LANDSCAPE CONSERVATION COOPERATIVES

Multi-LCC Mississippi River Basin / Gulf Hypoxia Initiative High Impact Conservation Practices – Fact Sheets

Practice #7 – Lower Floodplain Vegetative Diversity

Updated 19 January 2016 (draft for review)

WHAT IS VEGETATIVE DIVERSITY?

South of Cairo, IL until it reaches the Gulf of Mexico, the Mississippi River meanders through a unique landscape known as the Mississippi Alluvial Valley. Characteristic of this landscape are the bottomland hardwood forests that flank the Mississippi and its floodplains. These forests provide some of the richest biological diversity and the most important ecosystems in the entire Mississippi River Basin. However, these forests have long been used for lumber production and similar commercial interests. The results are bottomland hardwood forests that no longer have the necessary conditions to provide full ecosystem and particularly wildlife benefits. One of these conditions is appropriate vegetative diversity. The Lower Missouri Joint Venture states that:

> "Forests within suitable landscapes should provide vertical and horizontal structural diversity in terms of tree species, size and age classes and growth forms (e.g. trees, shrubs and vines) within a heterogeneous forest canopy comprised of gaps and a complex layering."

Restoring vegetative diversity is a broad category, and may include silvicultural treatments to alter species composition and growth and altering initial planting seed mixes. In addition, managing for vegetative diversity requires moving past the idea that we simply have to plant as many acres of forest as possible. It requires a larger frame of reference and recognition that successful quality ecosystem restoration is just as vital as increasing the quantity of forest.

Overall, managing for vegetative diversity returns many benefits. These include better soil health, better natural regeneration, greater sequestration of carbon, higher timber quality and yield, more timber and non-timber productivity, and greater structural and biological diversity.

WHY VEGETATIVE DIVERSITY?

Bottomland hardwood forests serve two primary hydrological purposes. First, they function as floodplains, storing and retaining floodwaters at times of peak flow. Second, they also serve as important nutrient and other contaminant sinks. Similar to how these forests store and retain floodwaters at times of peak flow, they also filter, store, and release sediment and nutrients. This valuable cycling process results in the uptake of excess organic and inorganic nutrients that would otherwise contribute to the hypoxic dead zone at the mouth of the Mississippi River.

Furthermore, recent high commodity prices demonstrate that even so-called marginal lands such as bottomland hardwood forests and the floodplains they occupy are at risk of conversion and intensive cultivation, resulting in the loss of wildlife habitat and contributing to large fluxes of soil, nutrients, and pesticides during flood events. By restoring some of these marginal lands to bottomland hardwood forests, we can provide both substantial wildlife habitat and water quality benefits while at the same time providing a risk-management benefit to farmers who enroll these lands into financial assistance programs.

WILDLIFE BENEFITS

Bottomland hardwood forests are some of the most biologically productive ecosystems on the planet. They serve has habitat for countless species of birds, insects, mammals, and reptiles. In addition to the provision of vital habitat, carefully targeting forest restoration on a landscape scale can allow for the connectivity of habitats and the creation of wildlife corridors, which are essential to many species in agricultural landscapes.

Perhaps most notably, restoring or managing these forests for appropriate vegetative diversity would have substantial wildlife benefits for bird species such as the Acadian flycatcher, Kentucky warbler, prothonotary warbler, cerulean warbler, red-headed woodpecker, Swainson's warbler, swallow-tailed kite, wood duck, and wood thrush.

INSTALLATION & COSTS

The costs associated with forest restoration are highly dependent on each situation. However, while planting and managing for increased vegetative diversity might generally result in high initial costs, the return on the investment in terms of ecosystem health and secondary benefits is substantial.

MONITORING

Wildlife effects can be measured using existing bird surveying efforts. In addition, it is possible to use existing population objectives for landbirds and wood ducks from the Lower Mississippi Valley Joint Venture as representative target populations.

LIMITATIONS/CONSIDERATIONS

Education and outreach, particularly with consulting foresters and land managers; recognition and adoption by additional agencies and NGOs that wildlife forestry is another tool in the management toolbox that can be used to achieve specific objectives; cost-share incentives for initiation costs associated with implementation – a) inventory, b) administering the sale, c) checking on the loggers, and d) other planning/mapping/archiving. These practices create income, but initial costs prevent broader adoption.

RESEARCH, PROGRAMS, AND MORE INFORMATION

Forestry divisions within state and federal wildlife agencies (LDWF – Duck Lacascio, MDWFP – Scott Baker, AGFC – Martin Blaney, USFWS – Henry Sansing); NGOs (TNC – Ron Seiss, Audubon – Jay Woods, Ducks Unlimited – Craig LeSchack).

Dan Twedt (USGS); Anne Mini (LMVJV)

OPPORTUNITY AREAS

(TBA)

SOURCES

Reinecke, K. J., R.M. Kaminski, D.J. Moorhead, J.D. Hodges and J.R. Nassar. 1989. Mississippi Alluvial Valley. In L.M. Smith, R.L. Pederson and R.M. Kaminski, editors Habitat Management for Migrating and Wintering Waterfowl in North America. Texas Tech University Press, Lubbock, TX.

PHOTOS