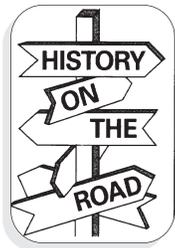


HISTORY ON THE ROAD

THE HOSMER GROVE AT HALEAKALĀ NATIONAL PARK

By Steven Anderson



Just inside the main entrance to Haleakalā National Park on Maui, Hawaii, at about 6,800 feet in elevation, is the Hosmer Grove. Named for Ralph S. Hosmer, the first territorial forester in Hawaii, it is one of the most unusual areas in the park, featuring nonnative tree species, such as Douglas-fir, Port Orford cedar, redwood, and several species of eucalyptus, among the native and endemic trees and shrubs.

Inviting for families with young children, Hosmer Grove has a gentle half-mile trail that winds through coniferous forest and native alpine shrub land (the elevation change is only about 120 feet). The campground has picnic tables, barbecue grills, drinking water, and toilets. Camping sites are close together in an open, grassy area adjacent to the grove.

Individual trees are identified along the trail, but the historical interpretation is limited to two small signs in the parking area that characterize the grove as a “failed experiment” and alerts visitors to the challenge of introducing nonnative species. The origins of the grove, however, tell a much more complex story that traces the early history of the profession of forestry in America as well as the history of forestry in the Hawaiian Islands.

Cattle were introduced to the islands in the late 1700s. Until 1830, the slaughter of cattle was prohibited, and their numbers increased dramatically. In addition to wild cattle, the introduction of sheep, goats, and pigs—all turned loose on the terrain—caused severe erosion problems. Not until the early 1900s were the cattle herds reduced and their access to forests restricted. But by then the damage was done.

At the same time the cattle industry was taking off, the sugarcane industry in Hawaii was developing. Captain Cook first noted the use of sugarcane in the islands in 1778. The first sugar mill was established

in 1802, and by the 1840s sugar plantations had become a significant part of Hawaiian agriculture. Although the plantations transformed land primarily in the lowlands, the environmental damage was vast. Sugarcane growers excavated tunnels to divert water from the mountains, dug wells, and constructed reservoirs for irrigation. One

of the big irrigation ditches on the island of Maui was reported to be 45 miles long. Sugar processing put excessive demands on the forest to produce wood for steam and fuel for transportation. Processing also required water—one ton of water (about 240 gallons) to produce one pound of refined sugar.

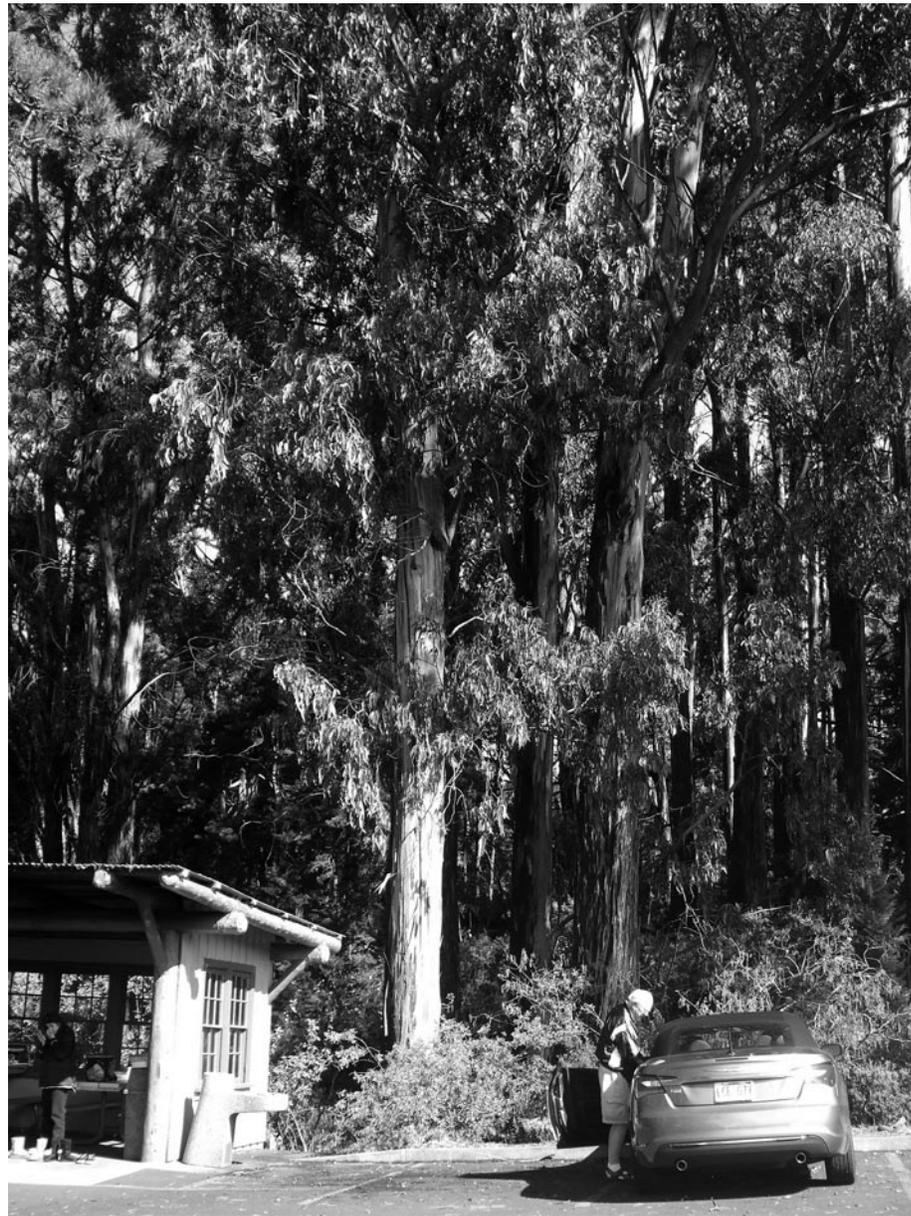


PHOTO BY STEVEN ANDERSON

Eucalyptus trees tower over the Hosmer Grove parking lot in late afternoon. Eucalyptus was one of 30 species planted by Ralph Hosmer.



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The Hawaiian Commercial & Sugar Company operates the state's last working sugar mill in the historic plantation town of Puunene, Maui, across the way from the Alexander & Baldwin Sugar Museum. The museum traces the establishment and growth of the industry and looks at sugar's influence on the development of Maui's water resources and rich multi-ethnic history. The mill produces more than 182,000 tons of raw sugar, accounting for five percent of the total sugar cane production in the United States, and more than 50,000 tons of molasses.

By 1900 the degraded condition of the forests needed to provide water to the plantations was receiving much attention, especially from the Hawaiian Sugar Planters Association, established in 1895. For more than two decades, some private landowners had been trying their hand at tree planting to stem erosion and provide future resources. At their urging in 1903, Hawaii's territorial legislature authorized forest reserves to be established "for protecting and developing the springs, streams, and sources of water supply." The bill also called for a division of forestry to be staffed by a professional forester. Only three other states at that time had a similar requirement—New York, Pennsylvania, and Connecticut.

When the Hawaiian Board of Commissioners wrote to Gifford Pinchot, chief of the USDA Bureau of Forestry, asking for

counsel, he sent William Hall, who was in charge of Forest Extension, to examine the condition of the islands' forests. His 1904 report outlined the reasons for forest decline, including cattle, goats, wild pigs, insects, fire, and general clearing of the lower slopes.

He mentioned the previous tree-planting efforts and identified the most extensive tree planter of the islands as Mr. H. P. Baldwin of Maui, who "had systematically planted blocks of forests on his lands on the lower slopes of Mount Haleakalā" with several hundred thousand koa, eucalyptus, Australian ironwood (*Casuarina*), Australian silk oak (*Grevillea robusta*), Japanese cedar (*Cryptomeria japonica*), and Java plum trees. Hall lauded the government and private efforts for such plantings but questioned whether they were profitable considering the cost, and he observed that the plantings

did not compensate the people of the islands for the loss of native forests. He was clear that "the problem must be solved by first protecting the native forests from forces which are working their destruction." The charge for the first superintendent of forestry would be to establish a system of reserves and then consider tree planting as a supplemental effort.

Ralph S. Hosmer, then chief of the Section of Forest Replacement in the bureau, was appointed by the Hawaiian Board of Commissioners as the first territorial forester in December 1903. He considered "nine-tenths of the forest proposition of Hawaii forest protection problem," arguing, "What is needed is simply to leave the forest alone, keeping man and animals out." During his almost 11 years of service there, he oversaw the establishment of 37 forest reserves totaling 798,214 acres, of

which 68 percent belonged to the territory and the remainder was in private ownership. Little protest was reported from private landowners for having their lands designated as reserves. They agreed with such measures to protect water flows for sugarcane production.

Hosmer's second priority was to explore the opportunities for planting trees on eroding hillsides where the native forest did not regenerate and to experiment with trees of value for lumber, fuel, posts, bridge timbers, and other uses. Except for the endemics *Acacia koa* and 'hi 'a lehua (*Metrosideros polymorpha*), a species of flowering evergreen tree in the myrtle family, none of the native tree species were considered valuable for commercial purposes. A main concern was finding an alternative to importing redwood and Douglas-fir from California for construction timbers. In 1904 the government nursery was asked to grow timber tree species instead of its usual ornamental, flowering trees.

Because the climatic conditions and soils above 7,000 feet on Mount Haleakalā were similar to those of Southern California, Hosmer thought that some of the temperate zone trees, particularly the pines and other conifers, could be expected to do well. Initial efforts to bring plant material from the mainland did not prove a success. The Coulter and Jeffrey pines, incense cedar, western yellow pine, and six to eight other conifers received from Forest Service nurseries in California and the D. Hill Company nursery in Illinois did poorly, mainly because the seedlings arrived at the planting site in poor condition. As well, Hosmer found that "in an incredibly short distance one gets absolutely different climatic conditions." The Hosmer Grove itself sits in a transition zone between the leeward side of the mountain and areas that receive enough rainfall to be considered tropical.

Hosmer turned to seedlings grown by local nurseries and to direct sowing of tree seed. He experimented with pines (*Pinus coulteri*, *P. contorta*, *P. ponderosa*, *P. murrayana*, *P. insularis*, *P. sylvestris*, and *P. radiata*); cypress (*Cupressus arizonica*); cedar (*Libocedrus decurrens*); spruces (*Picea engelmanni* and *P. parryana*); and Douglas-fir (*Pseudotsuga menziesii*). He also tried several kinds of eucalypts (*Eucalyptus globules*, *E. robusta*, *E. citriodora*, and *E. resinifera*). In a report delivered to the Society of American Foresters in 1912, Hosmer remarked that of the 30 species that had been planted so far, they could recommend five or six and

that they were almost sure about as many more.

In discussions that followed at the meeting, Raphael Zon, then chief (in the field) for silvics with the U.S. Forest Service, challenged Hosmer. He contended that "unless there were very definite records available as to the physical and meteorological conditions in a given locality," it was "inadvisable to engage in forest planting, particularly by the seed spot method." He basically thought it was inefficient. With better data, they could be more exact in the choice of species and have a greater chance of success at less cost. Hosmer agreed that Zon was "theoretically correct" but thought that under existing conditions in Hawaii, his own approach was a practical way to proceed, and enough benefit could be attained to "justify the effort expended."

Today, about 20 of the 86 species eventually planted have survived. Many did not regenerate, and some with shallow roots were blown down in storms. A few, including Mexican weeping pine (*Pinus patula*), Monterey pine (*P. radiata*), and some eucalypts, have become aggressive invaders of the native shrub land, and the National Park Service has an active program to stem their advance. Haleakalā National Park spends upward of \$2 million annually fighting invasive plants and animals of all sorts. About a quarter-mile below the cattle guard on the winding road close to the park entrance, at 6,500 feet in elevation, is a 200-acre area of Mexican weeping pine. It is part of the Haleakalā Ranch now managed by the Nature Conservancy. Every year the conservancy has a "pine roundup," when local residents come select their own Christmas trees and help efforts to control the invasive tree.

Was this experimental forest from Hawaii's territorial days a failed experiment, as the Park Service interpretive sign suggests? As I walked the trail, it was evident that the trees had stabilized the slopes cleared by ranchers in the 1800s. Many had reached sawtimber size. One Park Service interpreter pointed to a stump that showed wide growth rings, evidence to him that "the trees would not make good-quality lumber." Perhaps the desire for a native timber industry was dampened by decreased demand when Hawaii's sugar industry waned because of outside competition, by the rise of tourism as an economic mainstay, and by the establishment, in 1916, of the Haleakalā National Park, which took much of the land envisioned

for the forest resource out of production. As Aldo Leopold asserted in *A Sand County Almanac*, "It of course goes without saying that economic feasibility limits the tether of what can or cannot be done for land. It always has and always will." Perhaps the economics of producing and harvesting timber on the islands was the real limiting factor. The temperate climate on the mountain slopes represents only a small portion of the land base, the limited narrow and winding roads would make access expensive, and the less productive land relegated to trees was also competing with the land appropriate for the ranchers. These and other factors are likely why Hawaii continues to import the majority of its wood from the mainland and the Pacific Rim.

Whatever your thoughts are on the historical interpretation offered there, the half-mile trail at Hosmer Grove is well worth taking as you enter or leave the park. □

Steven Anderson is the president of the Forest History Society and the co-editor of *Common Goals for Sustainable Forest Management (Forest History Society, 2008)* with Alaric Sample.

REFERENCES

- Cox, Thomas R. 1992. "The Evolution of Hawaiian Forestry: The Web of Influences." In *Changing Pacific Forests: Historical Perspectives on the Forest Economy of the Pacific Basin*, edited by John Dargavel and Richard Tucker, 116–125. Durham, NC: Forest History Society.
- Hall, William L. 1904. *The Forests of the Hawaiian Islands*. Bulletin 48. Washington, DC: Bureau of Forestry, U.S. Department of Agriculture.
- Hosmer, Ralph S. 1914. "Experimental Forest Planting in the Hawaiian Islands." *Proceedings of the Society of American Foresters* 8(2) (July 1914): 211–21.
- . 1957. "The Beginning of Five Decades of Forestry in Hawaii." *Journal of Forestry* 59(1): 83–89.
- Judd, Charles S. 1931. "Forestry in Hawaii for Water Conservation." *Journal of Forestry* 29(3): 363–67.
- Leopold, Aldo. 1987 (1949). *A Sand County Almanac, and Sketches Here and There*. New York: Oxford University Press.