

# Revegetation Field Guide

## Pole planting

Pole planting is a process where cut stems with buds can be planted in the ground to the depth of the ground water to grow a shrub or tree. Cottonwood and willows can be planted by pole planting.

Special considerations in pole planting include:

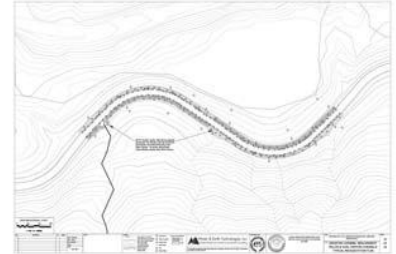
- Harvest dormant plants and plant in early winter or early spring and keep them wet by placing the cut ends in water until they are planted.
- Remove most branches, keeping those on the tip of poles. Make sure to keep the collar intact.
- Use vigorous young poles that are larger in diameter, not old or skinny ones.
- Ensure poles are hydrated by placing cut ends in water. Cut poles can withstand being out of water for a short time for transport.
- Plant cut poles at the depth of the ground water table during the growing season.



## Site selection and preparation

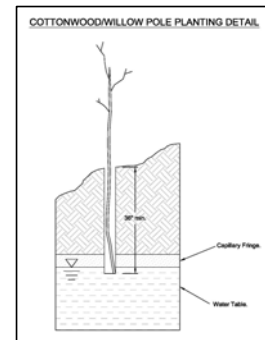
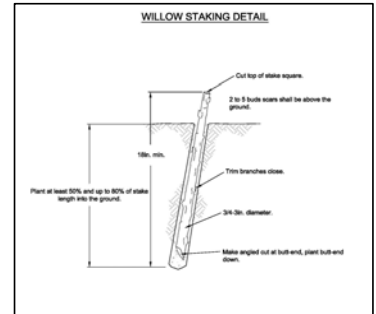
Things to consider when performing pole planting include:

- Ground water- Measure the water table depth so you know how deep you must plant. Shrub and willow species in general can tolerate shallower ground water depths (1.5ft or deeper) than cottonwoods (4ft or deeper).
- Soil Salinity- High salinity of soil or water can affect ability of plants to grow or produce roots. Soils with TDS more than 2,000 ppm may reduce cottonwood pole establishment.
- Soil texture- The soil texture helps determine what tool to use. Soil with too much cobble can be difficult to auger, holes in dry sandy soil can collapse before planting, and fine textured soils can diminish root development and plant survival due to lack of oxygen.
- Flood flows- In general willows are more resistant to flooding than cottonwoods. Plant willows closer to the water's edge and cottonwoods further away.



## Methods

- **Timing-** It is best to plant dormant plants before bud-break.
- **Tools-** The choice of tools for pole planting is determined by the depth of water, soil texture and species planting. Examples of tools include augers, digging bars, and shovels. Loppers and hand pruners are important for harvesting. It is important to store poles in buckets of water or livestock water tanks.
- **Site access-** It is important to determine ease of access so vehicles, equipment, and machinery do not damage the environment.
- **Protection from cattle or wildlife-** It can be very important to limit cattle or wildlife (elk, deer, beaver) from eating the poles or freshly planted trees. Effective methods to limit impact include wire baskets or tree guards for beavers.



### Special considerations

Long term monitoring is important to record and ensure survival. Reestablishing channel flooding over stream banks can be a critical factor in sustaining plant survival and recruiting new plants in the future. Watering plants may be required in the short term if the work is done during a drought and little to no river flows is expected.



Before in 1993



*Rio Santa Fe on Cochiti Pueblo*

After in summer 2000

## Over-seeding with grass seed for re-vegetation

Plant a seed mix that is site specific for the ecosystem you are working in. Sites can vary due to climate, elevation, and temperature.

- Use native plants and seeds from local sources that are adapted for the ecosystem.
- Using a mix of seed types can be important so you find at least one species that is happy.
- Purchase seed from a reputable source; they should provide the types of seed, percentage of viable seed compared to weeds in a mix, and their germination rates per pound. They can also recommend how many pounds per acre to seed to optimize success.
- If not sure what seed to buy, contact a local NRCS agent that can recommend seed for specific projects.

**The most important thing to consider is water- without water nothing will grow!** Be patient and try to time your seeding when you anticipate moisture. Take advantage of local weather patterns and try planting during the wettest months.



Curio & Curio Seed  
4000 N. Poplar  
Chino, CA 91710  
Phone: 971-924-4700

**Santa Fe Trail**  
(Native Grass Mix)

Lot: 17809

Item	Origin	Pack	Comp.	Percent	Germination	Rate
Blue Grama	Blue Grama	25.0%	95.0%	23.75%	97.50%	23.12
Birds Eye Begonia	Colorado	5.00%	94.0%	4.70%	95.0%	4.46
Fescue	Western Washington	14.00%	85.0%	11.90%	95.0%	11.31
Arctic	Texas	17.00%	85.0%	14.48%	95.0%	13.65
Native Grass	Texas	1.20%	84.0%	1.01%	94.0%	0.95
Vogel	Texas	25.17%	82.0%	20.64%	92.0%	19.12
Trunk	Texas	3.00%	82.0%	2.46%	85.0%	2.09
Alkali Salsola	Canada	5.00%	96.0%	4.80%	96.0%	4.61
Wheat	Texas	2.20%	93.0%	2.05%	93.0%	1.94
Other Crop				01.27%		
Weed Seed				00.24%		
Non-Material				13.67%		
Material						

Total/100 Pounds: 29

### Do as much site research and preparation as possible

Do some site research looking at the following factors:

- **Water availability-** All plants need water to grow, and all seeds need water to germinate. For example, ask yourself, “is this an upland site that is really dry or is it a wet area by a stream?”
- **Soil texture and nutrients-** First, determine important soil characteristics like texture, chemistry, and porosity. Some sites can benefit from the addition of such soil amendments as top-soil, minerals, or organic matter to improve re-vegetation success.
- **Weed competition-** Weeds can out-compete other plant species in the environment. Consider removing aggressive weeds before planting.
- **Drainage and erosion-** It is important to control soil erosion from water or wind. Stabilizing the work site to limit erosion can be done by building swales, and or placing an erosion control such as: leaf litter, straw mulch, wood debris or cobbles, on the slope. This can improve re-vegetation success.



## Methods

- **Timing-** Seeding can occur all year long, although spring seeding is optimal due to cooler temperatures and upcoming monsoons. Summer plantings are generally less successful, but can work during cooler summers with sufficient rain. Fall plantings are preferred over summer plantings as they tend to have cooler temperatures. Remember to allow sufficient growth before the fall frosts.
- **Tools-** Seed spreaders, hand spreading, rakes, and hoes can be used. On larger projects a grader or ripper may be required to prepare the work site. Rakes to scratch the soil and incorporate the seeds into the earth are also useful.
- **Site access-** It is important to consider access so you don't damage or degrade the work site. Take into consideration limitations such as ditches, arroyos, levees, soft sand, steep slopes, tree stumps and extremely muddy soil.

**Protection from cattle and wildlife-** Re-vegetation is sensible if the management of livestock will allow plant growth. Reclamation does not make sense when livestock access isn't controlled. Protection such as fencing or enclosures can help in areas with increased browsing potential.



## Monitoring

Long term monitoring is important to determine success of re-vegetation. Consider water requirements to establish plants especially during drought periods. You may have to replant to achieve land management goals.

