

A Path Forward

by Eric Washburn and John Cooper

Rapid, profound and global in scope, climate change is bringing about a new era in the natural world -- an era that isn't different simply in degree, but different in kind. Assisting fish and wildlife adapting to this unprecedented challenge requires a comparably unprecedented shift in the way wildlife professionals perceive, plan and implement their projects. Fortunately, many state and federal agencies, sportsmen's organizations and concerned private corporations recognize the magnitude of the threat and are responding with bold steps. Here are a few examples.

The Natural Resources Climate Change Adaptation Panel's adaptation strategy

Under the leadership of the chair of the White House Council on Environmental Quality and consisting of federal department or agency heads, the panel is developing the Natural Resources Climate Change Adaptation Strategy to enable natural resources to become more resilient, adapt to and withstand the impacts of climate change and ocean acidification.

The U.S. Department of Interior climate change initiative

The department has created

- a national Climate Change Response Council and eight regional centers to synthesize new climate change research and management strategies, intra-bureau communications and public education
- a network of Landscape Conservation Cooperatives crafting practical, landscape-level strategies focused on wildlife migration patterns, wildfire risk, drought and invasive species

The U.S. Geological Survey's National Climate Change and Wildlife Science Center

The Center acts as a conduit between science and management by linking physical climate change models with ecological and biological responses in the landscape. It also funds integrated climate change research for a wide range of projects.

The Fish and Wildlife Service's Strategic Plan for Climate Change

The service's climate change plan provides direction to the agency's refuge managers and other wildlife professionals as they respond to new scientific, technological and implementation challenges associated with assisting fish and wildlife adapting to climate change and with educating the public about this phenomenon. By 2020 the service intends to be a carbon-neutral agency.

The U.S. Department of Agriculture's strategic plans

Responding to the dramatic effects of climate change on national forests, including a four-fold increase in major forest fires and a six-fold increase in burned areas in just two decades, the U.S Forest Service is implementing strategic plans aimed at enhancing the adaptive capacity of natural resources. Goals include managing for ecosystem function, protecting biological diversity, establishing habitat buffer zones, increasing monitoring

and implementing science-based management projects that improve the resilience of natural systems.

Western Governors' Association Wildlife Corridors Initiative

Recognizing that climate change threatens key wildlife corridors, the initiative will coordinate and manage all Western Governors' Association corridor programs, projects and advocacy positions. By acting aggressively now, this initiative will assist wildlife as it responds to climate changes, land use changes, expanding roads and railways systems, renewable energy projects, power grids and oil and gas development.

Freedom to Roam, a private sector migration corridor project

Initiated by the Patagonia Clothing Company, Freedom to Roam is tapping expertise in some of the country's most successful companies, including Microsoft, British Petroleum, Wal-Mart, Southern California Edison and National Geographic, to partner with many of the nation's top conservation groups. The project serves as a catalyst for large-scale migratory corridor initiatives, creates broad national awareness of wildlife corridors and expands funding for projects that enhance habitat connectivity.

Boone and Crockett Club's principles of action

The Boone and Crockett Club's principles of action on climate change include funding habitat damage mitigation and wildlife population adaptation, accelerating conservation and restoration of forests and rangelands to sequester carbon and prevent uncharacteristic wildfires and investing in energy conservation and technologies that reduce emissions of greenhouse gases into the atmosphere.

Ducks Unlimited's climate change programs

Realizing that climate change has the potential to dramatically and adversely affect North America's wetlands and waterfowl populations, Ducks Unlimited has been at the forefront in educating its membership and Congress. The organization has encouraged public and private investment in the protection, restoration and enhancement of wetlands in locations predicted to be productive even as the effects of climate change become increasingly severe.

Theodore Roosevelt Conservation Partnership's Climate Change Working Group

The Theodore Roosevelt Conservation Partnership (TRCP), a coalition of numerous hunting and fishing organizations as well as labor unions, established the Climate Change Working Group to develop and promote policies to ensure the future of hunting and fishing in the face of a changing climate. Toward that end, the partnership has developed its *Principles for Including a Natural Resources Adaptation Fund within Cap-and-Trade Climate Legislation to Help America's Fish, Wildlife, and Ecosystems Survive Global Warming*.

Sportsmen's coalitions

A broad coalition of national sportsmen's organizations supports establishing a dedicated stream of new funding for state and federal conservation programs to address climate change. Appendix A contains copies of the most recent sportsmen's letters to members of

the U.S. House of Representatives and the U.S. Senate. These efforts have already been productive, as many of the bills introduced into Congress to reduce greenhouse gas emissions, including the Waxman-Markey bill that passed the full House of Representatives in June, 2009, have included billions of dollars in funding for fish and wildlife conservation.

International conservation programs

The long-term survival of fish and wildlife that migrate across national boundaries depends on the protection of habitat throughout their migration corridors. International conservation initiatives like the North American Wetland Conservation Act (NAWCA), which is based on international cooperation, will become increasingly critical to the protection of these species.

The High Cost of “Doing Nothing”

Climate change threatens every aspect of our environment, including water, air, oceans, wetlands, rivers and streams. Too often, however, and to our great peril, the natural environment and the critical services it delivers to the world’s economies are ignored. The loss of any portion of these services or of related outdoor activities would be stunning to human economies. For example, in letters to Congress dated April 9, 2009, a consortium of sportsmen’s organizations noted that

- wetlands and coastal marshes provide inland communities with flood control and storm surge protection valued at \$23 billion annually
- the national forest system generates nearly 20 percent of the nation’s water supply, an annual value of \$7.2 billion
- outdoor activities such as fishing, hunting, hiking and camping, if combined into a single business, would rank in the top 10 Fortune 500 companies
- one out of twenty jobs in America is related to fishing, hunting or wildlife-related goods and services
- a survey conducted in 2006 showed that 87 million Americans were involved in outdoor recreation, spending \$120 billion

Benefits that ecosystems provide have an estimated annual value of \$300 billion in the United States alone and between \$3 trillion and \$26 trillion across all of the world’s economies. (Pimentel et al., Costanza et al., 1997).

There are no substitutes for these ecosystems and the services they offer, no other suppliers of fresh water nor distributors of wetlands. To do nothing to protect these irreplaceable resources from the consequences of climate change will put them on track for destruction and human societies in queue for chaos.

A New National Conservation Commitment

Over the past 100 years, generations of Americans have devoted themselves to restoring and conserving our country’s natural resources. Presidents as well as the U.S. Congress have played significant roles in conserving the resources that are essential to our nation’s

food, shelter, economic viability and spiritual wellbeing. Congress now has a new and ominous conservation challenge to address: passing legislation that

- 1) achieves significant near-term reductions in carbon pollution of the earth's atmosphere
- 2) provides incentives to sequester carbon in soils and plants
- 3) creates a dedicated funding mechanism to safeguard wildlife and natural resources threatened by climate change

Substantial funding will be essential if ecosystems are to continue to provide the goods and services that humans depend on for their survival and quality of life. Although studies have not determined the full cost of conserving species and ecosystems in the face of climate change, federal, state and non-governmental conservation organizations estimate that it will be between \$5 billion and \$7 billion annually. This tally combines what is currently known and what is forecast regarding the consequences of climate change and the cost of a "reasonable response" by the professional conservation community. The following are some of the high priority projects that will be required:

- Developing comprehensive, multi-year strategies for conserving at-risk natural resources affected by climate change
- Delivering adaptation solutions through existing conservation programs, pursuant to science-based strategies and plans
- Integrating climate change adaptation projects into State Wildlife Action Plans (SWAP) to attain consistency within each state's comprehensive wildlife strategy
- Creating a national scientific advisory board to ensure the scientific integrity of federal adaptation planning, research and implementation
- Addressing the needs of Native American tribes dealing with the consequences of climate change on their land and water resources
- Reducing other, non-climate stressors such as habitat destruction, fragmentation, pollution and invasive species to improve the ability of our natural systems to withstand or adapt to climate change
- Managing for ecological function and protection of biological diversity to increase resilience to climate change
- Establishing habitat buffer zones and wildlife corridors to improve connectivity so that species can migrate and shift ranges as needed
- Implementing proactive management and restoration strategies as necessary to protect highly valued species or ecosystems when other options are insufficient or unavailable
- Promoting and facilitating project implementation even under the uncertainty associated with climate change. Careful monitoring coupled with management approaches that acknowledge these uncertainties will be required.

The \$5 to \$7 billion price tag necessary to respond to climate change's effect on natural ecosystems is substantial, but the expenditure is highly cost-effective. The value of those resources easily reaches the hundreds of billions of dollars annually making those resources as fundamental to a healthy economy as roads, utilities and energy. Congress'

commitment to the protection of these irreplaceable assets is the essential first step on the nation's path forward in the era of climate change.

Cutting Greenhouse Gases, Saving Fish and Wildlife

Most debate related to greenhouse gases in Congress has focused on an approach called cap-and-trade. This approach has the following components:

- The federal government would establish caps, or annual limits, on emissions of greenhouse gases for regulated industries such as oil companies or fossil-fuel-burning electric utilities.
- Companies within these sectors would purchase annual permits from the federal government that would allow emissions up to the capped levels.
- Carbon credits would be generated by sources that reduce greenhouse gases, such as farmers who sequester carbon in the soil, conserve plants in wetlands or plant perennial grass or shrubs on their farm lands.
- Regulated companies could buy, sell or trade these credits among themselves or could purchase additional credits to offset any carbon emission above their cap.
- The marketplace would establish the price or value of the credits (e.g., \$15 per ton of emitted carbon dioxide).

All of the major greenhouse gas control programs in place today are based on the cap-and-trade concept. The international Kyoto Protocol is a cap-and-trade system, as is the European Union (EU) emissions trading scheme (ETS). In the United States, the Regional Greenhouse Gas Initiative (RGGI) was developed by several New England and mid-Atlantic states to cap and trade CO₂ emissions from power plants. RGGI now involves 10 states. California also is developing a cap-and-trade system to limit emissions of greenhouse gases. Nevertheless, it is unclear when or if Congress will adopt such an approach for the entire country.

Funding for Fish and Wildlife

Many of the cap-and-trade bills that have been introduced into Congress in the last few years are very promising for sportsmen because they allocate billions of dollars annually for conservation programs. A summary of climate change legislation introduced into the U.S. House of Representatives and the U.S. Senate in recent years is provided in Appendix B. While differing on the merits of competing national climate change bills, the nation's leading hunting and fishing organizations broadly support taking some action to reduce emissions of greenhouse gases and providing billions of dollars in new funding for critical conservation work annually.

On June 26, 2009, the House of Representatives passed the American Clean Energy and Security Act (ACES), which established a cap-and-trade system to reduce greenhouse gases and authorizes and funds natural resources adaptation programs. That legislation requires state and federal conservation agencies to develop detailed plans to help species adapt to climate change and would fund those plans annually with billions of dollars through a range of existing conservation programs including

- state game and fish agency programs

- the North American Wetlands Conservation Act
- the National Fish Habitat Action Plan
- the Land and Water Conservation Fund
- national forests and grasslands
- Bureau of Land Management lands
- national wildlife refuges
- national parks
- Fish and Wildlife Service easements
- federal and state freshwater, coastal and estuarine conservation programs

To fund these programs, the bill creates the Natural Resources Climate Change Adaptation Fund, which would assist federal and state agencies to implement natural resources adaptation strategies and measures. Funding for these programs would come from the annual auctioning of carbon allowances (permits), with the adaptation programs receiving 1 percent from 2012 to 2021, 2 percent from 2022 to 2026 and 4 percent from 2027 to 2050. This is expected to produce annual funding beginning at roughly \$600 million per year and ramping up to nearly \$5 billion per year. Annual conservation funding would average \$1.7 billion between 2012 and 2030. As of December, 2009, the U.S. Senate had yet to act on climate change legislation.

Appendix: Sportsmen Letters to Congress on Climate Change

American Fisheries Society * American Fly Fishing Trade Association * American Sportfishing Association * Association of Fish and Wildlife Agencies * B.A.S.S. * Berkley Conservation Institute * Campfire Club of America * Ducks Unlimited * International Hunter Education Association * Izaak Walton League * Mule Deer Foundation * National Wildlife Federation * National Wild Turkey Federation * Northwest Sportfishing Industry Association * Pheasants Forever * Quail Forever * Quail Unlimited * Quality Deer Management Association * Sand County Foundation * The Nature Conservancy The Wildlife Society * Theodore Roosevelt Conservation Partnership * Trout Unlimited Wildlife Forever * Wildlife Management Institute

April 20, 2009

Dear U.S. Representative,

Our organizations represent millions of hunter and angler conservationists, scientists, and outdoor enthusiasts, and we write you today regarding the urgent need to address the effects of climate change on the natural resources of this Nation and quality of life of our citizens. Scientists now generally agree that the concentration of heat-trapping gases already in the atmosphere is causing and will cause significant adverse impacts to the environment. Thus, a comprehensive government-wide program must address not only the cause of climate change, but also the effects of the climate change we already are facing and which will accelerate in coming years.

This challenge should be met through a comprehensive effort to 1) reduce emissions of greenhouse gases, 2) enhance sequestration of carbon, and 3) assist fish and wildlife and the ecosystems on which we all depend to adapt to climate change. There appears to be a strong and growing national commitment to reducing greenhouse gas emissions and establishing programs to encourage carbon sequestration. We are writing to encourage you to help ensure that sufficient revenues are dedicated to the task of making the conservation investments necessary to protect America's natural ecosystems and the services and products that these ecosystems provide the nation, including the fish and wildlife that inhabit them.

As you consider the climate change legislation that is moving through the several House Committees, we hope that you will support provisions dedicating a portion of climate-derived revenues to federal and state natural resource adaptation programs to remediate the effects of climate change on fish, wildlife and their habitats.

Functioning ecosystems are critical to the future of life on this planet. They provide a wide range of life-sustaining services in the form of clean water, clear air, and other benefits that determine the quality of human life. Ecosystems can significantly capture carbon through sequestration, thus being part of the climate change solution by reducing carbon levels. In addition, functioning ecosystems provide quality habitat that sustains fish and wildlife, provides other vital natural products, and thus provides billions of dollars in direct economic benefits.

For example, wetland systems such as coastal marshes and mangrove forests attenuate floods and buffer coastal and inland communities from storm surges. A recent study estimates that wetlands provide \$23 billion annually in services. Further, one of the primary reasons for the creation of the National Forests was to “secure favorable conditions of water flow”. The U.S. Forest Service estimates that the total value of high quality fresh water flowing from National Forest System lands in terms of instream and offstream uses exceeds \$7.2 billion annually. These lands contribute nearly 20% of the Nation’s water supply, and in the western U.S. more than 50% of the region’s water supplies. Approximately 60 million citizens rely on water flowing from NFS lands for their drinking water.

Additionally, natural resources and their use make enormous contributions to our national, state and local economies. The combined economic contribution of outdoor activities such as fishing, hunting, hiking, camping and other forms of wildlife-dependent recreation, if combined into one business, would rank in the top 10 Fortune 500 companies. One out of every 20 jobs in this country is related to fishing, hunting and wildlife-related activities, goods and services, and these activities stimulate 8% of all consumer spending. The 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation reported that over 87 million Americans pursued outdoor recreation in 2006 and spent \$120 billion that year on those activities. Without adequate resources to adapt to climate change impacts, these changes are likely to significantly undermine this economic engine.

State fish and wildlife agencies, federal natural resources agencies, and non-governmental conservation organizations will be instrumental in implementing conservation strategies to mitigate the impacts of climate change on fish and wildlife resources and their habitats. Hunters and anglers strongly support the legislative approach to natural resources adaptation that is currently reflected in Chairman Waxman’s Discussion Draft Title IV, Subtitle E, Part 1, Subpart C – Natural Resource Adaptation. This approach, which parallels the approach by Congressmen Dingell and Boucher in 2008, is broadly and strongly supported in the conservation and environmental communities and represents language which matured over the last 2 years in the 110th Congress. We urge your strong support for this provision, which dedicates revenues to state and federal natural resource agencies to implement on-the-ground conservation responses.

In conclusion, we respectfully urge that you support the dedication of a portion of climate-derived funding to state and federal natural resource adaptation programs to remediate the effects of climate change on fish, wildlife and their habitats. A modest investment of climate-derived revenue is small compared to the long-term dividends it will pay for the quality of life for our citizens, the delivery of ecosystem services, our fish and wildlife, and the security of our Nation.

Thank you.

American Fisheries Society * American Fly Fishing Trade Association * American Sportfishing Association * Association of Fish and Wildlife Agencies * Berkley Conservation Institute * Campfire Club * Dallas Safari Club * Ducks Unlimited * Houston Safari Club * Izaak Walton League of America * Mule Deer Foundation * National Trappers Association * National Wildlife Federation * Pheasants Forever * Quality Deer Management Association * The Wildlife Society * Theodore Roosevelt Conservation Partnership * Trout Unlimited * Wildlife Forever * Wildlife Management Institute

September 21, 2009

Dear Senator,

On behalf of the millions of organized sportsmen and women and conservation professionals from across the country, we urge you to work with your colleagues to ensure that the Senate passes comprehensive climate and energy legislation this year. In order to safeguard fish, wildlife, and their habitats which also provide for ecosystems services and quality of life for our citizens, we urge that legislation must include both reductions of greenhouse gas emissions and dedication of an adequate and appropriate amount of the total carbon allowance value for natural resources adaptation programs at the federal and state levels.

Hunting, fishing, and wildlife related recreation generate more than \$172 billion annually in economic activity at the state and local level, which equates to 1% of the gross domestic product. Climate change poses an immediate and profound threat to fish and wildlife, and the healthy natural systems that provide us with clean drinking water, flood protection, food, medicine, timber, biomass, recreational opportunities, scenic beauty, jobs, and numerous other services. Given these threats, climate legislation must both reduce greenhouse gas emissions *and* invest in our natural resources so that they will continue to provide substantial social and economic benefits for generations. State, federal, and tribal fish, wildlife and land managers are critically short of funding needed to effectively respond to the combination of these challenges to help safeguard our natural resources in a changing climate. The adaptation effort will be substantial, and adequate resources are necessary in order to be successful.

Our federal public lands are more important than ever in maintaining sustainable ecosystems that deliver services to our citizens, reduce carbon in the atmosphere through sequestration, and maintain viable populations of fish and wildlife with associated quality hunting and fishing opportunities. Public lands also provide crucial habitat linkages and connective migration corridors for fish and wildlife and their management should be directed towards climate change adaptation by the federal land management agencies.

The state fish and wildlife management agencies and the federal land management, natural resources management, and agriculture agencies will be critical components in a viable national climate change strategy and should receive dedicated funding to implement natural resource adaptation measures and strategies to remediate the effects of climate change on fish, wildlife and their habitats. It is equally important that these agencies engage the private farm, ranch, and forest landowners with technical assistance and financial incentives to reduce emissions and sequester carbon on their lands. In fact, it will be critical to ensure that management of state, federal, tribal, and private forests is conducted in a manner that maximizes their resiliency to climate

change and reduces the future likelihood of intense fires that can put enormous quantities of carbon dioxide into the atmosphere when released from trees and soils.

We need not create new state or federal bureaucracies to receive and administer funds for natural resources adaptation to be implemented consistent with national and state adaptation strategies to be developed under the provisions of a comprehensive climate and energy bill. Existing programs such as the Wildlife Restoration Act, Sportfish Restoration Act, Coastal Management Act of 1972, and Land and Water Conservation Fund of 1965 already have established procedures, rules, and accounts capable of getting money to the agencies efficiently. Further, a USDA administered offset program would encourage farmers and landowners to implement carbon sequestration activities through land management and conservation programs. For example, the restoration of grasslands and protection of native prairie will sequester tons of carbon on private lands while greatly enhancing nesting habitat for waterfowl and other grassland nesting birds. This approach of protecting, reconnecting, and restoring landscapes will have significant benefits for human communities. Protecting high elevation drinking water supplies will reduce water filtration costs. Reconnecting rivers to floodplains will reduce downstream flooding costs. Restoration activities such as thinning unnaturally dense forest stands near communities will provide high paying, family-wage jobs while insulating communities from the effects of intense wildfires. Use of this harvested cellulosic biomass can also enhance our reliance on renewable energy, thus further reducing carbon emissions.

As the Senate develops comprehensive climate and energy legislation, your leadership is needed to get the job done this year. Please ensure that the climate legislation you consider in the Senate both reduces greenhouse gas emissions and safeguards natural resources, fish, wildlife and our own communities threatened by the changes already set in motion by changing climate effects. Specifically, any Senate bill should establish a national policy framework to help protect, reconnect, and restore public and private lands; provide increased scientific capacity; identification of wildlife migration corridors; coordination and information sharing; and dedicate an adequate amount of the total allowance value to federal, state and tribal agencies to implement identified actions needed to conserve natural resources in a climate change bill. We are appreciative of the natural resource adaptation funding levels in the House-passed bill, and urge you to increase those funding levels if at all possible. We further acknowledge the advocacy of other sportsmen's groups for consideration of the need for and role of other low-carbon based energy sources in a comprehensive climate and clean energy bill.

Thank you for your consideration of this most important issue.

Boone and Crockett Club - Foundation for North American Wild Sheep -
Quality Deer Management Association - Archery Trade Association -
Campfire Club of America National Wild Turkey Federation - Public Lands
Foundation - Wildlife Forever - Houston Safari Club - Dallas Safari Club -
Pope & Young Club - National Trappers Association - Catch-A-Dream
Foundation - Mule Deer Foundation

September 15, 2009

The Honorable Barbara Boxer
Committee on Environment and Public Works
United States Senate

The Honorable James M. Inhofe
Committee on Environment and Public Works
United States Senate

The Honorable Blanche Lincoln
Committee on Agriculture Nutrition and
Forestry
United States Senate

The Honorable Saxby Chambliss
Committee on Agriculture Nutrition and
Forestry
United States Senate

The Honorable Max Baucus
Committee on Finance
United States Senate

The Honorable Chuck Grassley
Committee on Finance
United States Senate

The Honorable Jeff Bingaman
Committee on Energy and Natural Resources
United States Senate

The Honorable Lisa Murkowski
Committee on Energy and Natural Resources
United States Senate

The Honorable Jay Rockefeller
Committee on Commerce, Science, and
Transportation
United States Senate

The Honorable Kay Bailey Hutchison
Committee on Commerce, Science, and
Transportation
United States Senate

The Honorable John F. Kerry
Committee on Foreign Relations
United States Senate

The Honorable Richard G. Lugar
Committee on Foreign Relations
United States Senate

Our organizations share a common mission of wildlife conservation. Through the hard work and financial contributions of millions of Americans, we have built a system of wildlife conservation in North America that has restored wildlife populations and habitat, and is a model for the entire world. Part of this tradition is that we work together for common results across our diverse interests and views. As such, we believe in order for a climate change policy to succeed, it must protect and build on America's investment in wildlife and habitat, address forest and rangeland health, conserve water resources, and maintain a strong economy while reducing greenhouse gases. Although we do not have consensus on a climate change bill, we do agree on the following principles:

- Fund habitat mitigation and wildlife population adaptation;
- Accelerate conservation and restoration of forests and rangelands (including grasslands and native prairie) to sequester carbon and prevent uncharacteristic wildfires;
- Invest in energy conservation and technologies that reduce emissions with minimal habitat footprint; and
- Maintain affordable energy sources; ensure that private and public land fragmentation does not result from higher input costs.

We also recommend Congress' attention to several specific considerations.

Wildlife and habitat conservation agencies and organizations have the track record of success on the ground to justify a strong role in delivering the land management that will play a vital role in any climate policy. Funding for conservation efforts should be delivered through existing programs. Furthermore, these conservation programs require greater funding to keep pace with other challenges as state fish and wildlife agencies have been called upon to manage greater diversity of wildlife in more crowded landscapes. On this point, and subject to our principle of maintaining affordable energy sources, we welcome the calls from other sportsmen's groups that are committed to advocating for new Federal revenue raised through climate legislation.

America's agricultural lands and private forests sequester much of our country's annual carbon emissions. Prairies and grasslands are highly effective at sequestering carbon as biomass. The vast wildlife and fish habitats of the American West must be protected as renewable energy becomes the latest new use of multiple-use public lands, requiring new power lines and installations. Habitats on private land must be conserved through incentives and education for landowners. Known problems such as invasive species should be priorities.

Energy development and rising costs of electricity have a significant impact on wildlife and habitat. Climate legislation should promote energy conservation and clean and renewable energy sources to meet growing demand for electricity. New nuclear generation, funding for research of clean coal technology and carbon capture and storage, responsible growth of biomass energy, including renewable biomass from forests, and faster and better regulatory approval processes, will help meet this challenge.