



LINN COUNTY CONSERVATION

Derecho Forestry Management Plan

Upland Hardwood Forest Restoration

Updated 2022

Objectives: Remove overhead hazards and make the forest safer than it is currently. Restore the forest to its productive, pre-storm condition for wildlife habitat, soil and water quality, diversity, carbon storage, and public use. Restoration will be long-term project with initial clean up, and planting estimated to be conducted for 10 years and ongoing maintenance and stand improvement well in to the future. Long term goal is to restore the timber to its historical Oak/Hickory upland forest.

General Conditions: On August 10, 2020, a wind event called a Derecho with sustained wind speeds of 140 MPH plus moved through portions of Linn County. This storm caused significant damage to the County's woodland resources. The greatest damage to the Conservation Board's managed properties was sustained at Wanatee Park, and Wickiup Hill Natural Area. Many large, high quality trees were destroyed in the storm. In some areas up to 75% of the canopy was lost. The Derecho snapped off and uprooted large mature trees of all species, making the wooded areas essentially impassable for normal activities. The midstory and understory trees also sustained significant damage, which was comprised of mostly undesirable species. The infusion of sunlight from the loss of canopy, will allow invasive species that are very prevalent in the areas to expand and threaten native plant communities.

General Restoration Plan: Conduct a salvage harvest to recover salvageable, marketable trees that were damaged by the storm. Remove hangers, leaners and spring-poles that pose hazards as able. Based on site specific restoration plans conduct one or more of the following options for replant site preparation.

- 1) Remove heavy debris from forest roads and trails. Remove heavy debris and larger logs salvageable for fire wood or commercial chips. Remove and treat invasive species to the extent possible.
- 2) Remove all trees 1 inch in diameter and greater flush to the ground. All trees and woody debris on ground 4 inches in diameter or greater will be removed from the site and/or chipped. (Wood chips can be left on site if spread across site no greater than 3 inches in depth). Cut stumps low to allow for re-sprouting. Treat undesirable trees and invasive species to prevent regrowth. This option is for areas that have highest potential to restore high quality Oak/Hickory forest.
- 3) Pull apart and redistribute large heavy logs and tree top slash into piles or windrows. (no more than 8 feet tall and 10 feet wide) or as needed to enable sufficient space and access for tree planting activities, maintenance, and natural regeneration . Or create windrows no more than 8 feet high to create barriers around planting areas that hinder sapling predation from deer. Drop to the ground all remaining live trees (i.e. oak, black walnut, shagbark hickory, hackberry,

bitternut hickory, basswood, boxelder, sugar maple, basswood, cottonwood, elm, etc.) 1 to 10 inches in diameter at breast height (dbh). All cut trees shall be placed on the ground and none can be left leaning on adjacent trees. All stumps of removed/felled trees shall be cut flat and level to the ground or root flare. Quality trees over 10 inches in diameter (i.e. oak, black walnut) can be left scattered across the opening if present. Scattered dead stems can be left standing if not a risk to the surroundings (Upright trunk stems that do not create a risk to the surroundings can be left as snag trees and wildlife habitat). If a tree is adjacent to a trail, boundary fence, or use area it shall be removed if feasible to avoid creating a risk situation. Treat undesirable trees and invasive species to prevent regrowth.

4) Allow natural regeneration with minimal cleanup leaving majority of debris in place. This would be conducted in areas with large number of shade tolerant species or species that naturally have high self-propagation.

Tree Planting: Tree planting can be conducted from March 15th to May 15th or in fall as soon as stock is available until freeze up. Due to the high population of deer in the restoration areas newly planted trees will need to be protected from browsing. Trees will be protected with ventilated tree protectors or cages. Protection will be installed the same day as planting to avoid animal damage. Initial weed control will be conducted using a mixture of glyphosate, Princep or Pendulum sprayed in a 3' diameter circle around each tree. Glyphosate will provide initial treatment of competing vegetation, with Princep or Pendulum providing residual control of re-sprouting. Weed control should be conducted for 3 – 5 years.

Seedlings with shelters will be planted 50 trees/acre and have a 5 foot ventilated tree shelter with suitable stake installed at a spacing of 28 x 28. This works best with slow growing trees that are susceptible to deer browse particularly white Oak and Hickory. Or areas with a high deer population for most other species. Seasonal maintenance of tubes is important to maintain proper function such as; straightening, maintenance of bird net, and rodent nesting prevention.

Potted trees with cages: plant 25 trees/acre and install a 5 foot woven wire, concrete reinforcement mesh or welded wire cage around each tree. Place with steel stake, rebar or T post. The heavier the wire the less stakes or posts needed. This method is much more costly for both plant material and cage cost and will be used based on sight conditions and goals.

Direct seeding with tree seed: This option may be used as seed is available and in areas where there will be significant soil disturbance or where it is difficult to plant with seedlings. Or as a supplement to seedlings.

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