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U.S. Fish & Wildlife Service

Appendix: 5-Year Action Plan

for Implementing the Climate Change Strategic Plan

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On the cover: *Polar Bears. Courtesy of National Geographic.*

September 21, 2009 (Revised draft). Until finalized, this draft document does not represent the official position of the Service, nor commit the agency to implement any proposed actions.

Introduction

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Loss of sea ice in the Arctic. Rising sea levels in the East. Floods in the Midwest. Droughts in the Southwest. Expansion of insect pests in the Northwest. Huge wildfires in the West. Climate change is a serious and sobering challenge of immense proportions whose impacts have profound implications for the future of America's fish, wildlife and plants and the habitats they depend upon.

We in the U.S. Fish and Wildlife Service (Service) have committed ourselves to ensuring the sustainability of our nation's wildlife resources and habitats, recognizing both their intrinsic value and their contribution to our economic prosperity and our quality of life. To address the threat that accelerating climate change poses to fish and wildlife conservation and, concomitantly, to our mission accomplishment, the Service has developed a strategic plan for responding to this 21st century environmental scourge. **Rising to the Challenge: Strategic Plan for Responding to Accelerating Climate Change** establishes a vision and direction for the Service and its employees, defining our role within the context of the larger conservation community. The plan identifies adaptation, mitigation, and engagement as the framework for our climate change activities, and strategic habitat conservation as our approach. It acknowledges our employees and partnerships as critical to the success of any Service efforts to mitigate the effects of climate change; to help wildlife adapt to climate-driven changes; and to foster a worldwide movement to act in the best interests of people and wildlife by reducing the emissions of greenhouse gases into the atmosphere. The plan recognizes our current limitations in climate change knowledge and technology, but charts a bold path, in the form of specific goals and objectives, for us to build and access what we will need to be successful in this most important endeavor.

...because there is no effort without error or shortcoming, but who knows the great enthusiasms, the great devotions, who spends himself for a worthy cause... **Theodore Roosevelt**

In this appendix document, **5-Year Action Plan for Responding to Accelerating Climate Change**, we detail the specific actions we will take during fiscal years 2009 through 2013 to implement the goals and objectives of our strategic plan and give it "legs." These actions will allow us to respond to the most pressing, near-term climate change threats and opportunities, while at the same to lay the foundation for the Service's long-term response.

We recognize the Service's budget appropriations will impact what we can accomplish from the Action Plan in any given year. Nevertheless, given the seriousness of the threats posed by climate change to the resources entrusted to our stewardship, we believe it is wiser to aim high and adapt to our budget realities as they unfold than to scale back our vision in anticipation of lack.

Although "Leadership and Management" appear as a major subject area rather than as a goal in the Strategic Plan, we open this Action Plan with specific leadership and management actions that will be required to successfully implement the Strategic Plan. The goals, objectives, and actions that follow this Leadership and Management section are organized chronologically and presented in the order established in the Strategic Plan. The order of presentation of the goals, objectives and actions does not necessarily imply order or priority of implementation. In addition, we have left in this Action Plan some actions that have already been completed to serve as a record of the Service's accomplishments.

As a point of clarification, those actions marked for multi-year accomplishment (e.g., 2010–2013) will be carried out in each year identified rather than over the span of those years.

As we implement our Strategic Plan with this appendix Action Plan, we are buoyed by the words of our 26th President, Theodore Roosevelt, a resolute man of action who stepped forward in the face of a national environmental crisis in 1903 to establish what is now the 150-million acre National Wildlife Refuge System. In his April 23, 1910, speech "Citizenship in a Republic," President Roosevelt said,

> *"It is not the critic who counts: not the man who points out how the strong man stumbles or where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood, who strives valiantly, who errs and comes up short again and again, because there is no effort without error or shortcoming, but who knows the great enthusiasms, the great devotions, who spends himself for a worthy cause; who, at the best, knows, in the end, the triumph of high achievement, and who, at the worst, if he fails, at least he fails while daring greatly, so that his place shall never be with those cold and timid souls who knew neither victory nor defeat."*

As a Service, we count ourselves among those who are willing to "dare greatly" to combat the greatest environmental challenge of the 21st century--accelerating climate change.

Leadership and Management (LM) for Implementing Our Strategic Plan

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Establish National and Regional Climate Teams

The U.S. Fish and Wildlife Service's Climate Change Working Group, composed of members of the Service's Directorate, advises and makes recommendations to the full Directorate on leadership and direction for addressing climate change Service-wide. The Working Group oversees the development and implementation of the Strategic Plan and Action Plan on behalf of the Directorate.

The Service recognizes that we also need other national and regional capability to develop a cohesive Service approach to climate change. Creating a National Climate Team that reports to the Directorate will ensure leadership and management of climate change activities, including annual work program development; budget; performance; policy development and implementation; landscape conservation design, delivery, and evaluation; internal and external partnership development; Congressional assistance; employee and partner engagement through communication and training; and science direction. Creating Regional Climate teams will ensure the stepping down of national policies and guidance to the regional and field levels; and on-the-ground implementation of our adaptation, mitigation, and engagement goals and objectives. Together, the National and Regional Climate teams will provide the infrastructure that will allow us to collectively learn from our management actions and adapt them accordingly.

FY 2009

By March 1, 2009, the Service will establish the following capacity:

■ (LM Action 1.1) A National Climate Team providing overall direction in response to climate change. The Team will be composed of one member from each Regional Climate Team, a representative of the Office of the Science Advisor, and a representative from each of the Service's programs.

■ (LM Action 1.2) Each Assistant Director (unless exempted, in writing, by the Deputy Director) will identify at least one employee who will work full-time as a National Climate Team member.

■ (LM Action 1.3) Two full-time, senior professionals dedicated to leadership and management of climate change activities within the Office of the Science Advisor, both of whom will serve as a member of the National Climate Team. By December 19, 2008, the Science Advisor will develop a cost estimate to implement this action.

■ (LM Action 1.4) Each Regional Director will establish one position or designate one employee as Regional Climate Coordinator to provide leadership and management of climate change activities in the region and to serve as a regional representative on the National Climate Team.

■ (LM Action 1.5) Each Regional Director will establish a Regional Climate Team, with representation from each Service program.

■ (LM Action 1.6) The National Climate Team will work with the Regional Climate teams to create a system for collective, continuous learning and adapting as we implement climate change leadership and management actions, in keeping with Element 4 of our Strategic Habitat Conservation paradigm, "Outcome-based Monitoring and Adaptive Management: Measuring Success and Improving Results."

■ (LM Action 1.7) Each Regional Director and Assistant Director will issue guidance to project leaders, supervisors and employees encouraging support of, participation in, and leadership for the various teams, workgroups and products called for in the Strategic Plan and appendix Action Plan.

FY 2010

■ (LM Action 1.8) The Science Advisor and the National Climate Team will work with partners to build a shared capacity to evaluate and design policies and plans for land-use (e.g., transportation, agriculture, forestry, fire management, invasive species management) and for energy that fully consider the impacts and implications of climate change (e.g., "green infrastructure" that highlights the importance of the natural environment in decisions about land-use planning).

■ (LM Action 1.9) The Assistant Director for Information Resources and Technology Management will work with the National Climate Team to determine climate change data-management and data-sharing needs; and will develop and present to the Directorate an information management plan that identifies roles and responsibilities for data management and data sharing Service-wide. Upon approval of the information management plan, the Assistant Director for Information Resources and Technology Management will develop and execute an implementation plan.

Show Leadership on Climate Policy

We will establish Service capability to show leadership in climate policy discussions and to effectively represent Service mission interests in discussions relating to national climate legislation. We will work to achieve climate change legislation that reflects our Guiding Principles and our Strategic Plan in its provisions related to wildlife adaptation.

FY 2009

■ (LM Action 2.1) By June 30, 2009, the Assistant Director for External Affairs will approve and implement a plan to provide timely information to Congress to promote understanding of climate change; its consequences to fish and wildlife; and the Service's unique roles, responsibilities and scientific capabilities to respond to those impacts.

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FY 2009–13

■ (LM Action 2.2) The National Climate Team will work with the Office of Congressional and Legislative Affairs to provide the Congressional Research Service with the best available information about climate change and its implications for the Service's mission.

FY 2010

■ (LM Action 2.3) The External Affairs program's Office of Public Affairs and Office of Congressional and Legislative Affairs will each hire one full-time staff member to be devoted to climate change issues and to draft internal, external, and Congressional communication strategies.

■ (LM Action 2.4) The Director will work with the Executive Director of the Association of Fish and Wildlife Agencies and leaders of conservation organizations to encourage the U.S. Congress to establish a climate change caucus to focus attention on climate change and expand and solidify support for mitigation, adaptation and engagement on behalf of wildlife and habitats.

Recognize Leadership Internally and Externally

To be successful in our efforts to address climate change, we will need leadership from all Service programs and offices and from each Service employee at every level in the organization. We will recognize and reward Service programs, offices and individual employees at the field, Regional Office, and national levels that demonstrate leadership by taking substantive actions to respond to climate change through adaptation, mitigation, or engagement activities that benefit wildlife. In addition, all Service project leaders and employees will look for opportunities to recognize partners and stakeholders for leadership in addressing climate change to benefit wildlife and habitats.

FY 2009

■ (LM Action 3.1) The Director will appoint a small Climate Awards Committee to explore options for recognizing and rewarding climate change leadership across the Service and with partners and stakeholders.

FY 2010

■ (LM Action 3.2) The Climate Awards Committee will provide a written report to the Directorate that summarizes options for rewarding climate leadership; and will develop climate change leadership awards criteria and the processes for nomination, selection, and recognition by the Director. The Committee will work with the Assistant Director for Budget, Planning and Human Resources to implement the climate leadership awards program and to present the first awards in FY 2010.

FY 2011–13

■ (LM Action 3.3) The Climate Awards Committee will continue the rewards program on an annual basis, and revise selection criteria as needed.

Monitor Implementation of the Strategic Plan

We will monitor and evaluate our effectiveness in implementing the Strategic Plan and its 5-year Action Plan. We will develop reporting mechanisms for regions and programs to assess implementation, and we will publish annual written assessments evaluating the Service's performance in meeting the goals and objectives of the Strategic Plan. The Directorate will use this report as the basis for taking appropriate actions to ensure the Service remains true to the intent of the Plan to address the impacts of climate change on fish, wildlife and habitats through adaptation, mitigation, and engagement strategies.

FY 2009–13

■ (LM Action 4.1) The Director and Deputy Director and the Assistant Director for Budget, Planning and Human Resources will ensure that all requirements, reports, timelines and other responsibilities enumerated in this Action Plan are incorporated, by specific reference, into the 2009 Senior Executive Service performance plans of the identified responsible officials and the 2009 performance plans for all responsible subordinates.

■ (LM Action 4.2) The Science Advisor, in concert with the National and Regional Climate teams, will report annually to the Director concerning the Service's success in implementing the Strategic Plan and 5-Year Action Plan, highlighting major accomplishments and identifying major needs for staffing, funding and additional technical or professional capacities and capabilities. This report will include discussion of the Service's capacity and capability to respond rapidly to new information and to formulate appropriate science-based and partnership-driven decisions.

■ (LM Action 4.3) The Assistant Director for Information Resources and Technology Management, in concert with the National and Regional Climate teams and Science Advisor, will report annually to the Director concerning the Service's success in implementing the information management plan and will recommend actions needed to meet the goals and objectives of that plan.

FY 2012–13

■ (LM Action 4.4) After three years of implementation of our Strategic Plan and 5-Year Action Plan, the Directorate will seek independent review of our climate change efforts.

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Adaptation

GOAL 1

We will develop long-term capacity for biological planning and conservation design and apply it to drive conservation at broad, landscape scales.

Objective 1.1: Develop a National Fish and Wildlife Adaptation Strategy

FY 2009

■ (Action 1.1.1) The Science Advisor and Regional Director for Region 6 will assemble staff and resources necessary to develop a white paper exploring alternative administrative structures and processes associated with developing a National Fish and Wildlife Adaptation Strategy. This white paper, developed with partner input, will incorporate concepts for shared responsibility and funding and will be completed by September 30, 2009.

■ (Action 1.1.2) The Science Advisor, in consultation with Assistant Directors, Regional Directors, and the Association of Fish and Wildlife Agencies, will sponsor a "Climate Forum" of high-level executives from States, Tribes, Federal land management agencies, nongovernment organizations, and other climate change stakeholders from across the United States to discuss development of the National Fish and Wildlife Adaptation Strategy. From that Forum, a multi-organizational team will be formed to develop the National Fish and Wildlife Adaptation Strategy.

FY 2009–13

■ (Action 1.1.3) The National Fish and Wildlife Adaptation Strategy will be developed over a 5-year period by the multi-organizational team formed at the Climate Forum. The Service will devote sufficient resources and personnel on an annual basis to provide leadership for this effort.

Objective 1.2: Access Regional Climate Science and Modeling Expertise through Regional Climate Science Partnerships

FY 2009

■ (Action 1.2.1) By March 1, 2010, each Regional Director will assess existing and needed capacities for, potential benefits of, and complete a report with recommendations for establishing a Regional Climate Science Partnership in FY 2010.

■ (Action 1.2.2) The National Climate Team and the Science Advisor will work with the U. S. Geological Survey's National Climate Change and Wildlife Science Center, the National Oceanic and Atmospheric Administration, and others to identify existing and needed capacities for climate science and modeling at the national and international levels.

■ (Action 1.2.3) By January 1, 2010, the Office of the Science Advisor will provide an overarching national and international assessment of Regional Climate Science Partnership needs based on information and recommendations compiled under Actions 1.2.1 and 1.2.2.

FY 2010

■ (Action 1.2.4) The Science Advisor will work with the U.S. Geological Survey's National Climate Change and Wildlife Science Center and the National Oceanic and Atmospheric Administration to establish working relationships in climate science and modeling at national and international levels based on the assessment in Action 1.2.3.

FY 2010–11

■ (Action 1.2.5) Each Regional Director will work with partners, in particular the U.S. Geological Survey's National Climate Change and Wildlife Science Center, to develop the Regional Climate Science Partnership by acquiring the necessary climate science and modeling expertise identified the assessment in Action 1.2.3. This expertise may be drawn from existing or new Service staff, staff from other agencies, and staff from nongovernmental organizations and universities hired on a contract basis. These experts may be dispersed geographically, but will work together in a virtual network.

FY 2011–13

■ (Action 1.2.6) Regional Directors will annually monitor the effectiveness of the Regional Climate Science Partnerships. Each Regional Director will recommend any necessary changes to the organizational structure and identify any additional capacity that is needed.

FY 2013

■ (Action 1.2.7) The Science Advisor and the National Climate Team will work with partners to assess the roles, functionality, and progress of the Regional Climate Science Partnerships that have been established.

Objective 1.3: Develop Landscape Conservation Cooperatives to Acquire Biological Planning and Conservation Design Expertise

FY 2009

■ (Action 1.3.1) Each Regional Director will work with partners and will develop of at least one field-level Landscape Conservation Cooperative.

■ (Action 1.3.2) By September 21, 2009, each Regional Director will develop a prioritized list of new Landscape Conservation Cooperatives needed in 2010, 2011, and beyond; and the Assistant Director for International Affairs will recommend similar capacities needed to support international conservation efforts. These recommendations should consider resource needs and priorities,

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strength of existing partnerships, existing technical capacity, and the need and opportunities to deliver conservation across the Service's regional boundaries and across national boundaries.

■ (Action 1.3.3) By January 1, 2010, using information and recommendations compiled under Actions 1.3.1 and 1.3.2, the Science Advisor will provide an overarching national and international assessment of the identified needs for Landscape Conservation Cooperatives as a key science capacity for the Service.

FY 2010

■ (Action 1.3.4) Each Regional Director will fully staff the Landscape Conservation Cooperative established under Action 1.3.1.

■ (Action 1.3.5) Each Regional Director will establish the one highest-priority Landscape Conservation Cooperative identified in Action 1.3.2, and will fully staff that Landscape Conservation Cooperative.

FY 2011–13

■ (Action 1.3.6) Each Regional Director will establish and fully staff the remaining Landscape Conservation Cooperatives identified in Action 1.3.2.

■ (Action 1.3.7) Regional Directors will annually monitor the progress of Landscape Conservation Cooperatives in their region, will enhance LCC capabilities and develop new expertise as needed, and will work to ensure integration of local and regional biological planning and conservation design efforts.

FY 2013

■ (Action 1.3.8) The Science Advisor and the National Climate Team will work with Regional Climate teams to assess the roles, functionality, and progress of the Landscape Conservation Cooperatives that have been established and make recommendations to Regional Directors as appropriate.

Objective 1.4: Conduct Species and Habitat Vulnerability Assessments

FY 2009

■ (Action 1.4.1) By January 31, 2010, the Assistant Director for Endangered Species and Regional Director for Region 8 will develop and test climate change risk and vulnerability assessment methodologies for fish and wildlife species. They will collaborate with organizations possessing appropriate expertise (e.g., U.S. Geological Survey, NatureServe, National Wildlife Federation, and the International Union for Conservation of Nature and Natural Resources) and will issue a report and recommendations by July 31, 2010.

■ (Action 1.4.2) The Assistant Director for the National Wildlife Refuge System and for Fisheries and Habitat Conservation will develop and test risk and vulnerability methodologies for Refuges and Hatcheries, including vulnerabilities from climate-driven water shortages and excesses, to identify units that are most vulnerable to climate change and to help prioritize adaptation options. They will issue a report by July 31, 2010.

■ (Action 1.4.3) In the FY 2009 allocation proposal, the Assistant Director for the National Wildlife Refuge System and Assistant Director for Fisheries and Habitat Conservation will identify funding and a timetable to complete Sea Level Affecting Marshes Model (SLAMM) analyses for coastal National Wildlife Refuges.

FY 2010

■ (Action 1.4.4) The Assistant Directors for Endangered Species, Fisheries and Habitat Conservation, and the National Wildlife Refuge System will develop and test climate change risk and vulnerability assessment methodologies for habitats and ecosystems. They will issue a report and recommendations by September 30, 2010.

■ (Action 1.4.5) The Assistant Directors for Endangered Species, Migratory Birds, and Fisheries and Habitat Conservation and each Regional Director will collaborate with the U.S. Geological Survey, States, and non-governmental organizations to initiate risk and vulnerability assessments for fish and wildlife species at risk from climate change, with an initial focus on threatened and endangered species, migratory birds, and interjurisdictional fish, using methods developed under Action 1.4.1 and refinements as necessary.

■ (Action 1.4.6) The Assistant Director for the National Wildlife Refuge System and for Fisheries and Habitat Conservation will initiate risk and vulnerability assessments for Refuges and Hatcheries, using method(s) developed under Action 1.4.2 and refinements as necessary.

FY 2011–13

■ (Action 1.4.7) The Assistant Directors for Endangered Species, Fisheries and Habitat Conservation, and the National Wildlife Refuge System will initiate risk and vulnerability assessment methodologies for habitats and ecosystems.

■ (Action 1.4.8) The Assistant Director for Endangered Species, Migratory Birds, and Fisheries and Habitat Conservation and Regional Directors will continue risk and vulnerability assessments for fish and wildlife, reviewing and refining them as needed.

■ (Action 1.4.9) The Assistant Director for the National Wildlife Refuge System and for Fisheries and Habitat Conservation will continue risk and vulnerability assessments for Refuges and Hatcheries, reviewing and refining as needed.

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Objective 1.5: Incorporate Climate Change in Service Activities and Decisions

FY 2009

■ (Action 1.5.1) By December 15, 2008, the Director will issue a Director's Order to all employees requiring that climate change impacts be explicitly assessed and addressed in all Service planning efforts and decisions from that date forward. The Science Advisor will prepare this directive, working through the Directorate Climate Change Working Group.

■ (Action 1.5.2) By March 31, 2009, each Assistant Director and Regional Director will: (1) develop a list of the highest priority existing Service plans that will require revision to adequately assess and address the impacts of climate change; and (2) develop a 5-year schedule, to commence no later than September 30, 2009, for incorporation of climate change impacts into the complete list of plans identified in (1), either by full revision or addendums.

■ (Action 1.5.3) Working in partnership with States, Tribes, and other grant recipients, the Assistant Directors for External Affairs, International Affairs, National Wildlife Refuge System, Fisheries and Habitat Conservation, Migratory Birds, and Wildlife and Sport Fish Restoration Programs will evaluate and, where legally allowable and appropriate according to the funding source, develop new criteria for grant selection that specifically addresses climate change adaptation, mitigation, or engagement. Each Assistant Director will report back to the Director by September 30, 2009.

■ (Action 1.5.4) By January 1, 2010, the Office of the Science Advisor and the National Climate Team will develop a Director's Order, as necessary, to support implementation of Assistant Director recommendations for new grant criteria that address climate change; and, to the extent practicable, apply the new criteria during FY 2010, and require application of the revised criteria during the selection and approval process for affected grants in FY 2011 and beyond.

FY 2010–13

■ (Action 1.5.5) Assistant Directors and Regional Directors will implement the Director's Order to incorporate climate change into new plans and decisions, and report annually to the Directorate on progress achieved.

■ (Action 1.5.6) Assistant Directors and Regional Directors will implement the 5-year schedule to incorporate climate change impact assessments and responsive actions into existing priority plans, and report annually to the Directorate on progress achieved.

■ (Action 1.5.7) Assistant Directors will apply the new grant criteria during the selection and approval process for appropriate grants in FY 2011 and beyond, and report annually to the Directorate on progress achieved.

Objective 1.6: Provide Requested Support to State and Tribal Managers to Address Climate Change Issues that Affect Fish and Wildlife Service Trust Resources

FY 2009

✈Action 1.6.1) By December 15, 2008, the Assistant Director for Wildlife and Sport Fish Restoration Programs and Regional Director for Region 3 will identify representatives to participate in the Association of Fish and Wildlife Agencies- chartered Climate Change/ Wildlife Action Plan Workgroup. This Workgroup will develop a guidance document with recommendations on how States may better address the impacts of climate change in revisions to their State Wildlife Action Plans. Service participation in this Workgroup will include recommendations of potential sources for planning and implementation funds.

FY 2010

■ (Action 1.6.2) Through an existing interpersonnel agreement, the Service will provide a staff person to the Association of Fish and Wildlife Agencies who will help coordinate efforts to integrate climate change considerations into State Wildlife Action Plans, and report to the Directorate on progress achieved.

■ (Action 1.6.3) The Assistant Director for External Affairs and the National Native American Liaison will encourage Regional Native American liaisons to work with Tribal partners to incorporate climate change considerations into Tribal fish and wildlife conservation efforts and report to the Directorate on progress achieved.

FY 2011–13

■ (Action 1.6.4) Assistant Directors and Regional Directors will continue outreach to States and Tribes to encourage them to incorporate climate change into their planning and management and report annually to the Directorate on progress achieved.

Objective 1.7: Evaluate Fish and Wildlife Service Laws, Regulations, and Policies to Identify Barriers to and Opportunities for Successful Implementation of Climate Change Actions

FY 2009

■ (Action 1.7.1) By March 31, 2009, each Regional Director will transmit to the appropriate Assistant Director their highest priority recommendations for legal, regulatory or policy framework changes.

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■ (Action 1.7.2) By July 31, 2009, each Assistant Director will transmit to the Office of the Science Advisor their highest priority recommendations for legal, regulatory or policy framework changes.

■ (Action 1.7.3) By January 1, 2010, the National Climate Team will issue a comprehensive report, including a timeline, outlining priorities for changes in the Service's legal, regulatory and policy frameworks.

FY 2010–13

■ (Action 1.7.4) The Directorate will begin the process of revising and developing legal, regulatory or policy frameworks identified as priorities. This may involve holding workshops or convening small "think tanks" to work on specific regulations or policies (e.g., managed relocation). We anticipate that any substantial changes will involve a Service-initiated public involvement process. The Directorate will report annually on progress achieved.

FY 2013

■ (Action 1.7.5) The Directorate will evaluate the status of changes to the Service's legal, regulatory, and policy frameworks to determine progress achieved and any adjustments that may be needed in the process or the products.

GOAL 2

We will plan and deliver near-term and long-term landscape conservation actions that support climate change adaptations by fish, plants, wildlife, and habitats of ecological and societal significance.

Objective 2.1: Implement National Fish and Wildlife Adaptation Strategy as the Service's Long-term Adaptive Response to Climate Change

FY 2012–13

■ (Action 2.1.1) In creating the National Fish and Wildlife Adaptation Strategy, the Directorate will work with other Federal natural resource management agencies (primarily the U.S. Forest Service, the Department of Defense, and Department of the Interior bureaus) to develop and sign a national memorandum of agreement to collaborate in identifying and designating landscape-level habitat linkages and wildlife corridors across public lands.

■ (Action 2.1.2) The Science Advisor and the National Climate Team will identify staffing and funding needs and timeframes to implement the National Fish and Wildlife Adaptation Strategy.

Objective 2.2: Take Conservation Action for Climate-Vulnerable Species

FY 2010

■ (Action 2.2.1) The Assistant Directors for Endangered Species, Migratory Birds, the National Wildlife Refuge System, and Fisheries and Habitat Conservation will work together to use the initial results of the species and habitat vulnerability assessments conducted under Objective 1.4 to begin prioritizing conservation actions to sustain these species and habitats.

■ (Action 2.2.2) The Assistant Directors for Endangered Species, Migratory Birds, the National Wildlife Refuge System, and Fisheries and Habitat Conservation will each approve one or more priority conservation action identified in Action 2.2.1, and the Regional Directors will implement those actions.

■ (Action 2.2.3) The Assistant Director for Migratory Birds will adjust harvest models as needed to incorporate climate change effects.

FY 2011–13

■ (Action 2.2.4) The Assistant Directors for Endangered Species, Migratory Birds, the National Wildlife Refuge System, and Fisheries and Habitat Conservation will use results of the species and habitat vulnerability assessments conducted under Objective 1.4 to continue prioritizing conservation actions to sustain these species and habitats, and will re-assess priorities annually as results of vulnerability assessments become further refined.

■ (Action 2.2.5) The Assistant Directors for Endangered Species, Migratory Birds, National Wildlife Refuge System, and Fisheries and Habitat Conservation will annually identify two or more priority conservation actions identified in Action 2.2.4, and the Regional Directors will implement those actions. Assistant Directors will report annually to the Directorate on progress achieved.

■ (Action 2.2.6) The Science Advisor will work with the Assistant Directors for Endangered Species, Migratory Birds, the National Wildlife Refuge System, and Fisheries and Habitat Conservation to ensure that the conservation actions in Actions 2.2.2 and 2.2.5 are spatially integrated with recommendations for landscape-scale habitat connectivity (Objective 2.3) to provide landscape-level opportunities for climate-vulnerable species to migrate and colonize new habitats.

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Objective 2.3: Promote Habitat Connectivity and Integrity

FY 2009

■ (Action 2.3.1) The Assistant Directors for the National Wildlife Refuge System and Fisheries and Habitat Conservation will work with the Regional Directors to demonstrate how Service programs can promote habitat connectivity to achieve population objectives. The Assistant Director for Fisheries and Habitat Conservation will provide a progress summary (June 1, 2009) and a final report (September 1, 2009) that includes proposed funding redirections.

FY 2010–11

■ (Action 2.3.2) Regional Directors will ensure that climate change is addressed in existing on-the-ground projects to promote habitat connectivity among protected areas, including in plans for habitat acquisition. These projects should also document and specify the carbon sequestration potential of habitat that is to be conserved or restored.

■ (Action 2.3.3) Each Regional Director will plan, design and implement one or more new demonstration projects in climate-vulnerable landscapes to create landscape-level habitat linkages and large habitat blocks to facilitate fish and wildlife adaptation.

FY 2010–13

■ (Action 2.3.4) The Science Advisor will work the Assistant Directors for Endangered Species, Fisheries and Habitat Conservation, and the National Wildlife Refuge System and with partners to identify key ecological processes that are likely to be affected by climate change; develop projections of how those processes are likely to be affected (i.e., the magnitude, extent and timing of effects); and determine the role that the Service can play in maintaining or restoring those processes both on and off Service lands. This work will be linked closely with the work of the team conducting habitat and ecosystem vulnerability assessments.

FY 2011–13

■ (Action 2.3.5) Each Regional Director will plan, design and implement one or more new projects annually in climate-vulnerable landscapes to create landscape-level habitat linkages and large habitat blocks to facilitate fish and wildlife adaptation.

Objective 2.4 : Identify and Fill Priority Freshwater Needs

FY 2009

■ (Action 2.4.1) Each Regional Director will submit to the Director the single highest-priority regional need related to water quantity or quality, reflecting best available climate change predictions and estimating the anticipated biological outcomes. By June 1, 2009, the Assistant Director for Budget, Planning and Human Resources will compile the information for Directorate funding decisions in FY 2010 and beyond.

■ (Action 2.4.2) The Assistant Directors for the National Wildlife Refuge System and Fisheries and Habitat Conservation, and Regional Directors for Regions 4 and 6 will (1) convene an eastern and a western intra-agency workgroup to assess Service needs relative to water issues and climate change; and (2) identify 2 National Wildlife Refuges and 1 National Fish Hatchery where water quality or quantity is a key climate vulnerability and recommend funding redirections to address the needs at those stations, thereby providing specific examples for addressing such needs in the future. The Assistant Director of the National Wildlife Refuge System will provide a progress summary (April 1, 2009) and a final report (September 1, 2009).

FY 2010–13

■ (Action 2.4.3) The eastern and western intra-agency workgroups convened by the Assistant Directors for the National Wildlife Refuge System and Fisheries and Habitat Conservation, and Regional Directors for Regions 4 and 6 will continue to assess Service needs relative to water issues and climate change, working closely with the team conducting vulnerability assessments for Refuges and Hatcheries (Action 1.4.2) to identify National Wildlife Refuges and National Fish Hatcheries where water quality or quantity is a key climate vulnerability. The Assistant Director of the National Wildlife Refuge System will submit reports to the Directorate on an annual basis, identifying conservation priorities and additional needs.

■ (Action 2.4.4) Using the priorities developed in Actions 2.4.1 and 2.4.2 and refined annually in Action 2.4.3, each Regional Director, working with partners, will develop and implement one or more landscape-level strategies to address priority water rights, water quality, and water quantity for National Wildlife Refuges, National Fish Hatcheries, endangered species, migratory birds, fish, and other aquatic resources.

Objective 2.5: Manage Genetic Resources

FY 2010–11

■ (Action 2.5.1) The Assistant Directors for Endangered Species, Migratory Birds, and Fisheries and Habitat Conservation will create a national genetics advisory team (genetics team) to: (1) increase our capacity to gather, interpret, and apply genetic information for the conservation of climate-vulnerable species; and (2) explore opportunities for participating in existing global, national, and regional genetic management efforts,

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including captive propagation programs, seed banks, and gene banks.

■ (Action 2.5.2) The genetics team, in consultation with the Science Advisor, and Assistant Directors for Endangered Species, Migratory Birds, and Fisheries and Habitat Conservation, will develop recommendations for enhancing the Service's genetics expertise to support conservation of high-priority species of climate-sensitive plants and animals.

■ (Action 2.5.3) The Assistant Director for Fisheries and Habitat Conservation, in consultation with the genetics team, will enhance the capability of national fish hatcheries and fish technology centers for genetic management of rare and endangered aquatic species.

FY 2011–13

■ (Action 2.5.4) The genetics team will use vulnerability assessments and consultation with experts to identify those species that are in crisis now and may need intervention in the form of captive genetic management (e.g., in zoos, gene banks, or seed banks). The genetics team, through the Assistant Director for Endangered Species, will report annually to the Directorate.

Objective 2.6: Reduce Susceptibility to Diseases, Pathogens, and Pests

FY 2010

■ (Action 2.6.1) The Science Advisor will work with Service programs and the U.S. Geological Survey to establish a national disease advisory team (disease team) to coordinate our efforts to identify and reduce the climate-driven vulnerability of wildlife to disease, pathogens, and pests.

FY 2011–13

■ (Action 2.6.2) The disease team will develop an approach to increase monitoring and surveillance of wildlife diseases and pathogens through collection of biological specimens.

■ (Action 2.6.3) The disease team will develop and test procedures to identify critical populations and habitats that are most vulnerable to increased disease and pathogen transmission as a result of climate change.

■ (Action 2.6.4) The disease team will make recommendations and draft guidance, policies, regulations, and/or management action plans to help protect wildlife populations from potential effects of infectious diseases and pathogens.

■ (Action 2.6.5) The disease team will work with the U.S. Geological Survey to analyze and interpret data from wildlife surveys and wildlife disease and pathogen outbreaks to understand the interrelationships between these outbreaks and climate change.

Objective 2.7: Conserve Coastal and Marine Resources

FY 2009–10

■ (Action 2.7.1) The Assistant Directors for the National Wildlife Refuge System and Fisheries and Habitat Conservation will continue to evaluate and improve upon regional sea level rise models (such as the Sea Level Affecting Marshes Model--SLAMM) and application of these models to project future impacts to coastal National Wildlife Refuges. They will expand these models to additional important coastal areas, including Coastal Barrier Resources Act units.

FY 2010-12

■ (Action 2.7.2) The Assistant Directors for the National Wildlife Refuge System, Wildlife and Sport Fish Restoration Programs, and Fisheries and Habitat Conservation will work collaboratively with such partners as the Environmental Protection Agency and States to assemble best management practices for addressing effects of sea-level rise and storm surges in coastal and estuarine areas. The Assistant Director for Fisheries and Habitat Conservation will report annually to the Directorate on progress achieved.

■ (Action 2.7.3) The Assistant Directors for the National Wildlife Refuge System, Wildlife and Sport Fish Restoration Programs, and Fisheries and Habitat Conservation will oversee development and testing of new strategies for coastal, wetland and estuarine management and restoration in the face of climate change, particularly on Land Management and Research Demonstration areas on National Wildlife Refuges. Additional coastal Land Management and Research Demonstration areas may need to be designated for this purpose. The Assistant Director for the National Wildlife Refuge System will report annually to the Directorate on progress achieved.

■ (Action 2.7.4) The Assistant Directors for the National Wildlife Refuge System and Migratory Birds will assess the vulnerability of marine Refuges and other marine resources to climate change and make recommendations to the Directorate, including the feasibility of establishing new marine Refuges.

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■ (Action 2.7.5) The Assistant Director for the National Wildlife Refuge System, Assistant Director for Wildlife and Sport Fish Restoration Programs, Assistant Director for Migratory Birds, and Assistant Director for Fisheries and Habitat Conservation will work collaboratively with such partners as the National Oceanic and Atmospheric Administration to identify best management practices for addressing climate change effects in marine areas; and will oversee development and testing of new strategies for marine management and restoration in the face of climate change, both on and off Service lands and waters. Marine and island Land Management and Research Demonstration areas on National Wildlife Refuges may need to be designated for this purpose. The Assistant Director for the National Wildlife Refuge System will report annually to the Directorate on progress achieved.

■ (Action 2.7.6) The Science Advisor will work with the U.S. Geological Survey to facilitate a multi-disciplinary partnership of Federal agencies, such as the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, State agencies, academia, and non-government and private sector organizations, to study and monitor climate change effects on marine resources.

FY 2011–13

■ (Action 2.7.7) The Assistant Directors of the National Wildlife Refuge System and Fisheries and Habitat Conservation, in collaboration with appropriate Regional Directors, will develop and implement one or more projects demonstrating new strategies for coastal, wetland and estuarine management and restoration in the face of climate change.

■ (Action 2.7.8) The Assistant Directors for the National Wildlife Refuge System and Migratory Birds will continue marine vulnerability assessments, with review and refinements of priorities as necessary.

Objective 2.8: Address Fish and Wildlife Needs in Renewable Energy Development

FY 2009

■ (Action 2.8.1) By February 27, 2009, the Assistant Director for Fisheries and Habitat Conservation and Regional Directors will establish an Energy Working Group to develop tools and approaches for reviewing renewable energy proposals.

■ (Action 2.8.2) The Energy Working Group will support and facilitate Service review of renewable energy proposals by (1) reviewing and, as necessary, updating the Service's Mitigation Policy; (2) identifying workforce skills needed for reviewing energy proposals; (3) identifying tools for risk assessment of renewable energy proposals; (4) identifying a methodology for prioritizing energy-related workload; and (5) developing communication strategies related to renewable energy proposals. The Energy Working Group will issue a progress report to the Assistant Director for Fisheries and Habitat Conservation by September 1, 2009.

■ (Action 2.8.3) The National Climate Team will coordinate with appropriate Federal agencies, including the Department of Energy, Department of Agriculture and the Environmental Protection Agency, to ensure a role for the Fish and Wildlife Service in development of new regulations and policies that are designed to promote ecologically sound alternative energy development.

■ (Action 2.8.4) By September 30, 2009, the Regional Director for Region 3 will lead Service efforts to work with the Association of Fish and Wildlife Agencies and other partners to provide:

- □ Defensible, objective, current information about renewable energy development, including (a) up-to-date science about the implications of energy development and energy-development policies on landscape-scale fish and wildlife conservation; (b) priority research needs; and (c) a strategy for developing best management practices; and
- □ A report on the Service's ongoing efforts to promote balanced alternative energy development, detailing the various projects underway and providing recommendations and "best practices" for future projects as elements of landscape conservation strategies.

FY 2010–13

■ (Action 2.8.5) The Assistant Director for Fisheries and Habitat Conservation will lead Service efforts to develop and implement a plan to address knowledge gaps related to the impacts of alternative energy development on fish and wildlife. The plan will include impact assessment techniques; and scientifically sound and defensible approaches for

1 The Wind Turbine Guidelines Advisory Committee was formed in 2008 to provide advice and recommendations to the Secretary on effective measures to avoid or minimize impacts to wildlife related to land-based wind energy facilities. The Committee is composed of representatives of conservation organizations, the wind energy industry, and Federal, State, and Tribal governments. (2.8.11)

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avoiding, minimizing, and compensating for identified impacts. The Assistant Director for Fisheries and Habitat Conservation will report annually on progress achieved. Knowledge gained will be continuously integrated into this Action Plan.

■ (Action 2.8.6) The Assistant Directors for Fisheries and Habitat Conservation and Migratory Birds, and Regional Directors will facilitate sustainable renewable energy development that fully considers the needs of fish and wildlife by participating in existing collaborative efforts with key partners and stakeholders, such as the National Wind Coordinating Collaborative; and initiate new national, regional and local efforts, such as the regional Great Lakes Wind Collaborative.

■ (Action 2.8.7) The Assistant Directors for Fisheries and Habitat Conservation and Migratory Birds will lead Service efforts to integrate pertinent concepts from the National Wind Coordinating Collaborative into Service directives, protocols, guidelines, and approaches to assist in the review and siting of wind power projects and to avoid and/or compensate for project impacts.

■ (Action 2.8.8) The Assistant Director for Fisheries and Habitat Conservation and Regional Directors will provide technical assistance to project developers and Federal, State, and local regulatory authorities to ensure fish, wildlife, and plants are fully considered in priority renewable energy regulatory decisions. The Assistant Director for Fisheries and Habitat Conservation will report annually to the Directorate on progress achieved.

■ (Action 2.8.9) The Assistant Director for Fisheries and Habitat Conservation and Regional Directors will lead efforts to estimate projected Service workloads associated with development of renewable energy and will, if necessary, increase staffing levels to address high-priority, renewable-energy development projects.

■ (Action 2.8.10) The Assistant Director for Fisheries and Habitat Conservation will lead Service efforts to identify potential systematized, programmatic approaches for ensuring fish and wildlife are considered fully in renewable energy development. The Assistant Director for Fisheries and Habitat Conservation will report to the Directorate annually on progress achieved.

■ (Action 2.8.11) The Assistant Director for Fisheries and Habitat Conservation and Regional Directors will begin to apply the results of the Secretary of the Interior's Wind Turbine Guidelines Advisory Committee[1] to Service directives protocols, guidelines, and approaches for review of wind power projects.

■ (Action 2.8.12) The Assistant Directors for Fisheries and Habitat Conservation and External Affairs will work with Regional Directors to ensure that fish and wildlife considerations are factored into all legislation, policy, and programs dealing with the development of corn-based ethanol. We will encourage the development of cellulosic technology for ethanol production.

■ (Action 2.8.13) The Assistant Director for Fisheries and Habitat Conservation, working with Regional Director, will identify pertinent climate change considerations that should be factored into renewable energy projects, including siting, design, operation, impact-avoidance, and mitigation measures; and that should be transmitted to project developers in the Service's comments on proposed projects.

FY 2011–13

■ (Action 2.8.14) The Assistant Director for Fisheries and Habitat Conservation and Regional Directors will identify and pursue innovative, market-based approaches that would provide incentives for developers to adhere to Service recommendations regarding development of sustainable renewable energy. An example of such an incentive would be a wind power "green certification" program for projects that adequately consult with and address Service concerns.

Objective 2.9: Reduce Non-Climate Change Ecosystem Stressors

FY 2010-12

■ (Action 2.9.1) Each Regional Director will compile the best available, spatially-explicit information on non-climate stressors on ecosystems and habitats, with particular attention to priority landscapes that are most vulnerable to climate change. Emphasis will be placed on changes in land-use (e.g., agricultural conversion, energy development, urbanization, transportation); habitat fragmentation; invasive species; unnatural wildfire; pollution; contaminants; and other disturbances. States, Tribes, and local governments; socio-economic demographers; geographers; transportation planners; agricultural economists; ecologists; and natural resource managers will be requested to provide access to the best information on non-climate stressors. This information will be compiled in regional and national databases, primarily by Landscape Conservation Cooperatives in collaboration with regional climate teams and Regional Climate Science Partnerships.

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■ (Action 2.9.2) Each Regional Director will facilitate the collaboration among Landscape Conservation Cooperatives, regional climate teams, Regional Climate Science Partnerships, and outside experts to use the best available scientific information to model: (1) geographic areas and habitat types within priority landscapes where non-climate stressors are likely to exacerbate climate change impacts; and (2) anticipated near-term changes in non-climate stressors.

■ (Action 2.9.3) Regional Directors will work with the Assistant Directors for the National Wildlife Refuge System, Migratory Birds, and Fisheries and Habitat Conservation to demonstrate how Service programs can reduce non-climate stressors in priority landscapes to promote landscape conservation within the strategic habitat conservation framework. Regional Directors will develop and implement one or more demonstration projects annually, and will report to the Directorate on progress achieved.

Objective 2.10: Foster International Coordination for Landscape Conservation

FY 2010–13

■ (Action 2.10.1) The Assistant Director for International Affairs will work with our Migratory Bird program and our various international programs (Wildlife Without Borders' Multinational Species programs, the Trilateral Committee for Wildlife and Ecosystem Conservation and Management, the Western Hemisphere Migratory Species Initiative, and other conventions, treaties and memorandums of understanding) to take the Service lead in engaging decision-makers and natural resource agency managers in foreign countries to use a landscape conservation approach to support wildlife adaptation to climate change. We will use existing regional partnerships for training in Latin America, Africa, India and the Caribbean to assist other nations with their wildlife adaptation and landscape conservation goals. These international training partnerships, centers of excellence of long standing, will, among other things, help to: provide information, technical assistance, and funding to nations to identify key areas that are vulnerable to climate change; create corridors to connect wildlife protected areas; expand buffer zones around protected areas; and establish trans-boundary corridors for the safe passage and movement of wildlife between countries. The Assistant Director of International Affairs will report annually to the Directorate on progress achieved.

■ (Action 2.10.2) Working through these regional training partnerships, the Assistant Director for International Affairs will take the lead in providing information, technical assistance and funding to help foreign countries identify coastal areas that will face the greatest impact from climate change and sea-level rise, thereby helping to ensure that coastal habitats are available for key species and that nesting habitat is available for such species as marine turtles. The Assistant Director of International Affairs will report annually to the Directorate on progress achieved.

GOAL 3

We will develop monitoring and research partnerships that make available complete and objective information to plan, deliver, evaluate, and improve actions that facilitate fish and wildlife adaptations to accelerating climate change.

Objective 3.1: Develop a National Biological Inventory and Monitoring Partnership

FY 2009

■ (Action 3.1.1) The Assistant Directors for Migratory Birds and the National Wildlife Refuge System, and the Regional Director for Region 7 will assemble staff and resources necessary to develop a white paper exploring alternatives for how the Service can best contribute to national inventory and monitoring needs and the long-term understanding of the effects of changing climate on fish and wildlife, including through such efforts as the National Park Service's Inventory and Monitoring Program and the USA National Phenology Network. The Assistant Director for Migratory Birds will take the lead in producing the white paper, which is to be completed by September 30, 2009.

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FY 2010–13

■ (Action 3.1.2) The Assistant Director for the National Wildlife Refuge System will develop and implement a pilot inventory and monitoring program on National Wildlife Refuge System lands; the program will be modeled on existing programs with proven track records (e.g., U.S. Forest Service's Inventory and Analysis Program and the National Park Service's Inventory and Monitoring Program). The Assistant Director for the National Wildlife Refuge System will report annually to the Directorate on progress achieved.

Objective 3.2: Promote Physical Science and Remote-sensing Monitoring Programs

FY 2010–13

■ (Action 3.2.1) The National Climate Team and regional climate teams will work with other organizations to expand proven, land-based physical science and remote-sensing monitoring programs (e.g., U.S. Forest Service/Bureau of Land Management's Remote Automated Weather Stations) that are relevant to the Service's monitoring of biotic and abiotic landscape changes resulting from climate change and non-climate stressors such as habitat fragmentation.

■ (Action 3.2.2) The National Climate Team, regional climate teams and Regional Climate Science Partnerships will collaborate with the U.S. Geological Survey, National Oceanic and Atmospheric Administration, and National Aeronautics and Space Administration to develop a remote-sensing program for monitoring Service lands and priority landscapes. This program will complement land-based monitoring programs developed in Actions 3.1.2 and 3.2.1.

Objective 3.3: Develop Research and Monitoring Capability for Use in Landscape Conservation

FY 2010–11

■ (Action 3.3.1) The National Conservation Training Center will coordinate with the Strategic Habitat Conservation Technical Advisory Team to develop training and materials concerning the proper application of assumption-driven research and monitoring and evaluation tools within the Service's strategic habitat conservation framework.

■ (Action 3.3.2) The Assistant Director for the National Wildlife Refuge System will develop and implement pilot studies on Land Management and Research Demonstration areas on National Wildlife Refuges to showcase assumption-driven research and monitoring/evaluation that are used in strategic habitat conservation.

FY 2011–13

■ (Action 3.3.3) The National Conservation Training Center will work with the National Strategic Habitat Conservation Technical Advisory Team to train Service managers in the fundamentals of assumption-driven research and monitoring to help ensure that this component of strategic habitat conservation is incorporated into all of our landscape conservation efforts.

■ (Action 3.3.4) The Science Advisor and Assistant Director for the National Wildlife Refuge System will initiate a program to better understand the role of key ecological processes on Service lands and how they may be affected by climate change by developing research experiments and demonstration projects on Service lands, particularly Land Management and Research Demonstration areas on National Wildlife Refuges (see Action 2.3.4).

Objective 3.4: Further Develop Collaborative Research Partnerships

FY 2010–11

■ (Action 3.4.1) The Science Advisor will conclude Memoranda of Understanding with the National Oceanic and Atmospheric Administration, National Aeronautics and Space Administration, and U.S. Geological Survey National Climate Change and Wildlife Science Center for all climate-change and remote- sensing work.

■ (Action 3.4.2) The Assistant Director for the National Wildlife Refuge System will work with other partners to identify existing and designate new Research Natural Areas on Service lands as long-term sites for integrated research on climate change impacts. Some of these Research Natural Areas will be located in areas less likely to be impacted by climate change (climate refugia) and will thereby serve as a research baseline.

■ (Action 3.4.3) The Assistant Director for the National Wildlife Refuge System will expand the Land Management and Research Demonstration (LMRD) program by designating more LMRD areas on National Wildlife Refuges, by providing greater funding to the program, and by encouraging collaborating institutions to undertake long-term research and experimental management projects on LMRD areas.

■ (Action 3.4.4) The Science Advisor will develop and administer a Service-wide, competitive, climate-change research grant program that addresses needs identified by the Service.

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Mitigation

GOAL 4

We will change our business practices to achieve carbon neutrality by the Year 2020.

Objective 4.1: Assess and Reduce the Carbon Footprint of the Service's Facilities, Vehicles, Workforce, and Operations

FY 2009

■ (Action 4.1.1) By January 31, 2009, the Assistant Director for Business Management and Operations and Regional Director for Region 1 will establish and charter a national Carbon Neutral Team.

■ (Action 4.1.2) The Carbon Neutral Team will:

□ By December 31, 2009, complete a rigorous and transparent assessment of the Service's carbon footprint, using accepted and documented methodology;

□ By December 31, 2009, develop a Service manual chapter to supercede Director's Order 144, incorporate the requirements of the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, Executive Order 13423, and implement the Service's carbon neutral goal.

□ By January 31, 2010, identify barriers and recommend and prioritize options to increase the efficiency of our vehicle fleet by no less than 10 percent per year through 2019, including through purchase of hybrid vehicles and alternative fuel infrastructure and modify the Service's 5-Year Fleet Plan to reflect the recommended options (with Assistant Director for the National Wildlife Refuge System);

□ Prioritize options to reduce the carbon footprint of the Service's workforce no less than 10 percent per year through 2019 (e.g., increase energy efficiency of Service facilities and office space, expanding mass transit subsidies, carpooling, telecommuting, video conferencing, coordinating meetings and conferences, green purchasing);

□ Develop a plan and schedule for increasing the use of renewable energy at Service facilities.

□ Issue a report on these efforts no later than June 30, 2010.

■ (Action 4.1.3) Each Assistant Director and Regional Director will ensure that all offices and field stations complete energy audits by June 1, 2012.

FY 2010–13

■ (Action 4.1.4) The Carbon Neutral Team will continue efforts to reduce the carbon footprint of the Service's facilities, vehicles, workforce, and operations through annual work programs developed by the Team and approved by the Directorate. The Carbon Neutral Team will report annually to the Directorate on progress achieved.

Objective 4.2: Assess and Reduce the Service's Land Management Carbon Footprint

FY 2009-10

■ (Action 4.2.1) The Carbon Neutral Team will identify and initiate rigorous procedures to inventory Service land and water management practices to quantify sources and sinks of greenhouse gases with an intital emphasis on prescribed fire on Service lands. The Team will issue its report by September 30, 2010.

FY 2010–12

■ (Action 4.2.2) The Carbon Neutral Team will complete its efforts to inventory Service land and water management practices to quantify sources and sinks of greenhouse gases, and issue a report by September 30, 2011.

■ (Action 4.2.3) The Carbon Neutral Team will work with Service regions and programs, including Regional Green Teams[2], to identify actions and policies that would reduce the carbon footprint of Service land and water management practices as we continue to accomplish the Service's mission. The options developed will fully consider information developed under Action 4.2.1 and 4.2.2 and will be presented to the Directorate for consideration and action.

FY 2011–13

■ (Action 4.2.4) The Carbon Neutral Team will coordinate efforts among regions and programs to institute actions the Directorate deems necessary to reduce the carbon footprint of land and water management practices. The Carbon Neutral Team will report annually to the Directorate on progress achieved.

2 "Green Teams" were established by various Fish and Wildlife Service regions in response to Director's Order 144, "Greening the Service through Environmental Leadership," which calls upon the agency to "… incorporate the most ecologically sound and environmentally beneficial technologies, tools, materials and practices into all aspects of planning, operations, land and water protection, natural and cultural resource management, wilderness management, interpretation, education, facility design, facility construction, facility maintenance, lease acquisition, procurement, and contracted and/or permitted commercial visitor services."

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Objective 4.3: Offset the Remaining Carbon Balance

FY 2011

■ (Action 4.3.1) The Carbon Neutral Team will work with Service programs and others to develop a comprehensive slate of viable options to offset the remaining balance of the Service's carbon footprint. This review will include a description of the considerations and costs associated with each option, the legislative and regulatory constraints, and the needs for new policy or policy modifications. Options developed will include domestic and international possibilities for offsetting the residual carbon footprint (e.g., restoring tropical forests, protecting or restoring wintering habitats for migratory birds). These options will be presented to the Directorate for review and approval.

FY 2012–13

■ (Action 4.3.2) The Carbon Neutral Team, Assistant Directors, and Regional Directors will begin implementation of the options approved by the Directorate for offsetting the Service's residual carbon footprint. The Carbon Neutral Team will report annually to the Directorate on progress achieved.

GOAL 5

To conserve and restore fish and wildlife habitats at landscape scales, we will build our capacity to understand, apply, and share biological carbon sequestration science; and we will work with partners to sequester atmospheric greenhouse gases in strategic locations.

Objective 5.1: Develop Biological Carbon Sequestration Expertise

FY 2009

■ (Action 5.1.1) By February 27, 2009, the Assistant Director for the National Wildlife Refuge System and the Regional Director for Region 4 will establish and charter a multidisciplinary Carbon Sequestration Working Group. The Working Group will develop expertise in biological carbon sequestration that will be used to promote landscape-scale conservation and achievement of wildlife population objectives. The expertise will be applied to the tasks outlined in Objectives 5.2–5.5. The Carbon Sequestration Working Group will coordinate its activities with the National Climate Team.

Objective 5.2: Develop Standards, Guidelines, and Best Management Practices for Biological Carbon Sequestration

FY 2009

■ (Action 5.2.1) The Carbon Sequestration Working Group will compile and share scientifically sound approaches, standards, guidelines, and best management practices for biological carbon sequestration activities in the context of landscape-scale fish and wildlife conservation, including strict requirements for use of native vegetation. The Carbon Sequestration Working Group will provide state-of-the-art science relative to greenhouse gases mitigation and sequestration and will issue a report to the Directorate by September 1, 2009.

■ (Action 5.2.2) By May 1, 2009, the Regional Director for Region 4 will publish a report that details the biological carbon sequestration projects the Service has implemented to date and provides recommendations and best management practices for future projects as elements of landscape conservation strategies.

■ (Action 5.2.3) The Carbon Sequestration Working Group will develop a protocol to assess potential biological carbon sequestration opportunities on Service lands so that the Service is prepared to respond to an emerging carbon market, and will issue a report outlining the protocol to the Directorate by September 1, 2009.

■ (Action 5.2.4) By January 31, 2010, the Assistant Director for the National Wildlife Refuge System will issue a report assessing biological carbon storage capacities on Service lands, related market opportunities, and priority actions to promote refuge-based sequestration projects that support landscape-scale conservation and achievement of wildlife population objectives.

FY 2010

■ (Action 5.2.5) The Carbon Sequestration Working Group will begin distributing to Service employees and our partners a report compiling the approaches, standards, guidelines, and best management practices for integrating biological carbon sequestration into project planning on and off Service lands.

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FY 2011–13

■ (Action 5.2.6) The Carbon Sequestration Working Group will serve as a resource for Service programs and regions that need assistance in determining the approaches, standards, guidelines, and best management practices to use for specific biological carbon sequestration projects on and off Service lands.

Objective 5.3: Integrate Biological Carbon Sequestration Activities into Landscape Conservation Approaches

FY 2010–13

■ (Action 5.3.1) Each Regional Director, working through Landscape Conservation Cooperatives, will integrate and apply the standards, guidelines, and best management practices developed in Objective 5.2 to identify and implement biological carbon sequestration projects on and off Service lands in a strategic landscape context that benefits fish and wildlife populations. Regional Directors will report annually to the Directorate on progress achieved.

■ (Action 5.3.2) The Carbon Sequestration Working Group will collaborate with the Strategic Habitat Conservation Technical Advisory Team to develop a plan to incorporate biological carbon sequestration approaches into the strategic habitat conservation framework, and to monitor efforts to sequester carbon in a strategic landscape context.

FY 2011–13

■ (Action 5.3.3) The Assistant Director for the National Wildlife Refuge System will coordinate with the Carbon Sequestration Working Group to provide formal tracking of the use of Service lands for biological carbon sequestration purposes and any associated carbon credits that result. The Assistant Director for the National Wildlife Refuge System will report annually to the Directorate on progress achieved.

Objective 5.4: Facilitate Biological Carbon Sequestration Internationally

FY 2009

■ (Action 5.4.1) The Carbon Sequestration Working Group, working with the Assistant Director for International Affair will facilitate international partnerships to reduce deforestation rates in strategic locations (e.g., tropical forests) and provide technical assistance and funding for restoration efforts. The Working Group will issue an accomplishment report by September 1, 2009.

FY 2010–13

■ (Action 5.4.2) Working through our international partnerships for training, the Assistant Director for International Affairs will take the lead in providing information, technical assistance and funding to help foreign countries increase efforts to biologically sequester carbon, restore habitat, and establish corridors to facilitate movement of wildlife; and will make additional funds available to implement high priority activities. The Assistant Director for International Affairs will report annually to the Directorate on progress achieved.

■ (Action 5.4.3) The Assistant Director for International Affairs and the National Conservation Training Center Director will provide additional theoretical and field-based training for foreign scientists and resource managers on methods to create wildlife habitat while sequestering carbon.

■ (Action 5.4.4) The Assistant Director for International Affairs, in collaboration with the Carbon Sequestration Working Group, will work with domestic and international partners to identify ways to assist local communities in obtaining carbon credits to support their involvement in protecting and enhancing wildlife protected areas, and ways to use funds generated from carbon credits to provide continued support for wildlife protected areas in foreign countries.

Objective 5.5: Facilitate Biological Carbon Sequestration Research

FY 2009

■ (Action 5.5.1) The Carbon Sequestration Working Group will identify research to fill priority information needs and will issue a report by September 1, 2009.

FY 2010

■ (Action 5.5.2) The Carbon Sequestration Working Group will collaborate with other organizations (e.g., U.S. Geological Survey) to develop a Service plan for carbon sequestration research. The plan will include specific issues to be addressed by research, who will conduct the research, where the research will be conducted, and due dates for completion of research.

■ (Action 5.5.3) The Service will evaluate the potential for designating Land Management and Research Demonstration areas on Refuges specifically for conducting carbon sequestration research.

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■ (Action 5.5.4) The Carbon Sequestration Working Group will work with the U.S. Geological Survey to implement the research plan developed under Action 5.5.2.

■ (Action 5.5.5) The Carbon Sequestration Working Group will work with other organizations (e.g., U.S. Geological Survey) to integrate new research findings into carbon sequestration approaches.

Objective 5.6 : Evaluate Geologic Carbon Sequestration

FY 2009–13

■ (Action 5.6.1) The Carbon Sequestration Working Group will participate in Department of the Interior efforts to evaluate and implement geologic carbon sequestration to ensure that potential impacts to fish, wildlife, plants and their habitats are considered and minimized.

Engagement

GOAL 6

We will engage Service employees; our local, state, national, and international partners in the public and private sectors; our key constituencies and stakeholders; and everyday citizens in a new era of collaborative conservation in which, together, we seek solutions to the impacts of climate change and other 21st century stressors of fish, wildlife and habitats.

Objective 6.1: Provide Service Employees with Climate Change Information, Education, and Training

FY 2009

■ (Action 6.1.1) The Assistant Director for External Affairs and the National Conservation Training Center Director will form a Climate Education Team that will develop and implement a comprehensive engagement plan addressing internal and external needs for information, education, and training about climate change.

■ (Action 6.1.2) By March 31, 2009, the Assistant Director for External Affairs and the Climate Education Team will develop an internal communication plan, stepped down from the comprehensive employee engagement plan, that covers the basics of climate change science; the urgency of addressing climate change to fulfill our mission; Service actions to address climate change; and the need for employees to take individual responsibility to be involved in adaptation, mitigation, and engagement activities.

■ (Action 6.1.3) By October 1, 2009, the National Conservation Training Center will begin implementing a climate change curriculum. The National Conservation Training Center will: (a) begin incorporating climate change modules into appropriate existing courses to educate employees about climate change and to give them needed skills to participate in adaptation, mitigation, and engagement strategies; and (b) begin development of climate change courses that will give managers, supervisors and employees the necessary skills to carry out their climate-related responsibilities.

■ (Action 6.1.4) The Climate Education Team will develop a change-management strategy to engage Service employees about the crisis of climate change and the significance of the Strategic Plan for Responding to Accelerating Climate Change and the 5-Year Action Plan to our mission accomplishment.

FY 2010–13

■ (Action 6.1.5) The National Conservation Training Center Director will expand delivery of the new climate change curriculum through training courses and workshops to assist Service employees in developing the necessary skills to address climate change and to manage organizational change.

■ (Action 6.1.6) The National Conservation Training Center Director and the Assistant Director for Information Resources and Technology Management will develop and deliver satellite broadcasts to educate Service employees on climate change and climate change information management.

■ (Action 6.1.7) The Climate Education Team will work with the National Climate Team to initiate annual, internal climate change forums to share current information and science.

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■ (Action 6.1.8) The National Conservation Training Center Director will host a "Young Leaders Forum" as part of the Service Leadership Development Program to engage younger employees in developing innovative solutions to natural resource challenges, including climate change.

■ (Action 6.1.9) The Directorate will ensure that scholarships are available for current Service employees to broaden their technical expertise and thereby increase Service capacity to meet challenges associated with climate change.

■ (Action 6.1.10) The Climate Education Team and the National Conservation Training Center Director will develop a plan to expand the use of student programs (e.g., Student Career Experience Program, Student Temporary Employment Program, student interns) to enable the Service to recruit graduates with advanced degrees in landscape ecology, landscape conservation, climate change science, or other fields relevant to addressing climate change.

■ (Action 6.1.11) The Assistant Director for External Affairs and National Conservation Training Center Director will review the internal and external communication plans on an annual basis to ensure that they contain the most up-to-date information on climate change science and that they accurately reflect Service climate change plans and actions.

Objective 6.2: Share Climate Change Information, Education, and Training Opportunities with External Audiences

FY 2009

■ (Action 6.2.1) By June 30, 2009, the Assistant Director for External Affairs will approve and begin implementing a communications plan for external audiences, including international audiences, which will identify necessary core communications products and the programs with responsibility to produce and distribute those products.

FY 2010–11

■ (Action 6.2.2) The Assistant Director for External Affairs will incorporate climate change-related outreach in Service communications products.

■ (Action 6.2.3) The Climate Education Team will identify opportunities to collaborate with other organizations, particularly utility and public service companies, in distributing information to help the public better understand the urgency of climate change and how they can participate in mitigation, adaptation, and engagement activities. The Climate Education Team will pursue opportunities to piggy-back on mass-mailings to companies' customers, as appropriate.

■ (Action 6.2.4) The Director will engage non-traditional and traditional partners to identify additional ways of helping all Americans understand the urgency of climate change and how they can participate in addressing the problem.

■ (Action 6.2.5) The Climate Education Team and Assistant Director for Information Resources and Technology Management will establish electronic means of posting and sharing lessons learned, Service success stories, and other information related to implementing climate change mitigation, adaptation and engagement activities. They will explore all avenues of communication to reach all age groups, with special emphasis on venues for children and young adults (e.g., Facebook, YouTube).

■ (Action 6.2.6) The Climate Education Team and National Conservation Training Center Director will develop web-based, interactive courses to educate the public about the causes and consequences of accelerating climate change and how they can reduce their carbon footprints. These courses will be made available on the Service's Climate Change web portal <www.fws.gov/home/climatechange>.

■ (Action 6.2.7) The Climate Education Team and Assistant Director for the National Wildlife Refuge System will develop displays and interactive materials that can be used at National Wildlife Refuge and National Fish Hatchery visitor centers and aquaria and in Refuge naturalist programs to inform the public about climate change, its effects on fish and wildlife, and things that members of the public can do to reduce their carbon footprints.

FY 2010–13

■ (Action 6.2.8) The Assistant Director for International Affairs will work with Directorate members to use the Service's international partnerships in training in Latin America, Africa, India and the Caribbean to assist other nations in reaching their climate change adaptation, mitigation and education goals.

■ (Action 6.2.9) At least one National Wildlife Refuge per year in each Service Region will develop a climate change program, with visitor center displays and informational publications, as part of its education/interpretation outreach.

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Objective 6.3: Forge Alliances and Create Forums on Climate Change to Exchange Information and Knowledge and to Influence Policy Internationally

FY 2009

■ (Action 6.3.1) By December 31, 2009, the Science Advisor and Regional Director for Region 5, working with the National and Regional Climate Teams, will publish a summary report identifying the climate change conservation strategies of government, private sector, and non-government organizations; and mechanisms for integrating these strategies with those of the Service.

■ (Action 6.3.2) By September 30, 2009, the Assistant Director for International Affairs and Regional Directors for Regions 2 and 7 will produce a framework and strategy for engaging key countries in: (a) sharing state-of-the-art knowledge on climate change adaptation, mitigation, and engagement strategies, including through personnel exchanges; and (b) identifying ways to engage the Service more effectively in the United Nations Framework Convention on Climate Change and other appropriate international forums.

■ (Action 6.3.3) The Science Advisor, working with the National Climate Team and Assistant Directors, will develop a national forum (e.g., a workshop/symposium or series of workshops/symposia) with partners to explore and implement mechanisms to coordinate on a variety of wildlife conservation issues related to climate change.

FY 2009–13

■ (Action 6.3.4) Regional Directors, with appropriate assistance from the Assistance Director for External Affairs and the National Native American Liaison will engage Native American Tribes and indigenous peoples, particularly those in the forefront of climate change in Alaska, to learn from their traditional ecological knowledge as we shape Service adaptation and mitigation strategies.

■ (Action 6.3.5) The National and Regional Climate Teams and other interested Service employees will actively participate in climate change symposia, meetings, workshops and other forums sponsored by State, Federal, Tribal, and local agencies; nongovernment organizations; business and industry; and other nations. The Science Advisor and Regional Directors will make funding available to those individuals who attend meetings to give formal presentations on the Service's climate change program.

■ (Action 6.3.6) The Climate Education Team will form an alliance with the U.S. Department of Agriculture's Natural Resources Conservation Service and its Cooperative Extension System in incorporating climate change messages into Natural Resources Conservation Service and its Cooperative Extension System publications and programs related to wildlife.

■ (Action 6.3.7) The Climate Education Team will form alliances with universities, colleges, and non-government organizations to develop dynamic courses that include interdisciplinary approaches to addressing climate change in on-the-ground conservation.

FY 2010–13

■ (Action 6.3.8) The Director will provide funding to support a clearinghouse that will assist other nations by supplying tool kits, handbooks, and electronic links to projects that have successfully addressed climate change in developing countries.

■ (Action 6.3.9) The Assistant Directors for International Affairs and Migratory Birds will work with international partners to establish and support training courses at strategic locations worldwide to help policy-makers better understand the causes and consequences of accelerated climate change, and assist these nations in their efforts to accomplish their adaptation, mitigation and education goals.

"[Humankind] is not imprisoned by habit. Great changes in [people] can be wrought by crisis—once that crisis can be recognized and understood."

Norman Cousins, 1915–1990, political journalist, author, professor, and world peace advocate

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The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people. We are both a leader and trusted partner in fish and wildlife conservation, known for our scientific excellence, stewardship of lands and natural resources, dedicated professionals and commitment to public service. For more information on our work and the people who make it happen, visit <www.fws.gov>.

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