

*To commemorate the fiftieth anniversary of the death of Aldo Leopold in 1948 and celebrate the fiftieth anniversary of the publication of his much-loved Sand County Almanac in 1949, we offer an essay on Leopold's contributions to forestry by historian and Leopold scholar Susan Flader. Her essay, forthcoming for 1999 in a volume edited by Richard Knight and Curt Meine and tentatively titled The Essential Aldo Leopold, is reprinted here by permission of the University of Wisconsin Press. The book consists of selected quotations by Leopold on more than twenty different topics, from forestry and wildlife ecology to land esthetics and ethics; each introduced by a distinguished scholar or conservationist.*

# ALDO LEOPOLD'S LEGACY TO FORESTRY

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**A**ldo Leopold began his career as a forester. He entered Yale University in 1905, intent on a career in the newly established U.S. Forest Service, and on graduation with a master of forestry degree in 1909 was assigned to map and cruise timber in the Arizona Territory. From the start he was deeply imbued

with the utilitarian conservation philosophy espoused by the service's first chief, Gifford Pinchot. But also from the start he pushed foresters toward a broader definition of their responsibilities and more thoughtful consideration of the objectives of forest management.

Nearly half a century after his death, during most of which forestry in America moved away from rather than toward Leopold's vision, Leopold is once again pointing the way to the future for his profession. A band of renegades formed an Association of Forest Service Employees for Environmental

Ethics in 1989 and the profession's key arbiter, the Society of American Foresters, in the early 1990s engaged in an exhaustive process of developing a land ethic canon inspired by Leopold's writing. Then in 1992 the chief of the Forest Service promulgated a new philosophy of ecosystem management to replace Gifford Pinchot's resource conservation philosophy as the service entered the twenty-first century, specifically referencing Aldo Leopold. Since then, Leopold's ideas have been at the center of the continuing debate about ecosystem management.

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BY SUSAN FLADER

The ebb and flow in the receptivity of foresters and other land managers to Aldo Leopold's message is owing to larger forces in our society, but the fact that Leopold is still regarded as a guiding light is due to the clarity and credibility of his message and the depth of experience in which it was grounded.

At a time when the national forests were devoted by law to conservation of timber and water, Leopold in one of his earliest publications, a 1913 letter to his fellow officers of the Carson National Forest in New Mexico, laid out virtually the entire range of purposes—"timber, water, forage, farm, recreative, game, fish, and esthetic resources"—that would be enshrined half a century later in the Multiple Use Sustained Yield Act of 1960. All that was missing was wilderness, but Leopold would soon become the leading advocate for wilderness preservation as well. Even more significant in his 1913 essay, however, was his emphasis on measuring successful management by "the effect on the forest," rather than by mere adherence to official policies and procedures. It was this preoccupation with what actually happened on the ground, with what we now call the forest ecosystem, that marked Leopold as a person of vision.

Leopold's Carson letter was written at a time when he was recuperating from a serious illness that would force him to give up his youthful ambition to be a forest supervisor only two years after having attained it. For the remainder of his career in the Southwest he would serve in a succession of regional office positions in which he would seek to broaden the scope of national forest administration and improve the quality of forest ecosystems. He initiated game management programs modeled on principles of forest management, promoted wilderness hunting grounds as a form of recreational land designation, and even advocated sanitary engineering (of recreation facilities) as a new sideline for foresters.

But perhaps his most far-reaching contributions came in the realm of ecological interpretation, as he sought to discern the interactions of grass, brush, timber, and fire on Southwestern watersheds in his capacity as a forest inspector. With an ever open and inquiring mind, Leopold observed the marked increase in soil erosion, the continuing replacement of grass by unpalatable brush, the pattern of fire scars on ancient junipers, and the growth of yellow pine in dense, stunted thickets. In what was rank heresy in an agency dedicated to growing and harvesting trees, committed to absolute fire prevention, and funded largely by grazing fees, he argued that grass was a more effective watershed cover than trees and that fire, which was necessary to maintain grass cover, was less destructive than grazing. And he drove home the point: "Fifteen years of forest administration were based on an incorrect interpretation of ecological facts and were, therefore, in part misdirected."

The Leopold who so boldly challenged the Forest Service by pointing out the implications of ecological interpretation was then chief of operations, the second highest post in the administration of twenty million acres of national forests in the Southwest. Though some of his colleagues thought of him as highbrow, moving along "with his feet somewhat off the ground," there is no question that he was well respected. Many of his innovations in game management, wilderness



U.S. FOREST SERVICE PHOTO

*Aldo Leopold and "Flip." Apache National Forest, Arizona. February 1911.*

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The practices we now call conservation are, to a large extent, local alleviations of a biotic pain. They are necessary, but they must not be confused with cures. The art of land doctoring is being practiced with vigor, but the science of land health is yet to be born.

*SAND COUNTY ALMANAC (1949)*

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designation, and inspection methodology influenced forest policy in his own time, though it would be years before his concern about the integrity of watersheds and the implications of ecology would be understood. The Forest Service in its early years was an enormously creative and vibrant institution, willing to respond to at least some of the prodding of a free-thinker like Leopold because there was, in fact, relatively little demand for the timber that was its principal reason for existence.

Leopold left the Southwest in 1924 to become assistant director of the U.S. Forest Products Laboratory in Madison, Wisconsin, then the principal research arm of the Forest Service. Though the chemists, physicists, and engineers on its staff were concerned primarily with research on utilization of wood products after the tree was cut, Leopold wrote a series of essays in an effort to shift the focus of research to the growth of forests, with a decided bent toward natural reproduction, ecologically understood. His frustration in this endeavor led him to resign from the Forest Service in 1928 to devote himself full-time to laying the groundwork for the new



U.S. FOREST SERVICE PHOTO

Aldo Leopold (second from right) as part of a reconnaissance party in Camp on the Apache National Forest, 1910. From left to right: Lonnie Prammel, R. E. Marsh, H. H. Greenamayer, J. H. Allison, C. W. McKibbin, G. H. Collingwood, R. E. Hopson, H. B. Wales, J. W. Hough, Aldo Leopold and John D. Guthrie.

profession of game management. The day before he resigned he published a parting shot in the Service Bulletin, the house organ of the Forest Service: "Whether we like it or no, National Forest policy is outgrowing the question of boards." Consistent with his approach for nearly two decades, he asserted the claims of "sociology as well as silviculture" and the possibility of social evolution to a higher understanding of the ends as well as the means of forest management.

After he left the Forest Service, Leopold continued to identify himself as a forester. He showed his respect for the craft by modeling the techniques and standards of game management on those of forestry, even as he continued to criticize foresters for their too narrow, too commodity-oriented view. An opportunity in 1935 to observe forestry and wildlife management in Germany profoundly reinforced his conviction of the need for a more naturalistic, less "cubistic" or

"wood factory" approach. He was impressed by the Dauerwald concept that was even then replacing the "cabbage brand" of silviculture in Germany, and he realized that America, with a population density only one-tenth that of Germany, had a much better chance of preserving ecological and esthetic values in land.

But America was not ready to restrain its appetite for wood in favor of the integrity of its forests. As wartime demands fueled the cutting of the last sizable stand of virgin hardwoods in the Lake States, Leopold bent his pencil to the effort to save Michigan's Porcupine Mountains as a remnant of "decent forest." The violent slashing he inveighed against would only increase in the post-war decades, as the demand for housing surged and as new technologies for pulp and fiber products spurred utilization of second-growth that would regenerate quickly once "over-mature" stands were removed. Clearcutting

became the silvicultural technique of choice on the national forests as well as on industry lands, and the annual cut more than quadrupled. Leopold did not live to see the worst of the assault. But as environmentalists rallying around the vision of forester Aldo Leopold sought to stem the tide by promoting congressionally designated wilderness and filing lawsuits, professional foresters in both industry and government, devoted



PHOTO BY R. E. MARSH

Leopold (left) as Deputy Forest Supervisor on the Carson National Forest. Ira T. Yarnall, Forest Assistant (middle) and C. C. Hall, Forest Supervisor (right). Taken at supervisor's headquarters in Tres Piedras, New Mexico, 1911.



**Left** Leopold and his wife Estella at “the shack” on their sand farm in Wisconsin, circa 1940.

**Below** Leopold examining a pine on his Sand County farm. “. . . I hear [music] in my shovel; it hums in my wrists as I plant a pine.”

A public which lives in wooden houses should be careful about throwing stones at lumbermen, even wasteful ones, until it has learned how its own arbitrary demands as to kinds and qualities of lumber help cause the waste which it decries.

*THE HOME BUILDER CONSERVES* (1928)

now more than ever to fiber production, began to view him as a flaky idealist or, worse, a threat. It would require nearly half a century before this phase of management would run its course and foresters, in their professional society and in government, would begin to look to Leopold for guidance on ecosystem management and ecological ethics.

That Leopold could still provide such guidance half a century after his death is owing to the force of his spirit, embodied in simple prose grounded in personal experience.

The most enduring of his writing, we now know, was in the little book that described his efforts to restore the health of the worn-out, abandoned farm he acquired in 1935 in the sand country of central Wisconsin. “I was made to live on and work on my own land,” he had written to his family a quarter century earlier, explaining why he was so eager to become a forest supervisor. “Whether it’s a 100-acre farm or a 1,700,000-acre forest doesn’t matter—it’s all the same principle.”

Now, as he planted and thinned his own woods, he became increasingly pensive, humble even, about his use of shovel and axe, and he came with humility to a sense of husbandry, “realized only when some art of management is applied to land by some person of perception.” The individual decisions required with every stroke were a constant exercise in ecological reasoning and ethical judgment. So it is little wonder that Leopold put his faith for the future in the slow sensitizing of people to land. “A conservationist,” Leopold decided, “is one who is humbly aware that with each stroke he is writing his signature on the face of the land.” □

