

EARTH TALK

Questions & Answers
About Our Environment

Dear EarthTalk: I've seen those images of polar bears stranded on small islands of ice and heard that some are now dying by drowning. How are other wildlife populations affected by global warming? — Jessie Walters, via e-mail

Most researchers agree that even small changes in temperature are enough to send hundreds if not thousands of already struggling species into extinction unless we can stem the tide of global warming. And time may be of the essence: A 2003 study published in the journal *Nature* concluded that 80 percent of some 1,500 wildlife species sampled are already showing signs of stress from climate change.

The key impact of global warming on wildlife is habitat displacement, whereby ecosystems that animals have spent millions of years adapting to shift quickly. Ice giving way to water in polar bear habitat is just one example of this. Another, according to *The Washington Post*, is the possibility that warmer spring temperatures could dry up critical breeding habitat for waterfowl in the prairie pothole region, a stretch of land between northern Iowa and central Alberta.

Affected wildlife populations can

sometimes move into new spaces and continue to thrive. But concurrent human population growth means that many land areas that might be suitable for such "refugee wildlife" are already taken and cluttered with residential and industrial development. A recent report by the Pew Center for Global Climate Change suggests creating "transitional habitats" or "corridors" that help migrating species by linking natural areas that are otherwise separated by human settlement.

Beyond habitat displacement, many scientists agree that global warming is causing a shift in the timing of various natural cyclical events in the lives of animals. Many birds have altered the timing of long-held migratory and reproductive routines to better sync up with a warming climate. And some hibernating animals are ending their slumbers earlier each year, perhaps due to warmer spring temperatures. To make matters worse, recent research contradicts the long-held hypothesis that different species coexisting in a particular ecosystem respond to global warming as a single entity. Instead, different species sharing like habitat are responding in dissimilar ways, tearing apart ecological communities millennia in the making.

And as wildlife species go their separate ways, humans can also feel the impact. A World Wildlife Fund study found that a northern exodus from the United States to Canada by some types of warblers led to a spread of mountain pine beetles that destroy economically productive balsam fir trees. Similarly, a northward migra-

tion of caterpillars in the Netherlands has eroded some forests there.

According to Defenders of Wildlife, some of the wildlife species hardest hit so far by global warming include caribou (reindeer), arctic foxes, toads, polar bears, penguins, gray wolves, tree swallows, painted turtles and salmon. The group fears that unless we take decisive steps to reverse global warming, more and more species will join the list of wildlife populations pushed to the brink of extinction by a changing climate.

CONTACTS: Pew Center for Global Climate Change, www.pewclimate.org; Defenders of Wildlife, www.defenders.org.

Dear EarthTalk: I see so much waste in packaging every day—from water in self-serve bottles to all the foil and cardboard you have to break through to get to a new print cartridge. What is being done to make packaging more "green friendly," including cutting out as much of it as possible? — Jeanne L., Canton, CT

Thanks to forward-thinking action by the European Union (EU), people around the world are beginning to recognize that wasteful packaging puts unnecessary stress on the environment. In 1994 the EU issued a "Directive on Packaging and Packaging Waste," putting the responsibility of waste reduction and reclamation on manufacturers instead of on retailers, consumers and local governments.

The program, popularly known as "Producer Pays" or "Extended Producer Responsibility," requires product makers to either take back their packaging (consumers can leave it behind in the store or send it back in the mail at the producers' expense), or pay a fee to an organization called "Green Dot" that will handle it for them. "Green Dot" is now the standard take-back program in two-dozen European countries.

According to Bette Fishbein of INFORM, Inc., a nonprofit environmental research organization based in the U.S., the concept has "spread like wildfire" and has been adopted by many industrialized nations—including Poland, Hungary, the Czech Republic, Japan, Korea and Taiwan—but not yet by the United States, which could certainly benefit. According to the U.S. Environmental Protection Agency (EPA) annual generation of municipal solid waste in the U.S. increased from 88 million tons in 1960 to 229 million tons in 2001, with containers and packaging making up almost a third of the weight.

Maine has followed the European model and initiated its own "Producer Pays" program; the first in the U.S. Maine requires electronics makers to fund consolidation centers where used TV and computer monitors are sent. According to the state's Department of Environmental Protection, "Maine's electronic waste recycling law...is a national model, as it protects our environment, saves taxpay-

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