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Chair: Mr. Lloyd Longfield



Standing Committee on Science and Research

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• (1610)

[English]

The Chair (Mr. Lloyd Longfield (Guelph, Lib.)): Welcome to meeting number 69 of the Standing Committee on Science and Research.

Today's meeting is taking place in a hybrid format, pursuant to the Standing Orders. Therefore, members are attending in person in the room, and we also have some representatives who will be presenting remotely using Zoom.

For those who are virtual, there are a couple of rules. You can speak in the official language of your choice, but you can also choose interpretation services, at the bottom of your screen, for floor, English or French. If you lose interpretation, please let me know right away and we'll make sure that it gets restored.

For members in person, before speaking, wait until you're recognized, and if you are on video conference, unmute yourself. Speak slowly and clearly for the benefit of our translators, and when you're not speaking, please keep your microphone away from your earphones so that we don't have feedback events and cause injury to our interpreters.

Again, for all members, I remind you to address comments through the chair.

Now we'll get started on our session. Pursuant to Standing Order 108(3)(i) and the motion adopted by the committee on Monday, September 18, 2023, the committee resumes its study of integration of indigenous traditional knowledge and science in government policy development.

It's my pleasure to welcome our witnesses today.

We have Dr. Mark Bonta, geographer. He's up from Pennsylvania. Welcome to our committee. We have Dr. Kyle Bobiwash, assistant professor. It's good to see you again, Dr. Bobiwash. We also have Mr. Jared Gonet, Ph.D. candidate in conservation biology, also via video conference. In the room, we have Dr. Brenda Parlee, professor and UNESCO chair at the University of Alberta, joining us from Edmonton.

Each presenter will have five minutes for an opening statement, and then we'll open the floor to questions.

We'll start off with Dr. Bonta for five minutes, please.

Mr. Mark Bonta (Geographer, As an Individual): Thank you. It's a great honour to be here.

I was just discussing with my colleague that I couldn't imagine anything like this happening in the U.S. It's very impressive to me.

As a disclaimer, if you've seen some of the notes that I put forward, I am certainly not a specialist in Canada. I have been to the Yukon and to the Arctic, but as a researcher, I focused mostly on the tropics. I have extensive experience from Honduras, Mexico and particularly Australia.

I'll cover things you've probably heard before. I do a lot in philosophy as well as geography.

One of my major concerns is that we do a lot in indigenous knowledge with talking about what we should do. We've been doing this for a long time as academics: How should we incorporate and bring together these two different systems? Each country has different experiences.

I do have some ideas about that. Without further ado, let me go through and hit a few of my points.

I will say that I don't think indigenous traditional knowledge and western science are monolithic knowledge systems per se—western science particularly. I'm a geographer, both a social scientist and a natural scientist. We don't agree on the fundamentals, even in geography, of basic issues like time and space and what they are. The idea that science is this one thing definitely needs to be examined. Indigenous knowledge is obviously not one thing either. We always want to look at the nuances of that.

We want it to be something truthful. It often ends up being very political, so we need to be realists about what we're trying to achieve when we try to figure out how to bring these different ways of knowing together.

I've written down some reflections on indigenous traditional knowledge. One thing that I am insistent on is that although we do see it as a corpus of knowledge that extends back through time with different ways of gathering information, it does get field-tested. There's an experimental nature to it. It's not just something you learn out there from your elders. Many of us probably know that.

It's also eclectic. I've worked, for example, with a shaman in Mexico. He's learned a lot of this himself. He didn't inherit it from someone else. He's part of an indigenous group, but a lot of what he's done has been done with his family. He's accumulated this knowledge. It's not something that is only back in the past. It's very dynamic, wherever we are and whatever group we may be working with.

I'm interested in a synthesis, I guess. A hybrid, truly humanity-centred science would synthesize disparate knowledge systems in service to the abiding questions and problems faced by our societies. What I mean is that, with climate change and a lot of these issues, for example, we should not be bringing in indigenous voices. We should have many different voices coming together to create some sort of new science, instead of constantly saying we need people to inform our science. This happens a lot in conservation, but I think there are also much deeper ways to think about what indigenous knowledge involves.

It's all very general here. I have a very brief example.

I wrote some of these things about the Northern Territory in Australia. That's one place that has really made a lot of headway. The indigenous groups there own the land. They bring scientists in to work for them—they hire them. We were brought into that arena to document fire-spreading by raptors. This then goes into fire management and restoration of the land. It's also this incredible chance to.... It's like a hybrid space where everybody comes together to create new knowledge. It went beyond what we had coming out of our different disciplines.

I had a lot of things to say, but five minutes is a very short time.

In closing, I will say that one thing to think about is interspecies communication in birds. This is one of my biggest issues right now. It has been known that birds talk to each other in their own species and across species. They have languages. People also talk to birds—we know that and we have specific examples. This is what we're doing in Australia. This is now becoming something that ornithologists themselves are studying and learning about.

• (1615)

Thank you.

The Chair: Thank you very much for your testimony. Hopefully we can cover some of the rest of it in questions and answers.

Dr. Bobiwash, you are next, for five minutes, please.

[*Translation*]

Mr. Kyle Bobiwash (Assistant Professor, As an Individual): Good afternoon, everyone.

Mr. Chair, members of the committee, thank you for inviting me.

Based on my experiences with Indigenous communities, public services and academia, both as professor and student, more and more, facilitating Indigenous knowledge and science within the Canadian science system is what's guiding my career and my life.

[*English*]

The braiding or weaving of indigenous knowledge and indigenous science is increasingly a global priority. From our challenges

with conserving planetary biodiversity, mitigating or adapting to climate change, building a net-zero economy or ensuring both food security and food sovereignty, the work that we put into building processes and infrastructure to support the weaving and resourcing of indigenous science also improves our ability in Canada to build evidence-based policy and decision-making that optimize using knowledge from people who are often the closest to and have the longest relationships with many of the phenomena and systems that we wish to study.

As the committee has heard, indigenous science is a place-based knowledge system that is responsive to the needs of local people and enhances our relationships and responsibilities to each other, whether that be among humans, among species or in particular landscapes, but beyond that, indigenous science is also driven by distinct indicators and values.

Among the people I belong to, the Anishinabe, we have a variety of teachings, such as the seven grandfather teachings, or principles like the seven-generation concept that not only help guide our decisions and science development for today, but also give us an evaluative metric enabling us to measure the quality of our science and decisions for the future of those not yet born and even their children.

In Canada, we have some of the world's premier researchers in health, natural resource management, engineering, conservation biology and the list can go on and on, yet despite more interaction with science than ever through technology and the outputs of science, the youngest generations of Canadians risk facing shorter lifespans, more economic insecurity, more risks to life and livelihood due to climate change and—especially dear to me—less diverse, less beautiful and less resilient ecosystems and environments.

Indigenous science alone will not solve these problems. However, it's through the building of mechanisms that create space for indigenous science and self-determination in that science that we can enhance the thoroughness of our current scientific approaches. We can also improve the trust and transparency in our science and the decisions that stem from it, and we can build better ways to implement, share, mobilize and translate science for stakeholders and rights holders.

Through things like indigenous-led science priority-setting and indigenous science evaluation, we can drive science initiatives and funding opportunities that will drive the well-being of people, again, whether that be personal, economic or sociological, and at the same time we can also enhance that sense or the idea that science investments of all manners, both indigenous and non-indigenous, will improve and benefit the lives of people, their environments and workplaces.

From enhancing our ability to monitor sea ice or environmental change to providing modern crop breeders with plant traits to build new drought- or pathogen-resistant cultivars, the science and technology that have been developed by indigenous nations are already embedded in our science systems, as well as in our national and global economies.

However, a lot of this work has gone unrecognized and, more importantly, under-resourced, and it's this historical under-resourcing that represents an inefficiency in our science strategies and systems. Whereas professors like me have the opportunity to dedicate time to things like fundamental questions associated with sustainable agriculture or beneficial insect conservation, many land-based educators and knowledge-holders in our communities don't have that same resourcing support to continue developing and building their local knowledge systems.

Similarly, while it can always be better, funding and resources for the creation of the next generation of scientists—our undergraduate and graduate students—can be accessed through a variety of means in academia, while with indigenous communities, accessing funding to support the next generation of knowledge-holders is a lot more difficult, often due to funding programs' structures or processes.

Beyond these what I consider relatively easy issues to solve, we have larger-scale challenges that will require collaboration among Canada, the provinces and territories, academia, indigenous communities and industry. The building of an indigenous knowledge-holder or a scientist requires a lifelong network of support and outreach structures to create ethical space where scientific and indigenous knowledge can interact and be taught alongside each other and weave, where appropriate, for better evidence-based policy-making.

- (1620)

This involves a huge, wholesale effort to support the professional development of everyone in that science ecosystem, from the person collecting that science to the policy- and decision-makers using that science and even to the science teachers in our schools and communities.

Through the work of the interdepartmental indigenous science, technology, engineering and mathematics cluster, we are now just scratching the surface of supporting this work. The I-STEM cluster—

The Chair: I'm afraid we have to cut off on that sentence. I wanted you to get one last sentence in. Thank you for your presentation.

We are on time.

We'll move now to Jared Gonet via video conference.

Mr. Jared Gonet (Ph.D. Candidate, Conservation Biology, As an Individual): Thank you, committee members, for taking the time to hear from me and many others on this important topic.

I am first nations with deep family ties to Carcross/Tagish First Nation and Taku River Tlingit, with relations from Fort Liard to Whitehorse. My status is with Taku River Tlingit.

I am a Ph.D. candidate studying how conservation issues may justly walk with indigenous knowledge. In many ways, I consider how indigenous knowledge systems may bring in sciences.

Context matters. For example, your work falls in line with a path we are all on for reconciliation, though we indigenous nations seek a resurgence of our own knowledge systems. In reconciliation is an acknowledgement of the truth, such as my own grandmothers both having gone to residential school, and my mother. One was in a school for 14 years.

As Ernestine Hayes, a Tlingit author, writes:

The original people were told they must speak the new language. They were told they must wear the new clothes. They were told they must gather from the ocean for profit and not for balance, and they must look upon fish as things and not as salmon-people.

Because of the recent past, trust is an issue in sharing our knowledge. To help with trust, I recommend that each indigenous nation be supported to share their knowledge in a way that leaves it protected through their laws and stored safely for and with them from the grassroots level, as one of my elder mentors, Norma Kassi, reminds me.

Direct comparison of indigenous knowledge to science will create challenges, indigenous knowledge being a diverse system of philosophies, ethics, laws and ways of relating with our non-human relations. Our knowledge-holders exist within this system and may guide a person to use science in a more indigenous way.

I recommend that indigenous knowledge be seen as a system that must be uplifted through an indigenous nation's place-based authority. Policy and legislation must support elders to be advisers, have their wisdom recognized, and, as Kyle was just recognizing, support the space for the creation of the next generation of knowledge-holders, as mentor Mark Wedge, an elder of the Deisheetaan clan in Carcross/Tagish reminds me. Land guardians and indigenous conserved and protected areas are important steps.

Many indigenous nations come from a differing world view, so the terms we use are important. For example, in many parts of the Yukon, we have begun relationship planning rather than management planning. This helps to maintain our connections to our non-human relatives on emotional, spiritual, mental and physical levels. Here in the southern Yukon, we must maintain these relationships out of the laws that require respect, sharing and caring. This is a part of a systemic change that is required to allow more indigenous knowledge to come into policy.

Consider the words of Edna Helm, matriarch of the Ishkahitaaan clan in Carcross/Tagish, when thinking of a more Inland Tlingit world view: "We must recognize that Caribou are our protectors, not the other way around." Another example of first nation world views in action is Joe Copper Jack's championing of the voiceless, where, for example, caribou may be given a seat at the table when decisions are made about them, future generations or anything under discussion.

Indigenous peoples often see the world through a holistic lens where we are equal members of a vast web of life that has spiritual and feeling parts that we must honour, as late Dałl'aweidí elder Norman James often reminded me, and as is written in "Together Today for Our Children Tomorrow", a document presented to Pierre Elliott Trudeau in 1973, which started the treaty process in the Yukon. I recommend that policy consider how it may be written with love and pay homage to a great equity of us with all other parts of the lands and waters.

As one of our late Yukon elders, Virginia Smarch, noted, "We are part of the land and part of the water." Many of us see this as literally true, that the destruction of the lands and waters is the destruction of indigenous knowledge and us. We fight to teach others how to walk with the land and water, as an initiative in the Yukon is named. Hence, I recommend that indigenous sovereignty over lands and waters be acknowledged and that true decision-making authority through co-management or co-relationships be intertwined with how indigenous knowledge walks with and informs government policy.

In reconciliation is healing, so that Tlingit *haa kusteeyi*, southern and northern Tutchone *dan'ke*, Han and Tr'ondëk Hwëch'in *tr'ehude*, Kaska *dene k'eh* survive and exist in the future. All these are different names for indigenous knowledge in the Yukon and parts of B.C. This knowledge and many others throughout Canada must inform policy to create a more just and lasting society.

Thank you.

• (1625)

Thank you.

• (1630)

The Chair: Thank you for your testimony.

Now we'll go to Dr. Parlee for our final five minutes.

Dr. Brenda Parlee (Professor, UNESCO Chair, University of Alberta, As an Individual): Thank you for the opportunity to meet with you today.

I'd like to begin by acknowledging that we are gathering on the traditional and unceded territory of the Algonquin nation.

I'm a non-indigenous scholar at the University of Alberta, which is located in Treaty 6 and Métis territory. As noted, I hold a UNESCO chair, which I hold collectively with Danika Billie Littlechild and Mariam Wallet Aboubakrine. Along with many other amazing people, we lead the Arramat project, which is a six-year initiative funded by the Canadian tri-council focused on supporting indigenous-led research on biodiversity, conservation, and health and well-being.

I have been working in Canada and internationally for over 25 years at the interface between traditional knowledge, science and natural resource management. Today, I bring to you some reflections, with gratitude to the many indigenous people with whom I have worked for many years.

One cannot talk about the linkages between science and indigenous knowledge without recognizing the inequities of representation that are so clear in post-secondary institutions and government. There are significant biases in who has access to resources, including the provincial norths, to produce knowledge and be heard at tables like this. The fact that I am presenting to you today, and not a great northern indigenous scholar such as Nicole Redvers or leader such as Herb Nakimayak from the Inuit Circumpolar Council, speaks to the unsettling biases we have in Canada about whose knowledge matters.

Indigenous knowledge is often stereotyped as produced and held only by elders and based in the distant past. However, I have had the honour to witness that indigenous knowledge comes from deep and ongoing physical and spiritual relationships to nature, and it is generated, held and shared within and between communities in diverse ways. It is more relevant today than ever, particularly for youth, who often struggle to find their place.

As expressed recently in a science-culture camp led by Łutsel K'e Dene First Nation in the Northwest Territories, youth want to learn and speak their own languages and to develop knowledge and skills from both elders and scientists. There is much to learn from indigenous youth about creating culturally safe learning spaces and opportunities. Let's ask them.

We need to pay attention to places where things have gone—and are still going—terribly wrong. Conventional kinds of science have created, rather than solved, many environmental sustainability problems. Knowledge conflict over the risks of oil sands mining in Cree, Dene and Métis territory in Alberta is an obvious case in point. Headlines about the extirpation of southern mountain caribou herds in Alberta are also revealing of the profound science-policy disconnects that we have in Alberta and Canada. It has only been through the leadership and courage of indigenous communities that some glimmers of hope have emerged for caribou and for people.

There are also success stories of knowledge co-production and co-management that I'd like to highlight, including the long-term collaborations between biologists and Inuvialuit communities to monitor beluga whales in the Beaufort Sea. Thanks to the hard work and vision of harvesters such as Frank Pokiak and devoted scientists—I'll note that most of them in this example are women—this program has produced over 40 years of data on beluga health, which is the envy of many governments around the world.

What differentiates the success stories from those of conflict? Many things do. At the forefront is respect for indigenous knowledge, but also legally binding institutional arrangements—agreements with teeth—that uphold indigenous land and resource rights. The successes of these kinds of programs also lie at the community level, with small organizations like hunters and trappers committees—also managed by powerhouse young women—whose efforts are little recognized and whose work is chronically underfunded. Support from the federal government for the indigenous guardians program is a wonderful step forward, but more resources are needed for indigenous-led research.

Addressing these issues cannot be done in a vacuum. Why do indigenous peoples in Canada, particularly in the provincial norths, not have access to clean drinking water, safe and affordable housing, healthy environments and foods, and opportunities to build thriving livelihoods? These are basic human rights. Let's implement the calls to action on truth and reconciliation, address the terms of the United Nations Declaration on the Rights of Indigenous Peoples and also address the commitments on climate change and in the global biodiversity framework.

• (1635)

Let's work together to create and ensure healthy environments and communities where we can all be proud to live.

The Chair: Thank you very much.

Now we'll move to our six-minute rounds of questioning, starting with Mr. Soroka, please.

Mr. Gerald Soroka (Yellowhead, CPC): Thank you, Mr. Chair.

Thank you to the witnesses for being so patient with us.

Seeing as you are from Alberta, Dr. Parlee, I'll start off with you.

In your experience with community-based natural resource management, what have you found to be the most effective ways to include indigenous perspectives in conservation efforts?

Dr. Brenda Parlee: Thank you very much for the question.

I think I noted a couple of key points in my presentation, notably recognition of the value of indigenous knowledge systems and respect between scientists and indigenous knowledge-holders.

I think that at the root of a lot of the conflicts we see, or the lack of strong and healthy relationships between scientists and indigenous knowledge-holders, there are the issues of land and resource rights that are often an undercurrent. Until we address those issues, it can be hard to get past conversations of epistemology.

I'll mention a couple of other key points. I've been working, for example, with the Mikisew Cree and Athabasca Chipewyan first nations, and we've funded a number of community-based resource management projects over the last five years, recognizing the importance of indigenous people doing their own research on their own terms, communicating their knowledge in different ways and addressing capacity issues at the local level. Many communities are so chronically underfunded and the gaps and needs—for example, for youth engagement—are so great that it's a constant uphill battle in many cases.

I think the recognition, again, of land and resource rights is so critical. These aren't just issues that matter to Alberta first nations or Métis communities. These are about all Albertans or all Canadians, so I think that if we can solve these problems together, it's not just of benefit to them but, as I said, to everyone.

Mr. Gerald Soroka: Thank you for that.

I'm going to go to the next presenter.

Dr. Gonet, how do indigenous traditional practices contribute to modern conservation efforts, based on your studies?

Mr. Jared Gonet: You're jumping the gun. I'm not a doctor quite yet, but soon, hopefully.

How do indigenous traditional practices contribute to conservation practices? One thing that really works—and I've been sitting on a caribou management board for several years—and brings people from multiple different perspectives together is when our perspectives start to centre on what we want to preserve and protect.

I mentioned the example of the caribou sitting at the table. We always come back to what is the best thing for caribou. We all need to come together and figure out what is the best thing for, say, the lands and waters, and we're going to figure this out together because we all recognize that we need healthy lands and waters to exist into the future.

Mr. Gerald Soroka: What are some of the challenges with blending these practices with mainstream conservation strategies?

Mr. Jared Gonet: The big one is cultural education and the fact that it does take a lot of cultural education from us, as first nations people, to make others understand what it's like to come from our world view.

People really fall back into what's written in policy and what's written in law, and that can lead to a lot of challenges because all the laws and all the policies are currently written from a more Euro-centric, western perspective, just based on long histories there.

Mr. Gerald Soroka: Thank you.

I'm trying to get to everyone and ask a question of each one.

Mr. Bobiwash, regarding your course on indigenous issues and food systems, what key lessons would you share about integrating indigenous perspectives into agricultural policies?

Mr. Kyle Bobiwash: Thank you for the question. I think that's something worth highlighting.

This course has lots of non-indigenous participants from lots of farm families with a long history. Again, with what Jared was identifying, I create that little bit of indigenous cultural competency. However, beyond that, I enhance their ability and empower them to actually start to develop, utilizing their own expertise, their own knowledge of their own family farm systems, of being a resident of Manitoba.... I get them to really start to think about how incorporating something like indigenous values—the way we look at ecological relationships among certain plants, animals, or our water systems with our farm systems—actually translates into something like best management practices that all farmers are already incorporating. It's not only about the fuel or the agricultural productivity of a farm system, but also, how can we have additional benefits, whether that's through riparian habitat management, more efficient nutrient management, or even creating farm systems that actually serve as habitat for endangered species or at-risk species?

It's really about driving that unique perspective that lots of these students have from their own experience to actually be able to craft novel and unique perspectives that can potentially fuel indigenous development in agriculture.

• (1640)

Mr. Gerald Soroka: Thank you.

The Chair: It was great to get the answers. Thank you for the questions.

Now we'll go to Dr. Jaczek for the next six minutes, please.

Hon. Helena Jaczek (Markham—Stouffville, Lib.): Thank you so much, Chair.

Thank you to the witnesses for their testimony. I'm sure you're aware that we've been hearing a lot of very interesting testimony as to the value of integrating indigenous knowledge and what we're calling “western science” into government policy development. I think most members of the committee are absolutely convinced that we need to do this.

That's what I'd like to really zero in on. What are the practical ways to ensure this actually happens?

Dr. Parlee, you mentioned under-representation in faculty and government. That's obviously something that needs examination in terms of universities themselves. You also mentioned the indigenous guardians program. Perhaps you could describe that particular program and why you feel it's so successful.

Dr. Brenda Parlee: Thank you.

The indigenous guardians program is an incredible network of indigenous communities supported by different sources of funding, but led through the hard work of numerous people in the Indigenous Leadership Initiative. When you think about the term “guardians”, it's about monitoring in some parts, and doing ongoing evidence-based research to collect data about issues that matter in communities. Can we drink the water? Can we eat the fish? How can we sustain resources that matter to our food security? However, it's also about sovereignty, about communities having that identity, that connection to the land, and being able to maintain that connection over time.

It's also social and cultural in many ways. It's an opportunity for communities to build, teach and create learning opportunities for youth. There are guardians programs as well that have an educational focus aimed at the public. The guardians program led by Iris Catholique in Łutsel K'e Dene First Nation, for example, tied to Thaidene Nēné National Park, is also aimed at educating non-indigenous people in the region about Dene culture.

It has many different dimensions, and I think it's that holistic approach that makes it so successful.

Hon. Helena Jaczek: Has it been funded through the federal government, then?

Dr. Brenda Parlee: There are commitments from the federal government already to the indigenous guardians program, but these are drops in the bucket when you think about the need and the extensive opportunity there to learn from indigenous people.

Hon. Helena Jaczek: You would recommend expanding those programs.

Dr. Brenda Parlee: Exactly.

Hon. Helena Jaczek: Dr. Bonta, you have experience in Australia. Our analysts provided us with some information about what Australia and New Zealand have done, in particular. They mentioned things like guidelines for patent protection and so on.

Since you've worked in so many different places, could you tell us something about your experience as to what other jurisdictions do, which the Canadian government could look at specifically?

Mr. Mark Bonta: Coming from our different experiences—

The Chair: Can you hold that thought for half a second, Dr. Bonta?

I'm sorry for another interruption, but the lights are flashing. I'll see whether we have unanimous consent to continue with the discussion. We have 30 minutes. We could vote virtually.

It's a closure motion in the House.

• (1645)

Mr. Corey Tochor (Saskatoon—University, CPC): Who moved that motion? Was it a Liberal government closure motion?

The Chair: I didn't see who put it down.

Mr. Corey Tochor: We'll have to go back.

The Chair: It looks like the Conservatives are leaving. We don't have UC, so we'll have to get that answer in writing, unfortunately, Dr. Bonta. I'm sorry for the interruption.

I was hoping we could get another round of questions in. Apologies to the NDP and to the Bloc as well.

Normally our committee works a little more collaboratively than this, but unfortunately we are going to have to suspend until after the votes.

• (1645)

(Pause)

• (1725)

The Chair: We'll resume our lines of questions. I think we had about a minute and a half with Dr. Jaczek and Dr. Bonta.

I'm sorry for the interruption. Let's continue on and we can at least get this round finished.

Hon. Helena Jaczek: Dr. Bonta, perhaps you could respond, based on your experience in Australia, on something that could be of use to the Government of Canada.

Mr. Mark Bonta: I think the ranger groups, as they exist, are a huge success in the Northern Territory. I would highly recommend you look up the Northern Land Council and the Land and Sea groups. These are indigenous rangers who work to restore the landscape to pre-1788 conditions—before Captain Cook—through fire management and a lot of other aspects, but also through the protection of sacred sites. They are working together in a way that I've never seen anywhere else in the world among indigenous people. They have power, though, definitely beyond what we have in the U.S., even in places like Mexico. They own the land, and you go in on their invitation only.

Having said that, they feel incredibly.... The process of publishing with them takes many years, but for the oldest societies in the world, really, 40,000 to 50,000 years of unbroken knowledge.... It's just beyond anything I ever considered. It's maybe something to look at as an alternative model from somewhere else that was obviously colonized from the same source.

There's not a lot more to say there.

If you're interested in the fire-spreading, I can always pass that along. We're actively involved in trying to publish some of the deeper accounts, but we got cut off during COVID. It takes a long time to negotiate the permissions. We have them, but we just need to have them legally, basically. People are very happy to share the open knowledge—not the secret knowledge—of birds that spread fire, why they do it, how they do it and so forth.

The Chair: Thank you.

Now we'll go to Monsieur Blanchette-Joncas.

[*Translation*]

Mr. Blanchette-Joncas, you have six minutes.

Mr. Maxime Blanchette-Joncas (Rimouski-Neigette—Témiscouata—Les Basques, BQ): Thank you, Mr. Chair.

I'd like to welcome the witnesses with us for today's study.

Mr. Bonta, based on your experience in South America, how do South American governments incorporate their Indigenous peoples' knowledge into their government policy?

[*English*]

Mr. Mark Bonta: I can speak to Mexico. I was thinking about this. It's a country in which the Spanish colonial point of view was to put people into pueblos. It was a very different way of doing colonization.

In the Mexican identity, the mestizo identity, there's a tension with indigenous knowledge, definitely, but if you look at what's happened in Oaxaca, again, they have absolute control of what happens in their municipios. That's another country where incorporation of indigenous knowledge directly, I think, is getting to the threshold.

What I would like to see is that we stop talking about ethno-ornithology—and I'm somebody who's been doing ethno-ornithology for a long time—and just talk about ornithology and bring people centrally into the process. Much of what we are finding out that we need to learn about birds cuts across western ornithology and ethno-ornithology. When you collaborate in Mexico, you do it only with the permission of those groups, in most cases.

I have one other comment on that. I saw a hospital and I thought, "I'd like to see a university here in the north." In that hospital in an indigenous region, you can go in and you can choose. You can have indigenous practitioners, religion, Catholic traditions, or western, for cancer treatment or for anything, but it's all within the same hospital. The western Mexican medical personnel are trained in the indigenous methods and vice versa. There are three or four of them around Mexico. I'd never seen, really, anything like it, but in Mexico a lot of the indigenous medicine is elevated to the level where everyone seeks it out.

That's my vision. There are countries where they're breaking through, seeking it out as something that's on the level. It's not just something that's in one place and you go to find that knowledge applicable there, but it's universal.

I think, definitely, I can speak most to Mexico.

• (1730)

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Mr. Bonta.

You talked about beliefs and spirituality. At our previous meetings, some witnesses have mentioned that these aspects are part of Indigenous knowledge.

I'd like to understand how we can distinguish between belief and knowledge. As we know, western science has a scientific method, but how is it done for Indigenous knowledge? Is there a testing process to determine what's true and what's false?

[English]

Mr. Mark Bonta: I had no translation.

A voice: Hang on a minute, Mr. Chair. Something went wrong.

The Chair: I paused the time.

We can hear the interpreter now.

Mr. Mark Bonta: I couldn't hear it the first time.

The Chair: Could you repeat the question?

We'll start over. I've paused the time.

[Translation]

Mr. Maxime Blanchette-Joncas: I will ask Dr. Parlee to respond, and then Mr. Bonta can.

[English]

The Chair: If you ask the question again, I won't put it on your time and then he can pick it up.

[Translation]

Mr. Maxime Blanchette-Joncas: I'll repeat the question.

You talked about the spiritual beliefs that can be drawn from Indigenous knowledge. So my question is, how do we separate belief from knowledge? Is there a testing process for Indigenous knowledge?

Western science has the scientific method and process, but, in terms of Indigenous knowledge, how can we distinguish between knowledge and spirituality to ensure that we've defined knowledge and, above all, figured out the truth?

[English]

Mr. Mark Bonta: Thanks.

That is a fundamental question. Even in western knowledge, I think we like to make claims about what is true because we peer-review and because we have this whole process, but in reality much of what is published is not going to be true. Much is disputed.

In studies of indigenous knowledge, which is based on what you heard, it can be more anecdotal and it may have importance. If we're looking at going out with people into the field and comparing, groups of people are going out, identifying plants and figuring out what they're useful for, or what birds do. Different people get together and they talk about it. They discuss it, they disagree and they settle on what the answer is.

As my colleague mentioned, it's very dynamic. It's happening now. People are making new knowledge.

I think it's very contextual to what you're dealing with and it's something that outsiders should be more sympathetic to, because we do the same thing as scientists. We come together, we peer-review and we do all this.

I hope that answers your question, to a certain extent. It would be a very long answer to get into what truth is and what knowledge is.

[Translation]

Mr. Maxime Blanchette-Joncas: Thank you.

Dr. Parlee, I'm going to give you an opportunity to answer the same questions. We talked about the scientific method, and you also hold a research chair.

I'd especially like you to tell us how we can really distinguish between spirituality and knowledge.

• (1735)

[English]

Dr. Brenda Parlee: Thank you.

To be brief, so that there is an opportunity to hear from others as well, I think a fundamental question is how indigenous knowledge is similar to and different from science.

There are many similarities in terms of what your question asks. For example, if my colleague Joseph Catholique, who is a caribou hunter, goes out on the land, he sees 10 caribou. The scientist who goes out on the land also sees 10 caribou. That's evidence-based knowledge. If Joseph Catholique is going out on the land year after year, and that scientist arrives only once every five years, the depth and the detail of the indigenous knowledge are profound when compared to science. There is a long time series of knowledge for indigenous people that gives that credibility.

We see conflicts between science and indigenous knowledge around basic things, like how many caribou and population dynamics. I have sometimes said that indigenous knowledge is better than science, in the sense that it has a spiritual connection as well. People understand caribou migration and population dynamics based on evidence, but also because of that spiritual connectedness.

[Translation]

Mr. Maxime Blanchette-Joncas: Thank you.

[English]

The Chair: Thank you.

Mr. Cannings, you have six minutes, please.

Mr. Richard Cannings (South Okanagan—West Kootenay, NDP): Thank you.

I wish we had all day here. This is very interesting.

I'm going to start with Mr. Gonet.

You talked about indigenous knowledge systems invoking a relationship between man and nature—caribou, salmon. I would just like to get an example of how that might work in terms of bringing indigenous knowledge to help us with policy.

When I was in the Yukon back in the 1980s, I would eat chinook salmon at Mayo. The chinook were plentiful then, it seemed, and it's certainly not that way now.

I'm just wondering if you might give an example of how indigenous knowledge could better manage the relationship between salmon and people in the Yukon River system.

Mr. Jared Gonet: Thank you.

I know one example right now is they just started an indigenous knowledge committee of the Yukon River Panel, and this is bringing elders and knowledge-holders together to really impress upon people just how important salmon are to the indigenous people here.

That's part of what science loses, or dominant forms of science. When you think about an indigenous scientist or an indigenous knowledge-holder practising science, they're well aware of how important salmon is to culture and to the people, and they can bring that into the decision-making process. The fact that as we lose salmon, we're losing part of our identity and we're losing part of our health creates a lot more impact in your processes.

I'll leave it at that for now. Thanks.

Mr. Richard Cannings: Thank you.

I'll ask the same question of Dr. Parlee.

Another example you mentioned is that beluga populations are doing okay in the Beaufort. I'm wondering how using indigenous knowledge in those policy-making decisions around how we manage species like beluga, if we can use that terminology, is different from the standard western science way of going in and trying to count things, finding a level that you can harvest them at and just seeing what happens.

Dr. Brenda Parlee: My comment earlier was that there's a long-term monitoring program that involves or is led by the Inuvialuit communities. Over 40 years of data has been collected about mercury, among other things.

That program began or was designed around answering key questions that were important to communities. Beluga is so fundamental to food security in the region, to the culture and livelihood of the communities, so the kind of science that's being done is science to answer critical questions about human health, about food, about culture and livelihood, and I think that's different from many science-driven programs.

The other key difference is that the other kinds of indicators, the other kinds of knowledge that are being collected at the same time are much more holistic than many other monitoring programs that are science-driven and that have a much more narrow focus.

Finally, there's the extent to which the monitoring work itself, the research work itself, is embedded in culturally valued processes like harvesting, in which the process of research, the process of doing science, building knowledge, co-producing knowledge is one that is ingrained and valuable to the communities, including youth.

• (1740)

Mr. Richard Cannings: I will quickly turn to Dr. Bobiwash.

Again, it's the same question. How do we bring indigenous knowledge and weave it in with western science? I read that you study pollinators. You've been working on questions around pollination of blueberries. You've worked in vineyards, very close to my heart, in the Okanagan.

How can you bring your indigenous knowledge systems into those questions?

Mr. Kyle Bobiwash: I'll even highlight that I've actually worked with the member's brother, Syd, with the Canadian Wildlife Service in some pollination work.

One thing that I think is really important is that... Again, we might have perspectives, western ideas of biodiversity based on typical taxonomy or something like genetics and phylogenetics. In a lot of our work, we try to explain some of those drivers that result in certain species being there or certain species not being there, certain species being able to provide some sort of ecosystem service, and again, we're utilizing very western conceptual ways of understanding landscapes.

What indigenous knowledge and indigenous science bring us is more alternative hypotheses, more alternative types of data, ways to characterize landscapes, ways to characterize biodiversity and those relationships that, say, a pollinator might have with flowers or that caribou might have with certain foraging areas or, similarly, that the beluga might have with particular areas.

Bringing that knowledge is really important.

The Chair: Thank you for getting that in.

Thanks, Mr. Cannings.

We have enough for three minutes for the Conservatives, three minutes for the Liberals, and one and a half each for the NDP and the Bloc. That will take us to the full 60 minutes. Of course, it's been more than 60 minutes, but that will at least get some fairness to this part of the study.

Now we go to Mr. Tochor for three minutes, please.

Mr. Corey Tochor: Thank you, Chair, and thank you to our witnesses.

It was unfortunate that we had to pause there for the closure. There is one other matter that we need to handle before we get into some more questions for you.

There was a development and we put a notice of motion on Friday. I move:

Given that: the Openmind Research Institute decision to partner with Huawei, and considering the dangers of advanced AI falling into the wrong hands, and given the risks posed by the People's Republic of China which have advanced to such a level that the Director of CSIS has publicly warned that "Everything that they're doing in our universities and in new technology, it's going back into a system very organized to create dual-use applications for the military" and, given that this committee has received expert testimony characterizing this as an "existential threat" to Canada, while the Minister of Innovation, Science and Industry has consistently failed to proactively protect Canadians from the risks posed by companies with ties to the Chinese Communist regime such as Huawei, while insisting that "Our government's commitment to research security was further affirmed" the Science and Research Committee expresses its deep concern with this partnership to the House.

I'm asking for a quick vote, and then we'll get back to testimony.

• (1745)

The Chair: There is a motion on the table for discussion.

Mr. Cannings.

Mr. Richard Cannings: I have just a quick point here.

What I would like to.... Here is a motion that says that we read about this in the paper and we should express our disappointment or whatever. This situation that we see with a researcher doing open AI research where Huawei is involved is an example of something that certainly I kept bringing up in this study, but we never had anybody to speak to it, it seemed.

I would really like to amend the motion to say that we bring that researcher to this committee for testimony so that we can find out what his work involves and how he got Huawei involved. I think that's really important for our study. Then we can make the decision to express our disappointment or whatever, after we know more.

I would ask that we amend that to hear from him here at this committee.

The Chair: Okay, there is an amendment now. We can speak to the amendment.

I saw Ms. Rempel Garner had her hand up first, then Mr. Tochor and then Mr. Turnbull.

Hon. Michelle Rempel Garner (Calgary Nose Hill, CPC): I guess it's a point of clarification for Mr. Cannings.

When he is talking about the study or that he wants somebody to speak to this as part of the study, is he talking about the current study we're in right now? Through you, Chair, may I just ask him for clarification on that?

Mr. Richard Cannings: I'm sorry. I meant the study on the issue of research involving China.

We may have completed the witness part of that, but I'm suggesting bringing in this researcher to add further testimony to that study because we haven't had the report yet. I just think it would be a valuable addition, because we talked about it but we never had direct testimony.

Hon. Michelle Rempel Garner: I'm not finished yet.

The Chair: The floor went to him.

Hon. Michelle Rempel Garner: I was just asking for clarification through you.

If that's the case, then, I would make a subamendment to Mr. Cannings' amendment.

I agree with his suggestion. I would amend it so that the witness be invited to appear prior to December 15, 2023.

The Chair: Okay. I see he is nodding his head.

We'll go to Mr. Tochor, and then Mr. Turnbull.

Mr. Corey Tochor: We'll vote in favour of Mr. Cannings' amendment to the motion and the subamendment.

I want to highlight to our witnesses that we do have resources until seven o'clock. If you're available, please do not leave because we do want to have a full round of questions with you guys on what's left.

I would just say that I think that's an excellent amendment, and I would ask for a vote on the amendment.

The Chair: Mr. Turnbull.

Mr. Ryan Turnbull (Whitby, Lib.): Unfortunately, you can't just ask for a vote, because there's a speaking list.

I'm just wondering why the Conservatives brought this motion back to the table when we have scheduled committee business, which is after the valuable time that our witnesses have given up to be here today for testimony. To me, that's troubling, when we have a dedicated time to discuss these matters, and it makes no sense to use up valuable time with our witnesses. It interrupts the study that we're currently undertaking, and we actually have scheduled time to discuss motions like this.

I have a number of issues with the motion, but I would suggest to the committee that we adjourn debate on this and get back to it in committee business once we've asked the witnesses all the questions and had our valuable time with them.

I move to adjourn debate.

The Chair: That's a dilatory motion, so we'll go to the vote on adjourning debate.

(Motion agreed to: yeas 7; nays 4)

The Chair: We'll go back to the witnesses. We had Mr. Tochor for about two and a half minutes.

• (1750)

Mr. Corey Tochor: Yes, I'd like to learn a little bit more about the birds talking to humans and humans talking to birds, to understand that a little bit more.

Mr. Mark Bonta: In the last few years, we've had a lot of research in ornithology, given some rather advanced tools we have, to understand that birds have advanced communication systems within species and across species. There's always been this traditional belief that one could communicate with them or that there was communication back and forth.

I think the best example I can give is a bird called the honeyguide in east Africa. It has a type of speech—this is coming from the anthropologists who study it—and it seeks out honey, but it uses people to do so, and vice versa. There are several studies that have shown that the Hadza people, hunter-gatherers in Tanzania, have a type of language where they communicate with birds. Birds will come to them and basically guide them to where the honey is.

Mr. Corey Tochor: Just to clarify, how would they talk? What would that sound like?

Mr. Mark Bonta: They would be whistle sounds, more bird calls than any sort of human speech. The interesting thing about this that they've discovered is that it's only used between humans and birds. Birds don't use it with each other. It has a grammar, so to speak, a directional component. The honey exists in a certain place, so they alert the human. The human follows. They find the honey. The bird needs the human to get the honey out of the tree, to break the tree open, and then the bird actually eats the honeycomb. There are a lot of documentaries on this. Over the years, as we've gotten more sophisticated in recording and then breaking down the recordings and analyzing them, we're able to understand.

Another example would be chickadees, very common birds, and tufted titmice. They have these much more advanced systems of communication, and they go across species as well.

We're hearing that in Australia birds will communicate certain things. I always go back to the example of pets. In pet bird studies on parrots or studies on birds in captivity like crows, we're able to see advanced communication systems. This is something that would definitely be taking place.

Mr. Corey Tochor: I'm almost out of time, so I'll ask just a quick question about the birds and the bees. Do they talk back and forth?

Some hon. members: Oh, oh!

Mr. Mark Bonta: No.

The Chair: Thank you.

Now we'll go to Ms. Diab for three minutes, please.

Ms. Lena Metlege Diab (Halifax West, Lib.): Mr. Chair, thank you.

Let me first thank the witnesses for being here.

I have a comment. I usually don't, but with this one, Dr. Bonta, you have taken me back five decades to when I was a little child, and I remember my grandparents in Lebanon and elders and people there telling me that they could talk to birds, and birds talk to them, and as a result of that, there's a whatever. Thank you for that testimony. It's not something that we hear about in this country, or certainly in the milieu that we are in, but I actually now remember that it does exist, and you have information on that. I think that's very valuable for us to hear.

Go ahead.

Mr. Mark Bonta: I just want to point out that if you talk to your pets, there's really no difference. Birds have the same cognitive abilities as mammals we know. If you're a birder, if you watch birds, you can attract them. Hunters know this. One of my issues

with indigenous knowledge is that we need to realize that this is something we can also learn. I think lots of people who spend time close to nature know this. I just talk about domestic species because you get to see this up close—the activities of your house cat. This is where we're privileged to have those communications. Of course, it's a very different type of speech.

There is tons of literature out there now, so it is definitely being taken seriously, and that's the space where we can go back and re-examine those old, traditional beliefs in Lebanon.

Ms. Lena Metlege Diab: Thank you for that.

With my limited time, I have a quick question for you, Mr. Gonet.

I think you're almost a doctor, and you're doing things with the Yukon University. What role can indigenous-led post-secondary institutions, such as the Yukon University, play in better supporting the integration of indigenous knowledge in government policy development, from your perspective?

• (1755)

Mr. Jared Gonet: Thank you for the question.

For sure, they can make an excellent contribution. I know that Margaret Kovach, who is a leading scholar in Canada, has mentioned that for indigenous knowledge to really live, it needs to exist in several different parts, and it needs to be uplifted. As a university, it can help fund indigenous researchers. They can uplift indigenous knowledge-holders and say that these are the experts in these knowledge systems.

As an example, we were just talking about animal communications. I met with several elders who have, for sure, communicated with animals, or say they have communicated with animals, just in the examples here.

The Chair: Thank you very much.

We have Mr. Blanchette-Joncas for one and a half minutes.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Mr. Chair. I'll be quick.

Dr. Parlee, you said earlier that western knowledge and Indigenous knowledge might conflict. How should or can the government develop public policy when these two types of knowledge conflict?

How can we distinguish between them? Should we give priority to one over the other? How do you go about it?

[English]

Dr. Brenda Parlee: I think it's important to note that there are conflicts among scientists, and taking lessons on how we deal with those conflicts is important. Knowledge is political, as well as rooted in evidence and data. It's taking note and making those socio-political values transparent in terms of where the knowledge is coming from and whose knowledge matters. I think that's one way of dealing with that.

A few of the examples where we've seen knowledge conflicts are to do with the very iconic polar bear population. There is conflict among some scientists and Inuit and Inuvialuit knowledge systems, and some of that has to do with the kinds of data that are being compared.

When we dig more deeply into the root of the knowledge, we determine that people are looking at different indicators—at different time scales or subpopulations, for example. We need to be very careful when we assume that science has a monopoly on what's right, and that we're only fitting indigenous knowledge in when it's convenient.

The Chair: That's great. Thank you. A minute and a half goes quickly.

We have Mr. Cannings for a minute and a half, please.

Mr. Richard Cannings: Thank you.

I'm going to turn to Dr. Bonta. Maybe I'll give you a minute to expand on your statement about the synthesis of these knowledge systems.

The way I understood it is that we shouldn't be trying to bring indigenous knowledge into western science and trying to meld it there, but we should create a new knowledge system out of the two or more.

Mr. Mark Bonta: For questions of climate change, it's a little immature now for us, in a sense, as human beings.... In my lifetime as a geographer.... Thank God, we're finally starting to see the earth as something.... People are realizing things that 20 years ago were very esoteric and having that space, not to bring in these people as voices but to basically centralize this and have these discussions, maintaining the separate knowledge and separate traditions and so forth.

This is in many countries, and I definitely think worldwide. I don't see why we wouldn't, so that's why I'm interested in the hybridization, in a sense, in certain topics, in certain goals and in certain applied settings, but definitely the case of climate change would be something that we should be.... We should even have journals that go beyond what we have, breaking all the disciplines apart. As scientists, we don't even talk to each other.

We know full well that there is no such thing as science, so if we can move beyond that, governments could definitely be in the lead in that.

• (1800)

Mr. Ryan Turnbull: Thank you.

The Chair: Thank you to all the witnesses for being here for this extended portion of our meeting. Thank you for your incredible patience, but mostly for the knowledge that you've shared with us, which will be very beneficial for the study we are doing. It's a very interesting and challenging study, so thank you all for agreeing to be with us today.

I think what I'll do is suspend. We can have some sidebar conversations to see what we'd like to do with the rest of the meeting, so I'll suspend for a few moments.

Thank you, again, to the witnesses. You're free to leave, finally.

• (1800)

(Pause)

• (1800)

The Chair: Thank you, all, for your patience in getting us through that part of the meeting.

The question of whether we go into our committee business in camera or adjourn the meeting is up to the will of the committee.

Mr. Turnbull.

Mr. Ryan Turnbull: I'm fairly ambivalent, but it says "in camera" in the notice of meeting, so I would suggest that we move in camera.

The Chair: Okay, we'll go in camera, and then we'll pick up the conversation.

[*Proceedings continue in camera*]

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