

Final Report Second Creek karst II
Agriculture BMP Implementation Project

FY 16 Grant Award \$127,600



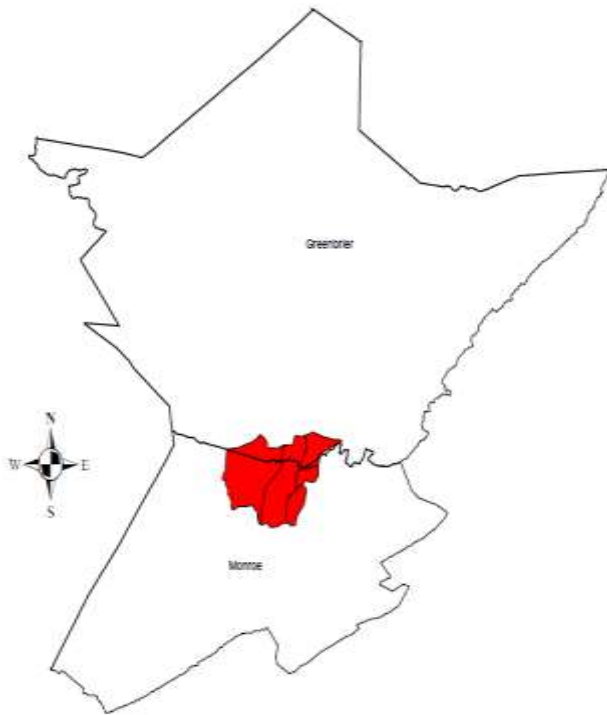
West Virginia Conservation Agency

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Abstract



Location of the Second Creek Karst Region on the border between Greenbrier and Monroe Counties of West Virginia

Second Creek Karst region in Monroe and Greenbrier Counties of West Virginia is a large tributary of the Greenbrier River. It is located along the southern border of Greenbrier County and Northern border of Monroe County. The watershed drainage is 124 square miles and confluence with the Greenbrier River north of Fort Springs. This area consists mostly of grassland pasture used for beef cattle and dairy operations. 26% of this area is karst pasture. The SWS's of concern for this proposal drains 50 square miles and is 90% karst. The Second Creek was placed on the 303(d) list in 1996 due to fecal coliform bacteria contamination due to undetermined sources. A Total Maximum Daily Load (TMDL) study was developed for the creek in 2008, which allocated fecal coliform loads to agricultural land uses, and recommended reductions in fecal coliform loading.

Best management practices to address the agricultural bacteria load were implemented on a voluntary basis by individual landowners. These practices included overall development of rotational grazing systems by installing alternative watering and fencing systems. These systems assure that livestock will evenly utilize the grassland resources throughout the watershed preventing concentrated nutrients and bacteria runoff into sensitive karst features.

Problem Description

The Second Creek was placed on the 303(d) list in 1996 due to fecal coliform bacteria contamination from undetermined sources. A Total Maximum Daily Load (TMDL) study was developed for the creek in 2008, which allocated fecal coliform loads to agricultural land uses, and recommended reductions in fecal coliform loading. This is a result of observations of livestock loafing near sink holes and caves that are direct inlets to the karst waterways. Livestock loafing typically leaves behind areas of concentrated nutrients and bacteria from waste. Leaching tends to occur from these areas. By developing rotational grazing systems and forcing livestock to continuously move throughout the farm, nutrients and bacteria are spread safely and in a way that promotes soil health and appropriate ground cover.

Project Highlights



Both maps, above and below demonstrate the vastness of livestock watering systems that can be necessary as farms differ based on topography and land use.





Conservation Plan Map intended to facilitate rotational grazing and prevent livestock from accessing surface water that runs over into a large cave system.



Typical view of pipeline being installed to feed an alternative watering system (left), Pasture division fence installed, and woven wire pasture division fence being stretched utilizing a bull dozer.

Results

SWS	Participant	Pipeline (Feet)	Watering Troughs	Pond	Well	Pumping system	Heavy Use Protection (Sq. Ft.)	Division Fence (Feet)	Exclusion Fence (Feet)	Tree Planting (Acres)
2301	Bennett	1896	4		1	1	1900			
2302	Reed	3617	5		1	1	1125	4844	900	
2303	Morgan	3400	3	1		1		1950	1600	
2301	McClung		1		1					
2302	Wilson	2500	5		1	1	2000	675	2015	
2301	Canterbury							3815		
2302	Dickson								2000	5
Totals		11413	18	1	4	4	5025	11284	4715	5

SWS	Participant	Animals Impacted	Bacteria Load Reduced	Lat	Lon
2301	Bennett	63	2.46E+12	37.660094°	-80.532488°
2302	Reed	160	6.26E+12	37.639111°	-80.499585°
2303	Morgan	75	2.93E+12	37.719502°	-80.425693°
2301	McClung	50	1.96E+12	37.656590°	-80.535905°
2302	Wilson	30	1.17E+12	37.616537°	-80.486466°
2301	Canterbury	65	2.54E+12	37.664355°	-80.551717°
2302	Dickson	75	2.74E+12	37.685090°	-80.458618°
Totals		513	2.01E+13		

Partners and Funding

Partners	Contribution	Fiscal Contributions	Federal Funds	Non-Federal Funds
USDA Natural Resources Conservation Service	Environmental Quality Incentive Program and Technical Assistance	\$18,852.32	X	
USDA Farm Service Agency	Conservation Reserve Incentive Program	\$81,065	X	
WV Land Trust	Easement holding	\$5,086.51		X
Trout Unlimited	Fence Building	\$4,431.91		X
Greenbrier Valley Conservation District	Financial Holding/Invoice Processing and Agricultural Enhancement Program & CREP	\$7,974.40		X
West Virginia Conservation Agency	Project Management and Grant Administration	69,996.33		X
WV Department of Environmental Protection	Grant Award and Reporting	\$127,600 (319 Funds)	X	
Ronceverte Presbyterian Church	Volunteers Labors for Tree Planting	\$1,781 (88 Volunteer Hours)		X
Local Landowners	Land Rights and Project Longevity Management	\$48,667		X
Total Value of Resources from all Partners		\$365,454.47	\$227,517.32	\$137,937.15