

ENTRY TERM: Leopold, Aldo

Leopold, Aldo (1887-1948), American wildlife biologist. Few figures have had as broad an influence on our understanding of the environment as Aldo Leopold. Over a forty-year career, Leopold made fundamental contributions to conservation policy and philosophy, the environmental sciences, and the natural resource management professions. As an early proponent of the need to adopt an ecological perspective, Leopold played a pivotal role in expanding the scope of conservation. As a forester, wildlife manager, scientist, writer, educator, and advocate he instilled that perspective among both his professional colleagues and the general public.

Leopold was born and raised in Burlington, Iowa. Inspired by the early American conservation movement and its preeminent leaders, President Theodore Roosevelt and forester Gifford Pinchot, Leopold chose a career in forestry. After attending Lawrenceville Preparatory School in New Jersey, Leopold entered Yale University. In 1909, he received his Master of Science degree from Yale, the principal training ground for the first generation of American foresters.

Upon graduation, Leopold entered the United States Forest Service. From 1909 to 1924 he served as a field officer and administrator in the national forests of the American Southwest. Leopold's wide-ranging interests made him an innovator in several areas of forest management. His concern over the effects of accelerated soil erosion led him to undertake early studies of the environmental impact of forest management practices in the semi-arid Southwest. He directed a region-wide game protection

movement that made wildlife conservation a higher priority not only in the Southwest, but throughout the U. S. Forest Service. Similarly, he helped to establish recreational needs as an important consideration in national forest policy and planning.

In the early 1920s, Leopold began his lifelong efforts to protect America's remaining wilderness lands. As a leading spokesman for what became known as "the wilderness idea," Leopold articulated the recreational, cultural, historical, and scientific value of wildlands. His work led to the creation in 1924 of the Gila Wilderness Area within New Mexico's Gila National Forest, the first such area in the world to be so designated. Leopold's advocacy also stimulated the Forest Service to adopt, in the late 1920s, its first service-wide wilderness protection policy.

In 1924, Leopold became assistant director of the Forest Products Laboratory in Madison, Wisconsin. He left the Forest Service in 1928 to devote himself to the emerging field of game management. As head of a privately sponsored research institute, Leopold undertook a three-year survey of game populations, habitat conditions, and management needs in the American midwest.

Through his work on the game survey, Leopold began to lay the foundations of wildlife management as a distinct profession. At the time, wildlife conservation consisted largely of legal restrictions on hunting and the captive rearing and release of game animals. By contrast, Leopold's approach emphasized the protection, restoration, and management of habitat so that game and other forms of wildlife could perpetuate themselves. The need to provide favorable habitat conditions was, in Leopold's words, "the fundamental truth [that] the conservation movement must learn if it is to attain its

objective."

Increasingly, ecological concepts undergirded Leopold's work. The culmination of this phase of his development came in 1933, with the publication of Game Management, the first text in the field. Game Management provided a synthesis of ecological theory and management practices applicable to all forms of wildlife. Leopold gained new opportunities to contribute to the underlying science when, in 1933, he was appointed Professor of Game (later Wildlife) Management at the University of Wisconsin. He held this position for the remainder of his life.

As ecology matured in the 1930s, Leopold and other American scientists and conservationists faced a variety of environmental dilemmas, including the devastating conditions in the Dust Bowl on the western plains. In response, Leopold's early management focus on game animals broadened to include all members of what he called "the biotic community," as well as the ecological processes that determined the stability of land. He began to redefine conservation as "a state of health in the land." Ecology, as "a new fusion point for all the natural sciences," became key to defining and understanding that state of environmental health.

Leopold's new approach to conservation had broad implications for human land use, conservation policy, and the natural sciences. It suggested that greater attention needed to be given to the status of biological diversity within ecosystems. It highlighted the need to manage resources in a more integrated manner (as opposed to the traditional division of responsibilities among soil scientists, foresters, wildlife managers, and other specialists). It placed greater emphasis on ecosystem restoration; Leopold

himself became a pioneer in restoration ecology through his work at the University of Wisconsin Arboretum and on his family's land in Wisconsin's "sand counties." Wilderness areas also took on new importance as places in which scientists could study the processes by which healthy land maintained itself.

Leopold clarified and promulgated these ideas through his leadership in more than a hundred scientific, professional, and conservation organizations. He was a charter member of The Wilderness Society, which came together in 1935 under the direction of forester Robert Marshall. He served as president of the Ecological Society of America and The Wildlife Society (which he helped establish in 1937). After World War II, he became more active in international conservation as an advisor to the Conservation Foundation and to the International Scientific Conference on the Conservation and Utilization of Resources, sponsored by the United Nations.

In addition to two books that appeared in his lifetime, Leopold published more than 500 articles, essays, scientific papers, reviews, and editorials on a wide range of conservation-related topics. In the early 1940s, he began to compose a series of literary essays describing his field experiences as a naturalist and his concerns as a conservationist. With the posthumous publication of these essays as A Sand County Almanac and Sketches Here and There, Leopold's ideas began to reach a broader audience. In A Sand County Almanac, Leopold combined the voices of the scientist, historian, poet, and philosopher to produce what has often been described as "the bible of the environmental movement."

Leopold's conservation philosophy attained its most fully developed expression in

"The Land Ethic," the capstone essay of A Sand County Almanac and a seminal statement in environmental ethics. The ecological perspective, Leopold argued, required that the concept of community be expanded "to include soils, waters, plants, and animals, or collectively: the land." Under this expanded concept, simple utilitarian standards no longer sufficed to gauge decent land use. A "land ethic" was needed to guide people in their land relations, and to affirm the right of other components of the community "to continued existence, and, at least in spots, their continued existence in a natural state." Leopold concluded that individuals should "examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."

Leopold died on April 21, 1948, suffering a heart attack while fighting a grass fire on a neighbor's farm in Wisconsin.

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