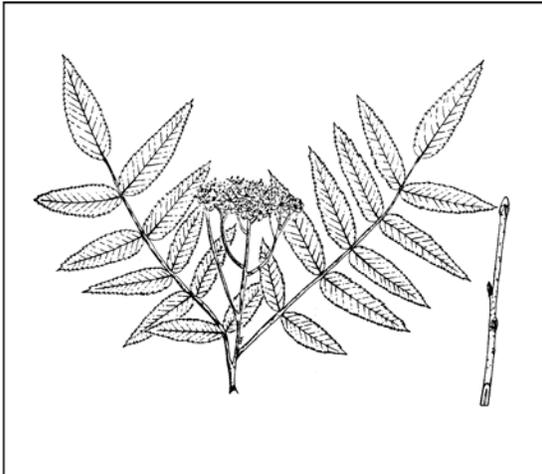


***Sorbus scopulina* Greene**
ROSACEAE

Greene's mountain-ash

Synonyms: *Sorbus sambucifolia* non Roem.
Sorbus cascadiensis G.N. Jones



General Description.—Greene's mountain-ash, also known as western mountain-ash, is a deciduous shrub or small tree ranging in height from 1 to 6 m and up to 10 cm in stem diameter. It usually has multiple stems with smooth yellowish to grayish-red bark and slender light brown twigs that are white-hairy when young. Winter buds are glutinous and glossy. The alternate leaves are 10 to 20 cm long, odd-pinnately compound with seven to 15 lanceolate leaflets that are nearly sessile, pointed, and serrate on the margins. They are thin, shiny-green above and paler beneath. Inflorescences are much-branched corymbs, 6 to 12 cm broad, that contain many 10-mm broad, white to cream, five-petaled flowers. Fruits, which grow in clusters, are shiny, orange to red, berry-like, 5- to 10-mm-long, globose pomes with an attached calyx at the apex. Each contains up to eight flattened, brown or red-brown seeds 3 to 4 mm long (Davis 1952, Viereck and Little 1972, Welsh 1974).

Range.—Greene's mountain-ash is native to broad areas and disjuncts in the southern half of Alaska, disjuncts and broad areas of the Yukon, Northwest Territories, British Columbia, Alberta, Saskatchewan, Montana, Idaho, Washington, and scattered areas in Oregon, California, Wyoming, North Dakota, South Dakota, Utah, Colorado, Nevada, and New Mexico (Natural Resources Conservation Service 2003, Treeguide 2003).

There are two varieties. The typical variety occupies the entire inland range and var. *cascadiensis* (G.N. Jones) C.L. Hitchc. occupies coastal habitat from British Columbia into California (Natural Resources Conservation Service 2003). In addition, an intergeneric hybrid named *Amelasorbus jackii* Rehder between *Amelanchier alnifolia* Nutt. and Greene's mountain-ash has been observed in Oregon and Idaho (Love 2003). Greene's mountain-ash has been widely planted, but no reports of it naturalizing outside its range are known.

Ecology.—Greene's mountain-ash colonizes well-drained soils on rocky hillsides, canyons, wooded slopes, forest clearings, avalanche chutes, and along streams. It grows as dispersed individuals or in nearly pure (usually small) clumps. The sites are moist; the species is not drought resistant. Elevations range from near sea level in the northern portions of its range to 3,000 m in the Southern Rocky Mountains. Greene's mountain-ash is moderately intolerant of shade; it sometimes grows in the understory of open stands but usually grows in openings. Low-vigor plants are also common under closed, but not dense, conifer stands (Alaska Department of Fish and Game 2001, Ibiblio 2003, Luna and Wick 2001, Umatilla National Forest 2003, Utah State University Horticulture 2003).

Reproduction.—Flowering of Greene's mountain-ash occurs between May and July depending on location (Stein 2003). The flowers are pollinated by insects (Ibiblio 2003). The fruits ripen in July through September and remain on the shrubs into the winter (Alberta Agriculture, Food and Rural Development 2003). Fruits can be collected in quantity by hand after the fruits turn orange or red and the seeds are brown. The seeds are extracted by maceration, washing, and screening. The weight of seeds has been reported at 100 seeds/g (Luna and Wick 2001) and 180 seeds/g (Browse-Shrub and Forb Committee of the Association of Official Seed Analysis 1985). In a collection made by the author in Utah, fresh fruits weighed an average of 0.333 ± 0.009 g/fruit, and

air-dried seeds weighed an average of 0.00386 ± 0.0001 g/seed (259 seeds/g). There were 24 to 117 fruits/cluster and an average of 2.4 seeds/fruit. Seed will remain viable in sealed, refrigerated containers at low relative humidity for 5 years. Recommended pretreatment is a 3:1 water/hydrogen peroxide soak for 10 minutes followed by a 25-hour water soak and a cold stratification in peat at 3 °C for 90 to 120 days. Germination varies from 90 to 100 percent (Luna and Wick 2001). A test of viability can be made by incubating imbibed, excised embryos at 20 °C for 6 days. Viable embryos either retain their freshly excised appearance or become deep green; nonviable embryos deteriorate or turn pale yellow green (Umatilla National Forest 2003). In the wild, seeds are dispersed mainly by birds. Greene's mountain-ash may be asexually reproduced using cuttings. Late-summer semihardwood stem cuttings 15 to 25 cm long and 0.3 to 1.3 cm in diameter are recommended. After hormone treatment, cuttings placed in a bottom-heated mistbed for 6 weeks yielded 47 percent rooted cuttings (Luna and Wick 2001).

Growth and Management.—This species grows slowly as seedlings and only at an intermediate rate later. Plants are able to flower and fruit after 3 to 5 years (Luna and Wick 2001). Greene's mountain-ash is usually grown for revegetation projects from seed in nurseries as container or bare-root stock. Potted seedlings can be expected to reach 15 cm tall with a 2.0 cm caliper by the end of the first year (Luna and Wick 2001). They are outplanted as either 1- or 2-year-old stock. Greene's mountain-ash planted in seven sites in Alberta averaged 1.2 to 2.3 m in height after 4 to 8 years of growth (Alberta Agriculture, Food and Rural Development 2003). Direct seeding is also possible. Drilling seed 2 mm deep in fertile, well-drained soil is recommended. Many seeds will not germinate until the second or third year (Umatilla National Forest 2003). Although the species is adapted to many soil conditions, it is sensitive to high pH in the nursery and the field and is damaged by the pear slug [*Caliroa cerasi* (L.)] (Alberta Food and Rural Development 2003). Browsing keeps the plants compact in many locations (Clark 1976). The author knows of no published data on management of natural stands.

Benefits.—Greene's mountain-ash is an important component of the Western shrub community and furnishes a number of benefits. The species helps protect the soil, adds to the aesthetics of wildland sites, especially with its yellow to orange-red fall

foliage and red-orange berries, and furnishes cover for wildlife. The foliage and twigs are browsed by deer (*Odocoileus* spp.), elk (*Cervus canadensis*), moose (*Alces americana*), and to a lesser extent, cattle. The fruits are eaten by black bears (*Euarctos americanus*), martin (*Martes americana*), fisher (*Martes pennanti*), rodents, American robin (*Turdus migratorius*), hermit (*Catharus guttatus*), gray-cheeked (*Catharus minimus*) and Swainson's (*Catharus ustulatus*) thrushes, pine grosbeaks (*Pinicola enucleator*), Bohemian waxwings (*Bombycilla garrulus*), northern flickers (*Colaptes auratus*), Steller's jays (*Cyanocitta stelleri*), and blue grouse (*Dendragapus obscurus*) (Alaska Department of Fish and Game 2001, Gullion 1964, Stein, 2003, Wier 2003). The fruits are edible to humans, fresh, cooked, and dried, but it is necessary to wait until the bitterness disappears after multiple frosts (Moser 2003). A wine is also made from the berries (Keller 2003). In herbal medicine, infusions of bark have been used to reduce fevers and as a tonic, and infusions of branches have been given to children with bed-wetting problems (Ibiblio 2003). Greene's mountain-ash is planted to a limited extent as an ornamental, especially in naturalistic landscape settings. The wood is soft and has a specific gravity of 0.59 g/cm³ (Ibiblio 2003). It is probably useful for firewood, but other uses are not known.

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