APPENDIX O

General Guidelines for Woody Plantings Used to Restore/Enhance Riparian Zones in the High Plains

by

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These guidelines were developed to aid landowners in planning for riparian restoration/enhancement projects involving establishment of native woody vegetation. They have been compiled from references and work done in similar habitats within the Southern Great Plains, and were designed to fulfill requirements of state and federal incentive programs. The author gratefully acknowledges input from Texas Forest Service, Texas Agricultural Extension Service, U. S. Fish & Wildlife Service, the USDA Natural Resources Conservation Service, and USDA Wildlife Services - Texas Wildlife Damage Management Program.

- For establishment of overstory timber, use native plains cottonwood (*Populus sargentii*) poles from the nearest available source and plant according to procedures in ***Revegetating Southwest Riparian Areas*** (Cooperative Extension Service, New Mexico State University) during January or February. Poles should be planted within 50 feet of a stream to have the best chance of survival (with water table fluctuation), and should not exceed a density of more than 10 trees per acre at maturity. (Plant @ 15 per acre with 70% survival expected; spacing between trees should be ~40-50 feet to allow for crown development at maturity with a height of 60-80 feet). The desired effect is to replicate mature cottonwood stands that are open, savannah-like, and irregularly-shaped. To achieve a natural appearance and improve wildlife habitat value, avoid planting in straight lines. Where possible, a tractor-mounted post hole digger and hand crew is recommended for installation during winter months. Pole plantings that are one (1) to five (5) acres in size are recommended as partial fulfillment of habitat requirements for most species.

- Individual poles should be protected from beaver damage by construction of circular barriers with room for growth expansion by using t-posts and heavy net-wire. This will also protect against cattle or hog damage caused by rubbing against poles during the first few years of establishment. For additional information concerning prevention of wildlife damage to plantings, contact UDSA Wildlife Services (Texas Wildlife Damage Management Program) at 806/651-2880.

- For establishment of the fruiting, deciduous midstory component, use native species such as hackberry (*Celtis occidentalis*), little walnut (*Juglans microcarpa*), western soapberry (*Sapindus drummondii*), and roughleaf dogwood (*Cornus drummondii*). Plant in irregularly-shaped mottes (clumps) of at least 1½ acres in size, using a species mix* containing at least 50 seedlings, located separate and away from cottonwood pole plantings. Spacing between seedlings should be at least 30 feet to allow for crown development at maturity, with expected heights ranging from ~30-50 feet. Establish a minimum of one (1) planting per 25 acres and a maximum of one

(1) planting per 5 acres. Plant during March-April using a tractor-mounted post hole digger, hand crew, fabric squares (@ 3 or 4 feet) and 2-3 gallons of water/seedling at planting time with a water tank. Seedlings should be protected from browsing animals with commercial tree protector tubes installed at planting time. *Note: Little walnut also requires "wet feet" to survive; therefore, establish mottes with this species at the lowest possible elevation (closest to water table), nearby but separate from the developing cottonwood canopy. Hackberry, western soapberry, and roughleaf dogwood may be established in mixed stands further up slope (at higher elevations) within the riparian zone.

- For establishment of understory shrubs like aromatic sumac (*Rhus aromatica*) and native plum (*Prunus angustifolia*), follow the same procedures as in midstory establishment. Plant in irregularly-shaped mottes (clumps) of at least ½ acre in size containing a minimum of 100 seedlings, located separate and away from cottonwood (overstory) and deciduous tree (midstory) plantings to achieve a mosaic of different canopy heights at maturity. Spacing between seedlings should be at least 12 feet to allow for crown development at maturity, with expected heights ranging from ~6-8 feet. Establish a minimum of one (1) planting per 25 acres and a maximum of one (1) planting per 5 acres.

- To provide comprehensive environmental benefits at most sites, including stream bank stabilization, sediment filtration, aquatic habitat, wildlife habitat, and filtration for soluble nutrients, a *minimum* project development width of 100 yards on each side of the creek/stream channel is recommended. Widths up to 200 yards on either side of a stream course can be expected to yield higher habitat and aesthetic values.

- Riparian fencing is recommended at the stated widths, if not already in place, to increase manageability of these zones as distinctive grazing areas that require special treatment. Periodic grazing is a good management tool to maintain desirable native grasses, forbs, and legumes; however, it should be carried out in a manner that is not detrimental to woody species being established. Fencing enables control of specific seasons and duration of livestock grazing (see below). Specifications for 4-5 strand barbed wire fencing, as described in the Field Office Technical Guide at local offices of the USDA Natural Resources Conservation Service, is the recommended standard.

- Prior to planting season, some areas may need treatments like strip mowing or heavy grazing to remove rank vegetation. After establishment, individual poles/seedlings will need protection from grazing animals. Preferably, winter grazing of a short duration and moderate stocking rate should be employed for the first 5 years after planting (establishment phase) to minimize/avoid damage to woody plants during the growing season.

- Noxious invading species like salt cedar (*Tamarix spp*.) and Russian olive (*Elaeagnus angustifolia*) are detrimental to the long term health and habitat value of riparian zones. Aggressive control/eradication is recommended; however, effective

treatments can be expensive. For more information, contact Texas Agricultural Extension Service, the USDA Natural Resources Conservation Service, Texas Tech University, or Texas Parks & Wildlife Department.

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