

# ANNUAL REPORT

THE CONSECON FOUNDATION

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23



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# Message from the CEO

Five years ago, the Consecon Foundation's trustees decided to reorient our grantmaking to support exclusively environmental organizations. Reflecting on this period gives me a tremendous sense of gratitude for our charitable partners, and for the philanthropic community members who provided so much advice and mentorship to a new funder. I'm especially thankful to foundations we have co-funded with, and donor collaboratives which have taught me so much. I would have been lost without your support!

Over the last year, we have undertaken a strategic review of our grantmaking from 2018-2022, with the goal of narrowing our focus to four specific areas where we feel we can best support our partners and contribute to larger outcomes. These four areas are: accelerating the protein transition; carbon management through negative carbon emissions; innovative approaches to biodiversity protection and influencing environmental education. This report will explore the rationale for these choices and describe the kinds of grants we hope to make in the future.

Looking forward, we hope to maximize our impact in two ways: choosing priority areas where our modest budget can make a difference and focusing on areas where we feel there is an opportunity to influence public policy. The environmental movement rightly emphasizes the needs of future generations, but how to provide for these needs is more obvious in some areas than others. The movement to establish protected areas is so intuitively appealing because it not only helps us meet our short-term climate and biodiversity goals but also connects us so clearly to generations still to come. We have tried to look at critical technologies with the same inter-generational framing. If we wish to see future generations solve the various problems we are leaving them, we must also begin to create the technological tools they will need, rather than assuming they will materialize when they are most needed.



# Message from the CEO

For the 2023-2027 period, we have committed to funding three technologies—alternative proteins, carbon dioxide removal, and cryogenics and reproductive biotechnology—that we believe will be crucial to solving current and future climate and biodiversity crises. These are three areas where we believe philanthropic organizations and governments can make major contributions with early strategic investments. These technologies, and the partners we are working with to further their development, will be the focus of the foundation's first annual report.

On behalf of the Consecon Foundation team, thank you for your interest in our programs and partners. I hope you find this report useful and look forward to hearing from you.

Sincerely,

Geoff



GEOFF BURT, CEO



LAUREN BURT,  
MANAGER OF  
GRANTS AND  
PROGRAMS



ALEX HARBIN,  
TRUSTEE AND  
PORTFOLIO  
STRATEGIST





# Program Report: Accelerating the Protein Transition

The global transition to a low-carbon economy may be humanity's greatest challenge in the 21st century. A parallel—and no less urgent—transition is needed to transform global agricultural and dietary practices. This protein transition seeks to mitigate the impact of animal agriculture on carbon emissions and biodiversity loss. Global livestock account for 14.5 percent of anthropogenic greenhouse gas emissions, making animal agriculture the second largest contributor to human-caused emissions after fossil fuel use. The UN FAO projects that global meat production will increase a further 50 percent by 2050. At a time when we need to be reducing our footprint, we can't afford to go on with business as usual.

The field of cellular agriculture is based on the idea that cells—not living animals—can be the basis of agriculture in the future. This simple idea has profound promise for animal welfare, biodiversity, and climate. Over 150 companies are using various techniques to create beef, chicken, seafood, dairy, and eggs, using real animal cells. Cultivated meat involves proliferating small numbers of animal cells in bioreactors to create large batches of real meat. Precision fermentation typically uses microbes to create dairy and egg products. Early analyses of cellular agriculture's contribution to climate mitigation and biodiversity loss suggest that the potential is vast.



# Program Report: Accelerating the Protein Transition

The Consecon Foundation is supporting the protein transition in Canada primarily through our partnership with [New Harvest Canada](#), one of the pioneering NGOs in this field. In May 2023, we co-funded the first gathering of the Canadian cellular agriculture ecosystem, bringing together representatives from 30 organizations to discuss how Canada can become a global leader in this emerging field. One of the outcomes of the meeting was the launch of [Cellular Agriculture Canada](#), a collaborative initiative to bring together key players from industry, government, non-profits, and academia to advance Canadian leadership in cellular agriculture.

There have been encouraging early investments in Canada: for example, the establishment of the [Institute for Cellular Agriculture](#) at the University of Alberta, as well as a \$10 million grant from Ontario Genomics to a group of post-secondary researchers. Cellular agriculture is a field where catalytic early investments by philanthropic organizations and government could make a substantial climate and biodiversity impact.



# Partner Spotlight: New Harvest

Isha Datar is the Executive Director of New Harvest.



## What does New Harvest do and what are you working towards?

New Harvest has been around since 2004, founded with the aim of making cellular agriculture a reality instead of a scientific hypothesis. We've been at the center of the building and mobilization of the cellular agricultural ecosystem and even coined the term "cellular agriculture" back in 2015. We believe this technology can radically change our global food system – and our world – but not without careful stewardship. Today, our concern as an independent nonprofit lies in realizing and maximizing the positive impacts of cellular agriculture.



**"If cellular agriculture doesn't deliver on its promises, it won't be because the science didn't add up."**



# Partner Spotlight: New Harvest

## **How would changing the way we produce food help solve climate and biodiversity issues?**

In a market-driven world where technology is advanced largely by private investment, we're focused on centering the mission of cellular agriculture to ensure it does more good than harm. In our work across continents, we're ensuring that cellular agriculture delivers on its promises to end our dependence on animal agriculture, reduce the impact of protein production on our environment and public health, and improve our global food system.

Positive impacts are not innately built into the advancement of new technology. New Harvest's work is more valuable now than ever. As a trusted, independent, and neutral party, we're best situated to foster collaboration between the public and private sectors toward impact. The next ten years will see the development of standards, infrastructure, policy and regulation – and our work is at the center of it all. Outcomes of our research, collaboration, and coalition-building will touch everything from training to product development, and be relevant at local, national, and international scales. We're working toward moving cellular agriculture out of the lab and into society, responsibly and sustainably.

## **What role can philanthropic foundations play?**

Cellular agriculture lacks the public research and infrastructure needed to unlock the true potential of this transformative technology. While investment has been pouring into the private sector, public funding lags far behind (more than \$3B in private investment across 100+ companies, compared to less than \$100M across public institutions). Much of the current research is happening behind closed doors at companies, which means that policymakers have little public, independent information to guide their thinking about cell-cultured meat.





# Partner Spotlight: New Harvest

The latest International Panel of Experts on Sustainable Food Systems agrees: “...public investment might offer the best pathway to nudge alternative protein production away from corporate capture and toward serving the public good.”

If cellular agriculture doesn’t deliver on its promises, it won’t be because the science didn’t add up. It’ll be because we didn’t think through ownership, governance, intellectual property or policy. It’ll be because the transformation of our food system was left to market forces alone.

Philanthropic foundations (and individuals) play a critical role in the advancement of cellular agriculture. The stakes are too high for the charting of cell ag’s course to be left to private companies and market forces alone. If we want this world-changing technology to truly deliver on its promises to create a more just, equitable and humane food system, philanthropic parties must have a proverbial seat at the table. We must build the field together, proactively. Philanthropic investment keeps the balance of power in check and allows neglected, crucial research to unfold without the limitations of corporate capture.

## **What does Canada need to be competitive in this industry?**

Canada needs to focus on **research and innovation**; investing in high-risk, high-return research and development to advance cellular agriculture technologies and processes. This includes funding for academic institutions, research centers, and startups. Like in other regions, we also need to foster collaboration between universities, research institutions, and industry to drive innovation in cell-based agriculture.



# Partner Spotlight: New Harvest

To be competitive, Canada also needs to proactively establish clear and supportive **regulatory frameworks** for cellular agriculture products. These regulations should ensure safety and quality while avoiding unnecessary barriers to entry. Since New Harvest has been doing this work for almost twenty years, we can implement lessons learned from other countries to create an improved regulatory framework instead of following and adopting what other countries have done.

And then, of course, there's a crucial need to **attract investment** from both public and private sources to support growth and create an investment environment to produce business opportunities for the next generation of scientists that can tackle the climate crisis.

Ideally, Canada would increase its competitiveness by **providing grants, subsidies, and tax incentives** to encourage companies to establish and expand their operations in-country. Investing in “Made-in-Canada” products and supply chains support local communities and their economic-growth.

Investment in people will be pivotal, too. Canada needs to **invest in education and training** programs focused on cellular agriculture to develop a skilled workforce and compete for talent internationally. These programs should include not only universities, but also technical colleges, and should attract talent from other countries by offering incentives and visa programs for experts in the field. Canada could also focus on the changing demographics in the agri-food sector and develop programs to attract younger generations to this sector.



# Partner Spotlight: New Harvest

Everything mentioned above is crucial to the advancement of cell-ag's knowledge, talent, and funding pipeline, but Canada also needs actual, tangible infrastructure. Developing accessible facilities that support the production of cell-based products (like bioreactors, tissue culture labs, and processing facilities) will allow for scaling up across Canada. Ensuring reliable access to necessary resources like cell culture media, growth factors, and inputs allows us to compete with countries already farther down this road.

And while everything aforementioned is unfolding, we need to educate consumers, policymakers, politicians, and regulators about the benefits of cellular agriculture in terms of sustainability, animal welfare, and health. We have to build trust through transparency and position cell-based products as an addition to Canada's agri-food sector instead of a replacement.

Collaboration – on every step of this journey – is essential. Without collaboration between the government, industry, and academic institutions, we can't create a supportive Canadian ecosystem for cell-ag. To accelerate growth and innovation, we have to foster partnerships across provinces and seek alignment between federal and provincial governments to prevent unnecessary roadblocks.



# Program Report: Carbon Management through Negative Carbon Emissions

Nature-based climate solutions—including protecting intact ecosystems, afforestation, and climate positive agricultural practices—are an essential element of reaching net zero carbon emissions, and often provide additional biodiversity benefits. We decided not to focus on nature-based climate solutions in part because they have rightly received significant funding and attention from the government and philanthropic foundations.

Instead, our program supports engineered, durable carbon dioxide removal (CDR) methods, including direct air capture (DAC), ocean alkalinity enhancement, enhanced weathering, and others. The Intergovernmental Panel on Climate Change acknowledges that deploying CDR at scale will be necessary to achieve net-zero targets, counteract difficult-to-abate industries and eventually to remove legacy emissions.

The Consecon Foundation was one of the core funders supporting the establishment of Carbon Removal Canada, which officially launched in November 2023. Carbon Removal Canada's ambitious goal is to make Canada a global leader in responsibly scaling up CDR. We share Carbon Removal Canada's view that a thriving carbon removal industry won't simply create itself. If indeed we are relying on deploying CDR at scale to balance our carbon budget in the latter half of this century, we must do everything we can to start building the industry today.





# Program Report: Carbon Management through Negative Carbon Emissions

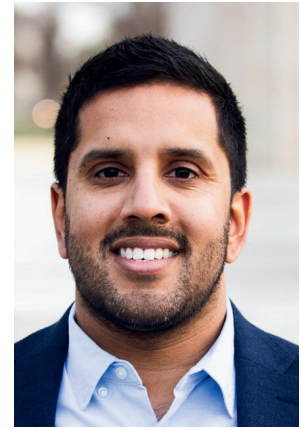
Our other major commitment this year was to the MaRS Discovery District's Mission to MaRS: Carbon Management Program, a multi-year initiative aiming to increase both the supply of and demand for high quality carbon credits produced by CDR, as well as to influence policy development. This year MaRS launched the CDR Accelerator, featuring an initial cohort of six CDR companies. The accelerator is aiming to help these companies reach the kiloton scale in the next few years and the megaton scale by 2030.

In the coming years, the foundation will be looking for high impact projects in the carbon removal space, including academic and public policy research. This is a field where supportive public policy will be essential if the field is to scale to the megaton scale and beyond.



# Partner Spotlight: Carbon Removal Canada

Na'im Merchant is the Executive Director of Carbon Removal Canada.



**Since you're such a new organization, people might not be familiar with Carbon Removal Canada. What are the organization's aims?**

UN climate experts have stated that removing existing carbon dioxide or CO<sub>2</sub> from the atmosphere and securely storing it away is essential for the world to meet its global climate goals. Carbon Removal Canada is a new, independent policy initiative focused on the rapid and responsible scale up of carbon removal solutions in Canada. We're the first group in Canada dedicated to shaping policies necessary to stimulate demand for carbon removal solutions, accelerate the advancement of new technologies in the field, and enable rapid and responsible deployment of carbon removal projects.



**"We've estimated that Canada will need hundreds of megatonnes of carbon removal capacity in place by the middle of this century to contribute to solving these challenges - which means we need to get started in building this capacity right away."**



# Partner Spotlight: Carbon Removal Canada

## **Why do you think this industry is so significant in helping meet global climate goals? Why not just reduce emissions?**

Reducing emissions is absolutely critical and should be our first priority - carbon removal should not be a substitute for emissions reductions. To achieve long-term climate goals, a comprehensive approach is needed, which includes both reducing emissions and removing CO<sub>2</sub> from the atmosphere. We think carbon removal solutions can address the following challenges:

- Residual emissions: Certain sectors like aviation, cement, and steel production pose challenges for full decarbonization due to the current lack of affordable, scalable, carbon-free technologies.
- Non-CO<sub>2</sub> gases: Carbon removal acts as a counterbalance to emissions of non-CO<sub>2</sub> greenhouse gases like methane and nitrous oxide that stem from sources such as cattle, animal waste, and fertilizer use.
- Overshoot/legacy emissions: Stopping emissions alone won't bring temperatures down. Given the likelihood of overshooting our most ambitious climate target of 1.5°C, carbon removal is a critical tool to reverse warming.

We've estimated that Canada will need hundreds of megatonnes of carbon removal capacity in place by the middle of this century to contribute to solving these challenges - which means we need to get started in building this capacity right away.

## **Can Canada really be a global leader in this space?**

When we started this initiative, our hypothesis was that Canada had all the ingredients to be a global leader in this field. Over the last several months, we've talked to dozens of entrepreneurs, environmental non-profits, community leaders, corporates, and government stakeholders and came away from that process feeling even more confident about Canada's potential.



# Partner Spotlight: Carbon Removal Canada

Some of Canada's strengths that position it as a global leader include:

- Vast natural resources: Canada boasts the world's longest coastline, the second largest land mass, and vast natural resources that can benefit carbon removal projects.
- Existing carbon storage infrastructure: The country already has established and proven carbon storage infrastructure which can be expanded and utilized to set global standards for safe, permanent storage.
- Thriving CleanTech ecosystem: Canada has innovative companies and startups working on leading edge clean technologies and is home to world-class research institutions. This ecosystem provides a strong foundation for advancing new innovations.
- Clean energy: Canada has an abundance of clean energy assets that can be leveraged and built upon to power carbon removal technologies.
- Technical know-how: Canadian workers possess the technical expertise relevant to various carbon removal methods, such as direct air capture and storage, biomass carbon removal and storage, and ocean-based solutions.

By harnessing these strengths, Canada can set a global example for the rapid and responsible scale-up of carbon removal. This leadership can not only benefit Canada but also contribute to international efforts to combat climate change and inspire other nations to follow suit.

Additionally, it's an exciting opportunity for Canada to build an industry that creates new economic partnerships with Indigenous communities and generates equitable economic gains across the country.





# Partner Spotlight: Carbon Removal Canada

## **How important is effective public policy to the growth of this industry?**

Most carbon removal technologies are quite nascent, and at scale, the carbon removal field will be providing a much-needed public good. Public policy is therefore critical to the growth of this industry. While Canada is well positioned to be a leader in carbon removal for the reasons previously mentioned, realizing this potential will require more policy support. This is especially true in light of the recent passage of supportive carbon removal policies in the United States and across Europe. While existing policies in Canada serve as a strong starting point, there's more we can do.

First, we need to create a strong demand signal for this new sector similar to the approach that was taken in scaling up the solar industry in its early days. Second, we need to invest in research, development, and deployment to accelerate technology development and get new projects off the ground. And finally, we can improve regulations to ensure that projects are deployed with a high degree of integrity. Based on extensive conversations we've had across the country, we can already see public policy aiming to play a central role in all of these efforts.



# Program Report: Innovative Approaches to Biodiversity Protection

With the planet in the midst of a catastrophic extinction crisis, safeguarding global biodiversity requires innovative thinking in terms of both public policy and technology. The foundation's biodiversity programming focuses on two separate streams: large landscape conservation of intact ecosystems, including through support to Indigenous Protected and Conserved Areas, and reproductive biotechnology and cryobanking to preserve species at risk.

The Yellowstone to Yukon region in Western North America is the world's most intact mountain ecosystem. One of our key conservation partners is the Yellowstone to Yukon Conservation Initiative, who works with partners across the region to advance their vision of an interconnected system of wild lands and waters. This kind of large landscape view of conservation is leading to significant policy innovation, including the establishment of wildlife corridors and road crossing structures throughout the region.

While place-based conservation strategies are the cornerstone of biodiversity programming, we believe that they can benefit from the relatively low-cost backstop provided by cryobanking and assisted reproduction technologies. When stored in a cryogenic facility, reproductive material can remain viable for decades or longer, preserving the genetic viability of species at risk of extinction. Our view is that cryobanking should be considered an essential component of provincial, territorial, and national species-at-risk strategies in Canada.



# Program Report: Innovative Approaches to Biodiversity Protection

The US Fish and Wildlife Service has embraced biobanking as part of its overall strategy towards species at risk. There are exciting transnational opportunities as well, including the establishment of global cryobanking databases and international assistance for the development of new cryobanking facilities in biodiversity rich regions.

We have made a multi-year commitment to support the work of the Toronto Zoo, a global leader in reproductive biotechnology. This grant supported the creation of the Canadian Cryobank for Wildlife Preservation. Zoos and aquariums are uniquely positioned to lead cryobanking initiatives due to their access to diverse living collections, and existing veterinary and reproductive experience. The Canadian Cryobank for Wildlife Preservation aims to develop the infrastructure, techniques, and expertise to go beyond captive animals and collect samples in the wild.



# Partner Spotlight: Y2Y

Jodi Hilty is the Executive Director of the Yellowstone to Yukon Conservation Initiative.



## What is so unique about the Yellowstone to Yukon region where you work?

Stretching some 3,400 kilometers from northern Canada to the United States, the Yellowstone to Yukon region is truly a special place. It is home to the full suite of wildlife that was present when Europeans first arrived in North America and is the source of seven major rivers, all of which provide clean, safe drinking water for more than 15 million people. This region provides the best remaining habitat for North America's threatened or sensitive species including grizzly bears, wolves, wolverines, lynx and native fish populations. In fact, research shows it is the most intact remaining mountain ecosystem on Earth. The vast lands of the Yellowstone to Yukon region will also give animal and plant species some of the space and resources they need to adapt to changing climate conditions. It is one of the few places left in the world with the geographic variety and biological diversity to help organisms adapt to a change of this magnitude.



**"Recent research shows not only is the uniquely collaborative Yellowstone to Yukon vision working, but that conservation would not have happened at the same rate without it."**





# Partner Spotlight: Y2Y

## **How has Y2Y's big bold vision for the region contributed to success for the organization and its partners?**

One of our greatest strengths is our ability to form and lead powerful collaboratives that avoid duplicating skills and use resources efficiently. There are few comparable efforts operating at the scale of Y2Y, and there are even fewer that engage in such widespread collaboration. Everything Y2Y does, we do with our partners. Whether it's other conservation groups, local landowners, businesses, government agencies, funders and donors, Native American and First Nations communities, scientists, or others, these partners are the force behind our momentum. To date, we have worked with over 700 partners rightsholders and stakeholders on conservation solutions that benefit nature and support human well-being.

Recent research shows not only is the uniquely collaborative Yellowstone to Yukon vision working, but that conservation would not have happened at the same rate without it.

Since 1993, the actions of Y2Y and partners have resulted in:

- Overall protection increasing by over 80%
- The average size of new protected areas growing by 56%
- Protected areas being created nearly twice as quickly, far outpacing other regions
- 117 wildlife highway crossing structures being built, with more in the works
- Bear numbers more than tripling in U.S. designated grizzly recovery zones
- Grizzly bear ranges starting to expand in the U.S., more than doubling in size.

## **You have had some exciting breakthroughs lately in your wildlife crossings work. Can you tell me about those?**

Yes! Keeping wildlife habitat connected in a way that also keeps animals off busy roads, and drivers and passengers safe, is critical to enable wildlife to move through the region. More than a dozen new wildlife crossing structures are in various stages of completion right now!



# Partner Spotlight: Y2Y

This includes multi-million-dollar wildlife crossing grants for Y2Y-backed projects on two of our highest priority highways, part of each country's' 30x30 commitment.

- The Confederated Salish and Kootenai Tribes received a \$30 million U.S. grant from the Nationally Significant Federal Lands and Tribal Projects in July 2023 for a wildlife crossing project north of Missoula, on US-93. This road is heavily used by both recreational and commercial traffic, and this will fund a series of crossings and fencing where 11 grizzlies have been killed by vehicles since 2018. Y2Y provided a letter of support for the submission and worked to raise the project's profile through our government relations work in Montana and Washington, D.C.
- Y2Y received a received \$1.8 million grant from the inaugural National Program for Ecological Corridors to support wildlife crossing efforts in Alberta / B.C.'s Highway 3. The funds support advancing a series of underpasses and include research, communications, infrastructure (fencing, crossings) construction and stakeholder engagement activities and deliverables. This highway runs between Banff National Park and Glacier-Waterton International Peace Park, and nine thousand vehicles travel this artery every day. Wildlife – from herds of elk to wolverine to grizzly bears – need to cross this road to move between the two key parks.

Y2Y has been working with local conservation partners, transportation companies and agencies, and the public to study wildlife-vehicle collisions and plan for crossing locations – and we are taking similar approaches in other states, provinces and territories right across the transboundary region.

There are also two overpasses currently under construction in the Y2Y region:

- Alberta's first overpass outside of a national park, on Highway 1 between Calgary and Banff (with tremendous community support!)
- Idaho's very first overpass, located on Highway 21 near Boise

Y2Y was a key enabler of these projects, supporting with funding, science, communications as well as government relations and collaboration with key Indigenous, agency, nonprofit, and community partners. We know that wildlife overpasses decrease wildlife-vehicle collisions by ~80%, so this is great for both wildlife and people!



# Partner Spotlight: Y2Y

**What opportunities are you most excited about in the coming few years? Where might we see significant advances in conservation in the region?**

Y2Y believes that Indigenous-led conservation is key to conserving the Yellowstone to Yukon region, including culturally significant plants and animals. Throughout the region, Y2Y team members are building relationships with Indigenous governments, people and organizations. These collaborations are built on trust, mutual goals and respect. Y2Y is working to be a trusted ally in Indigenous-led conservation on projects that also support our vision. With many First Nations' capacity stretched, and a lack of clear legal frameworks to create Indigenous Protected and Conserved Areas, non-Indigenous partners, including Y2Y, play crucial support roles. Y2Y staff work to help build the political will, public awareness and support, and resources needed to ensure the protection of some of the most biodiverse landscapes in the region.

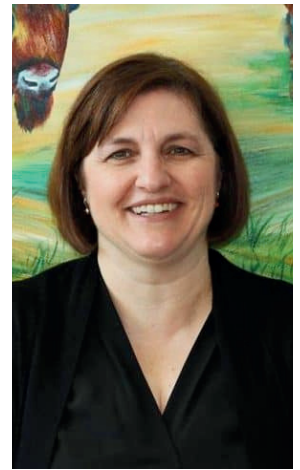
It's working! Indigenous-led efforts in northeastern B.C.'s Peace Region have brought a mountain caribou herd back from the brink of local extinction. West Moberly and Sauteau First Nations have blended short-term solutions, such as creating a 'maternal caribou pen' for the Klinse-za herd, with long-term habitat protection through a large new Indigenous-led Protected and Conserved Area. It's giving the nearly-extinct mountain caribou herd a new lease on life, while also providing a home that is only slightly smaller than Yellowstone National Park to a host of other wildlife.

In the Yellowstone to Yukon region, a quarter of protected areas are managed or co-managed by Indigenous Peoples, with more to come. The development of policies that include long-term funding for Indigenous-led conservation, including Indigenous-led protected areas, is critical for enduring conservation. Some decision-makers in provincial and federal governments are already taking steps to support Indigenous-led protected areas. More and more Indigenous protected areas are being formalized, and we expect significant conservation gains in this area in years to come.



# Partner Spotlight: The Toronto Zoo

Gabriella Mastromonaco is the Senior Director of Wildlife Science at the Toronto Zoo.



**Tell us about your history with the Toronto Zoo and its work on cryobanking.**

I've been with the Toronto Zoo for 16 years in the role of Manager of Reproductive Science, and more recently, as Senior Director of Wildlife Science. Throughout that time, I've dedicated a significant portion of my efforts to growing the zoo's sperm and embryo bank and establishing the first wildlife somatic cell bank in Canada. Toronto Zoo made a commitment to biobanking in the early 1990s, and the Reproductive Science team has stored cells from hundreds of individuals from more than 50 species.



**“The time has come to bring the stakeholders together (governmental/ non-governmental wildlife agencies and Indigenous communities) and establish a National Cryobanking Strategy for Canada.”**



# Partner Spotlight: Toronto Zoo

Successful cryopreservation can be challenging and species-specific protocols are required, particularly when working with animals as diverse as polar bears, rattlesnakes, frogs, and more. The team spends a significant portion of its time researching and optimizing protocols for new species, while providing a service to the animals in our zoo and other Canadian zoos. One of our signature programs is the wood bison reproduction program, which has resulted in the births of a number of valuable individuals: a calf born from sperm frozen for 35 years (longest time frozen in a wildlife species), a female calf born from sex-sorted sperm, and more.

## **Can you tell us more about the Canadian Cryobank for Wildlife Preservation?**

There are a number of biodiversity banks in Canada, but the Canadian Cryobank for Wildlife Preservation is the only biobank in Canada that is focused on storing frozen living cells, rather than frozen non-living tissue or DNA, from Canadian and international species at risk. While the majority of stored samples are currently zoo animals, we are hoping to expand the collection to include free-ranging animals as well. While cryopreservation of living cells is much more challenging than tissues or DNA, it will provide us with the opportunity to produce offspring in the future if needed to support the genetic health and sustainability of threatened species.

## **How could cryobanking and reproductive biotechnology support species at risk in Canada?**

While it is critical to support habitat restoration and in situ species monitoring programs, we cannot predict the challenges that animals will face over the next 50-100 years. The impacts of climate change and other anthropogenic disturbances will continue to alter the landscape and expose animals to changing temperatures, water patterns, diseases, and more. Cryopreservation of genetic resources is an important first step to ensure that the biodiversity remaining in vulnerable ecosystems or populations is captured and preserved for the future. Assisted reproductive technologies using cryobanked genetic material will not only provide insurance against the sudden loss of genetic diversity, but provide additional strategies for the genetic management of demographically healthy and stable populations.



# Partner Spotlight: Toronto Zoo

## **What are some of your ambitions for scaling up this work in Canada and beyond?**

Zoos have spent the past 50+ years managing the genetics of valuable individuals in conservation breeding programs. Notably, these animals have provided us with the necessary foundation on which to build viable cryopreservation and assisted reproduction techniques. With the knowledge and technical expertise in hand, it is now important to ensure that the genetic material remaining in Canada's wild spaces is safely stored for future generations. As the biodiversity crisis continues and animals are being lost at an alarming rate, there is a growing urgency to capture living genetic material before it disappears.

The time has come to bring the stakeholders together (governmental/non-governmental wildlife agencies and Indigenous communities) and establish a National Cryobanking Strategy for Canada that identifies biobanking priorities and collaborations to ensure access to samples for cryopreservation. Most importantly, the strategy will encompass the Convention on Biological Diversity's access and benefits sharing mandate and be one of the first in the world to implement an equitable and accessible model of sample governance and use. This accomplishment will ensure industry leadership and participation in global biobanking consortia.



# Program Report: Influencing Environmental Education

Young Canadians consistently report feelings of anxiety and depression relating to climate change and biodiversity loss. In one [large-scale survey](#), “almost half of students (46%) understand that climate change is human caused, but don’t believe that human actions in mitigation will be effective.” This bleak understanding of the world is profoundly demotivating and anxiety-inducing.

We believe the best way to alleviate this eco-anxiety is with high quality educational interventions which inform, empower, and engage young people. We support programs that create a sense of agency and foster the belief that our actions can make a difference. Our major partner in the environmental education program has been Earth Rangers, a ground-breaking youth education organization with over 300,000 members and alumni.

Environmental education is a crucial long-term investment in the kind of societal level changes that can contribute to solving challenging environmental issues such as climate change. Canada is not currently capitalizing on that opportunity. As [one report noted](#), there is “a serious gap between the understood importance of education in climate policy and actual attention to climate change in our education system.” We are particularly interested in funding projects that help achieve a more effective integration of environmental issues into the education of young Canadians.





# Partner Spotlight: Earth Rangers

**Tovah Barocas is the President of Earth Rangers.**



**How long have you been with Earth Rangers? What are you most proud of about the organization?**

I just passed my 14 year anniversary of working at Earth Rangers. I've spent most of my career here and have held many different positions, but all have focused on outreach, communications, fundraising, and stakeholder engagement. Basically, I just love talking to people about Earth Rangers and how important it is that children have a sense of agency when it comes to their future and the future of the planet.

The thing I'm proudest of and that gets me excited to come to work every day, is the impact we have on individual kids. We receive countless letters, phone calls and e-mails from kids and parents telling us about how being part of Earth Rangers has made them feel proud, hopeful, and like they're really making a difference. That's what it's all about.



**"It's almost impossible to turn on the TV or open a newspaper without seeing something about the acute impacts of climate change- whether it's a wild fire, drought or heat wave, it's become impossible to ignore. That has resulted in increasing anxiety about climate change in all age groups."**



# Partner Spotlight: Earth Rangers

## **Why is eco-anxiety such a hot topic right now and what does Earth Rangers do to help?**

It's almost impossible to turn on the TV or open a newspaper without seeing something about the acute impacts of climate change; whether it's a wild fire, drought or heat wave, it's become impossible to ignore for most people. That has resulted in increasing anxiety about climate change in all age groups. But young kids don't necessarily have the intellectual capacity to understand the issue in full, or the agency to do something meaningful about it. That's where we come in. Our research shows that taking action is the best antidote to eco-anxiety and seeing that your actions make a difference. It's also critical that we validate our children's feelings and share our own concerns. At Earth Rangers we intervene in 3 ways:

- research that contributes to our understanding of how kids' feelings are evolving and how best we can support them;
- direct-to-kid programming that is positive, action oriented and builds a sense of community;
- training for educators and resources for parents to help them feel more prepared and equipped to address these issues in their students and children.

## **You've recently started expanding into the US – how has that gone so far?**

It's still very early on in our expansion but early signs point to Earth Rangers being a brand and program that resonates with children and families in the United States in similar ways as they do in Canada. When we look at engagement rates of members in both countries, we see that kids in the US have equally high levels of participation and that their interests are similar.



# Partner Spotlight: Earth Rangers

Now that the Earth Rangers App is available in both countries, our focus is reaching more kids to tell them about Earth Rangers and encourage them to sign up. We are also adapting our school-based programs to work with the US education system and fill gaps in environmental resources and training for educators. We believe our work on eco-anxiety will be a big part of that strategy.

## **What other exciting things are you working on? What's next for the organization?**

Our core focus continues to be reaching and engaging as many children as possible, to ensure they become good environmental citizens and maintain their positive outlook on the world and their own futures. This means constant innovation as children's tastes and ways of engaging with content and technology are always evolving. We're also expanding the scope of our programs to offer volunteer and leadership opportunities for teens to work on environmental projects they're passionate about in their own communities. Only 6% of youth volunteer hours in Canada go towards environmental causes and we believe that's due to a lack of access and opportunity – two things our ER Teens program seeks to address. It's a very new and exciting area for us!



**We thank you for your  
interest in our programs  
and partners.**

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## Contact

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