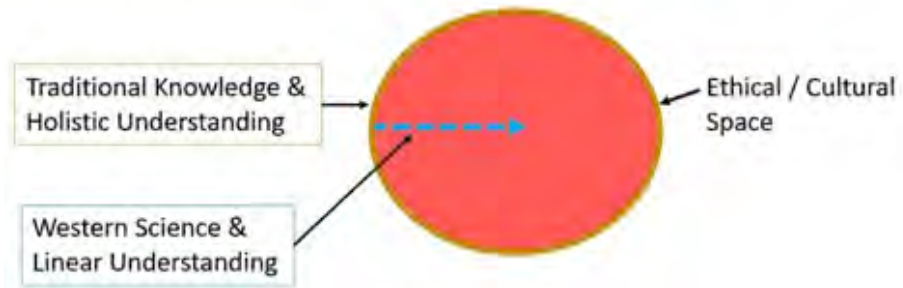
ethical/cultural space. He clarified that knowledge coproduction does not suggest that Western science should devolve itself into traditional knowledge, or vice versa. Rather, it invites both systems to enter a common area, offer their best teachings, and make efforts to share the space. Following a knowledge coproduction framework may require us to sacrifice some control and predictability, which are the benefits of a linear system. However, ethical space should make room for the benefits of a holistic system: balance and harmony. Bill concluded by expressing hope that balance and harmony can be created for the benefit of humans, wildlife and the environment.

DISCUSSION

A short question-and-answer period followed Bill's keynote presentation. Questions reflected an interest in understanding the cultural and spiritual aspects of grizzly bears on the landscape and interest in a knowledge coproduction framework.

Question: *How do grizzly bears use landscapes for cultural and spiritual purposes?*

Bill Snow: Grizzly bears are generally appreciated as a keystone species that provide an important ecological function. However grizzly bears also have a cultural function—for example, in the Stoney tradition, grizzly bears are viewed as a spiritual protector of medicines. When grizzly bears are prevented from accessing certain areas (as discussed in the Grizzly Study's connectivity recommendation) and doing their activities on a landscape (the restricted activity recommendation), both the environment and human cultures are impacted and over the course of time become less diverse.

Question: *How close are we to embarking on a pathway of knowledge coproduction?*

Bill Snow: The interactions between Western science and Indigenous knowledge systems are still limited, and knowledge coproduction remains an aspiration. Before we bring the two systems together, we need to develop a good understanding of the various methodologies and how they might be used. In Alberta, for example, different teachings about ethical space are put forward by Elders Elmer Ghostkeeper, Reg Crowshoe, Leroy Little Bear, and others. A starting point might be to establish working groups to review the full breadth of these methodologies and make suggestions of how they can be incorporated into different aspects of interaction of land management frameworks (*e.g.* research and policy development).

Keynote speaker Bill Snow presenting "A Stoney Nakoda Traditional Knowledge Approach to Studying Grizzly Behaviour and Habitat."

7 Ethically Combining Modern Science and Traditional Medicine to Optimize Diabetes Care and Prevention in Canadian First Nations

Dr. Pierre Haddad

Professor, *Department of Pharmacology & Physiology*, *Faculty of Medicine*, Université de Montréal

Pierre Haddad introduced himself as a visitor in this territory, of Italian and Syrian descent. He explained how he had given a presentation similar to this keynote at the University of Alberta's Integrative Health Institute in October of 2018, and afterwards was 'repositioned' by an Elder who took offence to the tone of his talk. He had interpreted Pierre's enthusiasm for the success of the anti-diabetic medicines research project – which incorporates Cree traditional knowledge – as a form of cultural appropriation. Pierre elaborated on his sense of humility:

> *"Humility is an ongoing process. I have grown from being the scientist trying to incorporate traditional knowledge, to understanding the Elders as my peers. I step down from my pedestal when I am talking about traditional and sacred knowledge."* He clarified that his presentation does not intend to represent Cree traditional knowledge, but rather to translate it within the context of the collaboration in a respectful way.

Diabetes rates among the *Eeyou Istchee* Cree – Pierre presented bar graphs of the prevalence rates of type 2 diabetes in Indigenous and non-Indigenous communities in Quebec. Cases of type 2 diabetes were almost non-existent in the 1980's but the prevalence rate has increased significantly over time among the *Eeyou Istchee* Cree, climbing to an age-adjusted prevalence rate of 29% in 2011. These rates are indicative of a regional health crisis linked to rapid changes in lifestyle, including a shift from a traditional diet to a Western diet and decreased physical activity with the onset of mechanization—for example, skidoos and motorboats have largely replaced traditional modes of transportation like snowshoeing and canoeing. Concerns about the diabetes crisis were mounting among scientists, health board officials, and local communities and there was interest to find solutions.

The Canadian Institutes of Health Research Team in Aboriginal Anti-Diabetic Medicines project (CIHR-TAAM)[23] – CIHR-TAAM was a multi-disciplinary, collaborative study conducted between 2003 and 2013 that sought to understand the anti-diabetic properties of traditional medicinal plants in the eastern James Bay region of Quebec. The project brought together *Eeyou Istchee* Cree Elders and community members alongside a team of researchers from several disciplines, including ethnobotany, pharmacology, phytochemistry, toxicology, nutrition, and clinical endocrinology. The official parties included six *Eeyou* communities, the Cree Board of Health and Social Services of James Bay, the University of Montreal Health Centre, and three universities: the University of Montreal, the University of Ottawa, and McGill University.

As a primer for his presentation, Pierre showed a short video[24] about the CIHR-TAAM project which includes reflections from scientists, Elders and *Eeyou* community members and includes footage from one of the project's annual gatherings.

Prioritizing best plants

Haddad et al., Evid-based Compl Alt Med Article ID 893426, 2012

Evidence-Based Complementary and Alternative Medicine   9

TABLE 1: Prioritization of Boreal forest medicinal plants according to *in vivo* and *in vitro* antidiabetic activity.

			Plant identification					
			A	B	C	D	E	F
Elders' ranking				3	2	1		5
Biological activities related to primary actions against diabetes	Animals	Decrease blood glucose	☺	☺	☺	☺	☺	?
		Reduce body weight	☺	⊗	⊗	⊗	⊗	?
		Reduce fatty liver	☺	☺	☺	☺	?	?
	Cells	Move glucose into muscle cells	⊗	☺	☺	☺	☺	☺
		Reduce glucose produced by liver cells	☺	☺	☺	☺	Moderate	Moderate
		Favour good fat	⊗	☺	☺	☺	Moderate	⊗
		Decrease glucose absorbed from food	⊗	☺	☺	Moderate	⊗	☺
Biological activities related to diabetes complications	Cell free	Safe to mix with drugs	☺	Moderate	☺	Moderate	Moderate	☺
		Fight bad oxygen, bad glucose	⊗	⊗	⊗	⊗	⊗	⊗
	Cells	Fight inflammation	☺	⊗	☺	☺	⊗	☺
		Protect nerves	☺	⊗	⊗	⊗	☺	☺

Smiley faces: positive effect; ⊗: no effect; ?: yet undetermined. The data that forms the basis of this table has been collated from several studies that have already been published by our team [73–75, 91, 94, 95, 104, 108, 117, 119, 120] as well as data (especially from *in vivo* studies) that have not yet been published (several currently under review). The names of plants must thus remain undisclosed to protect both the traditional knowledge shared by Cree Elders and the unpublished data.

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[23] See the CIHR-TAAM website at: http://www.taam-emaad.umontreal.ca/
[24] CIHR-TAAM 2010. Réunion traditionnelle avec les Cris à Mistissini en août 2010.
Available at: https://youtu.be/EvsBD8o8Dz4

Pierre explained that the research began with ethnobotanical studies where Elders from six *Eeyou* communities identified approximately 50 medicinal plant species with potentially anti-diabetic properties. Seventeen of these species were selected by the CIHR-TAAM researchers for further examination and clinical studies.

As the scientific studies progressed, the researchers wanted to refine the plant list and prioritize the best plants. They held a session with the Elders and reviewed the top plants that the researchers wanted to further prioritize from a Western scientific perspective. The Elders shared their traditional knowledge, describing their experiences and the spiritual aspects of the plants.

Of the top six plants, four were similarly prioritized by the researchers and the Elders—according to Pierre, this was the most important finding from the project. He presented a table showing the prioritization of medicinal plants according to the scientific studies and the Elders' traditional knowledge (see figure). It was agreed that the names of the plants would remain undisclosed to protect traditional knowledge.

Cree Elders and *Eeyou* communities, the Grand Council of the Cree, and the Cree Board of Health raised specific concerns about the project, including safety issues with using traditional medicine for diabetes care, the protection of the *Eeyou* knowledge (such as the consent of use and the ownership of intellectual property) (see figure). Pierre said that the research team took these concerns seriously.

Protection of Indigenous knowledge and the final research agreement – There is no legislation to protect Indigenous traditional knowledge in Canada, and intellectual property laws are ill-adapted for this purpose. There are a few helpful policies and guidelines put forward by provincial and federal institutions,[25] however these cannot wholly substitute for legislation. Pierre recalled that the CIHR-TAAM project acted as a test case when these guidelines were being developed in the early 2000's and satisfied the various requirements for

Specific concerns of Elders, communities, Grand Council of the Cree and Cree Board of Health concerning this project

Safety issues in using traditional medicines for diabetes care

Use of Eeyou knowledge without consent

Ownership of intellectual property

Question of partnership between Elders and Researchers

Misuse of medicines by others (health concern)

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ethical conduct. In response to this legal void, the CIHR-TAAM researchers decided the best

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[25] For example, the *Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans* (2018) includes the chapter "Research involving the First Nations, Inuit and Métis peoples of Canada." See: http://www.pre.ethics.gc.ca/eng/tcps2-eptc2_2018_chapter9-chapitre9.html

approach was to make a strong research agreement for the project which would govern the transfer and application of Cree traditional knowledge.

With so many parties involved the researchers decided to focus the initial negotiations with one of the six *Eeyou* communities, the University of Montreal, and the Cree Board of Health, which lead to the Interim Agreement in 2008. The researchers continued negotiations with the remaining parties, which resulted in the Final Agreement in 2009.[26] Although the project started in 2003, all parties acted in good faith in the years' preceding the Agreements, as if an agreement was in force. The Final Agreement ultimately gives precedence to the protection of Cree traditional medicinal knowledge by restricting academic freedom: should the researchers wish to continue their work on the CIHR-TAAM project, they must first seek permission from the *Eeyou* communities that were involved in the project. Pierre discussed the **five key principles** of the Final Agreement in detail:

1. Confidentiality of traditional knowledge and *Eeyou* control over use – *Eeyou* medicinal knowledge is confidential, so this was a major concern expressed by communities. The Final Agreement sets out that prior, informed consent must be obtained from Band and Elders Councils and individual participants and that the consent of Elders and communities is necessary to publish or transfer knowledge. It also establishes that traditional knowledge can only be used for the specified research; consent is necessary to change or expand a project. For example, Pierre recalled that some of the plants were found to have inhibitory effects on fat development. The researchers were interested to explore this finding, since obesity is the single biggest driver of type 2 diabetes. This was outside the scope of the original research proposal, so the researchers went back to *Eeyou* communities and formally requested permission to add it in, which was granted.

2. Review of publications – There was a need to balance the responsibility to share the results of this publicly-funded research with the appropriate disclosure of traditional knowledge. The Final Agreement established a formal review process for all publications and similar documents that required researchers to follow specific procedures related to publication. These included charts to determine which review process was appropriate for the publication and a timeline for research activities (see figure showing timeline and procedure, included below). In general, a plain language summary of the publication was created, translated into Cree, and a series of back-and-fourths took place between the *Eeyou* communities and the researchers. The reviews incorporated comments from the *Eeyou* and, where ethically necessary, traditional knowledge was omitted from the publication. Depending on their contribution and with their permission, Elders and community members were also named as co-authors on publications or otherwise acknowledged.

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[26] The Final Research Agreement for a Project on Iiyiyiu Anti-Diabetic Plant Medicines (2009) is available in French, English, and Inland and Coastal Cree. See:
http://www.taam-emaad.umontreal.ca/about%20us/agreement.html

TIMELINE AND PROCEDURE FOR REVIEW OF PUBLICATIONS AND SIMILAR DOCUMENTS
ÉCHÉANCIER ET PROCESSUS DE RÉVISION POUR PUBLICATION ET AUTRES DOCUMENTS SEMBLABLES
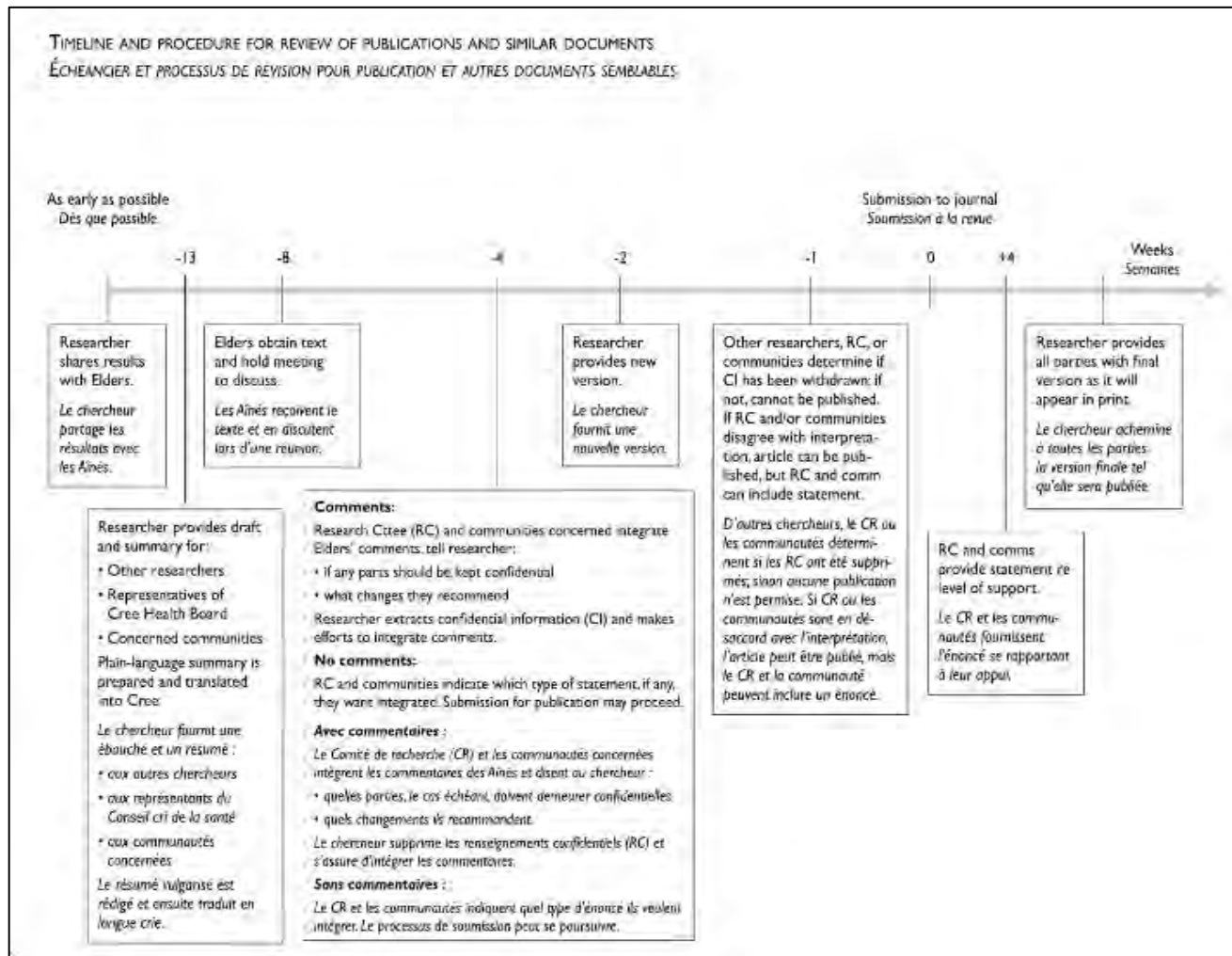
The formal review process for publications took a full year the first time that Pierre used it, which was for a publication with his Masters' student. He reminisced that there was some uncertainty at the time about how to 'do' the review process, which ultimately involved flying up to one of the *Eeyou* communities, spending time with a group of Elders and having a lot of discussion. This reminded Pierre of the conversations earlier in the workshop about connectedness—exchanges and human connections were at the heart of this process.

3. Collaborative community-based participatory research – Demonstrating respect for Cree culture and knowledge was important. The CIHR-TAAM project maintained transparency with *Eeyou* communities by having regular meetings and reporting to communities and engaging them in review of publications. *Eeyou* communities were involved in all stages, from sharing ideas and knowledge to interpretation of results.

4. Joint ownership of intellectual property – Intellectual property is a concept from Western society. Pierre explained that Cree Elders may not view themselves as owners of traditional

knowledge but rather as custodians for its use and protection. Traditional knowledge is guided by natural laws and knowledge is both acquired and gifted—a sense of responsibility is felt among knowledge holders to protect this knowledge as sacred. Pierre observed that these aspirations are ill-fitted to the concept of intellectual property rights.

The research team brought in lawyers to build understanding of the notions of intellectual property with the Elders. Although the Elders did not think that intellectual property rights were the best fit for protecting traditional knowledge, they agreed to pursue it because they felt that some form of legal protection was needed. After further negotiations with the lawyers, it was collectively decided that the research findings and intellectual property would be jointly owned in recognition of the collective contributions from the scientists and traditional knowledge holders.

The team also decided that if any intellectual property of commercial value was derived from the CIHR-TAAM project the ownership would be shared with 50% + 1 ownership for the Cree entities, with the rest owned by the three participating universities. The possibility of patenting was discussed, but it is not best suited to protecting traditional knowledge. There is a danger of commodifying knowledge, and patenting would require the consent of communities (with consultation of Elders), as well as the researchers and the universities.

5. Benefit-sharing – The Final Agreement provided several options for benefit sharing, including job creation, training, and revenues. The Elders suggested that any revenues generated would be used for the preservation of traditional knowledge, the inclusion of traditional medicine in contemporary health care, and the continuation of collaborative research with academic scientists.

Pierre concluded his keynote by noting that the CIHR-TAMM project is highlighted by its 'people chemistry,' which he defined as a likeminded openness and willingness to share and develop relationships. Knowledge sharing went both ways: Cree Elders had a central role but they were also curious to learn about the scientists' approach. Pierre reaffirmed that he sees the role of the scientific researchers as 'knowledge translators' who receive traditional, sacred knowledge and translate it into scientific language. He acknowledged the recent passing of Elder Jane Blacksmith, who was highly respected in her community and a pillar for the CIHR-TAAM project, and expressed his gratitude to all of the Elders, community partners, staff, academic researchers, and graduate students involved in the project.

DISCUSSION

In the discussion period that followed Pierre Haddad's keynote presentation, questions reflected an interest in understanding the future directions for bringing emotional, mental, and spiritual

dimensions into modern medicine, and how we might overcome the limitations of Western scientific inquiry for understanding traditional knowledge.

Question: *Western science is still limited in its understanding of traditional knowledge and primarily focuses on the physical aspects of plants, ignoring their spiritual, mental, and emotional, dimensions. How do you propose that we overcome this?*

Pierre Haddad: There are many systemic barriers to overcome, this is a sticky issue we can talk about later in the workshop. The CIHR-TAAM project was made possible through a strategic funding stream from the Canadian Institutes of Health Research that focuses on Indigenous peoples' health in Canada. The project was not successful in getting funding through open competitions, so this funding was key, but of course it came with some limitations. Science doesn't have the tools or the capacity to measure the other dimensions of plants, but we also don't necessarily need to understand everything about the spiritual, mental, and emotional aspects to respect that they have value. The way forward is through cultivating a sense of connection, open mindedness, and humility. This project was just the first step, breaking ground and opening the door to show that convergence of Western science and traditional knowledge is possible.

Question: *Part of transparency is talking about the challenges in the work that we do. In the CIHR-TAAM project, did you have a chance to discuss what aspects of the research that you couldn't approach from a scientific perspective?*

Pierre Haddad: This wasn't explicitly part of the project, but the researchers did make a respectful gesture to bring another dimension in the study. The scientists discovered a new chemical entity and took the opportunity to give it the common name Awashishinic acid, out of respect (and with the permission of) the family of the late Elder Sam Awashish—a respected Cree Elder who was a motivating force in the project. Modern medicine is increasingly taking into account the psychological and emotional aspects of health, becoming more multidisciplinary and centering on the patient's wellbeing. For example, the palliative care units at hospitals nowadays provide support for other healing practices like prayer, dance, and song.

Question: *What happens when the knowledge systems diverge or don't support each other – did you have a way to address this in the CIHR-TAAM project?*

Pierre Haddad: We focused on celebrating the convergence of Western science and traditional knowledge, not how the systems diverge. There will always be differences when you are bringing two knowledge systems together—the Elders recognized the limitations of focusing solely on the physical aspects of the plants, but this was complimented with the spiritual and cultural observations from traditional knowledge. We addressed this by maintaining open minds and respect for each other's perspectives.

PANEL PRESENTATIONS AND DIALOGUE SESSIONS

SESSION CO-CHAIRS:

Karin Smith Fargey,
Knowledge Coproduction Strategic Advisor, IKCMCS Branch, EMSD, AEP and Workshop Co-Facilitator

Kyra Northwest
Montana First Nation (Akamihk), and the Traditional Land Use Lead, Samson Cree Nation

The two panels were comprised of a diversity of CBM practitioners from Indigenous communities, government and academia. Panel presentations were intended to be short 'snap shots' of a CBM project to highlight and 'bring to life' one or more important ethical issues of concern and (as possible) offer first-hand experiences in addressing the issues. The ethical issues raised in the panel presentations were collated for use in the Day 2 Working Sessions.

Panelists were asked to organize their presentations around the following question set:

Issues:	What ethical issue(s) are you encountering in your work related to community based monitoring and knowledge coproduction?
Opportunities:	How are the ethical issues being addressed?
	What has been helpful so far?
Obstacles:	What are the sticking points?
	What is still needed to address the issues?

Summaries of all but one of the panel presentations are found in this section. The presentation by Marsha Heavy Head was not included due to unforeseen circumstances that prevented full review by the speaker. Space is being held within this Report to include the summary in future, if and when appropriate.

8 Panel & Dialogue Session 1:
Ethical Issues on-the-Ground

8.1 The Curious Case of a Public Servant and the "Where are the Freshwater Clams?" Community-Based Project

Debra Hopkins

Environmental Health Team, Policy & Planning Division, Air, Biodiversity & Policy Integration Branch, AEP

Debra Hopkins introduced herself as a visitor to this territory and acknowledged the many Elders, community members, and colleagues who have shared their time and wisdom throughout this project.

Debra explained that "Where are the Freshwater Clams?" is an ongoing, community-based project founded in the traditional knowledge of the Fort McMurray Métis. It was initiated by Elder Harvey Sykes, who noticed a few years ago the diminishing numbers of freshwater clams in the Athabasca River. Elder Harvey shared these observations with scientists and government staff at various meetings, but his questions went unanswered.

Debra recalled that when she first heard Elder Harvey Sykes speak about the disappearance of freshwater clams she was intrigued and thought it could be a great collaborative project. With Elder Harvey's permission, Debra and her colleagues put together a funding proposal and submitted it to Alberta Environment and Parks (AEP), which secured project funding for the first year. Soon after, Fort McMurray Métis invited AEP to join them as an official partner on the project. The newly formed research team started to scope out how they might work together to answer Elder Harvey's question. Debra clarified that her role in the project is not to present Indigenous traditional knowledge, but rather to provide support for the Fort McMurray Métis community to explore their questions while working alongside Elder Harvey.

Competing accountabilities – As a public servant working on a community-based, Indigenous-led research project, Debra says she has encountered many ethical issues and faces a 'mish mash' of competing accountabilities which she must either cope with or manage. First and foremost, meeting the questions as posed by the Fort McMurray Métis is the project's priority. But as a public servant with AEP, Debra is required to navigate many layers of institutional policies and

procedures, such as those within AEP Divisions, contracts and grants, and occupational health and safety policies. Environment and Climate Change Canada is also involved in the project, bringing more layers of complexity and different perspectives. These institutional accountabilities must be balanced against respecting the needs of Fort McMurray

Métis, who have interests in ceremonial protocols, transparency, ownership, autonomy, and knowledge protection. For Debra, the personal aspect of this work revolves around her Ph.D. dissertation and her commitment to maintaining academic standards. While her PhD is a separate project, it still brings accountabilities to the University of Alberta:

> *"Being a public servant working in this larger system of government has not lent itself well for bringing on a community-based, Indigenous-led project. It is difficult to do this kind of work in the government system. Ethically, how do you end up balancing all of these different pieces?"*

Debra is also learning that she doesn't have the same connection to place or understanding of the environment as the Fort McMurray Métis, and at times she feels illiterate and disconnected. This awareness has given her a greater appreciation for the guidance from the Elders and community members working on this project.

'It just is' – It is a challenge to balance layered responsibilities and different worldviews when you are working across institutions and cultures (see figure). Debra didn't enter into the freshwater clam project brandishing a set of Western scientific principles for community-based participatory-research, nor did the Fort McMurray Métis immediately share and explain their belief that research must be done in a good way that respects the seven sacred teachings (love, respect, courage, honesty, wisdom, humility, and truth). Patience and acceptance of uncertainty is key. Debra explained that planning fieldwork has sometimes tested

"It just is"...

Alberta Environment and Parks

MCMURRAY MÉTIS

- Principles of CBPR (from the western science-based literature)
  - democratizing the research process to remove power inequities and ensure that the research is culturally safe
  - creation of a safe ethical space where different world views can be respected and explored in a way that is meaningful to participants
  - establishing, developing, and nurturing mutual respect, empathy, and trust
  - being authentic to self and others, while listening to all voices
  - do no harm
  - "cultivating awkwardness" in recognition that not everyone is going to agree all the time
  - ensuring sustained partnerships and adequate resources

Learning Together

- Doing research in a good way
- Seven Sacred Teachings
  - Love
  - Respect
  - Courage
  - Honesty
  - Wisdom
  - Humility
  - Truth

her patience, but as Elder Harvey often says to her: *"You've got to wait for the water."* Despite these challenges, the project has built a foundation of common ground by working through problems together and is enabling the coproduction of knowledge from the land and with the project partners.

The project partners recently published a paper that discusses the research approach and details the guiding framework for this the work.[27] Under the overarching theme of 'learning together,' the 'the environment' is considered the heart of the framework, with 'Indigenous knowledge' and 'Western science' nested within it. The outer framework is comprised of the guiding concepts of 'community based participatory research (CBPR)' and the seven sacred teachings. Four images represent the additional realms in which the project operates. For example, the bald eagle has taken the shape of a spiritual protector, and a braid of sweetgrass represents the project's spiritual connection to the land (see figure below).
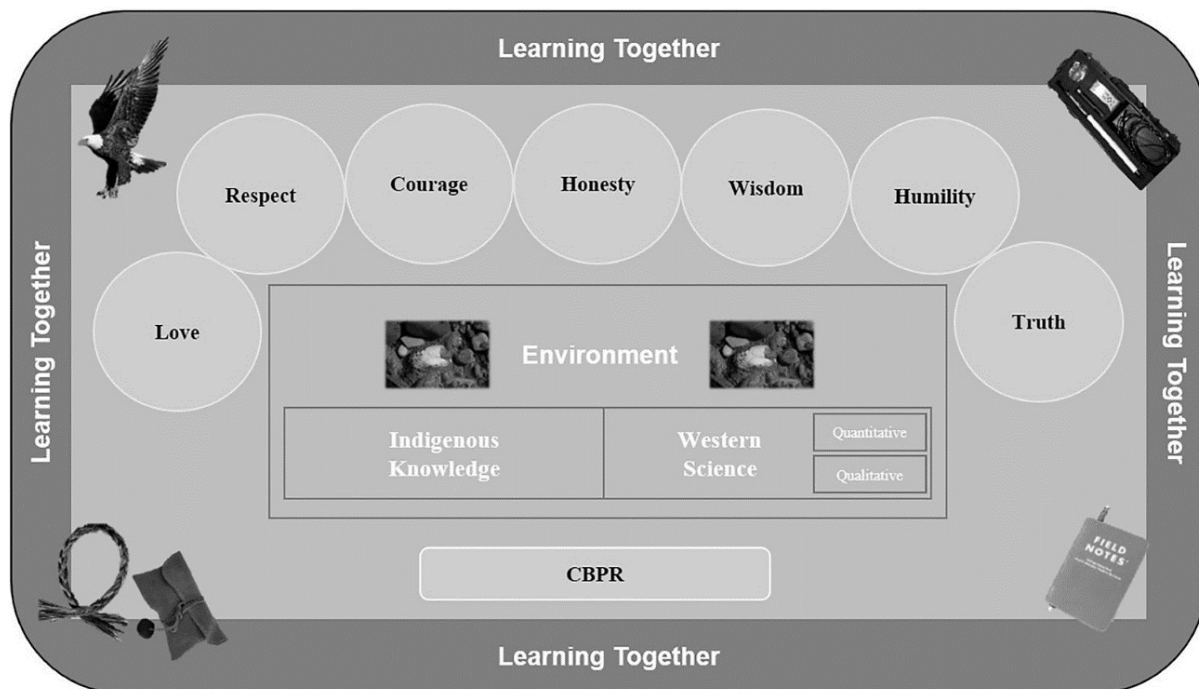
Guiding framework for the "Where are the Freshwater Clams?" project.
Published in Hopkins *et al.*, 2019. Used with permission of lead author.

In closing, Debra shared two slides about how she feels in her role with the project. Sometimes she feels clouded and uncertain about how to proceed with her competing accountabilities. She

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[27] Hopkins, D. et al. 2019.

recalled one instance where she received a call from the laboratory that processes their clam tissue samples, informing her that the tissues had been lost. Debra was devastated but proceeded to address the problem with her colleagues at Alberta Environment and Parks and the Fort McMurray Métis. Most of the time, she feels happy and inspired to do her work. This project has enabled valuable learnings for Debra, and she hopes there are themes in her presentation that can be woven into other discussions during the workshop.

DISCUSSION

Question: *What does Alberta Environment and Parks and Fort McMurray Métis think is happening to the clams?*

Elder Almer Waniandy: As far as I know, it is the movement of water. There was one area where we used to have lots of clams, but now the water is not moving there in the way that it used to. It could also be that when they were trying to build the road they caused damage. We do have clams, there are lots of clams, but they moved from one area to the other. It might have been the noise; clams can sense this through the water, so if there are boats or something moving nearby they close up.

Debra Hopkins: We are all trying to find that out, that is the theme of 'learning together.' Through Western science we've learned that clam lifecycles are complex and dependent on fish. Changes in water flow, sediments in the river system, and climate change are all factors in their disappearance, so it is more than one thing. It will take us a long time to answer this question; this will be a long-term project.

Question: *Can you provide a concrete example of where you've come up against an ethical issue while working in Government, in the context of this project?*

Debra Hopkins: There are challenges in working within a system that's based on a Western worldview with a legacy of colonial policies towards Indigenous peoples. Working in a large government system doesn't lend itself well to working on community-based projects. One example could be protecting Indigenous knowledge. As scientists within government, we want to tell our story around the data and be transparent in what we do, but we also want the Indigenous partners to share their knowledge and tell their story. We are in a much better place than we were five or ten years ago – we have a willingness to listen and a safe environment to provide feedback and discuss the issues – but we still have much work to do.

8.2   Dene Tha' First Nation's Bistcho Indigenous Protected and Conserved Area

Matthew Munson

EASC, Technical Consultant, (o/a) Assert A.C.S., and Dene Tha' First Nation Band Member

Matthew (Matt) Munson thanked the organizers for the invitation to speak about the Dene Tha' Bistcho IPCA project. He indicated that he considered a few different projects for his presentation, each of which highlighted different ethical aspects that could be incorporated into the workshop's discussion. He acknowledged that the project is led by the Dene Tha' community, not just him, and that Bistcho Lake is at the heart of the land for Dene Tha' peoples and within the proposed IPCA.

Bistcho Indigenous Protected and Conserved Area (IPCA) – IPCAs are gaining traction around the world as a land designation to protect and conserve unique sacred places and cultural areas. In Canada, newly established IPCAs contribute towards achieving Canada Target 1, one of the 2020 Biodiversity Goals and Targets for Canada.[28] The Bistcho IPCA is a collaborative effort between the

Bistcho IPCA Some Key Elements
- Protect and conserve unique sacred places and cultural areas
- Contribute to the Pathway to Canada Target 1
- Conserve critical caribou habitat
- provides a venue for collaboration and advice, sharing and cross-validation
- Adaptive co-management by Dene Tha' and the Province of Alberta
- Compliment an Indigenous Guardians Program
- Protect area from further disturbances and restore habitat to conserve biodiversity
- Ensure a long-term commitment to conservation and Indigenous values
- Allow potential for inter-jurisdictional conservation efforts
- Create opportunities for new directly adjacent IPA's in BC and NWT

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[28] Canada Target 1 is defined as follows: "By 2020, at least 17% of terrestrial areas and inland water, and 10% of marine and coastal areas of Canada are conserved through networks of protected areas and other effective area-based measures." IPCAs are considered a tool for conservation that supports progress towards Canada Target 1. For more information, see http://www.conservation2020canada.ca/the-pathway

Dene Tha' First Nation (DTFN) and Canadian Parks and Wilderness Society (CPAWS) Northern Alberta, who are working towards its establishment in the northwest corner of Alberta.

The region in and about the proposed IPCA lies within the Traditional Territory of the DTFN, and is an important cultural, spiritual, and harvesting area. It also covers a large portion of the Bistcho caribou range, which is significant since caribou are listed as a species at-risk under the Government of Canada's *Species at Risk Act.* An interim Alberta land designation called a 'protective notation' (PNT) is already in place for this area, serving as a placeholder for endangered species and habitat protection. Generally speaking, establishing the IPCA would involve assigning the physical land designation and negotiating an adaptive co-management agreement between the DTFN and the Province of Alberta. Development of a Terms of Reference for a multi-stakeholder cooperative co-management board is also being considered.

The Bistcho IPCA brings together a number of key elements, including the opportunity to conserve critical caribou habitat and protect the area from unsustainable development and restore habitat to conserve biodiversity. It also allows potential for inter-jurisdictional conservation efforts, provides a venue for collaboration and advice, sharing and cross-validation, and ensures a long-term commitment to conservation and Indigenous values. He highlighted the Indigenous Guardians Program – also referred to as stewards of the land or community-based monitors – as an initiative that would employ DTFN community members to assist with community engagement, compliance and enforcement activities.

There is currently not a lot of industrial activity in the area in and around the proposed Bistcho IPCA—the landscape is mostly very quiet, which would appeal to species like caribou. As part of the IPCA proposal, DTFN's existing cabins at Bistcho Lake Indian Reserve #213 were identified as an ideal location to serve as a future 'ranger station' as a base for IPCA management and research activities.

The project has garnered attention and attracted some initial funding, in part because its focus on protection and conservation synergizes with the interests and mandates of several government agencies, First Nations organizations and environmental non-profits. DTFN is still seeking input and solutions to resolve the issues and barriers they may encounter in moving the IPCA forward, some of which may be ethical in nature.

Matt presented an analysis conducted by DTFN of four of the Province of Alberta's protected area designations which identifies whether or not these designations are suitable for some of the proposed land use activities in the Bistcho IPCA, including hunting and trapping, fishing, and new industrial dispositions (see figure). This analysis will inform DTFN's engagements with the Government of Alberta and other potentially interested stakeholders for determining the most

appropriate land designation for the interim. It will also inform discussions about other potential designations, which will unfold during forthcoming regional and sub-regional land use planning processes for the Lower Peace region.

Alberta Protected Area Legislation & Dene Tha' First Nation IPCA Suitability

Designation	Purpose	HT	I	OHV	G	F	CF	Prioritize Conservation	Target 1
Provincial Park	To preserve and protect natural heritage while maintaining recreation and tourism	✗	✓	✗	✓	✓	✗	✗	✓
Natural Area	Natural areas preserve and protect sites of local significance while providing opportunities for low-impact recreation and nature appreciation activities.	✓	✗	✓	✓	✓	✗	✓	✓
Wildland Provincial Park	To preserve and protect natural heritage and provide opportunities for backcountry recreation	✓	✗	✓	✓	✓	✗	✓	✓
Ecological Reserve	Ecological reserves preserve and protect natural heritage in an undisturbed state for scientific research and education	✗	✗	✗	✗	✗	✗	✓	✓

HT: Hunting and Trapping   CF: Commercial Forestry   OHV: Off-highway vehicles on designated trails
G: Grazing   F: Fishing   I: New industrial dispositions

DISCUSSION

Question: *When I was young there were caribou coming into the Fort McMurray area, but industry moved so quickly on its plans to develop the area that before anyone could stand up, it was gone. Have you ever talked about reviving a traditional warrior-based society to protect the community members and their livelihoods?*

Matt Munson: This is one way to interpret the proposed Indigenous Guardians program, which we call 'boots on the ground' in our language. From a young age, the guardians in-training go out on the land with Elders, acquiring knowledge and responsibility. With rights come responsibilities, and the Dene Tha' have a responsibility to look after the land as it looks out for us. We also think of a warrior society in a good way, as protectors.

8.3 Kainai Ecosystem Protection Association

Marsha Heavy Head

Blood Tribe Land Management, and Kainai Ecosystem Protection Association (KEPA), Kainai First Nation

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9 Panel & Dialogue Session 2:

Ethical Solutions From the Ground Up

9.1 Fort McKay Berry Project

Dr. Janelle Baker

Assistant Professor, Department of Anthropology, Athabasca University

Janelle Baker began by thanking the organizers for the opportunity to speak. Janelle has been involved in several community-based monitoring projects but chose to focus her presentation on some ethical considerations and lessons learned through the Fort McKay Berry Project.

Issues – Janelle began by sharing some of the issues experienced in the Berry Project, which she articulated as related to colonial thought and science, privilege, concepts of truth, and appropriation/control of the land. These issues stem from larger systemic challenges facing Indigenous communities. She noted an element of irony in the sudden interest among colonial powers to protect traditional knowledge as it relates to solving the environmental problems that were created by the colonizing society:

> *"In projects where Elders, or traditional knowledge keepers, and scientists collaborate, I have witnessed ethical issues that are grounded in what I would call dominance or arrogance of thought. Often people working in science have a belief system that tells them that there are specific ways to demonstrate, measure, and prove what is true. A scientist has privilege and access to certain methods and truths or information that not everyone understands, and so we are meant to trust those individuals as authorities or experts."*

Janelle explained that the problem is that the scientific way of knowing is related to our history of colonization:

> *"One that has sought to assimilate Indigenous peoples and has taught our children in public schools that [assimilation] has occurred. People in positions of power might assume that the knowledge that non-scientists offer is not truth or founded in superstition or some flawed way of thinking. They might seek out only the Indigenous knowledge that correlates or matches their own findings and omit the parts that don't make sense from a scientific perspective or that might make the researcher uncomfortable."*

Janelle shared some of the teachings of Anishinaabe scholar Leanne Betasamosake Simpson, who speaks to the irony that after years of discounting Indigenous knowledge, colonial powers are now suddenly interested in collecting and 'integrating' it, especially the more 'practical' types of knowledge, like traditional environmental knowledge. The traditional environmental knowledge they are most interested in, and that is most similar to modern science, is that which can provide solutions to environmental problems resulting from the activities of the very colonizing societies seeking to exploit their knowledge.

The problem as Simpson explains it, however, is that "removing Indigenous Knowledge from a political sphere only reinforces the denial of the holocaust of the Americas and trains a generation of scientists to see contemporary Indigenous Peoples and Indigenous Knowledge as separate from our colonial past, as an untapped contemporary resource for their own exploitation and use".[30] Janelle added that this exploitation is also of a form of extraction of knowledge, which was discussed earlier in the workshop:

> *"If we are to have community-based projects, then community experts need to be the ones who control and design their projects, based on their own methods and information derived from land-based protocols or laws."*

Opportunities – Echoing the sentiments of other panelists, Janelle thinks that the role of project collaborators is to support Aboriginal communities. "This means that traditional knowledge is the truth that we are working from and that we participate with acts of respect and reciprocity in everything we do."

The researchers for the Fort McKay Berry Project incorporated various methods so that Elders had control over project design. Ensuring community control, voting on project decisions, and being on the land were critical to its success. From the outset, the Elders were in control of simple things like deciding when the research team would go out on the land. Like Debra Hopkins' comment about the need to be patient when

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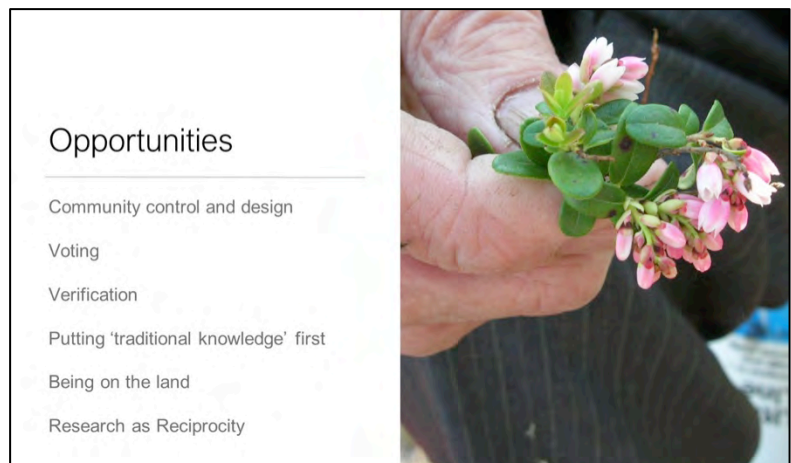
[30] Simpson 2004:376.

you are planning fieldwork for freshwater clams, Janelle remarked that you cannot have rigid, set dates to study berries. The Elders act like scouts, phoning Janelle periodically to let her know what is happening on the land with the berries. "You can't just schedule the berries, right?"

Janelle explained that the Berry Project uses consensus for everything—they decide on everything together, and at every phase the Elders are in control of the design. Verification of the findings with Fort McKay Elders and community members also took place, which Janelle described as follows:

> *"The idea that you are always 'going back', out of respect and reciprocity, so you are always checking in. I find this so much more useful than my university-based ethics protocols, where you are supposed to have a consent form, get consent, make an agreement and do your [research]. It makes so much more sense to me that every time you are doing something related to the project you talk to the Elders."*

Obstacles – Janelle described some of the obstacles she has experienced with community based monitoring projects, including personalities, controlling behavior, arrogance, and an insistence to follow institutional policies that simply do not align with Indigenous ways of knowing or being on the land. Janelle says these micro-aggressions or controlling behaviours can quickly disrupt a well-functioning project:

> *"We can set the intention of a community-based and decolonizing methodology, but still some people involved in the project that might not get it. In the berry project, new scientists or administrators join, and suddenly they want to control the project design. That's my real sticking point. They don't understand that we go to certain places in certain orders for example, or they insist that Elders on their own family traplines follow oil company safety protocols."*

What is still needed? – For community-based environmental monitoring projects to function well, a number of aspects should be in place. Beyond striving for absolute community control of the project, community-appropriate expectations and outcomes should be sought. This requires us to let go of colonial expectations for a project's 'success,' accepting that sharing knowledge with youth or hosting a ceremony are equally valuable outcomes. Community members can easily learn scientific sampling protocols, therefore scientific methods can be included in project design. They may also

What is still needed?

Absolute community control

Decolonizing methodologies and thought

Community-appropriate expectations and outcomes

TRC, UNDRIP

choose to partner with scientists who appreciate a diversity of ways of knowing.

Decolonizing methodologies and thought should also be used, where appropriate. Janelle affirmed that this means not being married to the idea that you have to publish or have measurable outcomes. Project partners could be encouraged to read and adopt principles developed by the Truth and Reconciliation Commission and the *United Nations Declaration on the Rights of Indigenous Peoples*, amongst other useful teachings. Janelle offered some encouragement:

> *"It is okay for scientists and researchers to be humble, to admit that we are always learning, and to feel uncomfortable."*

Janelle shared one of her favourite stories that she likes to tell about the conflicts and ethics in working with Elders, which comes from an experience with Bigstone Cree Nation. The Elder that was involved has given her permission to share it:

> *"The Elders were going to do a traditional knowledge and environmental monitoring study and were required [by the company funding the study] to take a bear awareness training course. But they had to have this bear safety training card to be able to go out on their own trapline, near where they grew up in the bush, in order to accept the money for the environmental monitoring study."*

Janelle concluded her presentation by sharing a quote from the Cree scholar Shawn Wilson which resonates with her: "[i]f research doesn't change you as a person, then you haven't done it right."[31]

DISCUSSION

Question: *Do you have any other stories about scientists who came aboard the Fort McKay Berry Project but left because they weren't open to accepting Indigenous traditional knowledge as another way of knowing?*

Janelle Baker: It's key to build relationships with people that you can actually work with, not just because they are an expert. In the Berry Project, I remember being told a Bigstone Cree teaching that talks about a creature that lives underneath the lakes and the muskeg that travels up between the rivers. When talking with one scientist, they told me that they thought that story was a superstition. If that comment was made during a formal consultation process, the impacts would have been huge. Nobody would say anything after that, it would shut down the conversation with the First Nations community. As others have said, if you offend an Elder then that's it. Sometimes people can continue to meet with communities and believe that they are working well together, but not even realize that the community has closed itself off to those conversations.

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[31] Wilson 2009:135.

9.2 Ethical Considerations of Community Driven Research: Fort McKay Berry Study

Dr. Carla Davidson
Principal, Endeavour Scientific Inc.

Michael Evans
Senior Manager, Government Relations, Fort McKay Sustainability Department

Carla Davidson began by acknowledging the organizers for inviting her to participate in this panel and explained that she would be speaking about her experience in working as a contracted researcher with Fort McKay First Nation (FMFN).

Context and issues –FMFN is situated in the heart of the Athabasca oil sands. Carla showed a series of maps of FMFN's traditional territory with overlays of land development activities in 1967 and 2015 (see figure below). She explained that the green areas signify existing and approved oil
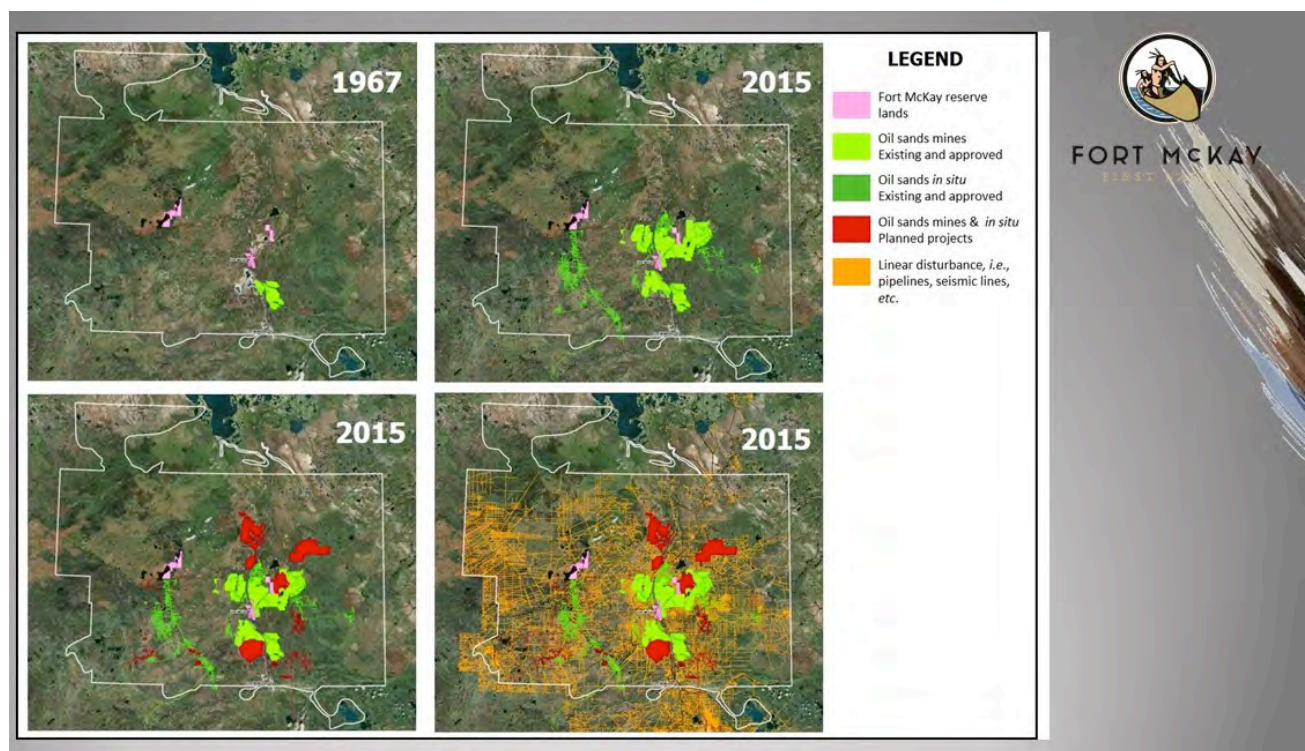
sands mines, the red areas show planned mine expansions, and the yellow lines represent linear disturbances (*i.e.*, pipelines, seismic lines). The map helps illustrate the density and sprawl of development that has occurred over the last 50 years, which has had extensive impacts on FMFN community members. The challenging state of this landscape has attracted much interest from scientists and researchers, which Carla says has brought about a number of ethical considerations.

When Carla started her work with FMFN a few years ago, they already had a lengthy track record of experiencing ethical misconduct and violations when working with outside researchers. Sometimes these were basic violations, like failure to maintain the anonymity of a research participant. In other cases, researchers had conducted studies but never returned to verify or share their findings. Carla gave an example of when a researcher came into the community to study the accumulation of toxic compounds in traditional foods. They conducted their study and came back to share that there were significant toxins in the food that community members were eating. But then they left, offering no follow-up or solution. Events like this have huge impacts on the community, fostering distrust of outside scientists/researchers at best, and fear of them and the safety of traditional foods at worst. Carla recalled that some FMFN members were concerned that these situations would be repeated if they didn't take action.

> *"When we are talking about doing a study on a peoples' landscape that they rely upon, it does have community impact."*

Ethics protocol – Carla was brought in to help develop an ethics protocol with the intention to empower the FMFN community to respond to the issues they experience. This involved developing the FMFN Ethics Policy, an Ethics Committee, participant consent form, and a standard review process for research projects (see figure). This process was designed to allow FMFN members to 'get involved' with researchers and

ensure that certain key elements were addressed. The Ethics Policy addresses several key areas:

Data ownership – Data produced through a research project with FMFN is co-owned by the community, and traditional knowledge remains the property of the community.

Research communications – Communications about the research findings must be approved by the community.

Discrepancies in data interpretation – In the case that the community and researcher disagree about data interpretation, FMFN does not request that the researcher not publish the findings, but rather that the difference of interpretation is documented in the publication itself.

Time constraints are an ongoing challenge for the ethics protocol work. Because FMFN and Athabasca oil sands region receives so much outside interest, the number of consultation processes are a burden on FMFN members. At the time, there were issues with establishing a community Ethics Committee because everyone was occupied in other capacities.

Case study: Berry Program review – Between 2012 and 2014, FMFN experienced some upheaval when its oil sands monitoring program was established and funding was retracted from other programs, including the Fort McKay Berry Program which had begun in 2011.[32] In 2017, Wood Buffalo Environmental Association (WBEA) and FMFN brought forward the Traditional Knowledge Master Agreement (TK Master Agreement), which provides guidelines on the retention and interpretation of data, and how WBEA and FMFN work together.
Shortly thereafter, WBEA received a new contract from Alberta Environment and Parks (AEP) to cover the costs of WBEA's research activities for the Fort McKay Berry Program.

The Berry Program was now governed by two documents: the TK Master Agreement and AEP's Contract with WBEA. Carla was asked by WBEA to review these two documents in the context of the Berry Program to

determine how they aligned with one another and with FMFN's Ethics Policy. The policies created a complicated situation not just ethically but legally; Carla found the two legally binding documents were contradictory. She clarified that in this presentation she is not speaking on behalf of WBEA but from her own experience as a consultant hired to review the Berry Program.

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[32] For a discussion of the ethical issues and opportunities that arose with the Fort McKay Berry Program, see the summary of Janelle Baker's presentation in Section 9.1 of this report.

Traditional Knowledge Master Agreement – Carla found that the TK Master Agreement did an excellent job of meeting FMFN's ethical requirements. In particular, the Berry Project draws strength from the fact that it is community-driven—the community drives everything from the identification of concerns to how decisions will be made about the data. The Agreement also clearly defines what free, prior and informed consent means and how it will be operationalized in the context of the Project. Importantly, the Western science data generated through the Project is co-owned, whereas FMFN's traditional knowledge remains the property of the community.

Alberta Environment and Parks contract – Carla explained that there is nothing particularly unfair about how the Government of Alberta writes its contracts, which have typical clauses for deliverables, ownership of materials, and the roles of the Province and the contractor. However, and not unlike many contracts, the AEP Contract stipulated that the Province would own the materials produced through the Project. This was problematic for many reasons, particularly concerning TK. For example, the research findings might be open to public requests for information (FOIP requests), as permitted under the *Freedom of Information and Protection of Privacy Act*.[33] It might also mean that the Project's data could be used in another study and bypass the requirement to go through FMFN's ethics application process. FMFN has experienced many occasions when data collected for one study (which may or may not have been de-personalized) was used to inform another without consulting the community and acquiring its consent. The contract's ownership clause was also problematic.

Carla explained the AEP Contract also stipulates that the contractor waives all moral rights to intellectual property—meaning that once the final publication or product from the research has been submitted, how it is interpreted or how it is subsequently used is out of the community's control. This clause violates a number of ethical principles outlined in FMFN's Ethics Policy and those found within the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*.[34]

In closing, she underscored that these increasingly frequent ethical issues stem from the broader systemic challenges or clashes of bringing together Western science and Indigenous traditional knowledge. Researchers and scientists are still collecting traditional knowledge and using it for secondary purposes that might not align with the reasons for which it was collected.

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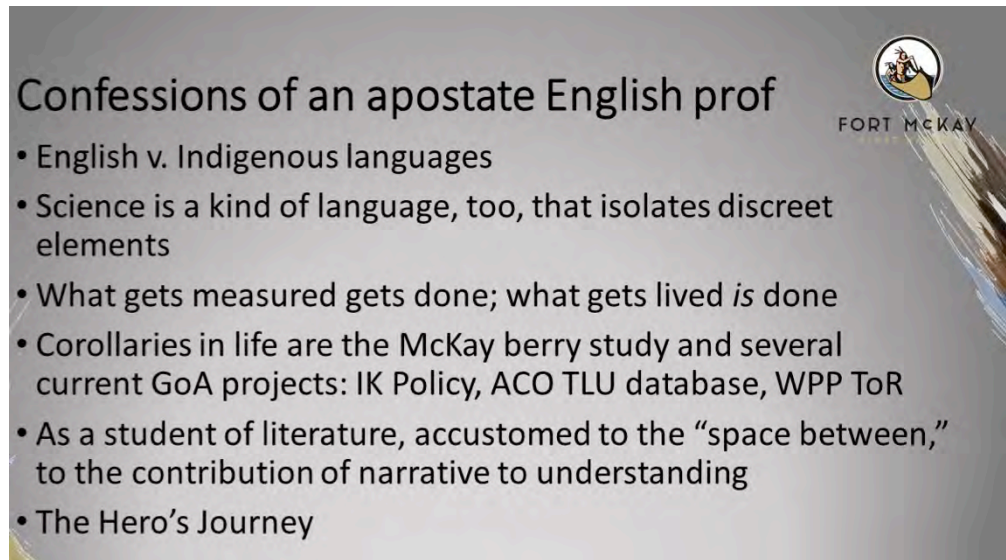
[33] Alberta *Freedom of Information and Protection of Privacy Act* RSA 2000 c F-25.
[34] CIHR, NSERC and SSHRC 2018.

Co-presenter Mike Evans offered his perspective as an "apostate English professor" who now finds himself as the Senior Manager of Government Relations for the Fort McKay Sustainability Department. He began by noting the general differences between English and Indigenous languages. English is one of the most syncretic languages, having absorbed words and syntax from a wide variety of languages and places. As a result, he suggested that English is the least place-based language spoken

today, in contrast to Indigenous languages, which are profoundly place-based.

English, Science and Indigenous languages – Mike observed (as an early student, not an authority) that everything spoken in an Indigenous language is put in the context of relationships between things and people, all of whom have their own living identity, whereas English primarily creates abstractions or very particular meanings. When governments (or Western society in general) want to understand something from an Indigenous worldview, metaphors, stories, and narratives are often needed to encapsulate an Indigenous word or concept because a direct translation into English often does not wholly capture its meaning.

Science is a kind of language, too. In contrast to Indigenous languages, science isolates things into discrete elements, becoming smaller and smaller until variables are isolated and the researcher can draw conclusions with some degree of certainty. In Mike's experience, the aphorism "what gets measured gets done" is often used in the context of strategic planning, or when scientific findings are used as performance indicators to measure progress. It has occurred to him that in an Indigenous context, this aphorism can be changed to "what gets lived *is* what is done."

Mike provide an example of unreconciled viewpoints to illustrate the challenges in bringing Western and Indigenous communities together. One branch of Alberta Indigenous Relations – the flagship department for relating with Indigenous peoples – is developing an Indigenous Knowledge policy on how traditional knowledge can be used ethically at the same time another branch is considering a database to 'formalize' and store all traditional knowledge collected through consultation efforts accessible to developers through the Alberta Consultation Office,

with the apparent intention of expediting development project approvals.

The hero's journey – As a student of literature, Mike has become accustomed to the 'space in between,' and the contribution of narrative to understanding. He says that there are no right answers in literature; there are more or less convincing answers, but many things can exist at the same time. He referred back to the "linear-holistic" model of knowledge coproduction shared by William Snow in his keynote presentation for the workshop, which depicts a circle (representing traditional, holistic knowledge) and a line (representing Western, linear knowledge) intersecting at one point of contact on the circle's circumference. Mike observed that there is similarly one point of contact, or rather one story, that all cultures around the world have in common, in both written and oral traditions. It is called the 'hero journey,' which he described as follows:

> *"It involves the departure and return of a hero, who can be a man or woman. The hero departs and descends into an underworld. But it is a kind of liminal, spiritual space that is tested while they are making their way. And if they are successful, they show that they have grown in character and competence. Character is the most important one. On their emergence out of the underworld and back into the land of the living, they become the guardians of the most sacred values of the community into which they are reintegrated."*

Mike concluded by inferring that the story of the hero's journey is not unlike the pathway towards knowledge coproduction, the theme of the workshop:

> *"And in many ways this is the journey in which all of us in this room have engaged, having descended into a kind of spiritual space to try to blend cultures, hoping to emerge on the backend with a stronger sense of character and competence that allows us to be the guardians of this new knowledge that we are trying to produce together."*

9.3 Addressing Colonialism and Learning to Listen in the Athabasca Watershed

Cleo Reece

Co-chair, *Keepers of the Athabasca Watershed Society and member of Fort McMurray First Nation*

Cleo Reece began her presentation by sharing the founding principle of **Keepers of the Water**,[35] a coalition of groups of which Keepers of the Athabasca Watershed is a member:

> Clean water is a fundamental human right and is essential for environmental, community and human health. As stewards of the many diverse and significant tributaries of our Great Arctic Ocean Drainage Basin, we acknowledge water is sacred.

Cleo shared a map of the Mackenzie River Basin, the largest drainage basin in Canada. She became an Indigenous board member with the Mackenzie River Basin Board in 2013. She met Dr. Brenda Parlee, a researcher at the University of Alberta, and they initiated a new partnership project that brought on Indigenous steering committee members. They applied for and received a six-year grant for the Tracking Change initiative, which looks at the relationships between Indigenous peoples and traditional knowledge and how Indigenous fishers have tracked change over time. Cleo thinks Tracking Change is a great example of a partnership between environmental researchers and Indigenous communities.

She spoke about the impacts from industrial tailings ponds on aquifers in the Athabasca Basin. Keepers of the Athabasca Watershed is trying to create awareness about the extent and severity of the impacts, particularly how groundwater is becoming contaminated and interacting with surface waters, like streams and rivers. Cleo hopes their ongoing research and awareness-building efforts can bridge the gaps in data about the state of aquifers in the Athabasca Basin.
Cleo shared one of the ethical issues from her work in the Athabasca watershed:

> *"Research has to be in true partnership with Indigenous peoples. Too often, huge grants and money goes into research but participation with Indigenous communities only happens after the fact. It has to be done right from the very beginning."*

Cleo thinks that more Indigenous peoples are needed on advisory boards, within government agencies, and within funding agencies who decide on were money for research is directed and who will be involved. In her experience, the money for research projects usually flows through people

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[35] **Keepers of the Water** is comprised of First Nations, Métis, and Inuit peoples, environmental groups, citizens, and communities who work together for the protection of the Arctic Drainage Basin. For information on Keepers of the Athabasca River Watershed Society, see http://www.keepersofthewater.ca/athabasca

with high academic credentials. However, there are Indigenous peoples that may not have a doctorate degree but have just as much knowledge and could instead manage the funding. Another one of her ethical concerns is:

"What part do Indigenous peoples have in making decisions, and what is the end result?"

Cleo proposed that adopting the Ownership, Control, Access, and Possession (OCAP) principles[36] is one way to resolve this concern. She also underscored the importance of including Indigenous ways of knowing and Indigenous languages into formal processes and referred to the proposed development of a Constitution for Treaty 8 Nations as an example. These kinds of processes can help advance Indigenous sovereignty by incorporating Indigenous knowledge and languages:

*"OCAP is a political response to colonialism and the role of knowledge production in reproducing colonial conditions. These are things we do **not** want."*

She closed with a story about her elderly Cree mother and her ability to notice many things about the weather. She shared her observation with Cleo that "the moon is hanging funny," referring to a change in the weather, which Cleo shared as example of Indigenous knowledge. Cleo concluded:

"There is so much out there, and we have to learn to listen. That's a part of us learning together."

Panel presentation by Cleo Reece on "Addressing Colonialism and Learning to Listen in the Athabasca Watershed."

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[36] First Nations Information Governance Centre 2014.

9.4 Panel 2 Closing Comments

William Snow

Consultation Manager, Stoney Tribal Administration, Stoney Nakoda Nation

William (Bill) Snow shared a few examples of the broader ethical issues between Indigenous and Western societies that he has experienced in his career working alongside government agencies and in the development of collaborative research agreements.

Ethics and the history of colonization – Bill observed that the ethical issues raised during each of the panel presentations are part of the larger history of colonial relations between Indigenous and settler societies. This began with the some of the philosophical writings of Aristotle, whose theories around natural slavery provided justification for many colonial and oppressive practices. In Canada, the Gradual Civilization Act of 1857 and Enfranchisement Act of 1869 were introduced and later migrated into the Indian Act of 1871. Bill explained that the stereotypical and unethical understandings that underpin these Acts are still at work today and contribute to 'otherizing' Indigenous peoples in Canada. When Indigenous peoples are not regarded as full citizens or full human beings then it becomes easier to disregard their teachings and understanding of the world.

The book *Protecting Indigenous Knowledge and Heritage* (2000), by Marie Battiste and James (Sa'ke'j) Henderson,[37] reviews the history of colonization and its impacts on Indigenous communities around the world and provides guidelines for ethical research with Indigenous peoples. Bill highlighted the authors' remarks about the concepts of copyrights and trademarks, which are ill-fitting for the protection of Indigenous traditional knowledge. When Indigenous communities are approached by a company or government body with a research proposal, it is often difficult for the community to trust the researchers if they don't have a pre-existing relationship and if they don't know what the protections will be for traditional knowledge. The book *In the Light of Justice* (2013) by Walter Echo-Hawk puts forward the concept of an Indigenous land ethic and describes how the United Nations Declaration on the Rights of Indigenous Peoples is incompatible with the United States' legal system. Bill thinks that these writings and larger systemic issues should be used to inform the ethical guidelines that are currently being developed at the provincial/territorial levels in Canada.

Protection of Indigenous traditional knowledge – Bill observed that the development of federal legislation for the protection of Indigenous traditional knowledge in Canada has stagnated for many years, despite the increases in consultations with First Nations and talks of

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[37] Battiste and Henderson 2000.

modernization. He thinks that the Ownership, Control, Access and Possession (OCAP) principles, mentioned in the panel presentation, show promise for helping to address issues around the protection of traditional knowledge.

Another promising development that Bill has been involved in is a research application submitted to the Canadian Mountain Network. The proposal builds on three modes of research: mode 1 is Western science, mode 3 is community or traditional knowledge, and mode 2 is a combination of the two modes. He is hopeful that the application will be successful, since the project is an opportunity to bring together diverse understandings of important mountain places and ecosystems.

Repatriation of Indigenous human remains and artifacts – Not long ago, it was considered ethical for non-Indigenous researchers to excavate Indigenous burial grounds and sacred sites, remove the human remains or artifacts they found, and donate them to museums. Whereas the United States has developed federal legislation that governs the repatriation of human remains and artifacts to Indigenous communities (namely the Native American Graves Protection and Repatriation Act of 1990), Canada does not have federal legislation, but rather a patchwork of provincial polices that are still being developed. Bill critiqued that many of these polices follow an exclusively Western scientific approach.

Understanding Indigenous methodologies – The first day of the workshop touched on many different Indigenous methodologies and ways of knowing, including Vine Deloria Jr.'s "linear-holistic" model,[38] the Anishinaabe's Seven Sacred Teachings,[39] Elder Albert Marshall's Two-Eyed Seeing guiding principle,[40] and the Two Row Wampum belt.[41] These are all place-based teachings, and there are many more that should be acknowledged and understood as the *Ethical Guidelines for Community Based Monitoring and Knowledge Coproduction* are developed.

In conclusion, Bill cautioned that we must continue these ethical conversations beyond the scope of this workshop:

> *"History has a way of repeating itself. If we don't get these ethics conversations going and understood by universities or governments then we are going to keep running into the same kinds of problems."*

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[38] Deloria 1970.

[39] For information on the Anishinaabe's Seven Sacred Teachings, see: http://onjisay-aki.org/anishinabe-sacred-teachings

[40] For information on Two-Eyed Seeing, see: http://www.integrativescience.ca/Principles/TwoEyedSeeing/

[41] For information on the Two Row Wampum belt, see: https://www.onondaganation.org/culture/wampum/two-row-wampum-belt-guswenta/

LISTENER REFLECTIONS

10 First Round of Reflections by Dedicated Listeners

The four Dedicated Listeners shared their reflections at the end of Day 1, as summarized below.

10.1 Reflections from Cristiana Simão Seixas

Cristiana began by expressing that she felt connected to the speakers and referred to others who mentioned building individual bridges. She noted that this is **a safe space for making errors** and making mistakes. Since English is not her first language, she is aware of making mistakes. She was very touched with all she heard through the day, in particular, Dr. Fred Wrona's comment: "Five years ago we couldn't imagine something like this workshop happening." Coming from Brazil with a president who is referred to the 'Tropical Trump,' she noted how Indigenous people in Brazil are having their rights threatened.

> "I can't even imagine something like this [gathering] happening even a decade from now in my country, so I really appreciating being here and being part of this moment, I think it's history here. And it's not the beginning or the ending, it's a journey."

The question was asked this morning what capacity do we in government and university need to work with Indigenous communities? She sees that as a key point because it is not a question that we pose to ourselves often. We often talk about building capacity nowadays, but not really gaining capacity ourselves to be able to engage in conversations with others. Governments where she comes from don't ask these questions of themselves, so it's really something very special.

A question that drove her listening throughout the day and was answered in the inspiring talks, was **acknowledging the interconnectedness of the planet**, the living beings on the planet, and being human. She was trained in the sciences about being holistic – about 'socioecological systems.' This was breaking news 20 years ago because until then, we talked about social systems or ecological systems.

> *"For 20 years we have talked about socioecological systems but I really think what we should be talking about is the **spiritual, social, ecological systems, at all levels**, at university and academia. When I'm talking about the spiritual, I'm talking about the emotional part, the consciousness."*

Another topic is **timing** – related to when things happen and how they happen. Not the modern notion of time of getting a paper published or receiving funding, but time in nature and time to receive the Elders knowledge and engage in that conversation. And acknowledging the others' culture, including some ethics that, at this moment might not be understood, but let's respect and acknowledge that.

> *"I really think what we should be talking about is the spiritual, social, ecological systems, at all levels, at university and academia."*
>
> *–Dr. Cristiana Simão Seixas*

> *"It very touching to be here and listen to what was shared about beliefs on ethics, which is unfortunately not much recognized by academia."*

10.2 Reflections from Sara Cook

Sara expressed appreciation for an awesome day, saying she would go home riding on a high, after being with like-minded people and sharing ideas. A few things stood out for her:

Referring to Janelle Baker's panel presentation when Shawn Wilson[42] was quoted: "**If research hasn't changed you, you haven't done it right**," Sara reflected:

> *"I love that so much, is so true for all of us. Every time I engage in new research and do it with new people, it makes me a better person and changes who I am inside."*

She shared some reflections about her token (the stone given to each of the Dedicated Listeners):

> *"It's kind of a funny shape, it doesn't really look like a stone. It looks like a part of something bigger, like it fell off something, like it's a little piece. I thought that's a lot like the work we are doing here, it's a part of something bigger, it's a little piece that is going to contribute. We're*

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[42] Wilson 2009:135.

*going to take these pieces, all these little gems that we've all garnered and that we will garner for our couple of days together, and we're going to take them home. And we are going to build. Fred Wrona talked about building, Chief Tony Alexis talked about building, I think almost everybody at some point talked about building or moving – **building a bridge, moving us somewhere**."*

Referring to Kelly's Bannister presentation when Willie Ermine was quoted: "**Ethical space is not a noun**," Sara said,

> *"I love that. Because we always talk about 'when we reach the ethical space', or 'when we build the ethical space'. We talk about it like it's a noun but it's a process that we have to move through. I'm reminded of what my grandfather always told me: 'Love is a verb. Love is an action.'"*

Perspective and worldview is a consistent theme that also came up. As a cultural anthropologist, Sara picked up on these themes.

> *"I realize now that this recognition of worldview and perspective is … why it comes up so much is … we are recognizing it."* She thanked the Elders for talking about language. *Because really, language is a carrier of these sorts of things. Language will dictate how you see the world."*

She noted that Elder Elmer Ghostkeeper raised this again when he asked: "**What about the spirituality of the plants? It's not just the physical.**" And in his keynote presentation, Pierre Haddad talked about having an open mind, accepting the other perspectives and ways of looking at the world. In her panel presentation, Debra Hopkins talked about doing things well.

> *"Language will dictate how you see the world."*
>
> *−Sara Cook*

> *"What is doing research in a good way from different worldviews? How do we bring those all together? You don't have to lay it all out, you just have to be respectful. It's about being human to one another."*

Sara observed there were at least seven Indigenous languages spoken during the day, eight languages including English.

> *"I can't imagine the variety of perspectives and interpretations that exist right now. And I think it reminds us too that ethics isn't just a one way of doing something. There is going to be a variety, it's going to depend on who's involved."*

10.3 Reflections from Gleb Raygorodetsky

Gleb shared his reflections on three themes: **Resilience**, **Equity** and **Discomfort**.

Resilience – Gleb expressed his appreciation at hearing spiritual socioecological (*i.e.,* complex) systems mentioned by Cristiana.

> *"We hear that popularized word used to describe what we are aspiring to achieve but without necessarily understanding what it means. It means we are dealing with complex issues in the world. The world is not linear, it's not 1,2, or 3 dimensional – it's multidimensional. The challenge is that we don't have institutions that enable us to deal with these challenges. The institutions that we have imposed on this world, that largely lead to the challenges we are facing, are disconnected from this world. This gathering is an attempt to help us create processes and institutions to better understand the world, to understand it from different perspectives.*

> *"To me, the exercise that we are engaged in is on the right track. Related to that, unfortunately being part of the government and having our limitations in holding this gathering, we had to call it "community based monitoring." But as we all know, community based monitoring is a small fraction of what communities deal with. So this is just another example of how siloed we are, even when we are trying to address bigger issues. We should be talking about community based decision-making (rather than community based monitoring) and decision coproduction (rather than knowledge coproduction). Ultimately, it doesn't matter how ethical the process of monitoring is, if the decisions are not ethical then we are still at square one."*

Equity – Gleb noted that equity is not the same as equality.

> *"Even when we talk about equality between different knowledge systems, it seems like we are making progressive steps forward but ultimately we should be talking about equity between different ways of knowing, which means we need to elevate Indigenous knowledge much higher than scientific knowledge and practice. And I think we need to recognize it. This how we need to work with a variety of issues, including the topic at hand."*

> *"Ultimately we should be talking about equity between different ways of knowing, which means we need to elevate Indigenous knowledge much higher than scientific knowledge and practice."*
>
> *–Dr. Gleb Raygorodetsky*

Discomfort – Gleb shared about his recent experience at Turtle Lodge (International Centre for Indigenous Education and Wellness) in Manitoba.

"I was privileged to be part of a gathering of scientists and Indigenous knowledge wisdom holders last year, and everyone had great intentions. It was a transformative experience for many, including myself, but one of the issues that was put out by an inspiring scholar participant was how difficult it is to enter that space of working together with communities—how uncomfortable we feel and that it would be nice if conditions were such that there was less discomfort. So, can you take it easy on us white researchers? But it's a reality.

"Enter that [ethical] space realizing that the issues we are dealing with have a lot of history and a lot of challenges and are not necessarily comfortable. And know that is fine because out of that discomfort, good things will come."

–Dr. Gleb Raygorodetsky

This ethical space that we are talking about is not this Nirvana or Promised Land that we enter and everything is great; it's a tough place to be in. And I think it's important to recognize that. But enter that space and make sure there is the peg outside the door so we can hang our stuff out there. Enter that space realizing that the issues we are dealing with have a lot of history and a lot of challenges and are not necessarily comfortable. And know that is fine because out of that discomfort, good things will come."

10.4   Reflections from Elder Almer Waniandy

Elder Almer explained that he took the rock that he received when he came up to accept the role of Dedicated Listener and held it in his hand to get all the information he could through the day. He also passed the rock around at his table so that each and every one of the others would have a chance to hold that rock too.

He shared a story about the changes in the environment and society he has experienced over his lifetime. When he was a child, there were caribou in the fields near his home in Fort McMurray. Today, with all of the development in this region, there are no more caribou. It's the same for grizzly bears, black bears, and other wildlife: they are being pushed aside. He reminisced that hunting and trapping were once a way of life, and the meat was always brought back and shared with the community. In the old days, if you woke up and someone was sleeping on your couch, you would get them up and feed them before they left and welcome them back if they had nowhere else to go. That doesn't happen today. Today, everyone locks their doors and doesn't share in the same way.

"In the old days, if you woke up and someone was sleeping on your couch, you would get them up and feed them before they left and welcome them back if they had nowhere else to go."

–Elder Almer Waniandy

Almer said he stopped going to school after Grade 6, and he feels very proud to sit with the educated people at the workshop. He says everyone should pat themselves on the back because they are trying to get something done—in other places, no one is even trying. He enjoyed hearing from every person who spoke at the workshop:

> *"I enjoyed everything I heard, from each and every one of you. We should have more of that. I'm very proud to see this is happening. And I'm very proud of all of you. Thank you for having me here. You are doing a fine job."*

Dedicated Listeners Gleb Raygorodetsky, Sara Cook, Cristiana Simão Seixas and Elder Almer Waniandy

CLOSING PRAYER FOR DAY 1

Elder Alice Kaquitts

Stoney Nakoda First Nation

A closing prayer was offered at the end of the first day by Elder Alice Kaquitts, Stoney Nakoda First Nation

REGATHERING FOR DAY 2

11 Opening for Day 2

Elder Elmer Ghostkeeper

Buffalo Lake Métis Settlement, and AEP Indigenous Wisdom Advisory Panel member

Elder Elmer shared opening words to begin Day 2 of the workshop. When he went home after the first day, his head was full of bits of information, but he just let it be. When he awoke, what came to him was the importance of **language**, **words**, and **culture**. Elmer explained how language and culture are intertwined:

> *"Language and culture are on two sides of the same coin. If you take one away, you damage the other."*

As an example, if you took an Indigenous oral language away from children you would damage their culture, too.

The basis of any oral language is in sounds. Elmer described how sounds create meaning, but that the listener must know the meaning of the sounds to understand what is being said:

> *"Language and culture are on two sides of the same coin. If you take one away, you damage the other."*
>
> *–Elder Elmer Ghostkeeper*

> *"The language we speak and the words we say, and their most basic meaning, are nothing but sounds. So when I am speaking to you, I am just making sounds. But the meaning of the word sits in the sound, so therefore sounds communicate. The thing is, if you don't know the meaning of the sounds, you can't know the meaning of the words I am saying."*

Elmer has observed that many words in Indigenous languages come from the sounds of the environment. He gave the example of the word for 'magpie' in his language, which sounds similar to a sound that the magpie makes:

"When you've lived in the environment long enough, you will be able to start interpreting the sounds that the magpie makes. And you'll know distress calls, mating calls and songs, and so on."

There are over 65 Indigenous oral languages in Canada. This diversity is related to the varied landscape, with many different ecosystems and different sounds. In Alberta there are about 7 or 8 Indigenous languages, reflecting the diversity of environments from north to south and in between. Within these languages there are different dialects for different regions; for example, the Cree language spoken in Alberta includes Bushland Cree, Parkland Cree, and Prairie Cree.

"We must protect Indigenous oral languages if we are to protect Indigenous knowledges and cultures."
–Elder Elmer Ghostkeeper

Elmer explained that we must protect Indigenous oral languages if we are to protect Indigenous knowledges and cultures. He concluded by reinforcing how meaning and nuance are often lost in translation, particularly translation into the English language:

"When you translate a Cree word into English, you translate about three-quarters of the meaning; and it's the same for other languages. For me, English was the colonizer's language. The words in English are relevant to Eng-land, not to Canada. This is why I think English speakers have so much difficulty relating to the environment, because their words don't really translate to this land."

Elder Elmer offered an opening prayer in Michif and a smudge to prepare the space for the second day of the workshop.

12 Collective In-Breath

Participants were invited to stand in circle for a collective in-breath exercise led by Kelly Bannister, using the calligraphy practice of ensō drawing as a metaphor. An ensō is a Zen circle traditionally created by Japanese ink painting. A practitioner uses a brush to make a circle on paper in one fluid, expressive stroke. The stroke is completed with one breath and contains one thought.

The exercise was used as a connection practice and for setting intentions. As participants took a collective in-breath, they extended their hand. On the out-breath, they drew an ensō in the air. Participants were asked to consider a word or phrase that reflected something about themselves, or something that resonated from the previous day.

A heart-shaped rock was passed clockwise around the circle as a speaking tool. The rock was from a beach in Coast Salish territory and inscribed with a phrase shared by Elder Elmer Ghostkeeper: "The UniVerse, the One Song," recognizing that in this moment by sharing a breath we are sharing the same air, interconnected through our common humanity, in a state of "inter-being" or inter-dependent co-existence, a term coined by the well-known Buddhist monk, philosopher and peace activist Thích Nhất Hạnh.[43] Kelly related this idea of aliveness and interconnectedness to ethics:

> *"There is a lot codified in ethics that prescribes how we ought to do things. But if those ethical codes stay as external rules, if they don't animate something deep within us –our spirit– then ethics stay two-dimensional as a paper exercise, and never fully come into being in this world. Our work involves waking up spirit and bringing ethics into three-dimensional living."*

Everyone was asked to speak from the heart, from a place where we recognize the interconnectedness of being human, and share a 'one breath response' to the statement "**What is alive for me in this moment is …**" (which was reframed by some participants as "what brings life to me in this moment is…") The one breath responses shared by participants have been transposed onto an image of an ensō created by Thích Nhất Hạnh (see figure).

Calligraphy by Thich Nhat Hanh
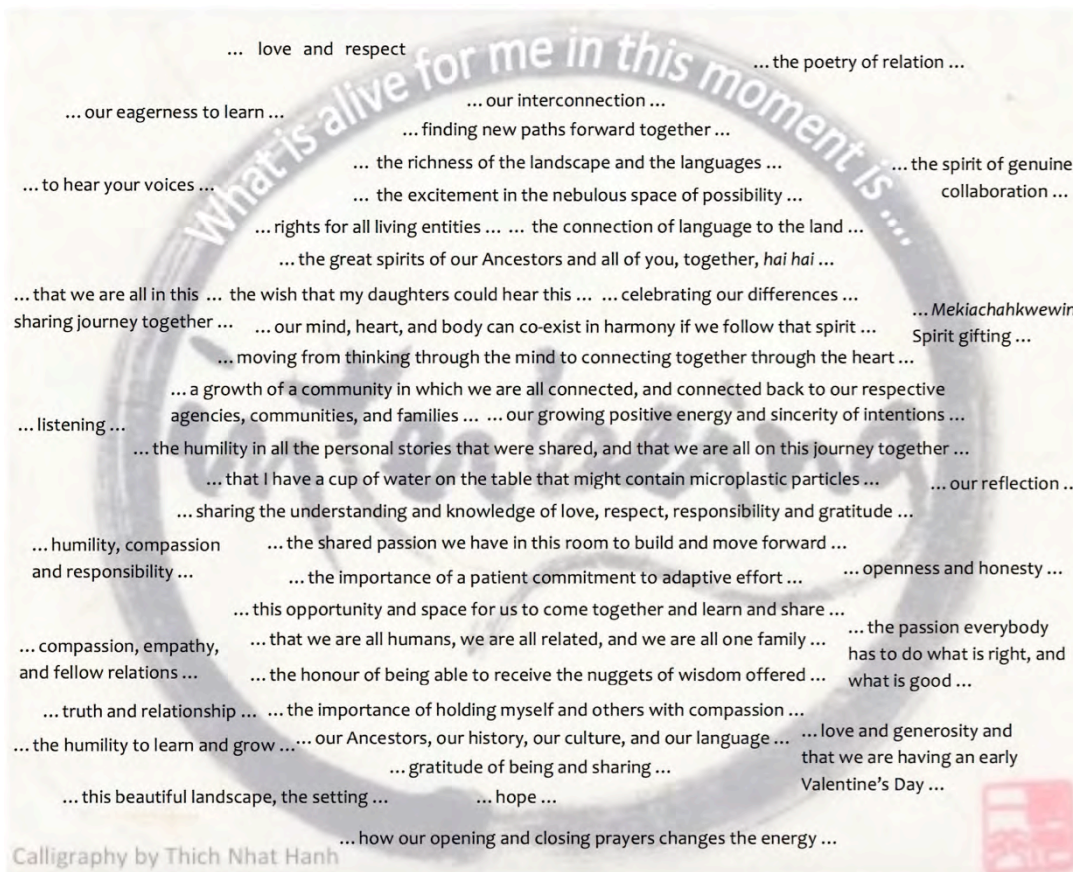
SUMMARIZING WHAT WAS SHARED
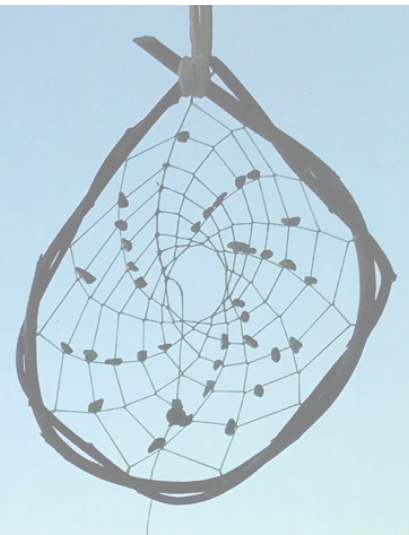
13 Taking Stock of Ethical Issues

The key ethical issues and themes raised by participants and deemed most relevant and pressing for CBM and knowledge coproduction were shared through sticky note posting by participants. Issues were also documented through dedicated note-taking of keynote presentations and panel sessions. Summaries of these findings are provided in this section.

Sticky issues Welcome Board

13.1 Examining Sticky Issues in CBM and Knowledge Coproduction

Over 80 short, written contributions of 'sticky issues' were shared by participants on Day 1 using the sticky note posting method to assist with the goal of identifying top-of-mind issues related to CBM and knowledge coproduction. The contributions were transcribed, clustered into themes and shared back with participants at the start of Day 2. A diverse sampling of the contributions within each theme is summarized below, without prioritization or implied meaning to their order.

Challenging questions:

- When you fail to get consent how do you rebuild the bridge?

- How do you redress past wrongs? How do you make space for the bad history?

- How do communities and government both get what they want?

- How to navigate situations where scientific observations disagree with Indigenous observations?

- How do you reconcile fundamental differences in worldviews?

- How do scientists support inclusion of spirit?

- How do you create the right conditions for ethical space?

- Where is ethical space in relation to fundamental rights?

Concerns related to misuse and misunderstandings that arise when different knowledge systems and ways of knowing come into contact:

- Need for awareness of our use of language and concepts, such as words that are inclusive of different views versus polarizing. For example, 'we own the land/wildlife' compared with 'no one owns land/wildlife.'

- Need for terms and concepts that are co-created and bring us together across our differences.

- Cautions about language translation and mistranslation.

- Potential for commodification of Indigenous knowledge.

- How to address real or perceived bias in results and conclusions when a scientific approach attempts to be value-neutral but cultural values are integral to knowledge coproduction processes?

- Need for humility and understanding of science as subjective, not as Truth.

- Recognition that institutional and systemic pressures can lead to abandoning ethics, *i.e.,* doing and saying what is right and good *versus* doing what the government allows you to say or do.

Issues of relationships and building trust:

- Allowing time and space for dialogue.

- Time to get to know a community and their ways.

- Protecting trust that has been built.

- Finding a meaningful way to communicate results back to the community.

- Reconciling the scientific culture of publish or perish which doesn't make time or space for meaningful engagement and co-creation.

- Enabling others *versus* Wanting from others.

- Concerns about Elder fatigue from asking and taking too much through too many initiatives.

- Addressing misinformation, untruths, or lack of transparency from all parties involved due to issues of mistrust, frustration, animosity, scepticism, corruption, or misappropriation of funds.

- Need for personal and organizational willingness to step out of the familiar sphere and into ethical space.

Issues related to CBM methodology and implementation:

- Decolonizing methodologies are foundational for implementation of equal and ethical space in practice.

- Need to shift from community based monitoring to community based natural resource management.

- Issues with working in silos.

- Unequal positions of power by non-Indigenous and Indigenous participants undermines or compromises implementation.

- Project-based *versus* community-based approaches.

- Time and space for dialogue need to be built into methods and funded.

Issues relevant to governance and policy:

- Data ownership.

- Concepts of ownership versus custodianship.

- Consent to use or apply and share knowledge.

- Understanding rights versus responsibilities.

- Monitoring versus decision making.
- Systemic barriers and hurdles, such as funding or 'out of scope.'

- Balancing transparency, trust, information sharing with organizational confidentiality, especially if it is unclear what can and can't be shared.

- Data sharing protocols from knowledge keepers or capturing Indigenous interrelated worldviews while monitoring specific scientific indicators.

- Colonial histories – recognition that the state privileges Western science.

- How far 'up the chain' of decision-making can we really embrace ethical space within a colonial governance structure?

- Storytelling as a governance system: ethics, love, language, ceremonies, humour, women's knowledge, interconnected with science.

The questions and issues summarized above offer a meaningful snapshot of the spectrum of ethical concerns related to knowledge coproduction and community based monitoring. A number of these concerns overlapped with issues raised by presenters and informed the subsequent Working Sessions.
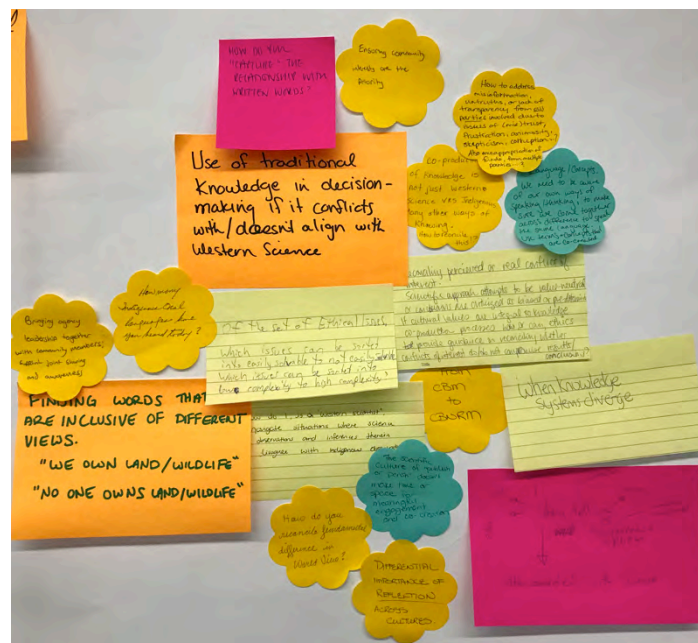
Sample cluster of sticky issues contributed by participants

13.2 Identifying Key Ethical Issues for Mapping

Key ethical issues related to CBM and knowledge coproduction, identified from keynote presentations and panel sessions, were summarized and presented to participants. Revisions were made based on participant discussion and feedback. A suite of six key issues was collectively chosen as the sample set of relevant issues to 'map' in the subsequent Working Sessions.

SUITE OF SIX ETHICAL ISSUES IDENTIFIED FOR MAPPING TO ETHICAL PRINCIPLES

1. **Negative impacts of research and environmental monitoring programs on communities**
   - 'Helicopter' researchers who come, do research, and leave
   - Research results that create fear (*e.g.*, toxins in wildlife)

2. **Systemic barriers to authentic collaboration for knowledge coproduction and/or Working within a colonial framework**
   - Limited opportunity for interactions between scientific and Indigenous knowledge holders
   - Unrealistic expectations for deliverables (e.g. what these are and how long they take)

3. **Lack of protection for Indigenous knowledge from misuse or misunderstanding**
   - Contractual requirements (moral rights waiver, data ownership, public reporting)

4. **Use of coproduced knowledge or data for purposes not mutually-agreed**
   - Data used to answer different questions than originally posed, without a re-consent process

5. **Conflicting accountabilities or responsibilities / Competing value systems**
   - Differences in personal and institutional ethics
   - Differences in historical and contemporary ethics

6. **Misunderstandings / Losses through Indigenous language interpretation**
   - Western scientists not aware of or interested in cultural information within Indigenous languages

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WORKING SESSIONS
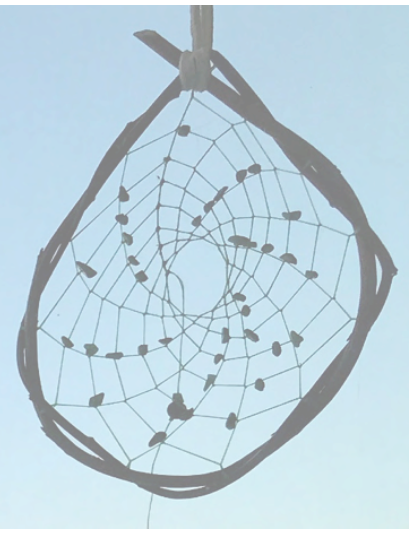
Two interactive Working Sessions were designed to encourage participants to consider how the suite of ethical issues raised and encountered in CBM and knowledge coproduction are related to, and informed by, two different sets of ethical principles.

One set of principles was derived from the **Western scientific system**, including:

- Scientific Rigor, Quality, & Impartiality
- Authorship & Due Credit
- Data Considerations
- Respect for Persons
- Concern for Welfare
- Justice

The other set of principles emerged from **Indigenous knowledge systems**, specifically, the principles articulated by the Alberta Environment and Parks' Indigenous Wisdom Advisory Panel (IWAP), which support implementation of the Panel's mandate and roles to inform the process of braiding and weaving together knowledge systems as part of their advice giving cycle.[1] The IWAP principles were seen as a foundation from which CBM and knowledge coproduction principles could emerge. They include:

- Good Faith
- Sharing
- Mutual Respect & Honour
- Kindness
- Generosity and Trust
- Humility and the Trickster

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[1] Indigenous Wisdom Advisory Panel (IWAP) 2017.

The Western scientific principles were the reference point for Working Session 1 and the IWAP-inspired emerging principles for knowledge coproduction were the reference point for Working Session 2. The two working sessions shared the same basic format, a world café[2] style round of semi-structured table conversations based on guiding questions (see below). Participants were asked to 'map' the suite of six ethical issues (listed in Section 13.2) to each principle by considering which of the guiding principles were the most relevant and helpful in addressing the ethical issues. Participants also identified gaps in the ethical guidance and offered insights on how to address those gaps by proposing alternative or complementary principles.

Guiding Questions for Working Sessions:

- Which ethical issues are relevant to the principle? Identify and work with those that seem most relevant.

- Consider the principle as it is described. What is the specific guidance offered by the principle that could help address the issue?

- What questions, gaps, obstacles or additional issues arise, if any?

- What guidance emerges when you consider an ethical issue in light of all six principles at the same time?

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[2] A description of the World Café method is available at: http://www.theworldcafe.com/key-concepts-resources/world-cafe-method/

14 Working Session 1:

Mapping Ethical Issues in CBM to Western Scientific Ethics Principles

14.1 Working Session 1 Description

In the first Working Session, participants were asked to consider the suite of **six ethical issues** identified by participants (see Section 13.2) in light of the set of **ethical principles** deemed fundamental to Western science (see below).

The following six principles were chosen to represent core principles of **Scientific integrity**[3] and **Research Ethics**[4] using two national documents as reference points:

- *Model Policy on Scientific Integrity*
  https://www.ic.gc.ca/eic/site/052.nsf/eng/00010.html

- *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2018)*
  http://www.pre.ethics.gc.ca/eng/policy-politique_tcps2-eptc2_2018.html

A seventh principle was contributed from the floor during the Working Session, in response to an open invitation for additional principles to be proposed by participants.

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[3] **Scientific integrity** is the condition resulting from adherence to concepts of transparency, openness, high quality work, avoidance of conflict of interest and ensuring high standards of impartiality and research ethics.
[4] **Research Ethics** is the study of the appropriate ethical standards for research involving humans and the establishment of appropriate governance mechanisms for such research (*e.g.*, policy, guidelines).

WESTERN SCIENTIFIC ETHICS PRINCIPLES FOR WORKING SESSION 1

1. **Scientific Rigor, Quality, Impartiality** – Adherence to robust standards for project design, methods, analysis, interpretation, publication, due diligence in attribution, etc.

2. **Authorship & Due Credit** – Adherence to specific criteria for due credit or acknowledgement in publication, dissemination, intellectual property rights (IPR), etc.

3. **Data Considerations** – Capacity and mechanisms to address issues in data collection, access, interpretation, confidentiality, privacy, stewardship, ownership and rights.

4. **Respect for Persons** – Respecting autonomy of individuals and collectives. Protecting the vulnerable. Ensuring free, informed and ongoing consent of individuals and collectives.

5. **Concern for Welfare** – Protecting quality of experience of all aspects of Life for individuals and collectives. Consideration of risks and harms.

6. **Justice** – Fair and equitable treatment. Inclusiveness. Distribution of burdens, benefits and power. Protection of rights. Prevention of injustices.

7. **Philosophy and Ethics** (additional principle contributed by a participant) – World Knowledge Systems give philosophical models that, in turn, give ethics in both Western science and Indigenous Knowledge.

The seven principles were represented as table-sized charts, with one principle per chart. Each chart (principle) was divided into six rectangular sections, with one ethical issue per section (see sample chart on following page). Working in groups, participants were invited to 'map' the issues to the most relevant guiding principle(s) and discuss the sufficiency or insufficiency of the guidance provided by that principle.

Each chart (principle) was placed on a separate table and participants were encouraged to circulate to all tables over the course of one hour. Many people chose to remain at the same table or only visit a couple of tables and focus on deeper discussion of one (or a small number) of principles rather than shorter exchanges on all of the principles.

Reference materials were provided at each table and a designated Table Monitor listened and facilitated the completion of each chart based on the contributions of participants who visited and shared at that table. At the end of the Working Session, Table Monitors provided a brief report back to highlight the discussions at their table and harvest additional comments from participants.
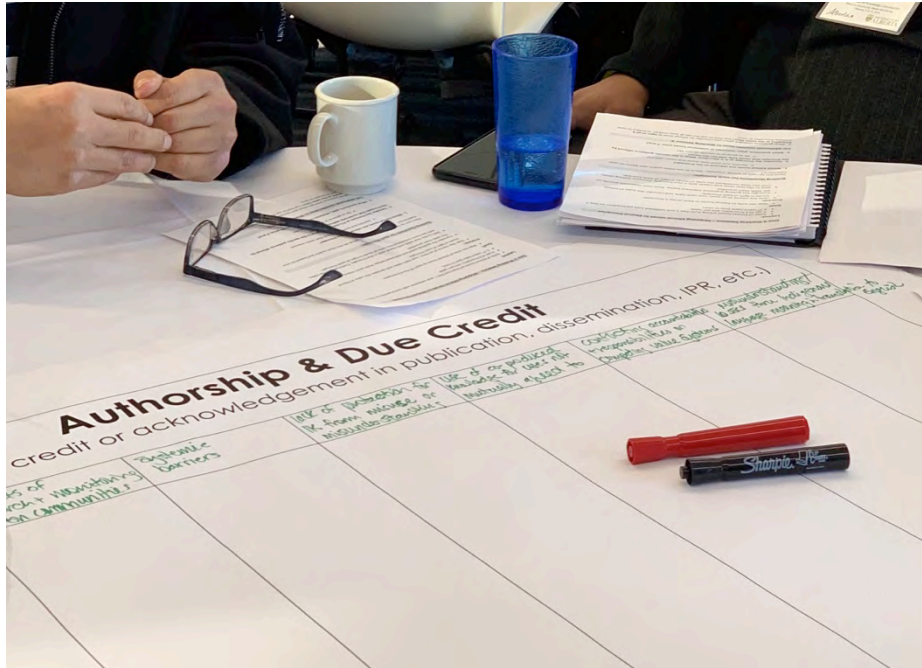
Example of a chart for Working Session 1 interactive mapping exercise.

Working Session 1 mapping exercise with 7 tables, each table with a different chart describing one of the Western Scientific Principles.

14.2   Working Session 1 Harvest

This exercise was generally considered challenging due to the relatively rigid structure of the charts (i.e., filling in separate compartments) and the imposed definitions that originate from a siloed Western colonial system of thought. As noted by one participant:

> "*The rigidity and conformity in Western scientific format and principles perpetuates systemic barriers and makes some people want to oppose or go the other way.*"

Another participant noted that it would have been nicer to use circles for the exercise. The boxy, linear sequential design of Working Session 1 was intentional, to be consistent with a conventional Western scientific approach to ethics, however, groups were encouraged to customize the exercise as they saw fit to support meaningful connections between the principles and the suite of ethical issues identified.

The following comprehensive summary of participant contributions for each Western scientific principle is based on the verbal reports from Table Monitors, additional participant comments, and transcription of the written contributions on the charts.

An example of participant contributions during Working Session 1 – "Impartiality" was considered a myth so it was struck from the title of the Principle of Scientific Rigor.

Scientific Rigor, Quality and Impartiality

Table monitor:
Krista Tremblett, Director, Programs and Practices, IKCMCS Branch, EMSD, AEP

Impartiality was considered a myth and the word was struck out of the title of the principle to make this point. Participants emphasized that obligations exist to both people and to knowledge. The limitations of scientific objectivity compared with Indigenous subjectivity (living, moving) were key points of discussion within the group.

The principle is double-edged. Both the potential benefits of a Western scientific approach to addressing the issues, and a 'shadow side' that perpetuates the issues and negative impacts need to be recognized. For example, issues regarding protection of Indigenous knowledge could arise because scientific rigor is linked with peer-reviewed publication, which puts the knowledge in the public domain and subjects it to appropriation.

Western science is 'in service' to systemic barriers to authentic collaboration for knowledge coproduction and a colonial framework, keeping the barriers and framework alive. Clarity and a decision point are needed to determine when science does more harm than good.

The value or contribution of this principle depends on the discipline, the individual scientists, and the standards that are applied. Not all individuals and disciplines are suited to knowledge coproduction. An inter-disciplinary approach is most fitting. The question of which/whose standards are applied is related to power.

Challenges in translating to and from scientific language and terms contributes to misunderstandings and losses through Indigenous language interpretation.

M**echanisms exist within the government system related to rigor and quality and these could be adapted for use in knowledge coproduction**, in particular to address the issue of use of data or knowledge for purposes not mutually agreed. For example, Alberta's *Freedom of Information and Protection of Privacy Act* (FOIP Act) and the *Personal Information Protection Act* (PIPA) state the specific purposes for which data is collected and will be used. Any other purpose or use requires a new process of permission.

Negative impacts of research and monitoring on communities are a design issue, with the researcher having the responsibility to mitigate through clarity and meaningful community participation in design.

A **research agreement** is required if collection of Indigenous knowledge is part of the design, to forestall issues related to protection of Indigenous knowledge from misuse and misunderstanding.

Authorship and Due credit

Table monitor:
Erin Tessier, Director and Strategic Advisor, Office of the Chief Scientist, AEP

It was challenging to apply principles from a system that focuses on individual credit to Indigenous knowledge systems, which are more collective in nature. It was generally agreed that **criteria for authorship and due credit needs to evolve** beyond a specific *one-size-fits-all* formula or check box to be more flexible and adaptable to the situation, the community, and the context of knowledge coproduction. **Protecting knowledge was expressed as a concern** and the idea of 'theft' was recognized, but this was considered 'out of scope' as it was assumed that people were entering coproduction in good faith, so bad intentions were not part of the group's considerations. However, who owns the knowledge needs to be clearly agreed upon.

Multiple layers and the context of sharing knowledge need to be recognized (individual, community, intergenerational, inter-community) therefore **due credit is not always easily assigned**.

Shared intergenerational knowledge doesn't neatly fit into a system of individual credit. There is **a stewardship responsibility rather than ownership right**. Through this lens, ideas of authorship and due credit are different. Indigenous individuals may be put in conflict with their community values because they feel a responsibility to be stewards of knowledge and reluctant to accept individual credit.

The living nature of knowledge needs to be understood, knowledge is not static as might be captured in a moment in time (*e.g.*, as in a publication).

How we go wrong is by making assumptions. We don't need a solution that fits all circumstances, but we do **need to go back to the community to ask:** *what is appropriate and meaningful recognition for the contributors?* Recognition may need to be in multiple forms to meet more than one need.

Culturally it may not be appropriate to accept recognition, however, there is a need to **consider how to appropriately receive the benefits of recognition**, such as opportunities to sit at expert tables and share a perspective or insight when it is beneficial. Perceptions of a spokesperson's authority/expertise may position them in a way that is in conflict with community values and responsibilities.

Data Considerations

Table Monitor:

Josh Cronmiller, *Oil Sands Monitoring, Indigenous Community Based Monitoring Program Coordinator, EMSD, AEP*

Intense conversations about data considerations focused on **how data is collected and managed, who has the right to speak about data, and how data is reported on**. It was unanimously agreed that collection of data related to Indigenous knowledge must not be data extraction; it is not an act done *by* scientists *to* Indigenous communities. Three main themes were discussed:

Data sovereignty

- Information (including data) provided by communities **belongs to communities**.

- Only **communities have the power** to dictate who, what, when, where, why and how the information is used.

- **Community validation** of the interpretation of the data is key.

- Full, independent **control of information rests with communities**. This approach may conflict with institutional protocols, however the short-term nature of colonial institutions can interfere with long-term needs and views of Indigenous communities.

Data governance

- When information is provided to communities, **the communities should be responsible** for who (within the community) shares/interprets/transfers information, and for determining who the traditional owners of the data are.

- The processes and procedures for handling the information are important and need to **follow Indigenous protocols**, not scientific protocols.

Data validation

- The **validation of community data** must be done within and by the communities themselves

There was general agreement that if the above aspects were fully addressed, many of the ethical issues raised would be resolved, and that a **paradigm shift** was needed, *i.e.*, instead of typical Western scientific approaches where transparency and public access of data is the norm, data should be considered private. However, **ways to contribute to public decision-making** are also needed. Two constructive ideas for addressing the issues that were proposed and discussed were Data sharing agreements and Process, summarized as follows:

Data sharing agreements

- Recommendations were discussed for a **'good practice'** approach to data sharing and research agreements, such as identifying and agreeing on the purpose of use at the onset, and discussing limits as well as secondary use of data.

- Use of a **decision-tree** early in the process is a tool for discussing emergent situations, to go over scenarios where the data is trending a certain way and to ask what '*would your community think if…?*

Process

- Referring to the scientific research process for understanding, designing and addressing questions through CBM, a good, understandable, mutually-agreed **process for collecting, storing and using data** will support healthy and trusting relationships with communities.

- **More education of scientists and society** in general is needed about social and cultural considerations in working with Indigenous peoples.

- Existing institutional processes created to support Western scientific projects are not suited to respect unique community characteristics, which raises the need for practitioners to seek opportunities to **educate institutions** about respectful and appropriate processes for undertaking CBM and research.

- There is a need to **include Indigenous protocols** in Western scientific processes to ensure coproduction is taking place.

Respect for Persons

Table monitor:
Tracy Howlett, Community Research & Monitoring Coordinator/Manager, Department of Resource Economics & Environmental Sociology, Faculty of Agricultural, Life & Environmental Sciences, University of Alberta

Two initial points were made regarding the principle of Respect for Persons and these permeated the discussions: **'Respect' was seen as fundamental** in Indigenous ways of being, and **the definition of 'Persons' was critically questioned**. Participants also found it challenging to discuss this principle within the structural design of the exercise, desiring instead a more flexible and free-flowing structure.

Limiting the definition of 'persons' to just humans is too narrow and unworkable. The moral obligation is not just to humans but to all things on earth. Personhood rights and respect need to be extended to living and non-living things and places, along with acknowledgement of the spiritual aspects and the energy of nature and 'other than humans.' The definition of 'personhood' needs to evolve.

The **definition of 'vulnerable'** is questionable. From a colonial lens, it evokes a sense of poverty, lack of education, and judgmentalism.

Respect is hard to define but needs to be **extended 'all ways.'**

A new term is needed to describe what we are trying to accomplish regarding the **interconnectedness of all things**. If research was done from the onset based on Indigenous principles, we would respect all life. If we respected all life (human and non-human), there would be fewer negative impacts as we are all entering into a respectful space.

"It would be hard to impose a principle of 'Though Shalt Respect' but that is what is needed. It relates to individual values and responsibilities as humans."

We need to be **willing to accept different ways** of knowing, explaining, describing and teaching that may differ from our positivist and reductionist Western scientific view, and to seek knowledge and understanding in all things.

Regarding protection of Indigenous knowledge, the **knowledge cannot be accessed unless it is with respect**. There is distrust from past practices that needs to be addressed in present practices.

The **rigidity in Western science** is a barrier. Western institutions are not set up to put people first, *e.g.,* data is prioritized over people and narratives. There is a need to measure success in ways other than publication, and to enable others to share the story through reports and publications; government scientists do not always have to lead.

Ego impedes respect. We have a responsibility to wake up, get our minds right and come to the table prepared to enter into thoughtful exchanges. We need to leave our baggage at the door and let go of our internal conflicts (*e.g.,* hurt, anger, judgment), which get in the way and hinder respect within scientific circles and across epistemologies.

Concern for Welfare

Table monitor:
Zoey Wang, *Community Based Monitoring Program Coordinator*, *IKCMCS Branch*, *EMSD AEP*

Rich conversations began with **how to define 'welfare**,*' what it **applies** to, and **whose welfare** is of concern. Participants agreed that the concept of welfare is understood differently depending on the value system. It was also agreed that although **the principle applies to all aspects of life**, Western scientific applications were seen as mostly utilitarian and sometimes paternalistic, even if well-intended.

A key question is *whose risks and harms, defined by whose values*? Western science tends to focus on the physical/biological whereas Indigenous perspectives include spiritual, emotional and physical and also extend beyond the individual to communities.

Concern for Welfare is **an important concept to frame the intention, approach and decision-making**, beyond just considering risk and harm management.

Welfare needs to apply to 'all living things,' including living beings other than humans, and recognizing that inanimate objects (*e.g.*, rocks) are also living. An example is how the principle translates into doing no harm to animals when working on a wildlife project.

There are competing types of welfare, *i.e.*, the scientific need to share information for the general welfare of society versus the desire of Indigenous communities to protect their knowledge for the welfare of their communities.

There is **potential to pit communities against one another**. For example, can knowledge of sacred spaces be shared ethically beyond kinship networks? How is Concern for Welfare applied to medicinal plants when everything is medicine?

Justice

Table monitor:
Marley Kozak, Community based Monitoring Program Coordinator, IKCMCS Branch, EMSD, AEP

Two main points were underscored: **Justice means different thing to different people** and the Western scientific conception of Justice only applies to humans and does not consider the environment, animals, plants, air, water, etc. There was agreement that **a more inclusive and holistic understanding of Justice is needed,** including injustices to the environment and protection of Indigenous rights.

Involving people upfront in co-decision making, coming together to resolve problems, and taking a holistic and 'systems thinking' approach to designing projects are necessary **to avoid negative impacts of research and monitoring**, and negative chains of events when good intentions backfire.

Addressing systemic barriers relate to the use of natural law and Indigenous law versus Western law (*i.e.*, contracts), getting Western scientists out of the ivory tower and onto the land, and getting Indigenous peoples to the labs, offices and policy-making tables.

Ownership of knowledge and data, and acknowledgement of the individuals and communities that these came from according to their wishes, are pre-requisites to any use of Indigenous knowledge. Authorship on books and articles is an important form of credit.

Misunderstandings and misinterpretations relate to a lack of understanding of natural laws by Western scientists, particularly that these are place-based laws and practices. Replacing one forest or body of water with another defeats the purpose of natural law as the practices arose from a specific place. Engaging with Indigenous peoples on cultural values of specific lands to gain first-hand knowledge and a more holistic picture is necessary when making environmental decisions. There is a general need to **understand the relationality and connection** between and among all life on earth.

Justice is an important principle to **address the distribution of power** through community involvement in the beginning, middle and end of any CBM process, giving voice to Indigenous people on the land, and giving voice to the land itself through natural law and cultural practices.

Justice (continued)

Honest, clear communication up front and throughout the whole process about expectations and use of data is the best way to **protect Indigenous knowledge from misuse and misunderstanding**. For example, be explicit if video recording is involved, let participants decide if they agree, and define the terms of agreement.

The issue of **conflicting accountabilities and competing values** relates to application of Western laws that conflict with natural laws of the land and Indigenous cultural laws and values. For example, Western environmental laws tend to exclude humans and/or animals, but this may not meet the needs of humans and animals, such as illustrated in Bill Snow's keynote that discussed Bear 148, and in instances of hunting laws that have affected Aboriginal and treaty rights.

The **perpetuation of injustices** relates to how burdens and benefits are distributed. For example, social damage has been caused in research by including selective voices to share stories while others are silenced, inequitable participation and distribution of honoraria, and resurfacing of trauma through certain interview topics.

Many solutions are found in moving away from the Western legal approach, for example, **use of pipe ceremony and smudging** in place of contracts are just as legally binding but with deeper cultural meaning.

Philosophy of Ethics

Table monitor:
Bill Snow, *Consultation Manager*, *Stoney Tribal Administration*, *Stoney Nakoda Nation*

Our world knowledge systems are defining our philosophical models and understandings. These models give us our methods, or ethical ways of acting and behaving in both Western scientific and Indigenous knowledge systems.

Western ethics models are founded in Aristotle, Plato, Socrates. Examples of **Indigenous ethics models** are: Natural Law, 7 Sacred Teachings, Visions/Dreams, and the Tree of Life. There is a **tendency to impose ethics from one society to another**. Ethics have changed over time. Racial stereotypes are embedded in colonial systems.

Lack of understanding leads to cultural appropriation and misuse. There are differences in how knowledge is acquired and shared, and in the goals of sharing: In Western system, knowledge is open to all (unless deemed proprietary) and is seen as monetary in value. Within Indigenous systems, knowledge is selectively known and shared and contributes to harmony.

Conflicting accountabilities/ responsibilities and conflicting value systems are related to a focus on the individual (in Western systems) versus the collective (in Indigenous systems). Western systems are individualistic and hierarchical, based on economic, social, and political values. Indigenous systems are connected to larger value systems of interrelations, Mother Earth and spirituality.

Referring to the writings of philosopher Martin Buber,[5] one barrier is **the differences in how relationship is understood within the two systems**, *i.e.*, the 'I-it' relationship (between an object and me) versus the 'I-Thou' relationship (between people, which is true relationship). The 'I-Thou' relationship is what is emphasized in Indigenous knowledge; there isn't really an 'I-it' because things are not treated as objects. Everything has a spirit. If that is understood, then there will be an understanding of the issues such as misuse, competing priorities, lack of mutual agreement, etc. The 'I-it' is dominant in Western science. If an object (water, land) is seen as not having a spirit, then we can do what we want with it or to it. The 'I-it' relation perpetuates misuse. **The philosophical differences spill over into how we treat each other, how we study, and how we understand** within these difference systems.

Solutions to systemic barriers include willingness to disagree, acceptance of difference, and openness to change.

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[5] Martin Buber's book *Ich und Du* translated as 'I and Thou', was first published in 1923, and first translated from German to English in 1937.

Suite of Ethical Issues from Day 1

1. Negative impacts of research & monitoring on communities
   - 'Helicopter' researchers who come, do research and leave
   - Research results that create fear (e.g., toxins in wildlife)
2. Systemic barriers to authentic collaboration for knowledge coproduction / Working in a colonial framework
3. Lack of protection for Indigenous knowledge from misuse or misunderstanding
   - Contractual requirements (e.g., moral rights waiver, data ownership, public reporting)
4. Use of coproduced knowledge or data for purposes not mutually-agreed
5. Conflicting accountabilities or responsibilities / Competing value systems
   - Personal and institutional ethics are different; Historical and contemporary ethics are different
6. Misunderstandings/losses through Indigenous language interpretation
   - Western scientists not aware of/interested in cultural information within Indigenous languages

14.3 Additional Comments from Workshop Participants

Dichotomy – Does there need to be a **dichotomy between Western science and Indigenous knowledge**? Does it always have to be an *us* and *them*? Even the premise of coproduction has an *us* and a *them* with the idea that we can do something together. If we can rid of the *us* and the *them* then we are just doing something. How can we invest in ways that stop perpetuating this dichotomy, and support capacity for Indigenous peoples to get the scientific training to own the word 'science'? The phrase 'Indigenous science' brings these together. Invest in the Nations, such as through supporting the youth and investing in appropriate technology.

Failure – Failure is a principle not often mentioned by scientists. We are poor at discussing what didn't go well and why. If we created a principle and **supportive culture around failure,** that would move us more towards a more honest and integrated perspective.

14.4 Working Session 1 Concluding Comments

Elder Elmer Ghostkeeper

Buffalo Lake Métis Settlement, and AEP Indigenous Wisdom Advisory Panel member

Elder Elmer Ghostkeeper offered some further thoughts related to Indigenous science, which is something the Indigenous Wisdom Advisory Panel (IWAP) discusses. A word that Elmer coined is 'WiseScience.' which is a partnership of wisdom and science. He noted:

> *"There is not necessarily wisdom in science, but there is a lot of wisdom in the scientist. Sometimes Western scientists repress their wisdom."*

Elmer discussed the Cartesian coordinate system as an example:

> *"The difficulty with the Cartesian split model is that it's hard to diagram or plot your experience on it. The x axis and y axis start at zero, that's the beginning point. But where are you on that? You're within the zero. You are always in that creative moment. Anything that can be measured is always after-the-fact of creation. You can plot what Western science calls the Arrow of Time, i.e., past leads to present, present leads to future. If you were to plot that on a circle, creating three equal spaces of that circle so the past makes the present, the present makes the future, and the future makes the past, then all is within the circle. We talk about just living in the moment. The only place we can breathe is in this moment. We can't breathe 5 minutes ago. We can't breathe 5 minutes from now. We can only breathe in this moment, it's the only place we exist. So is there really a past? And is there really a future? We are always in that greater moment."*

15 Working Session 2:

Mapping Ethical Issues in CBM to Emerging Ethics Principles for Knowledge Coproduction

15.1 Working Session 2 Description

In the second Working Session, participants were asked to consider the suite of six ethical issues (see Section 13.2) in light of the six IWAP-inspired emerging principles for knowledge coproduction (see table below). There was an opportunity for participants to suggest additional principles and a seventh principle was contributed but not fully elaborated due to lack of time.

The layout for Working Session 2 was analogous to that used in Working Session 1, with one principle per table depicted on a chart. However, there were two intentional differences in designing Session 2:

- The **charts were round** or pie-shaped (rather than box-shaped) with the given principle included in the center of the circle and the issues depicted as sections of the pie (rather than in linear columns and rows); and

- A **set of six wooden coasters**, each with one of the IWAP principles inscribed, was placed at each table. The wooden coasters were made from a coast Douglas-fir branch, *Pseudotsuga menziesii* var. *menziesii*. They were intended as a tool to aid the process of reflection and discussion, to facilitate bringing biodiversity into the room, and to assist the participants in 'holding all the principles together at one time' as they considered the issues in light of the 6 principles as a interrelated whole.

Short elaborations of each principle were provided at the tables to help convey the essence of the intention of the words, while keeping in mind Elder Elmer Ghostkeeper's caution that once we start using words to describe something that is "of spirit", and when we use English words to convey Indigenous meanings, there are losses in translation. Participants were encouraged to try not to let this be a barrier to discussions.

Everyone was also encouraged to celebrate the contrasts with Working Session 1 – to embrace the dichotomy between the sets of principles that we are trying to understand, and consider how we can bring them together to guide CBM and knowledge coproduction in ways that contribute to ethical space.

Participants were invited to circulate to all tables over the course of one hour but the majority chose to remain at one table for more in depth discussion. A Table Monitor facilitated the completion of each chart based on the contributions of participants who visited and shared at the table.

Sets of inscribed wooden coasters were made from a coast Douglas-fir branch and placed at each table to support holding all of the principles together at one time.

Working Session 2 mapping exercise with 7 tables, each table with a different chart describing one of the IWAP-inspired emerging principles for knowledge coproduction.

> **EMERGING ETHICS PRINCIPLES FOR CBM AND KNOWLEDGE COPRODUCTION FOR WORKING SESSION 2**

1. **Good Faith** – Intentions and actions are fair, open, honest, sincere, informed, accountable, diligent, accepting of another's beliefs, and worthy of another's trust. *A Framework of Good Faith* is established by upholding national and international commitments such as *the Truth and Reconciliation Commission Calls to Action* and the *UN Declaration on the Rights of Indigenous Peoples* and honoring the interrelated and collective rights and responsibilities of Indigenous peoples in Canada.

2. **Sharing** – Involves give-and-take, with a respect for difference. Requires a sense of trust and safety. Is based on openness and transparency. Requires mechanisms in place to protect from harms through misinterpretation or misappropriation.

3. **Mutual Respect and Honour** – Esteem for another as an equal. Respecting and honouring another implies knowing and understanding the other, and begins with respecting and honouring oneself. Recognizes that Indigenous knowledge systems and oral traditions are of equal importance with Western science in knowledge coproduction, each with its own institutions of governance and validation. Validation of information and data is within each knowledge system, not across systems, to prevent cultural confusion. Braiding across systems is possible only after validation within a system.

4. **Kindness** – Gentleness, consideration, understanding, empathy, reciprocity, care. *Being human* with one another.

5. **Generosity and Trust** – Spirit of abundance and giving. Integrity, reliability, fairness. Inter-relationship.

6. **Humility and the Trickster** – Free from pride. Without arrogance. Acceptance of circumstances and acceptance of others. Admission of error. Open to learning, particularly in unexpected circumstances.

7. **Courage** (additional principle contributed by a participant) – Part of the Seven Sacred Teachings.[6]

15.2 Working Session 2 Harvest

In comparison with Working Session 1, the second working session was generally considered more flowing and conducive to discussions, due to a stronger sense of being able to relate to the set of principles, the circular design of the charts, and encouragement to hold all principles as interconnected throughout the exchanges. The following summary of discussions for each Principle is based on verbal reports from the Table Monitors and transcription of the written contributions on the charts.

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[6] For the Anishinaabe's Seven Sacred Teachings, see http://onjisay-aki.org/anishinabe-sacred-teachings

Humility and the Trickster

Table monitor:
Erin Tessier, Director and Strategic Advisor, Office of the Chief Scientist, AEP

The conversation about Humility & the Trickster was free flowing. The Trickster was seen as part of every culture (Indigenous and non-Indigenous), reminding us that **not everything is in our control**, and we need to **admit we are not always right**. With freedom from pride and admission of errors, and in the absence of fear and judgment, we can **become more open to learning**. We may need to pause or take a step back when things change. When things are out of our control, we have the power to be resilient and to try to fix them.

Systemic barriers – Don't let barriers hold you back. The issues are also opportunities. It is easy to get stuck on the problem instead of the solution but we need to move out of 'admiring the problem.' All tools have been gifted and exist to provide opportunities.

Misunderstandings – Stories about Trickster have been recorded by researchers but in many cases, the whole story wasn't told or recorded, leading to misinterpretation of the stories. Having an Elder in this group sharing stories about the Trickster illustrated first-hand the importance of language and direct transmission, and how much can be changed through interpretation and translation.

Negative impacts of research – Humility & the Trickster encourage admission of the impacts of research.

Use of Indigenous knowledge for purposes not mutually-agreed – Accept that data/information you receive may not support your hypothesis and be ok with that. Change your path/objective.

Protection of Indigenous Knowledge – Colonization is the Trickster making us fix it. The principle doesn't produce direct guidance for coproduction but creates perspective and points to the beauty of humility in the bigger picture, beyond the egotistical expert, beyond arrogance.

Key cultural teachings from Indigenous to Western systems – keep an open mind, be accepting, admit you can be wrong, make space for failure. The individual role is different when in a collective culture.

Mutual Respect and Honour

Table monitor:
Marley Kozak, Community based Monitoring Program Coordinator, IKCMCS Branch, EMSD, AEP

Four fundamental observations framed discussions of this principle:

- There is no Mutual Respect and Honour without **honoring the Treaties** (*i.e.*, Honour of the Crown);
- There is no Mutual Respect and Honour if there is a **power imbalance**;
- **Good Faith is pre-requisite to everything**; and
- **Communication** is a grounding characteristic of Mutual Respect and Honour.

Reciprocity was a predominant theme in responding to the ethical issues, *i.e.*, how do we give and take in a mutually-respectful and honorable way? **It was agreed that to show respect and honour to others, we need to respect and honour ourselves**. Responses to each ethical issue are summarized:

Lack of protection for Indigenous knowledge from misuse or misunderstanding is addressed by: moving away from purely Western systems towards an approach guided by Natural Law, adopting data sharing agreements from an Indigenous knowledge perspective, working together to co-create contracts/agreements based on shared values between communities and Western scientists, engaging in 'Indigenous contracts' such as pipe ceremony, not just signing contracts but agreeing on moral guidance for how to work together, and recognizing the representation of words in these agreements (*i.e.*, individual versus community). Mutual respect and honour is not just about the data but about the subject matter, so **if you are doing research about a place, visit that place.**

Conflicting accountabilities or responsibilities and competing values is addressed by: creating a set of shared values between government and Indigenous communities that guides working together, being honest about what you don't know/asking questions, recognizing that there are multiple Indigenous worldviews and value systems so one size does not fit all, and respecting and honouring the environment always.

Negative impacts of research and monitoring on communities are addressed by: shared understanding and terminology, making research relevant, developing research strategies that specify what will be done with data and knowledge, and longer time frames for research and monitoring.

Mutual Respect and Honour

(continued)

Systemic barriers to authentic collaboration for knowledge coproduction are addressed by: recognizing the value of different knowledge systems, addressing the outstanding issue of who decides where information goes, how it is used after validation and who communicates this to ensure meaning is not lost, recognizing systems of privilege and focusing on equity rather than equality to bring systems to the same level.

Use of coproduced knowledge or data for uses not mutually-agreed is addressed by: ensuring people know where data is being stored and what it is being used for.

Misunderstanding or losses through Indigenous language interpretation is addressed by: validation and communication of knowledge within its own system. There is a need to discourage Western scientists from talking about Indigenous knowledge when they do not understand the meaning; Indigenous knowledge holders are the ones to speak of their knowledge.

Generosity and Trust

Table monitor:
Zoey Wang, Community Based Monitoring Program Coordinator, IKCMCS Branch, EMSD, AEP

An initial point raised was that Indigenous peoples in general have tended to be generous and trusting but have been harmed many times by misuse of information, by information that does not come back, or by information that is used against them. How, then, can the principle of Generosity & Trust be applied to everyone to provide guidance? Guidance is a two-way street, a give-and-take, and is built on a leap of faith.

All the principles were seen as inter-related but **Good Faith was agreed as prerequisite to Generosity and Trust**. **Reciprocity** was also a key theme, particularly in terms of the need to be more **curious** about one another, **take time** for dialogues, **be generous and trust** that the process will lead to a good understanding. There will always be some people who are untrustworthy, no matter what they do and say. A few bad apples can spoil the bunch.

Generosity and Trust

(continued)

Be generous to oneself with time. Invest in this work to gain trust.

Generosity is expressed through Indigenous practices, *e.g.*, sharing the hunt with family/community. Today the economic system teaches us to accumulate.

Trust must be earned and is a two-way street. An added difficulty is historical trauma.

To mitigate negative impacts of research and monitoring on communities:

- Engage in **collaborative planning prior to the start** of a project and before the final project design. **Increased reporting back** opportunities increases trust.
- **Extended timelines** are needed for relationship-building. Short timelines and transitory roles create challenges.

To mitigate systemic barriers:

- **Trust-building must occur at many levels** – individual, political, institutional.
- Western institutions need to be **flexible and willing to give** a bit more.
- Increased opportunities are needed for the sole purpose of **building a relationship and trust.**

To protect Indigenous knowledge from misuse: recognize the accountability to Generosity and Trust. **Follow protocol** in regard to misuse:

- Prevent misuse.
- If misuse occurs, mitigate further damage.
- Reclaim/restore.

To ensure coproduced knowledge is only used for purposes mutually-agreed:

- **Create dialogue** to discuss what Generosity and Trust can mean to each party for coproduced knowledge and how to use the knowledge in mutually-agreed ways.
- **Move to dialogue instead of confrontation** when disagreements occur.
- Maintain **resilient Generosity and Trust** despite breaches of trust and abused generosity.

To address conflicting accountabilities/responsibilities and competing value systems:

- Generosity ties in with reciprocity and these principles are needed to survive. Historically, this meant the difference between life and death. **Share but not just to accumulate elsewhere**. You don't own anything.
- **Address the fear that comes from ignorance**. Different worldviews need to the explained and similarities discovered.
- We don't need to have a full understanding to trust the content. **Be generous and trust the process** to gain better understanding.

To prevent misunderstandings/ losses through language interpretation:

- Scientists should be **generous in spending time** and **trust in the process** of learning Indigenous cultures.
- **Trust what is being shared with you**, with Good Faith. It doesn't have to fit in a Western framework.

Good Faith

Table monitor:

Tracy Howlett, Community Research and Monitoring Coordinator/Manager, Department of Resource Economics & Environmental Sociology, Faculty of Agricultural, Life & Environmental Sciences, University of Alberta

Discussions of Good Faith began in the "nebulous space of possibility"[7] with the understanding that **we need to apply Good Faith to everything**, and if we do, **all the issues will fall away** as there will be resolutions to each of them. It was acknowledged that the six principles create a foundation to start from and all need to be working together. Some participants expressed a concern that the working session process and concepts were not organic enough. There was a preference to frame the issues in the positive rather than as negatives to make them more relatable (*e.g.*, 'Protection for Indigenous Knowledge,' rather than 'Lack of Protection for Indigenous Knowledge') and suggestions were offered for how to achieve the desired states. Good Faith was seen as both a **process** as well as an **outcome**.

Good Faith needs to be reciprocated, and **reciprocity** is a key solution underpinning all of the issues.

"Good Faith needs to be reciprocal. If you have someone's faith, you have to uphold it."

"If you do things in a good way, things are done in a good way and this creates trust. If you have faith and trust, misunderstandings can be worked out. Good faith begets good faith."

Good Faith can reduce levels of conflict and help reconcile different accountabilities, responsibilities and competing values. **Time** is needed to build relationships to create good faith, as well as a **willingness** to look for opportunities.

Use of Indigenous knowledge for agreed purposes requires **transparency, time** and **resources** from all involved.

Building trust is at the core of collaboration. Eliminate the need for 'proof' as defined by science – acknowledge different ways of knowing and different forms of proof. Don't start by identifying risks and things that could go wrong – come in Good Faith that things will work out well. Apply or internalize a **precautionary approach** and have a little faith. In collaborations, communities as a whole (not just individuals) need to have Good Faith.

To create positive impacts of research, **be up front about intentions** of research and impacts. It was recognized that in the past, there was little collaboration and a lot of stereotypes and miscommunication. Collaboration is growing and could continue to grow in future, depending on the history of collaboration.

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[7] Ermine et al. 2004:20.

Good Faith
(continued)

To ensure accurate interpretation, the **oral process needs to be honored**.

Decision-making is not just based in science but also includes a political component. **Indigenous knowledge should also be part of the political decision-making**. Good Faith should lead to Indigenous knowledge holders at the decision-making table.

Protection for Indigenous knowledge is dependent on **awareness, openness, communication** and **humility**. We must not presume we know someone else's intention, and we must not come to the table thinking we know all the right answers.

"Good Faith needs to be built through good relationships. Good Faith is a reciprocal relationship."

"Good faith will lead to gentleness."

"People bring the faith."

"Be kind and approach the collaboration with good faith."

"Good faith is about being kind and good in all we do. All of it leads to gentleness, and treating each other with kindness and respect."

Sharing

Table Monitor:

Josh Cronmiller, *Oil Sands Monitoring Indigenous Community Based Monitoring Program Coordinator*, *EMSD, AEP*

The conversation on Sharing began with discussing **reciprocity** and acknowledging that the colonial history of Canada has created conditions for a lack of sharing. Sharing should be promoted as a concept but it **must take place with humility and at an appropriate scale** where there is trust, respect and transparency. It was pointed out that community members offer a lot without reciprocation, and the question was raised: *what is being left behind or given back?* Sharing is not 'goal-oriented,' which is how Westerns science often attempts to tackle problems. Are Indigenous communities obliged to share?

In response to the issue of **negative impacts of research and monitoring on communities:**

- There are benefits to communities of sharing but a lack of investment in developing relationships leads to projects that are poorly developed.
- Sharing knowledge of Indigenous protocols with Western scientists is needed for them to properly prepare for engagement with communities.
- The knowledge shared needs to be validated by communities.
- Engagement with communities to determine and co-create the research design and questions is key to produce positive impacts.
- Using Indigenous knowledge as a way to legitimize Western scientific results can be a positive type of negative impact.

In response to the issue of **systemic barriers to authentic collaboration for knowledge coproduction:**

- Systemic barriers lead to disempowering rather than empowering collaborations. Existing silos need to be dismantled.
- The colonial history has created conditions for lack of sharing, therefore sharing should be put forward as a new concept (remedy).
- If agreements based on sharing were respected, there would be legal ramifications; the colonial history and judicial system stand in the way.
- Western scientific language still doesn't capture elements of CBM respectfully, *e.g.*, 'traditional territory' versus simply 'territory.'
- Who has the authority to share and transfer knowledge? Are researchers connecting with the appropriate individual who has the authority to share? Who, what and how need to be considered in sharing knowledge.

Sharing (continued)

In response to the issue of **lack of protection for Indigenous knowledge from misuse or misunderstanding**:

- Needed are clear methods of crediting communities, such as through authorship or joint authorship.
- There is a difference between sharing knowledge and transferring knowledge. Sharing happens in conversation and knowledge transfer is through dialogue. This generosity in going from conversation to dialogue, transferring knowledge instead of just sharing it, depends on the Western scientists' ability to build a relationship with communities.
- Context and understanding are key to knowledge transfer to address the risk of misinterpretation, yet by its nature (not discrete facts), Indigenous knowledge is largely not protectable as intellectual property.

In response to the issue of **using coproduced knowledge or data for uses not mutually-agreed:**

- Ensuring the community values accompany knowledge when it is shared/exchanged is important.
- If sharing is made a priority early in the project and expectations about sharing are clarified through an agreement and adherence to ethical principles, there is less likelihood that the data/knowledge will be used for purposes not mutually-agreed. There needs to be legal ramifications if agreements are broken.
- New analysis of coproduced knowledge requires a new agreement.

In response to the issue of **conflicting accountabilities or responsibilities and competing values:**

- Western scientists doing work without collaborating or not seeing collaboration as a priority is an issue. Western scientists should engage Indigenous communities to strengthen knowledge transfer, even if this is not standard protocol for Western science.

In response to the issue of **misunderstandings/losses through language interpretation**:

- Westerns scientists who enter communities without good science communication skills are a problem. To demonstrate the effects of misunderstandings and losses that occur through language (even if the same language), Western scientists should share with other Western scientists across disciplines (*e.g.*, natural scientists to social scientists) and notice the different understandings.
- Western scientists should be sharing their understanding of what has been transferred back to communities to validate their understanding and produce respectful dialogue between scientists and communities. Westerns scientists may be relying on certain people/translation tools which lose meaning.
- Sharing Indigenous place names is a good (decolonizing) starting point for engagements.
- Scale needs to be understood as sharing knowledge based on spatial/temporal scales may not be translatable.

Kindness

Table Monitor:
Krista Tremblett, Director, Programs and Practices, IKCMCS Branch, EMSD, AEP

Language played an important role in the exchanges on Kindness. In discussing what Kindness means, participants asked **how to say Kindness in the different languages** at the table. The words and meanings for Kindness – *kisewatisiwin* (Cree), *gezhewaadiziwin* (Anishnabe) and *widâgabi* (Stoney Nakoda) – were shared and the similarities were discussed.

Participants discussed how **languages can keep you grounded**, for example when you are using a language that is not dealing in abstractions but with real things that we feel and can touch – like **understanding Kindness as an action rather than as a noun**. Kindness was understood as something that is living, just like language is living. Bringing language into the discussion of Kindness was important for everyone and brought the group together.

Kindness was understood as a **verb**, rather than a noun. Kindness is not just about words but about **actions and intentions**. Kindness is learned through actions and observations.

Acts of Kindness can create confusion – being nice is not the same as being kind. The underlying objectives of **benevolence** need to be understood – I can be the kindest person as a researcher coming to your community and I can exploit you at the same time, which conflicts with Indigenous values of kindness. This needs to be figured out in coming together and working together to avoid negative reciprocity.

Is there potential for kind intentions to create dependency, for example through honoraria? What to honor and respect and how does this change by putting a monetary value on it?

Kindness can also appear to be unkind – as in **tough love**.

Kindness is a way of being that relates to an **interdependence** of communities on one another. It's about the collective and not the individual so individual actions are still for the group, as part of a collective understanding. Western society has a more individualist view and narrower interpretation of Kindness, so Kindness as related to sharing has been lost.

Kindness was understood as **a responsibility involving care**, which may seem counter to impartiality. Kindness could be seen as either antithetical or an antidote to colonial relations, patriarchy, aggression, inequity, control, misogyny.

Courage

Table monitor:
Bill Snow, *Consultation Manager, Stoney Tribal Administration, Stoney Nakoda Nation*

Courage was proposed as part of the 7 Sacred Teachings of: Courage, Humility, Love, Respect, Truth and Wisdom. There was insufficient time to develop this principle further during the Working Session.

15.3 Additional Comments from Workshop Participants

One participant described mapping Western science principles as a little depressing and mapping Indigenous principles as a 'breath of fresh air' by contrast. Another participant offered the principle of **Always learning** to complement the 7 principles.

> *"No matter how many times you go to the communities, you are always learning."*

15.4 Working Session 2 Concluding Comments

Ira Provost
Manager, Piikani Consultation & Piikani Traditional Knowledge Services, Piikani First Nation

> *"Who I am, who I represent – when I come to these Tables, in a sense, I am bringing my community with me. I am sitting here with them in mind, with them on my heart with whatever I tell you, with whatever I share with you. I want to know that whatever I share is ultimately going to benefit my community, benefit my grandchildren in the years to come. When we think about some of the processes that we want to implement, that has to remain in my heart. That has to remain my goal. Because if I lose that, then we can become boxed or siloed, which can easily happen."*

Ira explained that he knows both sides – as an academic and also as a person knowledgeable about the cultural protocols from his community.

> *"Coming from both sides, it is not easy to blend the two and create meaningful work. Is not easy but one of the most important things is to take the time to understand your Indigenous neighbours. Something that has worked well is education to make knowledge of our Indigenous neighbours common knowledge. There is still much work to be done on this - our job to help educate others, to take the time to do this."*
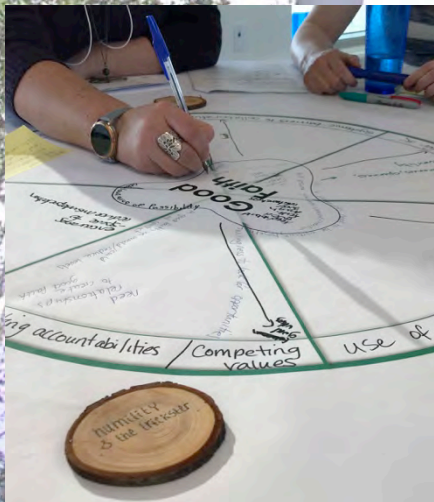
LISTENER REFLECTIONS

16 Second Round of Reflections by Dedicated Listeners

Three of the four Dedicated Listeners were present to share their reflections at the end of Day 2 of the workshop.

16.1 Reflections from Gleb Raygorodetsky

It shouldn't be this hard

"It shouldn't be this hard. It should be pretty basic. Let's not complicate things unnecessarily. The idea shared by Elder Elmer Ghostkeeper of the "Uni-Verse. One verse. One song" reminded me of the book by Thomas Berry that he co-authored with Brian Swimme called The Universe Story. They talk about the universe, or land – this world being a community of subjects to be communed with, not a collection of objects to be exploited. So, if we could get that through our heads, all of the ethical issues would be solved. But it is not that easy for us."

"My observation is that we use jargon a lot. Western science is quite diverse. We often use it without trying to understand what scientists mean by it. There are some fields that are more in line with Indigenous ways of understanding relationships between people and nature, and human's place in this world and the universe. That's the homework for scientists, to try and find greater alignment between the disciplines that they are engaged in and a more holistic way of understanding the world. As our esteemed Elders and IWAP panel members tell us from the start, from quantum physics to other fields of environmental science, like agriculture or biodiversity, if we were to do that homework and try to enter that frame of mind, I think we would be further ahead collectively."

> *"That's the homework for scientists, to try and find greater alignment between the disciplines that they are engaged in and a more holistic way of understanding the world."*
>
> *–Dr. Gleb Raygorodetsky*

Language

"Language was an important message part of the discussions today and yesterday. I am not a native English speaker, and I can only imagine what Indigenous knowledge holders and knowledge speakers have to endure with the English language. One way of discussing it is around rights, lost information, but I think there is a more fundamental rationale for why this is important – because ultimately if you want to make decisions about a place, you really need to understand that place. Places where we learn from Indigenous brothers and sisters have their own language and their own knowledge that they communicate – and who is out there who can really help us understand that but the speakers of the language that come from that land? To me, that's the value – you cannot really manage the landscape or wildlife using concepts and words that come from a different place; they have to come from this place. That's important."

Struggle

"What do we do with the information that is mobilized and generated through Indigenous knowledge systems and scientific knowledge systems – information and interpretation are different so what do we do with it? The existing scientific ethical principles don't allow us to get around this or to address the potential tension. Unless there is a lot of tweaking and course correction, I don't think those six Western science-based principles that we were given to work with today can help us address that."

16.2 Reflections from Cristiana Simão Seixas

Cristiana shared how touched she was throughout the day. She had three main reflections from her mind and heart:

Listening to Elders

"Elder Elmer Ghostkeeper spoke about how language reflects the sounds of the environment. For a culture to maintain a knowledge system it also means maintaining the environment, to understand how we put the sounds together to create the meaning of the word, since the sounds come from where we are and who we are. So it is all about language."

Listening

"At the 'kindness table' people were talking about what kindness means in different languages. It all comes together with the issue of meaning, words, and communication – not just talking but listening to others. That is a basis to co-produce anything. From the different tables, the way the principles were presented was about listening. For the scientific principles, the presentation was square, with everything in boxes. For the emerging principles based on IWAP work, the presentation was as

> **"The word 'diversity' – of systems, knowledge, language – was something that fed back into many of the conversations. We need to celebrate our diversity."**
>
> *–Cristiana Simão Seixas*

circles. What was interesting to observe in the morning with the squares on the tables, the discussion was only about the morning talks. In the afternoon, with the circles on the tables, from table to table people were talking about how that principle was interconnected with all the other principles - how things were all intertwined."

Diversity

"An issue that emerged at many tables was diversity. When you talk about Western science 'versus' traditional knowledge, there is not one knowledge system but there are multiple systems, and even within science there are multiple systems. The word 'diversity' – of systems, knowledge, language – was something that fed back into many of the conversations. We need to celebrate our diversity."

16.3 Reflections from Elder Almer Waniandy

Almer thanked everyone for the opportunity to participate in the workshop and offered words of gratitude and encouragement:

"Being with all of you intelligent people makes my heart go: boom, boom, boom. Because the knowledge that you gave me at these tables, it is beautiful. And the Creator here with you people has got to be something else. When I was growing up, I lost my language and I never went to school. I was a runner. So I know what I have lost, just by being with you today. But I have gained something. I don't worry about being upset with the government or anyone else for the loss of my language, I've done that to myself. I could have went out and got my language back. But I was too stubborn. You brought so much to me today and yesterday, and I thank you very much, especially my friend Tara who got me into this. It is wonderful to be with all of you people who've got this knowledge. I have no words for it. But everything I learned at these tables today I will keep with me forever, because I know that you're working for something that you will achieve, because you've got it in you, each and every one of you. You are very strong in your words, and what you've got in you. So I thank you very much. Hai hai."

> *"[E]verything I learned at these tables today I will keep with me forever, because I know that you're working for something that you will achieve."*
>
> –Elder Almer Waniandy

CLOSING SESSION

17   Acknowledgements

Kelly Bannister
Workshop Co-Facilitator

Karin Smith Fargey
Workshop Co-Facilitator

Kelly Bannister thanked the Elders, participants, keynote and panel presenters, and members of the organizing team for their generous participation and for making the workshop a reality. Beyond the development of the *Ethical Guidelines*, the workshop aspired to enliven a deeper sense of ethics among participants:

> *"Our hope is that this workshop has been meaningful and helpful to you. To me, ethics is a practice. It is not just a set of rules or prescriptions for how we ought to conduct ourselves ethically. Those codes and guidelines need to connect with something inside of us, so that we are motivated to live and practice something that is meaningful in our relationship with one another."*

Kelly reflected on the concept of "inter-being," put forward by Buddhist monk and philosopher Thích Nhất Hạnh,[8] which seems similar to many Indigenous concepts of interconnection and interrelationships between humans and other beings:

> *"No matter what body of ancient wisdom I have the privilege of being exposed to – whether it is teachings shared by Indigenous Elders, or principles from my martial arts practice of Aikido for development of body-mind-spirit, or ancient philosophers of the Eastern and Western traditions (Confucius, Socrates, Plato) – a similar wisdom seems to spring forth from the same source. As Elder Elmer Ghostkeeper calls it: the Uni-Verse, the One Song. I am honored and humbled to have a small part in supporting us to reconnect with that source."*
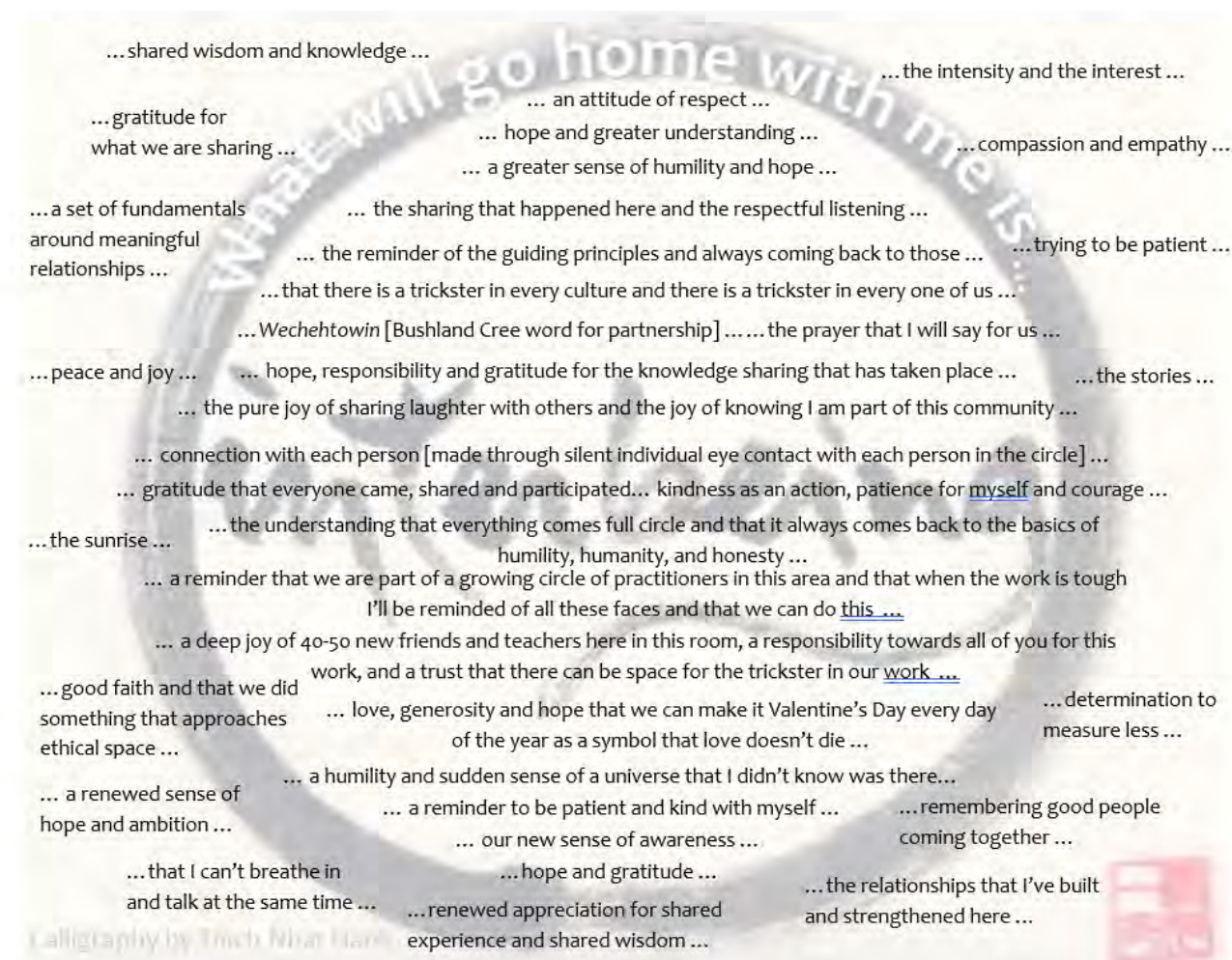
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[8] Hanh, 1987.

Karin Smith Fargey thanked the workshop participants, speakers and Elders. She concluded by saying that she holds a responsibility to tend to the energy and sense of hope that was generated at the workshop. She indicated that next steps would include reporting on the workshop, drafting the *Ethical Guidelines*, and establishing a working group to review the draft.

Participants were wished a safe journey home.

18   Collective Out-Breath

Participants were invited to stand together in a circle for a collective out-breath, drawing on the ensō practice that was introduced in the opening of the workshop and reflecting 'in one breath' on what they would go home with them from the workshop:

…shared wisdom and knowledge …

…the intensity and the interest …

…gratitude for what we are sharing …

… an attitude of respect …

… hope and greater understanding …

… a greater sense of humility and hope …

…compassion and empathy …

…a set of fundamentals around meaningful relationships …

… the sharing that happened here and the respectful listening …

… the reminder of the guiding principles and always coming back to those …

…trying to be patient …

…that there is a trickster in every culture and there is a trickster in every one of us …

…*Wechehtowin* [Bushland Cree word for partnership] ……the prayer that I will say for us …

…peace and joy …

… hope, responsibility and gratitude for the knowledge sharing that has taken place …

…the stories …

… the pure joy of sharing laughter with others and the joy of knowing I am part of this community …

… connection with each person [made through silent individual eye contact with each person in the circle] …

… gratitude that everyone came, shared and participated… kindness as an action, patience for myself and courage …

…the sunrise …

…the understanding that everything comes full circle and that it always comes back to the basics of humility, humanity, and honesty …

… a reminder that we are part of a growing circle of practitioners in this area and that when the work is tough I'll be reminded of all these faces and that we can do this …

… a deep joy of 40-50 new friends and teachers here in this room, a responsibility towards all of you for this work, and a trust that there can be space for the trickster in our work …

…good faith and that we did something that approaches ethical space …

… love, generosity and hope that we can make it Valentine's Day every day of the year as a symbol that love doesn't die …

…determination to measure less …

… a renewed sense of hope and ambition …

… a humility and sudden sense of a universe that I didn't know was there…

… a reminder to be patient and kind with myself …

…remembering good people coming together …

…that I can't breathe in and talk at the same time …

… our new sense of awareness …

…hope and gratitude …

…the relationships that I've built and strengthened here …

…renewed appreciation for shared experience and shared wisdom …

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CLOSING PRAYER

Elder Elmer Ghostkeeper

Buffalo Lake Métis Settlement, and Alberta Environment and Parks
Indigenous Wisdom Advisory Panel member

A closing prayer for the workshop was offered by Elder Elmer Ghostkeeper, *Elder, Buffalo Lake Métis Settlement, and AEP Indigenous Wisdom Advisory Panel member.*

Inter-generational sharing and learning at the ethics workshop – Elder Elmer Ghostkeeper with baby Arlo Raven Hus and workshop organizer Kelly Bannister.

POST-WORKSHOP ANALYSIS
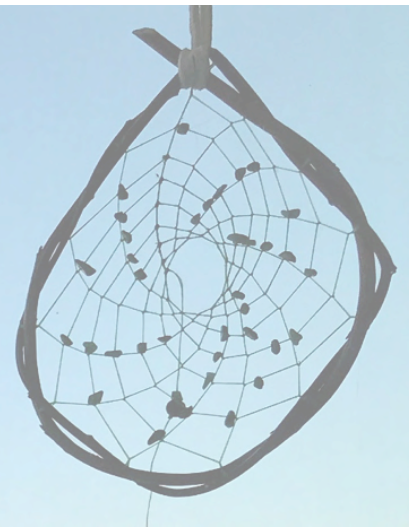
19   Key Insights from Workshop to Inform Development of *Ethical Guidelines for CMB and Knowledge Coproduction*

A number of important insights arose from a post-workshop analysis of participant contributions and these are invaluable for informing the development of *Ethical Guidelines for CMB and Knowledge Coproduction*:

- The interrelatedness of all life forms needs to be acknowledged.

- **Respect for all life** needs to be forefront in CBM and knowledge coproduction, thus the concepts of personhood, justice and wellbeing as they are currently articulated and implemented in Western scientific ethics, need to be extended beyond humans.

- The vital role of **Indigenous languages** needs to be understood. Indigenous languages embody and convey the Indigenous knowledge of the land from which they arise. Therefore, the choice of language, the way information is communicated, and who is communicating all have vital influences on how knowledge is understood or misunderstood, interpreted or misinterpreted, and used or misused in CBM and knowledge coproduction.

- Many Indigenous languages are predominantly **verb-based**, thus ethical principles for CBM and knowledge coproduction are better understood as **living and ongoing actions** rather than as nouns, ideas or aspirations.

- **Intentional positive reciprocity**[9] is a fundamental component of knowledge coproduction. Positive reciprocity should be grounded in reciprocal positive relationships for mutual benefit where relationships are based on cyclical and balanced giving and receiving rather than a goal to take or accumulate.

- The **integrity of knowledge within its own knowledge system** needs to be upheld as a prerequisite for different knowledges to be respectfully brought together in knowledge coproduction. Validation of knowledge must only happen within a knowledge system and not across knowledge systems. Due credit of knowledge holders must be ensured in the process of knowledge coproduction.

- Knowledge coproduction as a process of respectful braiding of knowledge systems cannot take place without the **protection of Indigenous knowledge systems** as a prerequisite. Thus, knowledge coproduction must include prior consideration of the ethical, legal and practical implications of sharing Indigenous knowledge. This includes ensuring that intentional strategies and concrete mechanisms for protection are in place.

- More time and support, combined with humility, good faith, and respect, are needed in CBM and knowledge coproduction to **co-create ethical space**, and develop an ongoing 'culture of equitable and ethical practice' that can honor differences, resolve misunderstandings and overcome systemic Western scientific and colonial barriers that impede authentic collaboration.

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[9] **Positive reciprocity** is the notion of back-and-forth exchanges in which positive experiences (*e.g.,* caring, generous, beneficial) perpetuate further positive experiences. Positive reciprocity is in contrast to 'negative reciprocity' in which negative actions are perpetuated or the goal is to maximize gains or get something for nothing.

APPENDICES

20   References and Sources Cited

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21 Speaker Biographies

(in order of appearance in Program)

21.1 Workshop Speakers

Chief Tony Alexis

Alexis Nakota Sioux First Nation

Chief Tony Alexis is a driven, dynamic, sought after business and cultural leader. A desire to make a difference, coupled with strong leadership skills has led Chief Alexis to earn a number of accolades throughout his career. He was first elected to council at his home community of Alexis Nakota Sioux Nation when he was just 25 years old. He was appointed by former AFN National Chief Phil Fontaine to the National Youth Council, earned an Alberta Aboriginal Leadership award and has worked with Alberta Chiefs through First Nation Resource Council. He was then elected Chief of Alexis Nakota in 2013 and enjoys serving his community, specializing in business and policy development while encouraging ongoing Treaty dialogue with governments. He was Grand Chief of Treaty 6 between 2015-2016. Chief Alexis' leadership style stems from a base of Ancestral knowledge. He is connected to his culture through practicing a traditional way of life and is passionate about promoting his heritage while keeping ceremony sacred. As Chief he affirms this knowledge and incorporates respect, honour, discipline and humility into his daily life while exemplifying these values to community members. He believes the keys to success are through consistent focus, faith in the Creator and hard work.

Dr. Fred Wrona

Chief Scientist, Alberta Environment & Parks, and Assistant Deputy Minister, Environmental Monitoring & Science Division, Alberta Environment & Parks

Dr. Fred Wrona was appointed Alberta's Environment and Parks Chief Scientist in April 2016. He also serves as Assistant Deputy Minister of the Environmental Monitoring and Science Division of Alberta Environment and Parks. Dr. Wrona has more than 30 years of experience leading or contributing to numerous environmental programs addressing regional, national and international environmental issues. In addition to his roles as Chief Scientist and Assistant Deputy Minister, Dr. Wrona is currently an adjunct professor at the University of Calgary, where he was a member of the faculty from 1982 to 2004. He continues to be the program co-chair on the joint federal-provincial Oil Sands Monitoring Program in partnership with Environment and Climate Change Canada. Dr. Wrona holds a Ph.D. in Aquatic Ecology (1982) and a B.Sc. in Environmental Sciences (1977) from the University of Calgary in Alberta. He has previously served in a number of environmental science positions in the province of Alberta, across Canada and internationally, including:

- Invited Chair of the External Scientific Advisory Committee for the Centre for Environmental and Marine Studies (CESAM) at the University of Aveiro in Portugal;
- Canada's Head Delegate to the Arctic Council's Arctic Monitoring and Assessment Program;
- Canada's Head Delegate for the UNESCO International Hydrology Program (IHP);
- Senior Science Strategist and Advisor with Environment Canada;
- Professor at the University of Victoria's Department of Geography and the Water and Climate Impacts Research Centre (W-CIRC) in British Columbia;
- Scientific Director of the Northern River Basins Study in Alberta;
- Member of the International Science Advisory Committee of the Alberta Water Research Institute (now part of Alberta Innovates - Energy and Environment Solutions).

Dr. Gleb Raygorodetsky

Executive Director, Indigenous Knowledge, Community Monitoring & Citizen Science Branch, Environmental Monitoring & Science Division, Alberta Environment & Parks

For over two decades, Gleb Raygorodetsky has worked with and for Indigenous communities and their allies around the world on traditional resource management, traditional governance, sacred sites, climate change adaptation and mitigation, and biocultural diversity. Born and raised in a small village on the Bering Sea coast of Kamchatka Peninsula, USSR, Gleb immigrated to the USA in 1988. He made his way from New York City to Fairbanks, Alaska, where he continued the wildlife biology studies he began back in the Soviet Union. Since then, he has traversed the Americas, from Canada's Beaufort Sea to the Brazilian Amazon, from the Andes to the shores of Lake Superior, living and working with Indigenous peoples as diverse as Aleut fur seal hunters, Amazonian Caboclos pirarucu fishermen, and the Gwich'in caribou hunters. After earning his Ph.D. in Ecology, Evolution & Environmental Biology (2006, Columbia University), he has continued working with Indigenous groups around the world, from Papua New Guinea and Australia, to Peru and Finland.

Gleb has written and contributed to books, scientific and popular articles on Indigenous issues, traditional knowledge, and conservation in both English and Russian. He wrote Gwich'in Words about the Land - a book on the Indigenous ecological knowledge of Gwich'in people in the Northwest Territories in Canada that was published locally for all Gwich'in families. He has also written popular articles on Indigenous and environmental issues for various magazines, including Cultural Survival, Alternatives, and National Geographic. Gleb is also a co-founder of Conversations with the Earth (CWE) - an indigenous-led multimedia initiative that amplifies indigenous voices in the global discourse on climate change. Over a million visitors saw CWE exhibits at National Museum of Denmark in Copenhagen, the Smithsonian's National Museum of the American Indian in Washington DC, and United Nations Headquarters in New York. In The Archipelago of Hope: Wisdom and Resilience from the Edge of Climate Change (Pegasus Books, New York, 2017) Gleb explores the inextricable links between Indigenous cultures and their traditional territories as the foundation for climate change resilience around the world.

Dr. Kelly Bannister

Workshop Organizer and Co-Facilitator, and Co-Director, POLIS Project on Ecological Governance, Centre for Global Studies, University of Victoria

Kelly Bannister is a consultant and Co-director of the POLIS Project on Ecological Governance at the Centre for Global Studies, University of Victoria. Her academic background is in ethnobiology and she specializes in applied research ethics, focusing on ethical and legal issues in research involving biodiversity, Indigenous knowledge and cultural heritage. Much of her work has examined the role of governance tools and processes (such as ethical codes, codes of conduct, community research protocols, and research agreements) to address power relations and facilitate equitable research practices in collaborative research. Her current work explores new approaches to ethics policy and practice offered through relational ethics, intercultural communication, Zen-based conflict resolution and embodied peace-making. Kelly has been involved in ethics policy research, analysis, development and education from local to national and international levels, in a variety of capacities over the last 20 years, working with and for Indigenous organizations, government and non-governmental organizations, and universities. She was a member of the Interagency Advisory Panel on Research Ethics' Technical Advisory Committee on Aboriginal Research (PRE-TACAR) as part of the Panel's Aboriginal Research Ethics Initiative (AREI) that advised on Chapter 9 of the Tri- Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2). Kelly co-chairs the Ethics Program for the International Society of Ethnobiology (ISE) and facilitated the completion of the ISE Code of Ethics in 2006. Kelly gratefully lives on a small Gulf Island with her family on the west coast of British Columbia. She is dedicated to her study and practice of meditation and the martial art of Aikido, as well as the applications of both of these to interpersonal and intercultural ethics.

Mr. William Snow

Consultation Manager with the Stoney Tribal Administration, Stoney Nakoda Nation

William (Bill) Snow is a member of the Stoney Nakoda Nation, Wesley First Nation, as well as a Dual Citizen of Canada / United States of America, and is of Stoney Nakoda / Yuma Quechan descent. Since 2012, Bill has been the Consultation Manager for Stoney Nakoda First Nation. This work involves the assessment of industrial resources projects within Stoney Nakoda Traditional Lands, that involve many consultations with industry, the provincial and federal governments, in the Southern Alberta. Bill is a graduate of the University of Lethbridge, Business Administration program, and in 2016, assisted in coordinating ceremonies for Stoney Nakoda Nation for the Bison Reintroduction at Banff National Park & Elk Island National Park, as well as for the proposed renaming of Tunnel Mountain. Also, Stoney Nakoda Nation completed a Traditional Knowledge Study of Grizzly Bears in the Kananaskis Provincial Park for Environment Canada. Bill is also an advisor to the Chiniki Lecture series at the University of Calgary, and an Advisor for the Thinking Mountains Conference (2015 and 2018), Mountains 101 and the Canadian Mountain Network initiative at the University of Alberta. In September 2017, William accepted the Ted Smith Conservation Award from Yellowstone to Yukon on behalf of Stoney Consultation. William lives in

Calgary, and works at the Stoney Indian Reserve at Morley, Alberta. In 2018, William also became a director with Canadian Wildlife Federation.

Dr. Pierre Haddad

Professor, Department of Pharmacology & Physiology, Faculty of Medicine, Université de Montréal

Pierre Sélim Haddad is a tenured professor in the Department of Pharmacology and Physiology at the Université de Montréal, where he obtained his PhD degree in 1986. He has authored over 140 peer- reviewed publications, two-thirds of which are on the subject of Natural Health Products (NHP). In 2003, he successfully built the Canadian Institutes of Health Research Team in Aboriginal Antidiabetic Medicines (CIHR-TAAM), a multidisciplinary group of researchers studying the antidiabetic potential of plants used by the First Nations of Canada in their traditional medicine, which he still leads today. The CIHR-TAAM upheld a strong participatory community-based research approach, notably to work respectfully with Indigenous Knowledge holders. A precedent-setting research agreement was also co- developed between First Nations communities, an Indigenous Health Authority and three major research universities to ensure strong protection of Indigenous Traditional Knowledge and related intellectual property rights. Dr. Haddad is recognized nationally and internationally for his work on NHPs and functional foods in the context of metabolic diseases such as obesity and diabetes. In May 2014, he received the prestigious Neil Towers Award from the NHP Research Society of Canada in recognition of his significant contribution to the field. In 2015, he was appointed to the Advisory Board of the American Botanical Council.

Ms. Debra Hopkins

Environmental Health Team, Policy & Planning Division, Air, Biodiversity & Policy Integration Branch, Alberta Environment & Parks

Debra Hopkins is a strong advocate for the integration of environmental health, human well-being, and cultural diversity into government policy and environmental monitoring initiatives to support cumulative effects management. She is keenly interested in applying natural and social scientific methodologies to better understand human-environment interfaces. As well, building community-based participatory research approaches that respectfully reflect Indigenous and Western knowledge systems is her passion. She has worked in the field of environmental public health science for over 18 years and is currently employed by Alberta Environment and Parks. She has worked for Alberta Health, Health Canada and started her path into the world of environmental public health as a consultant completing numerous human and ecological risk assessments for a variety of interested and affected parties. In her spare time she is a PhD candidate at the School of Public Health at the University of Alberta.

Mr. Matthew Munson

B.Sc. EASC, Technical Consultant, (o/a) Assert A.C.S., and Dene Tha' First Nation Band Member

Matthew Munson or *Ho-Ho-Che Didzena* in Dene, is a member of the Dene Tha' First Nation. Dene Tha' Traditional Territory overlaps with northWestern Alberta, northeastern British Columbia and southern Northwest Territories. Matt has a Bachelor of Science in Earth Science from the University of Calgary and aspires to further his education, at the graduate level, in the near future. He has worked with and for government, industry, and First Nations', in various roles and capacities that include: management; planning; consultation; policy development; land stewardship; community engagement, and Traditional Use Studies. Matt spends most of his work time: developing community projects for grant funding proposals; responding to consultation referrals; and collaborating with government, industry, ENGO's and other stakeholders towards optimizing landscapes that support and contribute to: meaningful ability to exercise Treaty rights in preferred areas, conservation of species and habitats, and sustainable resource development projects. When not working (which is almost never!) Matt plays ice-hockey, goes camping, and spends quality family time, in nature whenever possible.

Ms. Marsha Heavy Head

Blood Tribe Land Management and Kainai Ecosystem Protection Association, Kainai First Nation

Marsha Heavy Head is a Blood Tribe member and graduate of Alberta Innovates-Technology Futures (AITF)'s Land Stewardship Program. She grew up on her family's traditional land in the central part of Kainai First Nation, southwest of Lethbridge, before moving to the 19,000-acre Blood Tribe Ranch at the reserve's northern limit as a child. Marsha grew up connected to two worlds— that of her home and cultural heritage, and that of modern Alberta, which was largely non-Indigenous. She split her time between the reserve's ranch, in a sparsely populated area among nature, and the non-native schools she attended, where she performed well in her studies. Following high school, Marsha attended post- secondary education in Lethbridge and became an administrative assistant, but felt her chosen career was not quite fulfilling. She was looking not only for a job, but a spiritual experience that honoured her ancestors and preserved her homeland at the same time. That's when she found the Land Stewardship Program. Following an internship, she became employed by the Blood Tribe Land Management as part of the Environmental Department, where she and a handful of staff today manage the Kainai Environmental Protection Agency (KEPA). Today, Marsha and her colleagues spend many of their days on rewarding drives, walks, and climbs through her traditional Blackfoot lands, in the shadows of buffalo jumps and buttes, working with land users to keep an eye on soil and water where industries like agriculture or oil and gas operate. During the winter months, much time is spent on educational opportunities, working with partners to further the group's capacities.

Dr. Janelle Baker

Assistant Professor, Department of Anthropology, Athabasca University

Janelle Baker is an assistant professor in anthropology at Athabasca University. Her primary research is on *sakâwiyiniwak* (Northern Bush Cree) experiences with wild food contamination in Alberta's oil sands region. This work is inspired from Elders' concerns during traditional land use research that Janelle performed since 2006. She has supported various community-based environmental monitoring projects with ethnographic research, most notably Fort McKay berry monitoring, funded by the IKCMCS branch, and Bigstone Cree Nation bush food monitoring, funded by the Federal FNECP. She is a research partner at the Centre for Indigenous Conservation and Development Alternatives at McGill University in collaboration with Dr. Josie Auger (Bigstone Cree Nation and Athabasca University). Janelle and Josie are also collaborators on the SSHRC-funded Cultural Politics of Oil Project (Clint Westman, PI). Janelle was a participant in the NSF-funded Workshop on Citizen Science and the Food System at the University of Hawaii that produced a forthcoming publication on good practices for citizen science projects. Currently Janelle is collaborating on several projects with Bigstone Cree Nation that use traditional environmental knowledge and microbiology to monitor food and water systems. She is also a PI on a project that will use augmented reality to re-story bull trout in the Bighorn Backcountry. Janelle lives in Sundre and is of Métis descent on her mom's side.

Dr. Carla Davidson

Principal, Endeavour Scientific Inc. Calgary, Alberta

Carla Davidson is a Principal with Endeavour Scientific Inc, and a biologist with professional certification in knowledge translation (KTPC, University of Toronto). Her work focuses on the clear communication and interpretation of science to support decision making, and the interpretation of science to support public policy development. In her nineteen years as a biologist, Carla has worked in several politically contentious scientific fields including forestry, wildlife management and the interaction between Indigenous communities and the Canadian and Alberta environmental regulatory regimes, which has given her a unique perspective on how science is perceived in the public and political realms. She has worked with several First Nations in the Athabasca Region on issues of land use planning, environmental monitoring and First Nations consultation.

Mr. Michael Evans

Senior Manager, Government Relations, Fort McKay Sustainability Department, Fort McKay, Alberta

Mike Evans is the Senior Manager, Government and Industry Relations with the Fort McKay First Nation. Prior to joining Fort McKay, Mike filled a similar role with the Regional Municipality of Wood Buffalo from 2008 to 2014, beginning as Executive Advisor to Mayor Blake and finishing as Executive Director of Stakeholder Relations, responsible for government, industry and stakeholder relations, economic development and special projects. Mike has worked with a wide range of Indigenous communities and organizations since the mid-90s, including all three Alberta treaty organizations, several tribal councils, individual First Nations, Métis Settlements General Council,

Indigenous post- secondary programs and Indigenous non-profit organizations. His work has focused on public policy development and capacity building. He was instrumental in the creation of Alberta's first Treaty-based environmental organization in the mid-90s.

Ms. Cleo Reece

Co-chair, Keepers of the Athabasca River Watershed Society and member of Fort McMurray #468 First Nation

Cleo Reece is an environmental activist and former Band Councillor for Alberta's Fort Murray No. 468 First Nation. She has been a central organizer in the annual healing walks that have taken place in Alberta since 2010. She believes if the land is OK, the people are OK. But if the land needs healing, the people need healing, too. Cleo has been a part of environmental stewardship initiative for 20 years. She is part of the Keepers of the Water movement that began in 2006. She is an active voice for Keepers of the Athabasca Watershed Society, comprised of First Nations, Métis, Inuit, environmental groups, and Watershed citizens working together for the protection of water, land and air, and thus for all living things today and tomorrow in the Athabasca River Watershed. The mission of for Keepers of the Athabasca is to unite the peoples of the Athabasca River and Lake Watershed to secure and protect water and watershed lands for ecological, social, cultural and community health and well being. Cleo lives on her home reserve, Fort McMurray #468 First Nation.

21.2   Panel Moderators

Ms. Karin Smith Fargey

Workshop Co-Facilitator and Knowledge Coproduction Strategic Advisor, Indigenous Knowledge, Community Monitoring & Citizen Science Branch, Environmental Monitoring & Science Division, Alberta Environment & Parks

Seeking to work peacefully with others where many will benefit has been a core driver for Karin. Over the last 30 years, when living in communities in Bet Guvrin, Israel; Kumasi, Ghana; Fort Chipewyan, Alberta or in the tiny village of Val Marie in southern Saskatchewan, Karin has had interest in collaborating with partners, strengthening community, being a catalyst for solutions and building bridges of between worldviews. Since 2000, Karin worked as founding Executive Director of the Friends of Grasslands National Park and edited the first comprehensive Grasslands National Park Field Guide. She was the inaugural managing director for the Prairie Learning Centre, an innovative partnership between the local community, regional school division and Parks Canada bringing youth-at-risk to landscape based learning opportunities. Employed by WWF, Nature Conservancy Canada, Karin coordinated a Northern Mixed Grass Transboundary Conservation Planning Initiative seeking to create ecosystem based conversation approaches. While employed by Parks Canada, Karin collaborated with Wood Mountain Lakota Sioux First Nation, Wood Mountain, Saskatchewan and Neekaneet First Nation, Maple Creek, Saskatchewan to support

Indigenous involvement in black-footed ferret and bison reintroductions in Grasslands National Park. Since returning to Alberta in 2012 to work with First Nations and Métis communities as an Alberta public servant, Karin has championed change in government processes towards reconciliation. Currently, Karin is a Senior Advisor within the Indigenous Knowledge, Community Monitoring and Citizen Science Branch, EMSD, AEP. Karin is a daughter, sister, wife, mother and grandmother. She is deeply connected to the land, the forest and fields on a farm near Lac Ste Anne.

Ms. Kyra Northwest

Montana First Nation (Akamihk), and the Traditional Land Use Lead, Samson Cree Nation

Kyra Northwest is from the Montana First Nation (Akamihk), which is one of the four Maskwacis Cree Nations. She attended Grant MacEwan University with a background in Anthropology. She currently works for the Samson Cree Nation (Nipisikopahk) as the Traditional Land Use Lead in the Consultation Office. Kyra also sits on Samson Cree Nation's Nipiy Committee, which has developed a vision for water security and water sovereignty to ensure clean water for its Nation Members and future generations. She was appointed in 2017 to the Federal Line 3 Replacement Program Indigenous Advisory and Monitoring Committee with members from 16 Indigenous Nations, Natural Resources Canada, and the National
Energy Board. Kyra is also involved with and co-facilitates the South Saskatchewan Regional Plan First Nation's Table "Watching the Land" working group which focuses on the inclusion of Indigenous Knowledge for Cultural/Community Based Monitoring. In her down time Kyra likes to play sports and is active in hockey and slo-pitch. She also loves to travel and attend concerts.

21.3   Ethical Issues Recorder

Ms. Krista Tremblett

Director, Programs and Practices, Indigenous Knowledge, Community Monitoring & Citizen Science Branch, Environmental Monitoring & Science Division (EMSD), Alberta Ministry of Environment & Parks

Krista Tremblett is a member of the Indigenous Knowledge, Community Monitoring, and Citizen Science Branch in Alberta Environment and Parks. She is responsible for providing strategic leadership on planning and delivery of community-based monitoring, knowledge coproduction and citizen science initiatives across Alberta. With over 10 years' experience in environmental education, facilitation, and community engagement, Krista's professional background reflects her interest in the interface between science, decision making and community involvement. Much of her work has focused on creating spaces and processes for learning and knowledge sharing between communities, scientists and government. Born and raised in Newfoundland and Labrador, Krista moved to Alberta in 2001 to study at the University of Calgary. She has since put down roots in Edmonton with her family.

21.4 Elder Advisor

Mr. Elmer Ghostkeeper

Elder, Buffalo Lake Métis Settlement, and Alberta Environment & Parks Indigenous Wisdom Advisory Panel member

Elmer Ghostkeeper was born February 1st, 1947 to parents Adolphus and Elsie Ghostkeeper at the Paddle Prairie Métis Settlement, Alberta, Canada. He is Métis and speaks fluent Michif the language of Métis people. He is a Spiritualist, a father, a grandfather, a teacher, a student, a learner, a philosopher and an entrepreneur. His view is every day is a gift that teaches him something about life and who he is. His daily challenge is to be loving, enjoying, balancing, happy, healthy, solving a life puzzle, respecting and being grateful. He lives in the moment by incorporating yesterday's experiences into a plan for today's activities. His work is Weche Teachings, a partnership of Aboriginal Wisdom and Western Scientific Knowledge, and Wisescience, a methodology to understand and solve modern day puzzles effecting Aboriginal People. In 2004, Elmer received the Order of the Métis Nation. Elmer has a Bachelor of Arts (Anthropology) and a Master of Arts (Cultural Anthropology) and is the author of *Spirit Gifting: The Concept of Spiritual Exchange*, which is his published Master's thesis.

The principle of Humility & the Trickster was alive and well in the planning, implementation, documentation and reporting of this ethics workshop!