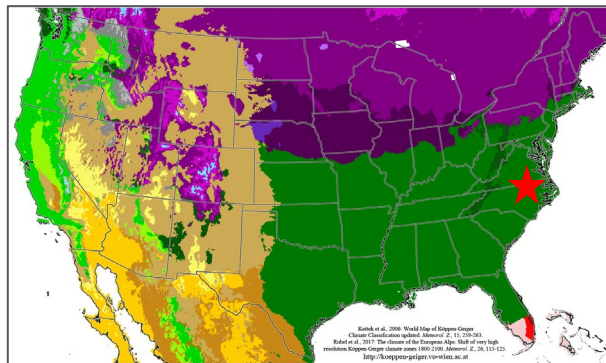


# Understanding and Evaluating Ecosystem and Engineering Risks and Benefits Associated with Native Vegetation on Riverside Levees of Southeast U.S. - Princeville Levee, North Carolina

Can a levee can provide ecosystem uplift and flood risk reduction?

This project details by US physiographic region *if, when, where, and how* to incorporate woody and non-woody vegetation on the riverside slope of a levee so that the levee provides flood risk reduction to the surrounding community while maintaining the physical processes that drive channel morphodynamics and a healthy riverine ecosystem.

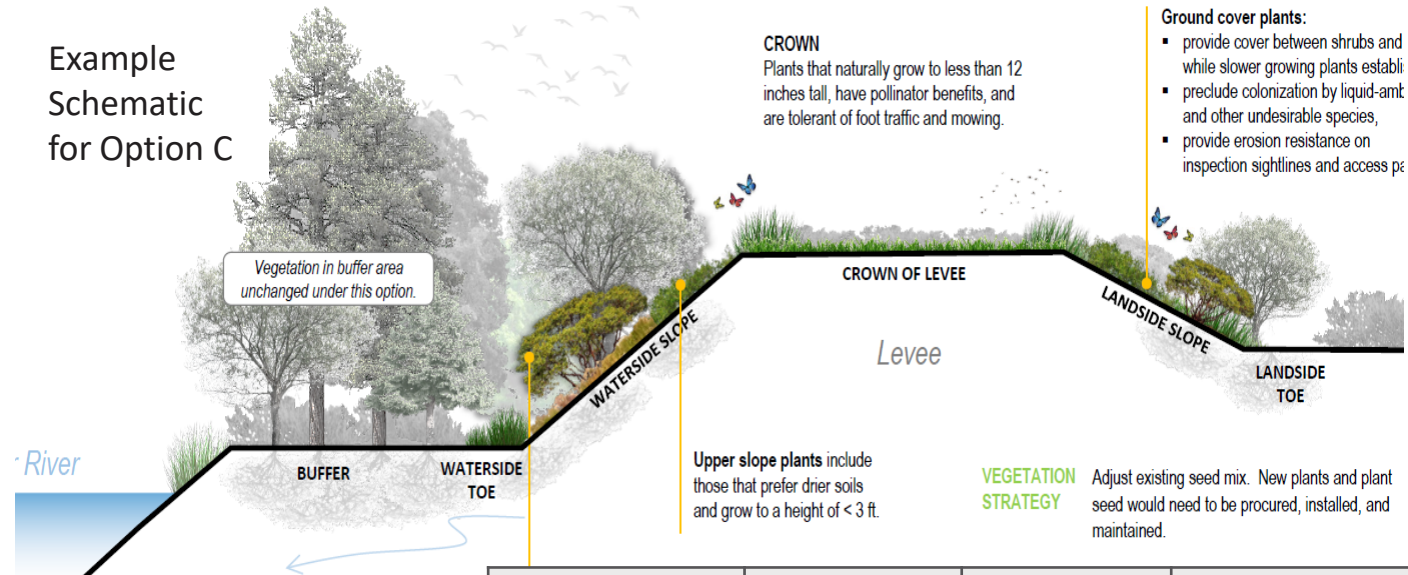
The humid subtropical / mild temperate zone covers most of the Southeast US. Princeville Levee is near the transition from Piedmont to Coastal Plain in NC.



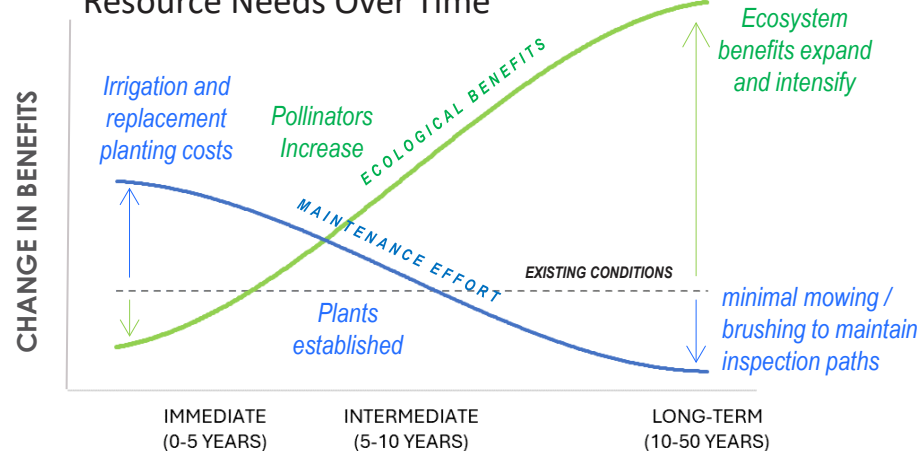
The team developed options for levee O&M that all maintain flood risk management and tables of the plants that would be appropriate for different parts of the levee for each option

	Description
A	No change to current O&M
B	Increases ecosystem benefits by changes in O&M while minimizing changes to plantings
C	Replants levee to maximize ecosystem benefits
D	Replants levee to minimize long-term O&M

Example Schematic for Option C



Example of Relative Benefits and Resource Needs Over Time



Type	Herb	Shrub	Tree
Name	Plantain Pussytoes	Dwarf Live Oak	Black Birch
Characteristics	<1 ft tall. Wildflower	<3 ft tall	30-50 ft tall. Flood tolerant
Benefits	Tolerant of mowing	Adapted to fire and drought	Flood tolerant, Seeds feed birds
Crown	x		
Ground Cover			
Upper Slope	x		
Lower Slope	x		
Waterside Toe			
Landside Toe			
Lowest Cost	x	x	

**See Report for Complete Option Descriptions and Tables**