

After the Flood - Managing Tree Regeneration

USDA Natural Resources Conservation Service - North Dakota



Sand and silt dunes with ash and boxelder seed sources nearby.

The flood waters have receded. Some trees have died. Additional trees might die. Some will survive. What about the mud and sand flats that are left behind? What will happen naturally?

Safety

Think safety before venturing on to your property. Three months of standing water has weakened the root systems of some trees. Avoid going into the woods on very windy days; this could cause trees to fall or limbs to snap off. Be alert to stumbling and tripping hazards.

What We Have - What We Had

Vegetation will return in the spring on most areas. It may take several years before vegetation is well established on the deep drifts of sand. The type of vegetation will vary depending upon how long the area was



New channel carved by the river. Vegetation alone will not be able to stabilize such a cutbank.

covered with water, as well as the depth of flood deposits and nearby seed sources. This publication addresses revegetation after all the grasses, forbs, shrubs, and small trees have drowned from months-long inundation. Many think this flood will start a vast new cottonwood forest; however, much of the area flooded is normally too high and dry for cottonwood establishment.

For many decades smooth brome grass, reed canary grass, and Kentucky bluegrass have prevented green ash, hackberry, boxelder, bur oak, and other trees from establishing naturally. The dense sods prevented the seed from reaching the ground and left little precipitation for germinating seed. The bare mud left after the flood provides an opportunity to rejuvenate our riparian forests. Many seeds have floated in with the flood waters and many will be dispersed by wind from nearby trees. The potential for a mosaic of young riparian forest is high.



Canada thistle and perennial grasses will colonize quickly on the mud flats, while sand dunes will colonize at a slower rate.

What to Expect

The new forest will not be pretty as it develops during the first one to three years. It will not be a uniform mix of tree species. There will be patches dominated by one species or another, and openings where only grasses or weeds predominate. Depth to the water table and the type of sediment deposited will influence tree species establishment. Once vegetation greens up in the spring, it will be natural to see a carpet of annual weeds colonize the site. Later, additional weeds such as thistle may establish a foothold. As long as there is a presence of trees and shrubs, the weeds are rarely a hindrance to reforestation. Often they act as a cover crop.



Young cottonwood, sprouting as flood waters recede, requires a continuous source of soil water throughout the growing season to survive.

Though not what many people want to see, a dense mass of thistles discourages deer browsing, allowing the new seedlings to establish. Management of thistles is often a factor of neighborhood pressure, county weed control authority, and physical access to the sites. The increasing tree canopy will shade the thistles and thin them within a few years.

Herbicides commonly used to kill broadleaf weeds in yards also kill trees; however, there are a few herbicides that effectively control some weed species without damaging trees. Weed control methods are addressed in *After the Flood - Managing Weeds* in this series.

Initially, the patches of newly regenerating forest will be incredibly dense. This density often means some trees will escape deer browsing. The new forest will naturally thin to fewer stems per acre as the trees mature. Other plants will establish, such as anemone, grasses, and shrubs. As before the flood, thistles will always be present, but will diminish with time.



Five-year-old cottonwood, green ash, and boxelder shading out thistles

This flood and the resulting mud flats provide an opportunity to naturally regenerate riparian forests that were in a state of decline. The mix of species will not be uniform in the regenerating forests and there will be gaps between the trees due to differences in soil and moisture. Vast acreages of even-aged cottonwoods should not be expected. The species mix will vary depending upon the proximity of seed sources. Cottonwood seed can blow to any part of riparian forests while boxelder, ash, oak, and hackberry may float in or must be near parent trees for wind dispersion of seed. Just as the flood waters greatly changed the look of riparian forests, succession over the next few years will greatly change the look of the recovering young forests. This is a once-in-a-lifetime opportunity to encourage a young vibrant forest while vegetative cover is temporarily absent as a result of the flood waters.

Federal, State, and city foresters can answer additional questions you may have about forest regeneration.

The following fact sheets may be of interest.

Effects of Flooding on Woody Landscape Plants

<http://learningstore.uwex.edu/assets/pdfs/A3871.pdf>

Understanding the Effects of Flooding on Trees

<http://www.extension.iastate.edu/publications/SUL1.pdf>

This publication is part of a series that addresses management of the after effects of flooding in riparian areas. The series includes:

After the Flood - Managing Tree Regeneration

After the Flood - Seeding Grasses

After the Flood - Managing Weeds

After the Flood - References

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