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Schoener T W. Resource partitioning in ecological communities. *Science* 185:27-39, 1974.
[Biological Laboratories, Harvard University, Cambridge, MA]

The ways in which species divide resources are a major aspect of how ecological community structure is characterized. An underlying causal process, such as competition, especially, can be implicated by certain resource-partitioning patterns, for example, the presence of over-dispersed resource utilizations along one or more appropriate niche dimensions. [The *SCI*® indicates that this paper has been cited in over 650 publications.]

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I was in the Bahamas doing research on lizards when I received a letter from Philip Abelson, then editor of *Science*, saying, "E.O. Wilson has recommended that you be invited to provide an article...on the evolution of the niche.... Our circulation is now over 160,000. The attention which a good article can draw is phenomenal. Our authors have reported receiving as many as 1000-3000 [reprint] requests...." Such a pitch was not to be refused by a nascent PhD. I realized, however, that others could do better with the exact subject suggested, so I reoriented the article to deal with "resource partitioning"—how species in an ecological community differ in resource use.

The topic was certainly not new in 1974: in the 1940s it was labeled "ecological isolation" by the New Synthesizers (for example, David L. Lack[1]) and more recently "resource division" by M.L. Cody.[2] The actual term "resource partitioning," while apparently originating in a somewhat earlier, more specialized paper of mine,[3] was probably established mostly by the *Science* article, and it has stuck to this day.

Although the target date for the paper's publication was four months from notification, I had barely returned from the field by then, and the writing actually took four times that long. Various friends read a draft; two who were shortly to become prominent scientists were disapproving. One complained, "I am frankly at a loss to understand the pressure toward the present manuscript.... It [is not] a good review paper.... You will do yourself a disservice...." The other negative reviewer's remarks were even blacker: "It seems very much a hodge-podge; it...has neither logical nor expositional crispness.... A lot of the argument is very rinky-dink.... Some of the 'generalizations' are figments of your imagination and simply won't be accepted by anyone." I sent the paper off anyway, thinking their criticisms to be awry but, of course, not really being sure.

The present context in which I discuss the paper seems to prove I was correct, and hindsight in part shows why. First, the article contained an empirical review and as such documented patterns against which ecologists could compare their own systems; for example, differences in habitat are more common than differences in food type, which are in turn more common than temporal differences. Second, the paper crystallized new concepts such as complementarity in the important niche dimensions separating species. Third, it placed the subject in a broader context than competitive processes alone: for example, large rather than small organisms should have competitively structured resource partitioning because predation more severely affects the latter. The paper even foreshadowed the notorious competition debate currently winding down in ecology: "If species had no influence on each other's resource utilizations, their niches would still differ.... Where niches are regularly and widely spaced...the alternative or 'null' hypothesis of randomly generated differences must be rejected...."

Resource partitioning has since been extensively reviewed for particular taxa,[4-6] as well as for concepts and methods.[7] Currently, however, experimental approaches are more fashionable than observational ones, somewhat diminishing comparative resource-partitioning studies *per se*. As correspondences are established between experimental and observational data on resource use, the latter will doubtless resurge in popularity.

1. **Lack D L.** *Darwin's finches*. Cambridge, England: Cambridge University Press, 1947. 208 p. (Cited 245 times since 1955.)
2. **Cody M L.** On the methods of resource division in grassland bird communities. *Amer. Naturalist* 102:107-47, 1968. (Cited 180 times.)
3. **Schoener T W.** The *Anolis* lizards of Bimini: resource partitioning in a complex fauna. *Ecology* 45:704-26, 1968. (Cited 190 times.)
4. ————. Competition and the niche. (Gans C & Tinkle D W, eds.) *Biology of the Reptilia*. London: Academic Press, 1977. p. 35-136. (Cited 65 times.)
5. **Toft C A.** Resource partitioning in amphibians and reptiles. *Copeia* 1985:1-21.
6. **Ross S T.** Resource partitioning in fish assemblages: a review of field studies. *Copeia* 1986:352-88.
7. **Schoener T W.** Resource partitioning. (Kikkawa J & Anderson D, eds.) *Community ecology—pattern and process*. Oxford, England: Blackwell Scientific Publications, 1986. p. 91-126.

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