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VOLUME 63, NO. ~~2~~ 3 JUNE 1982

Program Issue

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1982 Annual Meeting with AIBS
The Pennsylvania State University, University Park
August 8–12, 1982

BUSINESS MEETINGS AND SOCIAL FUNCTIONS

Sunday, August 8

ESA Executive Committee—9:00 AM (HUB 225)
ESA Council—2:00 PM (HUB 225)
ESA Editorial Board—8:00 PM (HUB 322)
Murray F. Buell Award Judges—8:00 PM (HUB 323)
ESA Program Committee—8:30 PM (HUB 323)

Monday, August 9

ESA Editorial Board Luncheon—12:00 Noon (Sheraton Inn)
Physiological Ecology Section Business Meeting and Mixer—5:00 PM (Nittany Lion Inn, Fireside Lounge)
Vegetation Ecologists' Mixer and Business Meeting—5:00 PM (Sheraton Inn)
Plant Population Biology Mixer—5:00 PM (Sheraton Inn)

Tuesday, August 10

Wisconsin Ecologists' Breakfast—7:00 AM (Sheraton Inn)
Aquatic Ecology Section Luncheon and Business Meeting—12:00 Noon (Sheraton Inn)
Rutgers Ecologists' Luncheon—12:00 Noon (Sheraton Inn)
International Affairs Section Meeting—4:00 PM (HUB 225)
ESA Annual Mixer—6:00 PM (Sheraton Inn)
ESA Annual Banquet—7:30 PM (Sheraton Inn)

Wednesday, August 11

Duke Ecologists' Luncheon—12:00 Noon (Sheraton Inn)
Paleoecology Section Luncheon and Business Meeting—12:00 Noon (Sheraton Inn)
ESA Annual Business Meeting—4:30 PM (Sparks 121)
Applied Ecology Section Mixer and Business Meeting—6:00 PM (Nittany Lion Inn, Fireside Lounge)
ESA Council Meeting—8:00 PM (HUB 225)

Please Note

Members who are on the program but cannot attend due to unforeseen circumstances should notify the Program Committee Chairman as soon as possible (Dennis H. Knight, Department of Botany, University of Wyoming, Laramie, WY 82071; Tel. 307/766-3291 or 2380). Alternate speakers are available.

Various ESA Officers will be available to discuss Society affairs from 10 AM–12:30 PM, Monday through Wednesday, in the registration area of the HUB.

Tickets for all meal functions listed above must be purchased in advance and can be ordered by mail at the time of registration.

Slide previewing room: Human Development Building, Room 10 (2–6 PM, Saturday; 9–6, Sunday; 8–5, Monday; and 6–9 PM Tuesday and Wednesday).

AIBS Plenary Lecture: Ecological Impacts of Technology—The Future, by Professor David Pimentel, Cornell University. Monday, 8:00 PM, Eisenhower Auditorium.

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I, and IVAN VALIELA. Boston
Hole, MA. **Effect of litter age**
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9:35 **CUMMINS, K. W., R. L. MATTINGLY, B. J. HANSON,** and **A. S. CARGILL.** Oregon State, Corvallis. **Food quality relationships in stream shredders and collectors.**
Macroinvertebrate shredder and collector functional feeding groups (based on morpho-behavioral modes of food acquisition) appear to have generally different abilities to detect and respond to food quality in stream environments. Although numerous definitions for food quality have been proposed, the one used here is based on short term invertebrate relative growth rate, particularly during the period of large weight increase in the last instar(s) of insects. Neither shredders (coarse particle feeders) or collectors (fine particle feeders) have been shown to detect food quality at a distance, suggesting physical forces and/or cues result in overlapping distributions of food and animals. Once in the immediate vicinity of their food, shredders can feed selectively on the higher quality substrates while it is doubtful that many collectors possess such discrimination ability. Because food quality has differential effects on shredders and collectors, which in turn impact different portions of the organic food resource, and because quality can override (modify) thermal effects, it is a critical parameter to consider when evaluating field populations in various disturbed and undisturbed stream settings.

10:00 **RECESS.**

10:15 **LOPEZ, GLENN R.** State University of New York, Stony Brook. **Ingestion selectivity of organic detritus and microorganisms by molluscan deposit-feeders.**
In order to obtain sufficient food, deposit-feeders must process large volumes of sediment. One widespread adaptation that increases the rate of sediment processing is selective ingestion of food-rich particles. Most measurements of ingestion selectivity have been based on some assumed mode of selection, such as particle size selection. However, we can never be certain that all possible modes of selection have been examined. For this reason, we have developed methods of estimating ingestion selectivity that are not dependent on knowledge of feeding modes. The methods combine radiolabelling of specific classes of food and non-food particles (e.g. ^{3}H-thymidine labelling of bacteria and ^{51}Cr labelling of inorganic particles) with radiochemical and gravimetric analyses of sediment, animals and feces. Animals need not be starved prior to an experiment, as is usual in other selectivity studies. The experimental protocol also allows simultaneous estimation of ingestion rate and assimilation efficiency. The methods are currently being applied to the study of the deposit-feeding behavior of the marine molluscs *Hydrobia totteni* and *Nucula annulata*.

10:40 **CAMMEN, LEON M.** Bigelow Marine Laboratory, Boothbay Harbor, ME. **The importance of microbial and microbially derived organic matter to detritivores.**
Substantial amounts of organic material, representing a potential food source to detritivores, may be derived from microbial communities either as cellular debris or extracellular release products such as mucopolysaccharides. Microalgal and bacterial cultures have been used to assess the possible contribution of non-living organic matter to the total organic pool and the feeding responses of detritivores to this material have been followed.

11:05 **BOWEN, STEPHEN H.** Michigan Technological University, Houghton, MI. **The distinction between morphous and amorphous detritus and its significance for detritivory.**
In both marine and fresh waters, detritus is formed from senescent and dead plant matter via two distinct pathways. Mechanical breakdown of insoluble structural components produces morphous detritus with conspicuous remnants of cellular structure, while dissolution of soluble components and subsequent precipitation produces amorphous detritus. These pathways were simulated in vitro to produce synthetic detritus with the anticipated characteristics. Natural detritus samples were imperfectly separated into morphous and amorphous components with agitation followed by sieving (120 micrometer mesh size). In vitro digestion with simple vertebrate enzymes supported the a priori hypothesis that amorphous detritus (natural and synthetic) is considerably more digestable than morphous detritus. The significance of these results is discussed for detritivore diet selection and nutrition.

11:30 **TENORE, KENNETH.** Skidaway Institute of Oceanography, Savannah, GA. **Effect of nutritional value of detritus particles on exploitation by macroconsumers.**
The source of nitrogen for macrodetritivores depends on the detritus source. In systems receiving detritus derived from seaweeds that are high in nitrogen, microbial enrichment is not necessary. Even in systems receiving vascular plant detritus, microbial decomposition may be just as important as microbial protein enrichment in regulation of macroconsumer production.

SESSION 3. Symposium: The Evolution of Dioecy.

Organized by **GREGORY J. ANDERSON,** Systematic and Evolutionary Biology, Biological Sciences Group, University of Connecticut, Storrs, CT 06268 (Tel. 203/486-4555), for the American Society of Plant Taxonomists. Cosponsored by ESA, the Association for Tropical Biology, and the Botanical Society of America. CHAMBERS 101

8:45 **GREGORY J. ANDERSON.** University of Connecticut, Storrs. **Introduction.**