

Wildlife & Water Quality: Browns Branch

Targeted Tree Planting Opportunity Identification

The Browns Branch watershed encompasses over 11,000 acres in Queen Anne’s county. Approximately 33.5% of the watershed is forested habitat. Much of that forested land is part of the *riparian buffer* — a protective layer of forest that exists on either side of a stream or river. The riparian forest buffer in the Browns Branch watershed serves as a great habitat corridor along most of its stream network.

Almost 85% of the land within the watershed is under private ownership. Therefore, private landowners are key to wildlife habitat and water quality improvement across the watershed. This analysis focuses on land within the riparian buffer, identifying opportunities to establish or expand forest cover. Some agricultural ditches were included in the stream network for assessment.

Goals

1. Assess the current state of the riparian buffer throughout the Browns Branch watershed.
2. Identify opportunities for buffer establishment or expansion on private land.

Initial Assessment

The **100-foot** riparian buffer is just over **75%** forested throughout the watershed.

The **300-foot** riparian buffer is just over **58%** forested throughout the watershed.

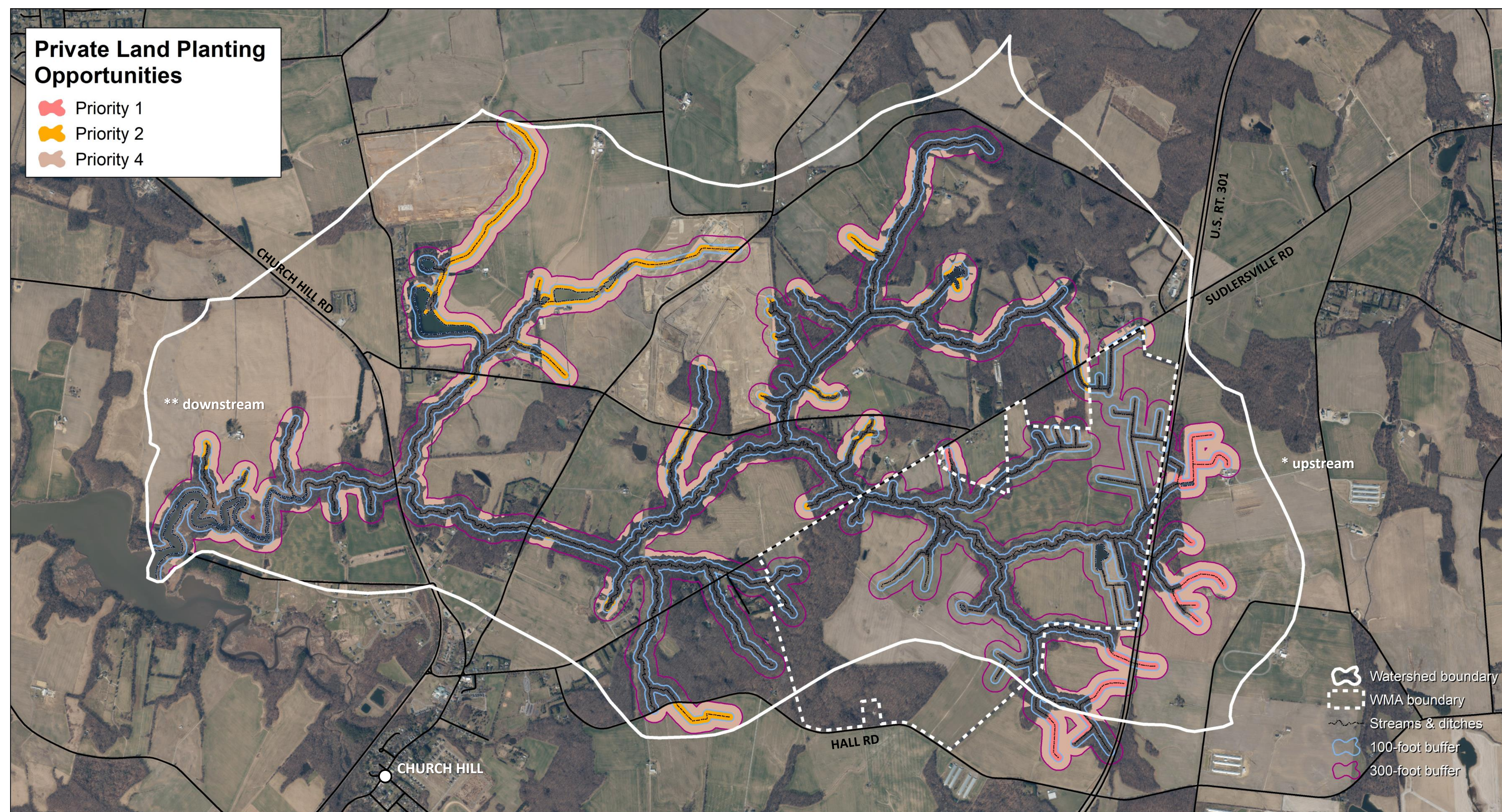
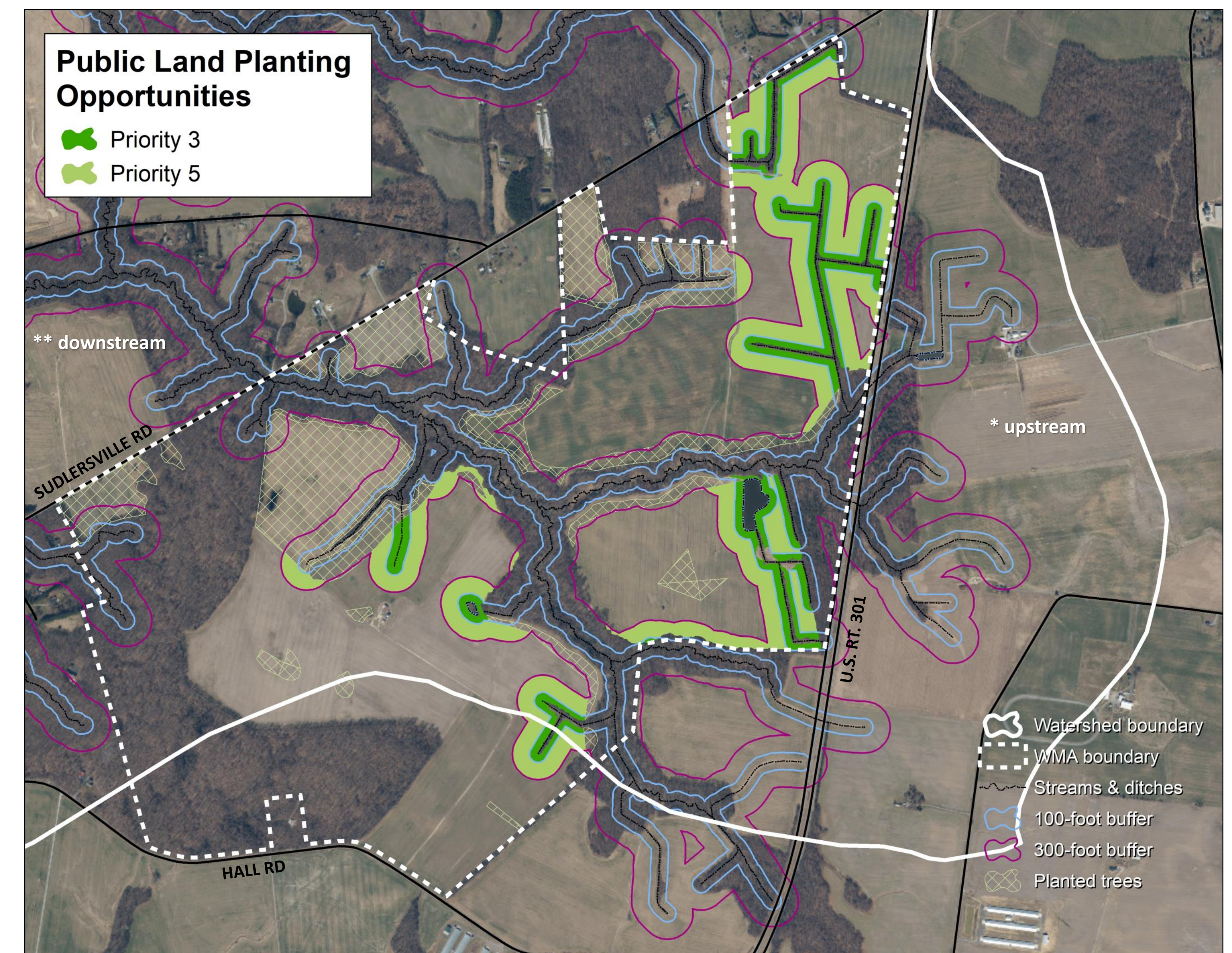
Private land upstream* of Browns Branch Wildlife Management Area (WMA) is considered top priority. Tree plantings there to establish the 100-foot riparian buffer may have the most impact on freshwater mussel habitat (section: **Ecological Significance**). The next priority is establishment of the 100-foot buffer in downstream** areas. Recommended buffer widths differ based on site conditions and objectives; however, a 100-foot buffer is a common goal.

Expansion to a 300-foot buffer provides additional benefits but is marked as the lowest priority for this analysis. Parcels were filtered through the priority list so that they fell into the highest priority possible. For example, if a private parcel downstream of the WMA had both open land in the 100-foot buffer and the 300-foot buffer, it was included in Priority 2.

Priority	Description	Target	Target Type	Planting Opportunity
1	Establishment of 100-foot buffer on private land upstream of the WMA	7 parcels	3 agricultural, 1 residential, 3 ag-res	75.4 acres
2	Establishment of 100-foot buffer on private land downstream of the WMA	33 parcels	12 agricultural, 7 residential, 13 ag-res, 1 other	130.2 acres
3	Establishment of 100-foot buffer within the WMA	1 parcel	-	74.4 acres
4	Expansion to 300-foot buffer on private land	45 parcels	5 agricultural, 27 residential, 11 ag-res, 2 other	723.4 acres
5	Expansion to 300-foot buffer within WMA	1 parcel	-	197.4 acres

Step one of the outreach strategy focuses on the private land 100-foot buffer opportunities, totaling 40 parcels. Step two focuses on private land 300-foot buffer opportunities, an additional 46 parcels.

Browns Branch Wildlife Management Area serves as a habitat anchor. Approximately 284 acres of trees have already been planted; a strong start to expanding habitat availability in the watershed. An additional 160 acres of trees and shrubs are planned for planting in 2025.



Ecological Significance: *Freshwater Mussels*

Browns Branch itself has high conservation priority due to freshwater mussel species richness. The upper reaches of the stream network are home to 8 documented mussel species, including 4 that are listed as rare, threatened, or endangered. Notable species are the dwarf wedgemussel (*Alasmodonta heterodon*, pictured below) and the triangle floater (*Alasmodonta undulata*). Refer to the *15 Year Vision Plan* for Browns Branch WMA for a complete list.



Dwarf wedgemussel (*Alasmodonta heterodon*). Photo not to scale: ruler shows centimeter increments.

The Maryland Department of Natural Resources Wildlife and Heritage Service suggests that many factors have contributed to mussel decline in Browns Branch, including inadequate riparian buffers, lack of forest cover in the surrounding watershed, and chronic agricultural impacts. Of particular concern are recent findings of high ammonia levels and salinity spikes following strong storm surges.

Freshwater mussels serve as an *indicator species* — healthy mussel populations often reflect healthy aquatic conditions. Mussels help filter the water in the stream and serve as a food source for wildlife.

References & Further Learning

Maryland Department of Natural Resources. (July 2023). Browns Branch Wildlife Management Area 15 Year Vision Plan. <https://dnr.maryland.gov/wildlife/Documents/Browns-Branch-15-year-Vision-Plan-Draft.pdf>

U.S. Fish & Wildlife Service. (July 2021). Flexing the Mussels of Freshwater Rivers. <https://www.fws.gov/story/2021-07/flexing-mussels-freshwater-rivers>

Virginia Department of Conservation and Recreation. Riparian Forest Buffers. <https://www.dcr.virginia.gov/natural-heritage/riparian>