

# Blackbird-Millington Corridor Conservation Area Plan

## Strategic Actions for Learning: Research

As previously discussed, strategic actions are the on-the-ground programs and activities developed (via workshops, focus groups, and individual meetings) to achieve the conservation objectives for the Corridor. Many of the agencies and organizations in leading and supporting these strategies were identified, and most played a role in the development of those strategies. However, there are instances where leads were identified by others and the ability or commitment of the lead for carrying out the strategy is uncertain. Building any capacity or resources needed to carry out strategies is assumed to be the responsibility of the lead and supporting entities, with the recognition that there are no guarantees when resources are inadequate. Figure 32 is a table identifying all of the strategies (including those described below) and the primary attributes or threats that each was designed to address.

Every effort was made to utilize the best available information on the Corridor and its natural and human communities to inform and benefit the planning process. However, the process of planning also had the desired effect of identifying several areas in which additional information or research is needed. Strategies were developed around these needs, and are presented below (and summarized in Figure 37).<sup>1</sup>

<b>1. To better understand forest protection needs, compile more accurate information for baseline estimates of forest maturity and composition.</b>
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As described in the Coastal Matrix Mixed Hardwood Forest section, the age of forests and the mix of tree species in them tell us a lot about forest health. Existing information on forest maturity and species composition are expert estimates based on very limited sample areas -- primarily Delaware Natural Heritage Program survey sites, and Blackbird State Forest sites -- and thus are not as widespread or applicable as is desired. Scientists' very limited access to private lands makes gathering on-the-ground data Corridor-wide problematic. Developing alternate means for assessing habitat (for example, by aerial photograph analysis, or remote sensing) could help fill these data gaps. Increased awareness within the community (such as through the strategies presented in the previous section of this report) could also help interest landowners in providing access to their lands for research purposes.

But there are also some existing opportunities to improve Corridor-wide knowledge of forests using existing information. The Delaware Forest Service and the DNREC Natural Heritage Program are both engaged in digitization of forest characterizations -- for Natural Heritage Program survey sites, State Forest parcels, and private lands subject to forest management plans prepared by the Delaware Forest Service. Compiling this information together in a common format will provide a better sample for evaluating Corridor forests as a whole. Based on those results, gaps where better information or data is needed can be identified and strategies developed for collecting that data. Further analysis of 1937 aerial photography data could also help inform this effort, but additional ground sampling and/or a more comprehensive means for determining age and species from aerials or some other digital data source will likely be needed to fill the gaps.

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<sup>1</sup> There may be minor differences in the wording of strategies presented in Figure 37 from those presented here, and in the Executive Report. Strategic Action titles/statements were simplified for brevity in the Executive Report, but numbering is consistent.

## **2. Continue to improve information on flora and fauna for the Corridor.**

A number of agencies are currently involved in collecting information on Corridor species and their habitats and conditions, including multiple sections of the DNREC (Division of Fish & Wildlife, Natural Heritage Program, Fisheries, Water Resources), the Delaware Nature Society, the University of Delaware, the U.S. Fish & Wildlife Service, the Chester River Association, and the Maryland Department of Natural Resources Natural Heritage Program. Continued surveying to collect additional information for improved scientific knowledge of the insects, plants, amphibians, songbirds, etc. in the Corridor is the best way to keep learning about how best to protect their habitats, and to gauge the impacts of conservation efforts. It is also crucial to periodically compile and use new information and findings (including the results of community efforts like amphibian/frog count results) to update our understanding of what's happening in the Corridor, and update strategies accordingly (if needed).

Peppered throughout this document are instances where additional (or continual updating of existing) information is needed on species and natural communities in order to accurately plan for their viability in the Corridor. Additional information on nesting forest birds, raptors, coastal plain pond plants and amphibians and how conditions like pH affect them (discussed more below), and aquatic species in the upper watershed of the Blackbird Creek and the Cypress Branch is needed to inform and improve the analysis and recommendations of this plan. However, identifying and prioritizing flora and fauna surveys on a more detailed level is beyond the scope of this plan. The Delaware (and Maryland) Natural Heritage Program should use this plan as a tool to help identify the specific taxonomic groups or species requiring research and inventorying. The results of this effort should then be used to update the research needs presented here to insure that the most urgent inventorying/monitoring needs are made a priority.

## **3. Improve our information and understanding of coastal plain pond key attributes and how best to protect and manage them.**

Understanding exactly how coastal plain ponds function and what constitutes the ideal habitat and conditions for coastal plain ponds in the Corridor is one of the biggest research challenges for Corridor scientists. There are several research or data elements regarding coastal plain ponds that require attention, including:

The lack of data for coastal plain ponds in Maryland. Some time ago, The Nature Conservancy and the Delaware Nature Heritage Program collaborated to create and analyze a coastal plain pond data layer that was based on National Wetland Inventory to determine which wetlands had the characteristics of coastal plain ponds, and which were actually existing on the ground. The result (which was used for the coastal plain pond complex analysis described herein) is less than perfect<sup>2</sup> but much improved from the original National Wetlands Inventory data used currently for Maryland. A slightly improved set of coastal plain pond data for the Maryland portion of the Corridor was provided for mapping purposes by the U.S. Fish & Wildlife Service, but was not included in viability analysis because of the uncertainty of

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<sup>2</sup> A 2004 study of coastal plain ponds completed by the University of Delaware for the DNREC Division of Fish and Wildlife Natural Heritage Program using grant funds from the Environmental Protection Agency revealed significant problems with the Delaware coastal plain pond data layer, indicating the need for additional refinement.

its quality. Improving our digital information on coastal plain ponds in Maryland is an important undertaking for the Maryland Department of Natural Resources.

A better understanding of the key attributes for healthy coastal plain pond habitats/functions and how they function. The health of coastal plain pond habitats is linked to a variety of factors, some of which we know a lot about (like the importance of forests nearby) and others for which we have only limited information. We know that pond hydrology affects the depth and duration of pond inundation -- crucial factors for amphibian life. But we don't fully understand how groundwater and rainfall affect inundation, or have enough data to prioritize ponds based on their hydrology or hydroperiod. Similarly, we know that pH affects plant and amphibian life, but we need to learn more about how pH varies across Corridor ponds and why, if we hope to use pH as a factor to help prioritize and protect certain ponds. The U.S. Geological Survey in Delaware has been monitoring water levels and pH in a small sampling of Corridor ponds over time and the University of Delaware (Dr. Visalis) has also conducted research on coastal plain ponds in the Corridor. The DNREC Division of Fish & Wildlife can compile and analyzing that data to see if there are any relevant conclusions or clues it can provide. Building on these data and a growing body of knowledge of coastal plain pond plant species and their conditions, the DNREC Divisions of Fish and Wildlife can continue the coastal plain ponds research funded by the EPA to improve our knowledge of key attributes.

A tested set of best management practices for coastal plain pond habitat. There are currently competing theories on some of the key conditions required for coastal plain pond diversity. That a forest context is crucial for amphibian life in coastal plan ponds, is uncontested. However, the impact of transitional areas -- especially successional forests -- to coastal plain pond communities is being questioned by some experts, as is the theory that an entirely forested context is ideal. Priorities for the Corridor are based on the best available information on coastal plain ponds today, which insists that maintaining forest buffers around ponds is critical. However, more detailed knowledge about the ideal conditions for coastal plain pond diversity, and the management practices most effective to creating and maintaining those conditions could better inform conservation efforts in the Corridor. To develop this knowledge, it would be useful for the DNREC Division of Fish and Wildlife to develop a research and demonstration site for coastal plain pond management where management practices could be tested, and be used to demonstrate to the public and landowners ways to help improve habitat. The results of coastal plain ponds restoration efforts in Maryland should also be considered and incorporated in this effort. Ideally, DNREC Division of Fish and Wildlife can create a set of best management practices of coastal plain ponds based on research results, and demonstrated in the Corridor. Research results and new sources of information on coastal plain ponds from the Mid-Atlantic should also be used to update this plan as needed.

**4. Improve our knowledge of the aquatic life and flow characteristics and requirements in the Cypress Branch and Blackbird Creek.**

There is a relative paucity of data for aquatic life and flow in Corridor streams, especially in the western portion of the Corridor. Comprehensive stream surveys of Blackbird Creek and Cypress Branch are needed to tell us what kind of aquatic life these streams are supporting, and how/where they are being impacted by human and natural conditions. Attempts to remedy this are underway in the Maryland portion of the Corridor via a comprehensive Watershed Restoration Action survey of the Maryland

portion of Cypress Branch being conducted by the Chester River Association and the Maryland Department of Natural Resources. DNR and the Chester River Association can share the results of this effort with the DNREC Division of Fish and Wildlife to help inform Corridor efforts.

Similar information can also be collected by DNREC for Blackbird Creek, via compilation of existing data collected by other divisions (like DNERR, Coastal Programs, Water Resources, and/or the Fisheries section) and additional surveying by Natural Heritage Program staff or others as needed to fill in gaps. If comprehensive stream surveying is needed, DNREC can explore opportunities for securing the capacity or funding to implement a survey and/or potentially combine efforts with the Tributary Action Team process (a Blackbird Creek Tributary Action Team is scheduled for creation in 2006).

Another opportunity for gathering stream data that also involves Corridor residents, is the Stream Watch training described in the Strategies for Communication & Education section of this report. In any case, the results of stream data collection and analysis should be used to better develop indicator thresholds and make additions or revisions as needed to conservation actions to keep these streams healthy.

#### **5. Use bird radar study results to determine importance of Corridor for bird stop over.**

A study is currently underway using weather radar to examine the stopping patterns of migrating birds in Delaware and New Jersey. The Nature Conservancy, DNREC Division of Fish and Wildlife, and the New Jersey Audubon are involved this study, which could provide some important new information about how and why migrating birds utilize Corridor resources. These results, along with other survey information on migratory bird use of the Corridor (such as Delmarva Ornithological Society Spring Round-up data) could provide new ideas for how to improve habitat for migrating birds in the Corridor, and should be used, when available, to revise target indicators and strategies as needed.

#### **6. Refine or update the baseline for characteristic vegetation (including presence/absence of *Phragmites*) for tidal marshes in the Corridor.**

To guide efforts to improve natural cover in tidal wetland areas, we first need to know which areas have healthy natural cover, and which ones don't. Non-native *Phragmites* is such an aggressive invader into native marsh communities, that it is a good (although not perfect) indicator of whether or not native plant communities are there. Having data for where *Phragmites* dominates today would be an extremely beneficial tool for guiding restoration efforts. DNREC Coastal Management Programs is in the process of collecting and compiling *Phragmites* data and mapping it for the Corridor. Based on these results, The Nature Conservancy can work with partners to establish marsh restoration thresholds and objectives for the Corridor.

**7. To learn more about what motivates landowners to conserve, conduct a landowner survey to determine Corridor landowners' preferences for financial incentives (tax credits v. cost sharing, etc.), to quantify landowner demand for conservation options, and/or to measure rural values for the Corridor.**

There is still a great deal that is unknown about people in the Corridor that could benefit conservation efforts and guide wise use of limited resources in the Corridor. There are a variety of tools and incentives for land conservation that could potentially be used in the Corridor, but they can be costly and time-consuming to create and some tools work better for certain landowners than they do for others. In discussing these tools as potential strategies, team members realized that it would be wise to first learn more about what works now in the Corridor today, what doesn't, and why. This could be advanced through a combination of landowner surveying and looking at the benefits provided in the Corridor today by existing programs.

For example, changing the Farmland Assessment Act to remove the income generating requirement (as discussed in the Strategies for Protection section) was discussed as a way to make this a greater incentive to retain forests. However, team members also recognized it as a potentially difficult and politically-charged undertaking that could require a great deal of resources. Team members noted that this change would not make a big difference if most Corridor forest landowners are in the Commercial Forest Plantation Act, or if most utilize the option of having the State Forester attest to the potential value of their forests without harvesting today. Therefore, it was agreed that a more comprehensive survey of the benefits and preferences for programs that provide landowner incentives through public policies and taxes should be undertaken before deciding which mechanisms to pursue.

The Nature Conservancy and DNREC Division of Fish and Wildlife Landowner Incentive Program can develop a proposal to secure funding and/or services (mostly likely from the University of Delaware) to survey Corridor residents on their preference for conservation, and to gather and evaluate the benefits provided by existing public policy incentives, and the potential impacts of changing them. A recent (within the last several years) UD survey on landowners' preferences for wetland protection might be a good model to use for this. Survey results can then be used to guide the design of many of the incentive and conservation option programs discussed in previous strategies.

If resident surveying is going to be undertaken, it could also be used to help refine the viability analysis for Rural Amenities and Ecological Services attributes. Resident satisfaction is the most relevant way to measure the current condition of some or all of the rural attributes for the Corridors, and surveying is the only way to gather this kind of information. While this is not the most pertinent information for immediate conservation work, it would fill in a gap in this analysis and could provide additional perspective on how residents value Corridor resources and the feasibility of maintaining a level of rural character meaningful to residents.