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Conservation, Climate Change, & COVID-19

A Summary Report of a Virtual Roundtable

NATIONAL *fish, wildlife & plants*
CLIMATE ADAPTATION NETWORK

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A Summary Report of a Virtual Roundtable

Prepared by the National Fish, Wildlife, and Plants Climate Adaptation Network

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Introduction

The COVID-19 pandemic has impacted society in ways we are only beginning to understand. In the U.S. alone, as of August 11, 2020, over five million people have tested positive for the virus, 163,000 have died, and the economy has declined dramatically. From employment and education to travel, dining and recreation, life has changed significantly. Yet, even amid the disruption caused by the pandemic, the crisis of biodiversity loss still looms, and climate change continues to impact communities around the world, and the need to work towards solutions remains as urgent as ever. The coronavirus adds more challenges to this work. But it also provides opportunities and lessons to draw from.

The National Fish, Wildlife, and Plants Climate Adaptation Network (Network) is an interagency collaboration representing federal, state, tribal, and nonprofit partners working to advance the practice of climate adaptation in the natural resource sector. The connections between conservation, climate change, and the COVID-19 pandemic are stark, complex, and deeply deserving of time and attention. To provide a forum to explore these issues more extensively, the Network organized a virtual roundtable discussion.

This report synthesizes the findings of a pre-roundtable questionnaire, as well as the themes and key messages of the roundtable discussion, offering a snapshot of the issues, priorities, and questions that came up. This report seeks to demonstrate both the breadth and depth of the issues explored and offers some steps to help practitioners engage and prepare for what comes next.

Survey Summary

In June, the Network sent a questionnaire to conservation and climate change professionals to request feedback on how the COVID-19 pandemic was affecting them, as well as its implications for conservation and climate change. The design and distribution of the survey was aimed at learning more from our colleagues about the challenges and opportunities they are experiencing, in order to inform the roundtable and other Network activities. It was not designed or distributed as a formal social science survey, and hence caution should be used in drawing any broader conclusions from the 109 individual responses. The goal of the questionnaire was to identify the key themes and use those to organize the roundtable discussion. The questions and a summary of answers follow. Detailed responses are available in the Appendix.

Q1: What do you see as the largest threat to conservation due to the COVID-19 pandemic?

Respondents identified a potential loss of revenue from budget cuts as the largest threat to conservation due to the pandemic (31%), followed closely by a pause in research or restoration initiatives (28%). An emerging theme was concern that the focus on the pandemic may de-emphasize the importance of conservation and climate change.

Q2: How has the pandemic personally affected your work?

Almost three quarters (71%) of respondents reported working from home. More than one third (36%) cited an inability to get to a field site or laboratory. Lack of childcare has also been a substantial impact to work productivity.

Q3: Do you expect there to be a decrease in funds to support your work within the next year? If yes, have you made contingency plans?

Over half of respondents indicated that they expect a decrease in funds to support their work within the next year. But, only 14% reported that they had made contingency plans.

Q4: What are some interactions or connections between COVID-19, climate, and conservation that you have observed?

Respondents noted a reduction in climate adaptation and conservation work resulting from altered priorities, reductions in funding, and opportunities to get anything done. They also noted increased interest in outdoor recreation, seen as positive in terms of appreciation for nature, but often negative in increased impacts on wildlife habitat. Several indicated concern about greater impacts on minority or less economically secure communities, and some noted the parallels between COVID and climate change in public understandings of risk and acceptance of science.

Q5: What does the path back from the obstacles listed in Questions 2 & 3 look like to you, in your line of conservation-oriented work? Do you think there are opportunities to move in this direction?

Respondents were most concerned about the financial impacts of the shutdown and the loss of valuable research data. Many mentioned that they expect the future will include a greater reliance on technology for both meetings and data collection. Some expressed optimism that agencies can capitalize on the renewed interest in outdoor recreation. Others expressed a desire for change; to rethink the way we do things, or to reconsider our priorities. One wrote that this crisis gives us the opportunity “to take giant leaps forward, not just small ones.” Overall, there seemed to be a sense that we were amidst a watershed moment, that significant change was coming. Some feared financial repercussions, while others saw opportunity for conservation and technological advances.

Q6: What can practitioners in the fields of climate change adaptation and conservation learn from the COVID-19 pandemic?

Respondents said the coronavirus pandemic demonstrated the need for adequate planning and preparation and international cooperation, things that are needed to adapt to coming climate change. The pandemic also illustrates societal divides that need to be addressed. Many thought the pandemic showed that people could work together to solve big problems, but other respondents took a more pessimistic view that people are unwilling to make necessary changes. Some respondents indicated that scientists need to improve communications with the public and policymakers and be better spokespersons for action. Others noted that native plants and wildlife can thrive with less human disturbance, if we control invasive species and enforce anti-poaching and other laws.

Q7: What are keystones of an 'ideal' future for conservation, climate change, and humanity?

This was an open-ended question, and thus drew a wide variety of responses. Some respondents called for a shift in societal values, better leadership, or increased reliance on science in decision-making, while the largest number of respondents recommended one or more concrete actions to mitigate and adapt to climate change, such as increase awareness, conserve land and species, and build a more sustainable and inclusive economy.

Q8: If funding were no obstacle, what conservation issue would you like most to study, and what type of expertise would you want on your research dream team?

Respondents hoped to study combinations of stressors (like pollution, habitat fragmentation, novel ecosystems, invasive species and climate change) and solutions to simultaneous problems. Almost all “dream teams” were interdisciplinary, and included not just ecologists, but economists,

social scientists, communications experts, and keepers of indigenous knowledges. Major themes included increasing the depth and breadth of managerial decision space, creating globally informed conservation, including environmental justice, effectively reaching the public, creating reserve networks, and studying social and economic drivers.

Q9: If the Network hosted a virtual roundtable discussion on conservation and climate change in the time of COVID-19, what would you want to discuss?

The top theme identified for exploration in the roundtable was: What are the lessons we can learn from the current pandemic in how we address and activate the public in other major environmental issues such as climate change or social justice? Beyond this question, responses were organized into major themes including leveraging opportunities, conservation action on-the-ground, public outreach and communication, breaking down silos, and questions around diversity, equity, inclusion, and justice, among others.

The organizers moved forward with organization of the roundtable based on the enthusiasm expressed, and used these themes, in addition to the other survey findings, to develop some prepared questions for the panelists. The prepared questions are provided in the next section of this report.

Roundtable Discussion

Guest speakers

We invited two highly regarded thinkers on climate change to provide their views on climate change adaptation, COVID-19, and the intersection of the two, as well as address questions arising from the survey. They also answered questions from the audience.

Dr. Kyle Whyte is Professor of Environment and Sustainability and George Willis Pack Professor at the University of Michigan School for Environment and Sustainability, serving as a faculty member in the environmental justice specialization. Kyle's research addresses moral and political issues concerning climate policy and Indigenous peoples, the ethics of cooperative relationships between Indigenous peoples and science organizations, and problems of Indigenous justice in public and academic discussions of food sovereignty, environmental justice, and the anthropocene. He is an enrolled member of the Citizen Potawatomi Nation.

Dr. Katharine Hayhoe is an atmospheric scientist and the Political Science Endowed Chair in Public Policy and Public Law at Texas Tech University, where she is director of the Climate Center. In 2019, she was named UN Champion of the Earth, the UN's highest environmental honor. She is also the CEO of the consulting firm ATMOS Research and Consulting and is well known for her public talks on climate science, impacts, communication, and faith.

Opening Remarks

[For the full statement, please view the recording]

Dr. Whyte offered his perspective as a member of the Potawatomi Nation and a Tribal person, noting the importance of viewing problems through the lens of environmental stewardship and justice. He emphasized that problem solving in a public health crisis or doing climate adaptation work both require a community approach. Native communities face challenges stemming from long-standing inadequate funding for public health services, understaffing, self-determination to enact public health standards, and access to food and water, which are all tied to high exposure to coronavirus. The current crisis illuminates the interconnected problems of building a diverse economic base, land dispossession, and policy neglect. Issues of conservation and climate change are connected to issues of health, food, capacity, territorial rights, and coordination. Non-natives typically approach these issues from a single project perspective. Natives, in contrast, see conservation and climate change as multigenerational connected problems, and adaptation is connected to the process of rebuilding from colonialism and other forms of discrimination. Many Native people are already facing harms from climate change now. These are matters of capacity and coordination built over years, producing sustained relationships for the long-term that are durable despite staff turnover. Those long-term relationships and coordination need to be in place so that if a crisis happens, the response capacity is there. In general, he encouraged everyone to think about problems in a more connected way that understands the context of the larger story.

To learn more about Dr. Whyte and his views on climate justice, see https://kylewhyte.cal.msu.edu/climate-justice/

Dr. Hayhoe, a climate scientist, emphasized that both climate change and COVID-19 are global-scale problems that affect us locally, where we live. She also reminded us that neither are future issues: the globe has already warmed by about 1°C and we are seeing the impacts of human-caused climate change now. Most importantly, we are not taking sufficient action to reduce future impacts. We need to cut emissions by 40 to 60 percent by 2030 in order to substantially reduce the threat of overshooting the 1.5°C goal in the 2015 Paris Climate Agreement. The problem of climate change is not simply a warmer Earth, but that climate change is a threat multiplier – exacerbating risks to water and food supplies, health, the economy, and ecosystems. Such interactions are pervasive, including links between zoonotic diseases such as COVID-19 and habitat loss and larger environmental problems. The recent report from World Wildlife Fund, The Loss of Nature and the Rise of Pandemics, describes such relationships. However, the COVID-19 pandemic was not without some "slightly positive news" – temporarily reduced CO_2 emissions and bluer skies, and even some abatement of the nearly nine million lives lost each year, on average, due to air pollution. Unfortunately, coronavirus strategies have joined climate change and environmental protection as politically polarized problems in the United States. Moreover, the 17% reductions in carbon emissions observed for globally in the month of April as a result of the quarantine – while these add up to nearly half of what's needed to meet our 1.5oC goal by 2030 -- are temporary. They cannot be sustained long-term because they were not "achieved through sustainable changes in human behavior" but rather through shutting down the economy,

stopping travel, taking children out of school, and many people losing their income and their jobs. In contrast, Dr. Hayhoe emphasized that there are currently available, sustainable solutions including energy efficiency, greater use of renewables, and conservation agriculture; many of these solutions are described in Project Drawdown. Importantly, curbing climate change and halting ecosystem destruction can lessen the chances of future pandemics. COVID-19 shows us that when we must act, we can. We just need to do it sustainably (Coronavirus Holds Key Lessons on How to Fight Climate Change). Finally, both climate change and coronavirus are threats to our health, safety and economy, and both disproportionately affect poorer people and countries, intersecting with problems of racism. Both climate change and the pandemic are threat multipliers that make our other problems worse, and they both need our urgent attention.

For additional insights from Dr. Hayhoe, see her Global Weirding webpage (Global Weirding with Katharine Hayhoe).

Questions from the Survey

The Network team reviewed responses to the survey and attempted to identify key themes and concerns. We distilled these into several questions to pose to our guest speakers.

[KW = Dr. Kyle Whyte, KH = Dr. Katharine Hayhoe]

1. One respondent noted "If people don't have steady jobs and economic opportunities, if they are choosing between paying for health care and food, and if they can't find stable and affordable housing, they certainly aren't going to buy more expensive, organic foods, use expensive alternative energy, or really engage or care about conservation. But if we build conservation into the conversation as critical to quality of life… we can make that connection and create that opportunity." Where do you see the opportunities for practitioners to make those connections between economic and environmental justice and conservation? [Recorded Answers]

KH – Often we think that the first step to fixing issues like climate change is doing something expensive, like investing in solar panels or an electric car. Simply having a conversation that connects the dots between what we already care about and the issue at hand is the most important thing we can do. And the next steps we can take right now are not necessarily the expensive ones: conserve energy, grow and eat local food, reduce our meat consumption, care for green spaces and local habitat, practice citizen science. Increasing awareness, educating our kids, talking about how our regional or local organizations can work together for good: these kinds of actions may also improve our local communities and our health. It's all connected.

KW – Native peoples have been focused on the importance of how climate change relates to food and to water, and we've seen that these are stress focal points that native people are facing in relation to COVID-19. Increased severity of drought may damage water sources, necessitating centralized access to water which could then increase the risk of virus exposure. Similarly, people

who are unable to get nutritious food locally, through their own efforts or through local community processes, may then be dependent on distant and expensive market sources. For urban native communities, one of the biggest needs has been urban conservation and climate change work – efforts to unify and communicate across metropolitan areas are important during crises. When native people are adamant about the importance of revitalizing and maintaining traditional foods and water sources, it isn't just about the specific element or flow, but about all of the social coordination and relationality that goes with it, which is precisely what enables communication, trust, and processes that value consent. Long-standing place-based systems have been more easily translatable to online sharing systems for COVID-19 information than newly created programs.

2. COVID-19 inevitably and necessarily has the spotlight now, but as a society, how do we sustain progress on climate adaptation and wildlife conservation while simultaneously responding to natural and human disasters such as pandemics, extreme weather events, or any other major environmental or economic disruption? [Recorded Answers]

KW – COVID-19 puts into perspective the planning that we need to be doing. We often assume the current strategies for climate change planning like vulnerability assessments and the assessment of adaptation options are relatively new for many levels of government; but planning for other pandemics and outbreaks is not completely new. There are highly relevant processes and scientific knowledge already in place that are assumed to be non-controversial. This demonstrates that we haven't fully followed through as climate change planners if we assume the work of adaptation ends with creating a plan, but not following through on iterations of that plan as it falls into place. For example, further scenario planning or strategizing as the plan falls into place and policy is enacted.

KH – Coronavirus recovery, economic recovery, and climate change action can go hand in hand rather than fighting against one another. We – at the individual and government level – have limited natural resources, economic resources, and time. There is often this perception that somehow wildlife conservation, climate action and the economy are opposed to each other, as if the economy can exist without the resources this planet provides. All the above actions are actions for the long-term good for all living things on this planet. Making the co-benefits of our actions clear to the public is essential, including putting a dollar value on ecosystem services. It helps people understand that the way we've been valuing things for the last decades and centuries is not the right way to ensure our long-term health, and we need to broaden our perspective on this.

3. Many respondents wanted their "dream team" study to focus on moving towards engaging the public in meaningful ways. For example "I'd like to know what techniques are most effective in changing the American mindset on climate and conservation"; "How to reach the public with science that they would enthusiastically embrace and put into action, i.e. understanding better the human place in a biological system". Seeing how the public has reacted to the COVID-19

crisis, what are the most important tools to promote an effective and equitable message for conservation, and what are your feelings about "crossing the line" between science and advocacy? [Recorded Answers]

KH – Dumping raw scientific facts into public debate is not the most effective solution, especially when most of those facts are alarming or even frightening – like the facts that Greenland ice melt is accelerating or that some parts of the world may become uninhabitable if our carbon emissions continue unchecked. Social science and neuropsychology tell us that the fear and anxiety they can induce cause people to withdraw and freeze rather than act. And Tali Sharot, the author of *The Influential Mind,* discusses how overflow of information tends to increase polarization rather than decreasing it. So, we create a self-reinforcing negative feedback cycle: We worry, we share more scary data, people reject it even more if they did not agree initially, and inaction results. The answer is to break the cycle. When discussing climate change, it is important to also share how it matters to the person or people you're speaking with, and to present positive solutions. By being constructive, we feel empowered and inspired to act, which then triggers feelings of reward: a true positive feedback cycle! Focus on that result, not on avoiding harm: hope rather than dread is most effective in moving people forward.

KW – Similar to the fear and anxiety created by climate information overload, scary stories often have Native peoples as subjects, and have been written this way to evoke a certain response in people, which can reaffirm certain false and racist or sexist assumptions about Native peoples. We need positive stories about Natives or people of color, produced by Native peoples, and ask if we are using all our capacities as citizens to empower people. Federally recognized Tribes are sovereigns with their own capacity to raise money, but have often been hampered by tax issues, jurisdictional issues and other prior conditions that result in less support for those kinds of projects. We, as citizens, have much more capacity to make change and empower people to use their stories to inspire others.

KH – We should do the same thing for positive stories about COVID-19, so that climate change and conservation can "move forward to hope" – yet virtually no stories about climate on CNN are framed positively.

4. The pandemic has highlighted society's capacity for sweeping, transformational change. Many of these changes, such as teleworking or reduced vehicle traffic, are environmentally friendly. How can we leverage these sustainable practices into the future? [Recorded Answers]

KH – This Carbon Brief article that lists green pandemic recovery actions has a lot of municipal and business examples, from increasing pedestrian and cycling zones in city centers to requiring companies to document or reduce their carbon emissions to qualify for government stimulus funds. Both personally and as organizations, virtual talks and conferences are a good example: some groups that had long resisted going virtual now know they can do it, and many are getting

record attendance at their meetings. It's a great way to reduce the carbon footprint of our work travel.

KW – Within the coalition building and social justice space, where we often feel the need for face-to-face meetings to build relationships, consent and reciprocity, and to overcome generations of separation, which has presented a contradiction for the desire to reduce carbon footprints. It was very difficult at first to build that trust and engage in conflict-sensitive facilitation in an online setting. But we have learned creative techniques to do that more effectively. It might make it easier for some of us to build the relationships we need to advance climate and social justice.

Audience Q&A

[KW = Dr. Kyle Whyte, KH = Dr. Katharine Hayhoe]

1. How do we do a better job connecting climate justice and climate change adaptation? [Recorded Answers]

KW - Public health, climate change, and environmental justice are all issues about how space, land, and landscapes have been transformed and changed, and reflected the interests of certain populations against the interests of other populations. I think that if one is engaged in adaptation or mitigation as a process, and has lost track of the landscape forces and history of populations and business interests that have shaped it, then it will be difficult to be engaged effectively in climate change work that supports environmental justice.

KH - The only reason we care about climate change is because of other things we already care about. Climate change is a threat multiplier, taking issues of environmental justice and making them worse, disproportionately affecting people who are poor, racial minorities, women and girls, people who are already disadvantaged as well as vulnerable ecosystems, endangered species and more. If we care about justice in any context, then by definition we already care about climate change, even if we haven't consciously connected the dots.

2. Long-term and holistic relationships are critical for dealing with large-scale problems such as climate change and COVID-19. Can you suggest examples that provide insight in how to build them? [Recorded Answers]

KW – The Great Lakes Indian Fish and Wildlife Commission is a good example of a treaty organization created to coordinate fish and wildlife management among 11 Ojibwe tribes in three states. Another is the Treaty Rights at Risk Initiative, a multi-tribe collaboration in western Washington to promote treaty rights and salmon recovery. Websites of federally recognized and state recognized tribes in your local area may also detail examples of enduring partnerships. Many Tribal colleges are also involved in sustainability work.

KH – Ideally, climate solutions have long-term and short-term benefits. They are multidimensional, including health, conservation and energy access, and leveling the playing field

for disadvantaged communities. For example, connecting people with no prior energy access to free renewable energy, and new agricultural techniques, such as methods that increase yield combined with carbon storage, addresses poverty, education, food production, and can even help conserve local ecosystems and species by providing for people's food and energy needs. We need climate solutions that move us forward. Climate Hope is a great resource for this.

3. We are on course to a 4°C higher temperature world. What does climate adaptation look like then? [Recorded Answers]

KH – It has been that warm before on this planet, but not for millions of years: and certainly not any time over the course of human civilization, which was built on a largely stable climate. And it is not only the amount of warming but the rate of warming that matters: today, it's happening 10-50 times faster now than at the end of the last glacial maxima. The question is, can climate adaptation keep up? If we continue this course, we are going to be doing climate triage, not adaptation. The planet will survive, but human civilization will not, as we know it now. There will be a massive loss of perhaps as much as 30% of all living species and the collapse of many of our human resource systems and with them, our socio-economic and even political systems as well. Contrasting future scenarios, the difference between 2 and 4°C degree warming is our survival versus the loss of the world we know.

KW – What does it look like for Native communities? Many advocates for climate action are motivated by protecting what we think of as normal. Yet the current "normal" is full of injustices to Native people and people of color, people with disabilities, and those facing economic hardships. With COVID-19 we speak of getting back to normal and with climate we aim to protect what's normal. But Native people have already experienced such devastating losses to their lands and species, and the framing of "normal" or "unprecedented" that doesn't respect those losses could lead to solutions that worsen current inequality and injustice worse.

4. Without sugar-coating losses, how do we avoid despair by focusing on reconfiguring our economy and political and value system (thinking big)? [Recorded Answers]

KH – The number one objection to addressing climate change that I hear is the idea that we need to fix 'X' first, where 'X' consists of, depending on the claimant, the infinite growth economic model, the political system, the current state of science education, Citizen's United, the injustice and inequity endemic to our culture, and more. But if we wait to address 'climate' until we have fixed 'X' to our satisfaction, it will be too late. Instead, climate change will "fix" *us*. Instead, as I mention above, robust and sustainable solutions to climate change must and will help fix those other issues at the same time, and each step we take forward to a better future should bring the entire system with it.

KW – What can we do as individuals? "Systemic change" can bring good or bad ends, so where are we at, and what is your relationship to systemic change? It is important to think about *how* and *the rate* in which change occurs in our collective vision (e.g., a world with no health problems); how these plans are carried out and the speed and expectation in which the work will be completed. Historically, in every state of colonialism, the worst oppression was framed with the

very best intentions and goals for making systematic change. We often think we are beyond this, but it's what every generation thought. The violence that we can commit, ourselves, will likely be seen in the future as on par with historic forms of violence over the last couple hundred years or before. How do we understand the fact that, as people seeking systematic change, that we ultimately can't control the systems and how they operate? We can't control other people. There is still reason for hope and values about what it means to live in a world that is this dynamic and scarred by violence. Some of the Indigenous persons, like Janette Armstrong, have stated that for them, it's more about hope and systematic change, it's about building kinship and capacity. If it's too late, but we focused on building these kinship relations, that reciprocity, accountability, transparency, trust – that is a motivator of our actions, not just hope.

5. What are your thoughts on forest management and climate change, and how do we approach communication, defensiveness, and lower the barrier for scientists to communicate? How do we communicate in a way that blends the personal and professional? [Recorded Answers]

KH – Scientists are taught to be "objective," to dissociate from our bias and emotion. This is essential to our professional research, but when it comes to communicating, it can be less than helpful. Instead, a more genuine and authentic way to communicate is to recognize our feelings, to be conscious of our emotions, and to be aware of the emotions of our listeners. Many people feel guilt about climate change, and people that feel guilt will be defensive, so we tend to latch onto ways to relieve that guilt (e.g., by planting trees, or blaming another country, or by denying the issue altogether!). Because we primarily react based on our emotions, it's important to understand and even, to the extent possible, sympathize with how people react, and in our own communication to consciously attempt to defuse the guilt and defensiveness. Activate hope and connection rather than guilt and fear. [See KHs TED talk]

KW – I try to reshape the question about how science and activism are linked. Every culture has had some institution of science and information, but only a few of those traditions – including some of our current institutions – thought that scientists were not also activists, taking human nature out of it. The burden of science is to be informed by evidence and use science communication to inspire people, not just provide information.

What is your big takeaway message?

[Recorded Answers]

KW – For myself and many Tribes, what makes life meaningful is all our small and large stories in which we are connected. When our small stories are connected to bigger stories, they become the most inspiring, and enable us to handle challenges the most. Often in conservation fields, we are jammed into tiny stories, and we lose track of what they mean to the larger picture that we are, in fact, a part of. If you are feeling this way, and if you feel this way in the light of the COVID-19 emergence as a public health crisis, if you really felt contained and constrained by this, I really encourage you to think about this crisis as exposing us again to work that may have been particularized, is part of a bigger story, whether that is for Native people or others. So, it is a

chance to re-motivate and re-energize and feel grateful for the opportunities to transform work that we are already doing.

KH – I agree. The world is increasingly fragmented. A lot of that is due to the massive flow of information we are confronted with every day, provided by customized media with whom we already agree, so we are not exposed to information that may challenge our beliefs or attitudes. We grow an attitude of "I'm not that type of person; these types of people care about climate change, these types care about conservation, but I'm not that. I care about the economy, or local business, or national security..." We've drawn lines in the sand about who we are and what others care about. But the reality is, if we are a human being on this planet, or really any living thing on this planet, human or not, then we already care about climate change, biological and biospheric integrity, and conservation. We care about these things; but we might not realize it. We just haven't connected the dots. Just as the economy can't float around in outer space, neither can we. The important thing is, rather than continue to implicitly or explicitly emphasize these artificial lines we've drawn between each other, let's look for what we have in common and build bridges to connect on these issues. It's hard to think of a single solution to these issues that couldn't get multiple different people that think they belong in different groups working together to the benefit of all. That is how we will fix this.

Conclusion and Next Steps

The findings from the questionnaire and the emerging themes considered during the virtual roundtable underscores this moment in time for conservation and climate change professionals. The uncertainty, anxiety, and challenges presented by the COVID-19 pandemic is impacting these communities in myriad ways. Loss of funding and field seasons, as well as shifting priorities, both professional and personal, are negatively affecting conservation. And while the current and anticipated challenges may be daunting, our findings also show windows of opportunities for practitioners to learn from, leverage, and prepare for the future in new and impactful ways.

Communication between conservation and climate change professionals, other sectors, and with the general public will be paramount in addressing the interconnectedness of these issues into the future. To do so will necessitate an interdisciplinary approach, including ecologists, economists, social scientists, communications experts, and keepers of Indigenous knowledges. It will require practitioners to see beyond the boundaries of their own disciplines and for individuals to take stock of how their stories connect to others and fit into the bigger story of planet Earth. Moreover, it will necessitate an approach that fully sees, listens to, and cooperatively works with communities that have long faced injustices. Their voices must be a part of the conversation if the conservation and climate change communities truly want to move forward.

As many respondents to the questionnaire noted, there is a feeling that we stand on the precipice of tremendous opportunity. We have a choice: whether to allow the pandemic challenges to defeat the progress we have made, or, to leverage these lessons and opportunities and create a future where conservation and climate change is addressed proactively, adaptively, and with justice for all.

We invite roundtable participants and readers of this report to help the National Fish, Wildlife, and Plants Climate Adaptation Network address these challenges and move towards a more interdisciplinary and inclusive future. Here are some ways to get involved:

- Join our mailing list to stay up to date on Network happenings and opportunities.
- Learn more about the interconnections between conservation, climate change, and COVID-19 by checking out our list of links and further readings below.

Links & Further Readings

- Why are conservatives less worried about coronavirus?
- Global weirding with Katharine Hayhoe
- Coronavirus: Tracking how the world's 'green recovery' plans aim to cut emissions
- Coronavirus holds key lessons on how to fight climate change
- Conditions are rife for next pandemic unless urgent action is taken, WWF warns
- Climate Hope: 2019 Southwestern Tribal Climate Change Summit
- The most important thing you can do to fight climate change: talk about it
- By paying attention, tribes in the Northwoods are leading the way on climate change
- Katharine Hayhoe discussing lessons we can learn from the COVID-19 pandemic that pertain to climate change
- COVID-19 Stimulus Measures Must Save Lives, Protect Livelihoods, and Safeguard Nature to Reduce the Risk of Future Pandemics
- The report, *Solving the Climate Crisis: The Congressional Action Plan for a Clean Energy Economy and Healthy, Resilient, and Just America*
- EESI: The Climate Crisis Report in Focus
- EESI Climate Crisis Report Podcast
- NRDC Covid and Climate Article
- America's New Climate Economy: A Comprehensive Guide to the Economic Benefits of Climate Policy in the United States

Appendix: Detailed Responses to the Questionnaire

Q1: What do you see as the largest threat to conservation due to the COVID-19 pandemic?

Answer	% of responses
Potential loss of revenue from budget cuts	31%
Pause in research or restoration initiatives	28%
Lack of enforcement (due to decreased workforce)	11%
Illegal or unregulated harvest (illegal logging, overfishing, etc.)	6%
Lack of tourist dollars that support local economy	5%
Increase in poaching for illegal wildlife trade	3%
Lack of revenue from hunting & fishing licenses	2%
Other (please specify)	16%

Q2: How has the pandemic personally affected your work?

Answer	% of responses
Work from home only order (all travel is restricted)	71%
Cannot get to field site or laboratory (area is shut down)	36%
Support staff or assistants are not available	29%
Funding has been cut	20%
Unable to work because partners are unable to work	17%
Unable to find future employment	14%
Cannot cross the border to get to field site	6%
Unable to obtain work permits to do work	6%
Temporarily laid off due to COVID-19	5%
Lost employment due specifically to COVID-19	2%
Other	29%

Q3: Do you expect there to be a decrease in funds to support your work within the next year? If yes, have you made contingency plans?

Answer	% of responses
Yes	53%
No	33%
If yes, have you made contingency plans?	14%

Q4: What are some interactions or connections between COVID-19, climate, and conservation that you have observed?

Theme	% of responses
GETTING THINGS DONE	
Reduced/delayed/impeded research, education, job losses, planning and conservation action and funding, priorities shifting away from climate adaptation/conservation	20%
Impacts of covid and climate both disproportionately impact minority or poorer communities, but raising awareness of environmental justice issues	7%
Reduced interest in wildlife, decreased contributions to wildlife NGOs, or eco-tourism, leading to reduced conservation/protection	6%
Covid distracts from conservation or gives governments excuses to ignore it	3%
Restructuring of how we work	4%
Response to human or natural disaster increases covid exposure, or is limited by covid	2%
DIRECT IMPACTS	
Increased outdoor recreation, appreciation of nature	13%
Increased outdoor recreation and human impacts (on top of climate change stress)	13%
Increased illegal dumping, recycling due to facilities shutdowns	2%
Reduced human pressure (emissions, recreation, traffic) benefiting the environment, some species	13%
BROADER HUMAN DIMENSIONS	
Parallels between covid and climate risk perceptions, valuing of science, and public policy failures	7%
Radical actions or altered lifestyles can make a difference	2%
More interest in food security, local gardening, etc.	3%
Increased awareness of zoonotic diseases	3%
Both global scale crises, both reveal lack of resilience in systems	3%
Each makes the other worse	1%

Q5: What does the path back from the obstacles listed in Questions 2 & 3 look like to you, in your line of conservation-oriented work? Do you think there are opportunities to move in this direction?

Theme	% of responses
Funding concerns	38%
Expanded use of technology for meetings or data gathering	20%

Research / field work interruption	13%
Desire for political change	10%
Increase in outdoor recreation	8%
Need to rethink/change things	7%
Reconsider our priorities	4%
Diversity, equity & inclusion	1%
Loss of quality in goods and services we provide	1%

Q6: What can practitioners in the fields of climate change adaptation and conservation learn from the COVID-19 pandemic?

Idea Group	Ideas	% of responses
PLANNING	Shows the value of advance planning, preparation, and organization.	9%
	Need to plan at global scales	7%
	Consider cultural and societal divides and meet the needs of marginalized communities. Work with social justice movements and elevate minority and youth voices.	7%
	Scientific understanding is important	5%
	Everything is connected and interrelated. We need holistic, multidisciplinary approaches and solutions.	5%
	Work with local communities, organizations, and scientists; with the local people in charge	3%
	Prevention and adaptation are both important	2%
	Build resilience into plans and actions, prepare for the unexpected (have alternate plans), and be willing to adapt as needed	2%
	Need to be innovative in ways to carry out research, and consider different perspectives	2%
	Importance of community (e.g. of practice)	2%
	Need to act, not just study and plan. Quick and decisive action is important.	2%
	Must prepare for, and deal with, multi-crisis scenarios	1%
	We can make quick and substantial changes in a crisis. People can work together to solve big problems.	9%

OPPOR-TUNITY	Emergencies/crises can rapidly change priorities and perceptions	6%
	Strong leadership is needed on a large scale	2%
	Our perception of how society must be structured can shift quickly and dramatically given the appropriate social forces.	1%
	We should make the best of this time of transition and change things now.	1%
COMMUNI-CATION	Need to improve science and risk communication with public and policymakers and convince them to act	16%
	The pandemic is an example of environmental impacts to people. Exposure to new and emergent diseases including zoonotics might be accelerated through climate change and other environmental impacts.	5%
	The pandemic demonstrates that outdoor recreation and public access to nature are necessities; and the increase of people getting outdoors and appreciating nature may be a new source of conservation support.	4%
	Illustration of the global connections that affect people and unite them	3%
	Communicate data visually for maximum impact to broad audiences.	2%
	Tell the stories of connections between actions and impacts.	2%
	Life as we know it is precarious/fragile	2%
	Make all important information readily available online and offer multiple opportunities for virtual communication.	1%
	Flattening the curve messaging as it relates to climate change messaging	1%
OBSTACLES	People mainly think about their immediate circumstances, not the future or broad geographies, and are resistant to changes in behavior.	5%
	The U.S. and state governments may not address crises with science-based solutions. Collaboration between countries seems to be falling apart.	3%
	Need more funding for climate adaptation and conservation. Seek non-traditional sources of funding.	2%
	Increased recreation use has negative ecosystem impacts	2%
	People don't make decisions rationally	1%
	Societies and policies are too often reactionary.	1%
	Perceived and real job issues can be used and will be used as a lever against conservation and climate adaptation.	1%

	Must focus on biggest polluters first (before individuals)	1%
	Efforts to reduce emissions and atmospheric CO2 can be successful, but must be sustained	1%
	Drought of conservation resources in the future.	1%
FUTURE LIVING	Telework & teleconferences can reduce carbon emissions and can also be accessible to people without the means to travel. Need to ensure everyone has adequate internet connectivity.	7%
	Native plants and wildlife can thrive with less human presence and movement, but need to control invasive weeds and enforce laws (e.g. against poaching)	4%
	Reducing power consumption also decreases pollution	2%
	Adequate sanitation and health programs are necessary	2%
	Focus on restoring the rights of people (especially the most vulnerable) and nature over corporate profit and GDP as measures of success.	1%
	Local food production provides resilience against global shocks	1%

Q7: What are keystones of an 'ideal' future for conservation, climate change, and humanity?

This was an open-ended question, and thus drew a wide variety of responses. Some respondents called for a shift in societal values, better leadership, or increased reliance on science in decision-making, while others enumerated more concrete actions to mitigate and adapt to climate change, increase awareness, conserve land and species, and build a more sustainable and inclusive economy. The responses broke down roughly into five different themes:

1. The largest category of responses were action-oriented, and there was quite an array, ranging from targeted and specific to very broad-scale. These fell into further subdivisions, which each corresponded to about 6 to 10 individual action-oriented responses:
    a. Mitigate climate change
    b. Adapt to climate change
    c. Reduce population growth and consumption to lessen pressure on resources
    d. Sustainability and conservation practices, such as slowing habitat loss and engaging in ecological restoration
    e. Diversity, equity, inclusion, and justice – several responses specifically mentioned ending discrimination and being more inclusive, especially within the conservation and climate change communities
    f. Increasing engagement and public awareness

    g. Increasing conservation funding and identifying new sources of funding
    h. Systemic changes – several responses called for big or multi-sector shifts in the economy & society
2. Need for a change in values or thinking – 37 answers in some way indicated a need for a paradigm shift in our values. There were many calls for more flexibility, humility, and a better relationship with each other and with nature.
3. Over a dozen respondents cited the need for more and better science, and more widespread acceptance of science and use of it in decision-making.
4. A call for better leadership and government (8 answers)
5. "Unsure" (4 answers)

Note: because some individual responses were multifaceted, covering multiple topics or actions, the number of "responses" exceeds the number of individual respondents.

Q8: If funding were no obstacle, what conservation issue would you like most to study, and what type of expertise would you want on your research dream team?

Theme	% of responses
Incorporating Humans into Research	
Reaching the public with your work/Human Dimensions/Social Science/Env. Justice or holistically combining science with human beings, including TEK	22%
Combining transformational policy, infrastructure, economics, human dimensions, agriculture, and/or conservation science	15%
Humans as Drivers	9%
Ecosystems	
Ecosystem Transformation/Flows and multiple ecosystems in a landscape	9%
Global or land/sea conservation reserve networks or restoration networks	7%
Invasive species	6%
Increasing the depth and breadth of management decision space using already produced knowledge	
Global-Sized Studies of Biodiversity/Wildlife	7%
Digesting, creating management-specific information, or implementing science	3%
Dealing with data size, age, use	1%
Wildlife Populations	

Long term climate and physiology, movement, genetics (Sensitivity/Exposure/Adaptive Capacity)	9%
Fisheries/Aquatic	
Freshwater and/or fisheries	6%
Hydrology	5%
Marine-specific	2%

Q9: If the Network hosted a virtual roundtable discussion on conservation and climate change in the time of COVID-19, what would you want to discuss?

Note: because some individual responses were multifaceted, covering multiple topics or actions, the number of "responses" exceeds the number of individual respondents.

Major Themes	Sub-Themes	Count
Leveraging opportunities	Catalyze, maintain, and strengthen collaboration	3
	Leveraging environmentally friendly practices into the future (e.g., teleworking, reduce emissions)	7
	What lessons learned can we apply in the future?	12
Conservation in Action	Relevance of conservation in this moment	2
	What is working? Success stories	3
	Tangible actions	7
	Impacts to recreation	3
	New, creative ways people are working or collaborating	5
	How to move conservation forward with limited funding	2
	How to prioritize conservation actions in this time	3
	Impacts to the next generation of conservationists	1
Public Outreach & Communication	Communicating ecosystem benefits/ relevance of conservation to people	7
	Improving science literacy	3
	General call for outreach	9

	Climate deniers	1
Breaking down silos	Understanding the interconnections and dependence among multiple sectors (health, economy, environment, etc.)	2
	Working across sectors/Partnering with non-traditional groups	3
Don't know	Don't know/not sure	8
Questionnaire answers	Questionnaire answers	5
Science	Indicators of ecosystem responses	3
	Impacts to ecosystems	3
Policy	How do we better advocate for policies that support conservation and climate change work?	3
	What policy would best drive the change we need?	3
Diversity, equity, inclusion and justice (DEIJ)	Where does equity fit into the conversation?	3
	Nexus between economic justice and environmental justice	6
	What lessons from traditional knowledges are applicable to COVID-19 and climate change?	1
	How do we move away from "people are the problem" to a more holistic approach	1

This report was prepared by

NATIONAL *fish, wildlife & plants*
CLIMATE ADAPTATION NETWORK