

# River Valley Ranch Stream Restoration

Manchester, Maryland



The mainstem of the Gunpowder River (foreground) and Muddy Creek are Central features of River Valley Ranch.



Lack of riparian buffer along the banks of Muddy Creek within the main campus of River Valley Ranch.

Founded in 1952 as a cowboy summer camp for youth, the non-profit ministry River Valley Ranch serves over 20,000 youth and adults annually as a summer camp, retreat facility, outdoor education center, and destination for seasonal events.

A key feature of River Valley Ranch's 500-acre, wooded property is Muddy Creek, a native brook trout stream which flows through the camp on its way to the Gunpowder River, a major tributary to the Chesapeake Bay. Over the past several decades, storm flows and increased runoff

*Stability, habitat, and ecological function are restored to a rural stream at the heart of a popular summer camp and event destination.*

in the surrounding watershed has caused the Upper Gunpowder River and its associated tributaries to degrade and become unstable.

As part of its mitigation program, and working with Greenvest, LLC, an environmental consulting and mitigation banking firm, the Maryland State Highway Administration initiated the restoration of Muddy Creek and the Gunpowder River at the River Valley Ranch. A key member of the Greenvest team, Biohabitats developed and implemented plans to stabilize and enhance habitat for nearly 8,000 linear feet in total, which included a 2,500 foot reach of the mainstem of the Gunpowder River.

After thoroughly assessing the stream and site,

and conducting hydrologic and hydraulic modeling, Biohabitats crafted a restoration design that focused on habitat enhancement for the native brook trout population as well as improving habitat for macroinvertebrates that make up part of the trout's natural diet. During the assessment phase, it was discovered that a previously unidentified bog turtle population exists within the Ranch property. Biohabitats' design not only avoided impacts to the bog turtle population but increased its available habitat. Biohabitats also supervised construction of the restoration.

## SERVICES

Assess  
Engineer & Design  
Build



800.220.0919

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Physiographic Province

Piedmont

Bioregion

Chesapeake/Delaware Bays

Watershed

Gunpowder/Patapsco