

Table of Contents

U.S. Senate
Date: Wednesday, May 19, 2021
Committee on Environment
and Public Works
Washington, D.C.

STATEMENT OF:	PAGE:
THE HONORABLE THOMAS R. CARPER, A UNITED STATES SENATOR FROM THE STATE OF DELAWARE	3
THE HONORABLE SHELLEY MOORE CAPITO, A UNITED STATES SENATOR FROM THE STATE OF WEST VIRGINIA	8
LEAH GERBER, PH.D., FOUNDING DIRECTOR, CENTER FOR BIODIVERSITY OUTCOMES, LIFE SCIENCES CENTER, ARIZONA STATE UNIVERSITY	14
EDMUND SULLIVAN, EXECUTIVE OFFICER, SANTA CLARA VALLEY HABITAT AGENCY	20
ANDY TREHARNE, SENIOR DIRECTOR, EXTERNAL AFFAIRS, CONGRESSIONAL SPORTSMEN'S FOUNDATION	25
JOHN SCHMIDT, BOARD OF DIRECTORS, PARTNERSCAPES	33

EXAMINING BIODIVERSITY LOSS: DRIVERS, IMPACTS, AND POTENTIAL
SOLUTIONS

Wednesday, May 19, 2021

United States Senate

Committee on Environment and Public Works

Washington, D.C.

The committee, met, pursuant to notice, at 10:05 a.m. in room 406, Dirksen Senate Office Building, the Honorable Thomas R. Carper [chairman of the committee] presiding.

Present: Senators Carper, Capito, Cardin, Whitehouse, Kelly, Padilla, Boozman, Ernst.

STATEMENT OF THE HONORABLE THOMAS R. CARPER, A UNITED STATES
SENATOR FROM THE STATE OF DELAWARE

Senator Carper. Good morning, everybody. I am pleased to call the committee to order. I am pleased that we are joined today by an distinguished panel of witnesses to examine the important issue of biodiversity loss: Dr Leah Gerber, Ed Sullivan, Andy Treharne -- hope I got that right, Andy -- and Mr. Schmidt. We welcome you all to the Environment and Public Works Committee.

I just want to begin by saying that I appreciate that you come to us from across the length and breadth of our great Country. That is important because biodiversity loss is a challenge that transcends geographical boundaries and State lines.

Across our Country's forests, our grasslands, our deserts, our rivers, and oceans, and all around the world, the ecosystem that supports all life are threatened by heat waves, by intense storms, by wildfires, and more. At the same time, wildlife must contend with invasive species, including pests and diseases that we hear about regularly.

The more species each ecosystem can sustain, in other words, the greater the biodiversity in each, the greater resilience those ecosystems have to the threats I have just described, and yet, around the world, biodiversity is declining

faster now than any other time in human history. Let me say that again: around the world, biodiversity is declining faster now than at any other time in human history.

Our changing climate, habitat loss, the spread of invasive species in our increasingly connected world, and pollution have all contributed to this decline.

For example, the ocean absorbs almost a third of the carbon dioxide emitted into our atmosphere every year, a third. The carbon dioxide turns into acid in the ocean, threatening species at the base of the ocean food web. That impact on the food web is profound, affecting everything from fish to one of our most beloved species in Delaware, a little bird called the red knot.

That same carbon dioxide contributes to global warming, which is causing sea level rise. As the seas rise, they threaten the red knot's coastal habitat, making this iconic and threatened species even more vulnerable. With limited food resources and diminishing habitat, the incredible 19,000-mile round-trip migration that red knots make each year, think of that, 19,000 miles, they are about the size of this, Senator Capito, they are about the size of my hammer, but each year they make this migration, and it has become more difficult, not easier, and it is a migration that threatens their long-term survival.

The impact of biodiversity loss extends far beyond this

remarkable species going extinct. It also impacts each and every one of us. How, you might ask.

Well, first of all, biodiversity is directly linked to human health. The loss of biodiversity and ecosystem resilience is making animals more susceptible to disease, a particularly troubling development since the vast majority of emerging diseases in people, including potential pandemics, originate in wildlife. We are all too familiar with the consequences of the zoonotic diseases. COVID-19 is one of them.

Noting this threat and many others, the World Economic Forum has named biodiversity loss among the top three risks to humanity in terms of impact, along with weapons of mass destruction and climate action failure.

One sector at particular risk is agriculture, which is, of course, critical for global food security and need for our very lives. Agriculture is the number one industry in my home State of Delaware, as it is for many of our colleagues on this committee. Our agriculture and food systems cannot exist without healthy soils, plant pollination, and pest control, all of which are linked to biodiversity. We simply cannot produce food without the birds, without the bees, and even the lowly earthworms and healthy soil bacteria. If we fail them, we ultimately fail ourselves.

Though the current state of biodiversity decline paints a

bleak picture for the future, there is reason for hope. If we take action, we can stem biodiversity loss and prevent the harm that comes with it.

This is an issue on which our committee has a bipartisan record of success, a record of which all of us can be proud. Last Congress, we enacted into law both the WILD Act and the ACE Act, both of which reauthorized important programs to conserve wildlife and habitat at home and abroad. We also included the first-ever wildlife crossings safety section in a highway bill, which would address the problems of habitat fragmentation.

As Chairman, I hope that we can build on that record this Congress, and I am eager to work with all of our members on both sides of the aisle to do so.

We must also ensure that the federal budget provides robust funding for wildlife protection. We know that our conservation laws work best for both wildlife and people when the agencies responsible for implementing them have the resources that they need to do their jobs effectively.

What I have described is the moral and practical imperative, and like so many of the issues before our committee, this is a challenge we all face, and one that we can resolve together. It is no overstatement to say that our livelihoods and those of our children hang in the balance.

With that, I am pleased to recognize, for her comments, our

Ranking Member, Senator Shelley Capito, great State of West Virginia, the mountain State, for her opening statement before we hear from our witnesses. Senator?

[The prepared statement of Senator Carper follows:]

STATEMENT OF THE HONORABLE SHELLEY MOORE CAPITO, A UNITED STATES
SENATOR FROM THE STATE OF WEST VIRGINIA

Senator Capito. Thank you, Mr. Chairman, and thank you for calling today's hearing. I also want to thank our witnesses for joining us and look forward to hearing from our witnesses today.

Our Nation, as the Chairman has said, is abundant with natural beauty, and the Chairman and I agree wholeheartedly about the importance of conservation. It is essential that we preserve our public lands and our ecosystems while ensuring access to outdoor recreation.

The committee has a history of passing bipartisan legislation aimed at conserving wildlife and wildlife habitat. Just last year, and the Chairman spoke about this, this committee passed the America's Conservation Enhancement Act, which President Trump signed into law in October.

Included in the ACE Act was the Chesapeake Watershed Investment for Landscape Defense, Chesapeake WILD, Act, which created a new \$15 million grant program within the U.S. Fish and Wildlife Service to support habitat restoration in the Bay area. As a West Virginian, and as someone from Delaware, this is important to both of us.

The Chesapeake WILD Act, the first federal wildlife conservation grant tailored to benefitting species in the Chesapeake Bay Watershed, has bolstered our State's growing

outdoor recreation industry. This important Fish and Wildlife program protects vital ecosystems while also enhancing our outdoor industry by supporting populations of birds, fish, and mammals prized by our outdoorsmen, sportsmen, and fishermen, and we all know West Virginia's \$9 billion outdoor recreation industry, which supports 91,000 jobs in our State is good for the soul and good for the economy.

Our anglers and sportsmen, in turn, fund conservation through Pittman-Robertson Act programs backed by the Federal excise taxes on ammunition and fishing tackle. This creates virtuous cycles: improvements to our natural heritage encourage more people, including sportsmen, to get out and enjoy the great outdoors, leading to more investment in conservation.

Enhanced biodiversity from this cycle also benefits other sectors, such as agriculture, by supporting species that benefit mankind in more direct way, such as pollinators or predators that eat pests.

Beyond our committee, the Great American Outdoors Act, which I cosponsored, was enacted last Congress and will provide investments in our public lands and to address their maintenance backlogs. These investments will yield benefits for ecosystems and free up other tax dollars otherwise spent by the National Park Service, the Forest Service, and other federal public agencies on addressing the Federal maintenance to address

priorities, such as wildlife conservation.

West Virginia is known for being wild and wonderful, and our State is blessed with abundant natural resources, from forests to mountains to rivers and to lakes. To showcase our State's natural beauty, I worked to redesignate the New River Gorge National River to become a new National Park and Preserve.

Working with local leaders, our hunters and fishermen, economic development folks, and small business owners, we were able to craft a bill that gives the New River Gorge the recognition it deserves while preserving historic hunting and fishing rights.

I am proud to say that President Trump signed that bill into law last year, and I am also thrilled to be sharing this part of Almost Heaven with the rest of the world for generations to come. Biodiversity is intrinsic to the natural beauty of our Nation, and habitat conservation is key to healthy, biodiverse ecosystems.

Two weeks ago, the Biden Administration issued the Conserving and Restoring America the Beautiful report, which intended to outline steps towards President Biden's goal of conserving at least 30 percent of our lands and water by 2030, commonly referred to as 30 by 30. However, the 24-page document included very few details as to how we can achieve President Biden's ambitious goal.

While a number of the core principles, including voluntary and locally-led approaches to conservationism, outlined in the plan are bipartisan in nature, I do have a number of concerns. For instance, the report does not even define conservation, nor does it specify what lands should be included under that program. These questions need to be answered.

I look forward to continuing to work with the Administration in a bipartisan way on these and other issues, but my lasting and meaningful solutions to addressing biodiversity must come from legislation.

Today, I look forward to our discussion on consensus-driven solutions to these challenges. Thank you, Mr. Chairman, and I yield back my time.

[The prepared statement of Senator Capito follows:]

Senator Carper. Thanks very much, Senator Capito. We have four witnesses joining us today. The first is going to be introduced to us by Senator Kelly from Arizona. Senator Kelly, the show is yours.

Senator Kelly. Thank you, Mr. Chairman, and thank you for holding today's hearing on the biodiversity challenges we are facing in the United States and across the world.

As you noted, animal, insect, and plant species are declining at rates we have never seen before, tens to hundreds of times higher than the average background levels spanning the last ten million years. Scientists estimate that nearly one-third of the species in the United States are close to extinction. These are commonly known species, like polar bears and bumblebees. In Arizona, we could lose wildlife like the Sonoran pronghorn antelope and the desert tortoise, to name just a couple.

Today's hearing will focus on this alarming trend, and I am grateful that the committee tapped one of the world's leading experts to testify on this issue, Dr. Ms. Gerber. Dr. Gerber is a professor of conservation science at Arizona State University School of Life Sciences. She is also the founding director of ASU's Center for Biodiversity outcomes. Dr. Gerber is the lead author on the United Nation's report issued in 2019 that was a wake-up call to the world that extinction rates are

accelerating.

Mr. Chairman, I look forward to hearing Dr. Gerber's testimony, and thank you.

Senator Carper. Thank you very much, Senator Kelly, and welcome Dr. Gerber. You are now recognized for your statement. Go ahead.

STATEMENT OF LEAH GERBER, PH.D., FOUNDING DIRECTOR, CENTER FOR BIODIVERSITY OUTCOMES, LIFE SCIENCES CENTER; ARIZONA STATE UNIVERSITY

Ms. Gerber. Thank you, Mr. Chairman, Ranking Member Capito, and members of the committee for the opportunity to speak with you today about the biodiversity crisis.

I am Dr. Leah Gerber, professor in the School of Life Sciences and Founding Director of the Center for Biodiversity Outcomes at Arizona State University. I was a lead author for the Intergovernmental Panel on Biodiversity and Ecosystem Services Global Assessment, which provided the most comprehensive evaluation of the status of biodiversity and nature's contribution to people in the U.S. and globally.

More species of plants and animals are threatened with extinction now than any other time in human history. Twenty-five percent of all species, including 40 percent of amphibians and 30 percent of marine mammals, are threatened with extinction. We are not talking about just extinction; we are talking about the general decline of nature. Compared to the 1970s, there are 3 billion fewer birds in North America for people to enjoy, and coral reefs have shrunk by about half their original extent.

The consequences of the decline of nature aren't restricted to wildlife; they extend to people. Nearly 80 percent of the 18

categories of nature's contributions to people have declined. These ecosystem services provided by biodiversity include things like nutrient cycling, carbon sequestration, pollination, and agricultural productivity.

Protecting biodiversity ensures the resilience of agriculture as it intensifies to meet growing demands for food production, and food security depends on healthy pollinator populations. Diverse and abundant populations of bees are associated with higher rates of production in America's crop species. Biodiversity is the foundation of our economy and well-being, yet it is declining at unprecedented rates.

The causes of the biodiversity crisis are well-known: habitat loss, overexploitation, climate change, pollution, and invasive species. Rapid climate change, for example, influences species ability to adapt, contributing to biodiversity loss. At present, our main challenge is not trying to figure out what is wrong, it is about deciding to take action to address the problem.

The science is clear about the biodiversity crisis, and we have options for solutions. We can start by looking to experience to figure out what works to conserve biodiversity.

Congress could consider expanding Federal investment in habitat restoration, climate adaptation, and habitat connectivity programs. Congress should also provide robust

funding for our Nation's wildlife protection laws. These laws work best when the agencies responsible for implementing them have adequate resources.

My own work has shown that a return-on investment approach to prioritize threatened species recovery actions can help save more species from extinction.

Innovative financing and financial markets for biodiversity are promising approaches to measure and value biodiversity. An institutional structure is needed to facilitate corporate disclosure on biodiversity impacts and dependencies and to report progress towards a sustainable development goals.

By acknowledging that biodiversity is the foundation of social and economic systems, we can begin to mainstream the value of biodiversity. Congress can help lead the way by providing direction on this solution.

Building bridges between government and non-governmental sectors will promote the growing sense of corporate responsibility that is rapidly emerging. For example, I have worked with Bayer to develop a pesticide risk assessment framework that allows sustainable agriculture while ensuring the protection of endangered species.

A National Biodiversity Strategy for the U.S. would focus and coordinate government response to the biodiversity crisis. While some U.S. agencies are responsible to ensure the

persistence of biodiversity as part of their mission, many agencies impact biodiversity and can play a significant role in its protection.

We could also re-establish a leadership role in international conservation, from issues like wildlife trafficking to mitigating plastic pollution in our oceans.

We need an inclusive process that brings people together to solve our Nation's biodiversity challenge. A long history of discrimination has led to clear patterns of injustice and inequity in our access to nature. Committing to building a diverse workforce makes the science and the scientists better prepared to address the growing challenges to biodiversity.

We are at a crossroads, and the signs are clear which direction we should take. This is the time for Senate and Congress to listen to the science, build on our Nation's conservation history, and take action for biodiversity and, ultimately, for humanity.

Thank you.

[The prepared statement of Ms. Gerber follows:]

Senator Carper. Dr. Gerber, thank you very much. ASU, right?

Ms. Gerber. Yes.

Senator Carper. My wife is a graduate of ASU.

Ms. Gerber. Wonderful

Senator Carper. The other ASU, Appalachian State University.

Ms. Gerber. Oh, okay.

Senator Carper. We were out in the Redding City, California on recess a week ago, visiting a bunch of technology companies out there, and we stayed at Marriott Hotel. I went down in the breakfast area to try to find a quiet place so I could do a Zoom call, a teleconference call. And all these athletes, women athletes, about 25 of them, came in from ASU and filled up the dining room, and just were full of energy and talking and everything.

My wife went over and said to them that she was a graduate of ASU. She said, "my husband is over there trying to do a Zoom call," and believe it or not, they stopped talking. They could not have been nicer, and we are just very impressed with their team discipline. So, ASU, welcome.

Ms. Gerber. Thank you.

Senator Carper. Our next witness is Ed Sullivan. Ed Sullivan, just a little bit of background, Ed Sullivan, as some

of you may recall, worked as a journalist before hosting variety shows in the 1930s and 1940s. He eventually became host of the Ed Sullivan Show, the longest-running TV variety program in history, which featured acts like The Supremes, like the Beatles, Jerry Lewis, Elvis Presley, among legions of others. All right, I am kidding, but we do have a really big show today. Kidding again, but in all seriousness, we are glad to have the real Ed Sullivan.

This is Edmund Sullivan, here with us today. The original Ed Sullivan has passed on, but his memory lingers on Wikipedia. If you want to have a good time, check out Ed Sullivan on Wikipedia, and you can see the Beatles as kids and Elvis Presley at the age of about 20. It is just a hoot. That's great.

The real Ed Sullivan, also Edmund Sullivan, and Mr. Sullivan is the Executive Officer of the Santa Clara Valley Habitat Agency. He has over 25 years of experience in habitat conservation planning, natural resource management, and land use planning.

Mr. Sullivan, we thank you for taking the time to join us this morning, and you may begin when you are ready. Take it away.

STATEMENT OF EDMUND SULLIVAN, EXECUTIVE OFFICER, SANTA CLARA
VALLEY HABITAT AGENCY

Mr. Sullivan. Thank you, Chairman Carper, Ranking Member Capito, and members of the committee, thank you for the opportunity to testify today. I thank you for your leadership. I hope my testimony will prove to be a catalyst into further exploration of benefits and lessons learned from large-scale, multi-agency habitat conservation plans, which are effective solutions to stemming biodiversity loss while facilitating economic development.

In thinking about the future of habitat conservation planning, it is important to appreciate their legacy. Through the Endangered Species Act HCP program, endangered species conservation has evolved considerably, and several lessons can be gleaned from this development, most notably that with foresight planning and investment, economic development and biodiversity are not mutually exclusive.

In assessing these pioneer arrangements, it is important to consider not only the efficiency of their formation and implementation processes, but also their effectiveness in advancing valuable conservation goals. Landscape-scale HCPs are attempting to implement sustainable development principles of permitting economic development, while at the same time, protecting wildlife habitat and diversity, as well as

sequestering carbon.

The integration of environment and development will lead to improved living standards for all, better protected and managed ecosystems, and a safer, more prosperous future. Protected areas are the backbone of global biodiversity conservation. Land conservation at the ecosystem scale is a key driver for achieving that objective, and regional HCPs are one of the best mechanisms available capable of implementing that objective.

With the effects of climate change, regional HCPs and other similar conservation efforts are leading a paradigm shift in reserve design and function by identifying and protecting biodiversity hotspots in those areas least likely to undergo rapid climate-induced changes. Large-scale HCPs are wired for tackling climate change since we are ecosystem-focused, intent on building resiliency, replication into the landscape, establishing wildlife linkages, and protecting climate refugia.

Landscape-scale HCPs recognize threats to biodiversity and fragmented landscapes and are positioned to help mitigate these threats by conserving large habitat patch areas linked to one another through protected wildlife corridors. HCPs have the capacity to stem biodiversity loss because it is our core mission.

We also have financial sustainability necessary to succeed, endowment funding focused on in-perpetuity land management and

monitoring, and we are focused on building collaborative partnerships between all levels of government, NGOs, and private landowners. Another important point is the adaptive, management-driven implementation approach that HCPs take, as well as science-centered land conservation decision-making focused on protecting biodiversity hotspots.

I hope my testimony presents a wild range of illustrative actions for sustainability and pathways for achieving them across and between sectors. I believe it highlights the importance of adopting integrative management and cross-sectoral approaches, like regional, landscape-scale HCPs that consider the trade-offs necessary infrastructure development and biodiversity conservation.

Will striking these balances require substantial financial investment? Yes, but not nearly as much as losing the \$125 trillion worth of ecosystem services that experts estimate nature provides to the planet every year.

Thank you.

[The prepared statement of Mr. Sullivan follows.]

Senator Carper. Mr. Sullivan, thank you very, very much.

Senator Capito, I recognize you to introduce Mr. Treharne. My staff and I were wracking our brains, going back in time to early year, going back to the original Ed Sullivan Show when the Beatles were on. We were trying to think of a Beatles song that would actually be pertinent to the subject of today's hearing. The best we could come up with was I Am the Walrus, which is not too bad, not too bad.

Senator Capito, I re-recognize you again to introduce our next witness, Mr. Treharne. Senator Capito?

Senator Capito. Thank you, Senator Carper.

I would like to take the opportunity to introduce our witness, Mr. Andy Treharne, and I am glad you could join us today. He drove up from Richmond, he said.

He joined the Congressional Sportsmen's Foundation in 2011 as the organizations lead on sportsmen's policy issues throughout the Western United States, and currently serves as CSF's Senior Director of External Affairs. Prior to his role, he served as policy director for the House of Republicans in the Colorado General Assembly, where he helped steer a 33-member caucus through agenda development, policy and budget analysis, and regulatory monitoring.

He's also an alumnus of Capitol Hill, having served as a legislative aide for former Senator Wayne Allard. So a warm

welcome back to the Hill, Mr. Treharne.

As someone who has dedicated his life to hunting, wildlife, and conservation issues, Mr. Treharne understands the essential role the sportsmen have in preserving our natural environment. His wealth of experience on these issues will be of good benefit to the hearing today. We are happy to have you here, and we look forward to your testimony. Mr. Treharne?

STATEMENT OF ANDY TREHARNE, SENIOR DIRECTOR, EXTERNAL AFFAIRS,
CONGRESSIONAL SPORTSMEN'S FOUNDATION

Mr. Treharne. Chairman Carper, Ranking Member Capito, and members of the committee, thank you for the opportunity to testify on one of the most pressing conservation challenges facing our Nation: biodiversity loss. My name is Andy Treharne, and as Senator Capito said, I serve as the Senior Director of External Affairs for CSF, the Congressional Sportsmen's Foundation. Established in 1989, CSF works with the Congressional Sportsmen's Caucus, the largest, most active bipartisan caucus on Capitol Hill.

Before discussing modern-day challenges and solutions for addressing biodiversity, it is important to take a moment to put things into historical perspective. Over 80 years ago, the hunting community led the charge to establish excise taxes on firearms and ammunition directed specifically to conservation purposes.

With the subsequent enactment of similar excise taxes generated by anglers, boaters, and archery enthusiasts, revenue from sportsmen's licenses is permanently linked to conservation, laying the foundation for what is now the unique American system of conservation funding. A user pays public benefits program that is the financial backbone of conservation in our Country.

Totaling nearly \$1.1 billion for Fiscal Year 2021, plus

millions of dollars annually in license and permit fees, these ongoing investments benefit the American public in a variety of ways, ranging from recreational access to increases wildlife populations to wetland conservation that filters our water and improves our soil quality.

Despite the unparalleled success of the user pays-public benefit system, America continues to experience challenges for biodiversity conservation. It is critical that we take steps to invest in 21st century funding mechanisms to meet the challenges before us today. In doing so, we must also maintain the integrity of existing funding mechanisms, often generated by sportsmen and women that contribute to biodiversity conservation.

While much of the focus recently has been on declining biodiversity, our community continues to contribute positive results for fish and wildlife. For example, North American waterfowl populations have increased by 56 percent since 1970, a nod to highly successful conservation programs such as the North Americans Wetlands Conservation Act, NAWCA, and federal and State duck stamps. We thank the committee for their work to reauthorize NAWCA through the America's Conservation Enhancement, or ACE Act, last year.

Yet, we still face significant challenges. Forest birds and grassland birds lack a funding source, such as NAWCA or duck

stamps. Consequently, these bird populations have declined roughly 30 percent during the same time waterfowl populations increased significantly. However, declines in biodiversity are not limited to bird populations.

In 2000, Congress recognized this challenge and created a new sub-account within the Pittman-Robertson Act known as the Wildlife Conservation and Restoration Program, which requires States to develop federally-approved wildlife action plan, or SWAPs. However, Congress currently provides approximately only 5 percent of the funding needed to implement these plans that are essentially roadmaps for biodiversity. Congress has the ability to address this disparity by pursuing solutions, such as the Recovering America's Wildlife Act that provides States with the resources necessary to implement these plans that States have been crafting at Congress's request.

We also have opportunities to support biodiversity by investing in solutions that support wildlife movement. As land use changes disrupt historic landscapes and limit the movement of enough individuals within a species population, many of these species' ability to migrate to habitat conditions that are capable of meeting their resource needs becomes impaired.

We applaud the committee for its bipartisan work last Congress and the development of the ATIA, specifically Section 1125, that would address approximately 2 million wildlife

vehicle collisions annually while enhancing habitat connectivity through existing programs.

There are similar opportunities to support aquatic resource conservation through programs like the Forest Service's Aquatic Organism Passage Program and NOAA's Habitat Restoration Grants.

Supporting programs that are built on collaborative conservation is also needed. Given that many of our most significant biodiversity and species conservation opportunities are found on privately-owned lands, we believe there are opportunities to better incentivize landowners to participate in voluntary programs, such as those authorized and funded through the Farm Bill's conservation title, Joint Ventures, the Partners for Fish and Wildlife program, among others. Newer programs such as Utah's Watershed Restoration Initiative and the Southeast Deer Partnership are also generating positive results.

In summary, CSF thanks the committee for holding a hearing on this important issue and for the opportunity to testify. Increasing efforts to address biodiversity loss is not only beneficial for fish, wildlife, and plants, but is also good for the American economy, sportsmen and women, and rural communities.

CSF encourages the continued support for existing programs that play a role in addressing these challenges, as well as support for new programs, such as the Recovering America's

Wildlife Act.

Thank you.

[The prepared statement of Mr. Treharne follows:]

Senator Carper. Thank you. Just for the record, how do you pronounce your last name, Andy?

Mr. Treharne. That's a complicated question, Mr. Chairman. My parents always told me that it was "tree-harn," but every time I meet somebody from Southern England or Wales, they told me it's pronounced "truh-harn," so I think my parents are probably incorrect.

Senator Carper. All right. They usually know best, but we are delighted you are here. Thanks so much.

I understand Senator Capito said you worked for a Senator from Colorado, Wayne Allard?

Mr. Treharne. Yes, Mr. Chairman.

Senator Carper. From my recollection, he was a veterinarian and still is, right?

Mr. Treharne. Correct.

Senator Carper. He would say to me, Senator Capito, that he takes care of the Lord's critters on this planet. That is what he said. Welcome. You worked for a good guy.

Next, I think we are going to recognize Senator Capito again, and I think she's going to introduce me to our final witness, Mr. Schmidt. Is it John Schmidt from?

Senator Capito. John Schmidt.

Senator Carper. John Schmidt from, is he from West Virginia, or which county?

Senator Capito. Elkins.

Senator Carper. Elkins, my God, where my mom was born. Guess it doesn't get any better than that. We are probably related.

Senator Capito. Maybe, maybe.

I am pleased to introduce my friend, Mr. Schmidt. We worked together for the last several decades, actually. He currently serves on the Board of Directors of PARTNERSCAPES, an organization with agencies, non-profit organization, and policy makers to collaborate on conservation projects through voluntary, incentive-based public and private programs. He recently joined the U.S. Fish and Wildlife Partners for Fish and Wildlife Program to control invasive species and promote pollinator habitat on his own land.

John, whose background is in biology, recently finished a lengthy tenure as U.S. Fish and Wildlife, having worked for the agency for 32 years in the Elkins, West Virginia field office. In that capacity, he worked closely with my team on conservation and permitting issues. It is always a pleasure having West Virginians testify before the committee.

We are both very glad that we have our visitor center up in the Canaan Valley Refuge that U.S. Fish and Wildlife helped us initiate and also cut the ribbon on. It is a beautiful spot.

John's important work with PARTNERSCAPES and the Partners

for Fish and Wildlife Program shows he understands the importance of landowners input in effective conservation policies.

So, I look forward to hearing your testimony, John. Thanks for joining us.

STATEMENT OF JOHN SCHMIDT, BOARD OF DIRECTORS, PARTNERSCAPES

Mr. Schmidt. It is a pleasure to speak to you, and I would like to thank Chairman Carper and you, Senator Capito, Ranking Member, and the other Senators and their staff for making this possible today.

Specifically, today, I would like to speak on the benefits of restoring the Fish and Wildlife Service's Partnership Fish and Wildlife Program and the great work it has done nationwide to keep private landowners working on their land and benefitting a multitude of native species. I have included three handouts today to provide further information.

I am privileged to represent West Virginia on the PARTNERSCAPES Board of Directors. PARTNERSCAPES is a national organization that connects private landowners with partner organizations to improve conservation efforts. The organization is led by landowners who want to conserve and sustain the land for their families and their communities, as well as the natural resources and wildlife that inhabit their respective landscapes.

What we hear time and time again is that more government programs need to be like the Partners Program. Partnerships are effective in bringing landowners and agencies together for a common purpose. When each party has skin in the game, joint projects are more successful. This is no different with our Partners projects.

Initially, in West Virginia, our Partners Program got off to a slow start, as it mainly offered technical support and funding to restore wetlands, whereas you can imagine, in the mountain State, most of our landowners prefer their already drained wetlands to stay that way so they could grow crops.

We picked up speed, however, and projects, and acres and miles of habitat when we began offering technical assistance to build fences to help keep cattle out of streams and forests. We provided alternative water sources so the cows didn't need to get into the streams, which improved their health and weight gain. The landowners also ended up with better grazing management, and taxpayers ended up with cleaner water, higher species diversity, and so on.

The Partners Program has two primary goals, one of which is to improve endangered species habitat and populations. The other is to assist the National Wildlife Refuge with their mission. These two priorities often overlap.

Fast-forward to my own experience: in this year, in 2021, my wife and I are fortunate to own some working forestland in Randolph County, not too far from Elkins. We purchased the land in 2018 and manage it for a multitude of plant and animal species. The majority of the forest supports a healthy stand of mature red oak, white oak, maple, and poplar.

Unfortunately, we have about 10 acres of young forest that

the understory is dominated by a number of invasive shrub species, like Japanese barberry, autumn olive, Tartarian honeysuckle, and of course, multi-flora rose. These invasives have crowded out and prevented the recruitment of native trees and shrubs and has minished the biodiversity on that 10 acres.

What to do? Of course, I called my former colleagues at the U.S. Fish and Wildlife Service and the USDA to see if their programs could assist me as they have assisted countless West Virginians with eliminating the threat to forest health from these invasives. While we were meeting onsite, the agency folks also pointed out the benefit of adding some pollinator habitat, and we are in the process of creating a one-acre plot of wildflowers and other forbs to benefit pollinators such as bees and moths and things like that. This addition will also benefit a multitude of games and non-game species and improve species diversity on my land.

The Partners Program in West Virginia has restored the following: upland acres that have been restored and enhanced, nearly 30,000 acres; wetland acres restored and enhanced, 733 acres; stream miles restored and enhanced, 138 miles, a lot of that in the Upper Potomac; stream miles reopened to fish passage, 491. That is from three dams removed on the West Fork River.

What next? To date, the West Virginia Partners

construction crews have completed over 2 million feet of livestock exclusion fence. The demand remains strong and should continue for the future.

Demand for instream restoration to restore fish and aquatic passage remains high. Not only will this increase population resilience in the face of a changing climate; it will prevent stream bank erosion, which adversely affect water quality and exacerbates downstream flooding.

Several low head dams in West Virginia are utilized in conjunction with water intakes for municipal water sources. Many of these systems now need costly repair, and key components are difficult to replace. The aging infrastructure creates an imminent risk to communities across the State. New technology exists for water intake structures that are more reliable and boost capacity without the need for expensive and dangerous dams. Removing the Hartland Dam in Clarksburg, for example, would create savings for the Water Board and its rate payers. More importantly, it would promote a healthy and diverse natural flowing ecosystem and expand local business opportunities by restoring safe access to river recreation.

Seventy-five percent of fish and wildlife species depend on private land for their survival. With 2.2 million square miles of land in private ownership, conservation and enhancing habitat for migratory birds, endangered species, and other federal trust

species, as well as the natural infrastructure is only possible through partnerships with private landowners. The Partners Program is a model for bringing private landowners and government agencies and funding together to solve shared concerns.

Thank you.

[The prepared statement of Mr. Schmidt follows:]

Senator Carper. Mr. Schmidt, thank you very much. Give our best to Elkins.

I think I will start off by asking my first question of Dr. Gerber. Dr. Gerber, are you still with us?

Ms. Gerber. Yes, I am.

Senator Carper. Oh, good. Thank you. Dr. Gerber, your testimony mentions the impacts of climate change on biodiversity decline and references an in-depth article entitled Climate Change and Ecosystems: Threats, Opportunities, and Solutions. We are interested in learning more about the linkages between climate change and biodiversity loss, particularly with respect to solutions.

Can you take a shot at that question, please? Thank you.

Ms. Gerber. Sure. Thank you, Mr. Chairman, for the question. Climate change, as many of you know has impacts on both the abundance and distribution of biodiversity. We have good evidence that climate change leads to range shifts in species. Species must adapt to the warming temperatures, and in some cases, are unable to adapt, so we are seeing a broad scale shifting of species ranges. In some cases, species are unable to adapt, and we are seeing increased risk of extinction for those species.

Some of the consequences that we have seen have to do with, for example, ocean warming and ocean acidification are great

examples of some of those consequences. We also, for example, recently with the California wildfires, have seen recent frequency and intensity of these extreme events cause by climate change.

The things that climate change, in terms of posing a risk, can provide us with, taking effective action includes reducing warming, and this would include reducing emissions, food waste, promoting plant-based diets, alternative energy, and reforestation, particularly in tropical areas. We can also begin to mitigate and adapt by establishing wildlife corridors to protect networks of habitat, and in urban landscapes, to establish green spaces.

The last thing I want to mention regarding climate change is that like many of the comments that have been made throughout today's hearing, climate change not only poses a risk for natural systems, but it also impacts biodiversity fundamentally, which indirectly influences human well-being, specifically our ability to provide food, pollination, medicine, flood protection, recreational opportunities, drinking water, clean air. So, there is an inextricable link between climate change and biodiversity.

Senator Carper. All right, Dr. Gerber. Thanks very much for your response to that.

My next question is for Mr. Sullivan, and then I am going

to yield to Senator Capito. Mr. Sullivan, you shared some compelling examples today of how habitat conservation plans have improved outcomes for species and efficiency for infrastructure projects.

I am always looking for win-win situations. This appears to be a real win-win situation. Habitat conservation funding is more prevalent, as you know, than it once was, but arguably, habitat conservation plans are still an under-utilized tool. Briefly, what do you think are the primary challenges preventing more widespread use of habitat conservation plans, and secondly, how might Congress be able to help address those challenges? Mr. Sullivan?

Mr. Sullivan. Sure. Thank you, Chairman. I think the challenges are that they are not necessarily well-known as a tool, even sometimes within the Service itself. It is embedded within the Endangered Species Act, Section 10, and many times, there is just not the promotion of them like there should be as a win-win tool, as you described.

I think there is a lack, sometimes, of funding and staffing for this program at the U.S. Fish and Wildlife Service, and I do think if there was more funding, in particular for staff within the regions, and sort of an effort by the Service to kind of market these out to stakeholders, because they do believe they are a very positive win-win solution.

There are examples that were highlighted in my testimony about highway projects and so forth and so on. We are stuck between negotiations between project proponents and the Fish and Wildlife Service and others, but got unstuck because of the Section 10 program, which is about finding a balance and a compromise.

Senator Carper. Thanks for your response to that question.

Senator Capito?

Senator Capito. Thank you. Mr. Treharne, I wanted to ask you about, I mentioned in my opening statement, President Biden's America the Beautiful Initiative, or 30 by 30, which sets a goal of conserving 30 percent of U.S. lands and water by the year 2030. I was wondering if the outdoor recreation, particularly the hunting and fishing community, was involved in the development of this report, and if not, what kind of suggestions, or what kind of caution flags would you be presenting?

Mr. Treharne. Thank you, Ranking Member Capito. The answer to your question really requires a little bit of history. We started to hear about 30 by 30 early in 2019 through State legislative actions. Those were particularly concerning, for some of the reasons you outlined in your opening remarks: lack of definition, creating a lot of uncertainty for those in our community.

At that time, we started looking into the 30 by 30 Initiative, and realized that at its most basic level, there is a lot in common with the conservation work that sportsmen and women do. However, the devil is in the details.

So the Congressional Sportsmen's Foundation worked with a number of partners which now total nearly 50 NGOs that are a part of a group called the HuntFish3030 Coalition. Through that entity, we have been proactively engaging administration to make sure that they are aware and understand our perspective on conservation, things like the importance of private land, non-regulatory approached, voluntary conservation, maintaining the integrity of sportsmen-driven conservation dollars, revenue.

Really, we came to a decision point because with that uncertainty surrounding 30 by 30 and the lack of definition, we either could stand on the sidelines and let that happen, and let others define conservation on behalf of our community. But we decided to come to the table and create some space for hunters and anglers to talk about how we support conservation and some of the things we have learned over the last 80 years since we have been doing it.

Senator Capito. Thank you, very complete answer. I appreciate that.

Mr. Schmidt, you have mentioned a couple things in you testimony, particularly on your own private lander ownership,

but I know in your capacity at U.S. Fish and Wildlife, you dealt a lot with private land ownership. As you know, as West Virginians, this is very much in our DNA in terms of protecting our own land and making sure that these solutions that we find are driven by what we as private landowners can contribute and preserve.

So I guess my point in bringing that up is, in order to improve the fish and wildlife habitat, you need to have the flexibility, I think, for the landowners. So why would you think, that with your Partners for Fish and Wildlife, you said it needs to grow, would be important in addressing this flexibility issue when you are looking at biodiversity loss?

Mr. Schmidt. Thanks for that question, Senator Capito. The flexibility is important because every landowner has different goals, and one size doesn't fit all, as we found out when we were just doing wetland restoration.

We have modified the program nationwide to include invasive species treatment, dam removals, instream work, as well as livestock exclusion and grazing management. Some of the best work we do is actually to put better grazing systems on the land so that the farmer makes more money, but the species diversity remains intact. As a matter of fact, it often improves when it comes to grassland species.

Landowners themselves, they want to help, and that is why

they've contacted us or the USDA, but it also has to work for them and their bottom line. In some cases, they want to pass this land on to the next generation, and they want to leave it in good shape.

Senator Capito. I think that is a good point. I think, in some ways, where we have kind of gotten hung up a little bit on this is, a lot of times, I think our local landowners and our folks who have been in the communities for years really are the best stewards of their own properties and know the best way to move forward.

When you start pushing down mandates from Washington and other places that don't fit with the local conservation plan or envisionment for your own property, that is where it really starts to rub people the wrong way. I know we went through this with the wilderness designation several years ago in West Virginia, and really ran up against a lot of people at the same time.

We have heard a lot about ESAs. If there were a tidal wave of potential ESA listings around the Country, what do you think that could mean in terms of economic development, environment, and also for the Fish and Wildlife Service itself?

Mr. Schmidt. Well, for economic development, it could slow things down, because currently, the staffing in a lot of our field offices is not high enough to meet the current demand, so

if we had more listings, then we would need more horses to pull the wagon, okay? It is not, we are not seeing that in the budget, and the Partners program is kind of like the, it is the restoration wing of the Endangered Species Program, and our endangered species biologists tell us where we need to work, and then we do that.

We also work on precluding the lists that need species, so for instance, butterflies. That was one that was due to be listed, had a strong potential, and we ended up doing enough work with private landowners and highway departments and such that we were able to preclude the need to list that animal.

Right now, the Service does not have the horses it needs to pull that wagon, if we have a regulatory approach. I think we need to continue to work with private landowners. I know PARTNERSCAPES is very concerned about 30 by 30 and what does it mean, for the reason you pointed out. We are trying to let folks know that there are a lot of private landowners who have already done a lot of good work to conserve habitat, and we want to make sure that it is counted.

Senator Capito. Right. I appreciate it, and thank you.

Senator Carper. Thanks, Senator Capito. I think Senator Ben Cardin from Maryland may have joined us from WebEx, my Delmarva buddy. Senator Cardin, are you there?

Senator Cardin. Well, thank you, Mr. Chairman. Let me

thank all of our witnesses. This has been an incredibly important hearing.

Biodiversity is critically important to the Chesapeake Bay, which I know the numbers of this committee will not be surprised to hear that I will mention during this hearing. Biodiversity, we have 3,600 different species that live in the Chesapeake Bay. We have over 11,000 miles of coastline on the Chesapeake Bay, and as a result of more severe weather conditions, we have seen a challenge on runoff that has affected the quality of the Chesapeake Bay and its ability to support biodiversity. We have real challenges.

I just really want to, if I could, Dr. Gerber, focus on one of those issues, which is wetlands. We have had some conversation about this. We have lost a lot of wetlands in the Chesapeake Bay through development and through sea level increases.

We have restoration programs. I want to mention just two, and then get your reaction as to what else we should be doing. We have reclaimed Poplar Island in the Chesapeake Bay, which was at one time, a habitable island which almost totally disappeared. We have done that through an environmental restoration, which includes the use of dredged materials to rebuild that island, and now supports biodiversity. It is a wonderful place to visit, but it also serves as an economic

engine for us being able to keep our channels open in the Chesapeake Bay.

The second project I want to mention is what is happening at Blackwater. Blackwater Wildlife Refuge is one of the great refuges in this region, located on the Eastern Shore of Maryland. It has lost a lot of its wetlands over the years as a result of sea level rises and other causes, but restoration efforts have been successful where we used dredged materials to rebuild wetlands, and it has worked. It costs some money to do this, to transport the dredged material to Blackwater is a little bit more expensive than putting it someplace else.

Poplar Island environmental restorations cost more up front, but they save us money over a longer period of time. I want to get your view of how important it is for us to restore islands such as Poplar Island or Blackwater Wildlife Refuge in an effort to have habitat that is critically important for biodiversity.

Ms. Gerber. Thank you, Senator Cardin. Wonderful work that you are leading in the Chesapeake Bay. I will add that I am by no means an expert on this region, but I will add a few comments.

I think my overarching comment is that the experience in the Chesapeake Bay demonstrates that conservation works, and when resourced, we can actually see impacts. I think it also

underscores the importance and the consequences of taking a collaborative inter-agency approach to working together to achieve these outcomes.

Thirdly, I think it underscores the importance of funding the programs that we strategically define as important. Regarding the Chesapeake Bay in particular, as you have discussed, the Bay faces a number of challenges, including excess nutrients, sediment from non-source pollution, invasive species, climate change.

Restoration is definitely, I agree that it is a viable approach to be taken here, because it increases the diversity, the population and distribution, and diversity of endangered species. It also enhances landscape connectivity and benefits human well-being because, as we have discussed previously, healthy ecosystems, clean water, air, and soil, are good for both people and wildlife.

A number of federal restoration projects led by many federal agencies, including NOAA, EPA, and Fish and Wildlife Service have restored coastal areas in the Bay that have been impacted by human development, and they have seen the return of wildlife that has previously been believed to have been lost.

Some of the most recognizable restorations in and around the Bay have been those of oysters. I have always been impressed with oysters, which are natural filter feeders and can

clean water. The factoid that I like to talk about with oysters is that each adult filters 50 gallons of water per day, providing food and habitat for one of the region's most valuable fisheries.

So I thank you, and I support the work you are doing in the Chesapeake Bay.

Senator Cardin. Mr. Chairman, I would invite members of the committee to join me to visit Poplar Island and see, it is not far from here, and see firsthand how we have restored biodiversity in reclaiming the Bay. The Army Corps is supporting the mid-bay, which is the next chapter of environmental restoration with dredged materials. It is a real success story.

Thank you very much, Mr. Chairman, and thanks to the witnesses.

Senator Carper. That is great news, Ben. Thank you, and Dr. Gerber, thank you for your closing comments there.

We have been joined by Senator Whitehouse and Senator Padilla. I think they are both with us on WebEx. Sheldon, I think you are next, and then Senator Padilla will be after him, after Senator Whitehouse. Sheldon, go ahead.

Senator Whitehouse. Thank you, Chairman. Chairman Carper and I both also sit on the Finance Committee.

I just want to flag for any colleagues who may be

interested that as we go through trying to reform our tax code to get rid of some of the crummy ways that it has been used to help special interests at the expense of regular taxpayers, if we can help reinforce the advantages for durable conservation easements, I am all in on that and would love to work on that in bipartisan fashion.

Mr. Treharne, your testimony talks about protecting river habitat by restoring dams and improving culverts in some of the man-made interruption of river flow. We are obviously working on this a lot in Rhode Island. We have a lot of small dams, and I have been working for years to try to figure out a solution to efficiently allow States to address the problem of particularly small dams, which in a lot of places, aren't really owned by anybody any longer.

You have to go through a process that is not that different from damming the Columbia River to remove a dam on a little local stream or river, and you have to deal with a whole lot of title and liability issues. We have got to work on a way to solve that.

I think we have a way to solve that, but we just haven't been able to get it done yet. So I would like to invite you to help us solve the problem of how to remove small and sometimes dangerous, usually obsolete dams that obstruct so many of our important rivers. Are you in for that?

Mr. Treharne. Absolutely, Senator. One thing that I think this committee can take a lot of credit for is the passage of the National Fish Habitat Partnerships, which will support the National Fish Habitat Action Plan moving forward. I think those types of groups would be very interested in talking with you. I would be happy to connect you with them and see how their mission overlaps with what you are trying to do.

Senator Whitehouse. Good. This is my longest-lasting frustration in the Senate. Sometimes little things can take a long time to get done, so I look forward to working with you.

Dr. Gerber, you were good enough to mention oceans, and specifically, coral reefs. Could you just give us, for the record of the committee, an overview of the biodiversity calamities that are happening, in many respects, out of our human sight in the oceans, where we are visitors and not customary inhabitants? Particularly if what is predicted for coral reefs happens, which is that ocean acidification and ocean warming, driven by fossil fuel emissions, more or less wipes them out, what that does to the pace of biodiversity collapse in the oceans?

Ms. Gerber. Thank you, Senator Whitehouse, for the opportunity to talk about reef systems, which is actually my area of expertise.

Regarding the issue of climate change and coral reefs, we

see a number of impacts. One, as you mentioned, the coral structures are unable to adapt to the increase in temperature, so what we are seeing is widespread bleaching of coral reefs. In addition to the loss of the coral reefs themselves, we are seeing a loss of the structure that provides habitat for entire ecosystems biodiversity.

The other thing that I think is relevant to bring up here is that in terms of impacts of climate change on marine systems, we are also seeing impacts of climate change on the extent to which organisms move in the ocean. With warmer temperatures, we see more rapid metabolic processes, and so less movement, for example, between larval stages occurs. This has broad implications for the way we manage the ocean, because these marine organisms have adapted to having this life cycle where the larvae live in different areas than the adults, and that provides some resilience to extreme events.

So, by this reduction in movement patterns, we actually are seeing less resilience in marine systems.

Senator Whitehouse. So, in a nutshell, biodiversity in the oceans is a serious problem, and it is going to get rapidly worse if coral reefs vanish as a piece of the environmental infrastructure.

Ms. Gerber. Absolutely.

Senator Whitehouse. Great. Thanks for helping us remember

oceans, and thank you, Chairman, very much.

Senator Carper. Senator Whitehouse, thank you for helping us remember the oceans as well.

Senator Padilla, I believe might be next, and Senator Padilla, I think, is joining us on WebEx. Alex, are you there?

Senator Padilla. Yes, thank you, Mr. Chair. I want to raise a couple of issues and questions with Mr. Sullivan from California.

You highlighted, Mr. Sullivan, in your testimony the proposal to create the Western Riverside County National Wildlife Refuge in Southern California, east of Los Angeles. California, as you know, is one of the most biodiverse places in the world, with thousands and thousands of species. As you noted, the proposed refuge would directly protect 147 species, 33 of which are threatened or endangered.

This area of Southern California is also in need of sustainable development. It is a densely populated area with inequitable access to nature and open spaces, particularly for working class communities and communities of color.

So I am hoping you can expand on your testimony and share with us your thoughts on how the proposed wildlife refuge can help us meet multiple policy priorities here. Number one, helping protect biodiversity of the area, which you know has multiple environmental benefits, while also enabling responsible

and sustainable development, and third, helping improve not just access to nature and wildlife, but more equitable access to the outdoors.

Mr. Sullivan. Yes, thank you, Senator, for the questions and the opportunity to respond. Those are great questions.

It is complicated when you are trying to balance all these different biodiversity versus public access versus affordable housing, and a lot of the challenges that we face in California and other parts of the Country. I agree with you that sustainable development is the goal, and how we plan responsibly is key.

Some of the old development models haven't worked very well. They were autocentric and focused on people sprawling out on the landscape. So how do we balance all this? I think it starts at the local level. The locals know best of where to define where development can go. Development that is avoiding those biological hotspots, and then identifying those biological hotspots and protecting them, which is what this proposed refuge designation is proposing.

The locals and the local scientists and the implementers of the West Riverside HCP have identified this area as important to achieving the objectives of their habitat conservation plans, so the locals have sort of worked with the Federal Government to identify this area. I think the way the Feds can help is by

approving this designation, and also for increasing funding through the ESA Section 6 Program to assist HCPs across the Country protect the Nation's biodiversity hotspots.

With access, parts of the refuge could be open to the building, interpretive exhibits and tours can educate visitors in the importance of biodiversity. Refuge staff and local biologists could implement and adopt a school program to get kids involved in nature. Residents and schoolchildren can help at the refuge volunteering for habitat restoration and projects and general maintenance.

So it is basically trying to empower the community to adopt the refuge and work collaboratively. The refuge doesn't necessarily have to be a place that is off-limits to people and how you can kind of integrate the community with the refuge and the refuge with the community. That is sort of the intent of sustainable development anyways.

To echo some of the things that John Schmidt was saying about working with private landowners, we do that all the time here. We work with ranchers; they are an important component of implementing a local approach to conservation. Then on the other side, working with local municipalities to encourage them to develop more sustainably. Thank you.

Senator Padilla. Thank you.

Thank you, Mr. Chair. Much to follow up on.

Senator Carper. Senator Padilla, great to be with you again for the second time today, and thank you. I look forward to seeing you on the Floor later when we vote.

We have been joined earlier today by Senator Ernst, and she serves on a number of committees as we all do. I appreciate very much her stopping by, although she was unable to stay until we had an opening for questions, but we thank her for coming.

Senator Boozman was also here, and he is co-chair of the Senate Caucus on Recycling and an active member of this committee. We appreciate him stopping by.

I thank Senator Kelly for joining us and introducing one of our witnesses.

I have a couple questions to go; when I get to the end of these questions, if someone else has joined us, either remotely or in person, I will yield to that Senator. That will be about five or ten minutes from now.

A question, if I could, for the entire panel. The subject deals with the importance of federal funding. Each of you, in your testimony, talks about the importance of federal funding for conservation programs, including for the North American Wetlands Conservation Act for the Partners for Fish and Wildlife Program, and for implementation of our Nation's wildlife protection laws.

Again, a question for each of you, and the question is:

would you each elaborate on the importance of federal funding for wildlife conservation? The second part of the question is: what do we stand to lose when we underfund these programs? Let me repeat that: would you each elaborate on the importance of Federal funding for wildlife conservation? Second half of the question: what do we stand to lose when we underfund these programs?

Ms. Gerber, would you like to go ahead? Go for it, Dr. Gerber.

Ms. Gerber. Thank you, Mr. Chairman, for the opportunity to comment on this important issue of funding for conservation.

Globally, we need, best estimates indicate that we need approximately \$76 billion to protect biodiversity. At present, this is less than .01 percent of the annual GDP. In the U.S., the annual costs for recovering endangered species that we have estimated from reviewing of recovery plans is approximately \$1.2 billion per year.

At present, approximately 20 percent, only 20 percent, is allocated to the agencies for engaging in recovery planning efforts. Just for context, this 20 percent is approximately 1 percent of the annual cost for food waste in the U.S. I think a theme that we have discussed throughout the hearing is that biodiversity conservation programs will work if the agencies responsible for implementation are actually funded. So it is of

utmost important that we begin to provide adequate funding to these agencies.

Furthermore, recognizing that there are multiple priorities with federal funding, there are scientific approaches that allow us to make transparent and objective decisions about which species are at highest priority to protect, whether this be species that have a high chance of recovery or species that are really on the verge of extinction.

Also, I think that adopting a prioritization approach to facilitate transparent decisions, employing this return on investment approach can really enhance the outcomes that we are seeing in the U.S. regarding biodiversity conservation.

To your question about what we stand to lose, again, recognizing that there are many competing priorities that the Federal Government is faced with. I think we underscored the importance of biodiversity conservation to our economy and to our well-being.

Balancing these priorities, I think it is really important to think about or to recognize that when you lose a species, it is forever, so we can't go back. We can't go back. If we lose a species, that is it. So I think we need to sort of raise the bar on and how we are currently managing endangered species so that they are adequately funding these programs, given the current crisis that we are faced with. Thank you.

Senator Carper. Thank you, ma'am.

Just a really quick, you can just give me a yes or no answer, but your testimony and others offered today also mentioned the importance of collaboration between all levels of government and stakeholders. Would you agree, Doctor, that robust federal funding helps our natural resource agencies be better partners?

Ms. Gerber. Absolutely, and I will give you an example of that.

I worked for about five years with the U.S. Fish and Wildlife Service to develop a prioritization approach to facilitate decision-making around which species we should implement recovery actions for, given the limited budgets. As we have discussed, these agencies are faced with backlogs of candidate species. They simply don't have the resources to take the actions or engage in any kind of strategic or prioritization exercises.

Taking this collaborative approach, of course, between the scientific and academic sectors, private sectors, and government sectors to try to identify these collaborative, inclusive processes for how we move forward with addressing this crisis are absolutely essential.

I would like to underscore my experience in this project that I just mentioned with working with Fish and Wildlife

Service. We spent years working on an approach called the Recovery Explorer Tool that is now published on our website. It is fully available. It allows for transparent decision-making, and the agency's, the Fish and Wildlife Service, is so understaffed that they don't even have the ability to take the tool on to use it.

So despite the desire of many conservation biologists and agency scientists to work together to solve these problems, there are such scarce resources that we are not able to move the needle forward, so with additional funding, agencies would have the capacity to actually be ahead of the game in addressing this problem, as opposed to drinking out of a fire hose, which is the current situation.

Senator Carper. All right, thank you. Thank you.

Mr. Sullivan, same series of questions. Would you elaborate on the importance of federal funding for wildlife for conservation, and secondly, what do we stand to lose when we underfund these programs?

Mr. Sullivan. Yes, thank you, Senator Chairman.

I would echo what Dr. Gerber said, so I will address the second question first. We stand to lose a lot, and once it is gone, it is gone.

We don't even understand what the consequences of those losses are. The ecosystem is intertwined, species are very

dependent upon each other. To make it even anthropocentric my position is with plants, a lot of the plants could be the future cure for cancer, so when we lose these, they are gone forever.

To your first point, yes, funding is key. I understand there is a lot of pressures on the Congress and the administration and how to allocate resources. I feel for too long there has been a lack of investment in nature's infrastructure. I know this committee deals both with the physical built environment as well as the natural environment, and I think there has been an underinvestment in both areas.

So from our standpoint, funding for staffing, as I said in an earlier response to a question, for Fish and Wildlife is critical. It is also funding for land acquisitions, management, a lot of times, management is underfunded. There isn't money to do invasive species management. There isn't money for the restoration programs that some of the speakers have spoken to about today.

So funding those things will help with, hopefully, stemming some of the biodiversity loss from a Section 6 perspective, which helps fund HCPs. We certainly would like more funding in that program, which has been underfunded for decades now, for helping HCPs with land acquisitions.

There is also a lot that can be done to improve our highway systems for wildlife, and funding for wildlife crossings, both

land bridges and undercrossings. There are examples across the United States and the world. The most famous that a lot of people know about, is Highway 93 in Montana and Highway 90 going through the Cascades. There are projects here, and looking at doing improvement of wildlife connectivity over Highway 101 in California. There are certainly the examples of Banff up in Canada.

So those are areas where I think when we are funding infrastructure, it is also how do we fund infrastructure for wildlife, why do we provide a value for ecosystem services, and I appreciate the question. I am in the business of conservation, so obviously I am asking you for funding for these things, but I appreciate this opportunity to make this pitch.

Senator Carper. Thanks, Mr. Sullivan.

Andy Treharne, would you please respond to the same two questions I have asked of our other witnesses? And here is the question: would you please elaborate on the importance of Federal funding for wildlife conservation; and secondly, what do we stand to lose when we underfund these programs?

Mr. Treharne. Thank you, Chairman Carper. I think the importance of federal funding is wide-ranging, but I also think it deserves some context.

There are a lot of State dollars that go into conservation, as well as private sector dollars. But the reality is that the

Federal Government investments in conservation and in the environment have not kept track with the growth of the Federal Government in other areas. Function 300, which is the baseline for the environment and conservation and outdoor recreation programs and Federal budget, is, I think between 1980 and 2010, overall Federal spending grew a 130.

But Function 300 grew something like 2.1 percent during that same time period. So I think that illustrates some of the challenges we are dealing with and competing priorities that other witnesses have mentioned.

In terms of consequences, I think there are a lot of consequences. One is, in addition to the ecosystem services and the potential loss of those that benefit people, I think we risk losing a human connection to nature and understanding it. I get that through hunting and fishing; others get it different ways. But it has been part of the nature of human beings for a very long time, and I am not sure we will be pleased with the results without it.

One other potential consequence, and I can provide an anecdotal example, one time I was at an event with a State Fish and Wildlife Agency Director, and I saw him looking at his phone, reading emails and shaking his head. I asked him what was going on, and he said we just got our Section 6 award for the State's portion of endangered species work that we are

doing. He said, they just said we got awarded \$1,200, and they had invested significantly more than that in the program.

In addition to the lack of resources that were provided, pursuant to his work on a federal policy issue, Federal Trust Species, I think that type of thing also damages the partnerships that many have highlighted so well today, the fact that all of these folks can come together through these really solid programs that deliver positive results for fish and wildlife. The risk of losing that, when partners aren't contributing at the level they should, has some pretty severe consequences as well.

Senator Carper. Mr. Treharne, thank you very much.

I am going to ask John Schmidt to respond briefly to the same two questions. Again, I will just repeat them, Mr. Schmidt. Would you elaborate on the importance of Federal funding for wildlife conservation; and secondly, what do we stand to lose when we underfund these programs?

I am running out of time, but I wanted your opinion, just briefly, on those two questions. The importance of Federal funding for wildlife conservation and what do we stand to lose when we underfund these programs. Go right ahead, Mr. Schmidt.

Mr. Schmidt. Thank you, Chairman Carper. I will make it short.

The economy is a wholly owned subsidiary of the

environment, and part of that environment is Fish and Wildlife resources, and all the non-game species that depend on them for their food and the rest of us for our enjoyment. So that is a short answer to your number one.

The second part is, what we lose is opportunity. We lose opportunity to work with folks that own the vast majority of the habitat we wish to make better. So if we don't have adequate funding, we lose the opportunity to save species, to protect habitat, and to help private landowners do good things with their land, which helps our communities.

Senator Carper. Thank you, sir.

One last question I have. I think Mr. Sullivan may have commented on that, the issue of wildlife crossings. I am going to ask Andy Treharne, if you would, to comment on this as well. I think, in your testimony, Mr. Treharne, you mentioned the importance of habitat connectivity. You expressed support for wildlife crossing provisions that this committee reported unanimously as part of the transportation bill we reported out in the last Congress.

I think that was the first time ever in a highway bill we included such comprehensive language to address quite a number of things as an important issue.

Mr. Treharne, briefly, would you elaborate on the importance of addressing wildlife vehicle safety and habitat

connectivity, and specifically, the importance of integrating these solutions throughout a highway bill, please?

Mr. Treharne. Yes, thank you, Chairman Carper. The reality is that, as I said in my testimony in my opening remarks, there are about 2 million vehicle collisions with large animals across the Country each year.

This is not only a human safety issue; there is also a cost to taking those animals off the landscape, whether it is because you like to look at them or for biodiversity, or because somebody would have otherwise purchased a hunting license and harvested one to feed their family. It is a public safety issue. With so many emerging challenges we are facing, wildlife needs to be able to move, especially migrating wildlife.

One of the pleasures I have had in my life was serving on the Habitat Stamp Committee for the State of Colorado, which directed funding to some projects. During that time, there was some wildlife crossing work going on on Highway 9. Large animals collisions were something like 35 percent of all reported crash types on that highway.

It is up in the mountains at a higher elevation. Very dangerous, and sportsmen and women chipped in a lot through their support of State Fish and Wildlife Agency, working with CDOT to develop that project. It has had a 90 percent reduction in wildlife-vehicle collisions. Other species are using it:

mule deer, elk, turkeys, mountain lions, coyotes, river otters.

So there is a lot of opportunity to build this infrastructure and incorporate it into larger programming and existing programming, too. Things like the Federal Lands Transportation Program, Federal Lands Access Program, as I mentioned in my testimony, Section 1125 from ATIA, those are all great things that can be helpful for biodiversity as well as public safety in a highway bill.

Senator Carper. All right. Thanks for your response to that question, Andy. Again, give our best regards if you come across Dr. Wayne Allard, also former Senator Wayne Allard, give his our best. His friends here in the Congress, Democrats and Republicans alike, send their best to him.

I really want to thank Dr. Gerber, I want to thank the real Ed Sullivan, and Andy Treharne and John Schmidt for joining us today. We may have some follow-up questions for the record, but if you do receive those, I really ask that you respond to them.

It has been a good hearing. Over half of our committee, I think, has joined us either in person or virtually, and people, I am sure, have some follow-up questions. We would ask you to respond to them as soon as you can.

In my opening statement, I talked about just how high the stakes are when it comes to biodiversity loss. It bears repeating again. We have a moral, as well as an existential

imperative to come together and take action on this vital issue. It is no overstatement to say that our lives and our livelihoods and those of our children and their children hang in the balance, so I am proud that we have been able to meet today to examine how we might tackle this critical problem.

I am hopeful that today's conversation is not the end, but the beginning of our work together this Congress as we build further on the committee's reputation as an effective, bipartisan committee of workhorses. You have all heard the term showhorses. We like to think of ourselves in this committee as workhorses, and I believe we are.

Couple of closing housekeeping items. I would ask unanimous consent to enter into the record the following written testimonies, letters, and statements, as well as other supplemental materials relevant to today's hearing topic. They include a statement from Dr. Thomas Lovejoy, Dr. Lee Hannah, also a written testimony from Dr. Gabriela Chavarria about pollinator loss, and a letter from World Wildlife Fund about how the Big Cat Public Safety Act addresses biodiversity challenges. Is there objection? Hearing none, so ordered.

[The referenced information follows:]

Senator Carper. Senators will be allowed to submit questions to our witnesses for the record through close of business on June the 2nd. We will compile those questions and will send them on to our witnesses. We ask our witnesses to reply by June the 16th.

My script here says that, I am supposed to, at this point, to say the hearing is adjourned, but I am not quite ready to do that. A very clever staff, probably with some input from our Republican friends, has, at my request, looked to see if there is anything in song that relates to today's hearing. I mentioned, to the real Ed Sullivan, who is one of our witnesses today, Edmund Sullivan, I asked my staff to take a look at one of the folks who, one of the groups that was on the Ed Sullivan Show when I was in college, I think.

The Beatles, there's a species themselves, with some interest to all of us. Ladybug is the State bug from Delaware, by the way, but I asked my staff to take a look and see anything in the Beatles' repertoire that reflects biodiversity. As it turns out, remarkably, there are more than a few songs. I mentioned one of them, I Am the Walrus, another is Blackbird, Blackbird, Singing in the Dead of Night, Norwegian Wood, Isn't It Good, And Your Bird Can Sing, Bluejay Way, Rocky Raccoon, Mother Nature, Son, Everybody's Got Something to Hide Except for Me and My Monkey, Octopus's Garden, and the playlist goes on.

For some of us, in my generation, that is a playlist of my life.

With respect to life, if we don't look after it, if we don't focus on biodiversity and root causes of the threat to biodiversity, our lives are, I don't mean to be overly dramatic, but our lives and the lives of the people we care about are threatened.

We can do something about it. I am encouraged in this committee, we are committed to doing that.

With that, I think this hearing is adjourned. My thanks to everyone who has participated. I want to thank our Republican colleagues that were here on my right, and the Democratic staff, the majority staff, directly behind me, and everybody that has worked on this hearing today.

For those of you as witnesses who joined us in person and from afar, thank you very much.

Good luck, God bless, see you soon. And with that, this hearing is adjourned.

[Whereupon, at 11:42 a.m., the hearing was adjourned.]