

The Ecology of Coexistence

The Feb. 18, 1994 issue of *Science* contains a book review by James H. Brown at the U/NM biology department of *Species Diversity in Ecological Communities: Historical and Geographical Perspectives*, Robert E. Ricklefs and Dolph Schluter, editors; University of Chicago Press, 1994 (\$32.50). The review, which appears on pp 995-6, applauds the work as evidence that "contemporary ecology is built upon a strong empirical and theoretical foundation."

Brown's review opens with a reference to G.E. Hutchinson's 1959 essay, "Homage to Santa Rosalia, or why are there so many kinds of animals?" and observes that "not only did Hutchinson focus attention on the ecological processes that enable species to coexist in the same environment, he was remarkably prescient: most of the processes he hypothesized to be important in regulating diversity are still the subjects of major research programs today."

And now, 35 years after Hutchinson's 14-page essay, "we have a wonderful 414-page volume summarizing the extent to which modern ecology has succeeded in explaining biological diversity." Editors Ricklefs and Schluter have put together 30 chapters by 50 authors from 10 countries and provided "an exceptionally broad and deep representation of the current state of the science. There is such a wealth of ideas and information that in my department we plan to spend the entire coming semester of our journal club on the volume."

Two important things the book does, says Brown. "First, it shows how much we have learned about the organization and diversity of ecological communities in the last 35 years ... (and second) it makes clear that modern ecology still has no general, satisfying answer to Hutchinson's question." No consensus yet exists for explaining the most pervasive patterns of biological diversity, but the book illustrates this well by two chapters (Rosenzweig and Abramsky; Wright *et al*) that discuss the relationship between diversity and productivity and reach quite different conclusions.

In recognition that traditional ecological studies of local patterns and processes are inadequate to understanding diversity, the editors include chapters by biogeographers, paleobiologists, and systematists, giving the book "an exceptional breadth of data, theory, and viewpoint."

Brown's enthusiasm comes through strongly in his concluding paragraph: "Many scientists in other disciplines still think of ecology as old-fashioned natural history or as comparable in rigor to a social science. Some ecologists, both young and old, are hypercritical and discouraged, rather than optimistic and excited, about the status and prospects of their discipline. I wish that all these skeptics would read this book. It is a testament to how far ecology has come in the last 35 years and to the great challenges that still lie ahead."