

Morella cerifera

Wax myrtle

Myricaceae

Forest Starr, Kim Starr, and Lloyd Loope
United States Geological Survey--Biological Resources Division
Haleakala Field Station, Maui, Hawai'i

March, 2003

OVERVIEW

Morella cerifera (wax myrtle) is an evergreen shrub to small tree that is native to the coastal southeastern United States from Maryland to Texas (Dehgan 1998). In its native range, *Morella cerifera* grows in sand dunes, edges of marshes and ponds, and woods (Duncan and Duncan 1987). *Morella cerifera* has attributes similar to *Morella faya*, a related species that has become invasive in Hawai'i. Both are evergreen nitrogen fixing pioneer trees in their native ranges and often become dominants in their ecosystems. Both spread rapidly through aggressive growth and production of numerous bird dispersed fruits. On Maui, *Morella faya* is widely naturalized, especially in the Kula area where it occupies large acreages of pastures, roadsides, open forests and shrubland. *Morella cerifera* is sparingly cultivated and was recently reported as naturalized in mesic to wet forests on West Maui escaping from Maunalei Arboretum where it was originally planted by D. T. Fleming in December 1932 (Meidell et al. 1997). Over 200+ individuals located between Honolua and Honokahua Valleys at an elevation of 395-490 m (1,296-1,608 ft) have been located and controlled by Pu'u Kukui Watershed staff in attempts to eradicate the species from the area (Meidell et al. 1997). Recently, what appeared to be *M. cerifera* was observed being cultivated as a hedge in Ha'iku, East Maui. On Maui, *M. cerifera* is not nearly as widespread as *M. faya*, though it poses a similar threat. Eradication on Maui seems feasible at this time. Locating other individuals in cultivation and elsewhere throughout the state may help determine how much is currently present and help prioritize control efforts.

TAXONOMY

Family: Myricaceae (Bayberry family) (PLANTS 2003).

Latin name: *Morella cerifera* (L.) Small (PLANTS 2003).

Synonyms: *Cerothamnus ceriferus* (L.) Small, *Cerothamnus pumilus* (Michx.) Small, *Myrica cerifera* L., *Myrica cerifera* L. var. *pumila* Michx., *Myrica pusilla* Raf. (PLANTS 2003).

Common names: Southern wax myrtle, wax-myrtle, wax myrtle (PLANTS 2003, Dehgan 1998, Brickell and Zuk 1997, Duncan and Duncan 1987).

Taxonomic notes: The family Myricaceae is made up of 3 genera and possibly up to 50 species that are widespread in the Old and New World, mostly in temperate and subtropical regions and are represented in Hawai'i by two naturalized species, *Morella cerifera* and *Morella faya* (Wagner et al. 1999, Meidell et al. 1997).

Nomenclature: The genus *Myrica* was recently split into 3 genera after a review by Wilbur (1994) resulting in a name change from *Myrica faya* to *Morella faya* as well as a

name change from *Myrica cerifera* to *Morella cerifera* (Wagner et al. 1999, Staples et al. 2002, PLANTS 2003).

Related species in Hawai'i: A second naturalized species in Hawai'i is *Morella faya* (firetree) (Wagner et al. 1999). Other *Morella* species known in the United States include *M. californica* (Cham. & Schlecht.) Wilbur (California wax myrtle), *M. gale* L. (sweet-gale, bog myrtle), *M. holdridgeana* (Lundell) Kartesz, comb. nov. ined. (Palo de cera), *M. inodora* (Bartr.) Small (scentless bayberry), *M. x macfarlanei* (youngken) Kartesz, comb. nov. ined. [*cerifera* x *pensylvanica*], and *M. pensylvanica* (Mirbel) Kartesz, comb. nov. ined. (northern bayberry) (PLANTS 2003, Duncan and Duncan 1987).

DESCRIPTION

"Monoecious, large, evergreen shrub or small tree, clumping, irregular, rounded, densely foliated and medium-textured. Reaches a height and spread of 35 ft, but is usually seen in the 15-20 ft range. Growth rate is rapid. Leaves simple, alternate, oblanceolate, to 4 in long, often undulate. The thin, olive green leaves are often coarsely serrate along apical margins and dotted with tiny rusty glands on both sides. Aromatic. Multiple crooked trunks are covered with smooth, grayish-white bark. Young stems light green to gray, pubescent. Suckers frequently from trunk bases and roots. Plants dioecious; flowers inconspicuous, small axillary catkins appear in March. Fruit grayish-blue, 0.25 in wide, in dense clusters along the twigs in fall. The fruit are heavily coated with wax." (Dehgan 1998).

"Shrub or tree to 10 m tall. Leaf tips acute, the sides forming an angle under 65 degrees. Leaves evergreen, sometimes dropping in severe winters; the surfaces with abundant waxy granules, especially the underside. Fruits 2.0-3.5 mm long, without hairs, with an irregular surface heavily coated with waxy granules." (Duncan and Duncan 1987).

BIOLOGY & ECOLOGY

Cultivation: The waxy surfaces of *M. cerifera* and other species is removed by boiling in water and used as a source of candle wax (Duncan and Duncan 1987). It is cultivated as a hedge, screen, or enclosure plant as well as a background shrub. Lower branches can be trimmed to make an excellent small tree for roadside or park plantings (Dehgan 1998). *M. cerifera* grows in full sun or partial shade on almost any soil type. It can tolerate salty conditions and flooding, but does not withstand excessive drought (Dehgan 1998).

Invasiveness: *M. cerifera* is native to Florida, but it is considered the major woody pest plant of pastures there (Kalmbacher et al. 1993). Landscapers warn of the invasiveness of *M. cerifera* and other *Morella* species. Dehgan (1998) describes *M. cerifera* as a very tough plant that is easy to grow, but may become weedy with rapid growth and frequent suckering from trunk bases and roots. *M. cerifera* shares similar attributes with *M. faya*. These attributes include rapid growth, production of numerous bird dispersed fruits, a history of cultivation in the Hawaiian Islands, nitrogen-fixing capabilities, and ability to colonize and dominate disturbed areas in a variety of habitat. In Hawai'i, *M. faya* has invaded large areas in numerous habitats and it is suspected *M. cerifera* could potentially do the same if left uncontrolled. On Maui, *M. cerifera* was originally planted in 1932

(Meidell et al. 1997). It has since spread and is now considered a control priority by Pu'u Kukui Watershed staff.

Pollination: *Morella faya*, a related species, is wind pollinated (Siebold 2001) and it is likely that *M. cerifera* is as well.

Propagation: *M. cerifera* is easily and rapidly propagated from seed and can also be propagated from tip cuttings (Dehgan 1998).

Dispersal: *M. cerifera* is dispersed over long distances by humans who cultivate the plant. The major method of seed dispersal is by birds (Fordham 1983). *M. cerifera* fruits are main food sources for tree swallows (*Iridoprocne bicolor*) that spend the winters in Florida and the Gulf coast (Halls 1977).

Pests and diseases: In Florida, a leaf beetle *Colaspis pseudofavosa* Riley is known to feed on leaves of *M. cerifera*. Dehgan (1998) reports that *M. cerifera* is generally pest free, but can be damaged by chewing insects and is sometimes killed by a canker disease.

DISTRIBUTION

Native range: *M. cerifera* is native to the coastal plains from Maryland to Texas (Dehgan 1998). It is described as ubiquitous in Florida (Dehgan 1998). *M. cerifera* is a common coastal plant that is found scattered in primary dunes, and frequent in stable dune areas, edges of marshes and ponds, and woods (Duncan and Duncan 1987). On some Virginia barrier islands, *M. cerifera* is the most abundant woody species, occurring in swales behind dunes, and can occupy up to 12% of total vegetation (Young 1992).

Global distribution: *M. cerifera* is cultivated in moist, warm areas, such as the southeast coastal United States, where it is native (Brickell and Zuk 1997).

State of Hawai'i distribution: In Hawai'i, *M. cerifera* was first documented as naturalized on West Maui (see below). Status on other islands is uncertain, though Skolmen (1960) reports that 50 *M. cerifera* trees were planted in 1932 during reforestation efforts in Honolulu, O'ahu. The current status of this planting is not known.

Island of Maui distribution: *M. cerifera* was first documented as naturalized on West Maui by Meidell et al. (1997). It was originally introduced by D.T. Fleming in December 1932 as part of the Maunalei Arboretum project. Meidell et al. (1997) found that the species had proliferated well beyond the original planting site. They estimated that 200+ individuals were in an area between Honolua and Honkahua Valleys, 395-490 m (1,296-1,608 ft). They also add that there were likely more naturalized plants that would be found in follow up surveys and that an aggressive eradication effort was underway. On East Maui, there has been an unconfirmed *M. cerifera* siting in Ha'iku where it was being cultivated as a hedge in a backyard.

CONTROL METHODS

Physical control: In pastures of Florida where *M. cerifera* is considered invasive, it is mechanically controlled through prescribed burns and mowing. Small seedlings and root suckers may be difficult to pull or dig up.

Chemical control: Trials of foliar applications of triclopyr showed that control was effective, especially when concentrated at higher rates (Kalmbacher et al. 1993). Other methods including basal bark and cut stump treatments are potentially effective.

Biological control: None known.

Cultural control: The public could be encouraged not to grow this or other harmful plant species.

Noxious weed acts: *M. cerifera* is not currently on any noxious weed lists. However, the related species *Morella faya* is listed as a Hawai'i state noxious weed by the Department of Agriculture (HDOA 1992). It may be useful to add *M. cerifera* to the noxious weed list to assist with control efforts on Maui and to help prevent reintroduction.

MANAGEMENT RECOMMENDATIONS

M. cerifera is sparingly cultivated in Hawai'i and was recently reported as naturalized on West Maui (Meidell 1997). Approximately 200+ individual plants have been located and controlled by Pu'u Kukui Watershed staff. It is feared that this species will pose similar threats as that of its weedy relative *Morella faya* as it is similar in growth habits and dispersal mechanisms. An unconfirmed planting of *M. cerifera* was recently observed on East Maui and there are records of *M. cerifera* being planted for forestry efforts on O'ahu (Skolmen 1960). It is likely that there are other places in the Hawaiian Islands where *M. cerifera* is cultivated and naturalized. This and other *Morella* species should be looked for in forestry plantations, arboretums, and yards. If feasible, *M. cerifera* should be added to the Hawai'i noxious weed list to help assist eradication efforts on Maui. In addition, other *Morella* species could be evaluated and restricted depending on their potential to become invasive.

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