



## CHANGE THE FORECAST FOR WILDLIFE

SOLUTIONS TO GLOBAL WARMING

# Global Warming and MICHIGAN

With its delicate lake shores and ecosystems already stressed by habitat fragmentation, pollution and other man-made problems, Michigan stands to lose a great deal if global warming continues unabated. The Union of Concerned Scientists and the Ecological Society of America estimate that by 2100, average summer temperatures in the state could increase between 7-13 degrees Fahrenheit depending on the extent to which greenhouse gas emissions are curbed. Precipitation is also likely to increase, although warmer average temperatures and higher evaporation rates are expected to lead to drier conditions overall.

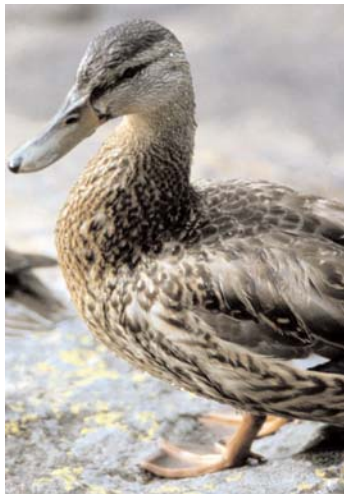


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## Global warming effects on Michigan wildlife

Michigan is home to an incredible diversity of native wildlife species, including 303 birds, 67 mammals, 27 reptiles, 137 fish and 23 amphibians. Rising temperatures in the state will likely change the makeup of entire ecosystems, forcing wildlife to shift their ranges or adapt.

- Global warming is expected to affect shoreline wetlands of the Great Lakes, which provide critical habitat for breeding and migrating waterfowl. Research suggests that the changes in breeding and migratory habitat due to global warming could lead to a 19-39 percent decline in duck numbers throughout the region by the 2030s.
- Cold-water fish species in Michigan are expected to take the brunt of global warming. As water temperatures warm and water levels diminish, scientists project that suitable habitat for cold-water fish such as brook trout and walleye will be considerably reduced.
- A temperature increase of 1-2 degrees Fahrenheit could cause plants and trees better suited to warmer weather to replace the valuable coniferous forests of Michigan, causing declines in species such as the endangered Kirtland's warbler, a bird that only breeds in the jack pine forests of the state.



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## What is Global Warming?

When coal, gas and oil are burned, they produce carbon dioxide that builds up in the atmosphere and traps the sun's heat. Much of this greenhouse gas released today remains in the atmosphere after even 100 years, trapping more and more heat.

Since the mid-1800s, emissions of carbon dioxide have skyrocketed, and subsequently global temperatures have risen by about 1 degree Fahrenheit in the last century. Earth has not experienced such a rapid change in temperature in thousands of years.

Unless we reduce the pollution that causes global warming, temperatures could climb between 2-10 degrees Fahrenheit this century. Such a rapid rise in temperature would fundamentally reshape the planet's climate, forever changing the landscape and water resources people and wildlife depend upon.



## What's at stake for Michiganders?

The changes from global warming threaten not only to degrade the natural forest and aquatic ecosystems of Michigan but also the health and economy of the state.

- Although there is uncertainty in forecasting the impact of global warming on the water levels of the Great Lakes, there is a clear risk as global warming increases evaporation and alters precipitation patterns. In 2002, the Bush Administration published a global warming report that warned: "Lake levels are likely to decline due to increased warm-season evaporation, leading to reduced water supply and degraded water quality."
- Warmer average temperatures could increase concentrations of ground-level ozone, which is known to aggravate respiratory problems such as asthma.
- Forested areas in Michigan could decline as much as 50-70 percent as a result of global warming. The forests are not only home to animals such as bears and wolves, but they provide Michigan with considerable benefits from tourism, recreation and timber products.
- Loss of wildlife and habitat could mean a loss of tourism dollars. In 2001, nearly 3.5 million people spent more than \$2.7 billion on hunting, fishing and wildlife viewing in Michigan, which in turn supported 50,795 jobs in the state.

**"Global warming poses an overriding challenge to our responsibility to protect wildlife for our children's future. We must advance balanced solutions that work for people, wildlife and the economy to overcome this challenge."**—

**Larry Schweiger**  
*President, CEO*  
*National Wildlife Federation*

### GLOBAL WARMING NATIONAL POLICY

#### **SOLUTION:**

#### **2% POLLUTION REDUCTION PER-YEAR**

A federal legislative solution can drive American ingenuity, create a new generation of American jobs, and meet our moral responsibility to confront global warming.

#### **A GLOBAL WARMING BILL SHOULD:**

- \* Reduce U.S. global warming pollution 2% per year, or 20% per decade, and on the order of 80% by the middle of this century. Scientists say the United States must cut our pollution at least this much to avoid the most catastrophic impacts of global warming.
- \* Encourage innovation and prevent facilities from being built that lock us into many years using old, inefficient technology.
- \* Provide funding to protect wildlife and their habitat. Global warming is already adding new wildlife management burdens. Funding is needed to help continue the long tradition of fish and wildlife associated recreation.

For more information, visit: [www.nwf.org/globalwarming](http://www.nwf.org/globalwarming).



## Michigan's solutions to global warming

As the automotive manufacturing capital of the United States, Michigan has a unique opportunity to bolster its industries and reduce global warming pollution nationally, through enhanced research, commercialization and manufacture of new, far more efficient, automotive and energy technologies. Through various initiatives, the state is working to promote job growth through investment in these new technologies and is also beginning to bring more renewable energy sources into the power grid.

- Michigan's NextEnergy Center and program, based in a 700-acre, tax free Alternative Energy Renaissance Zone in Detroit, has been strongly supported by two state administrations, and promotes attraction and commercialization of renewable energy industries. In addition to housing start-up alternative energy and hydrogen fuel companies and demonstration projects, the program has announced the attraction of a biodiesel production facility to downtown Detroit.
- In 2005, Governor Jennifer Granholm issued an energy-efficiency directive aimed at reducing energy consumption by state facilities and operations.
- Michigan ranks 14th in the nation in wind energy generation potential, and 4th in the nation in potential to manufacture components to supply a growing wind energy market nationwide.

**Following some simple guidelines, you can cut your global warming pollution, become more energy efficient and give something back to nature.**

- **Convert to compact fluorescent bulbs:** If every household in America replaced its next burned out light bulb with a compact fluorescent, we would prevent more than 13 billion pounds of carbon dioxide from being emitted.
- **Become a Green Tag subscriber:** Many states now offer options for homeowners to buy electricity from clean, renewable sources such as wind, solar and biomass that produce little or no global warming pollution. Green energy can also be purchased through the National Wildlife Federation by visiting [www.nwf.org/energy](http://www.nwf.org/energy).

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