

Blackbird-Millington Corridor Conservation Area Plan

Conservation Objectives & Priorities

A non-specific set of objectives was developed early in the planning process in order to guide strategy development, but without specific measurable goals. More meaningful and measurable additions or revisions were made as more was learned from the results of stress analysis and target viability analysis. In an ideal world, stress and viability analysis would be completed and meaningful objectives developed prior to strategy development. However, under the given circumstances and timetable, the methodology used provided satisfactory results.

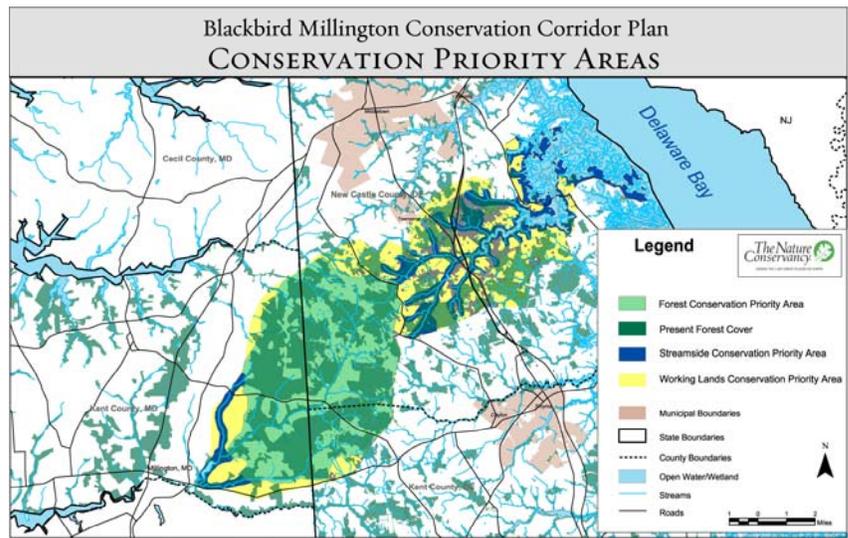
Achieving Desired Target Status

One of the primary purposes for analyzing target viability is to get a perspective on the amount and kinds of activities that will be needed to improve that viability. The ultimate conservation objective for individual targets is to achieve or maintain at least "Good" threshold status for all indicators. Based on the results of viability analysis, an appropriate set of objectives was estimated that would have to be met in order to achieve "Good" status for each target. The results are summarized below in Figure 31 (next page.) These form the basis for objectives that address target viability needs.

Conservation Priority Areas

GIS was a critical tool for translating target viability needs and objectives into acres and into geographic focus areas (although the acreages above are still estimates.) By compiling the results of key attribute/indicator analysis, patterns of overlap appear and indicate the best areas for investing resources. In Map Z, the top-ranking resources from all completed indicator analysis were map together, in transparent colors, to identify places where multiple key attributes overlapped.

Based largely on these results conservation priority areas were created by hand (shown on this map) that represent the areas where certain kinds of activities and resources should be focused. Areas were fine-tuned by overlaying a map of protected lands to help identify areas where conservation would be particularly likely or particularly unlikely, and take proximity into account wherever possible. Natural Heritage data points¹ were also overlaid with the areas and used to fine-tune boundaries. The vast majority of points are included within the Forest or Riparian Conservation Priority Areas, and a special effort was made to extend those boundaries to include all but a few of the most globally and state rare (G2 and S1) occurrences with a



¹ Data provided by Olin Allen of the Delaware Natural Heritage Program in November 2004.

good likelihood of sustainability (EO ranking of B or better.) Map BB is a more detailed version of the above map and Map AA shows the results of this analysis with protected and unprotected areas indicated.

Figure 31

	Current Status	Desired Status:	Objectives:
Forests	POOR: 14,000 acres of fragmented forest, with less than 1,000 acres of 70+% cover in 2km, 10,000+ with 600-700m zonal thickness, 10-15% maturity, and 30-50% oak dominant (25%); 7,000 acres protected ²	GOOD: 15,000 protected acres of well connected forests with 70%+ cover in 2km, 725m+ zonal thickness 50% maturity, 50% oak dominant (25%)	<ul style="list-style-type: none"> ◦ Manage existing forest in conservation priority area for maturity (public & private) ◦ Protect 8,000-10,000 ac. ◦ Connect/reforest 3,000-5,000 ac gaps/edges ◦ Improve baseline for maturity/composition and improve/update measures
Coastal Plain Ponds	FAIR/GOOD: 1 good buffer complex (9 ponds, 3 protected), 11 fair buffer complexes (225 ponds; 79 protected), 19 good-v.good density complexes (633 ponds; 11 protected.)	GOOD: 9 good buffer complexes and 19 good-v.good density complexes protected	<ul style="list-style-type: none"> ◦ Protect good-buffer and v.good-density complexes within forest and buffer conservation priority areas ◦ Add/improve buffer to 8 fair complexes in forest and buffer areas to bring up to good and permanently protect ◦ Improve understanding for pH and hydroperiod and establish/revise measures
Tidal Wetlands and Waters	FAIR/GOOD: 97.6% unaltered in migration zone; 33-36% natural buffer, 4-6% impervious, good/minimal ditching & extraction, <15% impaired exchange, ?% <i>Phragmites</i> free	GOOD: 90%+ unaltered in migration zone, 80-90% natural buffer, <10% impervious, minimal ditching & extraction, <15% impaired exchange, 75-90% <i>Phragmites</i> -free?	<ul style="list-style-type: none"> ◦ protect 200 acres of unprotected migration zone for no more than 7.6% new alteration. ◦ Restore natural cover to 500-600 acres of buffer area and protected existing (≈450 acres) natural cover in buffer ◦ Prevent impervious coverage from increasing by more than 3% ◦ Establish better baseline and means for measuring ditching/drainage and water extraction no/minimal new impairments to exchange ◦ Complete <i>Phragmites</i> mapping and establish/revise measures
Riparian Corridors	FAIR/GOOD: 4-6% impervious, good/minimal ditching, 65-83% forested stream buffer, 30% streams <i>partially</i> support aquatic life	GOOD: <10% impervious, 80-90% of streams without ditching/damming, 75-80% forested in buffers, 75% of streams support aquatic life	<ul style="list-style-type: none"> ◦ Prevent impervious from increasing by more than 3% ◦ Establish baseline for ditching/damming ◦ Protect existing forested buffer (≈3,500 acres) and reforest 10% more (400-600) acres) within buffer area ◦ Complete stream surveys and revisit flow/quality baseline
Rural Amenities & Ecological Services	GOOD? 2 acres per person public access, 24% long-term residents, 9 acres per person open space (3 protected), 29,709 acres of ag (24% protected), 27,355 acres of forest (30% protected)	GOOD Current Conditions (<i>assumed; otherwise to be determined</i>)	<ul style="list-style-type: none"> ◦ Keep public access ◦ Keep and protect open space ◦ Keep and protect agricultural land ◦ Keep and protect forest ◦ Conduct a resident survey/research to establish thresholds?

² Estimate based on protected acres in the Forest Conservation Priority Zone, which are mostly (but not all) forested; additional forested acres are protected outside the Forest Conservation Priority Zone, but which don't directly contribute to building the desired minimum dynamic area because of their location/fragmentation.

The Forest Conservation Priority Area represents that area where there is the best likelihood of building a minimum dynamic core of mature, mixed hardwood forest by enhancing and connecting existing forests and strategic reforestation. While there are certainly important forested areas in other parts of the Corridor, the Forest Conservation Priority Area is where reforestation and forest protection efforts and resources should be focused in order to achieve the kind of forest interior habitat needed to support a diversity of important species over time. The Forest Conservation Priority Area encompasses approximately 21,700 acres within which the long-term goal is to protect and maintain 15,000 acres of mature, connected, mixed hardwood forest. Ultimately, the desired state for this 15,000 acres is to be composed of at least 50% oak dominated hardwood mix (at least 25% oak in the mix) and at least 50% mature forest (with dominant trees 100 years or older) and to have a zonal thickness of 725 meters or more, and be 70% forested within two kilometers.³ Building this kind of a forest block will be a long-term goal, but focusing efforts on the Forest Conservation Priority Area is the only way it is likely to be achieved. The majority of priority coastal plain pond complexes are within the Forest Conservation Priority Area -- protection and reforestation efforts that benefit both forests and coastal plain ponds (for which there are many opportunities) will be a priority within this area. Protection and restoration of streamside areas (further discussed below) and building on existing areas of forest cover will also be priorities within this area. Within the Forest Conservation Priority Area, 13,500 acres are already in some kind of forest cover and 7,000 acres are already protected. To achieve conservation goals, it is estimated that roughly between 2,000 and 5,000 acres of reforestation are needed, and 8,000 to 10,000 acres of additional protection are needed.

The Role of Sustainable Forest Management

Forest maturity is an important component of high quality habitat for forests in the Corridor. However, the ability to harvest timber for its economic value is important to many landowners (including the Delaware Forest Service.) Sustainable forest management can be used to achieve both goals -- relative maturity with some realization of economic value from timber. Some selective areas within the Forest Conservation Priority Area will be identified (through additional prioritization) as important to protect without disturbance for their habitat values and/or sensitive conditions. However, managing the rest of these forests in a sustainable way -- which can include selective timber harvests -- is also part of the objectives for the Forest Conservation Priority Area.

The Streamside Conservation Priority Area represents that area where creating and maintaining healthy forested buffers to Corridor streams and wetlands outside of the larger forest goal should be the focus. It is assumed that Forest Conservation Priority Area protection and reforestation efforts will include some streamside habitat enhancement. However, the Streamside Conservation Priority Area is that area where watershed habitat enhancement is the main focus. There are also two priority coastal plain pond complexes within the Streamside Conservation Priority Area -- high-ranking complexes that lie outside the area of primary importance for building the forest block. The Streamside Conservation Priority Area encompasses approximately 7,000 acres, within which the goal is to maintain 80% of forested uplands within 300 feet (almost 100 meters)⁴ of streams, wetlands, and two coastal plain pond complexes. Approximately 2,200 of the Streamside Conservation Priority Area is already protected and 70% of streamside areas (within 300 feet) are already forested. Meeting conservation goals will require primarily the protection of existing unprotected forested areas within in the Streamside Conservation Priority Area (between 1,300 and 3,000 acres) focusing on areas within 300 feet of streams and wetlands

³ May not be feasible (or even necessary) to achieve this for the entire 15,000 acres of minimum dynamic area; will need to monitor and determine over time what, especially for zonal thickness and patch isolation.

⁴ For the sake of implementation, riparian corridor habitat measures for water quality (100 meter forested corridor) and habitat quality (300 meter forested corridor) were reduced into one simple objective: enhancing and maintaining 300 foot (almost 100 meters) forested buffers along stream and wetland edges. (See sidebar on page 29.)

and including at least 200 acres in the marsh migration zone (area of 60 cm sea level rise). Meeting conservation goals will also require some reforestation, focusing on buffers to tidal wetlands (600 acres) and filling in gaps in the forests along streams (600 acres). However, this streamside restoration objective can be achieved through restoration in *either* the Streamside Conservation Priority Area *or* the Forest Conservation Priority Area (where selective reforestation along streams can help achieve *both* stream buffer goals and the forest improvement goals discussed above.) Additional reforestation of streamside areas may also be necessary to balance out any streamside forest losses upcoming years, or to improve wildlife travel.

The Working Lands Conservation Priority Area represents that area where preserving the heritage of working lands – agricultural and forestland – is the primary focus. The designation of this area is in recognition of the importance of keeping agricultural lands and working forests in the Corridor, in the places most appropriate for them, and as a means of buffering important ecological areas and replenishing groundwater resources. Conservation efforts in this area will focus on protecting farms, forests, and scenic areas with working easements, especially Delaware and Maryland Agricultural Land Preservation Foundation easements which have already proven relatively successful in the Corridor. The Working Lands Conservation Priority Area is about 18,500 acres in size, with 6,300 acres already protected. To achieve conservation goals, efforts to protect farms and working forests in this area should also focus on areas of special scenic or cultural value and encourage sustainable management of woodlands and water resources. To retain working lands in this area will also require creating new and/or greater income opportunities for small farms and woodlots as the face of agriculture and forestry changes in the Corridor.

It is important to note that these Conservation Priority Areas are not mutually exclusive -- each includes important natural features that must be used to further prioritize and evaluate opportunities within each. There will undoubtedly be forested stream areas within the Working Lands Conservation Priority Area that are good opportunities for protection, and should be pursued. Likewise, there will be numerous agricultural areas within the forest area that are not good opportunities for reforestation – the Forest Conservation Priority Area was sized to account to allow for this and to allow flexibility to react to opportunities. Additional prioritization within each area will be required to determine the specific parcels, forests, fields, or lengths of stream that are most appropriate for protection or restoration efforts by individual agencies or organizations. However, the Conservation Priority Areas described above and shown on Maps AA and BB are tools to help focus certain kinds of efforts to the places where they will be most valuable, and to provide a basis for developing measurable objectives for conservation in the Corridor.

Corridor Objectives

For objectives to be complete they must also address the critical threats identified through stress assessment. By combining target viability needs and critical threat abatement needs, a set of specific and measurable objectives for protection of the Corridor over the next 5-10 years was estimated.

In the Forest Conservation Priority Area objectives include:

- Manage all (or as much as possible) of existing forests, public and private, for maturity and oak-dominance to work toward the goal of a mature forested area of 15,000 interior acres.
- Protect approximately 8,000 - 10,000 more acres of the most mature and connected forest possible to secure a connected forested area of 15,000 acres.
- Reforest 3,000-5,000 acres in key locations to fill in gaps and buffer edges to increase connectivity and interior forest.
- Improve baseline data for forest maturity and species composition and improve or update measures as needed to inform forest protection needs and efforts.
- Protect 8 of 11 coastal plain pond complexes rated fair for buffer, and work to reforest them to good status to improve and maintain habitat.
- Protect all (4) coastal plain pond complexes rated very good for density to maintain coastal plain pond habitat.

In the Streamside Conservation Priority Area objectives include:

- Protect 1 coastal plain pond complex rated very good for density to maintain coastal plain pond habitat.
- Protect 1 coastal plain pond complex rated good for buffer to maintain coastal plain pond habitat.
- Protect 200 acres of unprotected marsh migration zone (no more than 7.6% new alteration) to allow marsh migration as sea level rises.
- Restore natural cover to 500-600 acres of remaining undeveloped marsh buffer area (within 300 feet / 100 meters of edge) to improve connectivity of marsh and upland forest.
- Protect existing (≈450 acres) natural cover in undeveloped marsh buffer area (within 300 feet / 100 meters of edge) to maintain connectivity of marsh and upland forest.
- Minimize any new impairments to tidal exchange to protect marsh hydrology.
- Reforest 10% more (≈600 acres) along streams (within 300 feet or 100 meters of edge) to provide migratory bird stopover habitat and improve water quality. *(This could be within the Streamside or Forest Conservation Priority Areas.)*
- Protect existing forested buffer (3,000-3,500 acres) within 300 feet (100 meters) of stream edge to maintain riparian habitat and water quality.
- Complete *Phragmites* mapping and establish or revise measures and set goals for restoration of characteristic marsh vegetation.
- Complete stream surveys and revisit flow/quality/alterations baseline to inform riparian habitat protection needs. *(For streams within the Streamside Conservation Priority Area and the Forest Conservation Priority Area.)*

In the Working Lands Conservation Priority Area objectives include:

- Keep as much open land as possible in farming and protect it from development with agricultural easements.
- Protect scenic views and working forests with agricultural, working forest, or scenic easements.
- Create new/greater income and profitability opportunities for smaller farmers in the Corridor.

Corridor-Wide objectives include:

- Keep impervious coverage from increasing by more than 3% (total under 10%)
- Establish better baseline data and means for measuring ditching/drainage and water extraction to inform stream and wetland protection needs/efforts.

- Improve understanding for coastal plain pond pH and hydroperiod and establish or revise measures to inform coastal plain pond protection needs and efforts.
- Establish thresholds for rural qualities to inform rural lifestyle protection needs and efforts.
- Control current invasive species and prevent introduction of additional invasives including (but not limited to) autumn olive, bittersweet, honeysuckle, multiflora rose, and garlic mustard in forested lands, *Phragmites*, purple loosestrife, nutria, and yellow iris in tidal wetlands, and *Phragmites* and agricultural weeds in coastal plain ponds.
- Minimize impacts of road and residential developments on forest communities, coastal plain ponds, tidal marshes, and riparian corridors.
- Minimize non-point source pollution to Blackbird Creek and Cypress Branch through increased application of better management practices.
- Promote a sense of community, history, and appreciation of the Corridor's natural resources and highlight the connection between the community and natural resources.
- Promote a better understanding of the value of the ecological services provided by the lands in the Corridor (including the value of services such as water recharge, habitat and carbon sequestration).