

WEST VIRGINIA WETLAND PROGRAM PLAN 2026-2030



December 15, 2025



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Figure 1. Open water feature in a cottongrass fen in Dolly Sods Wilderness Area

Acknowledgements

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Introduction

West Virginia has approximately 120,000 mapped acres of wetlands, not including lakes and streams, based on the updated National Wetlands Inventory mapping completed in 2024. This represents less than one percent of the state's land surface but provides extraordinary benefits to the state. The most dramatic example of this is illustrated by the relationship between wetlands and biodiversity. Wetlands provide essential habitat for fish and wildlife, including a remarkable 23% of West Virginia's plant species, and 44% of its rare plants. Wetlands filter and purify water, capturing sediment and pollutants. Naturally-occurring bacteria in wetlands convert polluting nitrates into harmless nitrogen gas. Wetlands protect against flood damage by slowing flood flows, reducing flood peaks, and reducing bank erosion. Large headwater wetlands in the Allegheny Mountains and Meadow River provide particularly important flood protection services to the state. Boardwalks at Cranberry Glades, Canaan Valley, and other wetlands provide unique educational opportunities. Birders and hunters treasure wetland complexes in National Wildlife Refuges, Wildlife Management Areas, or their own backyards. Nature tourism, on the rise nationwide, is closely linked to the rich flora and fauna and scenic landscapes of our state's wetlands.

Major West Virginia wetland complexes include high elevation Allegheny wetlands, Meadow River wetlands, Ohio River wetlands, rare marl wetlands of the eastern panhandle, extremely rare summit sinkhole wetlands in the east, alluvial wetlands associated with streams and rivers throughout the state, and vernal pools.

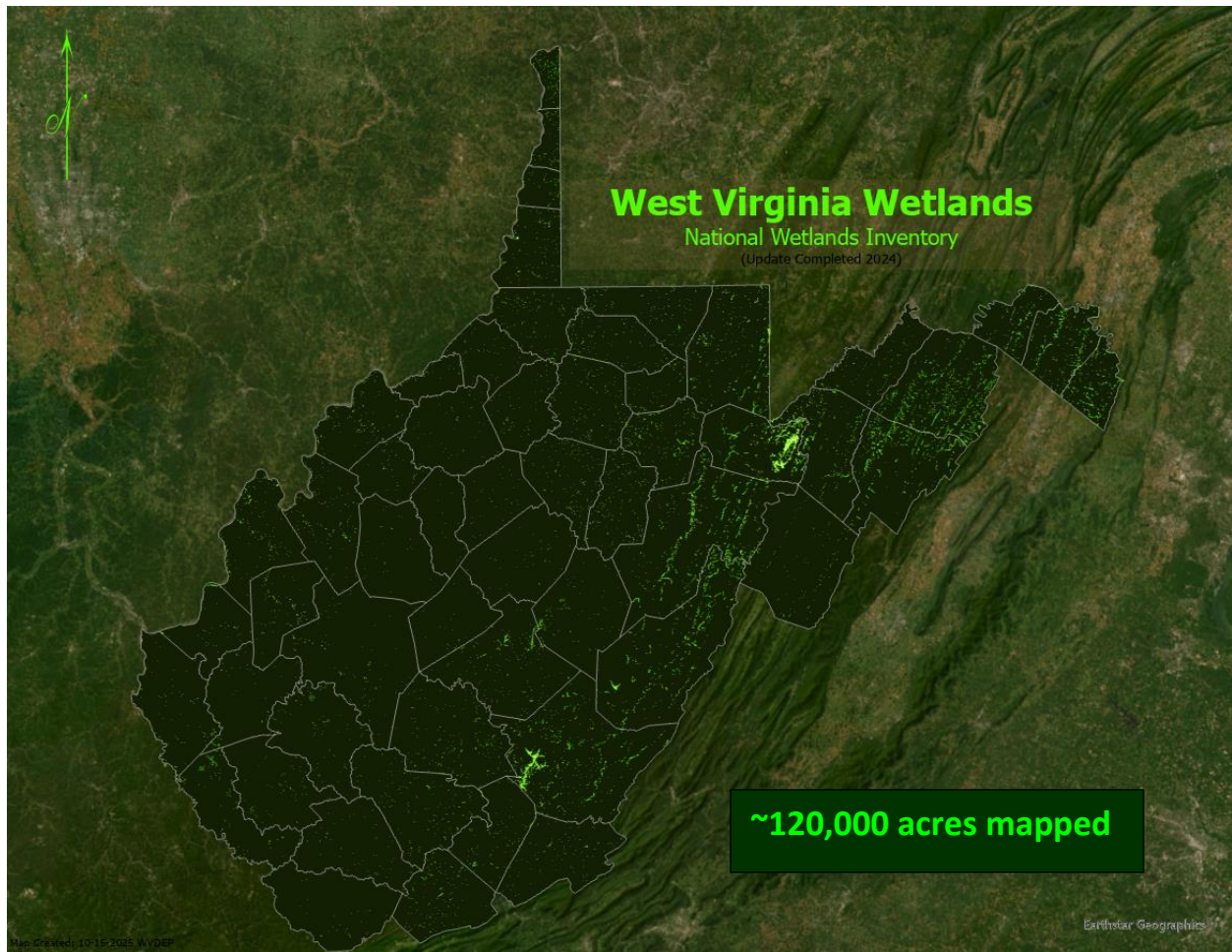


Figure 2. West Virginia Wetlands, NWI update completed 2024. Wetlands shown in green. Brighter green indicates larger concentrations and/or larger complexes.

Land conversion from natural to developed land uses contribute to wetland loss in the state. Pollution, artificial drainage, and invasive species degrade existing wetlands. Increased frequency of both drought and extreme storm events threatens wetlands, while at the same time underscoring their importance in helping to stabilize the hydrologic cycle.

Organizational Roles

Wetland conservation in West Virginia is carried out by many organizations including local, state, and federal government agencies, non-profit conservation organizations, and for-profit private organizations. A brief list of the roles of some of these organizations is presented in Table 1. Note that the heading “Restoration” includes both re-establishment and enhancement (rehabilitation) activities.

Table 1. Organizational Roles Related to WV Wetlands (Abbrev. Definitions: Page 40)

Organization	Monitoring	Assessment	Regulation	Restoration	Preservation	Public Land Acquisition	Public Land Mgmt.	Education & Outreach	WQ Standards	Research
WVDEP (Lead Organization)	X	X	X	X				X	X	X
WVDNR	X	X	X	X	X	X	X	X		X
CBP	X			X				X		
Conservation organizations	X	X		X	X			X		X
DU				X	X	X		X		
Environmental consultants	X	X		X				X		
Land trusts	X	X		X	X	X	X	X		
Local government				X		X	X	X		
Mitigation banks	X	X		X	X					
MNWV								X		
NRCS	X	X	X	X	X			X		X
OCHF					X					
PVAS				X	X	X	X	X		
TNC	X	X		X	X	X	X	X		X
TU				X	X			X		
USACE			X				X			X
USEPA	X	X	X					X		
USFS	X			X	X	X	X	X		X
USFWS	X	X	X	X	X	X	X	X		X
Universities	X	X						X		X
USNPS	X	X			X	X	X	X		
Watershed associations	X	X		X	X		X	X		
WVCA				X				X		
WVDA				X				X		
WVDOF							X			
WVDOH				X		X	X	X		
WVHC				X				X		
WVLT	X	X		X	X	X	X	X		
WVRC	X			X				X		
WVU	X	X					X	X	X	X

Much of the state government responsibility for regulation, management, and assessment of wetlands falls under two agencies, the WVDEP and WVDNR. The WVDEP DWWM contains two groups that have responsibility for various aspects of wetlands, as follows:

- Water Quality Standards and Assessment Section (WQSAS) (Wetland Program and 401 State Water Quality Certification Program)
- Watershed Improvement Branch (In-lieu Fee program, Chesapeake Bay program, and outreach to the public)

Background

With assistance from USEPA Wetland Program Development Grant # 96362001 (2018-2022), WVDEP's WQSAS Wetland Program staff developed a statewide wetland monitoring program based on a spatially representative probabilistic design with a 5-year cycle. The first season of test data was then collected and used to refine monitoring methods.

With funding from USEPA Wetland Program Development Grants (Nos. 96362001, 2018-2023; 96390401, 2021-2023; and 95340901, 2024-2026), the WQSAS confirmed the West Virginia Wetlands Rapid Assessment Method (WVWRAM) for statewide monitoring in 2020 via public notice. WVWRAM was confirmed for regulatory use in 2024 by the U.S. Army Corps of Engineers, and it was required for mitigation beginning April 15, 2025.

Summary of Progress 2021-2025

During the previous five-year period, progress was made toward better conserving and regulating wetland activities in West Virginia for each of four core elements: Monitoring and Assessment, Regulation, Voluntary Restoration and Protection, and Water Quality Standards. Two highlights of this period were: 1. Completing the first five years of wetlands condition monitoring to set the baseline against which subsequent data collection will be compared, and 2. Continued wetland program support for regulators as WVWRAM became a requirement.

WVWRAM is a GIS and field-based tool, which includes both USEPA level 1 (landscape assessment) and EPA level 2 (rapid assessment) approaches. Level 1 WVWRAM scores for all mapped wetlands in the state have been displayed and will now be updated on the wetlands webpages. Level 2 WVWRAM assessments have been completed at 380 sites, including 191 probabilistic randomly selected wetlands, 85 wetland restoration sites, and 35 reference sites. Customized reports showing mapped wetlands and wetland functions have been shared with major landholders throughout the state.

Multi-day WVWRAM training events have reached 194 environmental professionals from 74 organizations. Training has continued for regulators and agency personnel, and training videos

have been created for the public as a supplement and review resource. Wetlands outreach materials have been created, such as the popular WV Wetland STEAM activity booklet, shared in wetlands educator workshops. Vernal pool trainings have been held on the developed citizen science vernal pool monitoring program, and a new platform has been built for electronic submission of monitoring data. A user-friendly planting tool was also created for region-specific recommendations of native plants specifically chosen for erosion control, wetland restoration, and pollinator gardens. A Regional Monitoring Network study location was established at Cranberry Glades where drone data (2021), vegetation transect data (2023), well data (ongoing), and trail camera photos (ongoing) have been collected. The entire state has been updated on the National Wetland Inventory, available on the USFWS Wetlands Mapper. These wetlands have been scored using WVDEP's level 1 landscape assessment, and this data will be presented to the public on the WVDEP GIS Viewer.

Links to the key web pages related to WVWRAM and wetlands are:

- Wetland Assessment <https://dep.wv.gov/WWE/watershed/wetland/Pages/default.aspx>
- WVWRAM <https://dep.wv.gov/WWE/watershed/wetland/Pages/WVWRAM.aspx>
- WVWRAM Training https://www.youtube.com/playlist?list=PLLyTaD88wM7iC2SrBQ_w-midOkzHp2e1F
- Map of WVWRAM Level 1 scores and field-verified scores (DEP GIS Viewer, click on Wetland Function) https://tagis.dep.wv.gov/wvdep_gis_viewer/
- Wetland Resource Guide <https://dep.wv.gov/WWE/getinvolved/Pages/Wetland-Resources-Guide.aspx>

Partner Summaries

West Virginia Division of Natural Resources

The WVDNR Natural Heritage Biotics database was maintained and enhanced, with 117 wetland and floodplain community occurrences added in the previous 5 years, for a total of 1151 such occurrences. WVDNR completed the state classification of wetland associations to the standard of the US National Vegetation Classification. New fact sheets describing several natural wetland communities were placed on the WVDNR website, and new research was published on pin oak swamps and rare wetland butterflies. The WVDNR Ecology plots database held 1968 palustrine plots, which represented an increase of 179 wetland plots in the previous five years.

Monitoring of rare or threatened animal and plant species in wetlands was, and will continue to be, carried out by the WVDNR Wildlife Diversity Unit. Data collection and analysis for a new Lepidoptera Atlas was completed, including revision of state conservation rankings. Long-term monitoring of spotted turtle populations continued through the previous 5-year cycle.

National Wetland Condition Assessment (NWCA)

WVDEP, the NRCS, and USEPA participated in NWCA in 2011, 2016, and 2021, resulting in field data for a total of 37 sites, including 12 national reference sites.

Natural Resources Conservation Service

The NRCS maintains two Food Security Act compliance teams within the state and makes available a wetland compliance provisions fact sheet at each field office for the public. NRCS is an active partner with WVDEP and other state and federal agencies for the implementation and understanding of wetland soil information. NRCS provided key technical support in the development of soil metrics for the WVWRAM. They contribute expert soil scientists to the NWCA and to state-sponsored wetland training workshops for environmental professionals. They collaborate with multiple agencies to assess and implement monitoring protocols for high value wetlands.

Inter-Agency Review Team

The IRT (USACE, WVDEP, WVDNR, USEPA, NRCS, USFWS) provided regulatory services for impacts to wetlands under the Clean Water Act from 2021-2025. WVDEP's 401 State Water Quality Certification Program and WVDNR's Coordination unit provided state certification and review of wetlands that were subject to the regulatory process under the Clean Water Act.

WVDEP Watershed Improvement Branch (WIB)

WVDEP's In-Lieu Fee program provided mitigation services including several wetland restoration projects with WVWRAM baseline and post-construction monitoring (2016-2020). These restoration sites were continued to be monitored by the WVDEP Wetlands Program (2021-2025). WIB will continue to support wetland restoration projects and attend outreach events with a wetland focus.

WIB's Project WET program includes a day at their STEM camp focused on wetlands and hosts wetland activities at STEM events across the state. Wetland workshop supply kits and teacher stipends are funded by the Wetland Program Development Grant. Online resources for World Wetland Day are shared annually.

WIB's Save Our Streams Program developed and initiated the Vernal Pool Monitoring Program for community members to monitor ephemeral wetlands. Pending grant funding, SOS will continue vernal pool trainings and update and possibly add a third (advanced) level of monitoring to the vernal pool protocol.

Other Outreach

Wetland education and outreach activities were carried out by numerous agencies and organizations, as detailed (in part) in Appendix A. WVDEP's library of wetland resources has grown considerably and is becoming recognized by educators across the state. Our goal is to continue to highlight these through attending outreach events, highlighting wetland topics, and leading hands-on activities. The WVDEP Wetlands Program also offers wetlands training events to agency partners.

US Environmental Protection Agency

The USEPA worked with states, beginning in 2021, to establish a long-term study of changes in reference-level wetlands. WVDEP recommended an area of Cranberry Glades where monitoring commenced on June 1, 2023 with vegetation transects. Multispectral drone imagery was gathered beginning in 2021 and is set to be collected every five years by WVDEP's Technical Applications and GIS Unit (TAGIS). Water level monitoring wells were established on August 1, 2023, as well as a trail camera focused on well No. 1, by USEPA, WVDEP, NRCS, and the USFS. Additional vegetation transect data was also collected at this time by WVDNR and WVDEP. Monitoring of this Regional Monitoring Network site is ongoing.

Restoration and Protection

Wetland restoration and protection were accomplished by numerous agencies and organizations. This Wetland Program Plan represents a statewide effort to capture data on wetland restoration and preservation. Our knowledge is still incomplete. Known projects from 2021-2025 are listed in Appendix B, but older projects are also of importance, especially as we begin to develop monitoring indicators to aid in restoration success. Appendix C, a growing record, includes information (in part) on wetland restoration projects completed prior to 2021. One of the goals of the next 5-year period is to continue to increase collaboration between organizations and better capture our collective progress.

Research and Updated Resources

WVU initiated two key research studies, during the WPP of 2021-2025, with support from USEPA Wetland Program Development Grants. One of those studies, EPA # 96362401, is still in progress as of 2025. It evaluates water quality conditions in wetlands across the state, pairing intensive water sampling with WVWRAM assessments.

In 2021-2025, WVU completed research on populations of small mammals in mitigated wetlands, remote wetland mapping, spotted turtle populations, and other wildlife dependent on wetlands. They completed work on restoration performance standards and made great strides in their project on wetland water quality, both of which were supported by USEPA Track 2 WPDGs. Other research by outside entities covered topics from the paleobotany of Big Run

Bog to a summary of the unglaciated Northeast's riverscours habitats. The Breeding Bird Atlas was updated, and Alan Weakley and his team released the Flora of the Southeastern United States, which includes West Virginia in its scope. It is now available as a website, an app, and a PDF, and includes a much more robust and current list of plants found in the state than WV's previous Flora, with updated taxonomy for all.

For the upcoming grant cycle, WVU will be proposing a project to inventory and monitor the extent and/or thickness of Allegheny Highlands peatlands with drone remote sensing. They intend to provide proof of concept with created vernal pool wetlands in the Mower Tract and in the Canaan Valley National Wildlife Refuge. A list of publications and on-going wetland research initiatives is presented in Appendix D.

West Virginia Department of Agriculture

The WVDA's Nutrient Management Program (established 2009) employs ten Nutrient Management Specialists (one part-time), the majority of which are located in the Chesapeake Bay drainage and three in the Ohio River Basin. About 90,000 agricultural acres are under nutrient management plans at any one time, with actual coverage fluctuating as plans expire, are renewed, and new properties are incorporated into the program. With additional specialists hired under a USDA NRCS partnership for the Ohio River Basin, and with effective training and growth of existing employees, WVDA anticipates an increase to over 100,000 acres from 2026-2030. All nutrient management plans written by WVDA Nutrient Management Specialists include nutrient application setbacks of 50 feet from all waterways, including wetlands.

Plan Overview 2026-2030

The West Virginia Wetland Program Plan provides a framework and direction to WVDEP, WVDNR, and their partners, in order to build, strengthen, and improve the ability of the state to protect and conserve its wetlands. The plan includes current wetland initiatives and identifies actions that the state and its partners plan to implement from 2026-2030 to improve the state wetland program and wetland conservation across all sectors.

Important outcomes of the actions in this plan are expected to include:

- (a) increased understanding of the condition and quality of WV wetlands, allowing state agencies and other organizations to better direct regulatory and conservation resources toward restoring and protecting wetlands,
- (b) increased capacity of agencies and conservation organizations to apply robust scientific methods to understanding and protecting wetlands,
- (c) increased ecological success of wetland compensatory mitigation banks and wetland restoration initiatives, and

(d) minimized loss of wetland acreage and function statewide.

Tangible products expected to be produced 2026-2030 include:

- (a) engagement with agency partners by establishing a state wetland work group
- (b) monitoring method developed to achieve comparable data quality for solo-monitoring
- (c) 5 years of probabilistic monitoring completed and compared to baseline for trends analysis and change detection
- (d) WVWRAM training provided for agency partners
- (e) educational or volunteer events conducted to build public support for wetland conservation,
- (f) Wetland Program Plan (WPP), State Wildlife Action Plan (SWAP), and Statewide Comprehensive Outdoor Recreation Plan (SCORP) updated
- (g) monitoring of Regional Monitoring Network wetland in Cranberry Glades continued
- (h) National Wetland Condition Assessment field activities successfully completed,
- (i) report(s) on exploratory analysis for water quality standards for wetlands completed,
- (j) collaboration among organizations working in wetlands increased,
- (k) voluntary protection and voluntary restoration of wetlands increased,
- (l) inventory and monitoring of rare, threatened, and endangered wetland species and high-quality natural wetland communities continued, and
- (m) research on wetland topics of importance to restoration and conservation success continued.

Funding Sources

Funding for the work detailed in the plan comes from a variety of sources, as indicated in the table below.

Table 2. Funding Sources for the West Virginia Wetland Program	
Activity	Source
Clean Water Act review by state agencies	WVDEP, WVDNR
In-Lieu Fee program	CWA Section 404 compensatory mitigation fees
Inter-Agency Review Team activities	Each agency funds its own participation (USACE, WVDEP, WVDNR, USEPA, NRCS, USFWS)
Long-term research on spotted turtles	State Wildlife Grant via USFWS Office of Conservation Investment grant program.
National Wetland Condition Assessment	USEPA, NRCS (in-kind), WVDEP

Table 2. Funding Sources for the West Virginia Wetland Program	
Activity	Source
WVWRAM Field Mapping updates	WVDEP to annually incorporate WVWRAM field mapping under USEPA WPDGs
Natural Heritage & Threatened Species monitoring and databases	USFWS (State Wildlife Grant, Endangered Species Act), Vehicle License Plates, Wildlife Calendars, WV Division of Highways
Recommendations for water quality standards for wetlands	USEPA WPDGs, WVU, WVDEP
Wetland preservation, creation, restoration and enhancement	NRCS Wetland Reserve Enhancement Program, WV Stream Partners Program, USEPA's Chesapeake Bay Implementation Grant administered through WVDEP, National Fish and Wildlife Foundation's Chesapeake Bay Stewardship Fund, CWA Section 319 Nonpoint Source Program, and many others
WVWRAM minimal effects determinations in support of Food Security Act	NRCS, WVDEP

Core Elements

Four core elements are identified by the USEPA as part of their Enhancing State and Tribal Wetlands Program. These elements have been adopted as an organizing framework for the West Virginia plan. The core elements applicable to West Virginia are:

1. Monitoring and Assessment
2. Regulation
3. Voluntary Restoration and Protection
4. Water Quality Standards

Tables listing the goals, objectives, actions, and activities under each core element are below.

Core Element 1: Monitoring and Assessment

Goal: Maintain a program to monitor the status and trends in wetland condition, assess the functions of wetlands, and continue to update the inventory of wetlands at the watershed, landscape, and site level scales consistent with USEPA's three-tiered approach, in order to provide decision-makers and the public with the best possible information on the extent, type, and health of West Virginia's wetlands and the ecosystem services they provide.

Objectives:

- A. Develop a monitoring and assessment strategy consistent with Elements of a State Water Monitoring and Assessment Program for Wetlands (USEPA, 2006).
- B. Incorporate monitoring data into agency decision-making.
- C. Analyze monitoring data for trends statewide and by ecoregion and begin change detection
- D. Continue assessment of probabilistic, restoration, and reference wetlands for condition and function

Benefits: Monitoring and assessment activities establish a baseline in wetlands extent and condition, detect change, assess function, and characterize trends over time. Restoration and mitigation sites can be compared to reference conditions to determine whether they are meeting performance standards. Regulatory programs rely on monitoring to detect whether unauthorized actions are occurring, evaluate alternatives to avoid and minimize impacts, determine whether permit holders comply with conditions in CWA Section 401 certifications or in Section 402, 404, or applicable state permits, and evaluate the cumulative impacts of permitted actions. Monitoring and assessment can also inform planning, prioritization, and decision-making for individual wetlands and entire watersheds. Monitoring and assessment of wetlands will eventually help West Virginia to evaluate progress toward its goal to minimize loss of wetland acreage and function.

Effective wetland monitoring and assessment of wetlands enables West Virginia to meet federal Clean Water Act requirements under Section 305(b) including "A description of the water quality of all waters of the United States and the extent to which the quality of waters provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allows recreational activities in and on the water" (40 CFR 130.8). In addition, the 2008 Compensatory Mitigation Rule calls for the use of scientifically valid functional and condition assessments for determining the amount and location of compensatory mitigation.

Status: West Virginia has an established Wetland Program within WVDEP. Trends analysis and change detection are in the beginning stages. Assessment is continuing for probabilistic, restoration, and reference wetlands for condition and function.

Table 3. Monitoring and Assessment Actions, Activities, Success Measures, Lead Organizations, and Timeline

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
Core Element 1, Objective A: Develop a monitoring and assessment strategy consistent with <i>Elements of a State Water Monitoring and Assessment Program for Wetlands (EPA, 2006)</i>.								
1.A1. Identify program decisions and long-term environmental outcome(s) that will benefit from a wetlands monitoring and assessment program.	1.A1.a. Consult, update, and disseminate WV Wetland Program Plan, WV Wildlife Action Plan, and Statewide Comprehensive Outdoor Recreation Plan.	Wetland Program Plan, Wildlife Action Plan, and SCORP complete & distributed.	WVDEP, WVDNR, WVDO	X				
	1.A1.b. Seek out opportunities to develop citizen science programs to monitor wetlands.	Citizen science programs to monitor wetlands (many organizations).	Many organizations	X	X	X	X	X
1.A2. Define wetlands monitoring objectives and strategies.	Review and update WVDEP Wetland Monitoring Manuals.	Field Operations Manual and Data Analysis Manual updated.	WVDEP	Ongoing				
1.A3. Develop monitoring design, or an approach and rationale for site selection that best serves monitoring objectives (e.g., census, probabilistic survey, rotating basin).	Develop and refine statistical framework for spatially balanced probabilistic sampling.	Statistical framework complete.	WVDEP	Complete				
1.A4. Select a core set of indicators to represent wetland condition or a suite of functions.	Same as 1.A2 above.	Field Operations Manual and Data Analysis Manual complete.	WVDEP	Complete				

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
Core Element 1, Objective B: Implement a sustainable monitoring program consistent with the wetlands monitoring strategy.								
1.B1. Ensure the scientific validity of monitoring and laboratory activities.	1.B1.a. Draft and peer-review Field Operations Manual based on Quality Assurance Project Plan.	Field Operations Manual complete.	WVDEP	Complete				
	1.B1.b. Refine monitoring strategy to include solo-monitoring efforts	Solo-monitoring method tested, approved, and updated in QAPP and User Manual	WVDEP	X	X	X	X	X
1.B2. Monitor wetland resources as specified in strategy.	1.B2.a. Collect WVWRAM field data and revise methods as appropriate.	WVWRAM field data collected.	WVDEP	Ongoing				
	1.B2.b. Continue long-term monitoring of Regional Monitoring Network wetland at Cranberry Glades	Monitoring well data and photos collected; drone imagery collected in 2026 (every 5 years)	WVDEP	Ongoing				
	1.B2.c. Monitor federally listed wetland species and WVDNR Priority 1 wetland species as resources permit; species are likely to include eastern spadefoot toad, eastern cricket frog, upland chorus frog, Virginia spiraea, and harperella.	Federally listed species and Priority 1 species monitoring data available.	WVDNR	X	X	X	X	X
	1.B2.d. Continue long-term monitoring of spotted turtles, including survey of potential habitat for new populations and conservation status re-assessment.	Spotted turtle monitoring data available.	WVDNR	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
	1.B2.e. Continue to inventory, map, classify and rank wetland community and rare wetland species occurrences.	Natural Heritage database updated & available.	WVDNR, WVDEP	X	X	X	X	X
	1.B2.f. Monitor wetland restoration in the Chesapeake Bay watershed.	Chesapeake Bay wetland data available.	Wetland Workgroup of CBP, WVDEP	X	X	X	X	X
	1.B2.g. Develop drone monitoring of peatland depth and extent.	Peatland depth and extent can be remotely monitored.	WVU	X	X	X	X	X
1.B3. Establish reference condition.	1. B3.a Define reference standard condition.	Reference standard condition defined.	WVDEP	Complete				
	1. B3.b Review reference standard condition	Reference standard condition revised as applicable	WVDEP					X
1.B4. Track monitoring data in a system that is accessible, updated on a timely basis, and integrated with other state water quality data.	Maintain and improve relevant state databases including WABBASE, WVWRAM, and NWI-WV.	WABBASE, WVWRAM, and NWI-WV available.	WVDEP	X	X	X	X	X
1.B5. Analyze monitoring data to evaluate wetlands extent and condition/function to inform decision-making.	1.B5.a. Analyze data and report synthesized results to public and partners in WVDEP annual reports and on WVDEP website.	Annual reports and updated website available.	WVDEP	X	X	X	X	X
	1.B5.b. Lepidoptera atlas, including status updates on wetland species.	Lepidoptera atlas available.	WVDNR	X				

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
1.B6. Increase state capacity to sustain wetland monitoring activities.	Provide training to WVDEP staff and summer interns in monitoring methodology.	2 or more WVDEP staff able to lead WVWRAM team.	WVDEP	X	X	X	X	X
1.B7. Participate in the National Wetland Condition Assessment.	1.B7.a. Plan, conduct field work, follow-up to ensure data integrity.	NWCA sites sampled.	WVDEP, NRCS, USEPA	X				
	1.B7.b. Integrate results into state databases.	NWCA results available to state decision-makers.	WVDEP	X	X	X	X	X
1.B8. Improve wetland mapping statewide.	1.B8. Capture existing field mapping data as verification dataset.	Field mapping data available.	WVDEP	Ongoing				
Core Element 1, Objective C: Incorporate monitoring data into agency decision-making.								
1.C1. Evaluate monitoring program to determine how well it is meeting a state's monitoring program objectives.	Develop a strategy for evaluation of the monitoring program	Strategy documented and added to data analysis manual	WVDEP, WVDNR					X
1.C2. Evaluate the environmental consequences of a federal or state action or group of actions; modify programs as needed based on monitoring and assessment data.	Begin internal agency discussion pertaining to evaluation of differences in environmental policy and its effects on mitigation	Strategy determined for evaluating differences	WVDEP, WVDNR				X	X
1.C3. Improve the site-specific management of wetland resources.	Future planning	Future planning	Many organizations	Future planning				

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
1.C4. Develop geographically-defined wetland protection, restoration, and management plans.	Implement and update WVDNR Conservation Focus Area plans with region-based strategies to conserve wetland habitat/species.	Implemented and updated CFA plans with region-based strategies	WVDNR, TNC	X	X	X	X	X



Figure 3. Field Monitoring: Top. Wetland soils at Russell Creek swamp. Left. Organic soil sampling in a cottongrass fen. Right. Documenting McClintic impoundment site

Core Element 2: Regulation

Goal: Protect West Virginia's highest quality wetlands and minimize loss of wetland acreage, functions, or values statewide. Wetland losses should be avoided or minimized, and unavoidable losses must be replaced with an adequate level of sustainable, functioning wetlands.

Objectives:

- A. Clearly **define the jurisdictional scope** of the program.
- B. **Administer regulatory activities** efficiently and consistently.
- C. **Evaluate regulatory activities** to ensure environmental results.

Benefits: West Virginia's regulatory program allows the state to manage aquatic resource protection and require restoration of acreage and function/condition. Two laws inform most of the regulation of wetlands in West Virginia:

- Clean Water Act of 1972, including the 2008 Mitigation Rule: prohibits the release of any dredged or fill material into wetlands.
- Food Security Act of 1985: Swampbuster provision discourages the conversion of wetlands to cropland use.

Status: West Virginia is in the established stage of wetland program development. West Virginia currently has established wetland credit-debit methods and regulatory administrative systems to oversee impacts and mitigation pertaining to Waters of the United States (WOTUS). The Inter-Agency Review Team (IRT) for the Clean Water Act is comprised of USACE, WVDEP, WVDNR, USEPA, USFWS, and NRCS. WVDEP provides state 401 certification of the Clean Water Act. The Food Security Act is administered by NRCS.

Regarding the scope of regulated activities: activities resulting in temporary impacts to wetlands meeting the WOTUS definition will comply with appropriate BMPs and restoration protocols to ensure no permanent loss of aquatic resource function. For activities resulting in permanent impact of wetlands, compensatory mitigation will be required for wetland impacts exceeding 1/10 acre cumulatively.

Jurisdictional coverage includes all discharges regulated under the Clean Water Act. Wetlands must meet the three criteria identified in the 1987 USACE Delineation Manual with regional supplements. These criteria include hydric vegetation dominance, hydric soils, and wetland hydrology.

With changes in the definition of WOTUS, the WVDEP reviews individual projects to determine if impacts will occur to non-jurisdictional wetlands that are considered uniquely valuable in terms of their ecological function or cultural importance. Decisions to issue a State Water Permit are handled on a case-by-case basis until a policy for state wetlands can be established.

Table 4. Regulatory Actions, Activities, Success Measures, Lead Organizations, and Timeline

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
Core Element 2, Objective A: Clearly define the jurisdictional scope of the program.								
2.A1. Provide clear and comprehensive jurisdictional coverage of aquatic resources.	Specify jurisdictional coverage of Water Quality Certification and Nationwide Permits.	Jurisdictional coverage specified (see “Status” on the preceding page)	USACE, WVDEP	Adapted to jurisdictional coverage as specified.				
2.A2. Clearly identify a comprehensive scope of activities to be regulated.	Identify scope of regulated activities.	Regulatory activity scope specified (see “Status” on the preceding page).	USACE, WVDEP	Adapted to jurisdictional coverage as specified.				
2.A3. Provide clear guidance to the public on how to identify jurisdictional waters and activities.	Provide guidance on identifying jurisdictional waters and activities.	Guidance on jurisdictional waters and activities available (see “Status” on the preceding page).	USACE, WVDEP	Adapted to jurisdictional coverage as specified.				

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
2.A4. Evaluation.	Continue on-going evaluation of requirements and strategies for wetlands regulation.	IRT minutes.	IRT	X	X	X	X	X
Core Element 2, Objective B: Administer regulatory activities efficiently and consistently.								
2.B1. Adopt regulations or rules to implement state and/or federal water quality statutes.	Revise as necessary if jurisdiction changes.	State & federal statutes implemented.	USACE, WVDEP	X	X	X	X	X
2.B2. Develop and operate according to a clear and effective set of criteria for reviewing and responding to applications.	On-going review & response.	Applications reviewed.	USACE, WVDEP, NRCS	X	X	X	X	X
2.B3. Actively review proposed impacts to waters of the state.	2.B3.a. Review Clean Water Act & Water Pollution Control Act impacts to state wetlands.	Impacts to state wetlands reviewed.	USACE, WVDEP, WVDNR	X	X	X	X	X
	2.B3.b. Maintain two Food Security Act compliance teams within the state	Impacts to state wetlands reviewed.	NRCS	X	X	X	X	X
2.B4. Adopt and apply comprehensive project review criteria.	2.B4.a. Continue regulatory support for WVWRAM & SWVM	WVWRAM and SWVM support continued.	USACE, WVDEP, WVDNR, USEPA, USFWS	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
	2.B4.b. Enhance available tools for Food Security Act (Swampbuster) compliance through collaboration regarding the concept of minimal effects and the use of WVWRAM on disturbed wetlands in agricultural lands.	Compare WVWRAM with NRCS minimal effect procedures to determine the most effective method for Food Security Act Compliance.	WVDEP, NRCS	X	X	X	X	X
	2.B4.c. Provide WVWRAM training to the regulated community, and agency personnel.	At least 2 WVWRAM training events held each year, as requested	WVDEP	X	X	X	X	X
2.B5. Coordinate among agencies, programs, and industry groups to reduce duplicative efforts by the programs and the regulated public.	Provide regular presentations on new wetland tools and assessment protocols to IRT.	Presentations provided.	Many organizations	X	X	X	X	X
2.B6. Require effective mitigation for authorized impacts.	2.B6.a. Maintain and build the capacity of WVDEP In-Lieu Fee (ILF) program through adaptive learning.	In-Lieu Fee program functioning well.	WVDEP (ILF)	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
	2.B6.b. Establish, enhance, and preserve wetlands on public and private land through ILF.	ILF projects completed in Barbour County (UNT/Teter Creek restored 0.966 acres, enhance 4.465 acres), Greenbrier County (Meadow Bluff enhance 4.536 acres, preserve 11.708 acres), and Hampshire County (Green Spring Run establish 10 acres)	WVDEP (ILF)	X	X	X	X	X
2.B7. Track permit & certification program activity.	On-going tracking.	IRT minutes; other reports.	USACE, WVDEP, NRCS	X	X	X	X	X
2.B8. Track/evaluate all regulatory activities.	On-going evaluation.	IRT minutes; other reports.	USACE, WVDEP, NRCS	X	X	X	X	X
Core Element 2, Objective C: Evaluate regulatory activities to ensure environmental results.								
2.C1. Monitor the implementation of permit/certification conditions.	On-going monitoring.	Monitoring reports.	USACE, WVDEP, WVDNR	X	X	X	X	X
2.C2. Enforce aquatic resource protections.	On-going enforcement.	IRT minutes; WVDEP reports; other reports.	WVDEP, USEPA, USACE	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
2.C3. Ensure impact assessments and mitigation crediting lead to replacement of aquatic resources with similar structural, functional, or condition attributes.	2.C3.a. Evaluate credits and debits using WVWRAM & new SWVM.	WVWRAM & SWVM results available for mitigation sites.	WVDEP, IRT	X	X	X	X	X
	2.C3.b. Collaborate to improve the usefulness of soil survey data for wetland identification, protection, and restoration.	Collaboration improves publicly available data, elevates confidence level of data for wetland identification and restoration measures, and informs methodologies for protection.	WVDEP, NRCS	X	X	X	X	X
2.C4. Incorporate the watershed approach into the regulatory decision-making process.	Continue to use watershed approach.	Watershed approach remains in use.	IRT, WVDEP, NRCS	X	X	X	X	X
2.C5. Perform public education and outreach about wetland protection, regulated waters and activities, and authorization process.	2.C5.a. Review, update, and disseminate fact sheets about compliance with wetland regulations.	Fact sheets disseminated via WVDEP website and through NRCS website and field offices.	WVDEP, NRCS	X	X	X	X	X
	2.C5.b. Provide information to agency staff not involved in regulatory activities about identifying and reporting violations.	Reporting information disseminated at WVDEP training events and/or via WVDEP website.	WVDEP	X	X	X	X	X
2.C6. Measure environmental results.	Future planning	Future planning	IRT, WVDEP, NRCS	Future planning				

Core Element 3: Voluntary Restoration and Protection

Goal: Increase wetland acreage and functions through effective restoration action and promote sound wetland stewardship by agencies, land managers and citizens of West Virginia.

Voluntary restoration and protection refer to activities not required by statutes or regulations. Examples include land trusts purchasing titles or easements to wetland areas, community groups removing invasive species and planting native vegetation, and conservation programs that pay landowners to change practices such as cultivation or grazing that alter wetland areas. While voluntary protection is not required by regulations, it can be secured through legally binding agreements such as conservation easements.

Objectives:

- A. Clearly and consistently define restoration and protection goals throughout West Virginia.
- B. Protect wetlands from degradation or destruction.
- C. Restore wetland acres, condition, and function.
- D. Monitor and track progress over time, document results, and modify/enhance practices as appropriate.

Benefits: Wetland restoration and protection promote important ecosystem services, including flood attenuation, water quality protection, provision of wildlife habitat, protection of biodiversity, and educational or recreational opportunities to benefit the citizens of West Virginia.

Wetlands provide critical habitat, breeding grounds, and sources of food for fish, birds, amphibians, and other organisms. More than one-third of the threatened and endangered species in the U.S. live exclusively in wetlands and nearly half use wetlands at some point in their life cycle. Within West Virginia, 44% of our rare plant species are found in wetlands.

Wetlands also inhibit flooding, moderate groundwater levels and base flow, assimilate nutrients, protect drinking water sources, and protect stream and lake shores from erosion. Wetland restoration can improve water quality to comply with Total Maximum Daily Load (TMDL) pollutant allocations in impaired waters and watersheds.

Status: West Virginia has an established Wetland Program at the WVDEP, however, in terms of voluntary restoration and protection of wetlands, WV is at the beginning stage. While many agencies and organizations are involved in wetland conservation either individually or with a small group of partners, West Virginia does not yet have a state wetland association or other body that supports collaborative efforts, identifies opportunities, seeks out resources, builds a statewide strategy, or tracks progress across organizations.

Table 5. Voluntary Restoration & Protection Actions, Activities, Success Measures, Lead Organizations, and Timeline

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
Core Element 3, Objective A: Clearly and consistently define restoration and protection goals throughout West Virginia.								
3.A1. Establish goals that are consistent or compatible across relevant agencies and organizations.	Explore the creation of a state wetland association to build collaboration and exchange best practices regarding land stewardship, invasive species control, and land management activities that impact wetlands.	At least three exploratory meetings held with at least 5 agencies or organizations.	WVDEP, other organizations	X	X	X	X	X
3.A2. Consider watershed planning, wildlife habitat, and other objectives when selecting restoration & protection sites.	3.A2.a. Disseminate WVWRAM scores including Site Biodiversity Rank to the public and to land managers.	WVWRAM scores disseminated in reports and on WVDEP website.	WVDEP	X	X	X	X	X
	3.A2.b. Update WVDEP’s Wetland Restoration Site Prioritization Tool.	Wetland Restoration Site Prioritization Tool updated.	WVDEP	X	X	X	X	X
3.A3. Provide clear guidance on appropriate restoration and management techniques and success measures.	Maintain and improve websites with information about wetlands, including WVDEP Wetland Resource Guide, WVDEP GIS Viewer, Restoration Planting Tool, WVDNR and Animals pages, WVDNR WMA	WVDEP Wetland Resource Guide, WVDEP GIS Viewer, WVDNR Plants and Animals pages, WVDNR WMA pages, & WV GIS Tech Center	WVDEP, WVDNR, WVU	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
	pages, & WV GIS Tech Center clearinghouse.	clearinghouse updated.						
3.A4. Educate the public about wetland functions, values, and restoration opportunities to build support for wetland conservation	3.A4.a Provide wetland presentations to schools, 4-H clubs, community groups, and watershed groups.	30 presentations including wetlands provided.	WVDEP (WIB)	X	X	X	X	X
	3.A4.b Project WET VISTA wetland education talks at libraries and schools	Wetland education talks provided at libraries and schools in February 2026 by Project WET VISTA	WVDEP (WIB)	X				
	3.A4.c Save Our Streams (SOS) volunteer training workshops for vernal pool monitoring	WVDEP (WIB): SOS provided 4 volunteer training workshops for vernal pool monitoring for citizen scientists		X				
	3.A4.d Continue vernal pool monitoring work group meetings with partners and host monitoring workshops.	WVDEP (WIB): SOS held group meetings and workshops with partners (WVDNR, USGS, ARMI, NPS, USFS, watershed groups, Master Naturalist Chapters).		X	X	X	X	X
	3.A4.e Continue to educate public about vernal pool protection and associated biota.	WVDEP (WIB): SOS provided education and outreach about protecting vernal pools and associated biota from nonpoint source pollution, deforestation, and development.		X	X	X	X	X
	3.A4.f Continue vernal pool mapping and expansion of knowledge of vernal pool biota.	WVDEP (WIB): SOS continued work using LiDAR mapping to predict vernal pool locations and ground-truthed with trained vernal pool monitors, expanded		X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
		list of known vernal pools in WV, and expanded knowledge of known vernal pool biota.						
	3.A4.g. Provide advice on wetland enhancement and signage to watershed groups, landowners, and local government.	Advice on wetland enhancement and signage provided as requested.	WVDEP	X	X	X	X	X
	3.A4.h. Install signage and walking trail at Marlinton Wetland Park.	Signage and walking trail installed.	WVCA, WVRC, GRWA, WVDEP, USFS	Ongoing, pending future funding source acquisition.				
	3.A4.i. Complete interpretive trail at restored wetland and experiment with rewetting an infrequently-inundated wetland on Middle Island.	Trail completed and attempts made at rewetting drier wetland on Middle Island.	Ohio River Islands NWR	X	X	X	X	X
	3.A4.j. Provide volunteer opportunities to enhance wetlands and wetland education through planting, invasive plant pulls, boardwalk construction, citizen science initiatives, and other activities.	10 or more wetland education, planting, invasive plant pulls, boardwalk construction, citizen science initiatives, and other activities held.	Many organizations	X	X	X	X	X
	3.A4.k. Develop strategies and methods to make TNC preserves more visible and educational to the public	TNC: Enhancements, habitat management, and programming needs developed and implemented for priority preserves that allow guests to enjoy nature's benefits. Implemented programs and partnerships to increase interaction with visitors onsite and		X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
		digitally through events at TNC preserves, web and social media presence, content creation and sharing, and strategic partnerships.						
	3.A4.l. Increased public engagement through various activities	Annual rain garden cleanups scheduled, 2026 Vernal Pool Monitoring Workshops held, nature walks at Wolf Creek Wetland held. Signage added at Wolf Creek Wetland boardwalk.	PAN, NRBNC and Wolf Creek Wetlands	X	X	X	X	X
	3.A4.m. Expand wetland outreach capacity and improve wetland function through erosion prevention	Wetland plan established, trees planted to slow erosion, boardwalk created on the property.	Kump Center	X	X	X	X	X
Core Element 3, Objective B: Protect wetlands from degradation or destruction.								
3.B1. Establish partnerships to leverage additional protection.	Seek projects that include more than one organization or group and pursue funding opportunities that promote wetland protection in partnership with other agencies/organizations.	5 multi-partner wetland protection projects initiated.	Many organizations	X	X	X	X	X
3.B2. Establish and institutionalize long term protection, using mechanisms such as incentives, purchase of land title or easements to	3.B2.a. Protect 140,000 acres of land with 550 acres of embedded wetlands.	140,000 acres of land with 550 acres of embedded wetlands protected by restoring riparian buffers, improving stream	TNC	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
protect wetlands.		health in priority watersheds.						
	3.B2.b. Prioritize preservation/protection of properties on private land which have wetlands through application scoring	Wetland protection built into creation of easements and land purchases.	WVLT, OHCF, CLRLT and others	X	X	X	X	X
	3.B2.c. Continue implementation of NRCS Wetland Reserve Enhancement program and WV Outdoor Heritage Conservation Fund.	Continue implementation of NRCS Wetland Reserve Enhancement program and WV Outdoor Heritage Conservation Fund.	NRCS, OHCF	X	X	X	X	X
	3.B2.d. Provide conservation easements and other legal protections to wetlands.	5 conservation easements or other legal protections to wetlands completed.	Land trusts, Conservation organizations	X	X	X	X	X
Core Element 3, Objective C: Restore wetland acres, condition, and function.								
3.C1. Increase wetland acreage through restoration (re-establishment, creation).	3.C1.a. Restore or create wetlands in the Potomac Basin, with emphasis on water quality (nutrient reduction), habitat provision and other wetland functions.	One or more wetlands restored or created in the Potomac Basin of WV as part of the Watershed Implementation Plan for the Chesapeake Bay TMDL.	WVDEP, others	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
	3.C1.b Create wetlands as a part of restoration in the Cheat River watershed.	Wetlands creation in Cheat River watershed	FOC	X	X	X	X	X
3.C2. Improve natural wetland conditions and functions through restoration (rehabilitation).	3.C2.a. Reforestation of wetland and riparian areas in greater Canaan Valley	Reforestation in CVNWR (355 acres in 2026), Dobbins Slashings (132 acres in 2028 and 209 acres in 2030).	TNC	X		X		X
	3.C2.b. Enhance wetlands in Deckers Creek watershed.	Wetland work on Dillan Creek (0.6 acres), UNT/Hartman Run (1.4 acres), and possibly the main stem of Deckers Creek (4.6 acres).	FODC	X	X	X	X	X
	3.C2.c. Improve marsh habitat and better outcomes in drought. Update management plan to include new easement acreage.	Updated Cool Spring Preserve land management plan, including new easement acreage. Possible use of goats for cattail control. Introduced new drought resilience measures for marsh.	PVAS	Ongoing and/or Funding-dependent				
	3.C2.d. Enhance wetland and decrease stormwater runoff impacts	Wetland restored, via NRCS grant, adjacent to Widmeyer Wetland, decreasing stormwater impacts from Route 522 Bypass.	WSWA, NRCS	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
	3.C2.e Restore 100 acres of wetlands.	TNC: Restore and reconnect 100 acres of wetlands and 155 miles of streams by removing dams and replacing culverts, reforesting stream corridors and wetland buffers, and enhancing aquatic habitats.		X	X	X	X	X
	3.C2.f Complete restoration and planting at Kestrel Lane Farm pond. Complete other plantings at Wood Thrush Park Farm Pond and Wet Meadow.	Restoration completed at Kestrel Lane Farm Pond. Enhancement completed at Wood Thrush Park Farm Pond and Wet Meadow.	Appalachian Headwaters	X				
	3.C2.g Wetland work to occur alongside work on Glenwood Lake dam.	Wetland habitat improved alongside dam project	Mercer County Commission	X	X	X	X	X
	3.C2.h Cattail removal to be completed at Altona Marsh.	Cattails reduced, enhancing wetland habitat	TNC	X				
	3.C2.i. Work with farmers to create & maintain Nutrient Management Plans to protect wetlands on agricultural lands, utilizing increased capacity built through NRCS partnership.	Nutrient Management Plans created & maintained, possibly exceeding rates of past years	WVDA	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
	3.C2.j. Restore wetland functions and values through restoring hydrology, re-connecting to streams, restoring altered topography, exposing buried wetland soils, excluding cattle, removing stressors, treating invasive species, re-vegetating with native species, protecting buffers, and other restoration actions.	Wetland functions and values restored at multiple sites.	Many organizations	X	X	X	X	X
	3.C2.k Close 2-3 conservation easements in 2026, on which there are small wetland areas. Anticipate protecting more land (some of which will contain wetlands) through 2030.	Land containing wetlands protected throughout 2026-2030.	Cacapon and Lost River Land Trust	X	X	X	X	X
3.C3. Establish partnerships to leverage more restoration.	Exchange best practices and pursue funding opportunities that promote wetland restoration and conservation, in partnership with other agencies/organizations.	Multiple wetlands restored and conserved through partnerships.	Many organizations	X	X	X	X	X
Core Element 3, Objective D: Monitor and track progress over time, document results, and modify practices as appropriate.								
3.D1. Track restoration/protection projects.	Collect and analyze WVWRAM data at restoration sites from pre-construction to 10+ years post-construction to determine realistic WVWRAM score ranges.	Data-driven WVWRAM score ranges available for restoration sites.	WVDEP	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
3.D2. Monitor restoration/protection sites to ensure that they are implemented and managed correctly and linked to relevant watershed planning efforts.	3.D2.a Monitor all restoration/protection sites annually based on the monitoring and maintenance plan outlined in the restoration plan and in accordance to 33CFR Parts 325 and 332.	ILF continues to monitor restoration sites.	WVDEP ILF, consultants	X	X	X	X	X
	3.D2.b Develop novel remote sensing methodology to determine development and extent of peatlands in existing and restored sites.	Peatland development and extent can be remotely monitored in existing and restored sites.	WVU	X	X	X	X	X
3.D3. Modify restoration/protection techniques as needed.	Modify restoration/protection techniques used by In-Lieu Fee program based on adaptive learning and new research.	Updated ILF restoration/protection techniques available.	WVDEP ILF	X	X	X	X	X



Figure 4. Trail Building Crew at Ohio River Islands NWR

Core Element 4: Water Quality Standards

Goal: Restore, maintain, and enhance the water quality of West Virginia’s wetlands.

Objectives:

- A. Ensure that **wetlands are treated as waters within state water quality programs.**
- B. Develop **wetland-specific water quality standards.**
- C. Incorporate wetland-specific water quality standards into **agency decision-making.**

Benefits: Water quality standards for wetlands have the potential to provide a rigorous foundation for protecting and enhancing wetland resources. They can provide the basis for actions leading to an overall increase in wetland function and condition. They can also provide a scientific basis for actions to protect and restore wetlands, including:

- Permitting under CWA Sections 402 and 404,
- Water quality certification under CWA Section 401 programs,
- Monitoring, assessment and reporting on wetlands function and/or condition, e.g., 303(d)305(b) integrated reports, Total Maximum Daily Loads, and nonpoint source pollution control programs
- Guiding restoration and protection efforts

Status: West Virginia is at the beginning stage of wetland program development in terms of water quality standards for wetlands. Wetlands water quality research is the essential first step in developing water quality standards (WQS) (Objective B). Water quality research also plays a major role in designating numerical criteria for use under this objective. Thus, much of the progress to be made under this section of the CEF hinges upon validated water quality parameter limits for West Virginia wetlands, currently unattainable by the WVDEP Wetlands Program, though data is continuing to be collected by WVDEP. However, with the advent of WVWRAM, wetland condition and function can be determined through floristic quality and landscape disturbance, among many other variables. WVWRAM can thus serve as a validating factor, connecting water quality to wetland health, and subsequently designated uses. In other instances, water quality standards may play a role in WVWRAM metric refinement.

Wetlands are defined in WVDEP legislative rule §47CSR2 “Requirements governing water quality standards”, section 2.22, as follows: "Wetlands" are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

Table 6. Water Quality Standards Actions, Activities, Success Measures, Lead Organizations, and Timeline

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
Core Element 4, Objective A: Ensure that wetlands are treated as waters within state water quality programs.								
4.A1. Adopt an appropriate definition of wetlands.	Define wetlands in WVDEP legislative rule.	Wetlands are defined in WVDEP legislative rule §47CSR2 (see “Status” on preceding page)	WVDEP	Completed				
4.A2. Ensure the appropriate wetlands definition is included in water quality standards.	Same as 4.A1. above.	Same as 4.A1. above.	WVDEP	Completed				
Core Element 4, Objective B. Develop wetland-specific water quality standards.								
4.B1. Gather and analyze monitoring data and other information that will become basis of water quality standards.	4.B1.a. Complete WVU research project on wetland water quality.	WVU Final Report on wetland water quality.	WVU	X				
	4.B1.b. Compile/analyze WVWRAM water quality data.	WVDEP Annual Reports.	WVDEP	X	X	X	X	X

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
4.B2. Establish and adopt appropriate wetland-specific designated uses to be achieved and protected.	Explore wetland uses based on stakeholder activities and wetland environmental services. Provide recommendations for wetland designated uses.	Stakeholder activities and environmental services identified and detailed, wetland designated uses adopted.	WVDEP					
4.B3. Establish and adopt narrative criteria that qualitatively describe the condition or suite of functions that must be achieved to support a designated use.	Explore narrative criteria for wildlife, rare floristic communities, hunting, fishing, and recreation; determine criteria. Provide recommendations for wetland narrative criteria.	Narrative criteria explored for wildlife, rare floristic communities, hunting, fishing, and recreation; criteria determined and adopted.	WVDEP					
4.B4. Establish and adopt numeric criteria representing wetland specific values for chemical, physical, and biological parameters that may not be exceeded, must be exceeded, or some combination to protect or restore designated uses.	As time allows, analyze results of probabilistic wetland monitoring to better understand the existing conditions of water quality in wetlands. In addition, explore numeric criteria of other states, determine parameters, and test. Provide recommendations for wetland numerical water quality criteria.	Wetland water quality criteria determined and tested, criteria adopted.	WVDEP					

Action	Activity	Success Measure	Lead	2026	2027	2028	2029	2030
4.B5. Better define state antidegradation policies for wetlands, requiring full protection of existing uses (functions and/or condition), maintenance of functions/condition in high quality wetlands, and a prohibition against lowering functions/conditions in outstanding national resource waters.	As time allows, explore criteria for other state exemplary wetlands, consider tiered protection statuses (including that of national resources). Provide recommendations for wetland antidegradation policy.	Criteria set for state tiered protection status determined (including that of national resources), state antidegradation policy further defined.	WVDEP	In the future				
Core Element 4, Objective C: Incorporate wetland-specific water quality standards into agency decision-making.								
4.C1. Use water quality standards as basis for regulatory decisions.	Future planning, pending completion of 4.C3	Use water quality standards in permitting decisions.	WVDEP	Future planning				
4.C2. Use water quality standards as basis for evaluating restoration/protection projects and mitigation/compensation projects.	Future planning, pending completion of 4.C1.	Use water quality standards as basis for evaluating restoration/protection projects and mitigation/compensation projects.	WVDEP	Future Planning				
4.C3. Incorporate water quality standards into monitoring and assessment program.	As time allows, determine the best approach to measuring representative water quality at the wetland. Analyze the data to determine its use in refinement of WVWRAM function and condition scoring, as well as pinpointing impacts.	Wetlands' specific sampling methods determined. Data analysis completed. Updated WVWRAM metrics in use as applicable.	WVDEP					X



Figure 5. New interpretive sign, Stauffer's Marsh

Abbreviations

ACEP	Agricultural Conservation Easement Program, NRCS
ACP	Atlantic Coast Pipeline
AMD	Acid Mine Drainage
CBP	Chesapeake Bay Program
CLRLT	Cacapon & Lost Rivers Land Trust
CREP	Comprehensive Reserve Enhancement Program
CWA	Clean Water Act
DU	Ducks Unlimited
EBX-EM	Environmental Banc & Exchange, a wholly owned subsidiary of RES LLC
EIP	Ecosystem Investment Partners
FCI	Federal Correctional Institute
FEMA	Federal Emergency Management Agency
FODC	Friends of Deckers Creek
FOB	Friends of Blackwater
FOC	Friends of the Cheat
FPB	Farmland Protection Board
FGDC	Federal Geographic Data Committee
GIS	Geographic Information System
GRWA	Greenbrier River Watershed Association
IRT	Inter-Agency Review Team
MNWW	Master Naturalists of West Virginia
MSMCC	Mountain State Mitigation Credits Company
NEAFWA	Northeast Association of Fish & Wildlife Agencies
NRCS	Natural Resources Conservation Service
NWCA	National Wetland Condition Assessment
NWI	National Wetlands Inventory
NWI-WV	National Wetlands Inventory - West Virginia version with state updates
OHCF	Outdoor Heritage Conservation Fund
PAN	Plateau Action Network
PCWA	Piney Creek Watershed Association
PVAS	Potomac Valley Audubon Society
RES	Resource Environmental Solutions LLC
SWVM	Stream and Wetland Valuation Metric
TMDL	Total Maximum Daily Load
TMI	The Mountain Institute
TNC	The Nature Conservancy

TU	Trout Unlimited
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USFS	United States Forest Service
USNPS	United States National Park Service
WAB	WVDEP Watershed Assessment Branch
WABBASE	WVDEP Watershed Assessment Branch Water Quality Database
WIB	WVDEP Watershed Improvement Branch
WMA	Wildlife Management Area
WOTUS	Waters of the United States
WPDG	Wetland Program Development Grant
WRP	Wetland Reserve Program
WSWA	Warm Springs Watershed Association
WVBG	West Virginia Botanic Garden
WVCA	West Virginia Conservation Agency
WVDA	West Virginia Department of Agriculture
WVDO	West Virginia Development Office in WV Department of Commerce
WVDEP	West Virginia Department of Environmental Protection
WVDNR	West Virginia Division of Natural Resources
WVDOF	West Virginia Division of Forestry
WVDOH	West Virginia Division of Highways
WVHC	West Virginia Highlands Conservancy
WVLT	West Virginia Land Trust
WVRC	West Virginia Rivers Coalition
WVSU	West Virginia State University
WVU	West Virginia University
WVUERC	West Virginia University Environmental Research Center
WVWRAM	West Virginia Wetland Rapid Assessment Method

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Figure 6. Green frog resting in a white-tailed deer footprint in a wetland

Appendices

Appendix A. Wetland Education and Outreach Activities 2021-2025

Wetland education and outreach activities were carried out by numerous agencies and organizations, as detailed (in part) in Table A below.

Table A. Wetland Education and Outreach Activities 2021-2025			
Lead	Type	Date(s)	County
Appalachian Headwaters	Educational Bog Garden on site, wetland programming and workshops at Camp Waldo and Wood Thrush Park	2021-2025	Summers, Greenbrier
Brooks Bird Club	Nature Sorties & Forays	2023-2025	Statewide
Cacapon and Lost River Land Trust	Landowner outreach regarding easements for land with critical habitat such as wetlands. Included wetlands in their strategic plan	2021-2025	Hampshire, Hardy, Morgan
Canaan Valley NWR	Visitor Center, nature walks and programming with many wetland-centric topics, Tree Plantings, Americorps Intern monitoring and other activities	2021-2025	Tucker
Canaan Valley State Park	Events at Nature Center & wetland boardwalk	2021-2025	Tucker
Coal River Group	Meadowood Park Trail and Signage	2021-2025	Kanawha
Friends of Blackwater	Volunteer invasive species removal and cleanups, nature walks and advocacy	2021-2025	Tucker
Kanawha State Forest	Stream and floodplain restoration; new T. K. Pauley Amphibian Loop trail opened around constructed vernal pools.	2021-2023, 2022	Kanawha
Kump Center	Wetland Wednesdays, iNaturalist Group, cleanups, water testing, invasive plant removal	2021-2025	Randolph
Master Naturalists of WV	Curriculum requires Wetland Habitats and Amphibians classes. Elective vernal pool and peatland classes offered in some chapters.	2021-2025	8 chapters statewide
Monongahela National Forest	Cranberry Glades boardwalk replacement project, orchid tours	2024-2025	Pocahontas
Monongahela	Mower Tract restoration planting &	2021-2024	Randolph,

Table A. Wetland Education and Outreach Activities 2021-2025			
Lead	Type	Date(s)	County
National Forest	wetland outreach through public presentations		Pocahontas
The Nature Conservancy	Volunteer tree planting days, outreach about restoration, hike led at Dobbins Slashings Preserve	2021-2025	Statewide
New River Birding & Nature Center and Wolf Creek Wetlands	Wetland boardwalk with signage, volunteer-maintained	2021-2025	Fayette
NRCS	Assisted with WVWRAM workshops and wetland field trips. Minor updates to wetland factsheet. Hydric Soils group meetings initiated. Wetland Reserve Enhancement program guide maintenance.	2021-2025	Statewide
Piney Creek Watershed Association	Restoration of local wetlands (Shady Spring Library and WWHS) and creation of trails with signage	2021-2025	Raleigh
Potomac Valley Audubon Society	Cool Springs and Stauffer's Marsh trail maintenance, nature centers and hikes with educational programming, fourth grade watershed education, summer camps with wetland activities and lessons, wetland education to go along with Shepherd University Stream Ecology class	2021-2025	Jefferson, Berkeley, Morgan
Town of Marlinton	Work on wetland educational park: delineation and plans, invasive species removal, boardwalk-style walkway entrance to park with clean water educational sign.	2021-2025	Pocahontas
Warm Springs Watershed Association	Widmyer Wetlands boardwalk maintenance, cleanups. Wild And Wonderful Wetlands sign installed in 2024. Nature walks and purple loosestrife management in the watershed. Trail extended in 2023. Tree plantings in wetland.	2021-2025	Berkeley

Table A. Wetland Education and Outreach Activities 2021-2025			
Lead	Type	Date(s)	County
West Liberty University	Construction of Appalachian Aquatic Conservation Center for conservation of aquatic wildlife	2023-2025	Ohio
Wetlands of Winfield	Boardwalk with interpretive signs and outdoor classroom available for events	2021-2025	Putnam
White Grass Ski Touring Center	Snowshoe Discovery Tours, often featuring wetland destinations & lore	2021-2025	Tucker
Wirt County Schools	Wirt County Wetlands Field Day	2022-2025	Wirt
Woodrow Wilson High School	Creation of wetlands outdoor classroom at school using WVDOT Recreational Trails Program funds	2022-2025	Raleigh
WV Botanic Garden	Wetland loop trail, wetland classes	2021-2025	Monongalia
WV Native Plant Society	Botanical walks often visit wetland areas such as Blister Swamp and marl marshes of the eastern panhandle	2021-2025	Statewide + 2 chapters
WVDEP WAB	7 WVWRAM workshops in 2023 supporting regulatory rollout reached 82 professionals. Interagency training (WVDNR, USEPA, USACE) on WVWRAM. Training videos on WVWRAM. Put out final version of WV Planting tool	2022-2025	Statewide
WVDEP WIB – Project WET	Wild And Wonderful Wetlands program- videos, signs, and fact sheets for twelve wetlands across the state; STEAM Booklet produced, four wetland teacher workshops, creation of event planning guide	2021-2025	Statewide
WVDEP WIB - SOS	10 Vernal Pool CitSci workshops 2023-2024, 102 people at four workshops in 2023 and 107 at five workshops in 2024, created vernal pool training videos and Survey123 app	2021-2025	Statewide

Table A. Wetland Education and Outreach Activities 2021-2025			
Lead	Type	Date(s)	County
WVU Extension Service at Jackson's Mill	STEAM Booklet-led wetland exploration at onsite wetland	2023-2025	Lewis



Figure 7. Wetland Workshop for Educators

Appendix B. Wetlands Restored, Enhanced or Preserved 2021-2025

Wetland restoration, enhancement, and protection were accomplished by numerous agencies and organizations, as detailed (in part) in Table B below.

Table B. Wetlands Restored, Enhanced or Preserved 2021-2025					
Project	Lead	Type	Acreage	Date	County
Beall Field Balsam Fir Planting	CVNWR	Enhancement	2.1	2023	Tucker
Bear Knob Mitigation Bank: Rovers Run Phase	AllStar Ecology	Enhancement	1.669	2023-2025	Upshur
		Restoration	9.968		
Bear Knob Mitigation Bank: Hackers Mainstem Phase	AllStar Ecology	Enhancement	0.212	2023-2025	Upshur
		Restoration	5.31		
Bear Knob Mitigation Bank: Back Hollow Phase	AllStar Ecology	Establishment	0.081	2023-2025	Upshur
		Restoration	0.585		
Big Cove Tract	TNC	Preservation	156	2023	Tucker
Bolivar Heights	National Park Service- Harpers Ferry	Restoration	1	2024	Jefferson
Brooks Farm Preserve and Life Estate	WVLT	Preservation	Est. 1.06	2024	Greenbrier
Cacapon and Lost River Land Trust Easements	CLRLT	Preservation	1.35	2021-2025	Hampshire, Hardy, Morgan
Canaan Valley State Park Reforestation	TNC	Enhancement	Est. 100	2021-2025	Tucker
Center Branch WMA Beaver Assisted Habitat Structure Project	WVDNR	Establishment	0.5	2024	Harrison
Cherry Ridge Mitigation Bank	RES	Establishment	2.85	2022	Lewis
		Preservation	0.37		

Table B. Wetlands Restored, Enhanced or Preserved 2021-2025					
Project	Lead	Type	Acreage	Date	County
Cliff Canyon	WVLT, OHCF	Preservation 755 acres total with ~14 acres of riparian wetlands		Nov 2020	Pendleton
Cool Springs Marsh Preserve	WVLT, PVAS	Preservation	11	2024	Jefferson
Cool Springs Marsh Riparian Planting	PVAS	Enhancement (invasive species removal and plantings)	0.5	2024- 2025	Jefferson
Cortland West Balsam Fir Planting	CVNWR	Enhancement	5.5	2022	Tucker
Dickson #2	WVLT	Preservation	Est. 0.27	2024	Monroe
Dobbins Slashing	TNC	Preservation	~250	2024	Tucker
Duck Creek Mitigation Bank	Naturion East LLC (was Water and Land Solutions)	Enhancement	4.13	2022	Harrison
		Establishment	7.156		
Federal Schoolhouse Ridge North	National Park Service- Harpers Ferry	Restoration	2	2024	Jefferson
Fee Land Ownership	TNC	Preservation	Est. 694	Total to Date	State-Wide
	WVLT	Preservation	Est. 184		
Fletcher Wetland Restoration	CVNWR	Restoration	8	2025	Tucker
FLOC Tract	OHCF, Rolling Ridge Foundation LLC	Preservation Floodplain wetlands along riparian corridors		2024	Jefferson
Freeland Balsam Fir Restoration	CVNWR, TNC	Enhancement	10	2025	Tucker
Freeland Field Balsam Fir Planting	CVNWR	Enhancement	20	2024	Tucker
Green Spring Run	WVILF	Establishment	10	2025	Hampshire

Table B. Wetlands Restored, Enhanced or Preserved 2021-2025					
Project	Lead	Type	Acreage	Date	County
Hayes Run II Mitigation Bank	WV Bunrootis LLC	Establishment	1.42	2020	Roane
		Enhancement	0.84		
Jenkinsburg	WVLT, OCHF	Preservation	Est 2.5	2020	Preston
Horseshoe Hills Mitigation Bank	RES	Establishment	3	2022	Marion
Larkin Hollow Mitigation Bank	RES	Establishment	3	2021	Kanawha
Little Indian Creek Mitigation Bank	Water and Land Solutions	Enhancement	1.42	2023	Monongalia
		Re-Establishment	9.50		
Meadow Bluff	WVILF, AllStar Ecology	Enhancement	17.8	2023	Greenbrier
		Preservation	17		
Meadow Bluff Mitigation Bank	Allstar Ecology	Restoration	9.05	2025	Greenbrier
		Enhancement	52.60		
Miller	WVLT	Preservation	Est 1.3	2023	Randolph
Nash Farm	National Park Service-Harpers Ferry	Restoration	0.01	2024	Jefferson
Nutrient Management Plans	WVDA	Enhancement	Est. 90,000 ag acres with scattered wetlands	2025	State-wide, focusing in Chesapeake Bay and Ohio River regions
Old Oak Mitigation Bank	RES	Establishment	2.69	2023	Preston
		Restoration	0.04		
		Enhancement	2.36		
Owl Creek Farm	WVLT	Preservation	Est. 1.4	2023	Monongahela
Paul Hughes Preserve at Potts Creek	WVLT	Preservation	Est. 0.17	2021	Monroe
Pleasant Creek WMA Phase II	WVDNR, Ducks Unlimited, EQT, AllStar Ecology	Establishment	1.25	2021	Barbour/Taylor
Private Land Easements	Many organizations and private land owners	Preservation	Est. 971 acres across state	Total to date (1992-2022)	State-wide

Table B. Wetlands Restored, Enhanced or Preserved 2021-2025					
Project	Lead	Type	Acreage	Date	County
	TNC	Preservation Est. 94 new in 2022 and Est. 198 to date		2022, Total to Date	Hardy, State- wide
	WVLT	Preservation Est. 101		Total to Date	State-wide
Ruby Run East	WVCA	Restoration	0.4	2021	Preston
Ruby Run West	WVCA, WVU	Restoration	0.3	2022	Preston
Sandy Creek Mitigation Bank	RES	Establishment	1.42	2020	Tyler
Shady Spring Library Wetland Restoration	Piney Creek Watershed Association	Restoration	0.05	2021	Raleigh
Sinks of Gandy	TNC	Preservation	22.9	2023	Randolph
Stonefly Phase 1 Mitigation Bank	Hard Rock Land Company	Enhancement/ Restoration	0.49	2024	Lewis
Tomlinson Run Mitigation Bank	Water and Land Solutions	Re- Establishment	1.431	2021	Hancock
UNT of Teter Creek	WV ILF, Allstar Ecology, Appalachian Stream Restoration, GAI	Restoration	0.966	2024	Barbour
		Enhancement	4.465		
Widmyer Wetland	WSWA	Enhancement	Scattered tree and shrub plantings	2021-2025	Morgan
Woodrow Wilson High School Wetland Restoration	Piney Creek Watershed Association	Restoration	0.8	2021	Raleigh
Wood Thrush Park Farm Pond	Appalachian Headwaters	Enhancement (Planting)	0.1	2024	Greenbrier
Wood Thrush Park Wet Meadow	Appalachian Headwaters	Enhancement (Planting)	1.2	2025	Greenbrier



Figure 8. In-Lieu Fee wetland restoration year 1, at Meadow Bluff.

Appendix C. Wetlands Restored, Enhanced, or Preserved 2016-2020

This Wetland Program Plan represents the first statewide effort to begin capturing data on wetland restoration and preservation. Our knowledge is still incomplete. Known projects from 2016-2020 are listed in the body of this report, but older projects are also of importance, especially as we begin to develop monitoring indicators to aid in restoration success. The table below includes information (in part) on wetland restoration projects completed between 2016-2020.

Table C. Wetlands Restored, Enhanced or Preserved 2016-2020					
Project	Lead	Type	Acreage	Date	County
Allegheny Front Preserve	TNC/OHCF	Preservation	20	2016-2020	Grant
Auman Road Passive AMD Beaver Creek	FOC	Establishment	0.1	2020	Preston
Bear Knob Offsite Mitigation	AllStar Ecology LLC, Antero Resources	Restoration	0.93	2020	Upshur
		Enhancement	1.71		
Bearwallow Run Mitigation Bank	WV Bunrootis	Restoration	2.54	2018	Ritchie
Beverly Mitigation Bank Site #1	Green Rivers	Establishment	4.76	2020	Randolph
Brushy Fork Mitigation Bank	EIP	Establishment	5.72	2020	Harrison
		Enhancement	7.66		
Bunnells Run Bat Conservation Site	AllStar Ecology LLC, Antero Resources	Establishment	0.03	2017	Ritchie
		Preservation	0.19		
Canaan Valley NWR	USFWS, WVHC	Enhancement	multiple locations at CVNWR	Continuous	Tucker
Canaan Valley State Park	TNC	Enhancement	80	2018-2020	Tucker
Cheat River/Big Sandy riverscour	WVLT, OHCF	Preservation	1/8 mile or ~0.1 acre	2020	Preston
Clearwater Bat Conservation Site	Antero Resources, AllStar Ecology LLC	Establishment	0.06	2018	Ritchie

Table C. Wetlands Restored, Enhanced or Preserved 2016-2020					
Project	Lead	Type	Acreage	Date	County
Cline Run Mitigation Bank	EBX-EM	Establishment	1.28	2017	Tyler
		Rehabilitation	0.83		
		Preservation	0.42		
Clover Creek Conservation Site	AllStar Ecology LLC, ACP	Establishment	0.03	2019	Pocahontas
Cool Spring Marsh	PVAS, WVLT	Preservation	12	2020	Jefferson
Cranesville Swamp	TNC	Enhancement	100	2016-2019	Preston
Crow Run Mitigation Bank	EIP	Preservation	0.07	2019	Wetzel
Deckers Creek	FODC	Establishment	~2	2016-2020	Preston, Monongalia
Elk River Quakers Landing	WVLT	Preservation	6	2020	Clay
Foster Run Mitigation Bank	EBX-EM	Establishment	1.65	2017	Tyler
		Rehabilitation	1.53		
		Preservation	0.77		
Frozen Camp WMA ILF	WVDEP ILF	Establishment	0.96	2020	Jackson, Roane
		Enhancement	2.4	2020	
Gandy Creek ILF	WVDEP ILF	Establishment	0.507	2018	Randolph
Glade Farms Mitigation Bank	Decota Consulting Co.	Establishment	29.2	2019	Preston
		Enhancement	94.4		
		Preservation	9.8		
Greenbottom WMA ILF	WVDEP ILF	Establishment	12.08	2020	Cabell
Hackers Creek Mitigation Bank	Allstar Ecology LLC	Restoration	4.0	2017-2018	Upshur, Harrison
		Enhancement	1.38		
		Preservation	0.53		
Hillcrest WMA ILF	WVDEP ILF	Establishment	22.75	2016	Hancock
		Enhancement	3.47		
Indian Creek Mitigation Bank	MSMCC	Establishment	0.06	2018	Ritchie
Kanawha-Sapsucker Run Mitigation Bank	EIP	Establishment, Enhancement	0.77	2019	Mason
Kanawha-Yeager Fork Mitigation Bank	EIP	Establishment, Enhancement	0.29	2019	Mason
		Preservation	0.04		

Table C. Wetlands Restored, Enhanced or Preserved 2016-2020					
Project	Lead	Type	Acreage	Date	County
Kincheloe Mitigation Bank	WV Bunrootis	Restoration	5.59	2016	Lewis
Little Clear Creek	WVDEP ILF	Establishment	0.55	2019	Greenbrier
		Enhancement	34.61		
Margery Run Bat Conservation Site	AllStar Ecology LLC, Antero Resources	Establishment	0.04	2016	Tyler
		Preservation	0.01		
McClintic WMA	WVDEP ILF	Establishment	8.22	2019	Mason
		Restoration	1.71		
Mower Tract (former surface mine)	USFS	Establishment	785 wetlands scattered over 453 acres	2016-2019	Randolph, Pocahontas
Native tree/shrub seed collection, propagation, distribution, and planting events	WVHC	Enhancement	Many sites	2016-2020	Statewide
Nutrient management plans	WVDA	Enhancement	90,000 agricultural acres w/ scattered wetlands	2016-2020	Statewide
Ohio River Islands NWR	USFWS	Establishment	2	2020	Wood
Oxbow Mitigation Bank	EIP	Establishment, Enhancement	4.18	2020	Ritchie
Peddlar WMA/Dixon Lake	WVDNR, Allstar Ecology LLC	Establishment	0.5	2018	Monongalia
Poppybean Farm Addition	WVLT	Preservation	4	2018	Hardy
Randolph I Mitigation Bank	EBX-EM	Establishment	2.12	2019	Randolph
		Rehabilitation	0.34		
		Preservation	0.84		

Table C. Wetlands Restored, Enhanced or Preserved 2016-2020					
Project	Lead	Type	Acreage	Date	County
Second Creek Headwaters	WVLT, Monroe County FPB, NRCS	Preservation	8	2017	Monroe
Seven Pines Mitigation Bank	EBX-EM	Establishment	3.64	2018	Marion
		Rehabilitation	0.26		
Shavers Fork riverscour	WVLT, OHCF	Preservation	1 mile or ~0.7 acres	2019	Randolph
Spruce Mountain Conservation Site	TC Energy, AllStar Ecology LLC, TNC	Restoration	0.03	2018	Pendleton
		Preservation	0.01		
Walnut Fork Bat Conservation Site	JB Oil and Gas, AllStar Ecology LLC	Establishment	0.11	2016	Tyler
Yellow Creek Preserve	WVLT/OHCF	Preservation	300	2016-2020	Tucker



Figure 9. Forested floodplain habitat along Meadow River within Meadow Bluff In-Lieu Fee site

Appendix D. Wetland Research & Publications 2021-2025

Research projects focusing on West Virginia wetlands provide key information to organizations involved in wetland conservation in West Virginia. A list of these projects and the publications that have resulted from them to date is presented below.

Monitoring and Conservation

Action Plan for the Meadow River Wetlands Conservation Focus Area (WVDNR)

WV Division of Natural Resources. "Action Plan for the Meadow River Wetlands Conservation Focus Area" (2021). https://wvdnr.gov/wp-content/uploads/2021/10/MeadowRiver.CFA_.ActionPlan.10.11.21.pdf

Obligations of Researchers and Managers to Respect Wetlands: Practical Solutions to Minimizing Field Monitoring Impacts (WVU)

Bryzek, J.A.; Noe, K.L.; De Silva, S.; MacKenzie, A.; Von Haugg, C.L.; Hartman, D.; McCall, J.E.; Veselka, W., IV; Anderson, J.T. Obligations of Researchers and Managers to Respect Wetlands: Practical Solutions to Minimizing Field Monitoring Impacts. Land 2022, 11, 481. <https://doi.org/10.3390/land11040481>

Restoration Site Assessment and Trajectories

Do Mitigated Wetlands Support Similar Small Mammal Communities as Natural Wetlands? (WVU)

Noe, K, M Frantz, CT Rota, and JT Anderson. 2021. Do Mitigated Wetlands Support Similar Small Mammal Communities as Natural Wetlands? IWSS Spring Workshop Series (Virtual). <https://researchrepository.wvu.edu/iwss-presentations/6/>

Restored Wetland Size and Age Influence Small Mammal Communities in West Virginia, USA

Noe, K.L., Rota, C.T., Frantz, M.W. et al. Restored Wetland Size and Age Influence Small Mammal Communities in West Virginia, USA. Wetlands 44, 48 (2024). <https://doi.org/10.1007/s13157-024-01799-3>

Small mammal communities of restored and natural wetlands in West Virginia (WVU)

Noe, Krista, "Small mammal communities of restored and natural wetlands in West Virginia" (2022). Graduate Theses, Dissertations, and Problem Reports. 11428. <https://researchrepository.wvu.edu/etd/11428>

Wetland Mitigation Performance Standards: The Intersection of Science, Practice, and Policy (WVU)

Bryzek, Jessica Anne, "Wetland Mitigation Performance Standards: The Intersection of Science, Practice, and Policy" (2022). Graduate Theses, Dissertations, and Problem Reports. 11544. <https://researchrepository.wvu.edu/etd/11544>

Woody Vegetation Indicators vary with time Since Wetland Restoration

Bryzek, J.A., Veselka IV, W., Rota, C.T. et al. Woody Vegetation Indicators vary with time Since Wetland Restoration. Wetlands 43, 89 (2023). <https://doi.org/10.1007/s13157-023-01735-x>

Flora

Biodiversity Monitoring of a Riparian Wetland in a Mixed-Use Watershed in the Central Appalachians, USA, before Restoration (WVU)

Becker, D.N.; Hubbart, J.A.; Anderson, J.T. Biodiversity Monitoring of a Riparian Wetland in a Mixed-Use Watershed in the Central Appalachians, USA, before Restoration. Diversity 2022, 14, 304. <https://doi.org/10.3390/d14040304>

The Birds and The Bees and The Willows: Understanding the reproductive biology of *Salix nigra* Marsh (WVU)

*Grady, Julianne Gmys, "The Birds and The Bees and The Willows: Understanding the reproductive biology of *Salix nigra* Marsh." (2023). Graduate Theses, Dissertations, and Problem Reports. 12125. <https://researchrepository.wvu.edu/etd/12125>*

Flora of the Southeastern United States

Weakley, A.S., and Southeastern Flora Team. 2025. Flora of the southeastern United States Web App. University of North Carolina Herbarium, North Carolina Botanical Garden, Chapel Hill, U.S.A. fsus.ncbg.unc.edu. <https://fsus.ncbg.unc.edu/>

Holocene peatland vegetation, climate, and fire reconstruction in the Appalachian Mountains of West Virginia

Chimezie, Joan. "Holocene peatland vegetation, climate, and fire reconstruction in the Appalachian Mountains of West Virginia" (2023). UW-Madison Open Dissertations and Theses. <http://digital.library.wisc.edu/1793/89623>

Riverscours Ecosystems of Eastern Unglaciaded North America: A Review

Dwayne Estes, Christopher Tracey, Ephraim Zimmerman, Wesley Knapp, James Vanderhorst, Jason Singhurst, Theo Witsell "Riverscours Ecosystems of Eastern Unglaciaded North America: A Review," Natural Areas Journal, 43(3), 148-168, (25 July 2023). <https://bioone.org/journals/natural-areas-journal/volume-43/issue-3/2162-4399-43.3.148/Riverscours-Ecosystems-of-Eastern-Unglaciaded-North-America-A-Review/10.3375/2162-4399-43.3.148.full>

Water Quality

Evaluating Impacts of Anthropogenic Disturbance to Wetland Water Quality Functions (WVU)

De Silva, S., JT Anderson, JA Hubbart, MP Strager, RE Kellner, CT Rota, and EA Byers. 2021. Evaluating impacts of anthropogenic disturbance to wetland water quality functions. IWSS Spring Workshop Series (Virtual). <https://researchrepository.wvu.edu/iwss-presentations/5/>

Hydrology

Measuring and Modeling Riparian Wetland Saturated Hydraulic Conductivity, Nutrient Concentrations and Shallow Groundwater Dynamics in an Appalachian Mixed Land Use Catchment (WVU)

Abesh, Bidisha Faruque, "Measuring and Modeling Riparian Wetland Saturated Hydraulic Conductivity, Nutrient Concentrations and Shallow Groundwater Dynamics in an Appalachian Mixed Land Use Catchment" (2024). Graduate Theses, Dissertations, and Problem Reports. 12523. <https://researchrepository.wvu.edu/etd/12523>

(Non-) Recovery of An Agricultural Stream from Straightening and Dredging (WVU)

Mann, Aras Anderson, "(Non-) Recovery of An Agricultural Stream from Straightening and Dredging" (2024). Graduate Theses, Dissertations, and Problem Reports. 12382. <https://researchrepository.wvu.edu/etd/12382>

Wetland Functional Assessment

Reference Manual for the West Virginia Wetland Rapid Assessment Method (WVWRAM)(DEP)

West Virginia Department of Environmental Protection. 2024. Reference Manual for the West Virginia Wetland Rapid Assessment Method. Version 1.4. Water Quality Standards and Assessment Section, Division of Water and Wastewater Management, West Virginia Department of Environmental Protection, Charleston, WV

User Manual for the West Virginia Wetland Rapid Assessment Method (WVWRAM)(DEP)

West Virginia Department of Environmental Protection. 2024. User Manual for the West Virginia Wetland Rapid Assessment Method. Version 1.24. Watershed Assessment Branch, Division of Water and Wastewater Management, West Virginia Department of Environmental Protection, Charleston, WV.

Using multiple taxa and wetland classification schemes for enhanced detection of biological response signatures to human impairment (WVU)

Veselka, Walter IV; Kordek, Walter S.; and Anderson, James T., "Using multiple taxa and wetland classification schemes for enhanced detection of biological response signatures to human impairment" (2021). Faculty & Staff Scholarship. 3073. https://researchrepository.wvu.edu/faculty_publications/3073

Wetland Fauna

Assessment of the Geographic Distribution and Tools to Assist with Conservation of Spotted Turtles (*Clemmys guttata*) in West Virginia (WVU)

*Mota, Joel Leal, "Assessment of the Geographic Distribution and Tools to Assist with Conservation of Spotted Turtles (*Clemmys guttata*) in West Virginia" (2022). Graduate Theses, Dissertations, and Problem Reports. 11188. <https://researchrepository.wvu.edu/etd/11188>*

A Wetland-Based Habitat Suitability Model for Spotted Turtles (*Clemmys guttata*) in West Virginia, USA, Using Field Surveys and Regional Data

*Mota, Joel & Brown, Donald & Oxenrider, Kevin & Strager, Michael. (2025). A wetland-based habitat suitability model for spotted turtles (*Clemmys guttata*) in West Virginia, USA, using field surveys and regional data. *Herpetological Conservation and Biology*. 20. 364-378. https://www.researchgate.net/publication/395381805_A_wetland-based_habitat_suitability_model_for_spotted_turtles_Clemmys_guttata_in_West_Virginia_USA_using_field_surveys_and_regional_data*

The Comparison of Different Wetland Fish Assemblages Over Time (MU)

Adelstein, Robert E. "The Comparison Of Different Wetland Fish Assemblages Over Time." (2024). Marshall University ProQuest Dissertations & Theses, 2024. 31142887. <https://www.proquest.com/openview/06e7cd02e23dcf8641410b88df3a9996/1?pq-origsite=gscholar&cbl=18750&diss=y>

Ecology of freshwater turtles and other wetland wildlife in a north-central West Virginia watershed (WVU)

Lozon, Darien N., "Ecology of freshwater turtles and other wetland wildlife in a north-central West Virginia watershed" (2021). Graduate Theses, Dissertations, and Problem Reports. 8068. <https://researchrepository.wvu.edu/etd/8068>

Influence of Wetland and Landscape Characteristics on Freshwater Turtle Relative Abundance and Movement Patterns in West Virginia, USA

Becker, D.N., Brown, D.J. & Anderson, J.T. Influence of Wetland and Landscape Characteristics on Freshwater Turtle Relative Abundance and Movement Patterns in West Virginia, USA. Wetlands 44, 19 (2024). <https://doi.org/10.1007/s13157-024-01777-9>

Prevalence Of Ranavirus in Spotted Salamander (*Ambystoma maculatum*) Larvae From Created Vernal Pools In West Virginia, USA

*Alice R. Millikin, Drew R. Davis, Donald J. Brown, Sarah K. Woodley, Stephanie Coster, Amy Welsh, Jacob L. Kerby, James T. Anderson; Prevalence of Ranavirus in Spotted Salamander (*Ambystoma Maculatum*) Larvae from Created Vernal Pools in West Virginia, USA. J Wildl Dis 1 January 2023; 59 (1): 24–36. doi: <https://doi.org/10.7589/JWD-D-22-00032>*

The Second Atlas of Breeding Birds in West Virginia

Christopher M Lituma, The Second Atlas of Breeding Birds in West Virginia, Ornithology, Volume 139, Issue 4, 6 October 2022, ukac023, <https://doi.org/10.1093/ornithology/ukac023>

Space-Use Patterns of Spotted Turtles Occupying Two Wetland Types in West Virginia

Kevin J. Oxenrider and Donald J. Brown "Space-Use Patterns of Spotted Turtles Occupying Two Wetland Types in West Virginia," Northeastern Naturalist 31(sp12), C17-C26, (14 June 2024). <https://doi.org/10.1656/045.031.s1209>

Understory structure and heterospecifics influence the occupancy of a ground-nesting species of conservation concern, the Canada Warbler (WVU)

Dimming, Gordon W.; Rota, Christopher; Wood, Petra; and Lituma, Christopher M., "Understory structure and heterospecifics influence the occupancy of a ground-nesting species of conservation concern, the Canada Warbler" (2022). Faculty & Staff Scholarship. 3102. https://researchrepository.wvu.edu/faculty_publications/3102

Wetland Mapping

Assessing Synthetic Aperture Radar (SAR)-Derived Temporal Patterns and Digital Terrain Data for Palustrine Wetland Mapping (WVU)

Pyron, Jaimee L., "Assessing Synthetic Aperture Radar (SAR)-Derived Temporal Patterns and Digital Terrain Data for Palustrine Wetland Mapping" (2021). Graduate Theses, Dissertations, and Problem Reports. 10294. <https://researchrepository.wvu.edu/etd/10294>

Land-Surface Parameters for Spatial Predictive Mapping and Modeling (WVU)

Maxwell, Aaron E. and Shobe, Charles, "Land-Surface Parameters for Spatial Predictive Mapping and Modeling" (2022). Faculty & Staff Scholarship. 3278. https://researchrepository.wvu.edu/faculty_publications/3278

Peatland Thickness and Extent Remote Sensing

WVU study is pending WPDG Track 2 approval

Appendix E. Wetland Resources and Outreach Materials

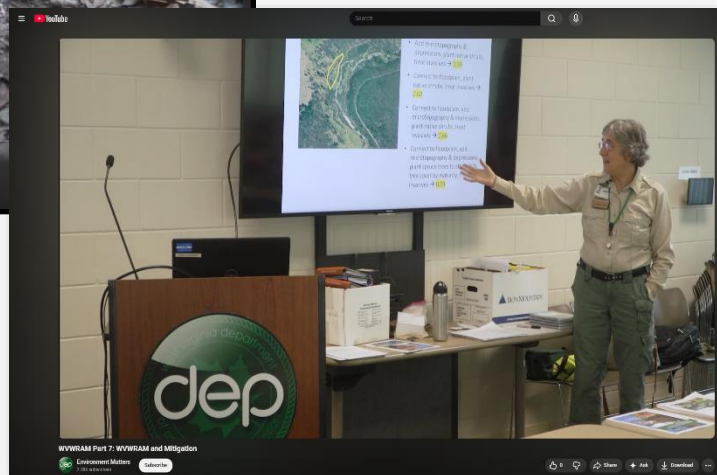
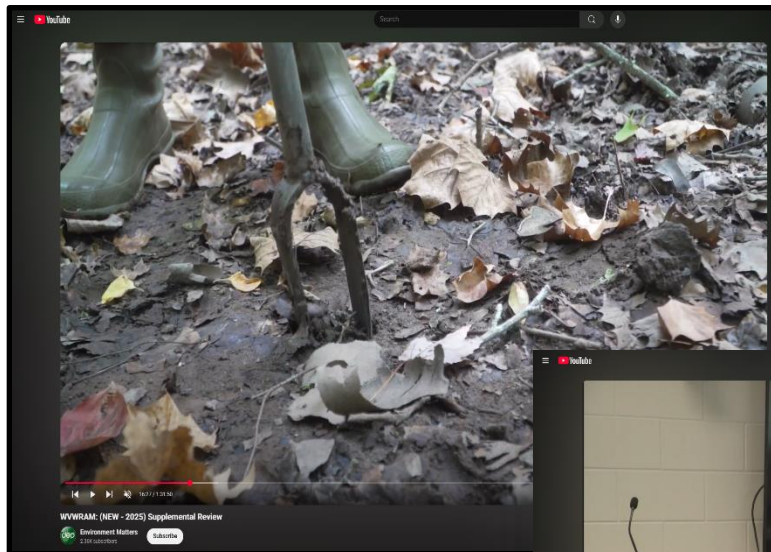
Playlist of WVWRAM tutorial and training recordings on WVDEP's Environmental Matters

YouTube Channel: https://youtube.com/playlist?list=PLLyTaD88wM7iC2SrBQ_w-mjdOkzHp2e1F&si=dwAferVBe03ByjS8

The first video in the playlist is a complete walkthrough of the WVWRAM process in the field and the database. The WVDEP wetlands team go through a WVWRAM assessment at a forested wetland in Kanawha State Forest and then walk watchers through each step of data entry and scoring via the WVDEP GIS tool and database.

The second video focuses on WVWRAM-related issues regulators may face, recorded in a training workshop.

The remaining videos are a recording of a 2023 WVWRAM training workshop for the sponsors/consultants who now use WVWRAM in their assessments for impacts and mitigation.



West Virginia Restoration Planting Tool

The planting tool's new interface was finalized in 2022. With a few simple clicks, users can select their county/county section, site type and project type, and results length preference. The output is a tailored list of native plants that would best suit their project. This tool can provide planting lists for both wetland and upland sites and is useful for landowners and consultants. <https://dep.wv.gov/WWE/getinvolved/Pages/WV-Planting-Tool.aspx> or <https://tagis.dep.wv.gov/seeds/>



Wetland Resources Guide



This webpage serves as WVDEP's public-facing repository of wetland resources with relevant YouTube videos, factsheets, webpage links, and field guides.

<https://dep.wv.gov/WWE/getinvolved/Pages/Wetland-Resources-Guide.aspx>

Wild and Wonderful Wetlands Videos and Factsheets

The Watershed Improvement Branch selected 12 publicly available wetlands to feature in this project. Videos with wetland scientists and area experts were filmed on location, signs for the project were placed at each wetland, and fact sheets highlighting each wetland's features and functions were created and linked via QR code on each sign. The materials are hosted on WVDEP's website, and the videos can also be found on WVDEP's YouTube Channel.

<https://dep.wv.gov/WWE/getinvolved/Pages/Wild-Wonderful-Wetlands.aspx>

https://youtube.com/playlist?list=PLLyTaD88wM7gnEXk_Uv_SbhJQIBH-t-92&si=j3fe8Q-71xNndihz

KANAWHA STATE FOREST

DID YOU KNOW?

- Kanawha State Forest was established in 1937 and subsequently the heavy mining and logging.
- Kanawha State Forest has a vernal pool wetland called vernal pools. They are shallow, ephemeral water bodies created by the forest and very important.
- It is important to drive carefully in Kanawha SF, as wildlife, especially salamanders, may have their vernal pools.

Vernal pools are seasonal and lack the presence of fish, making them home to a multitude of amphibian species. Young tadpoles and salamander larvae hatch quickly and reenter the forest before the pools dry up. Within the wetland, there are eight salamanders, six anurans, and three reptiles that depend on vernal pools for breeding, feeding, and overwintering. The Spotted Salamander Trail allows visitors to see and learn about vernal pools without disturbing the habitat.

Kanawha State Forest's vernal pools are unique ecosystems because:

- they are forested wetlands, a high-quality wetland habitat in WV.
- they provide habitat for different plant and animal species each season.

The Spotted Salamander Trail in Kanawha State Forest is located in Kanawha County, WV. 38.26473, -81.66894

Kanawha State Forest - Spotted Salamander Wetland

The land that is now Kanawha State Forest originally was the site of extensive mining and logging. In 1937, the West Virginia Conservation Commission purchased 6,705 acres on the headwaters of Davis Creek outside of Charleston. The following year, Camp Kanawha was set up as a project of the Civilian Conservation Corps. The CCC removed coal tipples and other structures no longer in use and built roads, the superintendent's residence and picnic shelters. A dam also was built across Davis Creek to create a small lake. After Camp Kanawha's closure in 1942, the state acquired an additional 2,500 acres.

Fun Fact: The Kanawha State Forest Historic District was listed on the National Register of Historic Places in 1993.

WILD AND WONDERFUL WETLANDS

KANAWHA STATE FOREST
KANAWHA COUNTY, WV

Watch on YouTube

Kanawha State Forest Fact Sheet

STEAM (Science, Technology, Engineering, Art, Math) Wetland Workbook

<https://cdn.wvegov.com/sharepoint/dep/WV%20STEAM%20Wetland%20Activity%20Booklet.pdf>

West Virginia
WETLAND

SCIENCE TECHNOLOGY ENGINEERING ARTS MATHEMATICS

STEAM

Activity Booklet

DEFINING A WILD & WONDERFUL WETLAND

In West Virginia, wetlands have water at or near the soil surface

Air-filled stems act like snorkels to bring oxygen to the roots.

Slots in the bark help woody stems breathe.

Dark organic soil often accumulates in saturated wetland conditions.

AQUATIC BED EMERGENT WETLAND SHRUB WET

for two weeks or longer during the growing season (hydrology). Plants have special adaptations to survive in the wet environment (hydrophytic plants) and soils develop characteristic wetland features (hydric soils).

Shallow roots try to stay above the water table.

Mineral soil in wetlands may alternate between wet and dry through the year, forming a grayish soil with rusty orange iron concentrations.

Mineral soil in upland areas is above the water table.

LAND FORESTED WETLAND UPLAND

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WETLAND PHENOLOGY

Plants do not always look the same; their looks may change with the season. The study of these biological changes that occur in relation to the season is called **phenology**. Phenology is "Nature's Calendar," and it impacts all living things. Common Buttonbush is shown in each of the four seasons below. Based on your knowledge of the seasons, label the buttonbush photos below.

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WETLAND MACROINVERTEBRATES

A **macroinvertebrate** is an animal without a backbone that is large enough to be observed without the aid of a microscope or other magnification. They spend all or part of their lives in water. These aquatic organisms tend to be more sensitive to environmental changes, such as temperature, pH, or dissolved oxygen level.

Dragonfly larva attached to vegetation.

Ebony jewelwing (damselfly) resting on pondweed.

Humans often play a role in environmental changes. For example, if an herbicide is sprayed on the edge of a wetland, not only will the chemical spread quickly through the water, but the removal of the vegetation will decrease the hiding spots for young aquatic organisms and increase sunlight exposure and water temperature.

Review the definitions on the next page to learn more about water chemistry.

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WETLAND ECOLOGY

Wetlands offer many ecosystem services.

Ecosystem goods and services produce the many life-sustaining benefits we receive from nature—clean air and water, fertile soil for crop production, pollination, and flood control. These ecosystem services are important to environmental and human health and well-being, yet they are limited and often taken for granted.

— US EPA

Wetlands are referred to as "Earth's Kidneys." This is because they act as sponges absorbing and filtering pollutants from water before it goes into rivers and oceans.

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EMERGENT WETLAND ON POND EDGE

Species Highlight

The Northern Green Frog has an average length of 2 to 3.5 inches and is commonly found in emergent wetlands. They are known as "sit-and-wait" predators, and will commonly feed on invertebrates, insects, and small fish.

Northern Green Frog

Did you know that broadleaf and narrowleaf cattails have hybridized? This means all cattails in West Virginia are now considered invasive. While cattails are highly specialized to live in wet areas, they can grow in dense clusters, which cuts off resources to other plants.

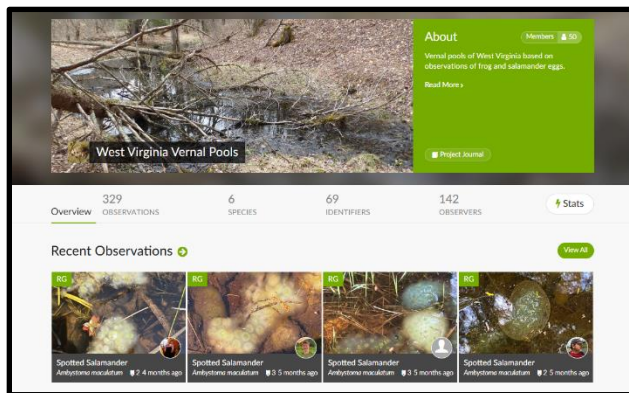
Invasive Cattail

37

Vernal Pool Program Resources Page

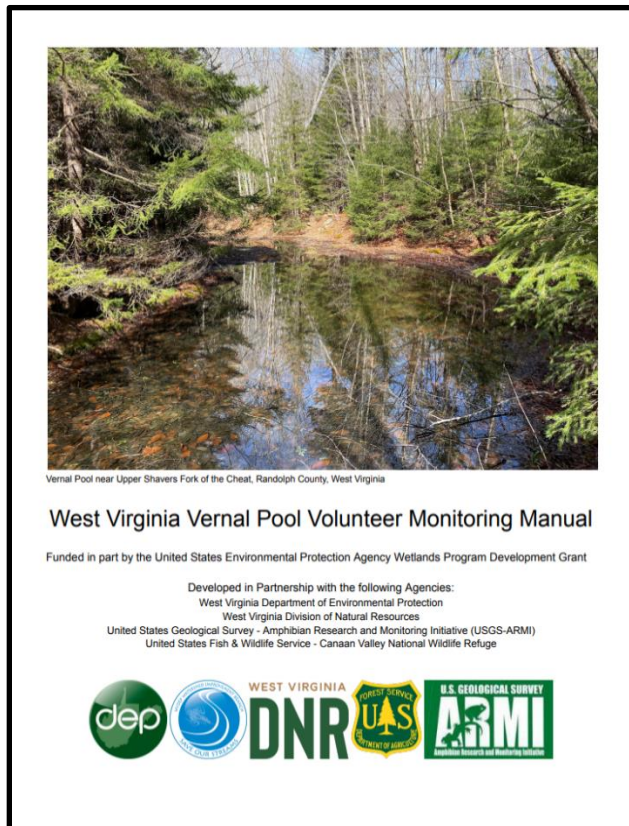
This page includes links to resources for WVDEP's new volunteer, citizen science Vernal Pool Monitoring Program. In addition to the products listed below, the page also has information and resources on various vernal pool species and a listing of past and future scheduled public training workshops.

<https://dep.wv.gov/WWE/getinvolved/Pages/Vernal-Pool-Monitoring.aspx>



iNaturalist Project Page



<https://www.inaturalist.org/projects/westvirginia-vernal-pools>




Vernal Pool Monitoring Protocol

<https://dep.wv.gov/WWE/getinvolved/Documents/Vernal%20Pool%20Monitoring/West%20Virginia%20Vernal%20Pool%20Volunteer%20Monitoring%20Instruction%20Manual.pdf>

Vernal Pools



WEST VIRGINIA
DNR



This is a survey to enter your vernal pool observations. Please take a moment to review this form and what data is being requested prior to filling out the vernal pools survey. We strongly advise monitors to limit their observations to vernal pools located on public lands and be in communication with park staff. If observation is on private land, please ensure you have received landowner permission prior to monitoring. If you would like to learn how to successfully complete a vernal pool observation, please refer to The [West Virginia Vernal Pool Volunteer Monitoring Manual](#). Additional information can be found at [WVDNR Vernal Pools](#).

Vernal Pool - a type of wetland; a depression in the terrain that holds water in winter and spring, but does not hold substantial water year round due to seasonal evaporation and groundwater fluctuations associated with reduced precipitation. Pools can be naturally occurring, or formed by human activity. Vernal pools are disconnected from other bodies of water, except in larger wetland pool complexes.

Vernal Pool Observation

Are you entering a vernal pool location only or a vernal pool monitoring survey?

Location Only

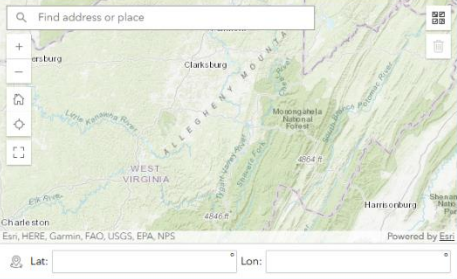
Level 1 Monitoring Survey

Level 2 Monitoring Survey

Organization or affiliation name

Vernal Pool Location

Please ensure the location pin is directly over the vernal pool location.



County of vernal pool observation

Please select

Fish or green/bull frogs observed?

Yes

No

Upload photo of vernal pool

Drop image here or select image

Submit

Wetland Conversion activities may include:

- Filling
- Draining through surface ditching or subsurface tiling
- Dredging
- Land leveling
- Clearing woody vegetation including stump removal
- Building a diversion to runoff water

Participants who plant crops on wetlands converted after December 23, 1985 will not be eligible for certain benefits in years the crop is planted. Similarly, participants who altered a wetland (i.e. removal of woody vegetation and stumps) to make crop production possible after November 28, 1990, will also be ineligible for benefits until the previous functions are restored or mitigated. **This ineligibility remains with the person who converted the wetland, even if the owner later sells the property in question.**

In most cases, drainage systems and other conversions in place prior to December 23, 1985 can be maintained to the extent they existed at that time.

REMEMBER:

All wetlands, including those converted for non-agricultural activities, fall under U.S. Army Corps of Engineers' (COE) jurisdictionation per Section 404 of the Clean Water Act.

If you intend to discharge dredged or fill material into wetlands or other waters like lakes, streams or ponds, you must first request a jurisdictional determination from the U.S. Army Corps of Engineers.

Wetland Determinations

It is the landowner's or program participant's responsibility to comply with the wetland conservation provisions. NRCS can assist you by completing a certified wetland determination to determine if and where your property contains wetlands subject to the provisions of the Food Security Act of 1985, as amended.

NRCS employees have been trained to identify, delineate and certify wetlands.



West Virginia wet meadow wetland

Certified NRCS wetland determinations stay in effect as long as the land is used for agricultural purposes. If you disagree with a NRCS determination, you can request a reconsideration or appeal the determination before it becomes final.

Wetland Conservation Exemptions

Numerous variances and exemptions are included in the wetland conservation provisions. Those common to West Virginia include:

Prior Converted (PC):

Wetland converted to agricultural use prior to December 23, 1985, where an agricultural commodity was produced at least once prior to this date and, as of this date, did not support woody vegetation.

(After confirming the NRCS PC determination, landowners can complete planned activities with no further delay, as long as adjacent wetlands are unaffected.)

Farmed Wetland Pasture (FWP):

A wetland used for pasture or haying that was manipulated before December 23, 1985, but still meets the inundation or saturation criteria. These areas may be farmed and maintained as documented before December 23, 1985, as long as they are not abandoned.

Manipulated Wetlands (WX):

Wetlands that have been manipulated but did not make production of an agricultural commodity possible.

Maintenance:

Drainage may be maintained to the extent as it was prior to December 23, 1985. No improvement to drainage systems in or near wetlands may be completed after this date.

Non-Agricultural Activities:

Wetland Conservation Compliance does not regulate non-agricultural activities such as road or home site construction.

Frequently Asked Questions

What constitutes a wetland?

To be considered a wetland, an area must exhibit the following:

1. Predominance of hydric soils (soils formed under wet conditions).
2. Prevalence of hydrophytic vegetation (vegetation adapted to wet soil conditions).
3. Surface or groundwater inundation or saturation for a sufficient duration to support hydrophytic vegetation.

Can I clear trees from a wetland area?

Wetland conservation provisions do not generally affect normal timber harvesting if the site remains in timber production and stumps remain above ground level. Land clearing involving stump grinding or stump removal which makes agricultural production possible is prohibited.

When purchasing or renting a farm, what questions should be asked about wetlands?

Have certified wetland determinations been completed? What types of wetlands are present and what restrictions are in place? Did any

wetland conversions occur on the property after December 23, 1985? If so, what options are available to resolve the situation?

Can I install subsurface drain tile or surface drainage ditches on an existing crop field?

In most cases, drainage systems that existed prior to December 23, 1985 can be maintained. Installing a drainage system in or adjacent to a wetland is restricted. Contact NRCS before you install or realign any drainage system.

Is there a minimum wetland size exemption?

No. If a site of any size meets wetland criteria, it is subject to wetland conservation provisions.

Who is responsible for completing a USDA NRCS wetland determination on my property?

Call or visit your local USDA Service Center to determine whether these or other exemptions apply to your farm. Then, work through your NRCS office to submit a request for a required wetland determination.



Most of West Virginia's wetlands are open or forested and only seasonally saturated.

USDA is an equal opportunity provider, employer, and lender.