

WALDEN THREE

Ecological Changes in the Landscape of Henry David Thoreau

by Kurt Kehr

The life of Henry David Thoreau was too short. He died of tuberculosis in 1862 at the age of forty-five. It is idle to speculate about all that he might have written or how he might have matured as a scientific naturalist, having begun as a self-schooled dilettante. *Walden*, published eight years before his death, succeeds best in conveying his timeless message: mankind and nature form an ecological unity; the materialism of the industrial age robs man of the real basis of his life; skepticism is appropriate whenever the advance of scientific knowledge is lauded. But these universal themes overshadow another important contribution, not so much to the world of literature as to the world of forestry.

Despite Thoreau's well-known poetical and transcendental leanings, we should remember that he also lived and worked in a practical world in which forest, farm, and community were closely interconnected. Thoreau himself earned his living briefly as a surveyor and, as such, sometimes surveyed tracts of forest that were to fall victim to the ax in order to make way for new farmland to support the growing population of Massachusetts. To be sure, Thoreau realized that this cutting was not merely destructive but ultimately led to the harmony of cultivated areas and forestland that still characterizes most of New England today. Still, it cannot be denied that the

destruction of New England's magnificent old-growth forests had already begun in Thoreau's day. And the surveyor was not merely an innocent observer. He surveyed the wooded areas for landowners eager for profits and estimated their wood harvest for auction.¹

In April 1844, Thoreau participated in forest destruction on a more dramatic scale. While fishing in the Sudbury River south of Concord, he and a friend, Edward Hoar, accidentally set the woods on fire. The fire threatened the wooden houses of Concord and was not extinguished for several hours. The archetypal nature lover thus lived with the fact that he had set 300 acres of woodland afire, and in the memory of many citizens of Concord, he had been branded as the "woods burner" and a "damned rascal." The destructive role Thoreau played in the local woods—although he played it involuntarily—provides an appropriate point of departure for viewing his complex regard for the New England forest.

Thoreau's classic experiment in self-discovery at Walden Pond began inauspiciously in the spring of 1845. Work in his father's pencil factory did not agree with the young man, and at home he had come to feel like a mere guest. The narrowly bounded Concord society confined the free-spirited Thoreau, and so, on the advice of his clergyman friend William Ellery Channing, he resolved to build a cabin at Walden Pond, near Concord, in a thorny field belonging to his philosopher friend Ralph Waldo Emerson. The results of his "hermitage" of two and a half years appeared in book form in 1854. *Walden; or, Life in the Woods* remains one of the great achievements in world literature. Thoreau, who in time of crisis had retreated into the woods as poet

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Walden Two is a psychosociological novel published by the American behavioral scientist B. F. Skinner in 1948. It came into being under the influence of Thoreau's *Walden*, and in deliberate contrast to it. "Walden Three" refers to changes around Walden Pond since Thoreau's time and criticizes present conditions.

¹Thoreau describes these activities in his "Field Notes of Surveys." See Leo Stoller, *After Walden: Thoreau's Changing Views on Economic Man* (Stanford, California: Stanford University Press, 1957), p. 74.

without an audience, returned to society as the "poet-naturalist."

Although the Walden years were formative, the most important source for evaluating Thoreau's contribution as a maturing naturalist is the journal to which he daily entrusted his observations and thoughts from the early 1850s until the spring of 1861. The journal is a treasure trove equal to *Walden* in many respects and stands as one of the greatest personal documents written.

After the early 1850s, as the journal shows, Thoreau increasingly pondered the consequences of the destruction of New England's forests for his own personal life and for those of his fellow human beings.² At the same time, he began to demonstrate a sophisticated understanding of the ecological relationships at work within the forest. That this citizen of Concord who wandered the woods had more in mind than just observing nature becomes abundantly clear in the journal entries for the late 1850s and specifically those of summer and fall of 1860. At this point, almost 200 pages of the journal are filled with notes about various species of trees and with speculations about forest succession and stand history. Thoreau, who introduced himself ironically in *Walden* as a "self-appointed inspector of snow-storms and rain-storms" and a "surveyor . . . of forest paths," became the "self-appointed inspector" of the woods of Concord.³ By counting tree rings and recording exactly the conditions and locations of certain tree populations, he laid the foundation for a possible history of the forests of his town.⁴ On October 19, 1860, he wrote:

Perhaps I can recover thus generally the oak woods of the beginning of the last century, if the land has remained woodland. I have an advantage over the geologist, for I cannot only detect the order of events but the time during which they elapsed, by counting the rings on the stumps. Thus [I] . . . can unroll the rotten papyrus in which the history of the Concord forest is written.⁵

The notes were apparently intended for a larger



Samuel Worcester Rowse's crayon drawing of Henry David Thoreau was made in 1854, the year Thoreau published *Walden; or, Life in the Woods*.

work on which Thoreau labored with special intensity in the summer and fall of 1860. He envisioned a natural history that would have included a history of the forests of New England, precise observations about individual tree species and their uses, and instructions in the maintenance of woodlands, especially for the farmer.⁶ It also would have contained observations on the roles of various animal species in the renewal of the forest. In the journal, entries of scientific data continue until December 4, 1860, the day on which Thoreau observed the season's first snowfall.⁷

Thoreau's journal entries for these years demonstrate a growing attention to methodical observation. By 1860 he was carefully recording both

⁶The intended work is not to be confused with the essay, "Natural History of Massachusetts," published in 1842. Thoreau's entries occur in part *after* his notable September 1860 lecture on the succession of trees, but they follow the text of the lecture almost word for word. Hence it is clear that the lecture was planned as part of a larger work.

⁷According to Walter Harding, *Thoreau's Library* (Charlottesville: University of Virginia Press, 1957), pp. 14-15, Thoreau came down with a bad cold on December 3, 1860, while he was counting the annual rings at Smith's Hill. The cold developed into bronchitis and finally culminated in the disease that in the following year rendered him unable to wander the woods of Concord as he previously had. Philip and Kathryn Whitford drew these conclusions earlier. See Kathryn Whitford, "Thoreau and the Woodlots of Concord," *New England Quarterly* 23 (September 1950), pp. 291-306; and Philip and Kathryn Whitford, "Thoreau, Pioneer Ecologist and Conservationist," in Walter Harding, ed., *Thoreau, A Century of Criticism* (Dallas: Southern Methodist University, 1954), p. 201: ". . . he caught the lingering cold which hastened the family malady, tuberculosis, by kneeling in wet snow to count stump rings." On May 6, 1862, Thoreau died of tuberculosis.

²Stoller, *After Walden*, p. 75.

³*Walden and Other Writings of Henry David Thoreau*, edited with an introduction by Brooks Atkinson (New York: Modern Library, 1950), p. 16: "For many years I was self-appointed inspector of snow-storms and rain-storms and did my duty faithfully; surveyor, if not of highways, then of forest paths and all across-lot routes, keeping them open. . . ."

⁴See, for example, the description of Emerson's woodlot in *The Journal of Henry D. Thoreau*, edited by Bradford Torrey and Francis H. Allen (New York: Dover Publications, 1962), Vol. XIV, p. 169 (hereinafter cited as *Journal*), or the list of all the stands of pitch pine (*Pinus rigida*), white pine (*Pinus strobus*), and hardwoods, *ibid.*, pp. 207-08, and elsewhere.

⁵*Journal*, XIV, p. 152.



The Thoreau family plot is located on Authors' Ridge in Concord's Sleepy Hollow Cemetery. Thoreau's legacy as a pioneer field ecologist inspired later generations of conservationists, but even in his own lifetime the Concord naturalist foresaw the deterioration of the ecological harmony he had come to appreciate in the local woodlands.

Richard W. Judd photo

scientific data and conclusions, frequently organizing information in tables. Having earlier expressed his skepticism about pure science, he avoided the narrowed vision of the specialist; he specified the reasons for his efforts at precision and drew the minutiae together into general truths. From his observations about the rural Concord landscape he concluded that forests, agriculture, and ultimately the quality of human life were deteriorating in New England. He charged that Massachusetts had no planned forestry as it was practiced in England. New England farmers cleared pastures and then allowed the pine to germinate in them; since cattle and the scythe did not keep the meadows open, they became pine woods again. "This is the actual history of a great many of our wood-lots. While the English have taken great pains to learn how to create forests, this is peculiarly our mode. It is plain that we have thus both poor pastures and poor forests."⁸

The destruction of the New England forest, which

⁸*Journal*, XIV, p. 151.

reached its high point around 1900, was well under way in Thoreau's time. He observed the symptoms: Maine's forests seemed unbounded in 1860, "But Maine perhaps will soon be where Massachusetts is. A good part of her territory is already as bare and commonplace as much of our neighborhood."⁹ He followed with a call for conservation and protection: "The kings of England formerly had their forests 'to hold the king's game,' for sport or food, sometimes destroying villages to create or extend them; and I think that they were impelled by a true instinct. Why should not we, who have renounced the king's authority, have our national reserves . . . ?"¹⁰ In this spirit, Thoreau recommended that every large town should establish a municipal forest for the protection of the landscape. "Each town should have a park, or rather a primitive forest . . . , a common possession forever, for instruction and recreation."¹¹

Thoreau did not content himself simply with appeals for public forests but advocated new stands of forest as well. Besides propagating the native species of trees, Thoreau recommended planting several foreign or western American varieties. He characterized as desirable such introduced species as the European common pine, the Norwegian fir, and the larch. Of western American varieties, he included the sugar pine (*Pinus lambertiana*), the Douglas-fir (*Pseudotsuga menziesii*), and the great silver fir (*Abies grandis*)—impressed, apparently, by their reputations for rapid growth.¹²

In his study of Thoreau's economic views, Leo Stoller described how the Concord naturalist responded to the felling of a local white pine in 1851 and an elm in 1856, great trees with which Thoreau was well acquainted, thanks to his precise observations.¹³ With them fell, for Thoreau, a part of old Concord. But Thoreau's thoughts on reforestation show that he was not simply opposed in a romantic way to chopping down trees and woods. Stoller gleaned evidence from the journal that Thoreau's thinking turned more and more to forest management. Woodcutters and lumbermen counted among

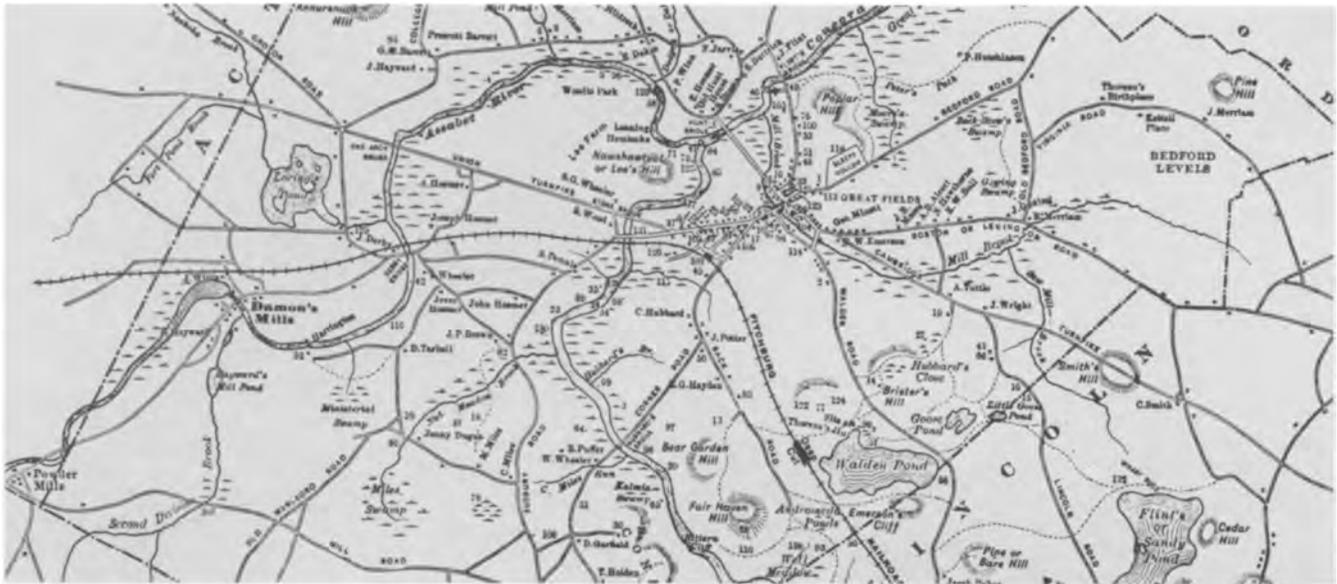
⁹Thoreau, *The Illustrated Maine Woods*, edited by Joseph J. Moldenhauer (Princeton, New Jersey: Princeton University Press, 1974), p. 152.

¹⁰*Ibid.*, p. 156.

¹¹*Journal*, XII, p. 387. Cf. also Stoller, *After Walden*, pp. 92-93.

¹²*Journal*, X, p. 185.

¹³Stoller, *After Walden*, p. 73; and *Journal*, III, pp. 162-64 (white pine); *Journal*, VIII, pp. 125-26 (elm). Stoller's work was originally a doctoral dissertation, "Thoreau and the Economic Order" (Columbia University, 1956). His chapter titled "The Union of Principle and Expedience" was reprinted in Walter Harding and Melton Meltzer, eds., *A Thoreau Profile* (New York: Thomas Y. Crowell, 1962), pp. 121-49.



A 1906 map of Concord, Massachusetts, and vicinity shows many of the localities mentioned in Thoreau's *Journal* and in other writings.

Torrey and Allen, eds., *The Journal of Henry D. Thoreau* (1906)

his friends; he admired their work.¹⁴ He ultimately arrived at the conclusion that one must preserve the forest and, through proper management, realize a profit.¹⁵ Thoreau thus favored practicing both agriculture and forestry in a thoroughly scientific way. "That he should call himself an agriculturalist!" he jeered at the Yankee farmer. "He needs to have a guardian placed over him. A forest-warden should be appointed by the town. Overseers of poor husband-men."¹⁶

One essay in particular attests to Thoreau's increasingly methodical study of the forest and to his skill at interpreting ecological interdependencies. In September 1860, Thoreau lectured on the topic of forest succession before the Middlesex Agricultural Society in Concord. In his lecture, titled "The Succession of Forest Trees,"¹⁷ he began with an

observation common among New England farmers: when one cuts pine woods, the next generation is an oak woods, and vice versa.¹⁸ From this bit of folk wisdom, Thoreau extrapolated a lesson in the principles of forest succession.

Thoreau reasoned that "while the wind is conveying the seeds of pines into hard woods, the squirrels and other animals are conveying the seeds of oaks and walnuts into the pine woods. . . ."¹⁹ He explained the successive alterations in tree populations (which he oversimplified a little here) in the following way: the oak seeds that are buried anew every year under the protection of the evergreen woods suffer less from the shading effect of the mature pines than do the pine seedlings. When the pine woods are cut down, the oak seedlings finally

¹⁴Stoller, *After Walden*, p. 76.

¹⁵*Ibid.*

¹⁶*Journal*, XIV, p. 131. One should not interpret these words as Stoller does in *After Walden*, p. 89, as actually advocating governmental supervision.

¹⁷The essay was first published in the *New York Tribune* (October 6, 1860), according to Walter Harding, *A Thoreau Handbook* (New York: New York University Press, 1959), p. 69. In the same year, it appeared in the *Transactions of the Middlesex Agricultural Society* and in the *Eighth Annual Report of the Secretary of the Massachusetts Board of Agriculture* (Harding, *Thoreau Handbook*, p. 70). It then appeared in *The Writings of Henry David Thoreau*, 20 vols. (Boston: Houghton, Mifflin, 1906), Vol. 5. Citations in this paper (hereinafter cited as "Succession") are from *Excursions* (New York: Thomas Y. Crowell, 1913), pp. 184-204.

¹⁸As the journal shows, it was George Hubbard, Thoreau's assistant in surveying, who called this phenomenon to Thoreau's attention; thus Stoller, *After Walden*, p. 81, after the *Journal*, VIII, p. 315. Also, on pp. 77ff, Stoller refers to earlier American literature containing observations on forest succession; for example, Timothy Dwight, *Travels in New England and New York*, 4 vols. (London, 1823), 1: 270. Bernhard E. Fernow, *A Brief History of Forestry in Europe, the United States, and Other Countries* (Toronto: University Press, 1907), documents how late the idea of forest succession and forest management penetrated American thought, as does Herbert A. Smith, "The Early Forestry Movement in the United States," *Agricultural History* 12 (October 1938): 326-46. In the *Journal*, VIII, p. 363, Thoreau records a further observation regarding forest succession: John Hosmer is his source.

¹⁹"Succession," pp. 186-89.

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Henry David Thoreau

get a chance to develop into trees. On the other hand, according to Thoreau, new populations of pine arise after oak forests are cut because the naturally seeded pines have a better chance in the sunlight than the new oak sprouts of older trees, especially since the earlier oak population exhausted the soil for further succession of oak.²⁰

The American ornithologist Bradford Torrey, who published Thoreau's diaries in 1906, first drew attention to the young man's development from poet to scientist and ecologist.²¹ Thoreau's emerging ecological perspective can be traced to *Walden* itself while early journal entries show a growing interest in the subject.²² His understanding of ecological interrelationships is particularly evident in an 1855 essay about the Cape Cod landscape.²³ Ecology—the study of interrelationships between organisms and their environment—has been known in theory and practice for ages, but, as Kathryn Whitford points out, Thoreau was the first in North America to keep detailed records of his observations.²⁴ Moreover, a clear connection exists between Thoreau's continued gathering of scientific data and his increasing concern about the ecological harmony between nature and man.²⁵

Edward S. Deevey, to mention another early authority, praised Thoreau for his qualities as a scientist in his own time. Deevey pointed out that

although Thoreau's weaknesses in systematic method are apparent, he learned in time to be a precise methodologist. Deevey saw him as a pioneering plant ecologist who understood plant associations. As late as thirty years after Thoreau's 1860 lecture on oak-pine succession, no similar important work on the subject had appeared. Deevey cited a late utterance of Thoreau: "If I were to live, I should have much to report on Natural History generally."²⁶

In the last analysis, Thoreau's contribution to forestry was his readiness to combine careful methodology with an appreciation for man's place in the ecology of the forest. Thoreau has been characterized by Paul H. Oehser as a "pioneer of the conservation movement."²⁷ But we also can see the naturalist as a thorough researcher who emphasized the value of natural observation in forest management. "Our wood-lots, of course, have a history, and we may often recover it for a hundred years back, though we *do* not. . . . Yet if we attended more to the history of our lots we should manage them more wisely."²⁸ The practical bent in Thoreau's forest observations is evident in his tree-ring counting, which followed from his thoughts on tree succession and served as the basis for his investigations pertaining to growth, especially of pitch pine.²⁹ On the strength of these studies, Thoreau recommended felling pines that were over one hundred years old, since growth in such trees slowed down.³⁰

If one measures Thoreau's scientific knowledge and his stature as a scientist and a "self-appointed inspector" of the woods by European standards, his pioneering status is brought into sharper focus. There was no systematic forestry in New England in the mid-nineteenth century, in the sense, say, of a Georg Ludwig Hartig. To be sure, the early phase of forest exploitation in America had just begun; American forestry as a science would await the

²⁰*Ibid.*, p. 190.

²¹Torrey, *Friends on the Shelf* (Boston: Houghton, Mifflin, 1906), p. 106; Whitford, "Thoreau and the Woodlots of Concord."

²²Raymond Adams, "Thoreau's Science," *Scientific Monthly* 60 (May 1945): 1-10, as cited in Whitford, "Thoreau and the Woodlots of Concord."

²³This was noted by T. W. Hutchinson, "Cape Cod," *Atlantic Monthly* 15 (March 1865): 381, as cited in Whitford, "Thoreau and the Woodlots of Concord."

²⁴Whitford, "Thoreau and the Woodlots of Concord," p. 294. This question is discussed more extensively by Philip and Kathryn Whitford, "Thoreau, Pioneer Ecologist and Conservationist," pp. 192-205.

²⁵Whitford, "Thoreau and the Woodlots of Concord," pp. 299-300.

²⁶Edward S. Deevey, Jr. "A Re-Examination of Thoreau's *Walden*," *Quarterly Review of Biology* 17 (March 1942): 8-9, quoting from Thoreau, *Works*, edited by Henry S. Canby (Boston: Houghton, Mifflin, 1937), p. 641. Deevey characterizes Thoreau (pp. 7-8) as the first advocate of hydrology in America on the basis of the observations recorded in his journal and above all in the book, *Walden*. Incidentally, Deevey found a surprising correlation between Thoreau's measurements and Deevey's own survey of Walden Pond done in 1939; one can compare the two maps in p. 3 of Deevey's article.

²⁷Oehser, "Pioneers in Conservation: Footnote to the History of an Idea," *Nature Magazine* 38 (April 1945): 188-90.

²⁸*Journal*, XIV, pp. 125-26; also mentioned in Whitford, "Thoreau and the Woodlots of Concord," p. 301.

²⁹*Journal*, XIV, e.g., p. 193.

³⁰*Ibid.*, p. 205; cf. also Whitford, "Thoreau and the Woodlots of Concord," p. 303.



Walden Pond, pictured here as the ice recedes in the early spring, provided a setting for many of Thoreau's insights into natural and human conditions. In the years after he left Walden, Thoreau developed a more precise understanding of the ecological relationships at work within the forest.

Author's photo

advocacy of men like Gifford Pinchot, Bernhard Fernow, and Carl Alwin Schenck some forty years later.³¹

Because he foresaw the destructive aspects of settlement and forest exploitation, Thoreau stressed the importance of conservation, public woodland preserves, and methodological appreciation of the forest ecology. His insights into the succession of forest trees demonstrate his gifts as a forester-naturalist, while his journal reflects both his love and his understanding of nature. The more data he gathered, the more concerned he became about the ecological stability of New England's rural landscape—its farms, villages, and woodlands.

Yet in Thoreau's lifetime, the stands of stout white pine were already disappearing for ships' masts, lumber, and other forest products. Forest fires and wood harvesting encouraged new forest types—oak, maple, and birch. Farmland pushed the forest back; settlement spread outward from Boston. The railroad made hitherto untouched regions accessible and extended the market economy. The age of machines, which Thoreau had seen coming, accelerated the process. He witnessed the beginnings of the development and foresaw its possible consequences.

The results of these changes present themselves cogently when one considers Walden Pond today. The lake, then visited occasionally by fishermen, woodcutters, or people harvesting ice, is today a recreational center for the surrounding region, with a swimming area and public fishing. Even the admirers and followers of Thoreau come in such numbers that the vegetation around the edge of the lake is trampled. The water reflects the pond's profound depths as it did in Thoreau's day, but the biological chain has become much poorer. The old

carriage road near the lake is now a highway. At the corner of Walden Street, one can hardly get across the road in the afternoon rush hour. Adjacent to the state-operated parking lot of the Walden Pond Reservation, a trailer court by the name of Walden Breezes resembles a campsite more than a residential area. Next to it, a shabby entrance leads to the central garbage dump of the vicinity. The woods around the pond, consisting mostly of inferior oak, birch, and a few maples, seem to exist only to conceal the density of settlement in the surrounding area; one recalls Thoreau's observation that in the Massachusetts forest of his day, he was constantly "reminded that the wilderness which you are treading is, after all, some villager's familiar wood-lot."³² The writer, scientist, and prophet Henry David Thoreau, so indigenous to this corner of the world, would hardly be imaginable at Walden Pond now.

Lewis Mumford, one of America's best-known cultural critics, wrote: "Just as Thoreau sought nature in order to arrive at a higher level of culture, so he practiced individualism, in order to create a better order of society."³³ When one compares the Walden Pond of today with the setting that inspired *Walden* in 1845-1847, one wonders whether Henry David Thoreau's goal has yet been achieved. The question remains, at best, an open one.

The importance of Henry David Thoreau, brilliant stylist of American literature, is undisputed. His poetry, prose, essays, and above all, his reflections on Walden Pond have given us fundamental insight into and awareness of humanity in its natural setting. His role as a prophet of the new ecological thought is now being recognized. Thoreau's appeal for a conscious appreciation of man's role in the forest ecology makes him a forerunner of the American conservation movement, a prophet whose message was unheralded in his lifetime. □

³¹For a good description of the beginnings of forestry, see Carl Alwin Schenck, *The Birth of Forestry in America: Biltmore Forest School, 1898-1913* (Santa Cruz, California: Forest History Society, 1974). See also footnote 18.

³²Thoreau, *Illustrated Maine Woods*, p. 152.

³³Quoted from Lewis Mumford, "The Dawn," in Wendell Glick, ed., *The Recognition of Thoreau* (Ann Arbor: University of Michigan, 1969), p. 254.