

The OHIO ACADEMY of SCIENCE

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Fostering curiosity, discovery and innovation to benefit society.

Knowing Nature: Paul Bigelow Sears (1891-1990) and American Ecology

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COLUMBUS, Ohio – The Ohio Academy of Science today honored the late Paul B. Sears (1891-1990), one of the foremost biologists in Ohio history, in the current peer-reviewed issue of *The Ohio Journal of Science* (Dec 17).

Sears, of Bucyrus, Ohio, was an internationally known researcher, a pioneer in the science of ecology and a leader in the analysis of pollen from lake and bog deposits to infer pre-historic climate change decades before climate-change research became popular.

The special issue is published on the 119th anniversary of his birth in 1891. He died in 1990.

“Paul Sears had a huge influence during his lifetime but his legacy simply grows ever larger with the importance of his research on climate-change studies,” said OAS Chief Executive Officer Lynn Elfner.

Before Sears, scientists worked in discrete areas of biology, chemistry, geology and physics that, basically, were walled off from each other. But Sears’ career came as scientific advances began to blur those lines. Sears, along with other scientists, such as Aldo Leopold, was among the first to study biology from the standpoint of other disciplines to learn how the environment, plants and animals, including human beings, interact and affect one another.

“Delving into that interaction is not only basic to climate change research and understanding and predicting our immediate environment, but also to understanding how the global environment may change in the next century,” said Ronald Stuckey, a retired botanist and scientific historian, from The Ohio State University.

Sears was a pioneer in the study of plant pollen preserved in ancient sediments of lakes and bogs to learn what plants grew in an area pre-historically and then to deduce other factors such as what the environment and climate were like. He knew that understanding the environment on a small scale could lead to global reconstructions.

“Sears was innovative and pollen research, once esoteric, is bedrock biological analysis now,” said Stuckey, one of 12 contributors to the special edition of *The Ohio Journal of Science*. Contributors include Sears’ daughters, Catherine Sears Frazer and Sallie Harris Sears.

The issue looks at Sears as a scientist and scholar, a teacher and as a family man. It includes his early years growing up in Crawford County, Ohio, his education at Ohio Wesleyan University, where he earned bachelor’s degrees in zoology and economics; the University of Nebraska, where he received a master’s in botany; and the University of Chicago, where he earned a doctorate in botany. For abstracts of the Sears memorial papers go to: www.ohiosci.org/SearsAbstracts.pdf.

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Early in his research career, Sears was interested in understanding how large areas of prairie developed in Ohio following the retreat of the glaciers. Discovered in the Yale Library and Archives, and published for the first time, is a 1919 sketch map of Ohio's original prairies.

He also formulated a map of the virgin forest of Ohio at the time of European settlement, a seemingly impossible task given that more than 80 percent of the original forest cover of the state was destroyed by the end of the 19th century. Undaunted, Sears used original land survey records for his mapping technique. Those early surveyors commonly included the names of "witness" trees at the corners of their survey plots and this allowed Sears to develop his map, the first of its kind.

His pollen studies were first used to describe Ohio's post-glacial environment, especially to identify plants growing in the region and how the environment and plant communities were altered as the glaciers retreated into what is now Canada about 14,000 years ago.

As a faculty member at the University of Oklahoma during the Dust Bowl days of the 1930s, Sears wrote "Deserts on the March", the best-known of many books that popularized ecology. In 1950, he moved from Oberlin College to Yale University to found Yale's conservation-studies program, the first department of its kind in the nation.

In the early 20th century, however, Sears also knew that ecology's multidisciplinary approach was considered a "threat" as he termed it, "to established assumptions in society and in economics, religion, and the humanities, as well as the other sciences and their ways of doing business."

During his career, Sears served as president of the Ohio, Oklahoma and Nebraska academies of science as well as the American Association for the Advancement of Science. Among other positions, he was president of the National Audubon Society and was an early member and president of the Ecological Society of America.

Sears published his first scientific paper in *The Ohio Naturalist and Journal of Science* in December 1914. During his long career, he published more than 550 publications in many different journals.

Sears retired to New Mexico in the 1960s, where he continued his interest in ecology. He died at Taos, N.M., in 1990.