



Project Title: *Planning for Climate Change on the National Wildlife Refuge System – A Primer* Primarily for Refuge System Personnel

Headline Title (2-5 words): Climate Change Planning – Refuge System

Brief Summary: *Planning for Climate Change on the National Wildlife Refuge System* is a document produced pursuant to this project. *Planning for Climate Change* is a relatively comprehensive review of climate change issues (ecological and other) facing the Refuge System, along with an overview of: Refuge System climate change planning mandates and directives; climate vulnerability assessment; philosophical considerations in climate change planning; guidance for incorporating climate change considerations in Refuge System planning documents; case studies, and; resources including links and 500+ literature citations.

Project Location: The scope of the project is the National Wildlife Refuge System, at a minimum, and goes beyond its borders for landscape-level planning purposes. The location of project coordination is Refuge System headquarters.

Partners: Partners with the Refuge System in the production of *Planning for Climate Change* are the University of Maryland, U.S. Geological Survey (including the National Wetlands Research Center), U.S. Forest Service (including the Rocky Mountain Research Station), USA National Phenology Network, University of Arizona, South Dakota State University, Biodiversity Research Institute, Colorado State University, and National Oceanic and Atmospheric Administration.

Background: Climate change is a major challenge to the management, planning, and policies of the National Wildlife Refuge System. The Refuge System is required to incorporate climate change considerations into planning documents such as Landscape Conservation Designs, Comprehensive Conservation Plans, and Land Protection Plans. Climate change considerations vary substantially among refuges. *Planning for Climate Change* helps Refuge System personnel to ascertain and address the relevant climate change considerations.

Project Goals: The goal in developing *Planning for Climate Change on the National Wildlife Refuge System* is to assist refuge managers, biologists, planners, and others involved in the development of Refuge System planning documents with incorporating the most relevant climate change considerations into Landscape Conservation Designs, Comprehensive Conservation Plans, Land Protection Plans, and other Refuge System planning documents as necessary.

Strategy Goals Implemented: Goal 3

Climate Impacts Addressed: Ecological and other relevant impacts on landscapes, habitats, species, and refuge purposes and operations.



Status of Project Implementation: Project is completed. *Planning for Climate Change on the National Wildlife Refuge System* is available for dissemination.

Project Outcomes: *Planning for Climate Change on the National Wildlife Refuge System* will be used in the development of Refuge System planning and pre-planning documents such as Landscape Conservation Designs, Comprehensive Conservation Plans, Land Protection Plans, Preliminary Project Proposals, and Habitat Management Plans. *Planning for Climate Change* will be a go-to document for ensuring that Refuge System plans incorporate climate change considerations pursuant to FWS and DOI mandates.

Funding Sources: U.S. Fish and Wildlife Service with in-kind contributions from partners listed above.

Photos/Attachments: