The Outdoorsmen's Guide to Climate Change: America's Original Conservationists' Role in Tackling the Latest Conservation Challenges

Introduction

For generations, America's sportsmen and women have led the charge in the conservation of our nation's fish and wildlife resources. The efforts of these conservation-minded hunters, anglers, and trappers resulted in the creation of our state fish and wildlife agencies, the development of the North American Model of Wildlife Conservation, the American System of Conservation Funding, and the passage of numerous pieces of landmark state and federal legislation. In turn, this has led to the successful restoration and management of many species that were once imperiled due to overharvest driven by commercial exploitation, habitat loss, and several other challenges. Today, our resources face a new threat in the form of climate change. As the ongoing and growing effects of climate change continue to become more widely recognized, we must take actions to address their impacts on our nation's fish and wildlife resources, and our ability to pursue our time-honored traditions.

Fortunately, there exists tremendous opportunity for our nation's original conservationists to play a key role in efforts to address the effects of climate change while simultaneously benefitting the activities that each of us hold dear. Using many of the concepts and practices that are already supported and implemented by wildlife managers to address the impacts often attributed to climate change, with support from the sportsmen's community, we are taking steps to improve the quality and availability of wildlife habitat, support efforts to increase biodiversity, and benefit rural communities who rely on outdoor recreation – particularly hunting and angling – to support their economies. Likewise, we must work with our elected officials to support efforts to address concerns related to the effects of climate change while protecting and advancing opportunities for sportsmen and women.

As we seek to address the conservation challenges before us, sportsmen and women must also be vigilant to threats from those who seek to limit our ability to participate in our cherished outdoor endeavors and threaten the wise management of our public trust resources under the guise of climate change mitigation. To that end, it is critical that we thoughtfully engage in conversations about climate change by communicating the positive effects that conservation and active land management can have on both the climate and outdoor recreation opportunities.

Below is an outline of policy priorities that CSF is actively pursuing to address the conservation challenges often associated with climate change in support of our fish, wildlife, and natural resources while remaining true to our mission to protect and advance hunting, angling, recreational shooting, and trapping.

Biodiversity and Additional Sources of Conservation Funding

30 by 30 Initiative – The Biodiversity Component of Climate Change:

The effects of climate change on our fish and wildlife resources are numerous and diverse. To effectively address these challenges, we must focus our conservation efforts on the specific issues that we are trying to correct. For example, the effects of climate change have exacerbated declines in biodiversity by creating suboptimal conditions for many species that were already struggling. The changes can range from increased temperatures that can interrupt typical ecosystem functions to outright loss of habitat as conditions become unfavorable. Out of the need for efforts to address the impacts of climate change on our nation's biodiversity have come concepts like the Thirty by Thirty Initiative.

The "Thirty by Thirty Initiative" (30 by 30 Initiative) has identified a goal of protecting 30% of the planet's lands and waters by the year 2030 and is linked to global land and water protected area targets established by the United Nations Convention on Biodiversity (CBD). America's original conservationists, sportsmen and women are a powerful and integral part of protecting and enhancing our nation's treasured fish, wildlife, and natural resources. Through their activities, sportsmen and women understand better than anyone the pivotal role that healthy fish and wildlife habitats play in protecting and enhancing biodiversity, and we have been actively advocating for, and funding, habitat restoration and biodiversity conservation for more than 100 years.

In response to the rollout of the 30 by 30 Initiative, CSF organized a coalition of hunting and fishing conservation organizations to develop a statement that reflects our valuable contributions to biodiversity conservation and that ensures the interests of sportsmen and sportswomen are incorporated into policies intended to advance 30 by 30 goals.

We recognize and embrace the overlap between our collective work to conserve fish and wildlife species and their habitats – particularly in the face of stressors such as those caused by climate change – and the establishment of ambitious global biodiversity conservation principles by the 30 by 30 Initiative. While levels of human activity in land and water management strategies can vary greatly, only those strategies that target identified conservation needs with measurable outcomes will be effective. We will support 30 by 30 policies that truly seek to build on the conservation successes that we have guided for the last century, but they must recognize existing management actions that currently afford protections. These policies must also identify additional conservation needs and actions through an objective, science-driven, stakeholder-engaged process to determine the appropriate level of management necessary to meet biodiversity conservation goals while maximizing public access to wildlife-dependent activities.

To learn more about the community statement, how hunters and anglers are the foundation of biodiversity conservation in the United States, or for more information on the global 30 by 30 Initiative, visit HuntFish3030.com, which was created by CSF as a repository for educating hunters, anglers and policymakers on the important role our community has and will play in conserving biodiversity.

Recovering America's Wildlife Act:

As outlined above, CSF believes that efforts attempting to address the impacts of climate change will be most effective when they focus on specific problems facing our fish and wildlife

resources, such as habitat loss and declining biodiversity. Fortunately, legislation such as the Recovering America's Wildlife Act (RAWA) seeks to accomplish both objectives by providing nearly $1.4 billion in critical funding to state agencies for the implementation of practices designed to address these challenges. As an added benefit, many of these efforts that would be supported by RAWA – particularly those related to supporting healthy plant communities that provide quality habitat for wildlife – will inherently contribute to carbon sequestration through their natural processes.

CSF continues to support state fish and wildlife agencies as the entity best equipped to make wildlife management decisions given their professional training and intimate knowledge of each states' diverse ecosystems. When addressing the impacts of climate change, which too are unique across ecosystems, specialized approaches will often be more effective than large-scale programs. With this in mind, it is clear that each state's fish and wildlife management agency is equipped with the resources necessary to design and implement solutions to address state and regionally-specific needs.

While the American System of Conservation Funding has long been the primary funding source for most state fish and wildlife management agencies, declining participation in hunting and angling, and thereby funding limitations, highlighted the shortcomings of this System. Rather than becoming a replacement, RAWA would serve as a complement to the ASCF by allowing state agencies to address the growing needs of all our nation's fish and wildlife resources. Though originally charged primarily with the management of game and fish, the role of state agencies in the management of our nation's public trust resources has grown. While sportsmen and women were the original – and continue to be some of the most active – conservationists, our contributions alone are not enough to adequately address the challenges that have only been exacerbated by the effects of climate change.

The ASCF will continue to serve as the primary source of funding for the management of our nation's game species, while RAWA funds would be used to address the specific needs of species identified in each of the State Wildlife Action Plans (SWAP's). Though RAWA-supported projects would be largely focused on those species (both game and non-game) of greatest conservation need, the generalist nature of many of our nation's game species would allow numerous other species to benefit from the habitat improvements initiated by these projects. This would not only add further value to the projects themselves by indirectly contributing to anticipated conservation successes in the face of climate change, but many projects would also contribute to carbon sequestration efforts which would have benefits that extend far beyond the geographic area in which the project was focused.

On-The-Ground Efforts to Address the Effects of Climate Change

Incorporation of Climate Considerations into State and Federal Forest Management Practices:

Forests often take center stage in climate change discussions due to their well-recognized ability to sequester and store significant amounts of atmospheric carbon. However, conservationists should be wary of efforts that advocate for passive, hands-off forest management strategies in the name of climate change. Rather, sportsmen and women and other conservationists should seek

opportunities to promote active forest management as appropriate to address the challenges caused by our changing climate.

The most obvious role of forests in the climate change conversation is to serve as a carbon sink. This concept can be broken down into two separate topics: carbon sequestration and carbon storage. Interestingly, while forest carbon sequestration and storage rates vary among forest cover types, young forests generally sequester carbon at higher rates than mature forests. On the other hand, mature forests play an important role in carbon storage, and thus managing for forest landscape level diversity is critical to increasing the ability of forests to sequester carbon while also maintaining carbon storage capabilities. Carbon sequestration and storage are also influenced by species composition and stand structure, and employing sustainable timber management practices like harvesting, thinning, or timber stand improvement can promote regeneration of important tree species and increase diversity. These diverse working forests contribute to healthy landscapes that provide sustainable forest products and promote forest retention, together creating forest ecosystems that sequester and store carbon and are more resilient to the effects of climate change.

In addition to their role in sequestering and storing carbon, properly managed forests can be a great source of quality wildlife habitat for a variety of species. Much research has been devoted to identifying the conditions that best suit the needs of a variety of species and the management practices needed to create those conditions. As conversations around efforts to maximize biodiversity across the nation continue to gain momentum, this understanding of wildlife habitat management within our nation's forests will continue to receive attention. As conservationists, it is our duty to work with land managers and policymakers to ensure that the role of active forest management in the creation and management of quality wildlife habitat it not overlooked.

Proponents of passive forest management often cite the carbon released through active forest management practices such as harvesting operations as a primary reason to avoid such activities. While it is true that these activities can result in a short-term net release of carbon, these activities are often necessary to reset the forest's successional stage and create the proper conditions to support the regeneration of the target plant community. Therefore, most timber management schemes are referred to as regeneration methods, rather than harvest methods. These activities not only assist in the creation and management of quality wildlife habitat as described above, but set the stage for young, diverse forests that can generally increase the overall carbon sequestration rates as compared to passive forest management, while growing into the next generation of usable and sustainable forest products for the benefit of our economy and society.

For forest management to be an effective part of the climate change solution, forest management actions must be carefully considered to ensure they are appropriately meeting resource needs and management objectives. In support of policies that promote these considerations, CSF has worked at the state and federal levels to advocate for active forest management on private and public lands to improve forest resiliency and benefit wildlife habitat.

At the federal level, CSF has supported legislation and regulations that would address the red tape and litigation that limits forest management on U.S. Forest Service (USFS) and Bureau of Land Management (BLM) lands. For example, CSF supported the USFS's proposed National Environmental Policy Act revisions to streamline the agency's environmental analysis process and equip the agency with expanded tools, including categorical exclusions for forest restoration and wildlife habitat work. Similarly, CSF supported the Resilient Federal Forests Acts which would have improved the ability of the USFS and BLM to manage timber resources and prohibited attorney fees from being awarded for actions challenging forest management activities. Additionally, CSF supported proposed rules that would clarify the U.S. Fish and Wildlife Service and National Marine Fisheries Service's Endangered Species Act consultation requirements with the USFS and BLM, which would remove ambiguity caused by the Cottonwood decision that has been the basis for numerous lawsuits across the country that hinder forest management projects. Likewise, CSF supports the Forest Information Reform Act which would clarify consultation requirements to stop the litigation stemming from Cottonwood.

Healthy forests are more resilient to the effects of climate change. A forest with structural and species diversity can recover more easily from disturbances and is at less risk for catastrophic wildfire than unmanaged or overstocked forests. Maintaining forest health ensures forests can sequester and store carbon, and CSF supports policy that facilitates active forest management on multiple-use federal lands to improve forest health.

Carbon Markets:

Like the concept of wetland and stream mitigation credits, carbon credits provide industries and large organizations with an opportunity to purchase "credits", generally equivalent to one ton of carbon, from private landowners or other land managers who have implemented practices specifically designed to sequester carbon. These credits are designed to incentivize landowners to maintain these practices while offsetting carbon emissions generated by the organization purchasing the credit. The forestry and agricultural sectors provide significant potential for sequestering and storing atmospheric carbon dioxide and can therefore generate carbon credits that, if done thoughtfully, can provide quality wildlife habitat and other environmental benefits; sequester significant amounts of atmospheric carbon; and generate revenue for the landowner implementing appropriate conservation practices. Given the increased interest in private sector solutions to address the effects of climate change, the efficacy of carbon credits should be evaluated.

Currently, most carbon credit programs focus on the potential for carbon sequestration in America's timbered lands. As discussed above, America's forests do provide a great opportunity to implement climate change actions in conjunction with other conservation actions. However, forests are not the only properties that are used for the generation of carbon credits. For example, the agriculture industry can generate carbon credits through no-till farming practices, reduction in nitrogen fertilizers, native grass plantings or trees planted in shelterbelts, and much more. As is the case with active forest management practices, these actions on America's working lands

can also result in improved water quality, healthier soils, and improved wildlife habitat, especially for many pollinators and ground nesting birds.

Though carbon markets are not necessarily a new concept, CSF is working with partners, state agencies, and legislators to evaluate these carbon credit programs using the best available science. Our goal is to ensure that these programs allow opportunities for landowners and managers to incorporate active management practices to ensure that properties generating carbon credits are successfully achieving carbon sequestration goals while simultaneously providing quality wildlife habitat and other essential ecosystem functions. For example, CSF is currently working in Indiana to address issues with proposed carbon farming legislation. Specifically, we have asked for a feasibility study to be conducted to identify interest among key stakeholders while supporting allowances for active management on public lands enrolled in the program to ensure that forest sustainability and wildlife management goals are also being met. In Michigan, CSF is working with the Michigan Department of Natural Resources (DNR) to remain up to date on the DNR's progress in the implementation of their carbon credit program in the Pigeon River Area. Finally, CSF is also in discussions with other state fish and wildlife management agencies regarding future program concepts to ensure that carbon credit programs can meet multiple land use objectives (i.e., carbon sequestration, wildlife habitat, sustainable timber production, etc.).

Prescribed Fire:

In wildlife habitat and forest management circles, there is an inherent appreciation for management practices like prescribed fire. As a management tool, prescribed fire can be used to arrest and reset succession in the plant community to maintain and promote the presence of plant species that provide quality food and cover for game species. Further, the practice can be used to promote the establishment of ecologically and economically important timber species, like many oaks, that rely on periodic disturbance for a competitive advantage. This topic has received increase focus of late due to data supporting the "mesophication" hypothesis in forested ecosystems. According to this hypothesis, fire suppression is leading to plant community shifts and increased moisture levels within those communities which, in turn, make it more difficult to implement prescribed fire and promote fire-adapted plant communities and quality wildlife habitat. Finally, prescribed fire can be used to control the accumulation of fuels that, if allowed to build, can contribute to the intensity and severity of wildfires.

Prescribed fire as a management practice has largely overcome the historic fear of all fires that impaired its use for decades. However, some have recently cautioned against its use due to the release of carbon as plant materials (a.k.a., fuels) are consumed. While prescribed fire does result in an immediate release of carbon, it is important that we consider not only this immediate release, but account for the potential increases in future carbon sequestration through fire's role in promoting increased plant regeneration and growth. At the same time, we need to recognize prescribed fire's role in limiting large scale releases of carbon caused by natural disasters. For example, studies have indicated that the amount of carbon released during a prescribed fire can be acceptable while using prescribed fire to mitigate the risk of destructive and dangerous wildfire that, themselves, release tremendous amounts of carbon into the atmosphere. As climatic

changes lead to increases in the frequency and severity of wildfires, it is critical that practices that can reduces the risk of wildfires are not only permissible, but often encouraged.

As outlined above, CSF supports opportunities to enhance the responsible use of active management practices like prescribed fire. In recent years, we have worked closely with state partners to enact laws that would establish prescribed burn manager certification programs and mitigate liability concerns among landowners in Missouri and New Mexico. Likewise, we will continue to work with partners to share information highlighting the benefits of prescribed fire for both wildlife and forest health in many ecosystems across the nation.

Working Lands Conservation Programs and Practices:

While management practices on state and federal lands are critical to the success of carbon management programs, particularly in the Western United States, there is no question that private lands programs will be essential to the success of any program attempting to offset the effects of climate change. Be it through carbon sequestration efforts or habitat improvements designed to increase biodiversity, our nation's private landowners hold the key to the implementation of climate solutions. To incorporate this important sector, CSF continues to support the development and implementation of voluntary, incentive-based programs that encourage private landowners to incorporate conservation practices on their properties. While carbon markets represent a lucrative tool, it is also important to consider the voluntary private lands conservation programs that are already being implemented throughout the country.

Such conservation programs include those funded through the United States Farm Bill, the largest source of private lands conservation funding in the country. Through programs like the Conservation Reserve Program, Regional Conservation Partnership Program, Agricultural Conservation Easement Program, and the Environmental Quality Incentives Program, and several more, landowners have a plethora of options. While each is designed to serve a primary purpose – namely to benefit soil health, water quality, wildlife habitat, and a variety of other conservation goals – these programs inherently contribute to carbon sequestration efforts by promoting the growth of native plant communities comprised of perineal, deep-rooted species that efficiently capture and store atmospheric carbon. Legislators interested in promoting voluntary, incentive-based contributions by our nation's private landowners should explore opportunities to strengthen these programs. CSF has worked closely with agency officials and mission partners in support of the expedient and ongoing implementation of Farm Bill conservation programs, and we will continue to be engaged in conversations to maintain the strength of these programs in support of conservation-minded landowners, sportsmen and women, and the wildlife resources who benefit most from these conservation efforts.

While the general availability of conservation programs under the Farm Bill's conservation title are important, so too are programs that are more narrowly focused in their objectives. For example, the North American Wetlands Conservation Act (NAWCA), and the associated North American Waterfowl Conservation Plan, provide the framework by which continental wetland conservation goals can be met using stakeholder-driven approaches at the regional level. As part of 2020's American Conservation Enhancement Act (ACE Act), a major priority for CSF and the

Congressional Sportsmen's Caucus, NAWCA was reauthorized at $60 million annually for a period of five years. In addition to the wildlife conservation benefits realized through the success of NAWCA, wetland conservation efforts supported by this program result in significant environmental benefits related to nutrient cycling and carbon sequestration. However, wetlands are not the only type of ecosystem that stand to benefit from this kind of approach. Given the historical success of NAWCA, legislators should consider similar programs focused on other ecosystem types, such grasslands, that are built upon the NAWCA by engaging state and federal agency officials, regional stakeholders, and nongovernment partners to address conservation challenges – particularly those that can help address the effects of climate change and promote biodiversity – using science-based approaches applied at the regional level.

While each of the conservation programs mentioned above result in noticeable direct benefits for the ecosystems in which they are employed, it is just as important to acknowledge the regional benefits that can result from these and other practices. For example, the installation of native plant communities and the restoration of historically present wetlands adjacent to agricultural lands can result in the capture and fixation of nutrients like nitrogen that are commonly found in commercial fertilizers. While these fertilizers are beneficial on working lands, their runoff and eventual deposition in our nation's waterways and Gulf Coast region has contributed to hypoxic zones that are now devoid of the biodiversity once abundant in these regions. CSF and our partners recognize these added landscape-scale benefits, further strengthening our support for these and other conservation programs. In addition to our ongoing role in support of these conservation policies, CSF continues to take steps to become increasingly engaged on working lands conservation issues in support of our nation's sportsmen and women and the natural resources that we all hold dear.

Communities Facing Current Challenges

Climate Change and Fisheries:

Most fish species have a relatively narrow temperature range in which they thrive, and even subtle changes can have impacts on populations. As such, there is no doubt that warmer water resulting from climate change will create management challenges for many of our recreationally important fisheries. Further, fish habitats, particularly in the Mississippi River Delta of Louisiana, have experienced decades of alterations that have impacted the ability of coastal ecosystems to respond to many of the latest conservation challenges. These include the effects of subsidence as coastal plant communities have been shrinking throughout much of the region due to the channelization of our major rivers that allows sediments to be conveyed out to sea rather than nourishing and replenishing these marsh communities. Additionally, the high nutrient loads of the Mississippi River from America's working lands (see above) create a large hypoxic zone in the Gulf of Mexico (Gulf) each year, effectively displacing fish populations from suitable fish habitat over large parts of the northern Gulf. Fortunately, there are opportunities to address some of those impacts through existing programs and processes that enhance aquatic habitats and better manage fish stocks.

One example is the National Fish Habitat Conservation Through Partnerships Act (NFHP) which was authorized as part of the America's Conservation Enhancement Act of 2020. The bill Congressionally authorized the National Fish Habitat Partnerships (NFHP) and the National Fish Habitat Board and $7.2 million in funding. CSF was part of a small legislative team that has been working on realizing this legislation for more than a decade. Currently, 20 fish habitat partnerships, which are state and locally driven, cover the entirety of the United States and focus on priority habitat restoration projects and areas in need of protection that were identified through an unprecedented national assessment of our streams, rivers, and estuaries. This assessment already provides a roadmap for conserving and increasing aquatic resource biodiversity and climate change resiliency. CSF will continue to support the NFHP program through appropriation requests and point to the program as the best vehicle to implement "30 by 30" efforts related to aquatic resource conservation.

Another opportunity to address the impacts of climate change on aquatic ecosystems rests with our nation's coastal wetlands. Coastal and estuarine habitats serve as critical nursery areas for marine fisheries and are vital for reducing the severity of tropical storm surges on coastal communities. In Louisiana, where the rich Mississippi Delta feeds some of the most productive fisheries in the northern hemisphere, coastal marsh lands have been subsiding for decades due to the highly "plumbed" Mississippi River sending the Big Muddy's vital sediments and nutrient loads out to sea rather than spilling into the estuary and replenishing the marsh. The rate of subsidence is expected to increase as sea levels rise. Similarly, the Everglades in south Florida have severely suffered from highly controlled water diversions to benefit agriculture and flood control, which require frequent nutrient-loaded discharges to the east and west coasts that can result in toxic algal blooms. Equally problematic, this south Florida water management system has robbed the "Sea of Grass" from the historic freshwater flow southward into Florida Bay. The resulting increase in salinity in Florida Bay has had significant negative impacts on fisheries that rely on high quality, lower salinity waters for juvenile survival. Fortunately, Mississippi River diversions into Louisiana's coastal marshes are showing great promise for reversing marsh subsidence. Additionally, the Comprehensive Everglades Restoration Plan is finally well underway towards restoring the south Florida and Everglades ecosystems. CSF will continue to actively support these coastal restoration efforts in Congress and locally at the state level.

Furthermore, marine fish stocks are already seeing the impact of warming ocean waters. For example, there has been a measurable northward shift of black sea bass in the Atlantic. Likewise, in the Pacific Northwest, the increased frequency and duration of warm nearshore waters have had significant negative impacts on out-migrating salmon and steelhead smolts, resulting in much lower numbers of fish returning years later. The already complex system of marine fisheries management will become increasingly more complex as stocks shift to new areas or decline in others. CSF will stay engaged in the fisheries management process, both federally and at the state level, to ensure management decisions are not merely precautionary, but are based on sound science and continue to provide recreational fishing opportunities.

Habitat Connectivity:

While efforts to address and adapt to the effects of climate changes continue to be a top priority, the conservation community must also explore opportunities to assist wildlife communities as they adapt to changing ecosystems. Thanks to technological advances in fish and wildlife tracking and global positioning systems, researchers have been able to better document and understand the importance of migration patterns for fish and wildlife. With this growing understanding, we are increasingly aware that many iconic fish and wildlife species – including many important game species– have been and continue to be negatively impacted by a variety of factors. This includes changes in the quality and availability of habitat and – particularly for migratory species – obstructions and movement barriers further contribute to habitat fragmentation. For many of these species, the effects of climate change, which have included changes to water levels, altered growing and dormant seasons, intensified and altered weather patterns, and more, continue to exacerbate these issues by further reducing habitat availability for both terrestrial and aquatic species.

Though the sportsmen's conservation community continues to support efforts to restore habitat for many fish and wildlife species throughout the country, direct efforts to benefit migratory species are of special importance. To survive various seasonal conditions, these species must migrate to new areas to meet their needs. As a result, impediments to their ability to complete these migrations pose a significant threat to the long-term success of these species. Migration routes are also important to predator populations that rely on migrating species for food. This is most noticeably demonstrated by Alaskan brown bears that consume migrating salmon prior to the bears hibernation.

CSF recognizes that emerging science reinforces previous findings that migratory fish and wildlife populations have specific requirements that assist in the successful transition from one area to another. Additionally, CSF recognizes that anthropogenic modifications have altered communities and, in some cases, led to unintended consequences that have limited the successful navigation of migration pathways. While a changing climate has broad impacts across the globe, efforts to enhance habitat connectivity and address the impacts of development and climate change is becoming increasingly important for the health and future of many fish and wildlife species. For these reasons, CSF has incorporated migration corridor conservation into our climate change programming to provide decision-makers with accurate and timely information about ongoing efforts and future opportunities to conserve fish and wildlife habitat based on each species' unique needs. Efforts to support habitat connectivity and incorporate new technologies like wildlife overpasses will ensure that species are better positioned to adapt to the effects of a changing climate.