

[ScienceWatch Home](#)
[Interviews](#)
[Featured Interviews](#)
[Author Commentaries](#)
[Institutional Interviews](#)
[Journal Interviews](#)
[Podcasts](#)
[Analyses](#)
[Featured Analyses](#)
[What's Hot In...](#)
[Special Topics](#)
[Data & Rankings](#)
[Sci-Bytes](#)
[Fast Breaking Papers](#)
[New Hot Papers](#)
[Emerging Research Fronts](#)
[Fast Moving Fronts](#)
[Research Front Maps](#)
[Current Classics](#)
[Top Topics](#)
[Rising Stars](#)
[New Entrants](#)
[Country Profiles](#)
[About Science Watch](#)
[Methodology](#)
[Archives](#)
[Contact Us](#)
[RSS Feeds](#)


scienceWATCH[®].com
TRACKING TRENDS & PERFORMANCE IN BASIC RESEARCH

[Interviews](#)
[Analyses](#)
[Data & Rankings](#)

2008 : September 2008 - Fast Moving Fronts : S. Joseph Wright

FAST MOVING FRONTS - 2008

September 2008


S. Joseph Wright talks with *ScienceWatch.com* and answers a few questions about this month's Fast Moving Front in the field of Environment/Ecology.



Article: Tropical forests in a changing environment

Authors: Wright, SJ

Journal: TREND ECOL EVOLUT, 20 (10): 553-560 OCT 2005

Smithsonian Trop Res Inst, Apartado 0843-03092, Balboa, Panama.

Smithsonian Trop Res Inst, Balboa, Panama.

SW: Why do you think your paper is highly cited?

The paper is a review that attempts to synthesize the impact of a wide range of anthropogenic drivers on tropical forests. Interest in this subject is intense because tropical forests support 60% of all species, influence regional climates far beyond the tropics, are a key component of the global carbon cycle, and are in transition as climates change, atmospheric carbon dioxide concentrations increase, and the human populations and economies of tropical countries expand. Despite their obvious global significance, relatively few biologists study tropical forests, and our papers are often cited accordingly.

SW: Does it describe a new discovery, methodology, or synthesis of knowledge?

It would be wonderful if the article really was a synthesis of knowledge. There is, however, a profound paucity of data from tropical forests, particularly the long-term monitoring data required to detect indirect anthropogenic change. For this reason, it would be more accurate to describe the paper as an overview of recent evidence for direct (deforestation, hunting) and indirect (global atmospheric and climate change) anthropogenic impacts. The paper also questions how the limited evidence for indirect impacts has been interpreted.

SW: Would you summarize the significance of your paper in layman's terms?

Tropical forests are important to everyone because moisture that evaporates from tropical forests sustains global precipitation, including, in particular, precipitation over the American Midwest, China, and the Balkans (See: R. Avissar and D. Werth, "Global hydroclimatological teleconnections resulting from tropical deforestation," *J. Hydrometeor* 6:134–45, 2005. Tropical forests are also in transition.)

Just 200 years ago, old-growth tropical forests covered one sixth of the Earth's surface. Within our children's lifetimes, these old-growth forests will have been

"Tropical forests support 60% of all species and are a key component of global carbon and climate cycles. The future of these forests and their responses to anthropogenic

replaced by agriculture and human-disturbed forests everywhere outside nature reserves. If this transition proceeds unchecked, global rainfall patterns will be changed and massive numbers of species will become extinct.

The uncertain future of tropical forests represents the greatest unknown in global climate projections. We urgently need a mechanism to fund the preservation of tropical forests in order to ensure our own future.

change has tremendous social and political implications."

SW: How did you become involved in this research and were there any particular problems encountered along the way?

My colleagues, Fernando Cornejo-Valverde, Osvaldo Calderón, Andrés Hernández, and I initiated an intensive study to monitor the production of leaves, flowers, and fruit in several old-growth forests in Panama beginning in 1985. We were motivated by basic research questions. Global climate and atmospheric change were not major issues in 1985.

Over the past 23 years, we have identified more than 5,000,000 leaves, flowers, fruits, and seeds to species and our ongoing study provides one of the few long-term monitoring datasets from old-growth tropical forest that can be used to address indirect anthropogenic impacts.

SW: Where do you see your research leading in the future?

With the help of many colleagues and the [Center for Tropical Forest Science](#), I have been able to extend the research protocols pioneered in Panama to Puerto Rico, Ecuador, Malaysia, Taiwan, and China. We believe these studies will provide unprecedented insight into relationships between climate and primary production in tropical forests. These insights might then allow us to refine projections of climate change impacts on primary production in tropical forests.

SW: Do you foresee any social or political implications for your research?

Tropical forests support 60% of all species and are a key component of global carbon and climate cycles. The future of these forests and their responses to anthropogenic change has tremendous social and political implications.

S. Joseph Wright
Senior Scientist
Smithsonian Tropical Research Institute
Balboa, Ancon
Republic of Panama
[Web](#) | [See also](#)

Keywords: tropical forests, old-growth tropical forests, replaced by agriculture, human-disturbed forests, deforestation, hunting, tropical countries, anthropogenic drivers, regional climates, global carbon cycle, global atmospheric, climate change, atmospheric carbon dioxide concentrations increase, global rainfall patterns, numbers of species will become extinct, indirect anthropogenic impacts.



PDF

[back to top](#)

2008 : [September 2008 - Fast Moving Fronts](#) : S. Joseph Wright

[Scientific Home](#) | [About Scientific](#) | [Site Search](#) | [Site Map](#)

[Copyright Notices](#) | [Terms of Use](#) | [Privacy Statement](#)