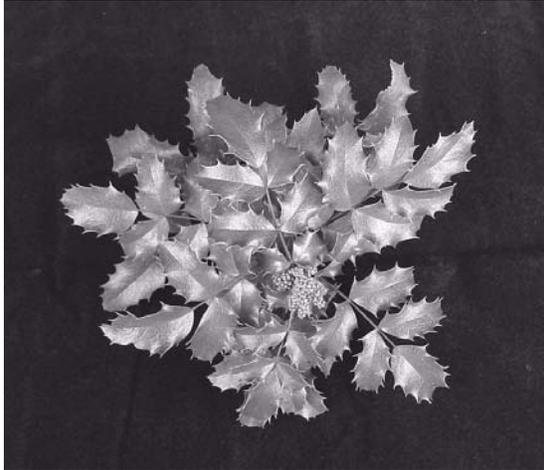


***Mahonia aquifolium* (Pursh) Nutt.**
BERBERIDACEAE

Oregon grape

Synonyms: *Berberis aquifolium* Pursh
Berberis piperiana (Abrams) McMinn
Mahonia piperiana Abrams
Odostemon aquifolium (Pursh) Rydb.



General Description.—Oregon grape, also called tall mahonia, hollyleaved barberry, mountain grape, Oregon grape-holly, and Oregon holly-grape, is an upright evergreen shrub from 0.6 to 3 m in height. The stems are slender, stiff, usually upright, and usually without branches. The wood is whitish and brittle and has a significant pith. Bark of young stems is green; older bark is rough and gray-brown with yellow inner bark. The root systems produce horizontal rhizomes up to 1.8 m long from which suckers arise. The foliage attaches directly to the stems. Alternate, stiff and leathery, pinnately compound leaves have five to 13 leaflets with a form like holly (coarse dentate with prickles). Leaves are dark green above, except in winter, when exposed leaves take on a purplish color. The species is monoecious with perfect, bright-yellow flowers in terminal (sometimes lateral) racemes. Flowers have a honey-like fragrance. Fruits (berries), 6 to 10 mm long, ripen from green to blue or blue-black in late summer (Abrams 1950, Center for Applied Nursery Research, 2003, Dirr 1983). Oregon grape is the state flower of Oregon (Paghat.com 2003).

Range.—Oregon grape is native to British Columbia, Washington, Oregon, northern California, and northern Idaho (Abrams 1950,

Natural Resources Conservation Service 2003). The species has been planted widely as an ornamental and medicinal plant and has naturalized in Michigan, Ohio, Kentucky, New York, New Jersey, United Kingdom, Germany and probably other areas (Auge and Brandl 1997, Natural Resources Conservation Service 2003, Plants for a Future 2003). Oregon grape hybridizes naturally with *Mahonia repens* (Lindl.) G. Don (many ornamentals are actually this hybrid) and *Mahonia pinnata* (Lag.) Fedde (Plants For a Future 2003). At least three artificial intergeneric crosses between Oregon grape and *Berberis* species have been made (Dirr 1983).

Ecology.—Oregon grape is tolerant of shade and normally grows in the forest understory. Natural stands contain scattered individual plants arising from seeds and clumps of the species arising both from seed and suckers. The species grows well in soils with a wide variety of properties. However, ornamentals do not do well in dry, wind-swept sites, or soils with high pH's (above 8.0). The tops are severely injured at $-29\text{ }^{\circ}\text{C}$ (Dirr 1983). It grows in areas with natural precipitation ranging from 950 to 5450 mm annually (Las Pilitas Nursery 2003). A number of diseases and insects attack the leaves and fruits but usually do not cause serious damage.

Reproduction.—Oregon grape blooms from April to June (Clark and Trelawny 1976). Flowers are self-fertile and pollinated by insects (Plants for a Future 2003). The fruits mature in late July through September and remain on the plants into December (Center for Applied Nursery Research 2003). Fruits collected by the author from ornamental plants in Utah averaged 0.312 ± 0.013 g/fruit. Air-dried seeds separated from them averaged 0.0067 ± 0.0002 g/seed or 149,000 seeds/kg. The number of seeds/fruit varied from zero to nine. Fruits can be harvested in quantity by hand and can be cleaned by gentle maceration, wet sieving, and screening. Seeds should not be allowed to dry out completely and should be

stratified at 5 °C before sowing. Taken in November and treated with 0.8 to 1.0 percent of IBA (Indolbuteric acid), cuttings root well. Division of established plants is an alternate method of vegetative propagation (Dirr 1983). In nature, mostly birds disperse the seeds (Paghat.com 2003) and both sexual and asexual reproduction are effective (Auge and Brandl 1997).

Growth and Management.—Oregon grape is moderately slow growing. Individual stems reach a 60- to 90-cm height in 3 to 4 years (Dirr 1983). While individual stems probably have a life of not more than 10 years, clones can last much longer. Plants are grown for the nursery trade in containers and are usually 1 year old when sold. The species is planted both in sunny and shady locations. Ornamental plants tolerate pruning well (Plants for a Future 2003). Data on management of the species in natural stands are lacking.

Benefits.—Oregon grape shrubs contribute to the diversity and beauty of understory vegetation in native habitats, help protect the soil, and furnish food and cover for wildlife. The species is planted in temperate areas throughout the world as an ornamental, for hedges, and foliage, and leafy branches with their fall colors are sometimes used for Christmas decorations. The fruits, edible but sour, are made into jellies and juice drinks (Clark and Trelawny 1976). Flowers are eaten in salads, cooked in tempuras, and used to make a lemonade-like drink (Paghat.com 2003). Yellow, green, violet, and purplish-blue dyes are made from various tissues for arts and crafts (Plants For a Future 2003).

Herbal Medicine.—Infusions of Oregon grape root and doses of isolated alkaloid have been used effectively in the past to relieve many of the symptoms of syphilis (Felter 1922). Ointments made from the plant and isolated alkaloids are currently enjoying tremendous popularity in treating psoriasis and similar skin conditions. In clinical trials, symptoms improved or disappeared in 81 percent of 443 patients suffering from subacute and chronic psoriasis (Gieler and others 1995). Of the constituent compounds tested, the benzyloquinoline alkaloids berbamine and oxyacanthine were principally responsible for inhibition of abnormal cell growth, with berberine showing lesser activity (Muller and others 1995). The fruit serves as a safe and gentle laxative (Plants for a Future 2003).

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