The Hawaiian Canoe, Part III

By Tommy Holmes

Koa

A magnificent and totally unexpected gift awaited discovery by the settlers reaching Hawai'i. The islands were blessed with extensive forests of what would come to be called *koa*, trees of extraordinary size that were found nowhere else in the world. These trees would provide wood of remarkable durability out of which the Hawaiian would shape his canoes.

For some 1500 years the Hawaiian people lived in delicate balance with their environment, the trees they used being replaced by natural regeneration. Contact with the west shattered this fragile balance; in the span of a few decades *koa* began a radical decline that has continued even to the present day.

Acacia koa, once undisputed monarch of the forests of Hawai'i, probably evolved from seeds hitchhiking to Hawai'i in the bowels of some storm-blown bird or through some other capricious act of the winds and seas. In an environment that was comparatively free of competitors and predators, *koa* proliferated to where it was once—after *'ōhi'a*—the second most common forest tree in Hawai'i. It has been estimated that today there is standing probably not much more than ten percent of the amount of *koa* that existed at the time of Cook's arrival.

To the Hawaiian, the presence of *koa* was a blessing, a gift beyond words. Mammoth and powerful trunks gave being to a dynasty of canoes that, by the accounts of a great many early European explorers and visitors to Hawai'i, were without peer in the Pacific. What happened to this noble species?

Indeed the burden is on man, starting in 1792 in the form of a well-intentioned but ultimately devastating gift from Capt. James Vancouver—cattle and goats. Enjoying a predator-free enviornment, the animals multiplied prolifically. These voracious herbivores moved into *koa* belt areas where they found the sweet bark, juicy roots and especially the tender juvenile seedlings of *koa* irresistible. Once a tree, or most of its shallow root system, was girdled (the bark eaten around), the *koa* tree died. Those seedlings that the cattle —the main culprit—did not eat were often trampled, effectively preventing most natural reforestation.

Other disruptions to the forest ecosystem of Hawai'i have been wild pigs, logging, ranch land clearing and fire. Most wild pigs can take or leave a meal of young *koa* shoots, but their rooting activities play havoc with the young *koa* trees. Logging *koa*, and clearing *koa* forests for lumber and range land also have had a profound impact. In post-contact Hawai'i fires were more numerous and destructive, wiping out significant non-rainforest *koa* areas so thoroughly that natural replacement was not possible.

It has been found that rainforest *koa*, though radically depleted, will today replace itself at about a one-to-one ratio if undisturbed. It must be remembered, though, that the present distribution of *koa* forests is so restricted that any recovery of its original terrain would require a major planting program. Currently some *koa* reforestation experimentation is being done at Keauhou Ranch on Hawai'i under the aegis of the Kamehameha Schools.

Botanists today have generally agreed that there are two species of *koa* in Hawai'i—*Acacia koa* and *Acacia koaia* (curly koa). Within these two species are a number of different forms, especially in the *Acacia koa* species which is highly adaptive. In fact, so adaptive is *Acacia koa* that it is found from sea level to as high as 7000 feet.

Koa sometimes reaches massive proportions. At Keauhou ranch on the island of Hawai'i there stands what is considered to be the largest *koa* tree in the world. Its trunk measures 19 feet in diameter and 37½ feet in circumference. Though the trunk only rises about 30 feet before branching, its topmost branches tower 140 feet above the ground. The tree is probably 400 to 500 years old.

The other species of *koa* found in the islands, *Acacia koaia*, is a rather small tree typically reaching a height of only 20 to 25 feet. The trunk tends to be gnarled and twisted with rough, corrugated bark, in contrast to the trunk of the *Acacia koa* which tends to be straight with relatively smooth bark. The *Acacia koaia* is found only in lowland dry areas on the leeward side of an island, usually alone; it was never used for canoe hulls but its curly, corkscrewed grain made it a favorite for fancy paddles.

Early Hawaiians, and canoe builders in particular, possessed an especially detailed knowledge of differing physical characteristics of woods, primarily of *Acacia koa*. In the absence of modern-day botanical classification techniques, the canoe builder devised his own very sophisticated system for classifying *koa*. Though analysis of a tree's trunk shape and dimensions, bark, grain, and branching patterns, a canoe builder was able to identify each *koa* tree as being of a certain type.

Gym Hours

Monday-Friday; 7 to 11 a.m.; 3 to 7 p.m.
Saturday; 10 a.m. to 6 p.m.
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