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Testimony of
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I want to thank the chairman and members of the committee for the opportunity to present testimony on this important issue.

I live in Montana, where 20 percent of the population hunts and fishes, supporting a sustainable outdoor recreation economy exceeding a billion dollars every year. In fact, the hunting-and-fishing economy in Montana is at least as big as the state's energy economy. A bumper sticker recently spotted in Montana said, "Hunting is not matter of life or death – it's much more important than that." Needless to say, we place great value on our sporting traditions in the Treasure State.

I meet frequently with sportsmen across Montana and have traveled to rod and gun clubs in 32 towns throughout the state to discuss climate change and its impacts on fish and wildlife. Sportsmen tell me that they both feel and see the effects of the average air temperature increase of 2.3 degrees Fahrenheit that has occurred since 1951. They are observing delayed onset of winter conditions, a snowpack that has declined 17 percent over the past 60 years and spring rainfall amounts that have increased nearly 6 percent. They also are experiencing late summer precipitation that has declined more than 20 percent and flows in coldwater streams that are declining noticeably throughout Montana. They realize that the glaciers in Glacier National Park are likely to disappear by 2030 (at this time, only 26 remain of the 150 that existed in 1850). And, finally, they see that Montana's warmer winters and drier summers have allowed the mountain pine beetle to expand its natural infestation of Montana's lodgepole pine forests to epidemic levels, resulting in 2 million acres of beetle-killed trees.

While some of these sportsmen might never utter the words "climate change," they readily acknowledge that the later and shorter winters, reduced snowpack, increasing spring rain, lower streamflows, melting glaciers and widespread pine beetle epidemic reflect an environmental change that is beyond rational debate. They also know that this magnitude of environmental change will eventually result in serious declines in many species of fish and wildlife. Global climate change does not bode well for the future of fish and wildlife and recreational hunting and fishing.

Continued Testimony of Geer

The Theodore Roosevelt Conservation Partnership's fundamental beliefs regarding climate change are

- Global climate change is real.
- Sportsmen likely will be the first to experience the repercussions of climate change.
- We need to safeguard fish and wildlife resources from climate change with adaptation strategies.
- How we address global climate change now will dictate whether future generations will continue to enjoy sporting traditions.

In 2008, the Wildlife Management Institute and eight of the nation's leading hunting and fishing organizations released *Seasons' End: Global Warming's Threat to Hunting and Fishing* (www.seasonsend.org), a report detailing the predicted impacts of climate change on fish and wildlife habitat and its implications for sustainable hunting and fishing. Some of the report's conclusions follow.

Upland birds face a severe future as climate change progresses. Disruptions in life cycles likely will sever reproduction and the emergence of critical food sources. Young birds could suffer fatal exposure to winter cold from loss of thermal snow cover, with reduced nesting success and increased predation leading to major population reductions. These declines coupled with an influx of invasive species will result in fewer birds in the hunters' bags. Increasing droughts could devastate food sources for upland birds, with prairie chickens, sage grouse, sharp-tailed grouse and pheasants among the species most likely to be diminished in number. Many eastern Montana ranchers consider the prime prairie grouse and pheasant hunting on their lands to be an important cash crop, along with cattle and wheat.

Big game likely will be adversely impacted in several ways. Mountain goats and bighorn sheep will compete for increasingly isolated, fragmented and diminished habitat. Rising temperatures in the Rocky Mountains will allow trees and shrubs to overwhelm sagebrush ecosystems that in the past provided desirable winter forage for pronghorn, elk and mule deer. As fragmentation and loss of critical winter range continues, mule deer and elk could dwindle in numbers, particularly in Montana, Wyoming, Utah, Colorado and New Mexico. Forage becomes less nourishing in prolonged droughts, and elk and mule deer are likely to remain at higher elevations longer. Big-game hunters in Montana already are having less success because winter snows are arriving later in the fall, keeping elk and mule deer at higher elevations and in less accessible areas through most of the hunting season.

Unlike big game, waterfowl can move quickly and cover vast distances. Nevertheless, shorter winters will affect the availability of waterfowl food and cover and quality of

habitat. Longer ice-free seasons will lead to changing migratory timing, routes and wintering locations. Sea level rise inundating coastal wetlands will squeeze waterfowl into narrowing bands of habitat. The prairie pothole region, which includes portions of Iowa, Minnesota, Montana and the Dakotas, could lose up to 90 percent of its wetlands to climate change, reducing the region's breeding ducks by as much as 69 percent in an area often called North America's duck breeding factory. No species can withstand the loss of 90 percent of its critical habitat base. Hunters throughout the United States report that waterfowl migrations are occurring later in the season and, in some cases, not occurring at all.

The outlook for trout in the West is warming water that will slow trout growth rates, increase stress and increase susceptibility to toxins, parasites and disease. Trout will be forced to congregate in constricted habitats and compete with invasive species. Diminishing streamflows from declining snowpack already have decimated trout populations and fishing opportunities in some Montana streams, such as Lolo Creek south of Missoula where low flows have reduced once-thriving populations of cutthroat, rainbow, brown and brook trout. Western trout populations could be reduced by 50 percent. Trout fishing spots and success will change significantly – and not for the better.

Global climate change has the power to fundamentally change the participation rates of America's 13 million hunters and 28 million freshwater anglers, as well as the geography of hunting and fishing in North America. As fish and wildlife habitat, abundance and distribution shift in response to a changing climate, patterns of recreational activities will shift as well. Today's carefully delineated protected areas may not even be encompassed within the new habitat zones where the mobile species of wildlife may be forced to migrate under a changing climate.

Collectively, Idaho, Montana and Wyoming still harbor the finest hunting for big game and upland bird and trout fishing resources in the country. The loss of big game and upland gamebird hunting opportunities in these northern Rocky Mountain states would impair what has been a sustainable recreational economy that currently supports more than 4.3 million hunter-days annually and annually generates more than $3.45 billion in total economic value (*Backcountry Bounty*, Sonoran Institute, June 2006).

Now, *Beyond Seasons' End* (www.seasonsend.org), a new report released in 2010 by 10 of the nation's leading hunting and fishing organizations, along with the TRCP, presents adaptation strategies, measures and costs to aid fish and wildlife in adapting to global climate change. The common-sense and science-based recommendations that are spelled out and "cost out" in *Beyond Seasons' End* are well-conceived, field-tested and can be accomplished if funding can be provided. This application of science shows what can be done on the ground to restore and protect crucial fish and wildlife habitat, secure migration corridors and connectivity between habitats, allocate water for sport fish and develop regional and national adaptation plans.

Continued Testimony of Geer

A number of state fish and wildlife agencies are in the process of revising their state wildlife action plans (funded largely by State Wildlife Grant appropriations from Congress) to incorporate comprehensive strategies for fish and wildlife adaptation to climate change. The state wildlife action plans, when based on landscape-level habitat management and conservation, will become one of the fundamental tools of state agencies for improving the resiliency and sustainability of fish and wildlife under a changing climate, particularly when they are developed in concert with neighboring states that share the habitat ranges and connective corridors for wildlife that do not recognize political borders.

The Montana Department of Fish, Wildlife & Parks is updating its comprehensive fish and wildlife conservation strategy to include adaptive measures to better sustain and manage fish and wildlife across broad landscapes in a changing climate, using strategies presented in *Beyond Seasons' End*. The revised strategy will emphasize crucial areas, such as new areas of winter range for elk, and corridors that will enable mobile fish and wildlife species to move to suitable habitat. The agency's new Crucial Areas Planning System integrates many computer databases that provide wildlife managers with the physical, biological and social information to better predict impacts of climate change and development on fish and wildlife – and hunting and fishing – and develop more effective mitigation and adaptive management measures.

The Yellowstone River Strategy is one example of the landscape-level approaches identified by Montana Fish, Wildlife & Parks and a working group comprised of non-agency specialists to help Yellowstone cutthroat trout survive in a warming river environment. The June runoff and late summer flows have been declining since the early 1950s, and the water now is favoring smallmouth bass over cutthroats. The main factors behind a decline in Yellowstone cutthroat trout in the Yellowstone River have been contraction of coldwater habitats in upper reaches, increasing temperatures and loss of connectivity from reduced flows in lower reaches, loss of tributary connectivity from reduced flows and diversion dams and a decline of Yellowstone cutthroat trout with encroaching smallmouth bass upstream to Reed Point. The Yellowstone River System strategy would safeguard genetically pure Yellowstone cutthroat trout by conserving their strongholds in headwater tributaries; constructing temporary, high-elevation water storage to augment downstream flows in the summer; re-establishing stream connectivity to allow fish to disperse in mid-elevation downstream reaches; removing fish passage barriers and restoring riparian areas, wet meadows and wetlands in lower-elevation downstream reaches while maintaining the prime coldwater fishing opportunities for which the river is famous.

Another example of a Montana Fish, Wildlife & Parks landscape-level climate adaptation project is the Sagebrush Steppe System Initiative in southwestern and eastern Montana. The sagebrush habitat community provides critical habitat to many of the big-game, waterfowl and upland bird species prized by hunters. These are the likely effects of climate change on these species in the sagebrush steppe area: elk, mule deer and

pronghorn overwinter survival might improve with milder winters, but recruitment to the population likely will decline due to forage nutritional deficiencies; Greater sage-grouse are likely to be hurt by the declining extent and density of sagebrush for food and shelter; and waterfowl likely will decline from drier climate and loss of small wetlands.

In the Sagebrush Steppe System Initiative, Montana Fish, Wildlife & Parks more closely coordinates with agencies, namely the U.S. Forest Service and Bureau of Land Management, which manage the majority of Montana's publicly owned habitat and which now are required to consider impacts of their management on the climate. Also, the agency will work closely with private agricultural landowners using private-land conservation incentives in the 2008 Farm Bill, such as the Conservation Stewardship, Environmental Quality Incentives and Farm and Ranchland Protection programs. Conserving and maintaining crucial areas and migratory corridors will receive special emphasis.

As Congress develops climate and energy legislation, I urge you to ensure that such legislation establishes a national program to mitigate the causes of global warming by reducing emissions of greenhouse gases and sequestering carbon from the atmosphere.

The unavoidable adverse effects of climate change on fish and wildlife and their habitats may be minimized or prevented in some cases through adaptation measures and management actions initiated at the earliest time possible. There is a compelling and urgent need for fish and wildlife managers to initiate specific conservation actions – such as ensuring crucial habitat availability and connectivity – that would help fish and wildlife maintain self-sustaining populations through an ongoing flexible management process of adaptive management. Specifically, a House bill should establish a national policy framework to help protect, reconnect and restore public and private lands; provide increased scientific capacity; identify wildlife migration corridors; coordinate and share information; and dedicate a sufficient amount of funding to federal, state and tribal agencies to implement identified actions needed assure the resiliency and sustainability of our fish and wildlife resources.

The activities of the federal resource agencies needed to restore and protect fish and wildlife from the impacts of climate change should be directed and coordinated through a comprehensive national strategy, developed in close consultation with states, tribes and other stakeholders and with advice from the National Academy of Sciences and a science advisory board.

The activities of the state resource agencies should be directed and coordinated through individual, state-based, comprehensive strategies for fish and wildlife adaptation to climate change that are approved by the Secretary of the Interior and integrated into state wildlife action plans, state coastal zone management plans and other state wildlife species

or habitat plans. Opportunities should be provided for scientific and public input during the development and implementation of these strategies.

Most sportsmen pay homage to President Theodore Roosevelt because he had the courage and foresight to advance a strong conservation agenda and restore depleted fish and wildlife against a political tide, bequeathing to us the rich fish and wildlife heritage sportsmen cherish to this day. Roosevelt had the foresight to recognize that Congress must take action at a critical time to safeguard this legacy for future generations of Americans. For the sake of our children and grandchildren, we now must act at what is another critical time. While no one has all the answers to the challenge of climate change, we know we are dealing with a rapidly changing world. We must step up today to do the conservation work that will ensure the future – not only of hunting and fishing, but of our very quality of life.

Thank you.

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William Geer joined the TRCP staff full time in 2005 as policy initiatives manager. After earning a bachelor of science from the University of Montana School of Forestry and a master of science in limnology from Montana State University, Bill has spent the past 38 years as a professional fish and wildlife conservationist. Before joining the TRCP, he served as the director of the Utah Division of Wildlife Resources, coordinator for the North American Waterfowl Management Plan for the National Fish and Wildlife Foundation, vice president for both field operations and conservation programs for the Rocky Mountain Elk Foundation, Inland Northwest conservation manager for the Nature Conservancy in Idaho and executive director of the Outdoor Writers Association of America.