

# Floodplain Restoration + Preservation

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Mollicy Farms, Upper Ouachita National Wildlife Refuge.<sup>1</sup>



Richard K. Yancey Blackhawk Scar Lakes Ecosystem Restoration and Monitoring Project.<sup>2</sup>

<b>DESCRIPTION</b>	Measures that reconnect floodplains and river channels, allow overbank flow during floods, enhance the retention of floodwaters on floodplains, and/or preserve existing floodplains to retain their flood storage function.	
<b>HOW DOES IT MITIGATE FLOOD RISK?</b>	<ul style="list-style-type: none"> <li>+ <b>Flood storage:</b> The holding of floodwaters during a flood which are then gradually released into the drainage system.</li> <li>+ <b>Groundwater recharge:</b> Downward movement of water from the surface to subsurface aquifers.</li> </ul>	
<b>WHAT OTHER BENEFITS DOES IT PROVIDE?</b>	<ul style="list-style-type: none"> <li>+ <b>Habitat restoration/enhancement:</b> 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.</li> <li>+ <b>Improved water quality:</b> Increasing suitability of water for a particular use based on selected physical, chemical and biological characteristics.</li> <li>+ <b>Carbon sequestration:</b> The process by which carbon dioxide is removed from the atmosphere and held in solid form in the landscape.</li> <li>+ <b>Recreation:</b> Providing recreational opportunities such as birdwatching and hiking.</li> <li>+ <b>Streamflow regulation:</b> Modulation of fluctuations in river flow by temporary storage.</li> </ul>	
<b>SCALABILITY</b>	Individual projects planned at scale can have watershed effects.	
Advantages Relative to Traditional Flood Management	Potential Barriers or Issues Relative to Traditional Flood Management	Potential Synergies with other NBS
<ul style="list-style-type: none"> <li>+ Low maintenance.</li> <li>+ Passive operation.</li> </ul>	<ul style="list-style-type: none"> <li>+ Restoring floodplain connectivity is necessary for flood risk reduction benefit.</li> <li>+ Limited experience, capacity and expertise at the local level.</li> <li>+ Habitat restoration as flood mitigation is not well understood or practiced.</li> <li>+ Lack of state and local expertise, capacity and availability of technical resources.</li> <li>+ Invasive species management.</li> <li>+ Private lands may require acquisition or incentives.</li> </ul>	<ul style="list-style-type: none"> <li>+ Environmental Flows.</li> <li>+ Riparian Vegetation Restoration.</li> <li>+ Management of Working Lands.</li> </ul>

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RESOURCES	
EVALUATION TOOLS	DESIGN SUPPORT
<ul style="list-style-type: none"> <li>+ <b>National Stormwater Calculator:</b> <a href="https://www.epa.gov/water-research/national-stormwater-calculator">https://www.epa.gov/water-research/national-stormwater-calculator</a></li> <li>+ <b>USGS Software and Models, Methods for Estimating Groundwater Recharge in Humid Regions:</b> <a href="https://water.usgs.gov/ogw/gwrp/methods/software/">https://water.usgs.gov/ogw/gwrp/methods/software/</a></li> <li>+ <b>USACE Ecosystem Restoration Model Library:</b> <a href="https://cw-environment.erd.c.dren.mil/model-library.cfm?CoP=Restore&amp;Option=Search&amp;Type=Restore&amp;Id=ALL">https://cw-environment.erd.c.dren.mil/model-library.cfm?CoP=Restore&amp;Option=Search&amp;Type=Restore&amp;Id=ALL</a></li> <li>+ <b>INVEST Habitat Quality:</b> <a href="http://releases.naturalcapitalproject.org/invest-userguide/latest/urban_flood_mitigation.html">http://releases.naturalcapitalproject.org/invest-userguide/latest/urban_flood_mitigation.html</a></li> <li>+ <b>Automated Geospatial Watershed Assessment Tool:</b> <a href="https://www.epa.gov/water-research/automated-geospatial-watershed-assessment-agwa-tool">https://www.epa.gov/water-research/automated-geospatial-watershed-assessment-agwa-tool</a></li> </ul>	<ul style="list-style-type: none"> <li>+ <b>Iowa DNR River Restoration Toolbox:</b> <a href="https://www.iowadnr.gov/Environmental-Protection/Water-Quality/River-Restoration/River-Restoration-Toolbox">https://www.iowadnr.gov/Environmental-Protection/Water-Quality/River-Restoration/River-Restoration-Toolbox</a></li> <li>+ <b>Management of Floodplain Forests:</b> <a href="https://naturalresources.extension.iastate.edu/encyclopedia/management-floodplain-forests">https://naturalresources.extension.iastate.edu/encyclopedia/management-floodplain-forests</a></li> <li>+ <b>International Guidelines on Natural and Nature-Based Features for Flood Risk Management:</b> <a href="https://ewn.erd.c.dren.mil/?page_id=4351">https://ewn.erd.c.dren.mil/?page_id=4351</a></li> </ul>
CASE STUDIES	<ul style="list-style-type: none"> <li>+ <b>Mollicy Farms:</b> <a href="https://www.nature.org/en-us/about-us/where-we-work/united-states/louisiana/stories-in-louisiana/largest-floodplain-restoration-in-mississippi-river-basin/">https://www.nature.org/en-us/about-us/where-we-work/united-states/louisiana/stories-in-louisiana/largest-floodplain-restoration-in-mississippi-river-basin/</a></li> <li>+ <b>Richard K. Yancey WMA:</b> <a href="https://www.lmrcc.org/wp-content/uploads/2021/03/Yancey-WMA-Project-Profile_3.12.2021.pdf">https://www.lmrcc.org/wp-content/uploads/2021/03/Yancey-WMA-Project-Profile_3.12.2021.pdf</a></li> </ul>

1 <https://www.nature.org/en-us/about-us/where-we-work/united-states/louisiana/stories-in-louisiana/largest-floodplain-restoration-in-mississippi-river-basin/>

2 <https://www.lmrcc.org/our-work/projects/restoring-americas-greatest-river-initiative/richard-k-yancey-blackhawk-scar-lakes-ecosystem-restoration-and-monitoring-project/>

