



New Statewide Wetland Mapping in WV Supports Conservation of Wetlands

- Why we need good wetland maps
- How we are updating our maps
- How the maps are used to protect and restore wetlands

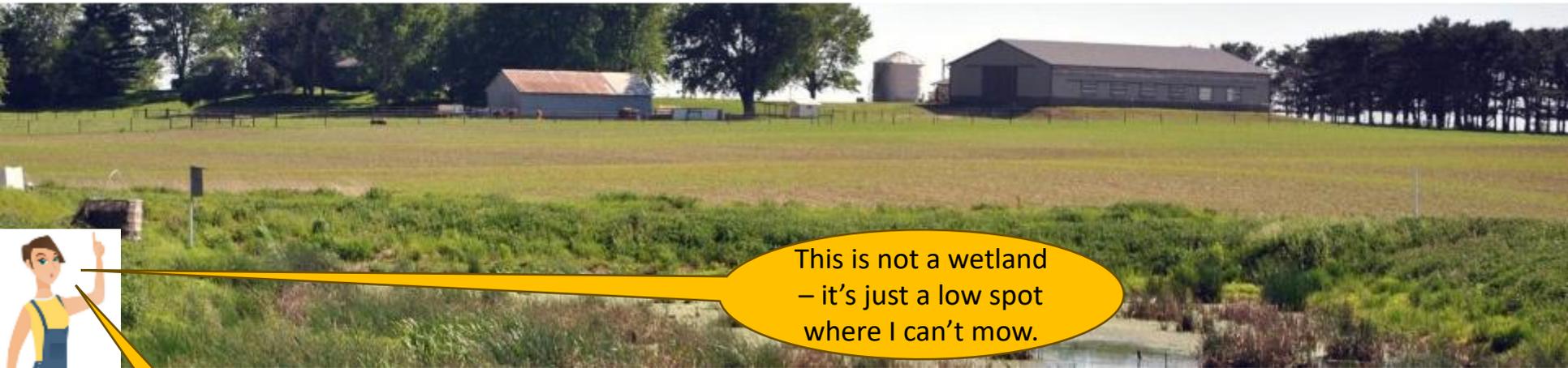
Presented by Elizabeth Byers
WVDEP Watershed Assessment Branch





Maps are Essential Data for Wetland Conservation

- Many people don't know what a wetland is, or that wetlands are protected by law.



This is not a wetland
– it's just a low spot
where I can't mow.

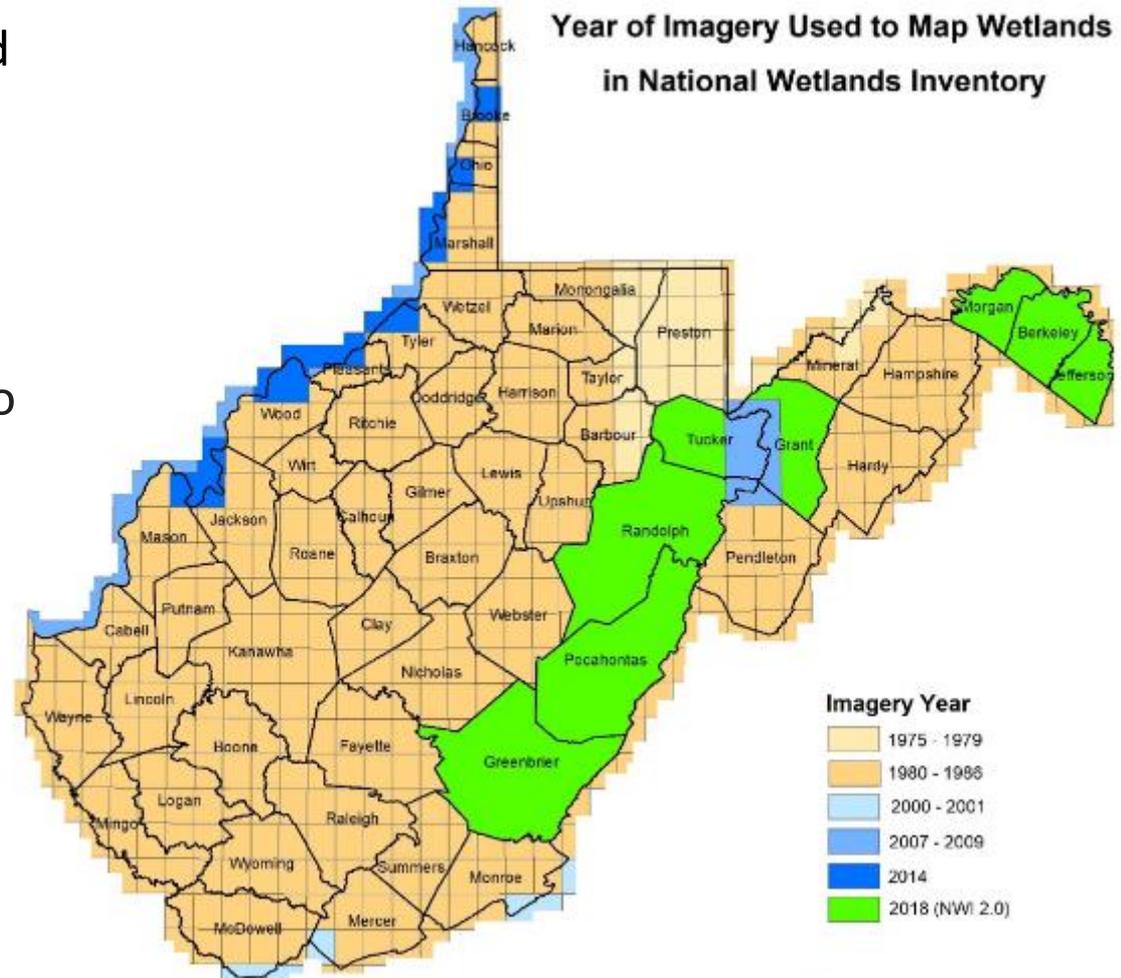
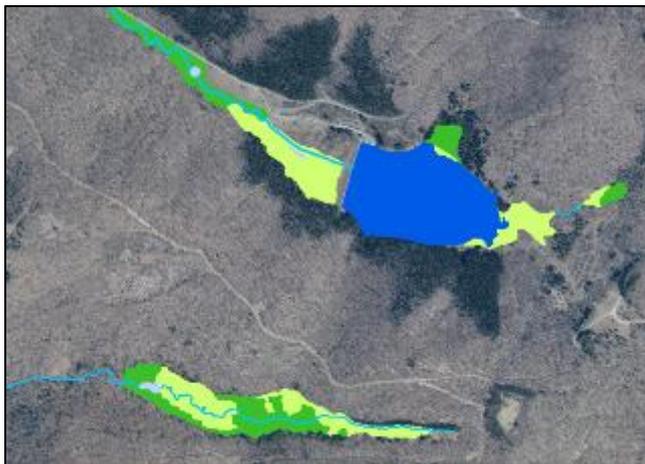


Here is a
wetland!



Maps are Essential Data for Wetland Conservation

- Most of West Virginia's wetland mapping is more than 40 years old.
- Created calibration set of 2000 field-sampled wetlands distributed across ecoregions to develop GIS metrics





WVWRAM: 75 metrics

Land Acquisition Score

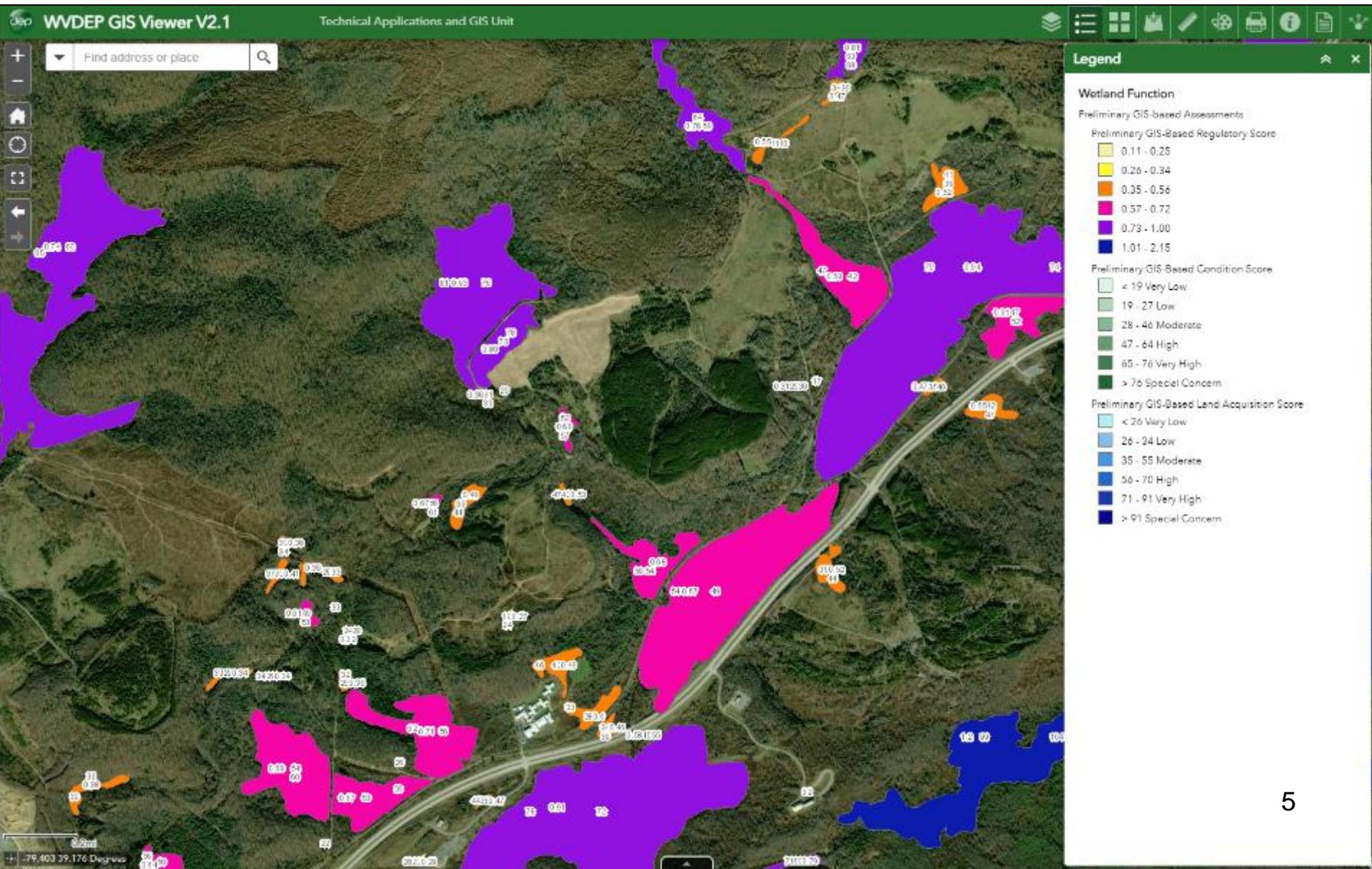
	Intrinsic Potential	Landscape Opportunity	Value to Society
Water Quality 25%	vegetation, soil, hydrology	50 m buffer, contributing watershed	public use, planning
Flood Attenuation 25%	vegetation, soil, hydrology	50 m buffer, contributing watershed	economic risk
Habitat/ Ecological Integrity 50%	vegetation, soil, hydrology	50/300/1000 m buffer, perimeter, contrib. watershed	investment, public use, access

Regulatory Function Score

Condition Score

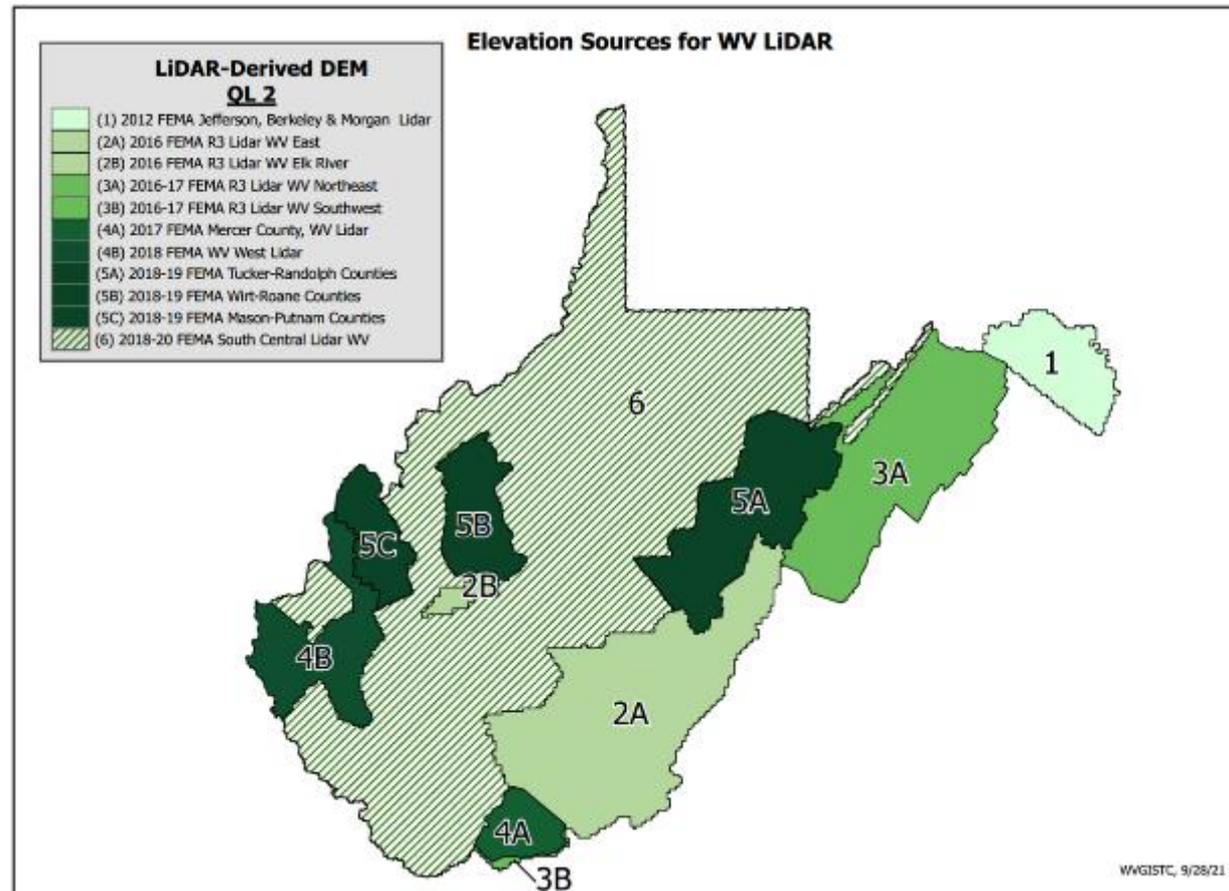
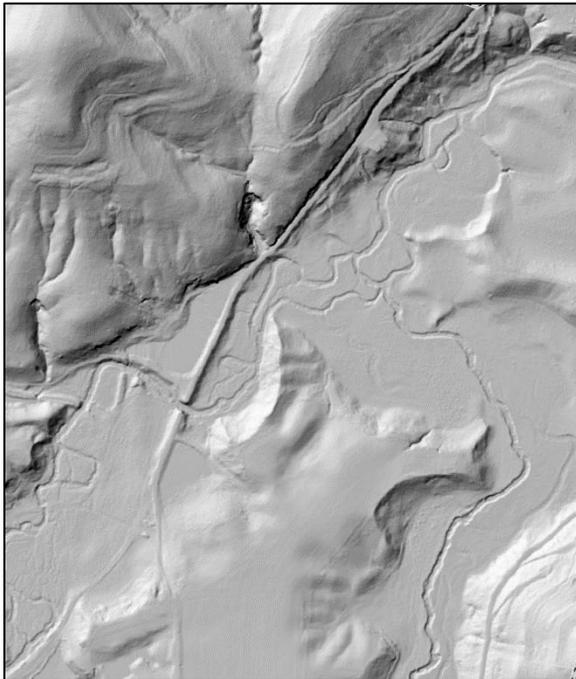
WVDEP GIS Viewer

Wetland function, condition, and land acquisition scores for all mapped wetlands



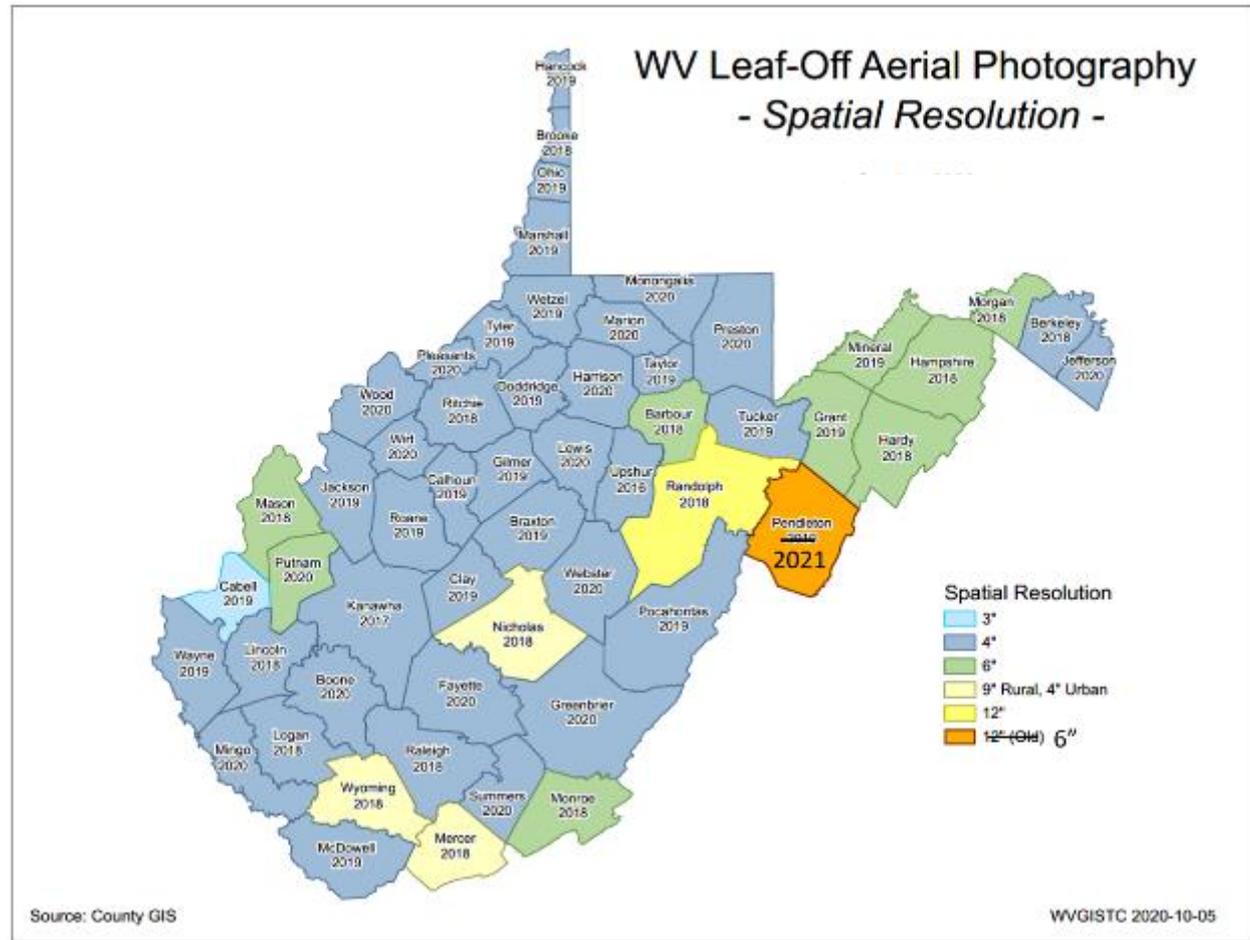
Key Imagery Sources: Q2 LiDAR

- Q2 LiDAR flown 2016-2020
- DEM and hillshade layers created 2021



High Resolution Leaf-Off Aerial Photography

- Mostly 4" – 6" resolution
- Flown 2018-2021





Funding: Wetland Program Development Grant

- Funding from EPA WPDG



- Initial RFQ for northern 23 counties, 4.7 million acres



- Second RFQ for southern 24 counties, 7.5 million acres





Finding Great Contractors

- Wetland mapping is a highly specialized skill; only a small number of contractors are competent (but others will bid).
- State must accept low bid; bids ranged from \$64,000 to \$228,000 for each half of the state.
- RFQ specs are critical.

QUALIFICATIONS:

1. Contractors must provide proof of FGDC-compliant work to the USFWS National Wetland Inventory (NWI) standard and having that work accepted into the NWI national geodatabase, as viewable at: <https://www.fws.gov/wetlands/data/mapper.html>.
2. Contractor must provide proof of the required qualifications in their bid. Proof consists of a link to the US FWS website showing metadata for mapping by the contractor and accepted and displayed in the NWI Wetlands Mapper, e.g. <https://www.fws.gov/wetlands/Data/SupMapInf/R05Y13P01.pdf>
<https://www.fws.gov/wetlands/Data/SupMapInf/R05Y19P02.pdf>

Finding Great Contractors

- Lowest bids disqualified; next lowest bids were two of the best wetland mappers in the nation!

- Northern 23 counties



- Southern 24 counties



Timeline 2021-2023

- Bids awarded, project start-up meetings to set expectations re: NWI version, minimum mapping unit
- Data transferred to contractor
- Project initiation meeting with NWI Project Officer (Amanda Pachomski) and each contractor
- Mapping begins
- Field verification visits 
- 3+ rounds of data exchange & review by DEP, contractors respond to comments
- Final review by WVDEP
- Final review & approval by NWI



Next up

- Add features smaller than mmu (vernal pools) and field mapping to finished statewide NWI map





Next up

2024: Run statewide wetland maps through WVWRAM GIS Tool to generate wetland function, condition, and land acquisition scores.

WVWRAM <https://mapwv.gov/wetlands/>

WV Wetlands Functional Assessment Tool

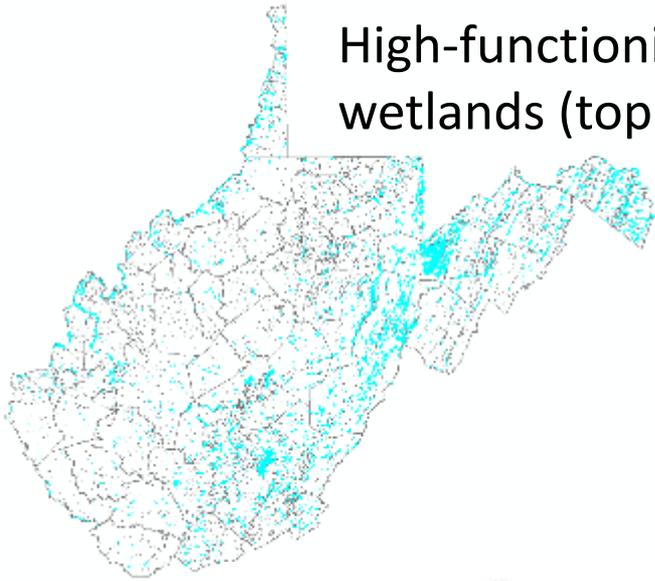
The Watershed Assessment Branch of DEP has developed a standardized method for rapidly assessing some of the important natural functions of all types of wetlands present in West Virginia. It is called the West Virginia Wetland Rapid Assessment Method (WVWRAM, pronounced "wiv-ram"). WVWRAM uses on-site observations and off-site spatial data. This is a regulatory assessment tool for agency staff and environmental professionals. It requires a knowledge of Geographic Information Systems (GIS), wetland soils, plants, hydrology, and stressors.

WVWRAM has two components: (1) GIS tool for preliminary scoring and off-site metrics, and (2) rapid field method for final scoring. Both components are required for regulatory use, but the GIS tool can be used as a stand-alone for planning purposes.

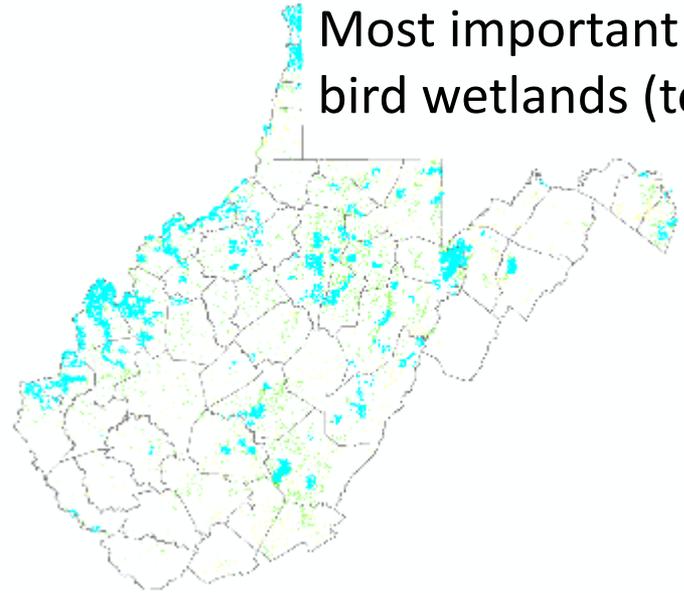
[Launch WVWRAM Tool](#)

The DEP logo and the WVWRAM logo are located in the top right corner of the tool's interface. The DEP logo is a green circle with a white outline of West Virginia and the letters 'dep'. The WVWRAM logo is a blue circle with a white outline of West Virginia and the letters 'WVWRAM'.

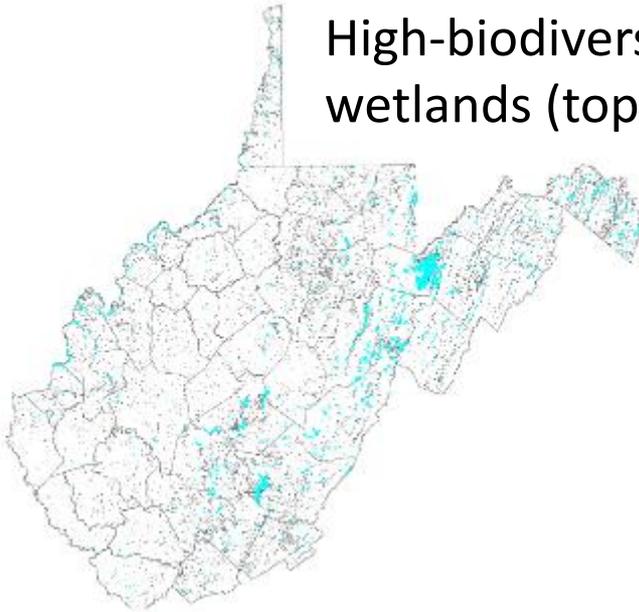
High-functioning wetlands (top 10%)



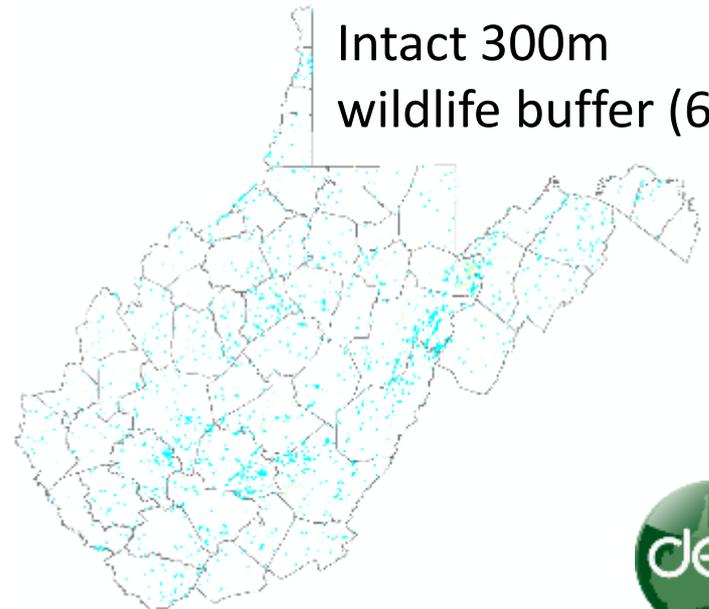
Most important breeding bird wetlands (top 2%)



High-biodiversity wetlands (top 2%)



Intact 300m wildlife buffer (6%)





Good wetland maps promote proactive planning

Reduce impacts to wetlands by the regulated community

- Predict mitigation costs of different sites or corridors



Monitor Status & Trends

- Identify reference wetlands
- Combine with field assessments for probabilistic monitoring statewide



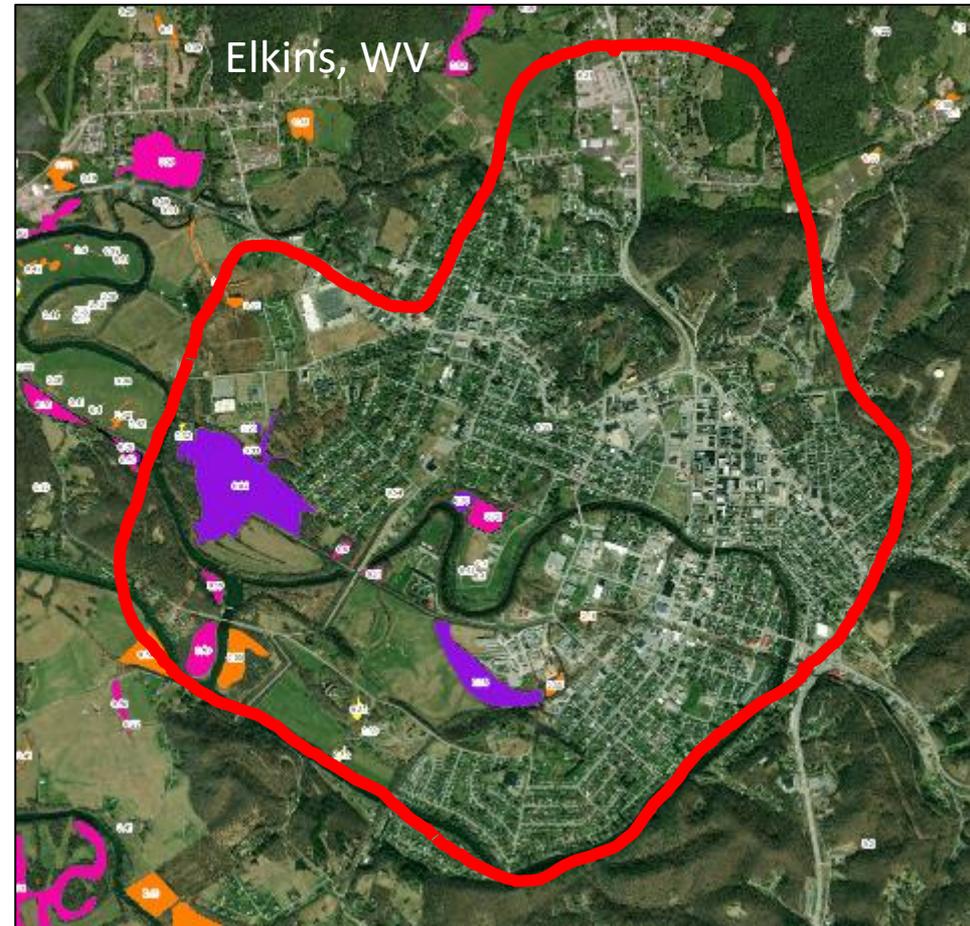
Incentivize Good Restoration Siting

- Compare potential mitigation credits at different sites prior to land acquisition; find the good neighborhoods.



Conservation Planning

- WVDNR land acquisition decisions
- Outdoor Heritage Conservation Fund
- WV Land Trust and The Nature Conservancy
- Engaged citizens
- Eventually, municipalities and counties

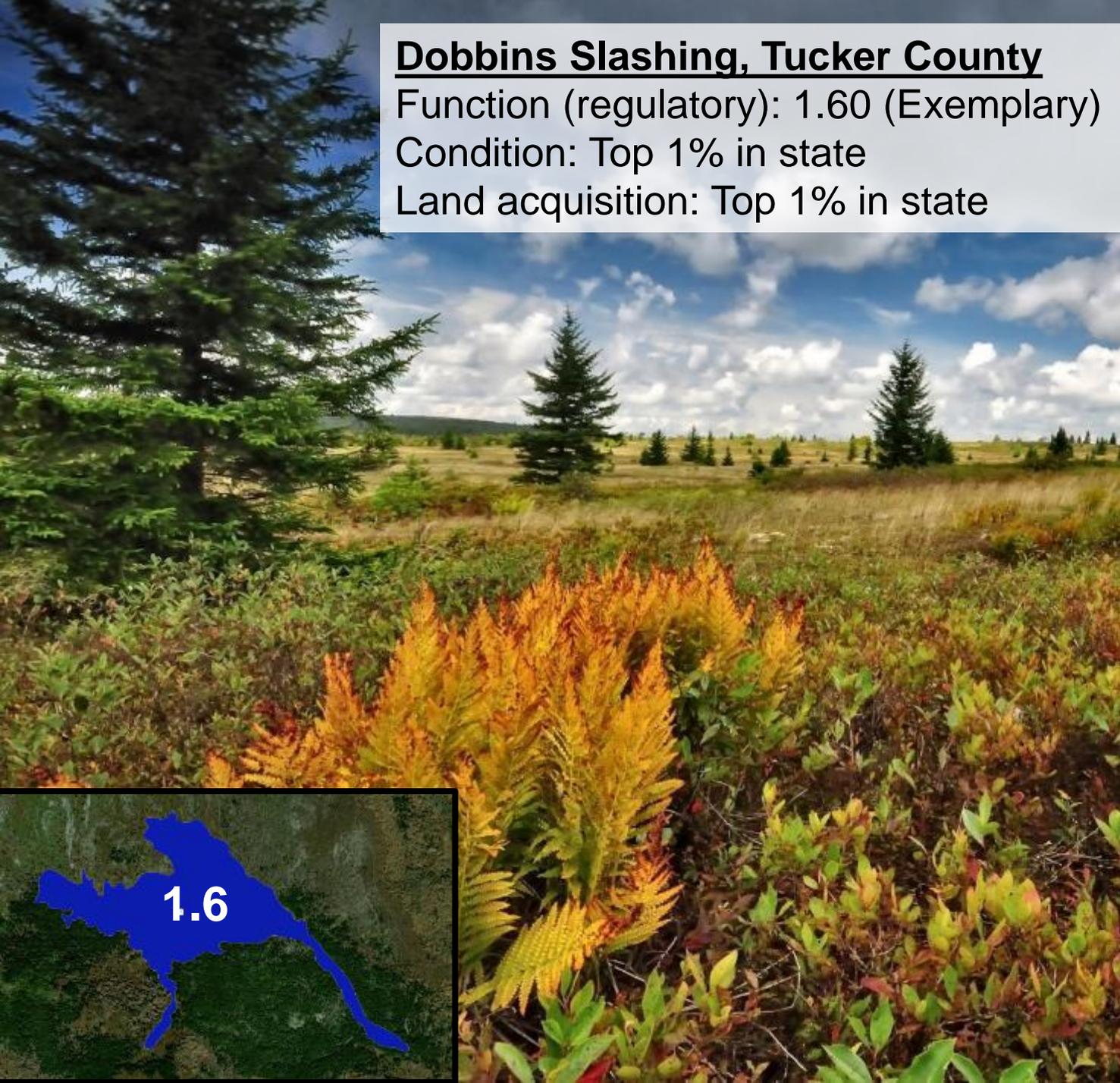


Dobbins Slashing, Tucker County

Function (regulatory): 1.60 (Exemplary)

Condition: Top 1% in state

Land acquisition: Top 1% in state



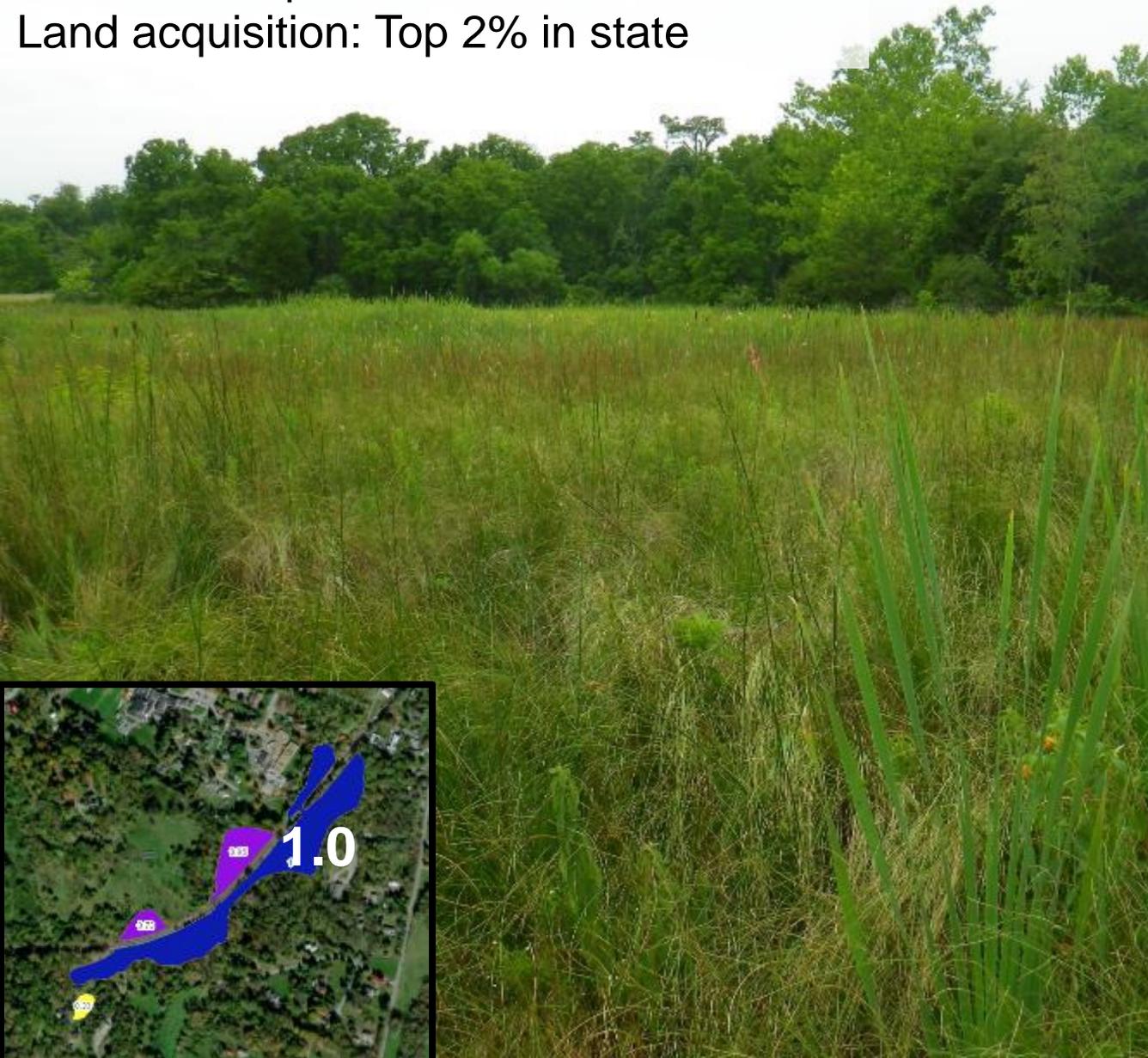


Shepherdstown Marl Fen

Function (regulatory): 1.00 (Exemplary)

Condition: Top 2% in state

Land acquisition: Top 2% in state





Thank you! Elizabeth.A.Byers@wv.gov
WVDEP Watershed Assessment Branch