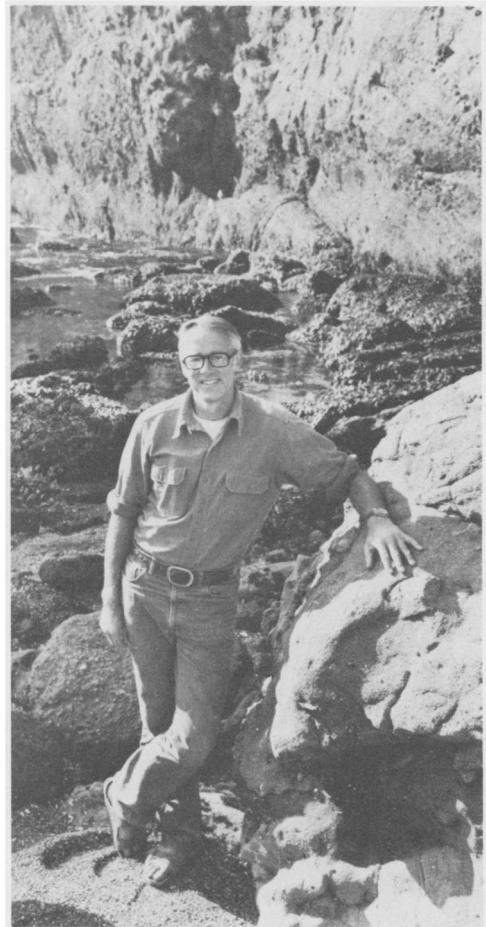


Robert T. Paine

Robert H. MacArthur's name is associated with originality, imagination, and the generation of new ideas; thus it is fitting that the first recipient of the MacArthur award is Robert T. Paine, whose innovative approaches to community ecology have contributed to some of the central ideas in community theory and have heavily influenced community ecology for nearly two decades.

Bob Paine's greatest contribution to the ecological sciences is undoubtedly his demonstration of the importance, power, and potential of experimental manipulations of natural systems. Despite his keen observational powers, Bob also recognized early the limitations of a purely observational approach to understanding community organization and dedicated himself to the development of a paradigm based on carefully controlled manipulations. Although this approach is well recognized today for its virtues, it was Paine and a few others of similar conviction who helped bring it to prominence. Through his classic studies, aided by many students and colleagues who came to work with him, he demonstrated the role of natural disturbance as an organizing influence in the intertidal zone, provided early support for the intermediate disturbance hypothesis, and showed dramatically, through his studies of *Pisaster ochraceous*, the potential importance of top predators in maintaining diversity at lower trophic levels. His report on the consequences of the experimental exclusion of *Pisaster* was published in 1966 in *The American Naturalist*, and has been one of the most influential and best known papers in modern ecology. From the insights he gained, Paine introduced the notion of the keystone predator species, an idea of such importance that it itself has become a keystone ecological concept.

Paine has continued to work in the intertidal zone ever since his early successes; although he has travelled extensively in pursuit of the critical biogeographical comparisons to test the generality of his conclusions, he remains principally noted for his active research program at the Tatoosh Island, Washington field site which has become his



home-away-from-home. For those who have had the good fortune to visit that stark and beautiful paradise, Paine's stony visage and elongated physique remain riveted in their minds as integral parts of the landscape. Yet the experiments since 1966 have been far more than a playing out of ideas contained in the early work. Each new study has been designed to shed light on some theoretical puzzle: the problems of recruitment and survival in a hazardous and unpredictable environment; the meaning of stability and persistence in a dramatically variable system; the functional morphology of species in relation to environment; the evolutionary pressures which shape patterns of reproduction, life

history, and dispersal. In each new study, the focus is likely to be on a different organism, chosen not because of previous familiarity but rather because of appropriateness to the question at hand. An avid birder since childhood and a skilled fisherman, Paine has developed research interests covering an impressive spectrum—from brachiopods to starfish, from encrusting algae to the sea palm *Postelsia*, from oystercatchers to snowy owls.

Bob Paine has remained an innovator, and his recent Tansley lecture provides a gold mine of theoretical ideas regarding community infrastructure and organization. Bob's unusual quality is that, despite his firm grounding in natural history and empiricism, he has always had a fascination with theory and made it an integral part of his work. This theoretical bent, as well as his curious weak spot for mathematicians, probably can be traced to his father's skills in cryptography and a distinguished maternal mathematical

lineage. A Birkhoff on his mother's side and part of a distinguished American heritage as a Paine, Bob has skillfully blended mathematical ideas with Common Sense to leave his imprint on his graduate students, his colleagues, and contemporary ecology. Robert Treat Paine has served the Ecological Society of America well—as an editor of *Ecology* and *Ecological Monographs*, as Vice-President, and later as President. It is appropriate that the ESA now has an opportunity to repay that service by recognizing his distinguished contributions to our science.

Written by Simon A. Levin

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