North Carolina Coastal Federation

North Carolina's Coast

Restoring North Carolina's Coast

FARMLAND RETURNS TO WETLANDS:

NORTH RIVER FARMS WETLAND RESTORATION PROJECT

OVERVIEW

North River Farms is a 6,000-acre farm in eastern Carteret County, just south of Open Grounds Farm. The farm surrounds several of the creeks that lead to North River and Jarrett Bay. Over many years, agricultural runoff containing sediment, fertilizer, pesticides and bacteria has polluted these creeks, eventually degrading water quality and habitat and closing waters for shellfish harvest in some areas of the river. To improve the habitat and water quality of North River and its surrounding waters, the North Carolina Coastal Federation (NCCF) partnered with numerous state, federal, environmental, educational and private organizations to preserve and restore North River Farms back to what it once was, wetlands.

LAND PURCHASE & PRESERVATION

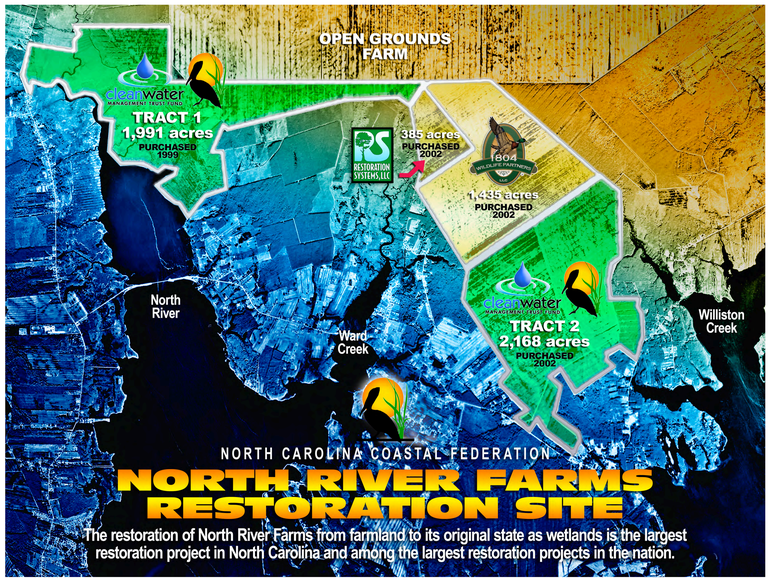
Through grants from the N.C. Clean Water Management Trust Fund, NCCF purchased 1,991 acres (Tract 1) of the farm in 1999 and 2,168 acres (Tract 2) in 2002. The remaining acres were also purchased in 2002 by Restoration Systems, LLC, an environmental restoration and mitigation company (385 acres) and by a private hunting club, the 1804 Wildlife Partners, LLC (1,435 acres) for enrollment in the USDA Wetlands Reserve Program.

WATERSHED-BASED RESTORATION

Once the land was preserved, the second step was to restore it. NCCF did this by discontinuing farming operations and rebuilding forested, freshwater and tidal wetlands to retain, filter and pre-treat agricultural runoff before it reaches the creeks that lead to North River and Jarrett Bay. Wetland restoration took place in multiple phases and began in 2002 at Tract 1 and at a small parcel in Tract 2 (Jarrett Bay Phase I). This portion of the restoration effort was completed in 2009.

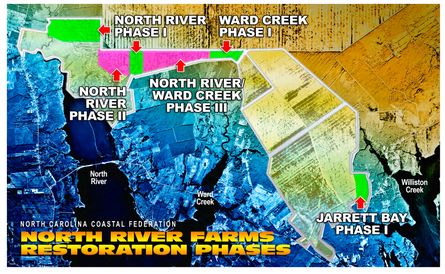
NORTH RIVER WATERSHED: PHASE I RESTORATION
Aerial view of farmland prior to wetland restoration

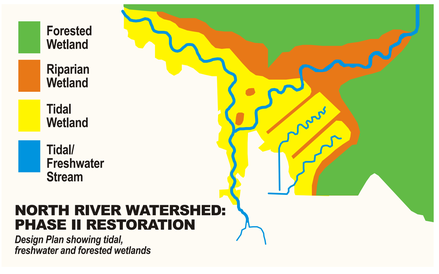
NORTH RIVER WATERSHED: PHASE I RESTORATION
Aerial view of completed wetland restoration



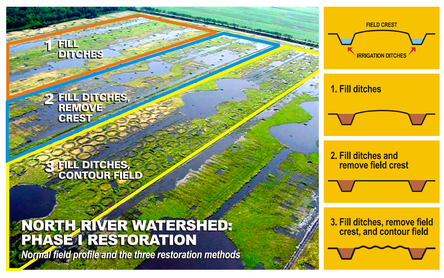
NORTH RIVER WATERSHED: PHASE II RESTORATION
Post-construction

NORTH RIVER WATERSHED: PHASE II RESTORATION
Restored marsh habitat

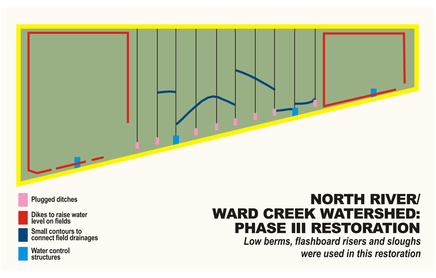




NORTH RIVER WATERSHED: PHASE II RESTORATION
Design Plan showing tidal, freshwater and forested wetlands



NORTH RIVER WATERSHED: PHASE I RESTORATION
Normal field profile and the three restoration methods



NORTH RIVER/ WARD CREEK WATERSHED: PHASE III RESTORATION
Low berms, flashboard risers and sloughs were used in this restoration

WATERSHED	RESTORATION PHASE	YEAR COMPLETED	ACRES RESTORED	RESTORATION TECHNIQUES	HABITAT TYPES CREATED	PLANTINGS
North River	Phase I	2003	250	Ditch Plugging and Filling, Crown Removal, Micro-Contouring, Flashboard Riser Water Control Structures	Forested Wetlands, Brackish Marsh	>89,000 trees >7,500 marsh plants
North River	Phase II	2009	111	Excavation, Stream Creation, Grading, Water Control Structure, Low Rock Weir	Bottomland Hardwood Forest, Freshwater and Tidal Wetlands and Streams	>53,000 trees & shrubs >220,000 marsh plants
North River & Ward Creek	Phase III	2005	206	Ditch Plugging, Dikes, Flashboard Riser Water Control Structures	Forested Wetlands and Shallow-Water Shrub-Scrub Waterfowl Habitat	>28,000 trees & shrubs
Ward Creek	Phase I	2007	119	Ditch Filling, Crown Removal	Forested Wetlands, Tidal Marsh	>41,000 trees >14,500 marsh plants
Jarrett Bay	Phase I	2003	89	Excavation, Ditch Plugging and Filling, Flashboard Riser Water Control Structures	First Order Streams and Former Headwater Wetlands	none

PARTNERSHIPS & FUNDERS: Establishing connections between local, county, state and federal agencies, private businesses, community foundations, other non-profit organizations and community members is a key component of successful coastal restoration.
NCCF's many partners and funders include: *Open Grounds Farm; 1804 Wildlife Partners, LLC; Restoration Systems, LLC; N.C. Clean Water Management Trust Fund; Duke University; N.C. State University; N.C. Shellfish Sanitation Section; N.C. Coastal Land Trust; N.C. Division of Marine Fisheries; N.C. Ecosystem Enhancement Program; N.C. Attorney General's Environmental Enhancement Grant Program; N.C. Albemarle-Pamlico National Estuary Program; Z. Smith Reynolds Foundation; N.C. Partners Program; Restore Our Southern Rivers; Restore Americas Estuaries; US Environmental Protection Agency; Fish America Foundation; National Fish and Wildlife Foundation; National Oceanic and Atmospheric Administration; US Fish and Wildlife Service; USDA Natural Resources Conservation Service Wetlands Reserve Program; The Nature Conservancy.*

EDUCATION THROUGH RESTORATION

Thousands of students and volunteers have played a very important role in the wetland restoration project. Volunteers have helped with plantings, tree prunings, seed collection and other events, while at the same time learning about wetland restoration and water quality.

MONITORING & RESEARCH

The wetland restoration at North River Farms provides an excellent opportunity for scientific research. The success of the restoration effort was monitored by Duke University Marine Laboratory, North Carolina State University and the NC Shellfish Sanitation Section. Research included experimental restoration techniques and plantings and studies involving wind energy, insect and wildlife populations, hydrology, soil science, habitat establishment and use, vegetation and water quality.

RESTORATION GOALS

- To reduce polluted agricultural runoff and improve the water quality of North River and its surrounding waters.
- To eliminate the surge of contamination after rain events and prevent shellfish closures.
- To restore oyster habitat and enhance shellfishing.
- To create a range of habitats for fish, birds and other wildlife.
- To provide research, educational opportunities and public involvement.

FUTURE RESTORATION PLANS

As of 2009, 808 acres of farmland in Tract 1 have been restored to wetlands by NCCF. The remaining 1,183 acres of marsh and woodlands in Tract 1 are protected. NCCF is working to restore the 2,168 acres in Tract 2 using similar innovative restoration practices, partly through the USDA Wetlands Reserve Program. Restoration Systems, LLC and the 1804 Wildlife Partners, LLC are also restoring their parcels through the Wetlands Reserve Program. When the North River Farms Wetland Restoration Project is complete, the entire 6,000 acre farm will be protected and restored.