Defenders of Wildlife

Climate Change in the Southeast

IMPACTS ON LANDS AND WILDLIFE

A Unique Region

The Appalachian Mountains form a forested spine through the Southeast region from Virginia south to Georgia that harbors some of the highest diversity found anywhere in the temperate region. Remnant long-leaf pine forests that once covered millions of acres in the coastal plain from Florida to Virginia also support a unique diversity of species. Great stretches of coastal wetlands and estuaries support countless waterfowl and are also home to some of the countries most endangered animals such as whooping cranes in the coastal wetlands of Texas, red wolf in the coastal regions of North Carolina and the Florida panther in the Everglades and possibly the last remaining ivory-billed woodpeckers in the flooded bottomland hardwoods of Louisiana and Arkansas. Virtually all these places and species are under stress from past land use and management practices, over-exploitation, pollution and other threats and all are increasingly vulnerable to climate change.

Long-tail Salamander Photo USFWS

Natural Resources at Risk

Climate changes are projected to cause considerable stress to the wildlife of the Southeast region and to the habitats upon which they depend.

Image: Global Change Research Program

***Forests*:** Increasing temperatures, coupled with shifts in precipitation, are forecast to increase summertime drought conditions in forests, raising the risk of forest fires. Drought stress also makes trees more vulnerable to attack by insects and pathogens, like the southern pine beetle. High elevation conifer forests in the Appalachians could be literally pushed off the top of the Earth by climate change. And less mobile species, like the amazing diversity of salamanders and freshwater mussels in the southern Appalachians, will have difficulty adapting to shifts in climate.

***Coasts and estuaries*:** These regions are home to some of our country's most imperiled species – red wolves, Florida panthers and whooping cranes. Sea level rise, salt water intrusion and increased storm surges harm salt marshes and coastal estuaries, threatening important breeding areas for fish, birds and many other organisms. Where marsh migration cannot keep pace with sea level rise, vast expanses of habitat may be lost. Loss of coastal land will also force humans further inland, leading to increased degradation of upland habitats.

Expected Climate Changes

Rising temperatures
According to the U.S. Global Change Research Program's 2009 *report "Global Climate Change Impacts in the United States," temperatures in the Southeast region have already risen by about 2°F in the past 100 years, and are projected to rise by 4.5°F under the lowest emission scenarios and by up to 9°F—with summer temperatures rising up to 10.5°F – under the highest emission scenarios.

Precipitation Shifts
Much of the Southeast is projected to see small increases in precipitation over the next century. More important than amount, however, is the pattern of precipitation. Precipitation is projected to increase substantially over most of the Southeast in autumn but decline sharply over the rest of the year. Furthermore, a larger fraction of total precipitation is forecast to come in the form of large storm events. Already, over the past 50 years, the percent of precipitation falling in the heaviest events has increased 18% in the Southeast. These changes mean the region will have increased likelihood of flooding as well as stretches of drought, particularly in spring and summer.

Sea Level Rise
Sea level rise is difficult to forecast over the long term, given uncertainties about the rate of melting from the ice sheets on Greenland and Antarctica. By the end of this century, sea level is projected to rise between 2.25 to 3.25 feet depending on the emissions scenario. Due to land subsidence in the east, the effect of the rise will seem about 10 to 20% higher than the actual. The number of intense hurricanes is also projected to increase, bringing large damaging storm surges in coastal areas.

*Global Change Impacts in the United States, Thomas R. Karl, Jerry M. Melillo and Thomas C. Peterson (eds.) Cambridge University Press, 2009. Available at www.globalchange.gov/usimpacts

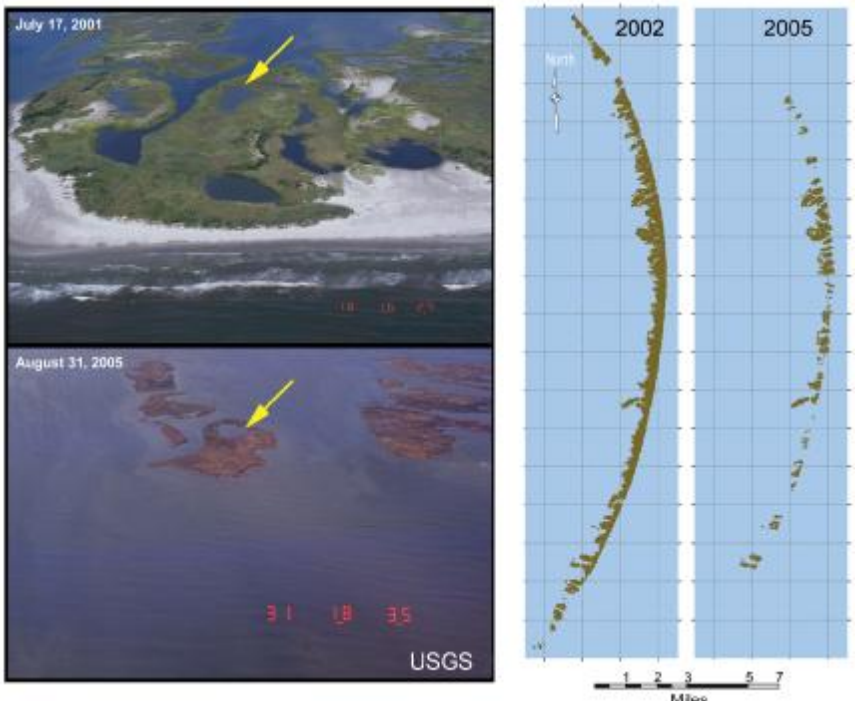

Photo: U.S. Global Change Research Program

Loss of wetlands on Chandeleur Islands near New Orleans after Hurricanes Katrina and Rita. 85% of the island's above ground land mass was lost.