

Climate change report forecasts major impacts for the Southwest

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(Phys.org)—A new draft assessment of the impacts of climate change on the U.S. has been released by the Global Change Research Program in Washington, D.C., and is available online for public comment. Hailed as the most comprehensive and inclusive national effort to date to assess the science of climate change and its impacts, the National Climate

Assessment, or NCA, will contribute directly to the U.S. climate policy debate.

The draft NCA [report](#), which is required by federal law, will be delivered to the president and Congress once it has been fully reviewed by the National Academies of Sciences and the public. More than 240 authors contributed directly to this document, and more than 1,000 were engaged in providing technical data and research findings.

It was written and overseen by one of the largest Federal Advisory Committees ever, including 60 members from universities, the private and public sectors, and non-governmental organizations.

The NCA brings together the latest science on [climate change](#) and impacts in the U.S. but, most importantly, it provides information that decision-makers in every region of the country will use to make decisions about how to adapt to the [changing climate](#).

Water Stress in the U.S.

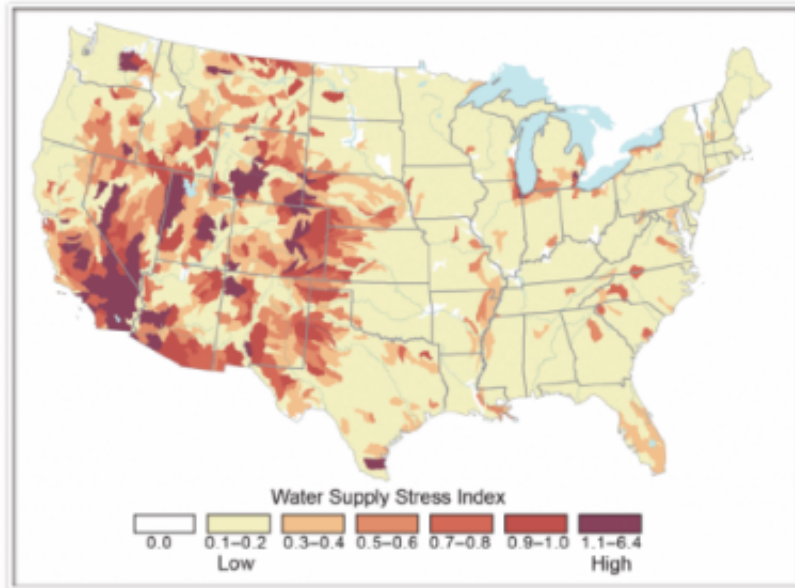


Figure 10.9: Water Stress in the U.S.

Caption: In many parts of the country, competing demands for water create stress in local and regional watersheds. Map shows a “water supply stress index” for the U.S. based on observations, with widespread stress in much of the Southwest, western Great Plains, and parts of the Northwest (Averyt et al. 2011). Watersheds are considered stressed when water demand (by power plants, agriculture and municipalities) exceeds 40% of available supply.

University of Arizona scientists played a very substantial role in this effort. The director of the National Climate Assessment is Kathy Jacobs, a professor in UA's department of soil, water and environmental science and a member of the UA Institute of the Environment; she currently is seconded to the White House, where she is the assistant director for climate assessment and adaptation at the Office of Science and Technology Policy.

Diana Liverman, co-director of the Institute of the Environment and a faculty member in geography and development, and Jim Buizer, deputy

director for adaptation and development at the institute and a faculty member in the School of Natural Resources and Environment, serve on the Federal Advisory Committee.

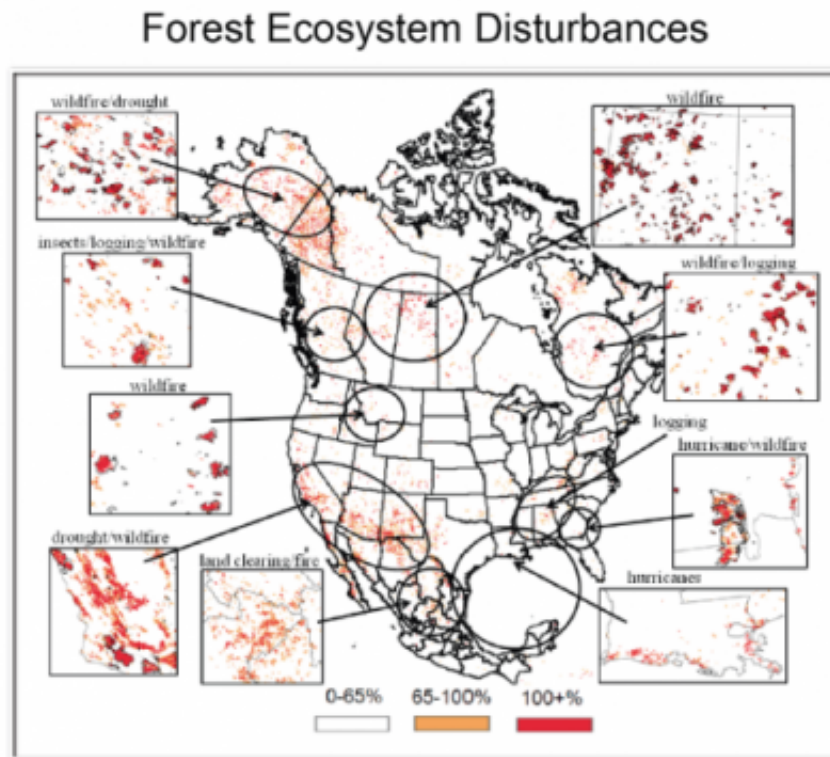


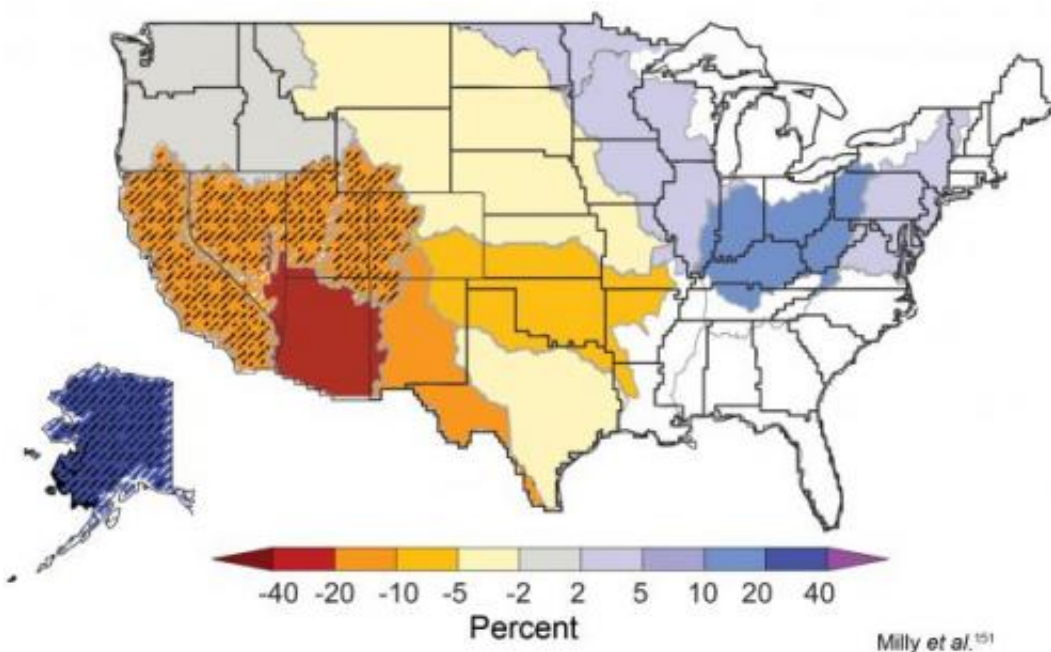
Figure 7.1: Forest Ecosystem Disturbances

Caption: The distribution of major forested ecosystem disturbance types in North America varies by topography, vegetation, weather patterns, climate gradients, and proximity to human settlement. Severity is mapped using the MODIS Global Disturbance Index, with moderate (orange) and high (red) severity. Fire along with other disturbances dominates much of the western forested ecosystems. Storms affect the Gulf Coast of the U.S., insect damage is widespread but currently concentrated in western regions, and timber harvest prevails in the Southeast. Figure source: (Goetz et al. 2012); Copyright 2012 American Geophysical Union.

Buizer also serves on the committee's Executive Secretariat, where he

has played multiple roles including leading coordination of all of the sectoral assessments and on the Report Integration Team, which analyzed the more than 1,100 pages of the report to ensure consistency. He continues to serve on a working group developing a new report on international components of the NCA and is a convening lead author of a special report on the future of these assessments, to be released in September.

The UA has a total of six authors on this draft report, more than any other university in the country. In addition to their service on the Advisory Committee, Liverman was lead author on the Science Agenda Chapter, and Buizer was lead author on the Mitigation and Sustained Assessment chapters.



Projected changes in median runoff for 2041-2060, relative to a 1901-1970 baseline, are mapped by water-resource region. Colors indicate percentage changes in runoff. Hatched areas indicate greater confidence due to strong agreement among model projections. White areas indicate divergence among model projections. Results are based on emissions in between the lower and higher emissions scenarios.⁹¹

Gregg Garfin, of the Institute of the Environment and the School of Natural Resources and the Environment, led the production of the Southwest Regional chapter along with Guido Franco of the California Energy Commission. He and Jonathan Overpeck (co-director of the Institute of the Environment) led the development of an 800-page technical input report on climate impacts on the Southwest, soon to be published as a book by Island Press.

The Southwest reports show that regional snowpack and streamflows have declined over this past decade. Climate models project continued reduction in snowpack and streamflow in many of the region's major river basins, and increased drought duration and severity throughout the region. The reports also reveal that increased temperatures and drought have already increased wildfires and impacts to Southwest ecosystems, conditions that are expected to continue, with increasing severity. These are just a few of the important findings contained in the reports.

Provided by University of Arizona

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