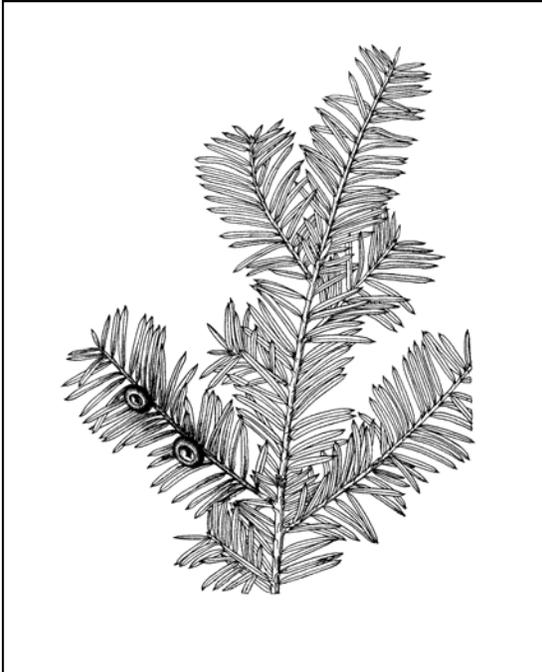


***Taxus brevifolia* Nutt.**  
TAXACEAE

Pacific yew

Synonyms: *Taxus baccata* L. ssp. *brevifolia* (Nutt.) Pilger  
*Taxus baccata* var. *canadensis* Benth.  
*Taxus boursieri* Carrière  
*Taxus lindleyana* A. Murray



**General Description.**—Pacific yew, also known as western yew and mountain mahogany, is an evergreen large shrub or small tree. In good sites in coastal areas and a few inland areas, old specimens sometimes reach 60 cm in diameter at breast height and 15 m in height. In high elevation and poor sites, Pacific yew usually grows to only a few meters in height and a few centimeters in diameter, sometimes forming low mats. The bark of stems is thin (6 mm) and has a multihued purplish scale pattern. Bark on young twigs is rose colored and on older ones, reddish-brown. The sapwood is yellow and the heartwood red to reddish brown. Roots are deep and wide-spreading. The green leaves are linear, 8 to 35 mm long and 1 to 3 mm broad, acute at the tip, with a median ridge on the upper surface and two yellow-green bands on the lower surface. They are whorled but bent to give a two-ranked appearance. Inconspicuous male and female strobili are borne on the underside of branches and occur on different trees (dioecious). The fruit (seed) is two-

to four-angled, ovoid, 5 to 6.5 mm long, enclosed in a cup-like, fleshy red aril about 10 mm in diameter. Seeds have a large oily endosperm and a small embryo (Abrams 1940, Bolsinger and Jaramillo 1990, Earle 2002, Rudolf 1974, Viereck and Little 1972).

**Range.**—Pacific yew is native to the coastal forests from southern Alaska through northern California and a moist interior corridor from southern British Columbia and Alberta to northwestern Montana, north-central Idaho, and a little of eastern Washington and Oregon (Bolsinger and Jaramillo 1990). Although the species has been planted to a limited extent in Europe, it is not known to have naturalized outside its native range.

**Ecology.**—Pacific yew is very tolerant according to the five-step tolerance rating. Seedlings grow, develop, and eventually fruit under heavy conifer forest canopies. The species is most often found in deep ravines, along streams, and under coniferous stands (Sargent 1923). It grows as an understory dominant in most of the forest types where it occurs. Under closed stands, the limbs are often as long as the trees or shrubs are tall (Bolsinger and Jaramillo 1990, Termenstein 1990). Leaves persist on the twigs 4 to 5 years (Abrams 1940). Although initially shocked, it is able to adapt to full sunlight after overstory removal by logging, and it sometimes grows in the open in avalanche chutes, and on ridges and rocky slopes at high elevations (Bolsinger and Jaramillo 1990, Termenstein 1990). Plants growing in the interior of the continent are more often shrubby than those near the coast (Sargent 1923). It typically grows as an understory tree 3 to 5 m tall near the coast and as a shrub about 1 m tall east of the Cascade Mountains. It grows from near sea level to about 2,200 m in elevation (Earle 2002).

**Reproduction.**—Pacific yew flowers mostly in June, matures fruits August to October, and releases seeds in October. The pollen is dispersed by the wind. There are 32,000 to 36,000 seeds/kg

(Washington source). About 50 to 99 percent will eventually germinate under proper conditions. The seeds are dispersed primarily by birds. Natural germination usually takes place in the second spring after dispersal (Rudolf 1974). Development of seedlings is slow. Pacific yew sprouts from stumps and rootstalks after being cut or top-killed. It commonly layers when branches or stems are pressed to the ground by snow or falling debris (Bolsinger and Jaramillo 1990).

**Growth and Management.**—Growth of Pacific yew is slow. Trees in Idaho took 25 years to reach a stem diameter (15 cm above the ground) of 2.5 cm and 100 years to reach 15 cm. Height growth is correspondingly slow (Bolsinger and Jaramillo 1990). Even in moist, rich soils, few plants live long enough to reach tree sizes. Fruits should be picked by hand as soon as they are ripe. The fruit pulp is removed by maceration and floating off the pulp, or by soaking in water at room temperature for 4 or 5 days, rubbing the fruits on screens, and washing away the pulp. The seeds should be air-dried for 1 to 2 weeks and should be sown or stored as soon as drying is complete. Air-dried seeds can be stored for 5 to 6 years in sealed containers at 1 to 2 °C. Seeds sown in nursery beds should be covered by about 1 cm of mineral soil and mulched. Germination primarily occurs in the second spring afterwards. To obtain germination a shorter time after sowing, seeds should be stratified for 90 to 210 days at 16 °C followed by 60 to 120 days at 3 to 6 °C (Rudolf 1974).

**Benefits.**—Pacific yew contributes to the aesthetics of the forest, helps protect the soil, and provides food and cover for wildlife. It is a preferred moose browse. Although eaten in all seasons, during the winter, moose will eat all the available leaves and twigs, and even strip the bark. Deer, elk, and rabbits also browse the species. Livestock make limited use of it during the winter and when other food is lacking. The fruit is sweet and eaten by many species of birds (Tirmenstein 1990). Plants growing along streams help protect against streambank erosion and shade the water and help maintain cool stream temperatures (Termentstein 1990). Pacific yew wood is fine-grained, heavy, hard, elastic, and strong. It has been used and still is used to a limited extent (due to scarcity) for archery bows, harpoon shafts, canoe paddles, household utensils, tool handles, mauls, splitting wedges, gunstocks, boat decking, fence posts, musical instruments, carved figurines, novelty items, furniture, oriental ceremonial “Toko” poles, turnery, cabinetry, and firewood

(Bolsinger and Jaramillo 1990, Termentstein 1990). Infusions, decoctions, and poultices of leaves, twigs, and bark were used by Native Americans to treat lung problems, stomachache, wounds, and pain (Moerman 1986). Paclitaxel (often called by the trade name Taxol) was discovered during a massive anticancer activity screening program by the National Cancer Institute during the 1960’s (21cecPharm 2003). Paclitaxel is a white crystalline powder extractable from any of the *Taxus* species. It is a cytotoxic anticancer drug used to treat ovarian, breast, and lung cancers, and Kaposi’s sarcoma (SFT Enterprise 2003). Harvesting for paclitaxel extraction threatened to decimate the species’ populations until it was discovered that other *Taxus* species were better sources and that the drug could be produced by semi-synthesis and by cell cultures (21cecPharm 2003). Pacific yew is used to a limited extent as an ornamental shade tree, foundation plant, hedge, and topiary plant (Bolsinger and Jaramillo 1990).

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