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TRACKING TRENDS & PERFORMANCE IN BASIC RESEARCH

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2010 : May 2010 - Fast Moving Fronts : John Sabo on How 'Dead Stuff' is Critical in Ecosystems

FAST MOVING FRONTS - 2010

May 2010



John Sabo talks with *ScienceWatch.com* and answers a few questions about this month's Fast Moving Fronts paper in the field of Environment & Ecology.

**Article: Detritus, trophic dynamics and biodiversity**

Authors: Moore, JC;Berlow, EL;Coleman, DC;de Ruiter, PC;Dong, Q;Hastings, A;Johnson, NC;McCann, KS;Melville, K;Morin, PJ;Nadelhoffer, K;Rosemond, AD;Post, DM;**Sabo, JL**;Scow, KM;Vanni, MJ;Wall, DH

Journal: ECOL LETT, 7 (7): 584-600 JUL 2004

Addresses: Natl Ctr Ecol Anal & Synth, Detritus Dynam Working Grp, Santa Barbara, CA 93101 USA.

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(addresses have been truncated.)

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

It is a review article, and more importantly, a review article that fills a previously empty niche in the ecological literature.

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

It's a new synthesis: previously food-web ecology was focused on "the living channel," i.e., primary production and its effects on food-chain length and trophic dynamics.

This view had been changing, as described in works by John C. Moore, Director of The Natural Resource Ecology Laboratory at Colorado State University and colleagues, as well as in works by Just Cebrian, Don Strong, and the late Gary Polis.

This review provides a synthetic view of how "dead stuff" = "detritus channel" is important, if not paramount, in trophic dynamics and food-web theory. It brings us back to the American ecologist Raymond L. Lindeman (1915–1942), who, in 1942, put detritus—which he called "ooze"—in a central place in his "food cycle."

Detritus is central to food webs. See: Lindeman RL, "The Trophic-Dynamic Aspect of Ecology," *Ecology* 23:4, 399-417, October 1942.

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

In a great many ecosystems, most of the energy available to animals is encapsulated in dead tissues of plants and animals. This dead stuff is critical in the structure and function of the living components of food webs.

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

I was a postdoc at the National Center for Ecological Analysis and Synthesis (NCEAS) in Santa Barbara, where Gary Polis had originally gotten the working group funded prior to his death. John Moore took over leadership of the group after Gary passed away and I asked John if I could participate.

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

We have a paper currently in revision in *Ecology* that is a quantitative (rather than conceptual) follow-up to this article—a cross-ecosystem meta-analysis of the impacts of detritus on trophic dynamics. John Moore is coauthor. As I suspect it will not be published for another year or so, please feel free to follow up later on.

John Sabo, Ph.D.

Associate Professor

Faculty of Ecology, Evolution, and Environmental Sciences

School of Life Sciences

Arizona State University

Tempe Arizona, USA


[Web](#)

Additional information:

[Just Cebrian](#) | [Don Strong](#) | [Gary Polis](#)

KEYWORDS: decomposers; detritus; diversity; ecosystems; food chain; food web; primary productivity; processing chains; subsidies; trophic dynamics; FRESH-WATER ECOSYSTEMS; FOOD-CHAIN LENGTH; ENERGY-FLOW; SPECIES RICHNESS; ORGANIC-MATTER; INTERSPECIFIC INTERACTIONS; AQUATIC ECOSYSTEMS; LAKE PRODUCTIVITY; NUTRIENT ADDITION; STABLE-ISOTOPES.

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