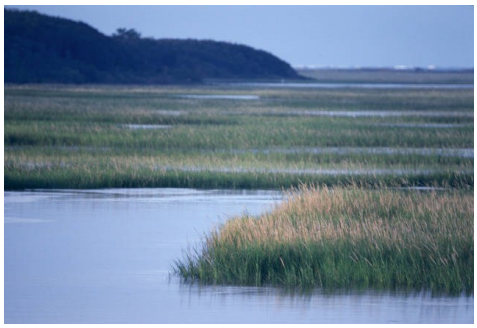
DoD's Response to Climate Change

Climate Change Threatens DoD's Lands and Military Mission

The effects of climate change on U.S. Department of Defense (DoD) installations are becoming increasingly significant and have the potential to impact the military mission. Installations across the country require diverse landscapes with healthy ecosystems to successfully contribute to core training missions and ensure military readiness.

DoD is responsible for managing nearly 28 million acres of land and hundreds of square miles of air and sea space to conduct missions vital to national security. The same land, air, and sea space provides habitat for a great diversity of plants and animals, more than 40 of which are found only on DoD lands. In fact, with 420 threatened and endangered species and over 520 species at-risk, DoD harbors more sensitive species per acre than any other federal land managing agency. Extreme weather events can alter these habitats and the species that depend on them.



Salt Marsh
Photo: USFWS

Congressmen and women, as well as professionals in industries, governmental agencies, and nongovernmental organizations are working to find ways to reduce greenhouse gas emissions, which may influence climate change. However, several reports indicate that a focus on emissions alone is not enough. Because the planet will experience changes in climate for decades and centuries to come, it is important that we work to mitigate impacts to our water, wildlife, and other natural resources.

DoD is a leader among organizations that are funding projects to assess climate change impacts and determine the best strategies available to respond to climate change. DoD's Legacy Resource Management Program (Legacy) and Strategic Environmental Research and Development Program (SERDP) are two offices funding these types of projects.

DoD Legacy Projects

Guidelines for Assessing the Vulnerability of Species and Habitats to Climate Change (09-460):
These guidelines describe ways to assess how vulnerable plants and animals are to anticipated changes in climate. The information is intended to help DoD natural resources managers better manage those species and habitats most likely to need conservation actions as a result of expected changes.

Sea Level Rise Risk Assessment for DoD Coastal Installations (08-410):
This project assessed the risk of sea level rise to natural, cultural, and operational resources at five DoD installations on the Dare County peninsula in North Carolina. The assessments were made using the Intergovernmental Panel on Climate Change (IPCC) moderate sea level rise scenario, and showed that major training interruptions could begin as soon as 2050, when forestland converts to wetter marsh transition vegetation. Further, as a result of climate change impacts, *all* Air Force and Navy testing and training operations in the region may be halted by 2100.

Modeling the Impacts of Climate Change on Birds and Vegetation on Military Lands (10-465):
These models predict and map how climate change may alter vegetation and bird distribution on DoD lands in California. Vegetation and bird losses are projected to be much greater on DoD lands than on other public lands in California since birds and vegetation are significantly more abundant and diverse on DoD lands. If regional climate changes result in declines of already sensitive species on military installations, those species could become listed as endangered, which could potentially halt military training.

Red Knot
Photo: USFWS

SERDP Projects

Assisted Migration as a Management Tool in Coastal Ecosystems Threatened by Sea Level Rise (SI-1692) and **Use of Multi-Scale Models, Data and Scenario Projections to Reduce Risk of Climate Change Effects and Human Disturbances on the Distribution of Nesting Snowy Plovers and Wintering Piping Plovers on Florida Military Installations (SI-1699):**

Black-Capped Vireo
Photo: USFWS

These projects assessed the impact of sea level rise and associated storm surges on barrier islands and marshes. They developed tools to show how climate change and variability may affect habitat and population dynamics for bird populations in Florida. These tools also can evaluate assisted migration and colonization for plant species subject to increased storm surge levels, and assess whether coastal marsh plants can grow and accumulate sediments fast enough to keep pace with the rate of sea level rise. These significant landscapes provide habitats for species of concern, as well as protection for infrastructure on coastal military installations.

Forecasting the Relative and Cumulative Effects of Multiple Stressors on At-Risk Populations (SI-1541): Researchers evaluated the impacts of climate and vegetation changes, land-use change, training maneuvers, land and pest management, and other stressors to species living on military installations. The project developed a flexible population model with climate change projections and anticipated changes in the dominant vegetation types for three installations. DoD will use this modeling tool to conduct risk assessments for imperiled species on military lands across the country.

Snowy Plover
Photo: USFWS

Desert Tortoise Hatchling

Southwest FY10 new-start projects:
These projects focus on interactions between non-native invasive species, fire regimes, and the impact of climate change on ecological systems. Scientists are developing predictive models to inform land managers of potential future land and resource conditions and to help them modify their management strategies. Other SERDP projects are investigating how climate change is degrading intermittent and ephemeral stream systems, which provide important habitats for the region's diverse flora and fauna.

DoD's Commitment to Fighting Climate Change

DoD is committed to providing tools and guidance to help its natural resources personnel manage for anticipated climate change impacts in ways that reduce potential negative consequences. The insights gained from these and other projects will help resource managers maintain healthy habitats, thereby allowing our Servicemen and women to train in the most realistic, natural conditions possible, today and into the future.

Contact Information:

L. Peter Boice
Deputy Director, Natural Resources
Department of Defense
peter.boice@osd.mil
www.DoDNaturalResources.net
www.DoDLegacy.org
https://www.denix.osd.mil/portal/page/portal/NaturalResources

October 2010