

Plant Propagation Protocol for *Populus angustifolia*


ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols2022/POAN3.pdf>



(USDA)

TAXONOMY	
Plant Family	
Scientific Name	Salicaceae
Common Name	Willow, Poplar (“Salicaceae,” n.d.)
Species Scientific Name	
Scientific Name	<i>Populus angustifolia</i> James (Simonin, 2001)
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	<i>Populus angustifolia</i> var. <i>coloradensis</i> (Dode) Gombocz (“Populus Angustifolia E.james,” 2017)
Common Name(s)	Narrowleaf Cottonwood Willow-leaved Poplar (“Narrow Leaved Cottonwood,” n.d.) Mountain Cottonwood (Simonin, 2001)
Species Code (as per USDA Plants database)	POAN3 (USDA)
GENERAL INFORMATION	

Geographical range	<p><i>Populus angustifolia</i> can be found in Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, South Dakota, Texas, Utah, Wyoming, Alberta and British Columbia. (TWC Staff, 2008)</p> <p>Also native to Northern Mexico. (“Populus Angustifolia E.james,” 2017)</p>  <p>(USDA)</p>
Ecological distribution	Sierra Mountains, Columbia Plateau, Great Basin, Norther Rocky Mountains, Wyoming Basin, Colorado Plateau, Great Plains, Black Hills Uplift. (Simonin, 2001)
Climate and elevation range	<p>Found at elevations of 900-2450 meters. (Nesom, 2000)</p> <p>Development of <i>Populus angustifolia</i> is directly related to precipitation and hydrology events. Flowering is associated with springtime peaks in river flows. Seed dispersal occurs during times when the rivers are at their lowest levels. (Simonin, 2001)</p>
Local habitat and abundance	<p><i>Populus angustifolia</i> is generally associated with Western Ponderosa Forest, Douglas-Fir Forest, Spruce-fir Forest, Juniper woodland, Great Basin sagebrush, Foothills prairie, and wheatgrass. (Simonin, 2001)</p> <p>Commonly found on narrow, periodically flooded benches adjacent to streams and small rivers. Grows along streambanks in dry mountains, desert shrublands and prairie grasslands. (Nesom, 2000)</p>
Plant strategy type / successional stage	<p>Narrowleaf cottonwood provides erosion control and streambank stabilization.</p> <p>Grows rapidly in riparian environments with undisturbed hydrology but it grows slower than all other cottonwood species because it</p>

	requires a long time for adequate establishment. This tree does not tolerate shade. (Simonin, 2001)
Plant characteristics	<p><i>Populus angustifolia</i> is a deciduous, medium-sized tree with thin ascending branches. The bark is whitish-yellow, smooth and becomes furrowed as trees age. Leaves are alternate, narrow, finely toothed at the ends, and 5-9 cm long.</p> <p>Flowering begins at about 15 years. Male and female trees must be planted close by. This tree is fast growing but short-lived. (Nesom, 2000)</p> <p>It obtains heights up to 60 feet. (Simonin, 2001)</p>
PROPAGATION DETAILS (Harrington, et al., 1984)	
Ecotype	Cuttings used in this study came from mature Narrowleaf Cottonwood trees in Questa, New Mexico.
Propagation Goal	Use cuttings to generate adventitious roots
Propagation Method	vegetative
Product Type	<p>Cuttings</p> <p>Propagation is usually by cuttings, as seed retains viability for a very short time. (Jobling, 1997)</p>
Stock Type	Ray leach super cells
Time to Grow	20 weeks
Target Specifications	The goal is to have cuttings generate roots to be planted in the ground to grow trees (rooted cuttings). The tree should have new green leaves and be actively growing.
Propagule Collection Instructions	<p>The cuttings in this study were from young trees or young growths on older trees. The branches were stored in the nursery until utilized at 2-4° C. The branches were cut into small, individual cutting immediately prior to the beginning of the study.</p> <p>It is best to find cuttings from trees that are growing in low-lying, wet areas. Cuttings should be taken from mature plants when they are dormant. (Pollock, 2019)</p>
Propagule Processing/Propagule Characteristics	Cuttings were 10-15 cm long and had a minimum of three buds.
Pre-Planting Propagule Treatments	Cuttings have to be stored in cold temperatures with 60-70% humidity levels to maintain viability and maximize survival. Cuttings should be planted within 8 months of harvesting for maximal survival rates. Dormant cuttings need to be soaked to initiate the rooting process. (Pollock, 2019)

	Narrowleaf Cottonwood cuttings need to pre-soak in water for 7-14 days before planting. (Giordanengo, 2015)
Growing Area Preparation / Annual Practices for Perennial Crops	After pre-planting treatment, cuttings were placed in a greenhouse on a propagation bench in Ray Leach super cells 24° C. The greenhouse temperatures were 20-22°C in the day and 16-18°C at night. The media was a combination of peat, perlite, and vermiculite.
Establishment Phase Details	Cuttings were misted 4 times daily until the majority of the cuttings had bud break and then after that the cuttings were irrigated as needed.
Length of Establishment Phase	1 month
Active Growth Phase	Trees will begin to sprout leaves when it leaves its dormancy after about 1 month. Fertilizer was added at this phase. They used a 25-ppm solution of Peter's Foliar Feed.
Length of Active Growth Phase	8 weeks
Hardening Phase	Fertilization was increased to 100-ppm solutions of Peter's Conifer Grower every other irrigation at week 13. This schedule was consistent to the end of the study.
Length of Hardening Phase	Not specified in this study
Harvesting, Storage and Shipping	The cuttings should not be planted unless they have sprouted new leaves and are actively growing. It must be the correct time of the year for the cuttings to be planted which is late summer, otherwise they should remain in a greenhouse.
Length of Storage	Not specified
Guidelines for Outplanting / Performance on Typical Sites	Cuttings are typically planted after spring thaw but before bud break, or in the fall after the leaves change color. These trees cannot survive in dry air so it is vital to remove air pockets when planting. The cuttings need to be planted deep enough to reach the water table. (Giordanengo, 2015) Cuttings need to be planted at a fertile, well-drained site. (Hovet, n.d.)
Other Comments	
INFORMATION SOURCES	
References	See Below
Other Sources Consulted	
Protocol Author	Karinna Gensert
Date Protocol Created or Updated	05/24/2022

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