

Scientific Name: *Salix lucida* Muhl.

Family: *Salicaceae*

Common Names: greenleaf willow, Pacific willow, shining willow

Plant Description

Deciduous, perennial, erect, tall shrub or tree 2 to 9 m high; branches light reddish brown or yellowish; glossy branchlets; leaves acute to long-acuminate, glandular-serrulate margins, glossy upper surface, and white-bloomed on lower surface; pubescent petioles with 2 glands near leaf-base; catkins borne on long leafy branchlets, staminate and pistillate catkins occur on separate plant (Moss 1983).

Fruit: Glabrous capsules, 5 to 7 mm long, yellowish (Moss 1983).

Seed: 12 to 20 minute seeds per capsule, 1 to 2 mm long and less than 1 mm wide; attached to the hairs at the radical end; no endosperm (Zasada et al. 2003).

Habitat and Distribution

Lake and slough margins, riparian communities, riverbanks, floodplains, wet meadows, sand-dune slacks, and silt bars (Moss 1983). Low shade tolerance.

Soil: Wet to mesic soil moisture (Tannas 1997). Adapted to most soils but prefers damp heavy soils (Moore 2003).

Pacific willow is an early seral species commonly found on fresh alluvium (Uchytel 1989).

Distribution: Widespread across North America, and throughout Alberta. Alaska, Yukon, southwestern District of Mackenzie, Saskatchewan, Hudson Bay, Newfoundland south to California, New Mexico, South Dakota, Illinois, Ohio, Maryland (Moss 1983).

Phenology

Flowers from April to May, and fruit ripens in June.

Pollination

Salix species are pollinated by insects and by wind (CYSIP: Botany n.d., Macdonald 1986).



Male catkins of *Salix lucida*.

Seed Dispersal

Seeds are attached to pappus for wind dispersal.

Genetics

$2n=76$ (Moss 1983).

Seed Processing

Collection: Because *Salix sp.* seeds are quickly dispersed by wind, branches may be cut just before seed dispersal and placed in water and kept in shed for easier seed collection. The seeds are then easily stripped from branches (Macdonald 1986).

Seed Weight: 0.0395 g/1,000seeds (Young and Young 1992).

0.173g/1,000 seeds (Royal Botanic Gardens Kew 2008).

Harvest Dates: Harvest as soon as fruits ripen, that is, when catkins change from green to yellow-brown.

Cleaning: For most successful seed extraction, wait until the capsules begin to open (Zasada et al. 2003).

Storage Behaviour: Possibly orthodox; seed should be dried prior to storage at freezing temperatures.

Storage: Once pre-dried to approximately 6% to 10% of dry weight, seeds can be stored in sealed containers in such a way that constant humidity can



be maintained (Zasada et al. 2003). Viability at room temperature declines drastically after a few days (USDA NRCS 2011).

Longevity: Seeds can remain viable for up to 6 months or more if stored at subfreezing temperatures (1 to 5°C) (Zasada et al. 1983).

Propagation

Natural Regeneration: By tillers and seeds (Gerling et al. 1996).

Germination: Fresh seeds germinate within 12 to 24 hours if kept constantly moist (Moore 2003). The presence of light increases the rate of germination. Significant amounts of chlorophyll are found in the seeds allowing photosynthesis to occur immediately after the seeds are moistened (Uchytel 1989).

Pre-treatment: None, seeds are not dormant. Seeds are sown immediately after collection on moist ground (Dirr and Heuser 1987).

Direct Seeding: Seeding the fruit was not successful in northeastern Alberta (Smreciu et al 2008).

Vegetative Propagation: Zasada et al. (2003) recommend stem cuttings. Take hardwood cuttings from mid-fall to early spring, from 1 to 4 year old wood, 18 to 25 cm long and 1.3 to 2.5 cm thick. Plant cuttings with 25% to 40% of the cutting left above ground (Moore 2003, Rose et al. 1998). Cuttings were a successful propagation method on wetland sites in oil sands land reclamation areas in Fort McMurray: 13% survival of soft tip cutting the 1st year and 15% survival the 2nd year; 36% survival of pole cuttings the 1st year and 35% survival the 2nd year (Smreciu et al. 2008). Cuttings should be planted to a depth of 30 cm, with 20 cm left above ground. Cuttings will root along the length of the stem, with roots appearing in about 10 days (Uchytel 1989).

Aboriginal/Food Uses

Food: Once dried, the inner bark was ground into a powder and then added to flour to make bread (Marles et al. 2000).

Medicinal: Salicin is a chemical derived from the plant and it is related to acetylsalicylic acid (the active ingredient in Aspirin). These chemicals are used to treat rheumatism, arthritis, aches and pains, and fever (Marles et al. 2000).

Blackfoot people used the willow for fresh root of Salix species to treat internal hemorrhage, throat constrictions, swollen neck glands, and bloodshot or irritated eyes (USDA, NRCS. n.d.).

Other: Stems and bark used for basket weaving. Native Americans used the bark for making fabric and tea and the stems for making bows (Marles et al. 2000). Also used for dye, furniture and mats (USDA NRCS. n.d.).

Wildlife/Forage Usage

Wildlife: Excellent forage value (Gerling et al. 1996). Roots create overhanging banks that provide habitat for fish and other aquatic organisms (USDA NRCS n.d.).

Beaver browse on willow branches. Willow buds and young twigs are eaten by various species of birds (USDA NRCS n.d.). Provides food and cover for many species. Deer, elk, moose and caribou browse on willow twigs, foliage and bark (CYSIP: Botany n.d., Moore 2003, Uchytel 1989).

Livestock: Nutritious plants but low palatability (Tannas 1997).

Grazing Response: Tolerant of heavy browsing (Tannas 1997).

Reclamation Potential

Easily propagated from vegetative cuttings (Stevens 2003).

Recommended for reclamation and stabilization of moist, disturbed soils (Tannas 1997). Regenerates quickly following natural and human-related disturbances (flooding, mine tailings, thermally polluted lands, and construction sites) (Zasada et al. 2003).

High density willow plantings used as a slope stabilizer have been found in some cases to be more



cost effective than using methods like rip rap (Uchytel 1989).

Under any method of revegetation, sites should be fenced to protect them from grazing and trampling . (Uchytel 1989).

Commercial Resources

Availability: Commercially available in Alberta (ANPC 2010).

Cultivars: Roland was released by the Alaska Plant Materials Center for revegetation and landscape projects (Uchytel 1989) in Alaska; not recommended for use in Alberta. Cuttings collected from native populations are preferred.

Uses: Landscaping, used for windbreaks (Moore 2003).

Notes

Following a fire, willows will re-sprout from the root crown or stem base. Because Pacific willow usually occurs along stream banks, it acts as a natural firebreak. Also, it is a prolific seeder thus making off-site plants important seed source for the revegetation of burned areas (Uchytel 1989). Willow are sensitive to competition and shade so it is recommended that dense grass and weeds are removed from the site (Uchytel 1989).

Photo Credits

Photo 1. William & Wilma Follette. 1992. USDA-NRCS PLANTS Database.

[http://commons.wikimedia.org/wiki/File:Salix_lucida_lasiandra\(02\).jpg](http://commons.wikimedia.org/wiki/File:Salix_lucida_lasiandra(02).jpg)

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