

# Unnatural Disasters: Coping with More Wildfires, Droughts, and Floods

Houses float downstream in Iowa and Arkansas as massive floods force thousands to evacuate the Midwest and cause damage costing billions. Over two dozen major wildfires rage in California, and an Arizona fire consumes 4,000 acres in one day, fueled by “exceptional droughts.” Such extreme weather is becoming more common, according to a May 28, 2008 report: “The Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity in the United States.” A court order forced the Bush administration to issue this overdue assessment (it was legally due in 2004), after the Center for Biological Diversity and other environment groups won a lawsuit. This is the first such climate document specifically about North America.

## What can we expect?

“This report addresses one of the most frequently asked questions about global warming: what will happen to weather and climate extremes?” said coauthor Tom Karl, Director of the U.S. National Climatic Data Center. According to Dr. Karl, the assessment

**Heavy downpours, droughts, excessive heat and intense hurricanes will become more common in the future.**

“concludes that we are now witnessing and will increasingly experience more extreme weather and climate events.” Heavy downpours, droughts, excessive heat and intense hurricanes will become more common due to human activity. The new findings agree with those of the United Nations Intergovernmental Panel on Climate Change as to what’s driving the extreme weather worldwide: excessive



Photo by Owen Brown

*Flooded roads, houses and crops can cost billions of dollars in damages.*

amounts of greenhouse gases released by burning fossil fuels are heating up the planet. Over the past 50 years, human activity has released growing amounts of carbon dioxide, methane and other heat trapping gases into the atmosphere, where their effect has warmed the planet about two degrees F (one degree C). This is causing more evaporation and greater drying of soils and vegetation, especially in the South and Southwest during the warm season. More droughts can affect both natural and managed (farmed) ecosystems, freshwater quality and quantity, and increase the likelihood of wildfires.

Simultaneously, global warming increases the likelihood of heavy downpours and flooding in areas such as the Midwest. Building dams and levees that merely enable people to live on lands where water belongs has added to the problem by destroying the water-storing wetlands. Structural solutions have not worked because

levees often exacerbate floods by constricting and intensifying the flow. The history of the Mississippi River watershed, which drains over one third of the United States, is a good example of this. After the devastating 1993 Mississippi flood, Army Corps General Gerald Galloway, who led

**“The economic benefit from converting cropland in the floodplain to wetland flood storage would be \$500 million per year!”**

an interagency study of the flood’s causes, called for more emphasis on non-structural methods, including the acquisition and restoration of wetlands and riparian habitat, stricter limits on development in floodplains, and a farm policy that discourages the conversion of wetlands to cropland.

*Continued on p. 5*

## **Unnatural**, *Continued from p. 4*

Since then, some people have moved out of the floodplain to higher ground, and the Army Corps has removed some levees. But the current historic flooding clearly shows that this has not been enough.

### **Natural replumbing**

Hydrologist Donald Hey of The Wetlands Initiative (TWI) has pointed out how the extirpation of beavers by European settlers changed the land:

---

**Although wetlands contain over twice the carbon density of forests, reforestation has been a more popular remedy for global warming than wetland restoration.**

---

“Across the continent, more than half of the beaver ponds and marshes which had trapped and held floodwaters, were destroyed.... For faster drainage or better navigation, streams were dredged, straightened, and deprived of meander loops, which had slowed the flow of water. The heavy springtime flows were also denied access to the storage areas of last resort—the natural floodplain.”

Dr. Hey has suggested returning some of the lost storage capacity of the upper Mississippi and Missouri River basins by restoring about a quarter of the drained beaver wetlands.

When Hey and TWI analyzed 24% of the 100-year floodplain in Iowa and four other Midwest states, they found 37% of the flood zone had been wetlands prior to European settlement. About 4 million acres of former wetlands had been drained for pasture and agriculture with federal levees separating over 2 million acres (13%) from the floodplain. They calculated that restoring the 4 million acres of former wetlands, now used for crops or grassland, “would significantly relieve flood problems in the basin.” Doing this, along with adding spillways to the tops of levees, “could increase

flood storage in the five state area by almost 40 million acre-feet of water.” That’s enough to prevent the enormous damage from the 1993 flood— and that from the 2008 flooding.

Moreover, this 2004 study estimated that “the economic benefit from converting cropland in the floodplain to wetland flood storage would be \$500 million per year!” “Rather than paying landowners to recover from damage *after* flooding, we would need to develop mechanisms that pay landowners to *receive* floodwaters....” The Wetlands Initiative has developed a strategy, called “nutrient farming” (involving the natural removal of excess nitrogen and phosphorus by wetlands) that could create a market to pay for large-scale wetland restoration.

### **Unsung heros**

Letting beavers restore wetlands has the advantages of both lessening major, costly floods, and storing carbon that otherwise enters the atmosphere as carbon dioxide. A U.S. EPA webpage on wetlands states that “scientists are beginning to realize that atmospheric maintenance may be an additional wetlands function. Wetlands store carbon within their plant communities and soil instead of releasing it to the atmosphere as carbon dioxide. Thus wetlands help to moderate global climate conditions.”

---

**“Wetlands store carbon within their plant communities and soil instead of releasing it to the atmosphere as carbon dioxide. Thus wetlands help to moderate global climate conditions.”**

---

Although wetlands contain over twice the carbon density of forests, reforestation has been a more popular remedy for global warming than wetland restoration. Wetlands

International, however, worked to include carbon rich wetlands in actions to mitigate climate change at the 2007 Bali Climate Conference. Peatlands (also called bogs, mires and fens) are a common type of wetland that stores more carbon than any other land-based ecosystem. Over a million acres of tree-covered peatlands in Russia were drained in the past to harvest lumber. Fortunately, the drainage canals no longer work thanks to neglect and beaver activity.

Up to 10% of current global greenhouse gas emissions come from peatland fires — the world’s largest single source of CO2 emissions. For example, the burning of peatlands to produce palm oil in Indonesia has made that small country the world’s third highest emitter of greenhouse gases, just behind the U.S. and China. Asian peatlands are being destroyed to produce palm oil for products sold by Nestle, Unilever, and Proctor and Gamble.

---

**“Some of the best known brands in the world are literally cooking the planet.”**

---

“Some of the best known brands in the world are literally cooking the planet,” according to a Greenpeace report that calls protecting peatlands one of the simplest, cost-effective options against global warming. We can help by avoiding peat products for gardening, and boycotting food and cosmetic products from the polluting companies: Nestle, Unilever, and Proctor and Gamble.

### **What else can we do?**

Al Gore, who won a Nobel Prize for his work on global warming, has urged each of us to determine the amount of carbon dioxide our lifestyle produces (please see the websites listed at the end of this article), and “Become carbon-neutral. Reduce your carbon footprint and

*Continued on p. 10*

**Unnatural, Continued from p. 5.**

then offset what can't be completely eliminated." Not everyone can afford to immediately buy a Prius, but several organizations with websites offer many other options. Sadly, they tend to ignore one of the simplest, most effective ways to reduce your "carbon footprint": simply eat lower on the food chain. A University of Chicago study essentially shows that changing to a plant-based diet does more to curb global warming than trading in your S.U.V. for a Camry.

---

**Changing to a plant-based diet does more to curb global warming than trading in your S.U.V. for a Camry.**

---

According to a 2007 U.N. Food and Agriculture Organization report, the livestock business generates even more greenhouse gas emissions than the total from all forms of transportation.

Individual efforts are vital, but so are governmental responses. Currently, eighteen states are suing the U.S. Environmental Protection Agency for failing to limit greenhouse gas emissions from new cars and trucks, over a year after the Supreme Court ruled that the agency had the power to do so. No response is expected before President Bush leaves office.

Current solutions exist to limit heat-trapping gas emissions and create substantial savings. DuPont recently reported \$2 billion and IBM \$791 million in savings from reducing their greenhouse gas emissions (1).

Given the urgency of the problem, there is no reason to delay using currently available technologies, such as producing electricity with solar power and wind (U.S. wind power grew 45% in 2007), improving building energy efficiency, and getting better gas mileage from our vehicles.

**A global "wake-up call,"**

Four climate experts, led by Martin Parry, co-chair of a U.N. Climate Panel,

recently wrote in the journal *Nature* that we are likely witnessing a global "wake-up call," in the form of high food prices partly caused by droughts. He said, "We have lost 10 years talking about climate change but not acting on it." Global emissions must be cut by 80 percent by 2050 to avoid "dangerous" disruptions to the climate, according to the Center for International Climate and Environmental Research.

The Group of Eight leading industrial countries, which just met in Japan has endorsed a 50 percent cut in world emissions by 2050 *if* major developing nations (China and India) cut their emissions. But this goal may be too low to avoid rising seas and water shortages, because CO<sub>2</sub> is very long-lived in the atmosphere.

**Tipping Points**

Although the present two degrees Fahrenheit warming of the climate may seem innocuous, time is running out to avoid catastrophic changes, according to James Hansen, Director of the NASA Goddard Institute for Space Studies. He testified before the U.S. Congress on June 23, 2008 — twenty years after he'd originally warned Congress about global warming.

Hansen said, "The difference is that now we have used up all slack in the schedule for actions needed to defuse the global warming time bomb."

---

**"We have used up all slack in the schedule for actions needed to defuse the global warming time bomb."**

---

The next President and Congress must define a course next year in which the United States exerts leadership commensurate with our responsibility for the present dangerous situation. Otherwise, it will become impractical to constrain atmospheric carbon dioxide, the greenhouse gas produced in burning fossil fuels, to a level that prevents the climate system

from passing tipping points that lead to disastrous climate changes that spiral dynamically out of humanity's control."

...."I argue that a path yielding energy independence and a healthier environment is, barely, still possible. It requires a transformative change of direction in Washington in the next year." According to Hansen, who's past predictions have been accurate, "the safe level of atmospheric carbon dioxide is no more than 350 ppm (parts per million), and it may be less. Carbon dioxide amount is already 385 ppm and rising by about 2 ppm per year."

Because "Special interests have blocked the transition to our renewable energy future," Hansen proposes that "A carbon tax on coal, oil, and gas be applied at the first point of sale or port of entry. The entire tax must be returned to the public—an equal amount to each adult, a half-share for children."

As Hansen states (and other experts agree), "Time is short. The 2008 election is critical for the planet. If Americans turn out to pasture the most brontosaurian congressmen, and if Washington adapts to address climate change, our children and grandchildren can still hold great expectations."

*1. Low-carbon leaders: Profiting from emission reductions, Environmental Finance, December 2004 – January 2005 issue, Fulton Publishing, London.*

*To calculate your own CO<sub>2</sub> impact or carbon footprint, go to: Safe Climate: [www.safeclimate.net/calculator](http://www.safeclimate.net/calculator) or An Inconvenient Truth: [www.climatecrisis.net/takeaction/carboncalculator/](http://www.climatecrisis.net/takeaction/carboncalculator/)*

*The Wetlands Initiative is at 53 West Jackson Boulevard, Suite 1015 • Chicago, Illinois 60604, [www.wetlands-initiative.org/index](http://www.wetlands-initiative.org/index)*