Forests Being Killed by Global Warming Culture

Contributed by Jan Lundberg
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Culture Change Letter #230 - The latest news on climate-crash is juxtaposed with food security as addressed by Albert Bates. There happens to be good news in the historic socioeconomic crash that most people are seeing as merely financial. First, read "Death rate of West's old-growth forests doubled -- Experts suspect warming, fear 'prelude to bigger, more abrupt changes'"

From msnbc.com, Jan. 22, 2009:

The mortality rate of old-growth forests across the West has more than doubled in recent decades, and those forests are now losing more trees than they gain, according to a new study that identified the most probable cause as warming temperatures.

The trend is happening at every elevation, in trees of different sizes and of various species, researchers with the U.S. Geological Survey and universities reported in the peer-reviewed journal Science.

"Our long-term monitoring shows that tree mortality has been climbing, while the establishment of replacement trees has not," USGS scientist Phil van Mantgem, a co-leader of the research team, said in a statement.

Tree mortality doubled in just 17 years in the Pacific Northwest and 25 years in California. Mortality rates in states farther inland took 29 years to double.
The authors ruled out several factors — including air pollution, crowding and fire suppression impacts — as being significant drivers since the trend has been consistent in all areas and among all age groups studied.

Moreover, "because mortality increased in small trees, the overall increase in mortality rates cannot be attributed solely to aging of large trees," the researchers wrote in Science.

In contrast, increasing regional temperature during that time was correlated with tree deaths.

"Regional warming and consequent increases in water deficits are likely contributors to the increases in tree mortality rates," the researchers said.

Van Mantgem noted that "average temperature in the West rose by more than 1 degree F over the last few decades. While this may not sound like much, it has been enough to reduce winter snowpack, cause earlier snowmelt, and lengthen the summer drought."
That warming also favors insects like the mountain pine beetle, which has devoured forests in recent years.

'Effects compound over time'

The long-term impact could mean thinner forests, smaller trees and changed habitat for animals.

"Tree death rates are like interest on a bank account — the effects compound over time," said USGS scientist and research co-leader Nate Stephenson. "A doubling of death rates eventually could reduce average tree age in a forest by half, thus reducing average tree size."

"That may be our biggest concern," said Stephenson. "Is the trend we're seeing a prelude to bigger, more abrupt changes to our forests?"

Jerry Franklin, a University of Washington researcher on the team, noted that forests can probably maintain functional capacity as long as they "don't go over a tipping point."

Tracking vital signs like mortality are vital to figuring out where that tipping point is, he added, but no one is doing that. "We need to be doing a lot more," he said.

The researchers also noted that the high mortality rate could turn Western forests from carbon sinks, where they absorb the greenhouse gas, into carbon sources, emitting carbon dioxide into the atmosphere as they die — further speeding up the pace of global warming.

"An alarming implication of increased mortality rates is that the fundamental structure of these forests could be undergoing change," Franklin said. "The forests may stabilize at lower overall levels of biomass resulting in less carbon stored in the forests."

The areas studied were 76 forest stands 200 or more years old in Arizona, California, Colorado, New Mexico, Oregon, Washington and Canada's southwestern British Columbia. Researchers counted trees and looked back at records kept for more than 50 years at multiple sites.

Carbon sources?

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Related stories:

"'Hellacious fire' feared in Wyo. beetle scourge" Jan. 22, 2009. Excerpt:

Colorado and Wyoming alone have more than 3 million acres of dead or dying forests, including nearly 2 million acres of dead lodgepole pine forest in southern Wyoming and northern Colorado.

In Wyoming, the pine beetle infestation grew by more than 400,000 acres last year to a total of 1.2 million acres.

http://www.msnbc.msn.com/id/28799145/

"Warming scenarios by region: IPCC Summary of Impacts, Adaptation and Vulnerability"
April. 13, 2007:
msnbc.msn.com

Read the original article at msnbc.msn.com

Silver lining for Earth's climate

(1) It's unpopular to give this kind of good news in corporate media circles, but concerning the Wyoming forests' beetles problem, there's this good aspect: "[the fires] could endanger roads, power lines and other infrastructure as millions of acres of trees fall to the ground or catch fire." This is a terrible situation, and we're not nihilist. But there must be consequences to endless economic activity and manipulation of nature, such as roads, power lines and other infrastructure. The Earth and the Universe are compensating for our stupidity, and forcing us to change. Will we continue to put the corporate growth economy first?

(2) The semiconductor giant Intel is shedding 7% of it's work force, such as 1,000 jobs near Portland, Oregon. While this is only the beginning of reverberations and compounded losses of jobs, profit and factory output, as the crash intensifies, some of us see healthy change. Less production and less consumption are exactly what humans and the Earth need, when it's wasteful and ecocidal production and consumption -- especially when so many people are participating. The toxic computers that run on the grid are a huge portion of the greenhouse gas equation:

If all computers sold in the United States meet the ENERGY STAR requirements, the savings in energy costs will grow to about $2 billion each year and greenhouse gas emissions will be reduced by the equivalent of those from 2 million cars.

Carbon dioxide emissions from electric power generation rose by 2.9 percent in 2007 (see Table 11 below). The increase resulted from growth in total electricity generation (2.5 percent) and an increase in the carbon intensity of the electricity supply (0.4 percent).

"Nitrogen trifluoride (NF3), which is thousands of times more effective at warming the atmosphere than an equal mass of carbon dioxide... 4,200 metric tons. In 2008, about 5,400 metric tons of the gas was in the atmosphere, a quantity that is increasing at about 11 percent per year." This greenhouse gas is not covered by the Kyoto Protocol... It's from liquid crystal flat-panel displays, thin-film photovoltaic cells and microcircuits.

"Two Google searches puts as much carbon dioxide into the air as boiling a kettle of water for a cup of tea."

It can drive you crazy to see how greenhouse gases are "offset":

"Approximately 15 percent of the PCs entering the municipal solid waste stream are combusted. Combustion results in both direct and indirect emissions: direct emissions from the combustion process itself and indirect emissions associated with transportation to the combustor. To the extent that PCs combusted at WTE facilities produce electricity, combustion offsets CO2 emissions from electric utilities." [U.S. EPA]

The above factoids' sources are below. The figure for computers' total contribution to global warming is still being researched by our contacts, and it will be inserted here when possible; please check back.

Uh-oh, maybe I shouldn't buy that Cadillac Escalade SUV:

"Methane, Potent Greenhouse Gas, Flowing Into The Atmosphere From Tundra Much Faster Than Expected"

ScienceDaily (Dec. 11, 2008) — Much more methane gas is being emitted into the atmosphere from the tundra in northeast Greenland than previous studies have shown. New figures reveal that large amounts of greenhouse gases are being emitted into the atmosphere, not just during the warm summer months, but also during the colder autumn months.

Positive feedback loops have been in effect for about four years, since scientists could not account for all the greenhouse gases presence based on previously reliable sources' measurements.

Food security - it would matter to us more than we'd ever care about species extinction (except ours), so here's reason not to buy that car or the computer:

Albert Bates, climate-change and peak-oil author, was recently interviewed by Hen & Harvest (excerpted by EnergyBulletin.net whose version is below):

There are 37 countries right now that are in serious food shortfall, and that’s why you’re getting riots in Haiti, Egypt and Mexico, in some places banging pots in the street and in others people actually dying in riots. They’re protesting in a lot of different places — they’re protesting in France, they’re protesting in many parts of the world, Africa and so forth. It’s true, that’s definitely coming to the fore. I’m not certain everyone makes the connection yet, however, between the shortage of food and the energy and climate crises.

We’ve got essentially four converging factors on the food supply. The first is the high cost of petroleum products, and that includes the fertilizers and chemicals, the fuel for the tractors and the combines, and the storage costs, the

transportation, the drying of the grain and so on and forth...

...Now we're seeing the second shoe fall, which is the competition over land created by alternatives to fossil fuels, specifically biofuels.You see a lot of places that are starting to switch over their corn production or their soybean production or some other things to biofuels, and that's putting more price pressure on food. A lot of that corn and soy production was not for food anyway, but that is another story...

...The third thing is you have the whole world moving towards the American or European food standard. I have to say the US food standard, because even the Germans eat only a third of the meat in an average day that US citizens do. And so we are losing the caloric efficiency of eating lower on the food chain. Every time you move up the food chain a notch and eat something that ate something else, you're losing about ten times the caloric efficiency. ...Essentially what's happening is we're moving into a meat-eating culture worldwide, and because that requires a huge amount of grain, a huge amount of land and so forth, it's putting pressure on food prices.

Also, we're running out of food. We've got oceans that are running out of fish now. They're starting to catch tuna in the Gulf of Mexico that are really just fry because they cannot meet world demand by what is left in the Atlantic. ...That's a world population issue, and a dietary fashion issue, that's coming to bear on the food supply.

And then the final issue is the climate change issue, which is essentially saying that you're not going to be able to grow food in places that you're accustomed to growing food, because of the change in climate. We've had two revisions of the USDA planting chart here Tennessee while I've lived here, because they keep having to move the isotherms northward to reflect the change of seasons because of global warming...

Wanda Ballentine of the Global Warming Crisis Council listserve [gwcc] passed this along from evolutionary biologist Alder Fuller in Eugene:

[gwcc] Abnormal high pressure ridge on west coast result of global warming
The Pacific NW is usually in the rainy season in January. For the last 11-12 days, we've been under a HUGE high pressure ridge that, at times, extended all the way from the Yukon to MX. It just sat there, indicative of the way the extra heating is effecting the jet stream, which is bending down far further than it normally would. (Heat is the driver of air flow, including the jet stream. Just like when you put more water in the river, it moves to turbulence, put more heat in the atmosphere driven by heat, it moves towards turbulence.)

Just a harbinger of what is to come.

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More references:

Methane gas is being emitted into the atmosphere from the tundra:

sciencedaily.com

"Intel sales plunge 23.5 percent in Q4" [The Oregonian, Portland, Ore. - Note: the information in the above article is from Jan. 22 and is not online as of then, so here's a recent, related story.]:

investing.businessweek.com/

Carbon dioxide emissions from electric power:

eia.doe.gov

energystar.gov

Potent Greenhouse Gas From Computer Display and TV Manufacture Prevalent In Atmosphere
Source: Copyright 2008, ScienceDaily
Date: October 22, 2008 Climate Ark News Archive:

climateark.org

"Hot Air? Google Searches Generate Greenhouse Gases", by Robert Roy Britt, 12 January 2009:

livescience.com

"Background Document for Life-Cycle Greenhouse Gas Emission Factors for Carpet and Personal Computers": EPA530-R-03-018, November 21, 2003:

old link: www.epa.gov/climatechange/wycd/waste/downloads/CarpetPCReport_11_21.pdf

Albert Bates in Hen & Harvest, Jan. 14, 2009, by Aaron Newton:

henandharvest.com
and
energybulletin.net