

PACIFIC (WESTERN) YEW

(*Taxus brevifolia*)

RANGE

Pacific yew is found from southern tip of Alaska to California and as far east as Alberta primarily at low to mid elevations. On the northern coast of BC and Alaska it is generally restricted to within a few kms of the coast.



Andy MacKinnon describing the Pacific yew at one of Metchosin's **Talk and Walk** tours.

Photo courtesy of Moralea Milne.

HABITAT AND LIFE HISTORY

Pacific yews have the ability to efficiently capture and use light, water and nutrients in a wide variety of conditions. In coastal BC, yews are usually found in moist to wet coniferous forests, often in areas of higher soil nutrients, most commonly on water receiving sites but also on water collecting and (less commonly) on water shedding sites. At one time it was thought that they needed high levels of soil moisture but it has lately been discovered that they are tolerant of seasonal drought. They are able to grow in both the full sun of clearcuts and the deep shade of old growth forests. A shade grown yew that finds itself growing in full sun (from logging or other disturbance) will compensate by the needles changing colour to a bronze hue.

Pacific yews often grow in association with Douglas-fir, western redcedar, western hemlock, salal, Oregon-grape and skunk cabbage.

Yews are a small component of coniferous forests, usually found as single occurrences, a yew inventory from Quatsino Sound found 1.5-2.1 yew trees/ha.

They are considered a slow growing understory species and can live up to 400 years, although 200-300 years is more common.

Yew seeds are eaten by birds and rodents and deer, elk, moose and caribou browse the needles. However all parts of yews except the arils (soft fleshy part of the fruit) are highly toxic to humans and possibly to livestock.

DESCRIPTION

Pacific yews on the coast are small to medium sized trees, 2 to 15 m tall, with widely spreading, drooping branches. They rarely exceed 60 cm dbh (diameter at breast height) or 15 m in height although larger specimens have been recorded (one of the largest on record is 142 cm dbh and 18 m). The roots are deep and wide spreading. The bark is thin, purplish-reddish to brown, papery or scaly, flaking to expose a reddish underbark.

Trunk: The trunk of the Pacific yew is often twisted with a wide base.



Photo courtesy of Moralea Milne

Needles: Needles are flat, 2 cm long, 1-2 mm wide, the tip is abruptly pointed, yellow-green above, paler on underside, twisted but arranged to appear as if growing in two rows.



Photo courtesy of Moralea Milne

Cone: Male pollen cones are yellow, globe shaped, 3 mm long, usually appearing from February through June.

Fruit: Female seeds are comprised of a red aril surrounding a hard 6 mm long seed, fruits ripen over a span of months, from August to October.

REPRODUCTION

Pacific yew is dioecious, meaning that there are separate male and female trees. Some Pacific yew trees have been reported as co-sexual, meaning the fruits and seeds have been found on male trees. It produces abundant seed crops that are dispersed mainly by birds and rodents. The trees are able to re-sprout from cut and burned stumps and can vegetatively reproduce through layering.

Pollen is dispersed by wind.

PROPAGATION

To propagate, seeds should be extracted from the fruit as soon as possible as the fruit will promote mold. They can then be dried (1-2 weeks at room temperature) and then either sown, cold stored or stratified. Seed need to be stored at 1-2°C in sealed containers.

Pacific yew seeds need warm plus cold stratification, 150-210 days at 16-18°C, followed by 60-120 days at 2-5°C. They are slow to germinate. In a forest seed sprout best in heavy organic forest litter in the second spring. Cover seeds with 1-2 cm of soil and mulch the seedbed. Shade beds during the summer, there is usually high germination after the second winter, so don't throw out the seeding beds until after the second year. Shade seedlings (55% shade) after they emerge for one to three years.

Semi-hardwood cuttings can be collected in mid-May, just after leafbud break, cuttings have second year wood at base. Cuttings are 12 cm in length and 8 mm in diameter and treated with 8000 ppm liquid IBA. Cuttings are placed in outdoor mist beds (6 second intervals every 6 minutes) with bottom heat of 21°C (36% rooting success). Rooting media is 50% perlite and 50% sand. Mist bed is shaded.

Pacific yew can root from winter struck cuttings in 3 weeks to 4 months. Obtain cuttings from the youngest trees possible and use tip cuttings from 1-2 year old branches. Dip the end in rooting compound and stick into a well drained soil mixture that maintains a high moisture content.. Use a bottom heat as above.

Yews can be layered in situ (branches nicked and pegged into soil, where they will produce roots).

THREATS

Overharvesting has been considered a threat as research into the benefits of yew-derived taxol was ongoing. Taxol is used in the treatment of cancer and research is ongoing into its benefits in treating arthritis and Alzheimer's disease. Since taxol has been chemically synthesized and cultured yews are used to produce semi-synthetically derived compounds, wild yew populations (never abundant to begin with) can recover.

Almost all Pacific yews in the coastal regions are infested with the yew big bug mite. This mite is thought to have been introduced from Europe, probably during the 19th century when immigrants brought over many species of their favourite plants. Damage occurs in the leaf bud, where symptoms ranging from swelling to death of the bud can occur. Infected plants display an erratic and asymmetrical shape. Interior yews have not yet been infected and the Pacific Forestry Centre website cautions against transporting coastal yew material into the interior.

CULTURAL USES

Pacific yew wood is hard, heavy (comparable to oaks) and resistant to decay, these attributes made it ideal for use by First Nations in the production of bows, paddles, digging sticks, snowshoes and other implements. It is also prized as carving material and as a trade item. Apparently the Haida believed that eating too many berries (the aril portion) would result in sterility. Ground yew wood was a component of a red paint.

It is also used in the making of furniture, musical instruments, fenceposts, boat decking and for Japanese ceremonial poles.

FURTHER INFORMATION AND REFERENCES

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