PACIFIC MADRONE

Arbutus menziesii, Heath family—Ericaceae

Pacific madrone—also called madroña and known in Canada as arbutus—could hardly be mistaken for any other northwestern tree. It is the only good-sized evergreen broad-leaved tree found in any appreciable quantity north of Eugene, Oregon. Madrone is a picturesque West Coast tree recognizable from far away. It is commonly seen arching out over the salt water in Puget Sound or other inlets. It is a fixture in cities and towns, especially common on steep, undeveloped lots and in seminatural parks. Even where it forms a large tree, set amid suburban landscaping, the tree was generally there first or grew up as a volunteer.

Where It Grows

Madrone inhabits the lowlands along the Strait of Georgia in southwestern British Columbia as far north as Kelsey Bay (about 50 degrees N latitude). It occupies most of the lowlands west of the Cascades in Washington and Oregon. It also inhabits the coastal mountains of northern California and the northern Sierra Nevada, but south of Monterey it becomes increasingly scarce and confined to the immediate coast. Although its entire distribution in the Northwest lies within about 100 miles (160 km) of the ocean and saltwater inlets, madrone is most abundant in relatively dry microclimates, such as along British Columbia's Sunshine Coast, around Puget Sound, and in the interior valleys of western Oregon. Even there, it tends to be most plentiful on dry, rocky sites and south-facing hills. The few other species of madrone trees (*Arbutus*) in the western hemisphere dwell in warm climates, including the mountains of southern Arizona, Mexico, and Central America.

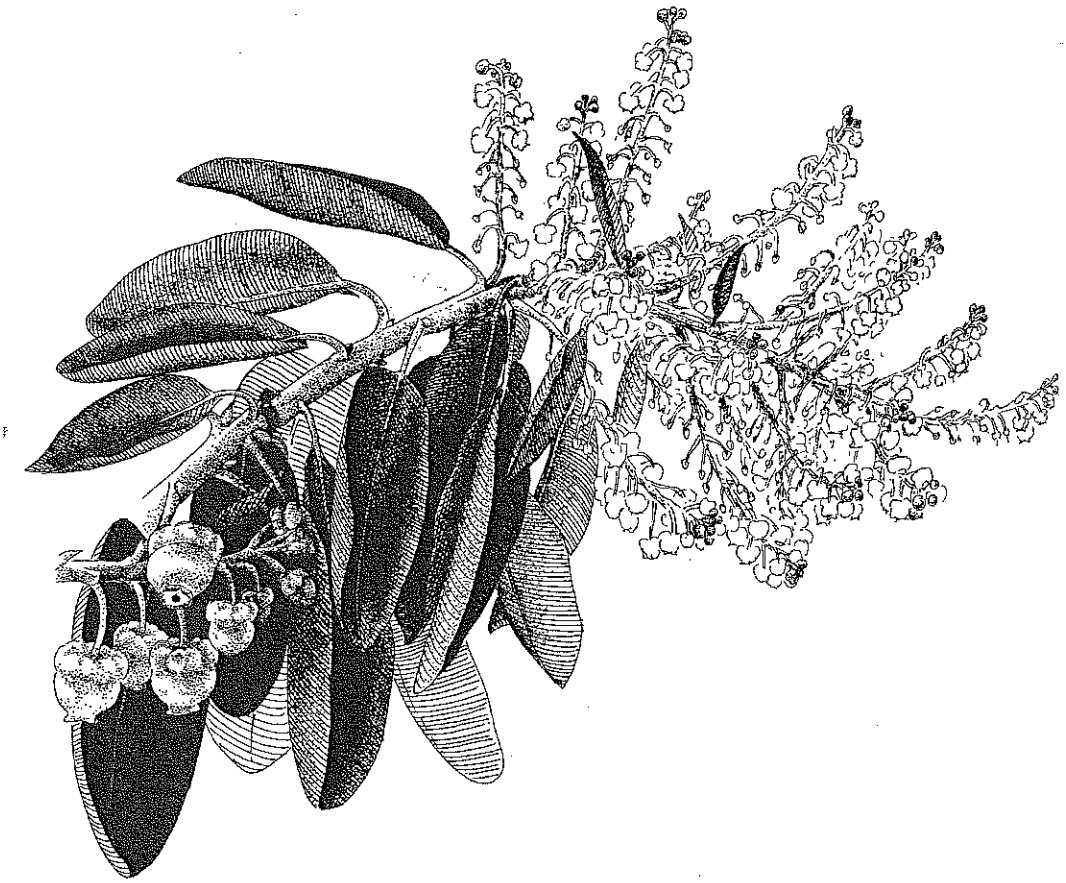
Appearance

In favorable situations, madrone grows 50 to 80 feet (15 to 25 m) tall. The trunk, commonly about 24 inches (60 cm) thick, curves upward and often divides as it forms a broad, spreading crown. Even squeezed in among conifers, madrone's main trunk usually curves upward and forms a somewhat spreading canopy. The trees can survive three centuries or longer, and when growing on a fertile, open site, they occasionally attain great size. The largest madrone in Oregon, near Portland, is reported (Jensen and Ross 2003) to be 7.5 feet (2.3 m) thick and 84 feet (26 m) tall, with a maximum spread of 88 feet (27 m).

Madrone produces a virtual kaleidoscope of colors accentuated by its extraordinary bark, which is orange-brown or terra-cotta and shreds off all summer in ragged, papery strips to reveal the smooth, chartreuse inner bark. Near the base of old trunks, the bark becomes brown with flaky, gray scales.

Madrone leaves are elliptical, 3 to 5 inches (8 to 13 cm) long, and thick and leathery. They are shiny dark green above and pale silvery green below, resembling leaves of rhododendron (*R. macrophyllum*), which is also in the heath family. In June, shortly after the new crop of leaves has become fully grown, the second-year leaves turn orange to red and begin to fall.

In May, the tree bears grapelike clusters of small, white to pinkish, urn-shaped flowers, often in profusion. They have a strong, sweet odor that attracts honeybees. Clusters of orange-red berrylike fruits ripen in autumn and persist into December. They have a rough granular surface and a mealy pulp surrounding a knot of small, bony seeds.



Pacific madrone, with close-up of flower cluster

Ecological Role

Madrone is relatively intolerant of shade and thus is replaced by Douglas-fir and other conifers except on exceptionally dry, rocky sites where harsh growing conditions prevent conifers from forming a closed stand. It inhabits the driest sites in the San Juan Islands—a thin layer of soil atop bedrock—where annual precipitation averages only 15 inches (380 mm). Here, and on some stony, south-facing hills in southwestern Oregon, madrone is reduced to a small, scraggly tree. Madrone is exceptionally tolerant of salt water, often occupying ground barely above the highest tide and with foliage hanging down nearly into the briny liquid.

Madrone's thin bark makes it highly vulnerable to fire, but it is ultimately favored by fire or logging that kills other trees, since its seedlings require open conditions and it also sprouts vigorously from the base of burned or cut stems. As a result of historic fires, logging, and other disturbances, madrone is able to occupy a broad range of sites, since it is not particular in regards to soil type, geology, or topography, and its seeds are apparently well dispersed by birds and other animals. Madrone rarely grows in pure stands and is associated mainly with Douglas-fir. In the Willamette Valley, it also accompanies Oregon white oak, and in southwestern Oregon it is part of the mixed evergreen forest, a rich assortment dominated by Douglas-fir and tanoak.

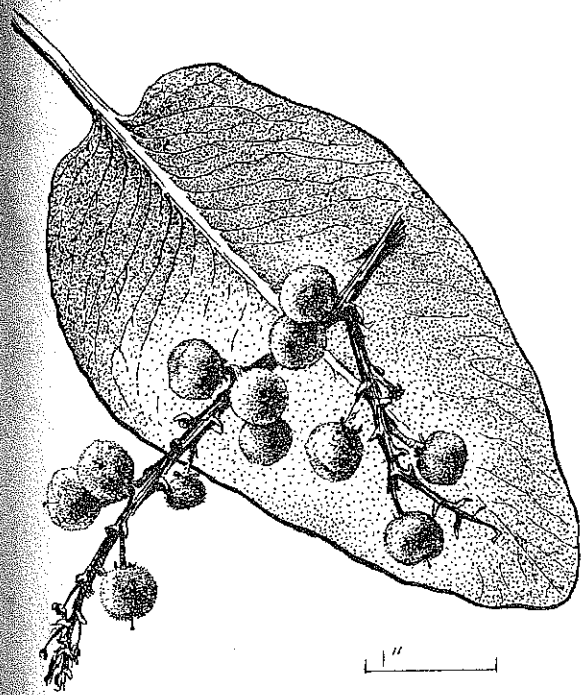
Madrone fruits are a favorite food for several species of birds, including band-tailed pigeons and quail. Stomach analysis of one pigeon revealed 111 madrone berries, so many

that the bird could not fly. Birds are believed to be a major factor in disseminating and inadvertently planting madrone seeds.

Human History

Some Native peoples dried, soaked, and otherwise prepared madrone berries for food, sometimes storing them for future use (Moerman 1998). A few tribes chewed the leaves or cooked them to make a cold remedy. The Karok people residing along the Klamath River used madrone berries as bait for steelhead fishing.

Early Spanish California first called this tree *madroño*, meaning "strawberry tree," because it resembled the strawberry madrone (*A. unedo*), which has large, bright-red berries with a bumpy surface and grows in the Mediterranean region. Early Californians reportedly preferred madrone for making the charcoal used to manufacture gunpowder.



Pacific madrone leaf and fruit

Madrone wood is reddish brown, heavy, and extremely hard but tends to warp and check as it dries, and so it is relatively little used commercially. It yields handsome veneer for paneling that has a rich color, luster, and grain pattern similar to the highly prized (and scarce) eastern black cherry (*Prunus serotina*). Madrone makes excellent firewood. It cuts like a softwood when green but becomes very hard when dry and is very challenging to split with a maul.

Increasingly, madrone is valued as a colorful ornamental and shade tree. It can be propagated from cuttings. It seems to prefer dry summer conditions, however, and often declines in yards that are heavily irrigated. Residents with madrones in their yard are well aware that it is continually shedding something—bark, leaves, flowers, fruit. A mature madrone will give the homeowner plenty of exercise in the form of raking.

Widespread decline has been observed in madrone trees, especially in the Puget Sound area. Despite its tolerance of drought and poor soils, madrone is sensitive to environmental changes caused by humans. Historically, madrone benefited from relatively frequent fires that allowed it to regenerate and thinned out Douglas-fir and other vigorous competitors. In addition to fire suppression, other detrimental changes are associated with construction and land development that damages stems and roots and alters natural drainage, artificial irrigation, fertilization, and use of herbicides. Decline is characterized by foliage dieback and black stem cankers, which is a natural process that can be accelerated by human activities. Several internet websites (accessible by listing "madrone decline" in a search engine) provide information about ongoing investigations of causes of decline and measures for its mitigation.