Wetland / Prairie / Forest Restoration and Enhancement

Conservation of agricultural lands, Vermilion Parish[1]; Cajun Prairie restoration, Eunice, Louisiana[2]; longleaf pine forest restoration, central Louisiana.[3]

DESCRIPTION	The rehabilitation of degraded natural lands including wetlands, prairies and forests, or the reestablishment of land cover so that soils, hydrology, vegetative community and habitat are a close approximation of the original natural condition that existed prior to modification.
HOW DOES IT MITIGATE FLOOD RISK?	+ **Flood storage:** The holding of floodwaters during a flood which are then gradually released into the drainage system. + **Groundwater recharge:** Downward movement of water from the surface to subsurface aquifers.
WHAT OTHER BENEFITS DOES IT PROVIDE?	+ **Habitat restoration/enhancement:** Changing the physical, chemical or biological characteristics of a site with the goal of returning or improving the natural functions to the lost or degraded native habitat. + **Improved water quality:** Increasing suitability of water for a particular use based on selected physical, chemical and biological characteristics. + **Carbon sequestration:** The process by which carbon dioxide is removed from the atmosphere and held in solid form in the landscape. + **Recreation:** Providing recreational opportunities such as birdwatching and hiking.
SCALABILITY	Cumulative effects require coordinated planning.

Advantages Relative to Traditional Flood Management	Potential Barriers or Issues Relative to Traditional Flood Management	Potential Synergies with other NBS
+ Proven approach if hydrologic conditions are favorable and design is site appropriate.	+ Invasive species management. + In some cases, the original hydrologic factors that created the wetland's timing, duration and depth of water no longer exist. + Enhancement of existing wetlands to provide specific functions, e.g., flood storage, depends on local conditions and adjacent land uses.	+ Management of Working Lands. + Floodplain Restoration/ Preservation.

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RESOURCES	
EVALUATION TOOLS	**DESIGN SUPPORT**
+ **National Stormwater Calculator:** https://www.epa.gov/water-research/national-stormwater-calculator + **USGS Software and Models, Methods for Estimating Groundwater Recharge In Humid Regions:** https://water.usgs.gov/ogw/gwrp/methods/software/ + **USACE Ecosystem Restoration Model Library:** https://cw-environment.erdc.dren.mil/model-library.cfm?CoP=Restore&Option=Search&Type=Restore&Id=ALL + **INVEST Habitat Quality:** http://releases.naturalcapitalproject.org/invest-userguide/latest/urban_flood_mitigation.html + **Automated Geospatial Watershed Assessment (AGWA) Tool** - https://www.epa.gov/water-research/automated-geospatial-watershed-assessment-agwa-tool	+ **NRCS Engineering Field Handbook (Ch 13):** https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=46277.wba + **Management of Floodplain Forests:** https://naturalresources.extension.iastate.edu/encyclopedia/management-floodplain-forests + **International Guidelines on Natural and Nature-Based Features for Flood Risk Management:** https://ewn.erdc.dren.mil/?page_id=4351
CASE STUDIES	+ **Eunice Prairie and Duralde Prairie Restoration:** https://www.cajunprairie.org/projects + **Texas Prairie Wetlands Project:** https://texanbynature.org/projects/texas-prairie-wetlands-project/

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1   USDA *Louisiana Conservation Update* April 2021
2   https://www.cajunprairie.org/projects
3   https://www.nacdnet.org/2018/08/13/cattle-and-prescribed-burns-are-restoring-louisiana-longleaf-ecosystem/