

WETLAND RESTORATION IN DELAWARE:

A Landowner's Guide

STORY AND PHOTOS BY
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RESTORATION MEANS DIFFERENT things to different people. For some, it speaks of reconstructing or restoring buildings, archaeological sites, artwork and other valued materials to some semblance of their historic state. In the realm of wetlands, streams and other habitats, restoration implies a similar goal - the act of assisting or intervening in the recovery of an ecosystem that has been degraded, damaged or destroyed to restore it to some measure of its natural condition.

In any context, restoration implies some sort of effort or giving back; not just letting things recover or renew on their own, but taking some kind of action that helps move the process along. In a state like Delaware, where centuries of abuse and misuse have left much of our remaining wetlands impaired, the opportunities for restoration are numerous.

Leading the effort to help heal our wetlands are a number of landowners who are finding restoration is as rewarding for them as it is for the environment. Here are a few examples.

The Solberg Preserve

In the past, drainage systems were developed and constructed with little regard for environmental issues such as wetland



Landowner Carl Solberg points out biological benchmarks used as indicators for wetland depth.



Delaware's wetlands, crucial to our ecosystem, are in trouble. The roughly one-third of the state's wetlands that remain provide a multitude of services. Wetlands lessen the impacts of floods, help reduce erosion, provide wildlife habitat and act as "sponges" to trap excess nutrients and sediment. While slowing wetlands loss is a top priority, the need to maintain and restore the quality of natural wetlands is also critical. Leading the effort to help heal our damaged wetlands are numerous landowners who find restoration as rewarding for themselves as for the environment.



function and wildlife habitat. Over the years, thousands of acres of Delaware's freshwater wetlands were lost to drainage projects, and with them, many of the

wildlife habitat values and other natural benefits they provided.

Carl Solberg sees his property as an example of that history. "The ditches on

my property were dug many years ago to drain lands that are now no longer in need of such systems. This includes a long ditch that was dug just to drain some little wet spot on a small ag field upstream." Solberg wanted his property restored to the rich forested floodplain it had once been, but done in a way that it would not affect drainage on neighboring properties.

To help him plan and implement the restoration, Solberg called on Tom Barthelmeh of DNREC's Drainage Section. Once a planner of projects to ditch lands for drainage, Barthelmeh now devotes much of his energy to altering those old ditches and restoring natural wetland functions and associated habitat benefits. For landowners like Carl, such projects provide a viable option for restoring a more natural, attractive and wildlife-habitat-friendly look to his land while retaining the needed drainage benefits.

Due to the steep grade on Carl's ditch, Barthelmeh installed three water control structures. This maintains water in the ditch at a higher level than previously, allowing water to flood the newly created wetlands. "When designing a water control structure, you've got to have a handle on the hydrology: how much of an area will be flooded, how much of a watershed you've got, what the peak flows are, and so on," said Barthelmeh. But the really hard part is changing people's minds to accept that what you're planning to do won't adversely affect what the ditch was designed to do."

In Carl Solberg's case, that wasn't a problem. Working with Barthelmeh, they came up with a plan that would give the previously straight, narrow ditch the look of a wider, pooled stretch of a slow-moving stream. To further add to the natural look and feel, one of the water control structures was constructed to resemble a natural beaver dam. Reused cedar tree stakes were placed in the ditch and intermingled with soil and cedar trees to assure the stability of the dam.

Since the construction, several large storms have tested the new water control system and it has performed as intended. Solberg will continue to monitor the sys-



The beauty of wetlands is awe-inspiring in this sunset along the marsh near Woodland Beach.



Land is healing itself after restoration of natural wetland functions on Carl Solberg's property.



Layout of the Luzier wetlands shortly after construction.

tem and consult with Barthelmeh should any adjustments be needed. In the meantime, Solberg said the project is a huge success: "Over a quarter mile of ditch was restored to habitat with no effect on the ag field or the neighboring properties. After construction, we noticed an immediate increase in animal usage of the area. We've got a pair of black ducks, a beaver and a whole family of otters. Walking around this area now, you might think things had always been like this if you didn't notice the water control structures," he said.

Restoring Wetlands for Ducks and Shorebirds

Landowner and hunter Mike Luzier knew he wasn't making the best use of



Salamanders, such as this Redback, make their way across the forest floor to nearby pools to spawn.

an often soggy, marginally productive section of his fields. Some years he'd get nothing but frustration after investing in seed, fertilizer, and herbicides only to get stunted plants and a stuck tractor. So, when he saw an ad in the back of the Delaware Hunting and Trapping Guide for the Delaware Landowner Incentive Program (DELIP), he decided to call and see what they had to offer.

DELIP is designed to help private landowners interested in providing habitat for species-at-risk, such as shorebirds. Ducks Unlimited, a long-time advocate of waterfowl habitat restoration, has partnered with DELIP on a number of projects including this one. Shelley Tovell-DiBona, Private Lands biologist for DELIP, said the project's focus was on multiple uses. "Although the shorebirds and the ducks are making use of the same habitat, they're migrating at different times," Tovell-DiBona explained. "This wetland will be fully flooded in February and March for the migrating ducks and then will be gradually drawn down at the end of March until June for the shorebirds. After the wetland dries out for a couple of months," she added, "a thin layer of water will be allowed to ac-

cumulate for the fall shorebird migration that actually starts in August. By the time waterfowl season opens the shorebirds will be long gone."

Kirk Mantay, regional biologist for Ducks Unlimited, added, "We see the value of the wetland as a habitat year-round for a lot of different animals and we're seeing more landowners interested in that as well. People may like to harvest



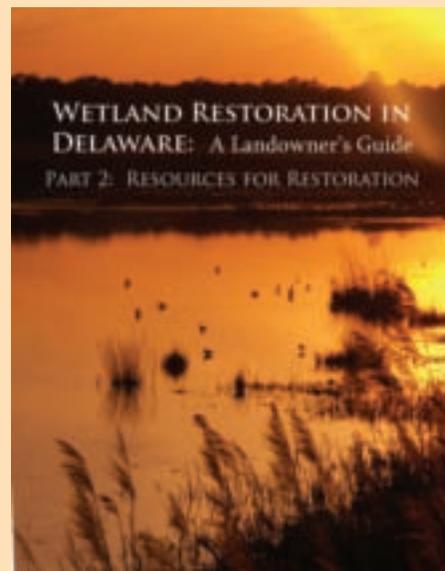
Lush Sphagnum moss carpets a seasonal forest pool.

How-to Guide

Depending on the character of the land and the vision of the landowner, there are a wide range of project possibilities for implementing restoration projects like these, and many resources available to get started. In order to take advantage of these opportunities, DNREC has produced a new resource guide for landowners interested in restoration projects, what the possibilities are and some of the methods available through restoration professionals to help implement them.

As with any undertaking relating to giving something back - the rewards of doing are almost always greater than the effort put forth.

To learn more about approaches and sources of help available, DNREC's new Wetland Restoration in Delaware booklets are available in print and online. They contain more restoration stories and a comprehensive resource guide. You can get copies by calling the Delaware Aquatic Resources Education Center at 302-653-2882. Or you can email: gary.kreamer@state.de.us or download copies directly from: www.dnrec.delaware.gov/Admin/DelawareWetlands.



a few ducks and that's fine, but there are other uses that they want from that habitat throughout the year as well, such as providing forage and resting places for other wildlife, watching birds and just having a place to relax."

Mike Luzier agreed to Tovell-DiBona's design and management plan which called for a low berm that followed the curves of the land, creating an extended wetland with two irregularly-shaped, shallow pools, well-suited for the habitat needs of shorebirds and puddle ducks. Since shorebirds prefer shorter grasses along the water's edge, as part of the maintenance agreement, he agreed to disc plow the dried wetlands if plant growth became too dense. Luzier also would follow the flooding and draw-down schedule tailor-made to attract various birds to the site in their respective seasons.

In contrast to the typical, artificial-looking, deepwater pond, the Luzier wetland blends beautifully with the natural landscape, bridging two large wooded tracts for optimal wildlife habitat connectivity. Along the pool's edge are tracks of deer, raccoon, opossum and other animals. Foraging in the shallows, shovelers, pintails, snow geese, curlews, ibises and killdeer are among the visitors already seen. Mike Luzier likes what he sees: "My family enjoys birdwatching and we used to go down to Bombay Hook to see the birds. Now, we can just come out to the back of our property and see all kinds."

The Battista Backyard Wetland

Like many landowners, Bill and Roseanne Battista weren't sure what



Bill and Roseanne Battista in their "backyard" wetland.



The Battista backyard used to be an old field (top). With restoration (bottom), the old field was transformed into a beautiful, vital wetland habitat.



to do with the unused acreage on their property. The area had once been flat pasture with a ditch running through it. It seemed as though every alternative involved a lot of cost and too much work. "We had considered a number of other options for the land such as Christmas trees or hayfields," said Bill Battista, "but then you have to sink money into supplies and equipment and you've got to put in a lot of hours of work. We wanted to be able to enjoy our land, to come back here and just relax."

A few years earlier, the Battistas had

completed a small backyard habitat project near their house and they thought they could create even more habitat on a grander scale. But they weren't sure what kind of habitat would be most attractive for themselves and for the wildlife they hoped would visit. There was also the problem of how to take on such a large project and how to pay for it. Then someone told them that DNREC's Division of Soil and Water Conservation had provided assistance to neighboring landowners in restoring wetlands on their property. The Battistas knew a wetland in their area would be an

excellent natural resource, but their land had been a hay field or pasture for as long as anybody could remember. Fortunately, because their field still retained its soggy soils and hydrology, they found it was possible to restore the area into a functioning wetland.

“They asked us what we wanted and I said that I don’t care as long as we have a path to walk through it,” said Bill Battista. “The plans were developed to make sure the wetlands would function

as intended. John Lucks from the Kent Conservation District is a craftsman with his bulldozer and he made paths and all of these little pools. After they were done moving the soil around, they planted the area with a wild seed mix to get things started.” Later, students from Polytech High planted numerous trees and shrubs, including rushes, sedges, ashes and oaks, as well as chokecherry, winterberry and viburnum for the birds.

Roseanne Battista particularly enjoyed

working with all of the different plants. “Closer to the house, the wetlands transition into our backyard habitat,” she said. “We put in sunflowers for the birds, and a variety of plants to attract butterflies and hummingbirds. We put in fennel for the butterflies and the milkweed came in on its own. I just like that we’ve gotten so much use out of the area.”

Bill Battista was surprised at how much wildlife has visited their wetland. “We had mallards nest here last year and

More resources available

Another resource available to help protect and conserve wetlands is the Wetlands Public Participation Guidebook. Developed by DNREC’s Watershed Assessment Section and the Center for the Inland Bays, the guide is a comprehensive resource that outlines opportunities for public involvement in land use decisions that can impact wetlands. Funded by the U.S. Environmental Protection Agency, the guidebook provides background information about wetland types, values, losses and habitats at risk, wetland regulations and responsible agencies, contact information to report suspected violations, land use decision-making processes, and much more. It’s available online on DNREC’s new Delaware Wetlands webpage: www.dnrec.delaware.gov/admin/DelawareWetlands.



Deer thrive foraging on a wide range of plants offered by this restored site along Route 8.



Snowy egrets enjoy fine dining with a spectacular view along the banks of a salt marsh pond.

they had 11 babies. It was great to see how the ducklings would lay on the log all lined up and then go into the water right in a line. I've since put in wood duck, kestrel and bluebird boxes." He added that other animals have also been using the area, including rabbits, deer, raccoons, and even a fox. "We were fortunate to have our 'eyesore' transformed into a wetland. It has added another dimension to our lives. We frequently walk along the path and feel the stress of life melt away." **OD**

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