

NATURE-BASED
Climate Solutions Summit

Sommet des solutions
NATURE POUR LE CLIMAT

February 5-6, 2020
Summit Report



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The summit was organized by a Steering Committee that includes many of Canada's leading nature and conservation organizations. The Steering Committee was:

The following organizations were also actively involved in the design and preparation of the summit:



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The Steering Committee would like to acknowledge that the National Arts Centre is located on unceded and unsurrendered Algonquin Anishinaabe territory, and that the work of all organizations involved takes place on the land of many Indigenous nations. We sincerely hope that this summit will advance the goals of Indigenous sovereignty and Indigenous-led conservation and land protection.



Photo: Susanne Ure

400 participants from across Canada

The Nature-Based Climate Solutions Summit took place from 8:00 am to 5:00 pm with a reception from 5:00 to 7:00 pm on February 5th, and from 8:00 am to 5:00 pm on February 6th, 2020 at the National Arts Centre in Ottawa, Ontario on unceded and unsundered Algonquin Anishinaabe territory.

The summit was attended by over 400 participants from across Canada - from British Columbia to the Northwest Territories to Newfoundland - and in a diversity of sectors - Indigenous nations and organizations; federal, provincial, territorial, and municipal government; ENGOS; private companies and environmental foundations; labour unions; and many more.

2020 has been deemed “The Year of Nature”, as there are a number of major opportunities on the horizon, such as the emergence of the UN Nature-Based Solutions to Climate Coalition and the Post-2020 Convention on Biological Diversity negotiations. Here at home, the new federal government has made a commitment to plant billions of trees, create a natural climate solutions fund, and protect 30% of Canada’s lands and oceans by 2030. The Steering Committee and all participants chose to seize this opportunity to achieve shared objectives and ensure that these policies are implemented in a manner that has both climate and biodiversity outcomes by coming together for this event.

The Nature-Based Climate Solutions Summit increased our collective knowledge of nature-based climate solutions and helped chart a path forward. The large in-person audience and viewership on the livestream represents a growing constituency of citizens that support federal action and investment in nature-based solutions. During the summit, we explored opportunities to work together to advance natural climate solutions that have climate, biodiversity and other co-benefits for people and nature.

Over the course of organizing this summit, the organizers created a comprehensive list of relevant resources on the topic of nature-based solutions to climate change in Canada and internationally. The list can be found on our website at: www.naturebasedclimatesolutions.ca/resources.



Photos: Susanne Ure

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Moving from big ideas to specific actions

The organizing principle behind the agenda for the Nature-Based Climate Solutions Summit was “moving from big ideas to specific actions” on nature-based solutions to climate change in Canada. Focus areas included: nature-based climate change mitigation, ecosystem restoration & adaptation, natural infrastructure, protected areas, and Indigenous-led approaches to all of the above categories.

Sessions were organized around key landscapes (forests, wetlands, oceans & coasts, agricultural & grasslands, and urban areas) and by important opportunities and interventions (carbon offsets, Indigenous-led conservation, and policies & funding).

More information about all speakers can be found on our website at www.naturebasedclimatesolutions.ca/speakers.

▶ Hyperlinks to the full video recordings for each session can be found throughout this report.

Day 1 – February 5, 2020

9:20 – 9:30 am

Welcome on Behalf of the Steering Committee and Sponsors

Graham Saul (Executive Director of Nature Canada)

▶ [Watch recording: www.youtube.com/watch?v=wzvoVYnHWjU](https://www.youtube.com/watch?v=wzvoVYnHWjU)

Graham Saul, a member of the summit's Steering Committee, opened the first day of the summit and welcomed participants, acknowledging the sponsors and highlighting that the event is an outstanding example of true collaboration between major conservation organizations on the Steering Committee and other participating organizations. He noted that the organizers had to close registration due to the attendance of over 400 people who are choosing urgency and demonstrating a need for climate change solutions, as well as the participation from a diversity of sectors, including federal, provincial, and municipal governments, the private sector, not-for-profits, and Indigenous nations and organizations. He emphasized that Indigenous-led conservation is the future of conservation in Canada.

He finished by saying that attendance at the summit indicates how much demand there is for action on nature-based solutions to climate change, and that it is the beginning of bigger commitments from the federal government both at home and internationally.

9:30 – 10:00 am

Welcome to the Traditional Territories of the Algonquin Anishinaabe People

Claudette Commanda (Algonquin Anishinaabe from Kitigan Zibi Anishinabeg First Nation; Executive Director, First Nations Confederacy of Cultural Education Centres)

▶ [Watch recording: www.youtube.com/watch?v=-JV-4QsxeVs](https://www.youtube.com/watch?v=-JV-4QsxeVs)

Claudette Commanda opened the summit with a welcome to and recognition of unceded and unsurrendered Algonquin Anishinaabe territory. She was pleased to see the importance of land growing in the eyes of non-Indigenous people, but emphasized that the land can't be separated from what we call "nature" or "climate".

The world is now coming to Indigenous peoples for guidance on saving the land, and she stressed that in doing so, we need to acknowledge that there is inherent value in Indigenous traditional knowledge and ways of life if these solutions are going to be successful (even if these values are different from what non-Indigenous people are used to valuing). In 1991, she was invited to an Indigenous conference in Paris as part of the North American delegation that only had six Indigenous delegates. As part of a "how to save the earth" group, the Indigenous people gave a simple piece of advice: "It's easy to save the earth: give it back to the red people."

Positive relationship building is finally happening and we may move forward together because we have two things in common: our relationship to the land, and our relationship with each other. Claudette left us with a final teaching, encouraging participants to ask themselves: "How do we live with the land?"

10:00 – 10:15 am

Welcome from the Government of Canada

Ambassador Patricia Fuller (Canada's Ambassador for Climate Change)

▶ [Watch recording: www.youtube.com/watch?v=t5dzft9IHdw](https://www.youtube.com/watch?v=t5dzft9IHdw)

2020 has been deemed the “Year of Nature” given the number of important meetings on the international calendar. Last spring, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services released the most comprehensive report on nature-based solutions to date, showing that nature is declining at rates unprecedented in human history and the rate of species extinction is accelerating. However, an international platform is developing and momentum is building for nature-based solutions.

Canada is engaged on this topic at both domestic and international levels. The federal government's focuses on the Intergovernmental Panel on Biodiversity are the direct drivers of global biodiversity loss, land and sea use change, overexploitation, climate change, pollution, and invasive alien species. Canada is also looking to a global goal of conserving 30% of land and waters by 2030.

Nature-based solutions need to be addressed in a way that respects the rights and relies on the knowledge of Indigenous peoples, and from both a mitigation and adaptation perspective. Canada is part of the Global Commission on Adaptation, a two year initiative launched in the fall of 2018, which hopes to raise the profile of adaptation to climate change internationally. Canada is one of the five convening countries providing financial support for its work, and is leading the track on nature-based solutions in collaboration with Mexico. Last September, the Commission's flagship report generated the largest worldwide social media focus on adaptation in history and at COPP 25, there was a very high-energy response to the nature-based solutions action track, so momentum is certainly building for these solutions.

In conclusion, 2020 is a crucial year for nature. There is still time to work with nature instead of against it, but the window is shrinking rapidly.

10:15 – 10:30 am

Why Nature-Based Climate Solutions? There is an urgent need for action

Dale Marshall (National Climate Program Manager, Environmental Defence)

▶ [Watch recording: www.youtube.com/watch?v=bdvX81QocJU](https://www.youtube.com/watch?v=bdvX81QocJU)

We are in a climate emergency, causing accelerated flooding, fires, and permafrost melt. Northern regions are warming twice as fast, and the arctic is warming three times as fast as the rest of the world. In 2019, we had a million people in the streets of Canada and millions more across the world calling on our leaders for much greater action on climate change, deeming it the “Year of Climate Mobilization”. However, global leaders aren't stepping up, as demonstrated by countries at COPP who did not commit to exceeding their current targets.

1.5C is the threshold for global warming, not 2C. At 2C, hundreds of millions of people will be displaced, and species and entire ecosystems will be irreversibly impacted and destroyed, according to the IPCC. To keep warming at 1.5C, greenhouse gas emissions must decline by 7.6% annually between 2020 and 2030 – an incredible challenge. In order to contribute our fair share, and to make up for historic over-consumption, greenhouse gases in Canada should be reduced by 140% by 2030 - at least a 60% reduction in emissions domestically, and investment

and climate financing to help other countries reduce their emissions to make up the remaining 80%. Canada's current targets are only to reduce emissions by 30%, so there is a clear disconnect between public ambition and policy ambition.

The climate solution is to combine the effect of energy systems and ecosystems. We need to fully phase out fossil fuels for more friendly energy sources in all sectors, use and preserve ecosystems to their full potential as carbon stores, and address the greenhouse gases that emanate from ecosystem destruction. The Pan-Canadian Framework on Climate Change phases out fossil fuels in some ways, including fully phasing out coal directly into renewables, a zero emissions strategy for vehicles, and emission-free electricity to power vehicles and buildings. However, no government or political party in Canada has been willing to say "no more" fossil fuels; if anything, more money is being put towards them.

Currently, nature makes up 25% of the problem (25% of emissions come from ecosystems as they're degraded), 30% of the solution, and only 1% of the conversation. We know the solutions now, it's just a matter of following through. We need an all of the above approach in the policy and technological realms to avoid the catastrophic effects of climate change.

11:00 – 11:20 am

Why Nature-Based Climate Solutions? There is huge potential

Amanda Reed (Director of Strategic Partnerships, Nature United)

▶ [Watch recording: www.youtube.com/watch?v=nmQoixa30FY](https://www.youtube.com/watch?v=nmQoixa30FY)

There is huge potential for nature-based solutions in Canada including huge carbon stores in multiple ecosystems, restoration potential particularly in the south, and the frameworks and political will to accelerate their application. Indigenous communities have been managing these lands and waters for thousands of years, and they have a wealth of knowledge to steward them in healthy and resilient ways. Natural climate solutions can't be successful without the leadership of Indigenous peoples and must respect Indigenous rights.

The term 'nature-based climate solutions' refers to solutions that have multiple co-benefits, including economic, environmental, and social benefits - particularly those that address the twin crises of climate change and biodiversity loss/species collapse. There are four streams of attack under nature-based solutions - natural infrastructure (restoring coastlands and wetlands can provide municipal services like clean drinking water), protected areas (especially if they are well-managed like the Great Bear Rainforest), restoration (e.g. the 40 projects that are being implemented under the DFO Coastal Restoration Fund), and improved management of forests and agricultural lands (harvest cycles on forest lands and fertilizer/manure management on agricultural lands).

The term 'natural climate solutions' refers to activities that provide mitigation benefits only. One of the leading studies on this topic found that they can provide 37% of the cost-effective carbon emissions reductions needed to keep us below 2C warming by 2100.

We need to act now and prioritize solutions that offer long term, and perhaps not immediate, results; perfect is the enemy of good here. Nature-based solutions are available to us now, they are affordable, and the potential is great. We need an all of the above approach: federal and provincial regulations and policy incentives, market shifts, nature-based solutions standards and principles, and public and private investment to ensure success.

11:20 – 11:50 am

Why Nature-Based Climate Solutions? Reconciliation and Indigenous-led conservation

Steven Nitah (Dene Leader from Łutselk'e and the Northwest Territories Advisor for the Indigenous Leadership Initiative)

▶ [Watch recording: www.youtube.com/watch?v=mgqj4iCA2hY](https://www.youtube.com/watch?v=mgqj4iCA2hY)

Nature-based solutions don't just fend off crises, they are an opportunity for Canada to be a real global leader - to recognize Indigenous leadership, to advance reconciliation, to conserve more lands, and sustain ecosystems. The crises we are facing come down to the view that the planet is to be utilized as an economic commodity. The language we use around the land needs to be changed; "land use planning does not talk about land relationship planning". When we use phrases like "sustainable development" we acknowledge that we are okay with living life on the edge instead of managing for abundance, which Indigenous peoples have done for thousands of years.

Indigenous peoples globally make up 5% of the population, but they manage 25% of the land and support 80% of the world's biodiversity. We need to give Indigenous peoples the pen for these land relationship plans because if we do, 60% of them will be focused on conservation. Indigenous stewardship works because it honours the relationship between Indigenous people and the land, which has been ongoing for centuries – species actually benefit from the respectful management.

Supporting Indigenous leadership is the most effective way for Canada to meet its ambitious international commitments, and the investment needs to be increased. The high response to Indigenous Protected and Conserved Areas funding, as administered through the Nature Fund via the Indigenous Guardians Pilot Program, is just the beginning and demonstrates that Indigenous peoples in Canada are eager to be engaged with conservation. IPCA programs do more than protect land and waters, they rebuild communities. This program supported 30 Indigenous-led proposals that are protecting over 300,000 km² of land - that is true leadership.

Managing fires in the boreal forest will be key for Canada's nature-based strategy. An expansion of the Indigenous Guardians Program could play an instrumental role in managing these fires sustainably because Indigenous people know how to time strategic burns – devastating bushfires have been cut in half in northern Australia in the last 10 years due to Aboriginal management. This approach would create employment in places that are very difficult to create good employment – it's usually either industry or poverty.

We need to create a new paradigm by braiding the best parts of traditional and scientific knowledge to change our relationship with each other and with Mother Earth.

(In his talk, Steven referenced the Indigenous Circle of Experts and their continuing work through the Conservation through Reconciliation initiative to support nations who are creating IPCAs, and an upcoming gathering in Winnipeg in May called "Reconciling Ways of Knowing".)

11:50 – 12:30 pm

State of Play and Big Ideas in Canada

Moderator: Risa Smith (Chair, Protected Areas Climate Change Specialist Group, World Commission on Protected Areas)

▶ [Watch recording: www.youtube.com/watch?v=BXqNIGmkG7g](https://www.youtube.com/watch?v=BXqNIGmkG7g)

Lisa Danielson - Policy Analyst, Organisation for Economic Co-operation and Development

OECD's role, as an international policy organization with 36 member countries, is to assist governments in comparing policy experiences and finding answers to common problems. Nature-based solutions are gaining momentum in the international policy community, but have not been integrated into climate solutions in many countries. There's a significant gap between international ambition and what's happening on the ground, as most of the nature-based solutions projects are done on a small scale and/or ad-hoc basis.

Challenges for developing nature-based solutions include needed changes in policy and cost-benefit analysis practices. Existing policies can create distortions and inaccuracies that discourage people from using nature-based solutions. For example, these solutions often take longer to show results, so governments will opt for more immediate solutions, but when they do show results, they're huge. Nature-based solutions also need the active support of local landowners and citizens, but working collectively across jurisdictions can be time-consuming and costly.

Promising international examples include the Room for the River Program in the Netherlands, where the government invested 2.3 billion Euros to restore the floodplain of the river to reduce the effects of flooding and promote biodiversity by increasing habitat. Countries need to learn from each other to figure out what a coherent articulation of nature-based solutions looks like on a national level, and how they can be financed at an appropriate scale.

Beth MacNeil - Assistant Deputy Minister, Canadian Forest Service, Natural Resources Canada

Nature-based solutions to what? To pressure on our land and seascapes, to climate change impacts, to species loss, to decreased economic resilience, and to reconciliation with Indigenous peoples. She noted that she speaks through the lens of the forestry sector, which is an economic-based resource management service, but she personally has a strong history of conservation through the Canadian Wildlife Service.

The key takeaway is that there is no solution to climate change or the transition to a low-carbon economy without forests. Canada has 9% of the world's forest cover and is a world leader in forest management. 49% of Canadian forests are certified sustainably managed, we plant between 500 and 600 million seedlings a year, and 21 megatons of carbon are sequestered by these forests. The Forestry Service is working to get rural and remote communities off of diesel and towards forest biomass for heating, and are exploring biofuel production. There is also an increased effort to encourage the use of wood for buildings – there is now clearance to build 12 story buildings solely from wood. A circular bioeconomy needs to be created through renewables, and Canada could be a global leader in this with biofuel.

However, as we try to conserve more lands and protect more species, there is tension with industries in the natural resource sector. We are at a crossroads and have a choice to make – the sector could become a leader in the circular bioeconomy and further realize their contribution to nature-based solutions or it could continue business as usual. The government has committed to cutting emissions by 30% by 2030, and achieving net zero by 2050, and the way wood fibre is managed is absolutely critical to achieving this target.

When addressing the 2 billion trees platform promise of the Liberal government, she said she needs advice to make this happen, and makes time for everyone who sends her a concrete proposal. The planting of that many trees needs to be incremental, but swift, and involve urban forestry. To plant 2 billion trees, a landmass twice the size of Prince Edward Island is required, as is moving quickly, as it takes two years to grow trees to the size they are planted. It also must be cost-shared, because the costs to plant this many trees are huge. The biggest questions the CFS has are: Is intensive forestry okay? Do ornamentals qualify, or only native species?

Two billion trees is only part of the solution that also must include decreasing GHGs, increasing sequestration, and increasing the resilience of the 300+ communities in Canada that rely on the forestry sector.

Michelle Brownlee - Director General, Strategic Policy Directorate, Environment and Climate Change Canada

Environment and Climate Change Canada is currently working on many initiatives that can be classified as nature-based climate solutions.

This includes: work with the Canadian Council of Ministers of the Environment (a federal, provincial, territorial body to discuss shared priorities) that produced a report on natural and grey infrastructure and is now pursuing ongoing work in this area as a key point of alignment; the Canadian Wildlife Service report on natural and grey infrastructure and how they can be used together; involvement on the Global Commission on Adaptation; multiple large funds that have space for nature-based solutions within their frameworks, which must not block nature-based solutions in their eligibility criteria (for example, blocking land acquisition when that might be needed); the Low Carbon Economy Fund, which is a climate program, but many projects support afforestation; Infrastructure Canada's \$2 billion Disaster Mitigation and Adaptation Fund (DMAF) which supports major projects to enhance resilience to climate impacts including natural infrastructure and in the mandate letter from the Infrastructure Minister, the department indicated a desire to open up the second round of DMAF to be more inclusive of natural infrastructure; and finally, the Eco-Action Community Funding Program under ECCC – this round, which is open until the end of March, is specifically targeting freshwater management and climate resilience through natural infrastructure.

Through policies and programs, we need to harness as many of the co-benefits as possible under nature-based solutions because there are many positive climate and nature impacts when these solutions are well designed. Developing nature-based solutions will require cost-sharing, collaboration, innovation, and discussion with all stakeholders.

1:05 – 1:20 pm

Minister's Address on Canada's Commitment to Nature-Based Solutions Minister Jonathan Wilkinson (Environment and Climate Change Canada)

▶ [Watch recording: www.youtube.com/watch?v=2cu9qNv-WO0](https://www.youtube.com/watch?v=2cu9qNv-WO0)

Climate change is the largest existential threat of our time. The latest UN report says that the globe has already warmed by 1C and if we stay on current trend, will warm to 3C by 2100. Canada is warming twice as fast as the world. To avoid the worst, we need to keep warming well below 2C and we need a drop in emissions of 80-90% to do this. Biodiversity has declined by 60% due to climate change and habitat loss. A fundamental transformation is needed - not just an environmental shift, but a major economic one.

The government committed to exceeding its conservation targets as set out in the Pan-Canadian Framework and achieving net zero by 2050, and nature-based solutions are certainly going to be part of the plan. Technology is important and available, but technology is not a strategy - it's an enabler. These targets are ambitious and how they are going to be achieved hasn't been determined, so the government is actively looking for partnerships and ideas.

The Liberal government made the largest commitment to nature in history with \$1.3 billion put towards meeting the protected areas target in the 2018 budget. The marine targets have been overachieved with 13.7% protected where the goal was 10%, and they are on track to deliver on the terrestrial targets, if a few years behind. On a larger timeline, they have committed to protecting 25% of land by 2025 and 30% by 2030.

Environmental threats are not partisan issues and they must be tackled by all.

1:30 – 3:00 pm

Learning from the Bottom Up

Moderator: Silke Nebel (Vice-President, Science and Conservation, Birds Canada)

▶ [Watch recording: www.youtube.com/watch?v=XDVahhdGum8](https://www.youtube.com/watch?v=XDVahhdGum8)

Gilles Seutin - Chief Ecosystem Scientist, Parks Canada

Parks Canada land is as large as some small countries and makes up approximately 3% of Canada. On this land, there is an estimated \$2-3 trillion of natural capital. Protected areas like parks provide 8 core nature-based solutions benefits, including species protection (species are the building blocks of natural capital), carbon sequestration, and nature education. Parks Canada is currently doing intensive work to map carbon stores on the land they manage, and although this investment is huge, the return on investment will be equally huge for species/habitat protection and climate change mitigation and adaptation benefits.

Lara Ellis - Senior Vice-President, Policy and Partnerships, ALUS Canada

ALUS Canada works with agricultural producers, who are voluntary partners in project management, to support programming around environmental restoration. This programming explicitly addresses environmental priorities through projects that are specialized to fit local needs. They work on high restoration/conservation value farmland and ranch-land and provide opportunities for community building and peer-to-peer learning through regional gatherings for their partners. All of their projects increase ecosystem services, restore nature through replanting, decrease greenhouse gas emissions, and increase community climate resilience through water retention and other benefits.

Rob Wilson - Director of Conservation Finance, Nature Conservancy of Canada

The Dark Woods Conservation and Forest Carbon Project is led by the Nature Conservancy of Canada. Located in southeast British Columbia, it is one of North America's largest carbon sequestration areas – it has sequestered 5.6 million tonnes of carbon, in addition to improving the landscape and its management. The forest is divided into zones, and certain zones are focused on biodiversity targets. There are many co-benefits of the project, which include: connecting corridors, water protection, protection of old growth forest, research, recreation, species and breeding habitat protection, and experimental forestry harvest. The project strictly adheres to the Sustainable Development Goals and associated protocols, and is a clear example of a conservation-based forest carbon project and therefore a nature-based solution, as it has both conservation and carbon sequestration benefits.

Joseph Pallant - Director of Climate Innovation, Ecotrust

The Cheakamus Community Forest project near Whistler, BC is a forest carbon offset project that sells carbon offsets so the community can continue its conservation work. All of the communities going into this project had different interests, and their discussions led to an ecosystem-based management plan for the forest. The group developed actionable goals to achieve in collaboration, such as cutting small blocks of trees and creating double riparian buffers. The project makes decreased yields and increased costs work by incorporating carbon offsets – 80% of the offsets are sold to the government, and 20% at a higher value to private companies. This project is an excellent example of communities with varied interests coming together to develop environmentally-minded solutions that work for all.

Donna Chiarelli - Asset Management Advisor, Municipal Natural Assets Initiative

The Municipal Natural Assets Initiative works to help municipalities measure and protect their natural assets. Nature is a vital infrastructure asset. MNAI uses a cost-avoidance approach to value natural assets (i.e. they measure the costs avoided if an ecosystem is not damaged or lost) and found numbers in the billions of dollars. In the region of Peel, Ontario, the initiative quantified the value of storm water services in open forests, greenspaces, and wetlands – the estimated value is \$704 million currently and \$764 million in a future climate scenario. These measurements present a strong business case for natural infrastructure. In addition to this valuing work, the MNAI manages many small municipal projects to enhance and protect natural assets.

Rob Keen - CEO, Forests Ontario

Forests Ontario has been doing afforestation since 2004. As part of the Forest 2020 program, they planted 2 million trees in Ontario between 2004 and 2006. They are starting a new 50 million tree program in line with the government's 2 billion tree initiative and platform promise. Tree planting at this scale needs long term planning and sustainability by partnering with local organizations and people, and allowing this local expertise to be incorporated. We can't chase the numbers, we have to do it right – even if we don't plant the full 2 billion trees, it's more important to plant them in a way that reflects naturally occurring ecosystems.

Lindsay Telfer - National Project Director, Canadian Freshwater Alliance

Nature-based solutions are being implemented across Canada in ways that support community climate resilience. This includes: rain gardens for awareness and urban adaptation (in Shediac Bay and Saint John, New Brunswick) that have convincingly highlighted what green infrastructure can do for a city; restoration/reclamation of an industrial sawmill site on the Comox Estuary that increased the resilience of an area of green floodplain, as undertaken by the Comox Valley Project Watershed Society (Kus-kus-sum Project); managing stormwater and providing green infrastructure through homeowner engagement (through Ecology Ottawa); projects designed to replace pavement with rain gardens and naturalized landscapes (DePave Paradise); and restoring salmon populations in the Fraser waterways by reconnecting the waterway (Disconnected Waters project). We need to support these kinds of pilots, which provide a strong basis for nature-based climate solutions business models, and then scale them up community-wide to build interconnected networks of natural infrastructure within our built communities!

Chris Henderson - Executive Director, Indigenous Clean Energy

Indigenous Clean Energy is working on projects in which Indigenous peoples are actively engaged and directly involved in the design and implementation of clean energy solutions for their communities that incorporate Indigenous knowledge and values. These projects move communities onto solar instead of diesel and can provide clean energy while simultaneously protecting spawning grounds for species and traditional flora and fauna. The projects are not developed in wild spaces or fragile areas and consider comprehensive protection. Indigenous Clean Energy advocates for renewable energy projects, but emphasizes that it must be done right and should not be done without protecting nature.

Deborah Carlson - Staff Lawyer, West Coast Environmental Law

Nature-based solutions need nature-based laws. First we must honour Indigenous laws, which are laws of the land. Second, we need to acknowledge that climate change is not only a market failure, but it is a failure of Western laws--a failure to manage our relationships to the land and the water, to other species, and even to future generations. New policies and funding programs alone will not address root causes. The Great Bear Rainforest shows us an example of how government to government agreements between Indigenous nations and the Crown can be legally implemented and provide a backbone for protecting 70% of the forest and developing a conservation economy.

Shelley Petrie - Programs Director, Friends of the Greenbelt Foundation

The Friends of the Greenbelt Foundation works to protect Ontario's greenbelt – 2 million acres of protected lands. The greenbelt has elevated the importance of nature and is changing how people perceive what is done on the land. Their programs include: a natural infrastructure fund with municipal partnerships & community discussions; replacing grey infrastructure; and looking at biodiversity in near-urban areas in relation to Target 1. Protection in the greenbelt and in all southern areas in Canada needs to occur at a large scale, but it may not look like large conservation areas, it may be a collection of smaller ones.

3:30 – 4:30 pm

Designing for Success

Moderator: Julie Gelfand (former Commissioner of the Environment and Sustainable Development in the Office of the Auditor General of Canada)

▶ [Watch recording: www.youtube.com/watch?v=AkW8Fv91oY8&t=2644s](https://www.youtube.com/watch?v=AkW8Fv91oY8&t=2644s)

Many lessons can be gleaned about creating effective federal government funds from the audits performed in the office of the Commissioner of the Environment and Sustainable Development. Key considerations for success include: having an overall objective that is clear (including SMART – specific, measurable, achievable, realistic, and timely – objectives); knowing your baselines (i.e. if your goal is to increase protected areas, you need to know exactly how many there are when you start); measuring your outcomes and aggregating them so that at a national level, the government can say “here’s what happened”; having a system so those who have received the fund can regularly report back, and a clear protocol for following up if they don’t; clearly tracking spending; documenting and verifying impacts, especially if one of your objectives is GHG emissions reductions; and reporting back consistently.

The Clean Tech Fund, the funds for Sustainable Development and Technology Canada, and the Green Municipal Fund managed by the Federation of Canadian Municipalities are examples of very well managed funds from the Commissioner’s perspective. Poorly managed funds include: the Gas Tax Fund (\$10 billion spent and it will never be clear whether the fund achieved its objectives), parts of the Disaster Mitigation and Adaptation Fund, and the Municipal Infrastructure Fund, which was not considering climate risks when the Commissioner’s office did their review several years ago.

Niall O’Dea - Associate Assistant Deputy Minister, Canadian Wildlife Service, Environment and Climate Change Canada

The \$500 million Canada Nature Fund is a successful fund with a big and brash approach. This fund had three goals: Indigenous reconciliation through conservation, transforming the federal government’s approach to protecting species at risk, and meeting Target 1 (17% of Canada’s land and freshwater protected by 2020). Thirty nine million hectares have or will be protected or conserved because of this fund. The North American Waterfowl Management Plan (since 1986), which has seen \$2.3 billion invested in wetland conservation in Canada, is another example of a successful, but slow and steady fund. It is a long-standing partnership between Canada and the US, as well as various organizations.

What are the ingredients for success? It doesn’t start with the money. It starts with fully utilizing the convening power of government, which is key to doing things in the right way and meeting multiple objectives at once. Exercising federal spending power is a catalyst for the potential that is out there. For example, the Pathway to Target 1 Challenge Fund had \$175 million to be invested and the department received \$800 million of proposals. Flexibility in how the funding is delivered is also necessary, as projects may require a complex combination of levers – working with different legislative realities, Indigenous laws and how they interact with provincial and federal laws, etc., is critical to success.

The federal government needs to take the long view if they’re going to achieve the climate and nature conservation targets they’ve set out, and they want to hear your input. It’s important to

understand that there will be a lot of doing while learning and disciplined experimentation to implement nature-based solutions. We need to adjust our risk aversion to achieve our objectives, because not knowing everything is not a reason to delay.

Jackie Mercer - Manager, Pan-Canadian Pricing Framework Division, Environment and Climate Change Canada

Carbon offsets are having a bit of a moment. How do we take the interest around carbon markets and use it to attract investment in natural climate solutions at a large scale? We can do it through offsets. Carbon offsets require on-the-ground projects, as they always represent real removals, not 'allowances' to pollute in the future.

There are two kinds of offsets: voluntary (the motivation is other than to comply with a regulation) and compliance (established by the government as a regulation). Compliance credits can be used by regulated facilities to meet obligations, and because the credits are a substitute for emission reductions, the eligibility requirements for these projects are often more stringent.

The creation of the federal government offset program is now on its fifth attempt, and the current status is as follows: it's a compliance-based system, and regulations are in the process of being created that will allow large emitters to purchase offsets if they exceed their emissions limits. The team hopes to publish these regulations in spring 2020. The offsets must represent real, quantified, verified, and unique GHG reductions in addition to business as usual. Criteria for offset projects include: the reductions must occur in Canada; they should be complementary to existing climate policy; they must be administratively simple; and they need to build experience gained from existing project-based crediting systems and carbon markets in Canada and internationally.

What projects are going to generate offsets in the federal offset system? Only project activities with an approved federal offset protocol will be able to generate credits in the federal system, but they are open to adapting existing protocols as well as developing their own. Protocol development is a work in progress but the department is working on a short list of priority protocols they hope to work with first and will share that soon with an open call for feedback.

Conservation, restoration, and improved land management projects will be considered for offset projects, but these kinds of projects will be challenging to implement in a compliance-based system and it may take longer to get there with the protocols.

Carbon offset projects will also need to include the following elements: additionally (has to be in addition to other good work – beyond business as usual); incremental to other incentives (needs to complement other efforts/funds and not compete for megaton reductions in CO₂); leakage (when efforts to reduce GHG emissions lead to other GHG emissions, resulting in netting out reductions); and permanence (the project proponents will need to maintain carbon sinks for many years - in some cases up to a 100 years). Credit stacking is also on the radar (where one piece of land may provide multiple ecosystem credits for the same action) but current opportunities for credit stacking is limited because other programs that incentivize credit generation are still at an emerging stage.

**John Cuddihy - Director, Infrastructure and Environment Division,
Infrastructure Canada**

We have come very far towards developing natural infrastructure, but it has taken a long time to get here, and we have much further to go. Environmental policy in Infrastructure Canada supports, but does not promote nature-based solutions over other options. There are currently two active, relevant funds for nature-based solutions under the department: the Green Stream of the Investing in Canada Infrastructure Program (which is approximately 90% allocated) and the Disaster Mitigation and Adaptation Fund (of which the first round has run out). Seventeen percent of the projects under the Green Stream have some component of nature-based solutions, and 3% have nature-based solutions as the sole focus (mostly related to wastewater and drinking water projects). The DMAF supports a combination of natural and traditional infrastructure. Land acquisition is permitted under this fund, and it considers co-benefits, so nature-based solutions, particularly natural infrastructure projects, do well here. All of these projects have been implemented in partnership with provinces.

The climate lens in Infrastructure Canada was only launched 18 months ago, so there hasn't been a huge amount of progress, but it is ongoing. In the coming years, natural infrastructure will become increasingly prioritized, especially as Infrastructure Canada works to promote projects that have co-benefits to the provinces and territories.

4:30 – 5:15 pm

A Provincial Perspective: Manitoba's Leadership

Tim Sopuck (CEO, Manitoba Habitat Heritage Corporation)

▶ [Watch recording: www.youtube.com/watch?v=iq1aWXaMMzk](https://www.youtube.com/watch?v=iq1aWXaMMzk)

In 2017, the Province of Manitoba made a \$200 million commitment to landscape-based conservation activities. If this was matched at the national scale, it would equal approximately \$5.6 billion. There is a strong focus on working landscapes in Manitoba, which is important because they are the most significant intersection between nature and people. The collateral impacts of climate change are showing that current built infrastructure is okay, but not good enough. Water is also driving strengthened environmental policy changes in Manitoba because of flooding, algal blooms, and poor/decreasing water quality in Lake Winnipeg.

The Made-in-Manitoba Climate and Green Plan was created in 2017, and had money specifically set aside for conservation. These funds went to The Winnipeg Foundation in a trust so that future governments couldn't go back on the funding. The purpose of the fund was specifically around natural infrastructure and landscape-based approaches that would have the following co-benefits: improving biodiversity, soil health, protecting priority wildlife, sequestering carbon, and improving water quality.

For these large funds, the mode of delivery is as important as the money itself – it must be accessible to land owners, decisions must be brought down to the local level, and annual payments should be made for security. Key advice to the federal government after participating in the Manitoba model would be to do what you can to support local priorities and provide longer term funding.

Day 2 – February 6, 2020

Before sessions began on Day 2, an Indigenous Caucus was held by Charlie Sark, Nature Canada Board member and member of Lennox Island Mi'kmaq First Nation. Find the full statement from the caucus in the closing remarks.

8:50 – 9:30 am

Municipalities and Industry Showing Leadership

Moderator: Jay Ritchlin (Director General, Western Canada, David Suzuki Foundation)

▶ [Watch recording: www.youtube.com/watch?v=YHJ97uAcCB4&t=1675s](https://www.youtube.com/watch?v=YHJ97uAcCB4&t=1675s)

Craig Stewart – Vice-President, Federal Affairs, Insurance Bureau of Canada

Insurance is financial safety or the transfer of risk from the public to the private capital markets. The consumer pays premiums to take risk away. Insurance is a buffer and increases resilience to a financial calamity. Insurance companies price risk for natural disasters, like flooding. If a municipality improves storm water drainage, for example, that lowers an insurers risk for flooding and premiums are adjusted.

Insurance Companies are now dealing with the challenge and opportunity of incorporating natural defense into insurance plans – the IBC wants to encourage governments to reduce risk of natural disasters by using natural means and conserving natural features. Since reinsurers (companies that insure the insurers) set the prices that insurers pay for risk, insurers and their customers should pay less if reinsurers factor restoration of natural protection into their pricing. Reinsurers can also enter into specific contracts with municipalities or provinces to provide blended financing for conserving nature where it protects exposed communities – these are called resilience bonds.

A key example of a place where these resilience bonds could be used is Windsor, Ontario, which is the highest per capita loss area for flooding in Canada because it has subdivisions built directly on drained wetlands and 95% of wetlands upstream have been drained for agricultural purposes. A resilience bond built through reduced premiums, blended with government funds, could provide an opportunity to support wetland restoration and other preventative flooding measures.

The Insurance Board of Canada is partnering with restoration and natural infrastructure organizations to make examples like this happen – using insurance dollars in restoration measures to protect against climate impacts, which delivers insurance preventatively instead of reactively.

AnnLisa Jensen - Councillor, Parkland County, Alberta; Rural Alberta Representative, Federation of Canadian Municipalities Board of Directors; Chairperson of the Standing Committee on Environmental Issues and Sustainable Development, Federation of Canadian Municipalities

The FCM Board of Directors is an elected board of 75 municipal politicians that bring local solutions to the national table. The board represents 2,000 local governments - 90% of the Canadian population.

The North Saskatchewan Watershed Alliance is a major watershed alliance in Alberta made up of municipal government representatives, local First Nations governments, and the Metis Nation of Alberta, which has stepped in to fill the gap between governments to revitalize the watershed. All

Councillors and participants work on a voluntary basis. The dedication of these representatives and the facilitation support of the NSWA makes for an inspiring partnership, and is the most effective way to address the conservation and protection of a watershed, as watersheds cross multiple city boundaries. This alliance has been working for seven years, breaking ground for municipal collaboration, and creating innovative research methods. They are now expanding this model for other watersheds – like the Sturgeon River Watershed Alliance.

These projects have demonstrated the incredible potential of natural infrastructure and restoration to downstream communities. We need inter-municipal policy alignment and leadership on the ground to be able to most effectively act in both urban and rural areas.

James Bornemann - Geomatics Manager, New Brunswick Southeast Regional Service Commission

The Southeast Regional Service Commission, which provides planning and development services for 12 municipalities, is working in southeast New Brunswick with the Municipal Natural Assets Initiative on two major projects: the role of forests and wetlands with regards to the value they provide municipal services for environmental management and climate change adaptation. As the commission was granted support in the second round of MNAI pilot projects, they took inspiration from a first-round pilot project in Gibsons, BC for analyzing and implementing natural infrastructure and assets.

These new projects are taking place in Riverside-Albert, where they are assessing the value that nearby forests provide in providing clean and abundant water from a risk management perspective (what it would mean financially if all or a portion of the forest was lost), and in Riverview, where they are assessing the costs the municipality would incur if local wetlands and forests were lost to an area of proposed development. It wasn't until they placed economic value on the wetlands/forests that the municipalities and developers began paying attention and taking appropriate action to protect these ecosystems.

The Commission is now working on the implementation phase and ensuring that development avoids these important natural assets. Their research and modelling demonstrated that the effects of climate change will be greater than anticipated, and that the value of natural assets will only grow as the impacts of climate change intensify, especially on the east coast.

Asset management standards still exclude natural systems, but this is slowly changing. It's essential to value natural assets in the same way we value built infrastructure so all of the benefits they provide are taken seriously.

9:30 – 10:30 am

Indigenous-Led Nature Based Solutions in Action

Moderator: Danika Littlechild – Indigenous Circle of Experts

 [Watch recording: www.youtube.com/watch?v=ANlzE5xdnXI&t=2435s](https://www.youtube.com/watch?v=ANlzE5xdnXI&t=2435s)

Paul Kariya - Senior Policy Advisor, Coastal First Nations

Coastal First Nations (its incorporated name is the Great Bear Initiative) is an alliance of nine nations living on British Columbia's North and Central Coast and Haida Gwaii, with a mandate to protect the environment and enable sustainable economic development for the

communities. This project is more than trees, land use, or stewardship - it's the people, the marine environment - it's everything about the Great Bear Rainforest. The Great Bear Initiative is arguably the largest forest-based carbon credit program in Canada and the largest reason the BC government can call itself carbon neutral.

The initiative is possible through reconciliation - the carbon credits were a reconciliation agreement between Coastal First Nations and the BC provincial government, but the negotiations haven't been easy. The carbon credits generated are paying for this reconciliation process, as the provincial government was interested in participating but said they didn't have the funds.

The carbon credits aren't "granted" by the province, it's own-source revenue, as the nations have rights and title to the land and any associated profits. One hundred and fifty people are employed from the nations as guardians and they need to sell carbon credits to continue this employment, and therefore the protection of the ecosystem. However, Coastal First Nations doesn't want to see carbon credits last for long, as there is an identified need to move on to better and longer-term solutions, like electricity generation that is fully owned by First Nations.

Deputy Grand Chief Mandy Gull - Cree Nation Government (Eeyou Istchee)

Eeyou Istchee, which directly translates to land of the Cree, is a self-managing, self-governing nation, in which many people still live traditionally on their trap lines.

The Cree Nation Government's (CNG) protected area strategy is based on the Cree Regional Conservation Strategy, which aims to: promote and sustain the interconnectedness of the community; protect wildlife, which is also a cultural food source; ensure full Cree participation in conservation management and planning; ensure Cree knowledge plays a central role in conservation; build Cree capacity; and they are starting to seriously take action climate change, among other goals. Currently 15% of the territory is fully protected and they are looking to protect 20%, and an additional 30% to non-industrial development. The CNG has a close relationship and nation-to-nation agreement with Quebec, and negotiations with Quebec on this strategy are ongoing, with expectations on both sides - including a prioritization of conservation over development on the part of the CNG.

CNG staff went to every community and consulted with everyone who wanted to be involved to ensure a very thorough review. There is now a strategic approach to protecting areas, using both science and traditional knowledge. Cultural sites and heritage data were the key components of protection, as were waterways, headwaters, wetlands, climate information, human footprint, etc. Caribou protection is a huge part of this strategy, as the Cree people have a very close relationship with the caribou; the people and the caribou are one nation.

ENGO's should reach out to their local nations to understand the issues, and to go beyond inviting Indigenous people to tell their stories, by continuing to build those relationships. When you build relationships through land protection and conservation, you are engaging in the highest form of reconciliation.

Diandra Bruised Head - Climate Change Coordinator, Blood Tribe Land Management - Environmental Protection Division

After acknowledging the Indigenous people in the room, and the barriers and challenges that their ancestors had to get through for them to be there, she showed a video made by the Blood

Tribe Land Management, which is an overview of ongoing grasslands restoration in southern Alberta by their Environmental Protection Division.

After the video, Diandra said a few words:

Grassland restoration takes a very long time. It is about much more than the benefit of sequestering carbon – it's about the importance of the landscape to the nation, cultural food security, and adapting to climate change. It's important to acknowledge the connectedness of everything, and that restoring the grasslands is also an effort to bring back the buffalo to the grasslands – these things are lost when we keep the discussion only to a narrow view of carbon. Humans and animals co-evolved together, and are key to each other's existence. We need to work on changing language like “we live on the earth” to “with the earth”. We need to save the earth for the sake of it being land, for the sake of it being where my ancestors came from. We can't continue to talk about Indigenous knowledge like it's a backup - it isn't a backup plan.

There are very few full time staff in the Environmental Protection Division and they need more help to care for and monitor the grasslands. The Indigenous Guardians Program [as part of ECC's Nature Fund] really works, but where are the Indigenous Protected and Conserved Areas in the grasslands – an ecosystem that so many species depend on?

3:30 – 4:40 pm

Mobilizing Finance for Nature-Based Solutions

Moderator: Catherine Abreu (Executive Director, Climate Action Network)

▶ [Watch recording: www.youtube.com/watch?v=djSUjll6DBQ&t=2218s](https://www.youtube.com/watch?v=djSUjll6DBQ&t=2218s)

This panel will discuss how we can mobilize resources to ground nature-based climate solutions, but it is necessary to call back learnings from the Indigenous-led panel that morning. It's important to see and respect the many different ways of knowing. Firstly, improving knowledge is not always linear – sometimes we lose teachings and ways of knowing that are incredibly valuable for our own wellbeing and the wellbeing of the environment. Secondly, this conversation about financing is steeped in a colonial, settler, capitalist framework of how we get money, how we make money, etc., but we heard a strong warning from the Indigenous-led panel that we cannot enter into this conversation from the perspective of commodifying the things we want to protect – nature and us! Our financial systems are a reflection of our ideologies, and if we change those financial systems, perhaps we create an opportunity for our ideologies to change.

Mike Wilson - Executive Director, Smart Prosperity Institute

How do we change the millions of dollars that's being invested in nature-based solutions currently into millions and trillions of dollars? Progress really is happening, demonstrated by the number of people in the room, but most people would agree we're going too slowly.

There are five things we need to get better at as a community to get funding for nature-based solutions, and he outlined these five steps in a bottom-up framework, where one idea flows into the next.

(1) We need to engage people who inherently care about the services that ecosystems provide, but don't know that they're ecosystem services (we're good at talking about ecosystem services, but aren't good at talking to the right people to mobilize finance); (2) We need to get better at

building the investment cases of the projects we want advanced – the people who can and will invest are different than people we may normally be talking to; (3) We need to be boosting policy and market signals to make the cases for investment strong (i.e. offsets) – we need to boost both the signals for good conservation and carbon sequestration; (4) We need to socialize the opportunities with the investment community – what do they want from these opportunities?; and (5) We need smart people on board who are both working on the land and know how to talk about this work to attract and appeal to larger-scale investors.

Jason Taylor - Head, Government Sustainable Finance, Scotiabank

The market is looking great and there is momentum for nature-based solutions, but there is still a significant funding gap. Capital markets need to be re-engineered (a DNA transformation of capital markets), as we need a couple trillion dollars a year to get where we want for nature-based solutions and the Sustainable Development Goals. All actors in the market need to create and share value to come up with innovative investment options for corporations so they are incentivized to keep investing.

There are many ways that investors and businesses are demonstrating awareness of the urgency of the climate crisis, including divesting from oil and gas and moving towards net zero by 2050. Canada's issuers are improving our green markets, as the market will double in the next two years for investors looking to invest in green/sustainable projects. This increased investment is the reward of policy ambition.

How do we combat climate change? We pull on every lever we have. Jason ended by referencing a World Bank deal that allowed for a sustainable development bond of \$1 billion to be placed in Canada that is going towards the protection of our oceans and waters.

Anastasia Mourogova Millin - Senior Development Manager, Solutions Finance Team, McConnell Foundation

The McConnell Foundation's Solutions Finance Team acts like a translator to help many different groups (i.e. investors, governments, ENGO's, corporations, institutions, banks, community groups) best understand each other and walk away with real, collaborative solutions for environmental and social problems.

Our current economic system is wired to encourage private wealth generation by cannibalizing civic and common goods. For example, the Highline in New York, one of the most expensive public parks ever built, cost \$187 million and was mostly government funded. It has generated \$3.4 billion in uplift for nearby private homeowners and corporate real estate. The money invested was public, and the beneficiaries were private – and we wonder why our economic system feels misaligned?

The McConnell Foundation is involved in developing the Civic Capital Movement, and how it can offer a promising solution to this misalignment:

Civic trusts could be created where every citizen gets a financial share, and that civic trust could hold every single real estate asset (public and private), and all civic assets (schools, libraries, trees, roads, etc.). Agreements among members of the communities about how money is spent in the community can be formulated through digital/technological platforms. Many different

groups have solutions for flooding, for example, and if we invest in these solutions, the cost of flooding will be less. However, we need institutions and foundations to come in and contribute large shares to prop up the financial contributions of citizens.

Foundations are the most liquid institutions in this country with a mandate to create community and environmental change – foundations can go to corporations and offer risk-free investments. Money flows to the civic trust from these large institutions, and every resident (as everyone has a share) decides collectively how that money is allocated – to organizations, Indigenous nations, co-ops, social enterprises – to implement nature-based solutions. The flooding comes again, but this time, the costs are much lower due to the implemented solutions. The institutions write off the provisions they previously had from seeing this success, and money flows even more smoothly in future to assist nature-based solutions in communities.

Amanda Reed - Director of Strategic Partnerships, Nature United

The Liberal government committed to developing a \$3 billion natural climate solutions fund in their 2019 election platform. This enormous commitment is an example of Canada demonstrating global leadership and offers a lot of potential to accelerate nature-based solutions.

This fund will add to existing relevant funds rather than being part of them, like the Nature Fund, the Disaster Mitigation and Adaptation Fund, and the Green Stream of the Investing in Canada Infrastructure Program. Each fund has a different driver - for the Nature Fund, it's conservation with a lot of co-benefits including climate; for the DMAF, it's risk resilience and adaptation with a lot of co-benefits. The natural climate solutions fund will be driven by climate change mitigation with a 30 megaton target for that fund specifically.

What are we not doing with those funds that we can do with this fund? A successful fund doesn't throw money at the problem, it's strategic in its approach (as Niall O'Dea said the day previous). First off, we need to get some wins and choose the low-hanging fruit so we get projects in the ground, and look at the 30 megaton goal and the \$3 billion and figure out how that fund can be put to good work. This could include: supporting improved forest management, performance-based payments for provinces for improving policy, long-term management contracts with agriculture/forest producers, Indigenous-led stewardship, and climate smart supply chains in forest in agriculture. Blending financing is key for nature-based solutions, which is when private funding is matched by public funding so you get the total amount needed to achieve such large goals. Hopefully, this fund can be collaborative between the kinds of people in the room and the government.

Florence Daviet - National Director, Forest Program, CPAWS

Federal climate policy in Canada is moving forward, mostly focused on reducing emissions from the fossil fuel side. However, there are considerable emissions generated by destroying and degrading our lands – whether its deforestation or loss of ecosystems - and the carbon that is lost through this degradation is not accounted for and captured in any current policy.

How do we generate emissions reduction through better forest management, through destroying less of our ecosystems? First, the markets need to be in place and a robust price needs to be set for emissions that actually incentivizes behavior. She released a paper recently on the topic of adapting the Greenhouse Gas Pollution Pricing Act to add the emissions occurring as a result of land degradation. This will cause the corporations and industries who are causing

the largest emissions to ask themselves: can we do our job with a lighter footprint? That reconsideration would drive innovation that they currently aren't thinking about because of a lack of incentives. If they find that they aren't capable of reducing their emissions and continuing their business, it might cause them to put money in funds or move towards offsets – all of which would be positive for nature-based solutions.

Finally, we need to urge the government to add ecosystem services and the emissions generated by land degradation more directly into Canadian climate policy.

4:40 – 4:50 pm

Indigenous Caucus Statement

Read by Diandra Bruised Head (Blood Tribe First Nation)

▶ [Watch recording: www.youtube.com/watch?v=zgvKD2nLBoE](https://www.youtube.com/watch?v=zgvKD2nLBoE)

Indigenous Peoples Statement on Nature-Based Climate Solutions

Developed and delivered by Indigenous Peoples participating in the Nature-Based Climate Solutions Summit

At Algonquin Anishinaabe Territory / Ottawa

Addressing and acting on the climate and biodiversity crisis affecting us, our lands and our territories is beyond immediate, and requires bold and transformative solutions.

Nature-based solutions are being increasingly-referenced in mainstream-culture to describe how Indigenous Peoples have, and continue to, interact with the land, water, air, and all of creation. We are glad that they, that you are finally listening.

However, the current framing of these solutions continues to conceptualize humans as separate from nature, commodify nature in terms of balance sheets and offsets, and views the land and water as *void* of Indigenous Peoples and open for development. Clearly, we need a complete rethink.

Real solutions, truly *nature*-based solutions, require a transformation beyond the mainstream-approach; A transformation that shifts the paradigm away from a hyper-consumerist culture to a paradigm rooted in *relationships* that value the nexus of people, land and reciprocity.

Nature-based solutions must recognize that Indigenous Peoples, whether Mi'kmaq, Anishinaabe, Cree or Metis, are Nations and Peoples that can hold certain inherent, Treaty, and constitutionally-protected rights. Any solution must simultaneously empower Indigenous Peoples to exercise their authority and contribute to reconciliation. Without this, and even with the most progressive intents, dominant society will continue to marginalize Indigenous Peoples and our land tenure systems.

Nature Based solutions have an opportunity to facilitate fundamental change so that Indigenous knowledge and value systems can function with integrity and without being disrupted. Such systems are based on reciprocal and restorative understandings. We cannot shift Indigenous Knowledge from one monolithic system to another, nor can we misconstrue Indigenous Knowledge as *data* or backup. We have to stop treating it as such.

In this way, dominant concepts of natural-resource management cannot be confused with Indigenous perspectives on territorial management or land-relationship planning. Indigenous-led nature-based solutions, such as the grasslands, are tangible examples of Indigenous Peoples

challenging the overwhelming desire to commodify nature. True nature-based solutions cannot be measured in the numbers of trees planted, tons of carbon being sequestered, or valuation / benefits shared.

This is a conversation about responsibility – responsibilities we share with each other, responsibilities to the animals that sustain and protect us, responsibilities to our lands and waters, and responsibilities to all of creation. We urge you to begin or continue with the *hard work* that requires an ongoing relationship-building process with Indigenous Peoples.

Reconciliation is not a magical finish line - it is day-to-day relationship-building built on reciprocity.

This statement was delivered during the closing of the summit, and was read by Diandra (DJ) Bruised Head (Blood Tribe First Nation), on behalf of the Indigenous Peoples and our representatives of Indigenous Peoples, including:

- Bryan Martin (Maritime Aboriginal Peoples Council)
- Charlie Sark (Mi'kmaq)
- Curtis Scurr (Mohawk)
- Dan Jewell (Maritime Aboriginal Peoples Council)
- Danika Billie Littlechild (Ermineskin Cree Nation)
- Gary Pritchard (Anishinaabe)
- Graeme Reed (Anishinaabe)
- Lillian Trapper (Cree)
- Pamela Billey (Métis Nation of Alberta)
- Tonio Sadik (Indigenous Representative)

4:50 – 5:00 pm

Closing Remarks

Graham Saul (Executive Director, Nature Canada)

▶ [Watch recording: www.youtube.com/watch?v=zgvKD2nLBoE](https://www.youtube.com/watch?v=zgvKD2nLBoE)

Graham thanked the organizers (Emma Buchanan and Natasha Jovanovic) and Nature Canada and David Suzuki Foundation staff who were instrumental to make the event happen. He acknowledged all of the Steering Committee and contributing organizations, and read out the sponsors organizations individually, saying that this was a true, decentralized collaboration and many organizations were the architects behind the summit.

Graham outlined the next steps, which include: the organizers will continue to build the resource page on the summit website, PowerPoint presentations will be added to the website, a final report and video summaries will be prepared and shared with all participants and the wider interested audience, facilitated conversations among the Steering Committee about how we want to proceed will be ongoing, and a post-summit survey with a question around your interest in further involvement will be circulated along with the full participants' list to facilitate networking.

Graham indicated that it is clear that the government stood up and said “we want to hear from you” (60 or 70 staff from federal departments were in attendance) – they’ve opened that door and we have to walk through it. The Indigenous voices that emerged were the strongest, wisest,

and the most concrete in terms of delivering results – we need to pay attention to that.

If there's anything that unites us in a country that is so divided, it is nature, and our role and relationships with it. The past two days have been about laying the dots on the table, and starting to connect them. Now we must keep connecting the dots after the summit ends.

It was never our intention to say "here's the answer" – no one has the answer. But we have all clearly demonstrated that there is a huge and powerful community that wants to move forward with nature-based solutions to climate change. We have made progress in identifying the pathways forward, but the challenge is now to move decisively down the trail of your choice and invite others to come with you.

He then wished the audience happy trails, on behalf of the Steering Committee, sponsors, and organizers, and said that he is looking forward to moving forward together.



Photo: Susanne Ure

Concurrent Working Sessions #1: Interventions

Four concurrent sessions explored key policies and interventions that can facilitate the implementation of nature-based climate solutions:

- Protected Areas Breakout Session
- Restoration Breakout Session
- Natural Infrastructure Breakout Session
- Carbon Offsets Breakout Session

Although the working sessions varied in structure, all began with a topic overview from the session moderators and, in some cases, additional speakers lasting no longer than 20 minutes. The remainder of the sessions encouraged discussion, participation, and collaboration between attendees to form the very beginnings of a road-map for that particular intervention in relation to nature-based climate solutions in Canada.

Protected Areas Breakout Session

Session Moderators:

- Risa Smith (IUCN/WCPA)
- Gauri Sreenivasan (Nature Canada)
- Jen Skene (NRDC)

Issues Summary: Addressing the Climate and Biodiversity Crises through Protected Areas

This breakout sought to identify priority interventions to help Canada attain the 25% by 2025 and 30% by 2030 protected areas targets, in a way that addresses climate change, conservation goals, and human rights. While implementation of a wide range of nature-based climate solutions is needed, this breakout group focused particularly on initiatives that will reduce both greenhouse gas (GHG) emissions and biodiversity loss over the next decade and beyond. Protected areas will and should still be created for the sole purpose of biodiversity protection. This group discussed the need to also expand the criteria for creating protected areas to include climate goals.

Priority policy interventions highlighted in the workshop:

1. Transforming our approach to the planning and management of protected areas to also address climate goals will mean changing what we protect, where we protect it and how we protect it.
2. Expansion of protected areas networks to include existing carbon-dense/high biodiversity ecosystems such as old-growth forests (temperate and boreal), peatlands, other wetlands, grasslands, and blue carbon (i.e. seagrasses and saltmarshes). Protecting these ecosystems can result in avoiding GHG emissions from land use and land use change and making ecosystems more resilient to the effects of natural disturbances such as fire and insect outbreaks.
3. Expansion of planned protected areas to include consideration of climate change adaptation needs of both species and people. This would result in a renewed emphasis on conservation corridors, connectivity of existing and new protected areas, and inclusion of urban protected areas for both their value in nature education and human well-being.
4. Expansion of protected forests to include medium-aged forests (50-80 years), to allow these forests to age into carbon-dense/high biodiversity forests with old-growth characteristics. This would also involve rethinking what sustainable forestry is.
5. Expansion of Indigenous Protected and Conserved Areas (IPCA) consistent with recognition of the centrality of advancing Indigenous rights and Indigenous governance. Many of the areas with the highest potential for both climate change and biodiversity benefits coincide with Indigenous lands.
6. Significantly scaling up financing for protected areas and Indigenous-led management from government/public budgets, expanding opportunities for private financing, and exploring more strategic use of newer conservation financing tools (e.g. carbon offsets, payment for ecosystem services), and infrastructure investments in climate change adaptation.

Explanation of Policy Interventions

1. Transformational Change

Scientists globally have emphasized that transformative change is urgently required to forestall the worst impacts of climate change and biodiversity loss, and that meaningful results are needed within the next 10 years^{1,3}. A critical piece of meeting these results are expanding the use of protected areas and fostering new ways to relate to land and water. For protected areas, transformational change means:

- i. The identification, creation, and management of protected areas should come from relationships, consultation, conversations and collaboration with local communities, especially with Indigenous peoples who live on the land, but also with urban and rural citizens who all care about nearby nature;
- ii. A range of values should be considered, including the intrinsic value of nature, the importance of nature to human well-being, the value of connected protected area networks where both species and people can move and adapt to climate change, and the educational value of protected areas, especially in urban settings;
- iii. Ensuring real protection with adequate resource for stewardship and effective management, with long-term financing for staff and Indigenous guardians;
- iv. Understanding that while large relatively pristine wilderness, often in the North, is important for climate change mitigation and adaptation as well as for wildlife, small local areas, particularly in Southern Canada, can be of equal importance for biodiversity, climate change, human well-being, as well as for their educational value.

2. Expansion of Protection Areas to Include Carbon-Dense/High Biodiversity Areas for Climate Change Mitigation and Biodiversity Protection

The triple crises of climate change, biodiversity loss and human rights violations are so interconnected that without addressing all three simultaneously there is a risk of unintended negative consequences and overlooked synergies 1-3. Protected areas designed to conserve carbon-dense/high biodiversity ecosystems that centre around and respect the rights of Indigenous peoples can have an immediate impact on avoided GHG emissions, habitat conservation and reconciliation. Other nature-based options, such as restoration, are likewise important but, because they can take decades to deliver measurable GHG emission reductions, cannot replace the benefits of protection of intact ecosystems in the short term.

Canada is well-positioned to take a new approach to protected areas creation and management that benefits biodiversity, mitigates climate change, and supports Indigenous rights. It is one of a handful of countries with large tracts of relatively undisturbed carbon dense/high biodiversity ecosystems remaining, including old-growth temperate forests, boreal forests, peatlands, grasslands and coastal blue carbon ecosystems (i.e. seagrass and salt marshes)⁴. Canada has also pledged to develop a new relationship with First Nation, Inuit and Metis peoples, and support for Indigenous-led conservation is a concrete way of acting on reconciliation of our relationships to the land and each other.

Carbon-dense/biodiversity rich ecosystems are not evenly distributed across Canada. Some examples with the highest potential for these dual purposes are found in the old-growth forests of British Columbia and the Maritimes; the boreal forests and peatlands of Quebec, northern Ontario, Yukon and NWT; the grasslands of the Prairies and the interior of BC⁶; and the coastal ecosystems of BC, the Maritimes and Hudson Bay Lowlands of Manitoba, Ontario and Quebec.

Canada has learned many lessons about the way to create protected areas that support an economy based on stewardship of the land. It should pursue a protected areas agenda that includes Indigenous leadership and incorporates co-benefits for biodiversity, climate change mitigation and adaptation, and Indigenous rights.

3. **Expansion of Protected Areas for Climate Change Adaptation**

Protected areas can provide habitat for climate change adaptation for species as well as disaster risk reduction for vulnerable communities. For example, the restoration of coastal marine systems, especially seagrass beds and tidal marshes, is proven to provide protection against increasingly intense storm surges while also providing important habitat for at-risk species and nursery grounds for commercial fish and invertebrates.

4. **Expansion of Protected Forests**

Canada has large tracts of mid-age industrial forests that could be restored to a more diverse condition, allowing them to age and take on some of the carbon-dense/biodiversity-rich characteristics of old-growth forests – a process referred to as ‘proforestation’⁵. This expansion would provide habitat for at-risk species dependent on old-growth forests over the long term. It would also require rethinking what constitutes sustainable forestry. Several participants highlighted that forest certification does not always equate with sustainable forestry.

5. **Expansion of Indigenous Protected and Conserved Areas (IPCAs)**

Canada already has both co-managed national parks and a renewed emphasis on Indigenous Protected and Conserved Areas (IPCAs). These IPCAs have demonstrated the advantages of Indigenous approaches to conservation, stewardship of carbon reserves and respect for Indigenous rights and self-determination. However, the expansion of IPCAs has to be accompanied with financing for Indigenous-led stewardship, including Indigenous Guardian programs. Under Indigenous leadership, the creation of, and investment in new IPCAs could be expanded to more explicitly include climate change mitigation and adaptation in their identification and management.

6. **Scaling up Finances**

The ambitious agenda set by the Government of Canada to expand protected areas from the current target of 17% terrestrial and 10% marine by 2020, to 25% by 2025 and 30% by 2030 of both land and oceans, is laudable. But the scale of the investment needed for new protected areas, IPCAs and other nature-based climate solutions, is substantial. For example, funds committed to nature protection are dwarfed by investments in grey infrastructure and activities harmful to the climate. Commitments to (largely) grey infrastructure totaled \$95.6 billion (budgets 2016 & 17), compared to the \$1.3 billion Nature Fund announced in budget 2018.

It’s time for Canada to significantly invest in natural climate solutions, including protected areas, and transform our economy to be more in-step with climate change mitigation and nature

conservation. Clear and transparent estimations of the investments needed for the achievement of protected area targets and significant public education and mobilization will be required to create the incentives and space for political action. New financial approaches, such as payment for ecosystems services or careful use of carbon offsets, should also be explored.⁷

Civil society, scientists and others should consider the possibilities for a major campaign for the 2021 Federal budget to increase investment in protected areas, including IPCAs, and simultaneously address biodiversity, climate change and reconciliation goals.

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Restoration Breakout Session

Session Moderators:

- Graham Saul & Lara Falkiner (Nature Canada)
- Olga Shuvalova (David Suzuki Foundation)

Participatory Exercise - Question 1:

The goal of this portion of the session was to get a better sense of the range of activities that restoration encompasses, to learn more about what kinds of work is being done, and to begin a conversation about what kinds of activities are most important to attendees.

Participants were asked the following question: **From a nature-based climate solutions perspective, what are the one or two types of restoration initiatives that are most important to you?**

While no categorization scheme fits perfectly, the results were loosely fit into three categories: Species and Biodiversity, Ecosystems and Connectivity, and Human Aspects.

Species and Biodiversity:

Concerns regarding **native species** persisted through most discussion areas. **Grasslands** and **arboreal** concerns were identified as priorities for native species restoration. These priorities included forests, urban trees and community forests and raised concerns about the varieties of trees and the ways of planting. Logistical capacity (nurseries, stock and personnel) as well as location appropriateness of native species restoration were also mentioned. Invasive species management was noted.

Restoration targeting keystone species such as **salmon, buffalo** and **caribou** (the most common) were identified as strategies for habitat and landscape management/restoration. General restoration of **habitat important to species at risk** was addressed. Generally, an increase in overall biodiversity in highly degraded systems including soil, anthropogenic and novel ecosystems were touched on.

Ecosystems and Connectivity:

Overall **wetland restoration** was most common. Focus was largely on **inland** but included **coastal** wetland restoration and the **multitude of benefits** associated with them. **Riparian** as well as **saltmarsh** restoration garnered significant mention. Peatlands, Alvars and estuaries were also identified. **Coastal** restoration for **erosion and flood control** were common. At a larger scale, **watershed** restoration was a prominent theme as well. Assisted restoration of natural recovery to disturbed systems, as well as reestablishing natural disturbance systems (burning grasslands) were noted in terms of landscape restoration.

Restoring Habitat and **Connectivity** (enhancing/creating/expanding) between disparate segments of habitat or between protected areas was one of the most prominent priorities, with many variations on the approach mentioned. These included some specific habitats including grasslands, forests and aquatic migration routes.

Human Aspects:

In an urban setting **tree canopy** and **native lawns** were two initiatives that appeared more than once, but items such as surfacing water systems, increasing biodiversity and restoring areas identified by the community as important were put forward as well. **Farmland** was often identified as a potential site for improved biodiversity and connectivity, whether wholly or in marginal areas. Restoration of **lands impacted by infrastructure** was a common item. Ideas centered on **removing or repairing** old infrastructure such as paved wetland, dams, culverts, rail-lines, roads, causeways and seismic lines were abundant. To this point, focus was significantly on **mining and oil operations**. A very common item was application of **phytotechnologies** where restoration may not be possible. Researching options regarding **restoration potential, adaptive management and innovation** were noted as priorities. There were a few international priorities for **mangrove** restoration and forests in the global south.

Reconciliation through Restoration emerged as a theme that provides an opportunity to empower local communities, prioritize indigenous values, reclaim food sovereignty and apply holistic thinking systems to the NBCS discussion. Restoration was frequently identified as a tool for **engaging Canadians** (especially urbanites) with nature. The groups touched on ideas to further engagement including tax incentives and partnerships with landowners to help realize goals.

There were common themes about changing our systems of thought. These included a shift towards local, sustainable food systems, or rewilding our human impacted areas, and echoing the ideas of reciprocity noted in Nitah's speech on day one of the summit (give back what you take - build a relationship with the land). Suggestions for **regulations** on industry liberties, as well as guidelines for **consistency** in restoration practices were made. Questions around sourcing money and capacity were raised.

Participatory Exercise - Question 2:

The goal of this portion of the session was to better understand what criteria people used to evaluate projects and priorities, and to begin a conversation about what kinds of criteria and outcomes are most important to the people assembled.

Each individual was asked to **identify the top 3 criteria that they used** in order to evaluate the priorities on the table. Each table was then asked to **identify the top 3 criteria that the group was most likely to have in common**.

Collectively the criteria that appeared from the table discussion were (in order of frequency of appearance):

- Social aspects of restoration (relationships with each other and the land, building awareness and partnerships, etc)
- Multiple and co-benefits of Restoration
- Long term sustainability of projects

Other points that arose were:

- Connectivity and corridors
- Building resilience to climate
- Cost-benefits, Feasibility and Return on Investment
- Contribution to Biodiversity Crisis
- Carbon Capture Potential
- Filling knowledge gaps
- Focus on accessible projects, and
- Conserving existing habitat

Participatory Exercise - Question 3:

Question: **What do you need in order to realize your restoration goals?**

More Money:

Variations on more funding was the most common need identified by the tables. More and new funding options for pilots up to large projects, long-term and recurring project funding were needed. Mechanisms of funding, such as increased private-sector matching, or corporate bonds were identified as potential means to increase available funds.

Policy:

Changing policy for long term continuity over government shifts as well as within the levels of government to reflect NBS and restoration priorities was wanted. Stricter policy around the protection of habitat and its destruction, specifically for industry regulation was commonly identified. Making the cost of destroying habitat greater than the cost of restoring it was also suggested.

Structure:

The need for implementation infrastructure, starting with higher numbers of knowledgeable personnel, more supplies (plants etc), technical support, structure for monitoring and maintaining stages of the restoration priorities were examples given.

The need to develop a cohesive restoration strategy with identified priorities and projects was noted several times, as well as the need to fill in knowledge gaps in building data on restoration potential in landscapes across the country.

Engagement:

Using restoration as a tool for outreach, collaboration and inclusion, connecting people from all walks of life with the potential of restoration and the natural world was important. Taking advantage of the opportunity for reconciliation through restoration was also a priority.

Natural Infrastructure Breakout Session

Session Moderators:

- Lindsay Telfer (Canadian Freshwater Alliance - lindsay@freshwateralliance.ca)
- Amin Asadollahi (Horizon Advisors - amin@horizonadvisors.org)
- Jay Ritchlin (David Suzuki Foundation - jritchlin@davidsuzuki.org)

Introduction

For the purposes of this session, natural infrastructure was defined as “Natural and human-made elements that provide ecological and hydrological functions and processes and can include components such as natural heritage and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs.” This definition, borrowed from the Ontario Provincial Policy Statement, encapsulates what many of us are referring to when talking about natural infrastructure.

The Canadian Government defines ‘green infrastructure’ more broadly, including hard and grey infrastructure projects (such as wastewater treatment upgrading and sewer projects built from concrete and steel), and any infrastructure project that is contributing to a clean energy future (electric vehicle infrastructure, renewable energy distribution networks, etc.). They use the term ‘living green infrastructure’ to refer to projects often covered under the ‘natural infrastructure’ definition above.

Greater clarity is needed in the community to drive at a common definition across sectors and jurisdictions.

Our vision is for natural infrastructure solutions to become **mainstream. That means they become common practice when identifying central and priority elements in designing for climate resiliency.**

It is also important to consider the diversity of outcomes (co-benefits) derived from NI projects, including (but not limited to) cultural, health, water quality, biodiversity.

It is the hope of the facilitators to combine all the feedback offered in both this session in addition to the Urban and Built Communities session to draft a “Roadmap for mainstreaming natural infrastructure in the Federal Government.” A draft outline of the roadmap going into the Nature Based Climate Solutions Summit can be found online: https://docs.google.com/document/d/1tXXK2ovlrRsBOWGrwkBt6-1CRERaCu0G2Cx_rVsAVyQ/edit

Landscape Scan

Participants were invited to submit a case study that could be compiled in a comprehensive resource and landscape scan of existing, completed and anticipated natural infrastructure projects. A verbatim, searchable database of the results is underway but has not yet been completed. We plan to finalize this alongside the roadmap document. If you have a project you wish to add to the scan, please do so here: <http://bit.ly/naturalinfrastructure>.

A high level overview of input:

Government responses = 22: 6 federal; 6 Indigenous; provincial, regional and local 6; undefined 4

Federal government responses often involved policy development, program design and fund management. A few respondents managing government mandated projects on the ground.

Indigenous governments were largely managing direct restoration or adaptation projects. They often had funding from federal sources but sometimes found provincial or other funds more difficult to access. Exclusion and reconciliation-related challenges are encountered that complicate issues beyond their technical difficulty. Integrating natural infrastructure with other concerns like healthy communities is mentioned as a progressive policy step needed.

Provincial governments had numerous responses indicating they are in policy development and project identification phases, with a few very specific projects. Wetlands and forests projects are common and water management is a recurring objective.

Climate change, species at risk and natural asset management policies and funding mechanisms are cited as reasons for taking action and as areas where clearer policies and programs would improve opportunities for provincial and regional governments.

Private sector = 2 Private foundations

These organizations are making grants and developing policy in the space. They are funding at all scales and looking for ways to improve effectively and the scope of impact of donations and projects. In addition they have an interest in leveraging additional investments to good projects.

Other sectors = 8: Academia, professional associations, coalitions/committees, private individuals

These groups are largely looking at very specific one-time projects, or working to build capacity for people to work in the sector. There are a couple of coalitions trying to build bridges across sectors to improve delivery of natural infrastructure.

Non-governmental = 30: 8 National; 13 Provincial/regional; 8 city/local; 1 First Nations

The majority of NGOs work in a variety of landscapes. Urban landscapes were the predominant landscape worked in and also the landscape most likely to be worked in if only one landscape applied. Water management, habitat restoration, including for specific species recovery, and climate adaptation appear to be the main objectives for listed projects. Projects access a wide range of federal, provincial, local government funds as well as charitable donations. Some private money is represented and many NGOs are looking for more ways to access federal dollars and find support for ongoing operation and maintenance of projects.

Natural Infrastructure Challenges and Barriers

Participants were asked to identify what central challenges and barriers to advancing natural infrastructure they have experienced. Inputs were grouped into themes and are summarized below. They are also organized by volume of aligned responses, representing a rough ordering of the challenges by those most commonly identified (the numbers represent the number of individual comments grouped within this theme).

Inertia (34): Interestingly, challenges associated with concepts of inertia and systems change were the most commonly identified barriers. Realities that grey infrastructure is still the priority were often highlighted, along with difficulties in opening minds on the possibilities of natural infrastructure within and across industries (engineering, development, and planning) and with municipal offices and councils and that there are competing and conflicting priorities around the need to develop, and build and the need to restore and naturalize. Identification that focus (and spending) is still on fossil fuel infrastructure and car cultures. Also identified were economic systems challenges on the growth economy and challenges with trends to assign economic 'value' to nature. Concerns were raised both that the growth economic model will continue to overwhelm nature regardless of restoration efforts. The concern was also raised that our economic system is likely to create negative consequences for nature if we treat it like a commodity or monetised asset (perverse incentives for monocultures of "desired" plants, for example).

Funding and access (27): No surprise that funding, access to resources and sustainability of funding sources were commonly identified challenges. Identifying appropriate funding sources throughout the entire timeline of natural infrastructure projects was expressly mentioned - from concept and piloting through to management, scaling and monitoring. Realities that current funding levels just can't compete with grey infrastructure programs - municipalities can get far more money for grey infrastructure projects and this drives the prioritizing. Also barriers and thresholds to many existing funding programs were identified. Inability to get current carbon offset revenues was identified along with long-term challenges of supporting human resource capacity (across sectors and jurisdictions) to build expertise in the sector (more on this below in capacity).

Capacity (20): Another commonly identified set of challenges were those grouped along the theme of capacity. These ranged from barriers around building the technical capacity and training programs for natural infrastructure, to aligned challenges around access to human resource capacity across contractors, engineers, landowners, developers etc. Similarly, capacity within the landscaping and nursery sectors was identified. Capacity to drive deeper partnerships and collaboration across sectors was also identified as a challenge. Finally capacity to evaluate, frameworks for evaluation (i.e. carbon accounting), and ability to support long-term monitoring are also identified barriers.

Business Case (20): Challenges associated with having a clear business case for natural infrastructure solutions were, again, commonly identified. Participants identified knowledge and uncertainty around the costs and benefits as a challenge but also how best practice examples would identify with the individual needs of other communities -- so the comparability of current case studies across geographies and scales. A general lack of knowledge and awareness about existing case studies and best practices that have been published was also identified alongside a lack of information and proven approaches that show the true value of natural infrastructure at scale. Finally, a holistic understanding of the business case was identified as a challenge to fully depict natural infrastructure solutions alongside the suite of co-benefits; sectors and decision-makers are often only looking at solutions with a climate lens, a lens on flood management or with an economic lens. The true value of natural infrastructure solutions rests in the full suite of benefits it offers our communities.

Policy and Standards (16): Challenges associated with specific policies and requirements (and in some cases conflicting policies and requirements) were also identified as a barrier. Specific issues include cross compliance, coordinated land-use planning, cross jurisdictional alignment in planning acts and infrastructure priorities. A general lack of standards, requirements or policy across jurisdictions for

driving and incenting natural infrastructure was identified; specifically mentioned were: engineering guidelines, flooding policies and guidelines that support fish habitat, procurement practices, and requirements for natural infrastructure first policies. Incorporating Indigenous science and knowledge as equal to standards was also identified and grouped in this section.

Jurisdictions and authority (12): Alignment and cross-compliance across jurisdictions was identified by numerous participants with others identifying that a top-down approach wouldn't be successful. It was suggested that natural infrastructure solutions need to be built from the bottom up.

Evaluation and Measurement (7): The lack of consistent metrics and baseline measures was an identified challenge alongside that of long-term modelling. We also need deeper analysis on the co-benefits of natural infrastructure: including health, biodiversity, and water quality as well as potential benefits such as driving innovative community finance, increasing collaboration and supporting farmland restoration.

Language (6): As already mentioned above, challenges associated with conflicting and different definitions were identified, which lead to misunderstandings and ambiguity in communication. Different interpretations across sectors and across jurisdictions have been identified.

Roundtable Discussions

Participants were divided into small groups around three discussion areas:

- advancing policy solutions;
- defining a federal natural infrastructure program; and
- gaps in data, monitoring and evaluation.

Summaries below compile discussions at each table and summarize general trends across the groups.

Advancing Policy Solutions

Work needs to be done on identifying common, clear objectives for natural infrastructure across jurisdictions; this work could include identifying clearer definitions (i.e. are manufactured solutions included) and better alignment and comparability across jurisdictions and responsibilities. Developing a pan-Canadian approach would offer more consistency across provinces and could advance a common approach to implementation and management across built community landscapes. Several policy gaps were identified across round-tables:

- At the city level, land-use and city planning policies and tools were identified as lacking and where in effect, lacked teeth;
- A general desire for more mandated natural infrastructure policies across jurisdictions was identified; and
- Absence of legislation at a federal level (i.e. a clean water act, climate emergency) means no enforcement power and therefore lack of incentive for action on natural infrastructure.

A notion of top down policy (at the provincial and federal levels) matched with bottom up support (municipalities, NGOs, communities) could help leverage policy advancements. But it was also identified that a one size fits all approach is not appropriate. It is important that the types of natural infrastructure projects for different areas vary and there's a need that top-down policies allow for adjustment to local contexts.

There is a need for greater capacity building programs — programs for funders to be able to assess and select most worthwhile investments; guidance to inform local planning and resource allocation; and deeper, more meaningful consultation and capacity to work alongside First Nations communities to define how Indigenous knowledge and law are integrated into understanding and decision-making.

Conflicting policies were also a topic of discussion at tables. Policies exist that impede progress; there is a need to identify and eliminate those in favour of policies that take on a holistic approach (for example those that recognize that solutions to climate resilience, for example, should be measured both on how the impact climate outcomes but also how they advance other community co-benefits). There seems to be a general concern that the biodiversity, health and community co-benefits are not weighted equally across various climate solutions. A general concern that market forces will not prioritise nature based solutions over the long term.

Establishing A Dedicated Natural Infrastructure Program

A dedicated natural infrastructure program at the federal level needs to include a multi department approach. This approach would streamline processes across ministries and allow for projects of all sizes to come into action and would broaden accessibility of funding programs to a more diverse set of actors including municipalities, community organizations, nations, developers etc. Funding programs would be longer term, with a long-term commitment to support not just project implementation but ongoing management and monitoring. Ontario Trillium Foundation model of supporting seed, grow and capital projects may be one to consider, though timelines would need to be extended. This program would have an emphasis on shared data collection for natural infrastructure projects, with values of common monitoring frameworks and public transparency for reported data and impacts. This long-term commitment would be supported by stable government revenue sources such as gas tax revenues or be connected to carbon offset tools.

A federal natural infrastructure program would build skills and networks across the landscape, advancing a common language and terminology, and would advance adaptive management as changes occur on the ground. Learning, knowledge sharing, and growth would be core facets of this capacity building approach.

Improving Monitoring and Evaluation

Natural infrastructure programs and projects need to be evaluated on a long-term basis to best capture the return on investment (ROI), especially when comparing to human-made, engineered assets. The need for program and project evaluation to capture co-benefits of natural infrastructure was repeated throughout the concurrent session. The lack of recorded projects and baselines is a barrier that is limiting the comparability of projects across regions. Therefore, there was an identified need for a central agency to measure natural infrastructure projects, standardized metrics in evaluation. This need for comparability, and common approaches to monitoring and measurement must be balanced with the corresponding need for flexibility and regional adaptation. Finally, the knowledge development tools must align with Indigenous communities needs and priorities and not have a higher priority to that of Indigenous knowledge systems.

Carbon Offsets Breakout Session

Session Moderators:

- Amanda Reed (Nature United)
- Florence Daviet (CPAWS)
- Dale Marshall (Environmental Defence)

Introduction & Context Setting

This session included a presentation from Amanda Reed from Nature United and Joseph Pallant from EcoTrust on the main elements of a GHG offsets program as well as some of the ways other systems have sought to integrate biodiversity considerations into the design of the offsets. The goal of the session was to help participants better understand where GHG offsets might help advance nature-based climate solutions, but also some of the challenges that need to be addressed both with regards to the GHG mitigation benefits and concerns regarding biodiversity and indigenous rights being addressed as part of the program development.

Some key thoughts shared in the initial presentation included:

The primary aim of offsets is to encourage and recognize non-regulated actors willing to take actions to reduce GHG emissions. In order for the offset system to be meaningful, it has to be designed with certain criteria to demonstrate that the GHG emission reductions or CO₂ sequestered are real. This includes demonstrating that these CO₂ measures must be beyond reductions that were planned or likely to happen anyway, making them additional measures to business as usual levels. The emission reductions must last over the life of the project, and they must also be transparently quantifiable and independently verified.

Well designed offset protocols support compliance frameworks and increase voluntary offset commitments. They are outlined and integrated with the larger policy framework as well as being designed with respect to indigenous rights and a commitment to advancing indigenous governance over their lands and waters. Finally offsets should be ecologically appropriate and have positive biodiversity benefits.

However, it should not be assumed that all GHG mitigation measures taken will have a positive impact on biodiversity or indigenous rights. Therefore those developing voluntary and regulatory offset programs have looked at different ways to incorporate important considerations, as these are key to the sustainability of the actions.

As many voluntary GHG offset programs include forests, as well as wetlands, coasts and other ecosystems there are many voluntary certification approaches that include biodiversity indicators as well as GHG mitigation indicators. For example, Climate, Community and Biodiversity Standards (CCB), certifies projects that have net benefits for climate change, local communities and biodiversity. The Sustainable Development Verified Impact Standard (SD VISta) defines a set of criteria for projects to link their social and environmental impacts to the UN's sustainable development goals. Through these programs, biodiversity can be incorporated into offset frameworks.

However there are other approaches that may not be as complicated and more relevant in a regulatory context, such as targeting specific protocols to regions and activities that are known to have a positive biodiversity and GHG mitigation benefit, or setting minimum standards regarding what actions could be taken to ensure that biodiversity concerns are taken into consideration in specific protocols, as was done in the California context.

Group Questions & Discussion

The goal of this session was to explore biodiversity benefits of carbon offsets and identify tools to advance both climate and biodiversity goals via regulatory offset frameworks through guided discussion.

The questions asked for participants to discuss were:

1. What is an offset project type that you have considered, have implemented, or would like to see in Canada related to the ecosystem?
2. How would the funding from the emission reduction payments change what is being done?
3. What would be the mitigation benefit? (e.g. what activity that causes emission would be reduced?) and how could you make sure that the activity doesn't simply shift elsewhere?
4. What are the main barriers, if any, that you see for achieving a biodiversity benefit?
5. Could you quantify the biodiversity benefits?

Some of issues raised during the discussions included:

- The importance of regional and federal protocols. There was discussion around a strict framework to guide both the design and monitoring phases of offset projects. It was also noted that this framework needed to allow flexibility for regional differences which include a special focus on northern projects. Interim measures, which would allow offset projects to proceed while these federal and provincial frameworks are under development were also called for.
- How to recognize existing carbon offset structures. Clarifications including project financing through the current carbon market were needed; Differences between funding eligibility for pre and post 2016 projects were discussed; And, the two markets, voluntary and regulatory were brought into discussion, in the hopes of understanding the pros and cons of each.
- Barriers to implementation. Immediate project barriers that were noted, included the slow nature of beginning offset projects, as well as recruiting commitments to them. The large financial barrier to performing the science needed to evaluate and design offset projects was discussed. The notable lag between implementation of action and observable results for offset activities, was mentioned as a potential barrier. Developing consistent criteria to help define baselines and facilitate clearer indices of project progress presents another challenge to offset programs. Finally, connecting the market-based activity with community building programs and indigenous peoples who are dealing with the day to day effects of these systems was also discussed.

Overall, developing offset protocols for the dual benefits of carbon mitigation and biodiversity benefits as well as the multiple co-benefits was a theme. The importance of benefits beyond climate mitigation, and the place for carbon offsets within the larger nature-based-climate solutions discussion was

highlighted. However, misgivings around the offset system were also brought to attention. These included the potential for such a system to allow free reign on climate crimes, forgiven by 'buying' the difference in offsets, as well as the greenwashing of the fossil fuel sectors.

Carbon offsets were described as an area for further development and regulation. The benefits were noted, though an understanding that these comprised only one measure, which alone, would not solve the climate crisis. If properly planned and regulated, in conjunction with other emission reduction measures, these programs could present a positive opportunity. However, as one participant noted, it will require that people with expertise in different fields work together to make sure that the design of the protocols that impact ecosystems be designed correctly.



Concurrent Working Sessions #2: Landscapes

Drawing on the lessons and proposals emerging from the morning sessions, the second round of five concurrent sessions focused on priority initiatives that are best suited to specific landscapes:

- Agriculture and Grasslands Breakout Session
- Wetlands Breakout Session
- Oceans & Coasts Breakout Session
- Urban Areas and Community Landscapes Breakout Session
- Forests Breakout Session

Agriculture and Grasslands Breakout Session

Session Moderators:

- Lara Ellis (ALUS Canada)
- Karen Ross (Équiterre)
- Jane Rabinowicz (SeedChange)

Speakers:

- Karen Ross
- Jane Rabinowicz
- Alan Kruszel (Soil Conservation Council of Canada/Farmer)
- Marc Bercier (Ontario Seed Farmer)
- Duncan Morrison (Manitoba Forage and Grassland Association)

This well attended and lively session raised challenges and potential solutions relating to agriculture and grasslands and their roles in nature-based climate solutions.

While much of the focus on nature-based solutions in Canada has been on our vast forest and northern ecosystems, the need to include agricultural producers and landscapes is evident:

- Farmers and ranchers are the largest landowner group in Canada; and,
- The majority of biodiversity decline and loss of natural infrastructure and naturalized areas in Canada has been in southern landscapes. In southern Canada, for example, over 70 per cent of wetlands have been converted and/or lost.
- While some of Canada's agri-environmental indicators related to soil, water, and biodiversity and GHGs are improving, several are declining. There is an untapped opportunity to improve on these for the benefit of the agriculture sector and more broadly, for biodiversity and nature-based climate solutions

Session organizers and panelists began with the assumptions that:

- Collaborating with farmers, ranchers, and rural communities is essential for ecosystem conservation and restoration efforts for biodiversity and climate outcomes; and that,
- Sustainable and/or regenerative agriculture plays an important role in mitigating climate change through GHG reductions and sequestering carbon, supporting biodiversity, and creating economic resilience.

A host of issues relating to the intersects between climate change, agriculture and grasslands were raised by the session speakers: Jane Rabinowicz from Seed Change; Karen Ross from Équiterre; Alan Kruszel from the Soil Conservation Council of Canada; Duncan Morrison from the Manitoba Forage & Grasslands Association; and Marc Bercier an Ontario farmer and CEO of Bercier Seed Cleaning Center Inc.; and session participants, including:

Farmer/Farming challenges:

- Desire to be more efficient (reducing waste and inputs – increasing profits)
- Declining net farm income

- Less consistent (more extreme) weather and seasons due to climate change
- Aging farm population
- Prohibitive start-up costs for people who want to farm
- Impacts of carbon pricing on food production and shipping
- Risks of transitioning to Beneficial Management Practices (BMPs) without appropriate support (financial and technical)
- Connecting with a range of producers, not just early adopters, but farmers who are watching, learning and experimenting.
- Difficulty in factoring consumer choices and preferences (e.g. future market opportunities) into farm gate and conservation decisions
- Barriers to cover cropping, intercropping and integrating agroforestry into common cropping systems
- Lack of robust data and strong accounting systems to ensure that farmers can be appropriately rewarded for EGS provision

Environmental/Climate Challenges:

- Not much incentive to conserve or restore grasslands or other natural features that store carbon
- Soil health is declining in some parts of Canada (equating to less organic carbon in the soil). Current sinks projected to decline to 2030, whereas current sources have a potential to improve
- Growth in nitrous oxide from synthetic fertilizer and pesticide applications
- Lack of data relating to soil health and carbon sequestration of different projects and management (needed for carbon protocols and other incentives)
- Not enough support and partners to build modelling scenarios to showcase the mitigation and adaptation benefits of good land management approaches and forecast how they will tolerate extreme weather events (as well as provide a range of other ecosystem services)

The following opportunities to sustain agriculture, mitigate climate change, and build resiliency were brought forward, and can be considered to scale up nature-based climate solutions in agriculture:

- Preserving existing family farms (identified as important to environmentally and economically sustainable farming)
- Respecting farmer leadership – they know on-farm innovation, needs and opportunities best
- Informing, encouraging and collaborating with the farmers and ranchers who are open to modifying and changing management and practices
- Learning from and/or expanding existing models for farmer-led organizations and initiatives
- Encouraging peer-to-peer knowledge exchange on approaches that improve EGS provision

- Conserving, restoring, and enhancing natural areas on marginal farmlands for the production of wildlife habitat, sequestering carbon, and retaining and filtering water (for flood and drought mitigation) through PES programs such as ALUS
- Enhancing soil health (e.g. reducing soil disturbance using cover crops) resulting in more resilient agricultural systems
- Developing a diverse set of mechanisms to encourage and compensate farmers and ranchers for providing nature-based climate solutions
- Improving/reducing or eliminating nitrous oxide/fertilizer use through 4R nutrient stewardship and with integration of nature-based tools (e.g. leguminous crops) and through the promotion of organic farming
- Integrating agroforestry into modern-day farming where appropriate
- Promoting non-traditional farm ownership, for example: opening up lands to research groups, indigenous communities, small business farmers, etc.
- Combining knowledge systems between indigenous communities and farmers for land use and land management
- Supporting soil measurements and monitoring to continue to build a database that will be important performance-based supports (offsets and other incentives)

Wetlands Breakout Session

Session Moderator:

- Jim Brennan (Director of Government Relations, Ducks Unlimited Canada)

Speakers:

- Dr. David Browne (Director of Conservation, Canadian Wildlife Federation)
- Dr. Pascal Badiou (Research Scientist, Institute for Wetlands and Waterfowl Research, Ducks Unlimited Canada)
- Dr. Scott J. Davidson (Postdoctoral Fellow, University of Waterloo)

Introduction and Brief Presentations – Context Setting

Jim Brennan

- Welcome and introduction – this session explores potential opportunities and approaches to advance climate change action and biodiversity conservation in Canada’s wetland landscapes.
- Building on the concurrent morning sessions, we focus on the potential roles of carbon offsets, natural infrastructure, protected areas, nature-based adaptation and restoration as tools to support wetland conservation in Canada.

David Browne

- Wetlands have been discussed throughout the conference because they provide valuable ecological services for mitigating (i.e., keeping carbon in the ground) and adapting to climate change and also because the scale and rate of wetland loss in Canada is unprecedented.
- In settled areas, up to 70% of wetlands have been destroyed or degraded, and we continue to lose ~29,000 acres every year.
- This session focuses on operational procedures and challenges to advancing climate action through wetland restoration and avoided conversion. We need to consider where and how wetlands can be used to support biodiversity and climate mitigation and the tools that we can leverage to advance wetland conservation.
- The valuable ecological services and many co-benefits that healthy wetlands provide for people and nature, (e.g., flood and drought mitigation, water quality and filtration, protection from sea-level rise, carbon storage and sequestration, species at risk habitat) are generally well understood. These services are significant and demand attention.
- These ecological services will be an important component of the billion-dollar nature fund.

Pascal Badiou

- DUC is undertaking research looking at the climate impacts of restored and conserved freshwater mineral soil wetlands.
- Research suggests avoided conversion of wetlands generally provides better outcomes for carbon

emission reductions and are more cost-effective than restoration. Restoration was found to be about 150% more expensive than avoided conversation.

- Wetland conversion and restoration are not currently part of the National Inventory Reporting for Canada's greenhouse gas emissions, which limits accountability. We need to pursue pathways to bring wetland-related emissions into the National Inventory Reporting.

Scott J. Davidson

- Canada's peatlands continue to face many threats, including linear disturbances, infrastructure, resource and peat extraction, mining, wildfire, and permafrost thaw.
- Peatlands store twice as much carbon as all of the world's forests. When peatlands are degraded, they can become massive sources of carbon.
- Avoided disturbance and restoring peatlands are the two best two ways of managing peatlands for climate change.
- Although peatland restoration can take a decade or more to return to being carbon sinks, it is important to restore what we have lost. Unrestored, disturbed peatlands are a huge carbon source in Canada.
- Restoration must be strategic, for example by reducing peat exposure during restoration and by restoring peatlands immediately post-extraction to enable the system to become a sink more quickly. If we must disturb them, we need to keep peatlands wet.

Discussion Groups

The session split into four discussion groups, each guided by one of the following four questions. Summaries of each discussion are included below.

1. **Carbon Offsets: How can wetland conservation & restoration be integrated into carbon pricing or carbon offset systems?**

There was general agreement that offsets may be a viable tool for advancing wetland conservation and restoration in Canada; however, there are many barriers to integrating wetland conservation and restoration into carbon offset systems. These include:

- Data and baseline information – (a) Canada lacks a comprehensive wetland inventory, and thus we lack baseline information upon which to build an offset protocol for wetlands (b) Wetlands are not incorporated into Canada's National Inventory Reporting.
 - Possible pathways to addressing these gaps: developing a compliance protocol for offsets that allows for determining the baseline for a project area; have wetland conservation in the voluntary carbon market until a baseline is established; clearly articulate why a completed wetland inventory is necessary to unlock carbon offsetting as a wetland conservation tool (i.e., cost is significant, but it shouldn't be a barrier).
 - Key question: Would the federal government move forward with establishing a protocol for offsets for emissions that are not captured in the national inventory reporting? Is it possible to create an effective wetland offset protocol without a baseline for wetlands and incorporating wetlands in the National Inventory Reporting?

- Carbon quantification – the science isn't quite there yet with the carbon quantification in peatlands and mineral wetland landscapes. This makes it challenging to demonstrate the emissions reductions and creates uncertainties. Recommendation - the funding for this science needs to be prioritized to inform the development of effective and meaningful offset protocols for avoided wetland conversion.
- Additionality and permanence – science tells us that the largest near-term benefit for emissions reductions from wetlands is in avoiding disturbance. However, this creates challenges with ensuring and proving additionality and permanence in developing an offset protocol. For example, in areas like PEI where salt marshes are restored but ice cover destroys the restoration effort, how do offsets deal with this?
- Definitions – need to clearly define what constitutes a wetland in the context of offsets (i.e., does it include coastal marshes and seagrass and associated blue carbon? where do lakes fit into this?).
- Consideration of co-benefits – wetland restoration and conservation provide many different values and types of benefits beyond carbon that need to be carefully considered when pursuing offset systems. The carbon value shouldn't come at an expense to biodiversity value, for example.

2. Natural Infrastructure and the Co-benefits of Restoration: How can wetland conservation & restoration be advanced through investments in natural infrastructure that helps Canada adapt to climate change?

Participants agreed that new research and pilot projects on the use of wetlands as natural infrastructure to mitigate climate impacts are helping to make the link between wetlands and climate adaptation clearer. However, barriers remain that limit the degree to which we can leverage natural infrastructure investments to advance wetland conservation and restoration in a way that helps Canada adapt to climate change. The barriers and associated recommendations discussed include:

- Building the economic case – there is still more work to do to demonstrate the financial case for wetlands as an effective and efficient form of natural infrastructure to mitigate climate risk. Most relevant public investments are directed at carbon and flooding – this is where we need to focus on building the case.
- Co-benefits – capturing and valuing the co-benefits that come with using wetlands as natural infrastructure can complicate the economic case, but it is important that we find a way to clearly document and articulate these co-benefits.
- Perception of wetlands as infrastructure assets – wetlands are often not viewed as assets through a provincial and municipal lens, and thus funding is not prioritized for wetland conservation, restoration, or maintenance and stewardship. We need to facilitate a shift in thinking, where wetland conservation and restoration are viewed as a form of infrastructure and a cost-effective means to climate resilience and adaptation. Wetland functions and benefits need to be internalized within municipal operational budgets and decision-making.

- Weak policies to protect wetlands – existing provincial wetland policies are too weak to protect and maintain remaining intact wetlands that provide infrastructure services. We need to move from policy to regulation for wetland protection and harmonize wetland regulations across all jurisdictions in Canada. This will require completing the Canadian Wetland Inventory to know the baseline for wetlands in Canada, increasing resources for enforcement, and ongoing monitoring for compliance.

3. Protected Areas: What should the relative role be of public, private and OECM lands as a part of our overall climate and biodiversity strategies?

Public protected areas, privately protected areas and OECM lands are an important conservation tools to protect and conserve wetlands (including coastal wetlands), particularly in terms of carbon mitigation through avoided conversion of wetlands. However, there are a number of considerations that need to be addressed:

- We need better rules (i.e., policies, regulations, requirements) to avoid disturbance and restore what has been lost or degraded. We need to look at wetlands policies across the country that maintain the base of habitat and set the stage for net gains.
- Indigenous people must be central in decision-making on different tools of land protection and securement.
- Policies must ensure that if there are trade-offs it is wetland for equivalent wetland in terms of size, geography and function.
- We need to consider all of the values of wetlands when thinking about priority areas for protection – even when they are not near human settlement or infrastructure.
- There is an economic advantage to privately protected land vs. just any land for public use.
- Different ways of knowing - need to have respect for the different ways of knowing and their contribution to wetland conservation.
- Education is important, including: understanding between Indigenous and non-Indigenous people; with general public; changing viewpoint of wetlands' value; wetland relationships; need to include Indigenous perspectives and science perspectives in education; that people occupy wetlands; changing the dialogue about wetlands.

4. Adaptation and Restoration: How can wetland conservation & restoration play a role in the broader ecosystem recovery needed to address the wildlife and biodiversity impacts of climate change?

There are many gaps/barriers to advancing wetland conservation and restoration as a means to support broader ecosystem recovery in the context of climate change and biodiversity loss:

- Weak legislative protections for wetlands
- Lack of public knowledge of the importance and function of wetlands (wetlands are less in the public consciousness than forests)
- High rate of loss of temporary or ephemeral wetlands

- Lack of progress on the national wetland inventory
- Difficult to document and quantify co-benefits of wetland restoration. Which types of wetland restoration have the greatest co-benefits?
- Wetland losses in Canada continue to outpace restoration
- Quantifying the carbon flux in wetlands is challenging due to varied geographies and wetland types.
- Downscaled climate scenarios for wetland loss and possible restoration priorities

Other considerations regarding wetland conservation and restoration:

- The motivation for wetland restoration cannot be just carbon in the ground. Wetland restoration needs to maintain a focus on the dual challenges of sequestering carbon and addressing biodiversity loss.
- Restoration needs to be strategic and in high value areas. The highest value for wetland restoration is often on private land from a biodiversity perspective.

Some of the best examples of where wetland conservation and restoration play a role in the broader ecosystem recovery needed to address the wildlife and biodiversity impacts of climate change is on agricultural lands. The North American Waterfowl Management Plan is an effective model for this. Other examples include the DUC wetlands in Prince Edward County – Point Petre Provincial Wildlife Area and the US Coastal wetland resilience program, which has restored many Great Lakes wetlands in Michigan.

Oceans & Coasts Breakout Session

Working with Nature for Healthy Coasts, Oceans and Climate

Session Moderators:

- Deborah Carlson (West Coast Environmental Law)
- Alexandra Barron (CPAWS)
- Bill Wareham (David Suzuki Foundation)

Presenters:

- Tony Bowron
- Deborah Carlson
- Alexandra Barron
- Scott Parker

Background

Coastal and marine ecosystems are losing biodiversity at unprecedented rates due to human activities. Human-caused climate change is further increasing the vulnerability of these ecosystems with warmer temperatures, decreasing oxygen, increasing acidity and more severe coastal erosion. Along with reducing greenhouse gas emissions, there is an urgent and well-documented need for coastal countries like Canada to address cumulative human impacts to coastal and marine biodiversity through strategic and wide-scale protection and restoration activities.

Our federal and provincial commitments to implementing the United Nations Declaration on the Rights of Indigenous Peoples mean that laws, policies and actions going forward must be developed and implemented collaboratively with Indigenous peoples and governments. In the coastal and marine context this includes, for example, the development of marine protected area networks, monitoring and reducing marine and coastal impacts from marine transportation, fisheries management that protects fish and their habitat, and integrating ecosystem resilience and recovery into coastal flood management and urban, rural and industrial planning and regulation.

Protecting and restoring coastal and marine ecosystems also avoids and reduces greenhouse gas emissions, as recognized in Article 4.1(d) of the United Nations Framework Convention on Climate Change, and in the methodology for national inventories released by the IPCC in 2013. 'Blue carbon' ecosystems, like saltmarsh and seagrass, are known to sequester carbon at potentially higher rates than terrestrial ecosystems on a per hectare basis. New research in Canada is confirming that east and west coast saltmarsh ecosystems sequester and store carbon at significant rates. Parks Canada is leading work to assess blue carbon in protected areas, as Canada develops its network of marine protected areas. At the same innovative practices in salt marsh restoration and coastal flood management are being developed in the Bay of Fundy in Nova Scotia on the east coast and in the Lower Mainland of BC on the west coast.

Yet existing Canadian (federal, provincial and municipal) law and policy largely enables ongoing degradation of coastal and marine biodiversity and this must be changed. Thoughtful, science-based law and policy is essential to ensure that coastal and marine ecosystems are protected and remain resilient for the long-term, through effective and coordinated decision making and funding mechanisms.

In Canada it is also time to develop governance arrangements with Indigenous peoples and governments that respect Indigenous laws and knowledge, and facilitate Indigenous economies, management, decision making and enforcement in their territories. This also applies in coastal and marine areas. Globally, it has been shown that Indigenous-managed territories are losing biodiversity at lower rates than elsewhere outside protected areas. Working together in Canada can lead to legally binding outcomes for all Canadians that move us toward our shared goal of healthy oceans and coasts.

A blue carbon lens provides new and additional impetus for coastal and marine biodiversity protection at a landscape scale that aligns with ecosystem-based management. International practice and policy offer guidance on blue carbon accounting, and some of the world's leading blue carbon researchers are at Canadian universities.

In Canada blue carbon management can be incorporated into adaptation and restoration projects and planning, including natural infrastructure, and in the management of protected areas. The revenue-generating model provided by forest carbon offset agreements between provincial and Indigenous governments also has possible application in coastal and marine contexts as part of sustainable economies. Overall, managing blue carbon merits further investigation as a nature-based measure for climate change mitigation and adaptation in Canada.

Case Studies – Coastal And Ecosystem Protection And Restoration And Blue Carbon Opportunities

Coastal Restoration and Adaptation in the Bay of Fundy through Dyking Realignment

Presenter:

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Over the past 15 years, the team at CBWES Inc. and Saint Mary's University has been working with the Nova Scotia Government to restore over 400 ha of tidal wetland habitat throughout the province. Many of those projects involved the removal of tidal barriers in order to restore provincially significant salt marsh habitat. In recent years, the focus of projects of this type has shifted from the recovery of degraded or lost habitat to the restoration of these coastal habitats for their potential role in helping our coastal communities and infrastructure adapt to the changing climate conditions in our coastal province. Currently, a significant portion of our work focuses on implementing managed realignment and habitat restoration projects in the Bay of Fundy, and shoreline stabilization and erosion control projects utilizing a variety of nature-based and living shorelines techniques throughout the province.

In addition to the on-the-ground projects, which have already resulted in the realignment of two dykes and the restoration of 30 ha of salt marsh, a centre of expertise – TransCoastal Adaptations: Centre for Nature-Based Solutions, was established at Saint Mary's University in 2019. Currently we are working with Dalhousie University, CBCL Limited, and the Ecology Action Centre on a federally funded project (NRCan) to develop an implementation framework for practitioners working on nature-based climate change adaptation projects. As a part of this framework, we are exploring the barriers to and opportunities for adaptation options throughout the coastal zones of Nova Scotia, including the Bay of Fundy dykelands. To gain further insight into these barriers and opportunities, as well as to determine the types of messaging that work best when communicating adaptation options to the public, we have undertaken surveys, interviews, and focus groups

with coastal residents and municipal and provincial decision-makers. The results of this work have given us insight into the social and political context surrounding various adaptation approaches to climate change, including managed retreat, managed realignment, and holding the line.

Natural infrastructure for Coastal Flood Protection in Boundary Bay, BC

Presenter:

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Boundary Bay in the greater Vancouver area of BC has approximately 400 ha of salt marsh. This salt marsh is a vibrant habitat for many species, such as juvenile salmon, and is part of the Pacific Flyway. It also provides flood regulation benefits by reducing wave energy to the approximately 15 km of coastal dikes that protect landward communities in Boundary Bay (municipalities of Surrey, Delta and White Rock, and Semiahmoo First Nation), and significant regional infrastructure (Highway 99 and BNSCF railway connections to the United States, BC Hydro transmission lines, Metro Vancouver water and sewer lines). However, by 2100, sea level rise will cause the salt marsh to be inundated and lost because of coastal squeeze if no action is taken.

A new flood management initiative, the “Living Dike” pilot projects, undertaken by a partnership of two municipalities (Surrey and Delta) and Semiahmoo First Nation involves designing and testing measures to gradual elevate areas of salt marsh habitat to maintain ecosystem function and flood regulation benefits as sea levels rise. Funding was provided in 2019 through the federal Disaster Mitigation and Adaptation Fund, and the First Nations Emergency Planning Secretariat, with technical support from West Coast Environmental Law, is coordinating a roundtable of representatives from federal, First Nations, provincial and local governments to support proactive information sharing.

Research from Simon Fraser University has shown that the salt marsh in Boundary Bay stores and sequesters significant blue carbon, and further research is planned to better understand the extent of carbon stocks and rates of sequestration across the salt marsh. There may be opportunities to explore carbon accounting and management for a larger-scale implementation of the Living Dike based on the outcomes from the pilot projects.

Parks Canada - Blue carbon, saltmarsh, and eelgrass ecosystems on the Pacific Coast of Canada: A win-win for climate change mitigation and coastal conservation

Presenter:

Scott Parker, Ecosystem Scientist

Great Lakes Coordinator, Parks Canada

On behalf of:

Marlow Pellatt, Ecosystem Scientist

Office of the Chief Ecosystem Scientist, Parks Canada

(Note: the research described below draws on the work of: K.E. Kohfeld, H. Basnayake, V. Postlethwaite, M. Gailis, and S. Chastain)

As part of its responsibilities for managing Canada’s federally protected marine and coastal areas, Parks Canada has been involved in collaborative research activities to better understand blue carbon resources in those areas.

Blue carbon is a term recognizing the role of coastal wetlands in the global carbon cycle. Tidal salt marshes and eelgrass systems sequester carbon dioxide from the atmosphere for long periods of time, building stocks of carbon in their sediment. In Canada, the conservation of eelgrass and saltmarsh ecosystems is essential in maintaining fisheries, biodiversity, coastal stability, and other ecosystem services. Conservation and restoration of “blue carbon” ecosystems creates a win-win situation providing benefits for ecological integrity and climate change mitigation. This is especially important as Canada attempts to reach its 2050 goal of carbon neutrality. Understanding of blue carbon in the northeast Pacific is very limited, especially in Canada. Our work is providing some of the best information on blue carbon stocks and accumulation rates on Canada’s Pacific Coast.

Our recent research and a limited number of published studies show that the average carbon stock estimated down to 30 cm in Northeast Pacific eelgrass systems is 18.76 Mg C/ha. In the case of salt marshes on the Pacific coast of Canada, the median carbon stock for the top 30 cm of sediment is 95.66 Mg C/ha. Due to the relatively young age of the marshes examined, likely due to change in relative sea level due to tectonic activity or other coastal processes, total stocks are lower than older marshes on the Atlantic Coast of North America. When the data is extrapolated to 1m for comparison to older North American salt marshes, our sites have stocks of ~247.60 MgC/ha. This is comparable to the estimated carbon stocks in North American wetlands of ~365.20 MgC/ha. Total marsh area for the Pacific Coast of Canada is ~11128 ha, hence the median carbon stock is 1064544 Mg C for an average sediment depth of 30 cm.

Understanding carbon accumulation rates is essential for us to quantify carbon stocks in the NE Pacific coast. This information helps understand the role blue carbon plays in climate change mitigation and to develop best practices for ecosystem conservation and restoration where blue carbon can be assessed as a co-benefit to the management of coastal ecosystems for ecological integrity.

Marine Protected Area Networks

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About half of all biologically fixed carbon is found in coastal environments like seagrass and saltmarsh, which constitute just 0.2% of the total ocean area. Thus, destruction of even small areas of these ecosystems can result in the release of significant amounts of carbon back into the atmosphere. Blue carbon ecosystems are also known for high levels of biodiversity and play important ecological roles like spawning grounds and nurseries, overwintering areas, and feeding grounds. These ecosystems also face multiple and cumulative anthropogenic stressors, including climate change impacts, damage by fishing gear and anchors, pollution and oil spills, and trophic cascades. As a result, seagrass beds have declined by approximately 30% globally, and 58% of remaining seagrass beds are currently in decline.

By prohibiting all harmful activities, marine protected areas (MPAs) are a useful tool to help manage and support restoration of blue carbon ecosystems. The management approach and level of protection can vary between MPAs depending on the conservation objectives and the agency managing the site. However, in 2019, Canada announced minimum standards for all of its federal MPAs that prohibit bottom trawling, dumping, mining and oil and gas activities. MPA and MPA network planning is underway across Canada, and there is data available on the distribution and health of these ecosystems that can be used to inform MPA design and ensure blue carbon ecosystems are protected.

MPA design should also consider and accommodate for climate impacts such as range shifts and sea level rise. Recent research has started to explore the value of protecting carbon locked in seafloor sediments and in living fish and whale biomass and that MPAs may play a bigger role in reducing carbon emissions by prohibiting harmful activities and protecting marine life. To be effective, MPAs must have proper management and monitoring, and so require investment. Carbon credits and offsets could play a potential role in supporting these efforts.

Summary Of Session Discussion

1. Blue carbon accounting is already underway in Canada

Through research at Parks Canada and several Canadian universities (University of British Columbia, Simon Fraser University, McGill University), Canada is building a foundation for a carbon accounting system that monitors sinks and sources of carbon coastal and marine ecosystems. Accounting for blue carbon could support the development of carbon credits that can help fund protected area management and living shoreline programs.

More research is needed on how coastal ecosystems will respond to climate change stressors, such as how changes in temperature, acidification, and sea level rise will affect long term persistence. This research is also valuable for supporting resilience of coastal ecosystems.

2. Financing projects for protection and restoration needs more attention

There are costs associated with assessing, monitoring and managing carbon that need consideration. As well, from a restoration perspective, we need consistent funding that is equitable across the country. Rural and Indigenous communities often have fewer resources available but may have larger areas to restore and manage.

Other market tools that may create incentives for restoring blue carbon ecosystems include insurance policies that restrict building practices in coastal areas, and effectively allow coastal areas to be “reclaimed” and restored.

3. Blue carbon needs to be considered in the context of other, important ecosystem values

Blue carbon is only one of the benefits provided by coastal and marine ecosystem protection and restoration, and policy around blue carbon needs to be developed in the context of other important ways of valuing these ecosystems, including, for example, biodiversity protection, cultural values for Indigenous peoples, contributions to ecosystem health, flood defence, recreation and tourism.

4. Blue carbon benefits should be considered in carbon budgeting, infrastructure funding, and disaster risk reduction, and can help focus attention on living ecosystems

Blue carbon accounting could support carbon budgeting and low carbon resilience initiatives by local and other orders of government, including funding agencies, by illustrating carbon budget implications of different infrastructure projects (natural vs. gray). Blue carbon accounting should be part of disaster risk reduction planning and measures. It could be useful to stack the benefits of ecosystem protection and restoration and consider them all together.

Local governments often have responsibility for protecting coastal communities and coastal infrastructure, but do not usually have authority that extends to coastal ecosystems. This creates a disconnect because local governments are managing above the high-water mark only.

It would be a good thing to integrate the discussion of climate adaptation and mitigation for policymakers because it is currently very silo-ed. For example, from a federal government perspective on infrastructure management and natural hazards, the lens is on climate adaptation, but not at all on climate mitigation. A more holistic view could capture multiple benefits.

An advantage of considering blue carbon in policies about “natural” infrastructure might help promote truly natural infrastructure. There are a lot of different interpretations of what natural infrastructure means, and some so-called natural infrastructure might not have any benefits for natural ecosystems, such as aggressive beach nourishment. A blue carbon lens helps keep living ecosystems in the concept and design of natural infrastructure.

5. Communications around blue carbon need more work to make the link with conservation and restoration

Blue carbon is not common currency in many local communities. However, it has the potential to be usefully linked with narratives about conservation, healthy ecosystem function and long-term resilience.

6. Marine Protected Areas can be used to protect blue carbon ecosystems for the long term

Although marine protected areas (MPAs) have much broader purposes than just protecting blue carbon, there is an overlap between preserving and maintaining healthy ecosystem functions and managing blue carbon. Processes are already underway in Canada to identify and designate MPAs, and it may be too late to consider blue carbon values specifically in those processes, but the resulting MPAs and networks will likely still provide blue carbon benefits because of this overlap. For example, MPA network development provides an opportunity to address blue carbon through spatial analysis and zoning.

Government commitments and international targets of protecting 25% by 2025 and 30% by 2030 may provide a means to protect additional areas including those with blue carbon values while meeting other conservation goals. One consideration to keep in mind is that blue carbon ecosystems are dynamic and changing, and protected areas will need to be designed and managed to adapt to ecosystems shifting across the landscape.

Coastal MPAs will be the primary focus from a blue carbon perspective, but activities like trawling and deep-sea mining could release carbon stored in the sea bed, so MPAs in ocean areas may also play a role.

7. Blue carbon can help promote coastal ecosystem protection and restoration

Blue carbon provides an extra argument when trying to protect areas from development along the coast. In some ways it could be a proxy for managing coastal and marine ecosystems in a good way at significant scales, i.e. for their persistence and healthy function.

There is currently no legislation or government leadership to mandate coastal ecosystem protection and restoration, and this is needed to support further action. It is not enough for the federal government to fund occasional projects. Similarly, legislation and leadership is needed to support realignment at the coast to allow coastal habitats to migrate landward as sea levels rise and continue to provide flood regulation services.

Urban Areas and Community Landscapes Breakout Session

Session Moderators:

- Lindsay Telfer, Canadian Freshwater Alliance (lindsay@freshwateralliance.ca)
- Jennifer Court, Green Infrastructure Ontario (jcourt@greeninfrastructureontario.org)
- Jay Ritchlin, David Suzuki Foundation (jritchlin@davidsuzuki.org)

Introduction

For the purposes of this session, natural infrastructure was defined as “Natural and human-made elements that provide ecological and hydrological functions and processes and can include components such as natural heritage and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs.” This definition, borrowed from the Ontario Provincial Policy Statement, encapsulates what many of us are referring to when talking about natural infrastructure.

The Canadian Government defines ‘green infrastructure’ more broadly, including hard and grey infrastructure projects (such as wastewater treatment upgrading and sewer projects built from concrete and steel), and any infrastructure project that is contributing to a clean energy future (electric vehicle infrastructure, renewable energy distribution networks, etc.). They use the term ‘living green infrastructure’ to refer to projects often covered under the ‘natural infrastructure’ definition above.

Greater clarity is needed in the community to drive at a common definition across sectors and jurisdictions.

Our vision is for natural infrastructure solutions to become **mainstream. That means they become common practice when identifying central and priority elements in designing for climate resiliency.**

It is also important to consider the diversity of outcomes (co-benefits) derived from NI projects, including (but not limited to) cultural, health, water quality, biodiversity benefits.

It is the hope of the facilitators to combine all the feedback offered in both this session in addition to the Natural Infrastructure session to draft a “Roadmap for mainstreaming natural infrastructure in the Federal Government.” A draft outline of the roadmap going into the Nature Based Climate Solutions Summit can be found online, https://docs.google.com/document/d/1tXXK2ovlrRsBOWGrwkBt6-1CRERaCu0G2Cx_rVsAVyQ/edit.

Natural Infrastructure Challenges and Barriers

Participants in our natural infrastructure session earlier were asked to identify what central challenges and barriers to advancing natural infrastructure they have experienced. Inputs were grouped into themes and are summarized below. They are also organized by volume of aligned responses, representing a rough ordering of the challenges by those most commonly identified. For a full summary of these results see summary from the Natural Infrastructure Concurrent Session.

The Business Case for Natural Infrastructure in Built Communities

Round table discussions broke participants into small groups to explore what was needed to build the business case for natural infrastructure within the lens of various direct climate impacts alongside various co-benefits. Summary of those round-table discussions is below. Note, these summaries represent general discussion. Consensus on ideas is not assumed.

There were a number of areas of alignment that emerged across the round-tables and spanning the specific issue areas. They identified that developing the Business Case for Natural Infrastructure has to include:

- A focus not just on the direct by the suite of co-benefits that nature based solutions offer;
- Specific and regionally relevant case studies;
- Persuasive, understandable metrics that speak to decision makers;
- Perspectives from indigenous communities;
- Focus on how natural infrastructure invites multi-sectoral collaboration; and a
- Standardized methodology to benchmark level of service provided by natural assets comparison to engineered infrastructure.

There were, at a number of tables, concerns raised over the notion of valuing nature.

Stormwater Impacts

Municipalities all do some form of asset mapping to detail the key assets they have, the lifetime of those assets, the services they offer, and the anticipated costs of replacing those assets when their lifetime expires. Increasingly natural assets are being factored into this accounting but municipalities need tools to better account for the services nature offers their community. We need more case studies to share across municipalities that explore both the successes and challenges with using natural assets to manage stormwater impacts.

To facilitate the uptake and understanding of natural infrastructure solutions on stormwater more broadly, we need standardised performance measures. Developing the technical tools and comparable case studies will make it easier for communities to understand the services provided by natural assets and better be able to plan for their strategic implementation. To this end, we need to understand the costs of doing nothing, incremental costs, and potential legal liability costs. Developing a comprehensive analysis on the costs of using natural infrastructure tools alongside other infrastructure costs will be essential to making the business case for municipalities.

Addressing Urban Heat Island

Engaging the community around the decisions and understanding of natural infrastructure contributions to reducing urban heat island effects is an important element of building the case. People need to see and understand the benefits to support investment of public funds in the solutions. This includes engaging residents, businesses and municipal offices.

Again, creating case studies that explore how natural infrastructure solutions resulted in cost savings (or even revenue generation) for the municipality alongside air quality improvements and reduced heat island impacts. Connecting the challenge and solutions to health care costs may help make the case. Seniors, for example, are highly affected by poor air quality that often comes with urban heat. Assessing how much a city spends on these challenges and offering concrete examples and case studies of how these costs can be reduced will help make the case!

The challenges with making the case are the diffused nature of the benefits. It's hard to tie direct causal links to the benefits created through natural infrastructure. There are limited case studies

and/or tools for municipalities. There is fatigue in communities right now around additional assessment. Status quo is 'easier'.

Again, more case studies are needed. "Resilience profiles" could share information about municipalities or regions that are driving action and seeing results. We could begin to look at standards, tools and common policy that could be enacted across municipalities (i.e. no black roofs on buildings).

Biodiversity Benefits

As a signatory on the Convention for Biological Diversity, all levels of Government have a duty to advance implementation of the agreement. This is an important element on making the case for municipalities. In addition, communicating the value that biodiversity has for municipalities is important, and that this value includes numerous co-benefits such as: adaptation potentials; ecosystem services; eco-tourism opportunities; well-being and health benefits; increasing diversity and accessibility of public spaces; and making newcomers feel welcome in our communities.

In the long-term, using more native species may come with cost savings. Funding from federal government programs can help offset some of the immediate costs.

Building the economic case on biodiversity enhancement is a challenge. Putting dollar values on biodiversity is problematic itself but the value of biodiversity alone is not weighted proportionately to other services. It's the intrinsic value and qualities of biodiversity that need deeper valuing alongside economics and building this case is a much bigger hill to climb. Therefore, it is important to link biodiversity to other co-benefits; strengthening the connection to the beauty and aesthetics of biodiversity in urban areas may support the case and framing the full value that improved biodiversity helps protect urban environments is key.

Mental and Social Health Value

Mental health benefits of biodiversity can often go hand-in-hand with natural infrastructure projects. Putting more nature into our built communities has proven mental health benefits - like stress relief for residents. With concerns around the general mental health of our populations growing, Natural Infrastructure solutions could offer additional value for communities. Documenting this co-benefit with good stories and testimonials may build resonance with key municipal officials.

Including mental and social health in the business case for natural infrastructure but quantifying the benefit may be a challenge, because it is difficult to make direct causal links and connections. However, the case for nature's value has already been appearing in many psychology and social work publications.

Using triple bottom line reporting may begin to build this case, alongside examining spin off benefits when a population has high mental health values (i.e. reduced crime rates, increased property values). Quality of life improvements may also appeal to municipalities (as well as to tourists). It will also be important to recognize the myriad co-benefits that accompany the mental health benefits, including recognizing and celebrating the quality of life benefits, the value of building public trust and cohesion, and the value of supporting multi-level collaboration.

Implementing natural infrastructure solutions offers us the opportunity to create new, and more, win-wins and consider innovative approaches. For example, urban guardians programs could be built to support ongoing maintenance of natural infrastructure.

Access & Education

Access to nature and inclusion of nature and natural infrastructure in our education systems could be valuable in building the business case for natural infrastructure, as well as providing a valuable educational experience. Often youth, particularly in lower-income communities in urban areas don't have access or connection to nature. Empowering youth communities to lead projects and support stewardship could have an important and lasting impact. By examining nature based solutions through this justice lens, we can identify opportunities where justice and nature can align.

Again, co-benefits factored into the conversation, including: health benefits and improved health outcomes; biodiversity improvements; supporting productive populations; creating happier populations; and emission reduction impacts by promoting cycling/walking.

Using urban food production as an important natural infrastructure tool for urban areas was identified as an opportunity to improve both access and education in urban areas. The ability to grow food and share it with the community can support natural infrastructure solutions; being able to create your own food source has been shown to raise communities' awareness.

Documenting case studies was again identified as important. Pilot projects can start identifying success stories while successful projects transition to scale up what works and sharing what does not work.

Energy & Cost Savings

Conversations around energy and cost savings focused on the topic of urban densification, which has numerous nature and biodiversity benefits including: reduction in land use; optimizing utilities (energy/water/transportation services); improved social interaction; and protecting existing natural infrastructure. These are co-benefits, alongside direct benefits to energy and water-use and quality.

Again, it was identified that protocols, processes and standards need to be designed to enable municipalities to do the math and assessment on the values of densification. Aligning the natural infrastructure benefits with energy efficiency and energy security are valuable opportunities for making the case to individual home owners as well as municipalities. Adding trees and green roofs are another natural infrastructure solution that provide energy efficiency in addition to valuable shade and cooling benefits. Urban food gardens reduce the need for food transportation. Bioswales and wetlands add valuable services for water quality while reducing energy necessary for grey infrastructure energy consumption. In addition, use of grey water would also save energy in water treatment costs.

Water Quality

The business case for natural infrastructure needs to be made to elected city officials but also needs to be made to staff, impacted industries and community members. A good business case would share not only best practices, but emerging finance models and use of risk management and liability. It needs to include a vision for the future of the community, detail out incentives, skills needed, resources, action plans and the long-term return on investment. We need to be able to make the case that the community is better off investing in natural assets and infrastructure, rather than investing in traditional development, and to show that over the long-term natural assets can provide a high level of service compared to the cost of grey infrastructure (must do long-term analysis). Pilot projects must demonstrate the cost efficiencies of natural asset management/natural infrastructure in protecting water quality & demonstrate co-benefits (very place based).

Forests Breakout Session

Session Moderators

- Florence Daviet (CPAWS)
- Dale Marshall (Environmental Defence)

Forests & Nature-Based Climate Solutions - Goal & Purpose of the Session

In the fight against climate change, forests and their management represent an important tool for reducing GHG emissions and meeting our national targets in 2030 and beyond. Current projections estimate, for example, that if we reduced our harvesting footprint by 9%, we could reduce our emissions by 22 Mt CO₂ eq annually up to 2030. Reducing deforestation could also reduce emissions compared to historical levels, up to 11 Mt CO₂ eq if all deforestation were halted. The relevance of forests in the nature-based climate solutions discussion is clear, and the discussion is framed by two key opportunities: (1) Increasing carbon sequestration in the long term through afforestation, and (2) immediately decreasing ecosystem emissions by improving management practices and reducing deforestation rates, all while balancing shifting demands for forest products.

The goal of this session was to explore the most promising approaches in reducing GHG emissions from Canada's forests. The group was also to explore how the biodiversity crisis influences these solutions, and the challenges to implementation that these solutions face.

In the initial presentation on the state of our forests in relation to GHG mitigation, the following points were highlighted and questions raised:

Forests are so central to Canadian culture and identity and represent such a vast part of our landscape, that it is hard to think about nature-based climate solutions and not think about forests. But the nuts and bolts of it can quickly get complicated, not the least because adding climate change to our thinking about how we manage our lands here in Canada is just adding another layer to a pretty complex set of considerations including community livelihoods, biodiversity considerations, different layers of governance and governments, and the list goes on.

As a result, no matter where your starting point is on this discussion, protecting species, having business certainty, reducing GHG emissions, you inevitably trip over other priorities, interests and needs. One perspective is considering how forests can help Canada meet their international climate targets in 2030 and 2050 and reduce biodiversity loss.

Trees and forests, by nature, sequester, store and release carbon as part of their life cycle. The trick from a nature-based solution perspective therefore is often to understand how human actions can help slow the emissions to the atmosphere and increase sequestration, rather than being able to stop the process of natural occurring processes.

Different documents to the UNFCCC follow slightly different rules for categorizing the emissions and sequestration in our forests; however our GHG emissions and sequestration from forest-linked human actions are captured in 4 different buckets in our reports to the international community on how we hope to meet our 2030 targets. These are:

- Afforestation – specifically human actions to convert non-forest lands into forests.
- Forest Conversion – where humans convert forests to another land uses – a road, a town, a large mine

- Forest Management – where the GHG emissions from our activities in areas of forests remaining forests, such as harvesting, are quantified.
- Harvested Wood Products – although captured separately, this pool is reported separately, to capture the extent to which our choices about the types of wood products are made delays emissions into the atmosphere. For example, if wood is harvested to burn in a biomass plant, the emissions are relatively immediate and likely occur more quickly than if the tree and forest had been left to die and decay as part of its natural cycle. Whereas if wood is harvested to build a house, in some cases some of the carbon may be stored for longer than if the tree had been left to die and decay as part of its natural cycle. Harvest wood products are considered when looking both at the calculations of both Forest Management and Deforestation.

Afforestation

We can increase the amount our forests are sequestering by planting more trees where they would not naturally come back. Historically, Canada has not generated a lot of emission reductions from afforestation activities. In 1990 Canada reported about 1 100 Mt sequestration, in 2005 (our base year) about 950 Mt of sequestration. The current projection (before the platform announcement), Canada expected there to be 0 Mt that would fall in this category.

Clearly there is room to do things differently. However, as trees in Canada are relatively slow to grow, such actions will only start to make a big difference for meeting our 2050 targets and beyond. And there are lots of questions about how it will work, for example:

- Where will we plant the trees?
- How do we make sure the trees remain after they are planted, and are not just cut down again?
- How do we take into consideration climate change when planting trees now, who will only be mature 60 to 100 years from now, when the climate may look very different?
- How do we take biodiversity challenges into consideration when looking at which trees to plant and where?
- How do we make sure that our actions are additional to what would have been required by law?

Reducing Deforestation

We can immediately reduce our GHG emissions by reducing deforestation. As there are many actors with a role in causing deforestation, there are also many different types of activities and innovations that could lighten our footprint on the landscape, which would be beneficial from a mitigation perspective, but also with regards to other environmental issues, including biodiversity loss, and the loss of ecosystem services that help us be more resilient to climate change.

Canada has been reducing emissions from forest conversion. In 1990 our emissions were 22,000 Mt. In 2005, they were 16,000 Mt. The emissions are projected to be 11,000 Mt

Canada reports that deforestation is primarily occurring from the following activities:

- Agriculture
- Industry and resource extraction
- Urban Development, transportation and recreation
- Forest Roads
- Hydroelectricity

As it has occurred when looking at other GHG emission sources, when we start to look for opportunities and our information gets more granular and grounded, we will likely find other opportunities to reduce emissions from deforestation.

However, some of the questions related to this action include:

- Given the number of actors involved in actions that result in deforestation, how can we stimulate them to find innovative approaches to reduce our footprint on our landscape? (e.g. a price on ecosystem carbon, other types of regulations? Incentives via a fund, other?)
- Are there some areas where reducing deforestation may be more important for other values – e.g. human resilience to climate, biodiversity, etc. than others?

Changing How We Manage Our Forests

Some of our greatest opportunities to reduce emissions in Canada are related to how we manage our public forests. These forests are mostly managed by provinces with the forestry industry renting the rights to use the forest or to undertake actions on forest land.

Some of those changes would result in immediate emission reductions, others might take longer to see. While there have been some assessments of the mitigation potential of different actions in the forest, again as our information get more granular and grounded, will likely find other opportunities to reduce these emissions.

However, some questions related to this action include:

- How do we ensure that an action to change harvesting practices – harvesting less or delayed harvesting – in one place don't immediately lead to an increase in harvesting somewhere else in the province or country that might result in higher GHG emissions?
- What are options that might allow us to harvest less per year, but still have jobs and income for communities?
- Are their places where reducing harvest makes more sense or less sense given the further changes in climate to come?
- Where and how could actions to reduce emissions from harvesting forests also have an important biodiversity impact?

Comments from Speakers

Six speakers shared some of their thoughts up front before heading out into discussion groups, including:

- Isabelle Allen, Project Forester for Wahkohtowin Development and a member of Timiskaming First Nation.
- Chris Henschel, Senior Policy Analyst in the Canadian Wildlife Service working in the Priority Sectors Initiative
- Steve Hounsell is a retired biologist with special interests in conservation biology and ecological sustainability. Steve is the President / Chair of Forests Ontario and the Chair of the Ontario Biodiversity Council and a member of the National Biodiversity Adaptation Group. He is a past President of Ontario Nature.

- Tony Lempriere, a Senior Manager of Climate Change Policy in Canadian Forest Service of Natural Resources Canada. His responsibilities include 1) land and forests in the context of the international climate change negotiations, and 2) analysis and advice on forest-related climate change mitigation.
- Kate Lindsay, VP Sustainability and Environmental Partnerships at the Forest Products Association of Canada. Kate is a wildlife biologist from coastal BC. She has worked for FPAC for 7 years, based in Ottawa, and works on behalf of forest companies from coast to coast on advancing sustainable forestry, biodiversity conservation, species recovery and climate change mitigation and adaptation.
- Joseph Pallant, Director of Climate Innovation at Ecotrust Canada. Joseph has been a pioneer in shaping Canada's carbon market since 2004, building leading-edge offset projects, contributing to the development of strong standards, and helping society understand the role of ecosystem-based projects in halting climate change.

Points brought up by the speakers included:

- The importance of restoring native species in forests, including the removal of invasive species and efforts to restore ecosystems following natural disasters influenced by climate.
- The effects of the changing climate are amplified in ecosystems weakened through a lack of biodiversity. Therefore, a strong focus should be on reforestation with native species, sourced from local seed vaults. The shifting of species ranges due to climate impacts should also be under consideration when planning reforestation efforts.
- The importance of incorporating species-at-risk management into forest management. By implementing practices to protect the habitat of threatened species across their range, protection of the entire ecosystem is made possible. Decreasing disturbance to habitat prevents release of further emissions, and can increase sequestration as the ecosystem becomes healthier. Creating robust policy to protect species-at-risk can have positive lasting effects on forested areas.
- The value of a systems approach to GHG mitigation and incorporating the complexities of ecosystems but also of looking at end products (wood) and their use when developing strategies into management decisions was also raised.
- The need to understand the interactions, both natural and anthropogenic, of climate on forests allows for better management decisions. Here there was discussion about fires and other natural disturbances.
- The need to recognize the existing complexities of working within the framework of crown forests and balancing the support of ecological, social, and economic aspects of the forest. Using this framework, it is possible to address climate change on a local scale and improve management through standardized best practices, outreach, and education to those on the ground.
- The value of incorporating mitigation within policies that impact forests, rather than only offsets, was highlighted, as it will result in much greater GHG mitigation values.

Discussion Group Conversations

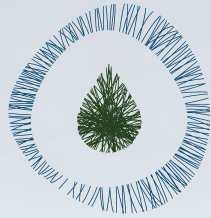
Following these seeding comments, the session broke into discussion groups. Some of the topics that came up in discussion included:

Forests can decrease GHG emissions through sequestration in healthy ecosystems through the reduction of forest loss and through better management practices leading to more intact environments. Many items were mentioned as potential areas for improvement and growth.

The topic of better planning emerged frequently. Improving planning at the local scale, with Indigenous leadership, and addressing the needs of a community within forest plans was called for. Planning at the broader scale, including standardizing reporting methods, incorporating holistic measures, and defining and acting on management for all levels of protected areas was also noted. Looking forward, one of the groups emphasized a desire to build on current management tools, and work to optimize on current promises. The 2 billion tree federal initiative was highlighted as having the potential to have a significant impact on species losses if applied properly.

Building the potential for forest and biodiversity resilience to climate change into forest management has not always been the first priority in the forestry industry. Many ideas were noted as means to improve management for forest resilience. Diversification of species, building strategies with Indigenous groups, and implementation of national collection strategies were among them. The need to view forests as more than an endless source of timber, to protect and manage our largest forests (i.e. the Boreal forest), and introducing policies that can build resilience through the use of diverse datasets were emphasized strategies. There are certain initiatives which seem to provide promising guidelines and results including UNDRIP, co-governance, and fire management, though there is always room for improvement!

The groups highlighted the 2 billion tree and protected areas target (25% by 2025 and 30% by 2030) federal initiatives as positive opportunities. While addressing socio-economic challenges, and the need for a framework of action to facilitate planning decisions and standardize reporting while considering location-specific nuances, these items were recognized for their potential to reduce deforestation and degradation as well as the implementation of responsible afforestation efforts.



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