

Bob Paine, ecologist who introduced 'keystone species,' dies

June 15 2016, by Phuong Le

Robert "Bob" Paine, an influential ecologist best known for introducing the concept of "keystone species" and who nurtured a generation of scientists, has died. He was 83.

Paine, a retired zoology professor at the University of Washington, died of [acute myeloid leukemia](#), a type of blood cancer, at Swedish Medical Center in Seattle, according to UW biology professor Jennifer Ruesink, who was informed of Paine's death by one of his daughters.

"He's a giant in the field of ecology," said Ruesink, who worked alongside Paine and as a graduate student in his lab.

During the 1960s, Paine conducted experiments off the coast of Washington state that gave birth to the idea that certain "keystone species" play an outsized role in maintaining the diversity of their ecosystem.

He showed that by removing a top predator, a common sea star, from the shoreline, dramatic changes occurred. The mussels that the starfish feed upon took over and pushed out other species, lowering biodiversity.

"His legacy is immense. He's had an incredible effect on the entire field of ecology, not just marine ecology," said Bruce Menge, integrative biology professor at Oregon State University, who was in Paine's first cohort of graduate students.

Paine was among those who demonstrated the power of conducting experiments in the field, which wasn't as routinely done then as it is now.

"He referred to it as 'Rambo ecology' because you had to do dramatic intervention to understand how the natural world works," Ruesink said.

Paine was also well-known for mentoring many of the nation's top marine scientists, encouraging them to find their own ideas and questions.

"His academic family is enormous and includes a lot of really influential people," Menge said.

Paine was born in Cambridge, Massachusetts, in 1933. He received a bachelor's degree from Harvard University in 1954 and his doctorate degree from the University of Michigan in 1961. He joined the faculty at the University of Washington in 1962 as a professor of zoology. He retired in 1998.

In an interview with the UW in 2013, Paine said he became interested in biology at a young age and recalled sitting in a dirt driveway as a toddler, being "utterly fascinated" with ants.

Paine also spent years studying the [ecology](#) of the small uninhabited island, Tatoosh, off the northwest tip of Washington, with the permission of the Makah Tribe.

Paine is survived by three daughters and a brother, Ruesink said.

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