

**U.S. Fish and Wildlife Service:  
Conserving the Nature of America in a Changing Climate**

**NARRATOR:** Nature astounds and inspires us with its diversity of oceans and wetlands, forests and grasslands.

**NARRATOR:** These special places play a vital role in the production of the planet's oxygen, drinking water, and rainfall patterns. They also produce a rich abundance of fish, wildlife and plant species that sustain our lives and nurture our spirits.

**NARRATOR:** Our nation's culture, health, and economic well-being are tied to this interconnected web of life.

But accelerating global climate change is changing the natural world as we know it.

**NARRATOR:** The U.S. Fish and Wildlife Service conserves our nation's heritage of wild things and wild places. This task is made more difficult by challenges such as habitat destruction and fragmentation, invasive species, and water scarcity. Now, worldwide scientific consensus tells us that human activity is changing the climate system itself.

**NARRATOR:** As climate changes, the abundance and distribution of wildlife and fish will also change. Some species will adapt successfully to an abruptly warming world; many will struggle; and others will disappear.

**NARRATOR:** Endangered and threatened species now living at the limits of survival are vulnerable, as are those living within confined geographic ranges with limited abilities to move rapidly in response to changing climate. Barriers to migration, increased competition for habitat and the lack of suitable or available food could make things difficult for species moving to new locations.

**Anne Morekill:** In the Florida Keys, we have more than 20 federally listed threatened and endangered from the Schaus swallowtail butterfly, to a number of plant species, up to the more well-known key deer. And all of these species for the most part are restricted to being here in the Florida Keys. So as we lose habitat, we literally may lose species that are found nowhere else.

**NARRATOR:** In addition to terrestrial species, aquatic species are declining at an alarming loss due to habitat loss, contaminants, invasive species, over-exploitation, and most recently, diseases—stressors that are exacerbated by climate change.

Increasing human population will intensify the competing needs of cities, agricultural areas and wildlife. In a changing climate, effective management of vital natural resources such as clean water will be of greater importance in sustaining habitats that support plants, animals, and people.

**Stuart Leon:** Our freshwater species are disproportionately imperiled as compared to other plants and animal species in the U.S. Of about 800 native freshwater fish species, 37 percent are in need of conservation action. Seventy percent of our freshwater mussels are seriously imperiled, and many are already listed as threatened or endangered.

Climate change is likely to impact fish habitats. As fish habitats decline, so do the numerous values they provide for natural resources, human health and a sound economy.

Recreational fisheries help generate hundreds of millions of dollars in local economies throughout this country. If climate change diminishes the quality and quantity of our aquatic habitats, that will have a profound effect on these special places and the people and wildlife that depend upon them.

**NARRATOR:** As the nation's principal federal conservation agency, the U.S. Fish and Wildlife Service is dedicated to reducing the impacts of climate change on fish, wildlife and their habitats. Our 8,000 employees specialize in wildlife management and ecosystem dynamics, and have an extensive network of partners who work alongside us to protect our nation's fish and wildlife resources.

**NARRATOR:** Dealing with climate change is not a solitary endeavor. It requires a landscape conservation approach—emphasizing large areas with interconnected and ecologically functional habitats capable of sustaining many species. Close collaboration with partners is critical to this process.

**Jeff Burgett:** The Service and the public are going to have to help plants and animals move across the landscape in order to keep pace with climate change. In many cases, this means establishing or maintaining a corridor of habitat across the landscape in the direction the plants and animals are going to be moving—in order for them to have a place to go and track climate change. In many cases we've actually severed these connections with roads, development and farm land, which these plants and animals can't cross. So where these corridors still exist and are intact we want to try and maintain them. And where they've been severed, we want to try and re-connect them.

**NARRATOR:** One expected effect of climate change is sea-level rise. At Blackwater National Wildlife Refuge in Maryland, resource managers are monitoring climate change impacts in the Chesapeake Bay area using a special climate model that measures the effects of sea level rise on marshes.

**Suzanne Baird:** These marshes are important to more than just wildlife. Because these marshes support the local fin and shellfish industries, they are important to the bay. They

also provide important wildlife viewing for ecotourism as well as help buffer the impacts of storm effects to the local community.

The loss of 8,000 acres of marsh, brackish marsh habitat, since the late 1930s, early 40s, has had a significant impact on what's going on out here. We will continue to lose marshes as sea level rises. The model will help us identify those places where we will be able to maintain marshes in the long run and help plan future management activities.

**NARRATOR:** Climate modeling is also being used in the Florida Keys National Wildlife Refuge Complex, where wildlife viewing is a major tourism activity.

**Anne Morekill:** Our highest priorities right now for assessing and adapting to impacts of climate change would be to take some of the large and complicated scientific models that tend to be global and regional in scale and bring them down to the local level so that we can better predict what the impacts might be and the timeframe in which we can expect those impacts so that we can focus in on what types of strategies we should implement to prepare for the changes we might see.

**NARRATOR:** The impacts of climate change reach far beyond coastal areas, from melting sea ice in the Arctic to water scarcity in the Southwest. In the upper Midwest, thousands of shallow wetlands—known as “Prairie Potholes”—are remnants of retreating glaciers from the last major ice age. Thousands of waterfowl and other grassland birds rely upon these lands and waters to continue self-sustaining populations.

**NARRATOR:** The area is home to more than 50 percent of North American migratory waterfowl, with many species dependent on the potholes for breeding and feeding. And thousands of duck hunters and communities rely upon the seasonal activity of waterfowl hunting.

**NARRATOR:** As the climate warms, farmers in the region will be able to plant crops farther north, converting native prairie and wetlands to fields. The conversion of virgin prairie where cattle graze to planting of row crops will mean more carbon in the atmosphere and loss of wetlands for waterfowl breeding.

**Lloyd Jones:** If climate change continues—if we see a continued conversion of the grassland ... loss of the wetland—there's going to be a loss of production of migratory birds on the North American continent. And that's going to have a huge impact on those who are interested in hunting, those who are interested in bird watching. There's a tremendous industry associated with tourism and visitation to refuges and other wildlife areas. And the interest is obviously going to go down if the production isn't there, if there isn't the number of birds there that people are going to be able to enjoy.

**NARRATOR:** Understanding the impacts of climate change on wildlife is critical to developing an effective course of action. The Service and U.S. Geological Survey, along with key conservation partners, have held regional forums to collect information for a variety of landscapes and inform the Service's Strategic Plan for climate change.

The plan provides flexibility for managers to be responsive to evolving science and technology. It also calls for training our workforce on the basics of climate change science and adaptive landscape conservation approaches that will help us succeed in the face of a changing and uncertain future.

**Dan Ashe:** If we're going to be successful in conserving the nature of America, then we simply have to understand the causes and effects of a changing climate system and what that means for fish and wildlife populations. The Service has a good beginning with its draft Strategic and Action plans, but we need to recognize that we can't address something as large and encompassing as climate change from within the footprint of our own organization.

So we're really dependent upon building relationships with partners as we try to address this challenge. Much like we do in conservation day-to-day, but on an even larger scale. We need to look to new partnerships with the scientific community, and the conservation community. We need to look for new ways to speak to the public and inform the public what we're doing and why. And why responding to climate change is an important aspect of wildlife conservation.

**NARRATOR:** America has faced adversity in the past, from the severe droughts of the 1930s to the environmental effects of chemical pesticides to the ongoing challenges of recovering threatened and endangered species. The warming of the earth could potentially have more far-reaching impacts on wildlife and wildlife habitat than any challenge that has come before.

This is why the women and men of the Fish and Wildlife Service have chosen a career of public service—to deal with issues of consequence and make a difference for our nation. Together with our partners we will face the challenges of our time and change the future for the better.

**Anne Morekill:** I feel I have a responsibility and a stewardship to look out for the future. And it would be easy for me to put on the blinders and I'll be here 5 or 10 years and focus on accomplishments then. But it's difficult for me to do that when I read about climate change and I have concerns about these species and what kind of a legacy that we can leave for our children and grandchildren. And so I think it's really important for us to be addressing these issues.