



For Immediate Release
December 13, 2000

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**Warming May Pose Risks to Human Health, Report Finds;
U.S. Better Able to Cope, Poor Countries Less So;
Experts Say The Elderly, Sick, and Poor Are Most at Risk**

Washington, D.C.- Global climate change may exacerbate health risks for the elderly, the infirm, and the poor - although there is substantial capacity to reduce these risks - according to a new report commissioned by the Pew Center on Global Climate Change. And while the study finds that over the next few decades the United States may have sufficient resources to prevent the worst possibilities, poorer countries may not fare as well.

While current health concerns in the United States tend to revolve around such lifestyle issues as alcohol and tobacco use, lack of exercise, and poor nutrition, climate change raises the possibility that elevated temperatures, air contaminants, and changes in precipitation patterns could pose increased health risks. This new study, written by public health experts Dr. John Balbus of The George Washington University and Dr. Mark Wilson of The University of Michigan, sifts through the evidence of climate-related health risks and reaches the following conclusions:

- If climate change results in more heat waves and air pollution episodes, disproportionately large and negative impacts on the elderly, the infirm, and the poor are likely to result.
- While there are indications that a global warming trend may increase the risks of vector- and water-borne diseases, sanitation and public health systems in the United States are generally sufficient to prevent these diseases from dramatically increasing in incidence or distribution. However, many developing countries lack the resources and public health systems needed to prevent such outbreaks. The report says government officials the world over need to maintain and strengthen public health systems, including increased surveillance, and improved hygiene, water quality, and vector control.
- The linkages between climate and human health are complex and not fully understood. However, uncertainty about adverse health effects should not be interpreted as certainty of no adverse health effects. Moreover, the potential for unexpected events - e.g., sudden changes in climate or the emergence of new diseases - cannot be ruled out, the report says.

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“There have been a lot of claims and counter-claims about the potential human health impacts of global climate change,” said Pew Center President Eileen Claussen. “An honest assessment must acknowledge that the United States can probably avoid the worst scenarios of disease outbreaks from climate-related causes.

“At the same time, we should pay more attention to the climate-related health risks faced by people in less developed countries, and by the most vulnerable people in our own country,” Claussen said. “And we need to beef up health surveillance systems to guard against the possible emergence of unexpected health threats.”

A complete copy of these and other Pew Center reports can be accessed from the Pew Center's web site, www.pewclimate.org.

About the Pew Center: The Pew Center was established in May 1998 by the Pew Charitable Trusts, one of the United States' largest philanthropies and an influential voice in efforts to improve the quality of the environment. The Pew Center is a nonprofit, non-partisan and independent organization dedicated to providing credible information, straight answers and innovative solutions in the effort to address global climate change. Eileen Claussen, the former U.S. Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs, leads the Pew Center. For more information, visit www.pewclimate.org.

The Pew Center includes the Business Environmental Leadership Council, a group of large, mostly Fortune 500 corporations all working with the Pew Center to address issues related to climate change. The companies do not contribute financially to the Pew Center; it is solely supported by contributions from charitable foundations.

About The Authors

JOHN BALBUS

Dr. John Balbus is the Director of the Center for Risk Science and Public Health and an associate Professor of Environmental and Occupational Health at the George Washington University School of Public Health and Health Services. Board certified in both Internal Medicine and Occupational and Environmental Medicine, Dr. Balbus is also appointed in the Departments of Medicine and International Public Health. He received his MPH degree from the Johns Hopkins School of Hygiene and Public Health, his MD degree from the University of Pennsylvania, and his undergraduate degree in biochemistry from Harvard University.

Dr. Balbus is the Principal Investigator on a cooperative agreement with the US Environmental Protection Agency's Office of Water, which focuses on a number of issues related to risk assessment for drinking water contaminants. He is also a co-Principal Investigator on a new Pediatric Environmental Health Specialty Unit. Dr. Balbus' research interests include risk assessment methodologies for health effects of climate change and waterborne pathogens, and variations in susceptibility to microbial and chemical environmental contaminants. He has served as technical consultant and author for the health sector for both the United Nations Environmental Programme project on global climate change and the United States Country Studies program.

MARK L. WILSON

Mark L. Wilson is currently Associate Professor of Epidemiology and of Biology at the University of Michigan, where his research and teaching cover the broad area of ecology and epidemiology of infectious diseases. After earning his doctoral degree from Harvard University in 1985, he worked at the Pasteur Institute in Dakar Senegal (1986-90), was on the faculty at the Yale University School of Medicine (1991-96), and then joined the University of Michigan. Dr. Wilson's research addresses the environmental determinants of zoonotic and arthropod-borne diseases, the evolution of vector-host-parasite systems, and the analysis of transmission dynamics. He is an author of more than 90 journal articles, book chapters and research reports, and has served on numerous government advisory groups concerned with environmental change and health. He currently is a member of the National Academy of Sciences panel on "Climate, Ecosystems, Infectious Diseases and Human Health."



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ON
Global CLIMATE CHANGE

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Climate Change Could Cause Major Changes In U.S. Ecosystems, New Report Says

Washington, DC -- Global climate change will cause major changes in natural ecosystems - and the plants and animal communities that make up these ecosystems - across the United States, according to a report released today by the Pew Center on Global Climate Change.

The report describes the very real possibility that global warming will disrupt the integrity of many of the terrestrial ecosystems on which we depend - ecosystems that provide humans such valuable goods and services as foods, raw materials, recreational opportunities, clean air and water, and erosion control. The importance of ecosystems extends beyond economics and tangible benefits, with many people placing a high value on the spiritual and aesthetic role nature plays in their lives. Despite the crucial roles of terrestrial ecosystems, they are increasingly threatened by the impacts of a growing human population, through habitat destruction and air and water pollution, and now as a result of global climate change.

"This report describes how climate change is likely to profoundly alter the natural environment," said Pew Center President Eileen Claussen. "It underscores the point that domestic and international action to deal with climate change is needed sooner rather than later."

The report was commissioned by the Pew Center and written by two ecologists, Dr. Jay R. Malcolm of the University of Toronto and Dr. Louis F. Pitelka of the University of Maryland Center for Environmental Science. Among the authors' conclusions:

- As the earth warms, the distribution of terrestrial ecosystems will change as plants and animals follow the shifting climate. For example, the eastern United States will likely lose many of its deciduous forests as climate zones shift northward. Thus, sugar maples, so much a part of northeastern states such as Vermont, are likely to be replaced by oaks. Likewise, some habitats - such as those found in the high elevations in mountainous regions of the West - are likely to shrink in a warming world.

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- Both the amount and rate of anticipated warming pose threats to the nation's biological diversity. The rate of anticipated climate change is estimated to be ten times that seen in the last Ice Age. As a result, certain species may face dwindling numbers and even extinction if they are unable to migrate fast enough to keep up with the changing climate.
- Climate change is likely to alter the quantity and quality of the various goods and services that ecosystems provide. For example, climate change is likely to affect the ability of ecosystems to filter air and water pollutants and to control soil erosion.
- Modeling studies estimate that the productivity of plants could change little or could increase substantially. However, these productivity changes will not be uniform and some regions could see declines. While productivity may rise, so could decomposition and, with it, the release of carbon to the atmosphere.
- The effects of climate change on ecosystems must be considered in the context of a range of human-caused impacts on ecosystems. Overall, the new threat of climate change is likely to be especially damaging for ecological communities and species that have suffered the greatest disruption from human development. Natural ecosystems already under stress because of air and water pollution will have diminished capacity to adapt to climate change. Likewise, habitat destruction and fragmentation will lessen the chances that species will successfully migrate to more suitable climates and habitats.
- It is important to remember that ecosystems are inherently complex, and our ability to predict how ecosystems will respond to climate change is limited. This uncertainty will limit our ability to anticipate and minimize the effects of climate change on ecosystems. In order to maximize nature's own capacity to adapt, government officials and community leaders should continue to support efforts to conserve biodiversity and protect natural systems.

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About The Authors

JAY MALCOM

Dr. Jay Malcolm received his B.S. and M.S. from the University of Guelph, his Ph.D. from the University of Florida, and undertook postdoctoral studies at Queen's University. Currently, he is an Assistant Professor in the Faculty of Forestry at the University of Toronto, where he has worked for the last four years. His research specializes on the effects of global climate change on ecosystems and more generally on the effects of human activities on biodiversity. In addition to laboratory and computer studies, Dr. Malcolm has undertaken extensive field research in boreal Canada and the Amazon and Congo Basins. In addition to this report for the Pew Center on Global Climate Change, Dr. Malcolm has worked on climate change issues with the Canadian and U.S. Governments, UNEP, and WWF-US. Dr. Malcolm has published 43 articles, including papers in scientific journals, book chapters, and technical reports.

LOUIS PITELKA

Dr. Louis Pitelka received a B.S. in zoology from the University of California at Davis, and a Ph.D. in plant ecology from Stanford University. Dr. Pitelka has been at the University of Maryland since 1996, where he is currently the Director of the Appalachian Laboratory in Frostburg, MD, a research laboratory in the University's Center for Environmental Science. He also holds the rank of Professor in the University. From 1974 until 1984 he was a member of the faculty in the Department of Biology at Bates College in Maine and was Chair of Biology when he departed. In 1983, he was appointed Program Director of the Population Biology and Physiological Ecology Program at the National Science Foundation (NSF). Beginning in 1984, Dr. Pitelka worked for the Electric Power Research Institute, where his major research areas included global carbon cycling and effects of global climate change on terrestrial ecosystems.

Dr. Pitelka is the author of numerous scientific articles and has edited two books. He is the Editor-in-Chief of *Ecological Applications*, and previously served for five years on the journal's editorial board. He also is on the Editorial Board of *Oecologia*. He is an Activity Leader in the Global Change and Terrestrial Ecosystems project of the International Geosphere Biosphere Program. He has served on numerous advisory committees and panels for the NSF, Department of Energy, NASA, Forest Service and other organizations and currently serves on the DOE Health and Environmental Research Advisory Committee.