

Introduction to Ecology. *Paul A. Colinvaux.* John Wiley & Sons, Inc., New York. 1973. ix+621 p. \$12.50.

If you believe in the sanctity of word both of lecturer and of textbook and think that students need concepts predigested for their blind acceptance, I do not recommend this book. Colinvaux has captured the spirit of how science works as he enthusiastically engages ecological concepts in depth from a perspective both historical and controversial.

The first of four parts deals with broad divisions of the earth, soils, and the classical studies of plant and animal distribution. Part two contains the usual discussion of ecosystems and their components. Part three is entitled "The natural checks on numbers"; the treatment of competition is good in this part, but that of predation was a bit confusing to my introductory students. In all cases, hypotheses are identified with the originators, and Colinvaux delights in documenting their rises and declines.

Part Four, "The evolutionary view of the pattern of life," is a highly successful treatment of recent theory, including many of the ideas of Hutchinson and MacArthur. It is possible to ask of second-year college students such questions as: "Why are there more species in the tropics than in the temperate zones."

Chapters generally stand alone and can be read in any order. Each has a short preview and contains subheads. Numerous printing errors annoy one, particularly those in the bibliography. Some mistakes can be useful to the instructor: How many students detect the legend reversal in Figure 37.5? Most of mine were unwilling to accept the idea that the course textbook could be fallible. Most substantial problems arise when Colinvaux states in Part Three that the best evidence for density-dependent population regulation is change in death rate. In mammals, at least, density-dependent changes in reproductive rates are probably more important. Also, Christian has moved a long way from his statements that mass deaths due to shock disease are a widespread regulator. Christian and others have demonstrated more subtle interactions between hormones and behavior, interactions that increase mortality and decrease natality.

I found it refreshing to pick up an introductory ecology text and find new information and synthesis. Colinvaux concludes "Successions are not directed by some holistic process of the super organism. Nor, and this is much more important to modern ecology, are they directed by negative feedbacks of ever-refining ecosystems. . . . The ecosystem itself has no biological identity. Complex ecosystems are the product of crowding many species into restricted spaces, of forcing them to live together and to adapt to each other's presence." Other parts of the book are equally controversial.

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Limnological Studies of the Island Area of Western Lake Erie. *N. Wilson Britt, James T. Addis, and Ronald Engel.* Ohio Biological Survey, Bulletin IV(3)NS, 1973. x+88 p. \$2.50+.10 tax for Ohio Residents. Order from: Ohio State Univ., Publication Sales, 124 W. 17th Ave., Columbus, Ohio 43210.

This monograph contains a thorough account of the authors' 1959-1966 investigations at six sampling stations in the vicinity of the Bass Islands of western Lake Erie. The Western Basin has been extensively studied by biologists for other three decades. Thus it is not surprising that Britt and his colleagues also placed primary emphasis on biological sampling, identification, and enumeration. This was at the expense of thorough physiochemical observations. No wintertime sampling was conducted, measurements of circulation or mixing were not attempted, and no measurements of diurnal variation of physiochemical parameters are reported. A better understanding of the aquatic ecology and water quality in the Western Basin requires that these aspects be addressed in future investigations.

The biologically oriented sections of the monograph, dealing with phytoplankton, zooplankton, and especially benthos, are quite comprehensive. Of particular value are the numerous comparisons between the authors' observations and those of earlier investigators. This is particularly true of the chapter on bottom fauna; in this chapter an entire section is devoted to comparisons of historical information on Western Basin benthos. Britt and his colleagues speculate that much of the temporal change in biological composition of the Western Basin may be attributable to one or more significant physiochemical changes that occurred between 1942 and 1959 and elicited a shift towards more pollution-tolerant species. This is undoubtedly true, although insufficient information is presented here to evaluate the nature of the change, much less its causes.

The monograph serves a dual purpose: it provides both a succinct comparative account of historical investigations and a recent benchmark against which results of future biological investigations can be compared. It is worthwhile reading for those wishing to obtain greater understanding of biological changes which have occurred in the Western Basin of Lake Erie over the past three to four decades. In addition, its excellent bibliography and the tabulation of raw data in the Appendix make it a valuable reference for those actively engaged in research on the biology and ecology of Lake Erie fauna and flora.

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