

**No Net Loss On-The-Ground:
Two Examples in US**

Session 3B

To No Net Loss of Biodiversity and Beyond

**Environmental Banc & Exchange, LLC
George Kelly**

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London, England**

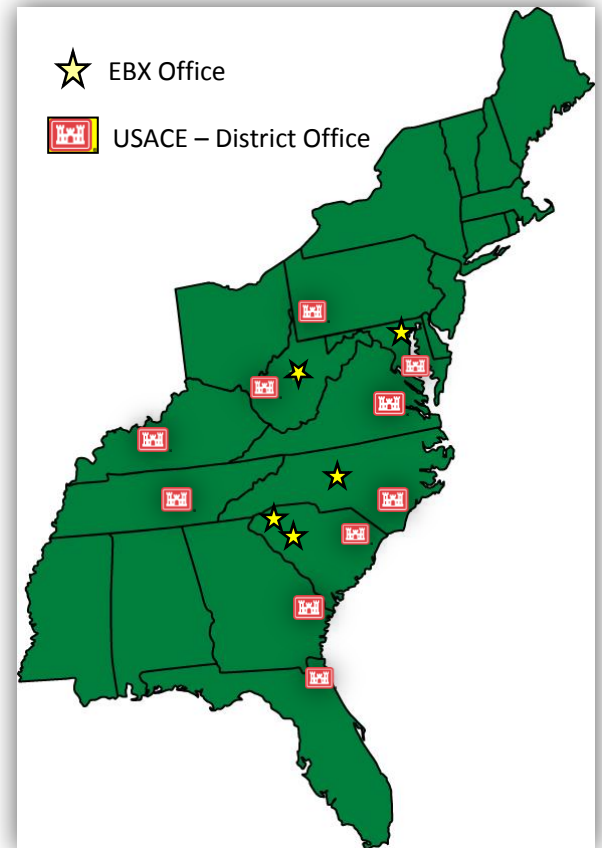
Overview

Example:

- West Virginia
- North Carolina

Introduction to EBX

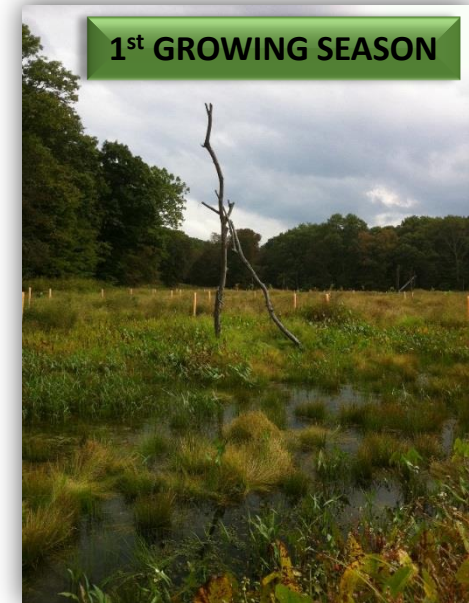
- Environmental Banc & Exchange, LLC
- Solely focused on developing mitigation projects since 1997.
- Ecological preservation, enhancement and restoration of over **124 miles of stream**.
- Restoration of over **12,839 wetland acres**.
- Conservation protection of **5,866 acres of endangered species habitat**.
- Reduced over **243 tons of nutrients** for water quality management purposes.
- Over 300 Conservation Easements closed.
- 50 project sites successfully completed to date.



I. West Virginia

Tygart Valley River Stream and Wetland Bank

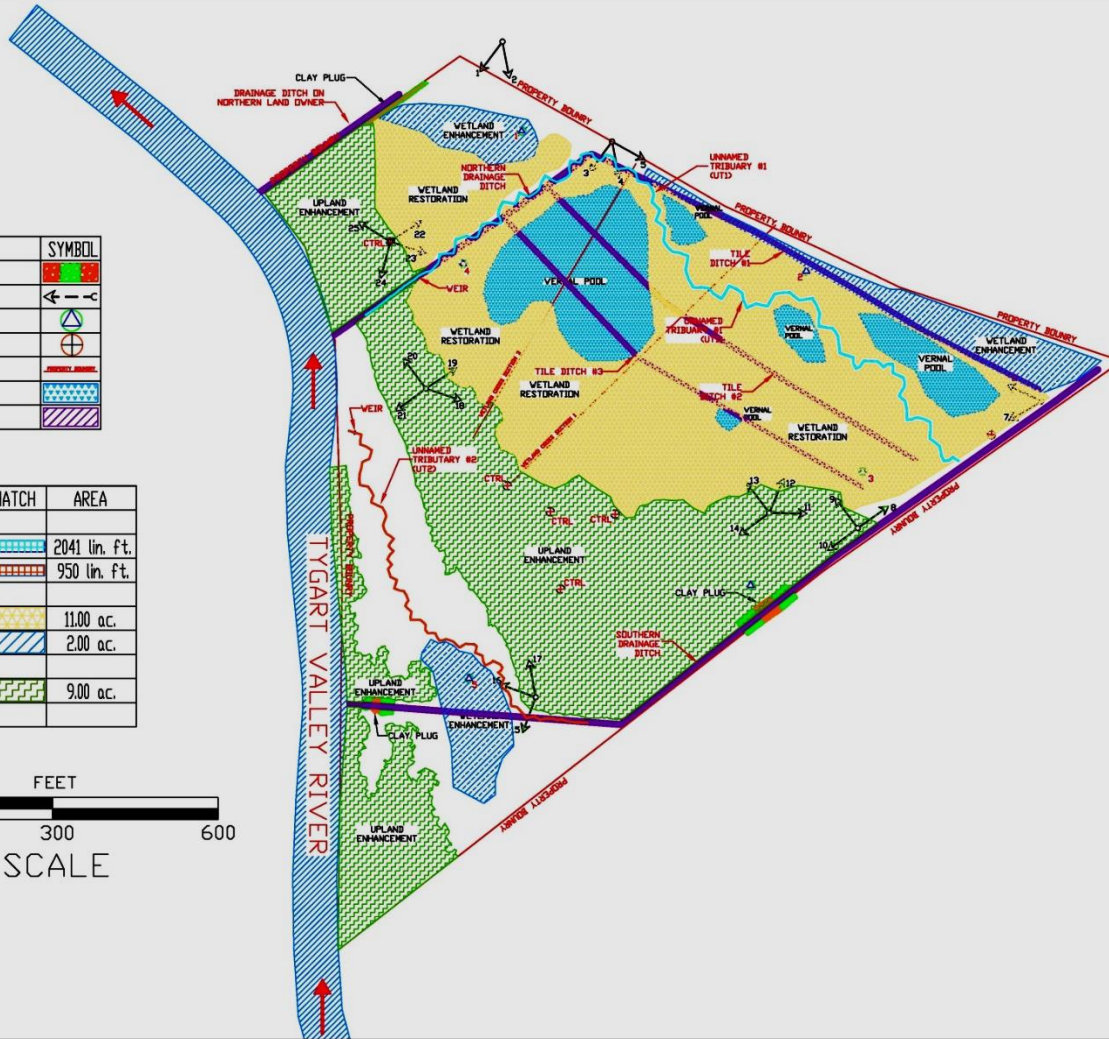
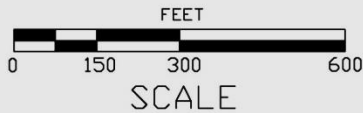
- Developer: Environmental Banc & Exchange, LLC.
- Location: Elkins, West Virginia
- U.S. Army Corps of Engineers District: Pittsburgh, Pennsylvania
- Offset Methodology: **West Virginia Stream and Wetland Valuation Metric (WV SWVM)**
- Mitigation/Offset Types: Stream and Wetland
- Permit Type/Date Received: Nationwide Permit No. 27 – December 2009
- Year Constructed: 2010
- Current Status: In Monitoring Year 4
- Credits Generated: 3,066.66 Stream, 15.82 Wetland



Site Design

DESCRIPTION	SYMBOL
CLAY PLUG	
PHOTO POINTS	
MONITORING WELLS	
CONTROL POINTS	
PROPERTY LINE	
VERNAL POOLS	
DRAINAGE DITCH	

DESCRIPTION	HATCH	AREA
STREAM RESTORATION		
Unnamed Tributary 1 (UT1)		2041 lin. ft.
Unnamed Tributary 2 (UT2)		950 lin. ft.
WETLAND ACREAGE		
Wetland Restoration		11.00 a.c.
Wetland Enhancement		2.00 a.c.
UPLAND ACREAGE		
Upland Enhancement		9.00 a.c.



Prepared By: _____
 Checked By: _____
 Date: _____

Project No. W-02, Tygart/Mitigation Bank
 Issue No. W-02, Tygart/Mitigation Bank
 Date: 10/06/07
 Date: 10/06/07

Tygart River Mitigation Bank Project
 Unnamed Tributary of the Tygart River
 Barlow, West Virginia
 Monitoring Map : As-built
 Scale: NTS

Drawing Number
 TYP-MIT-05-09 AS-BUILT
 Date: 02 of 21

Components Used to Calculate West Virginia Stream and Wetland Valuation Metric (SWVM) Scores -- Debit and Credit

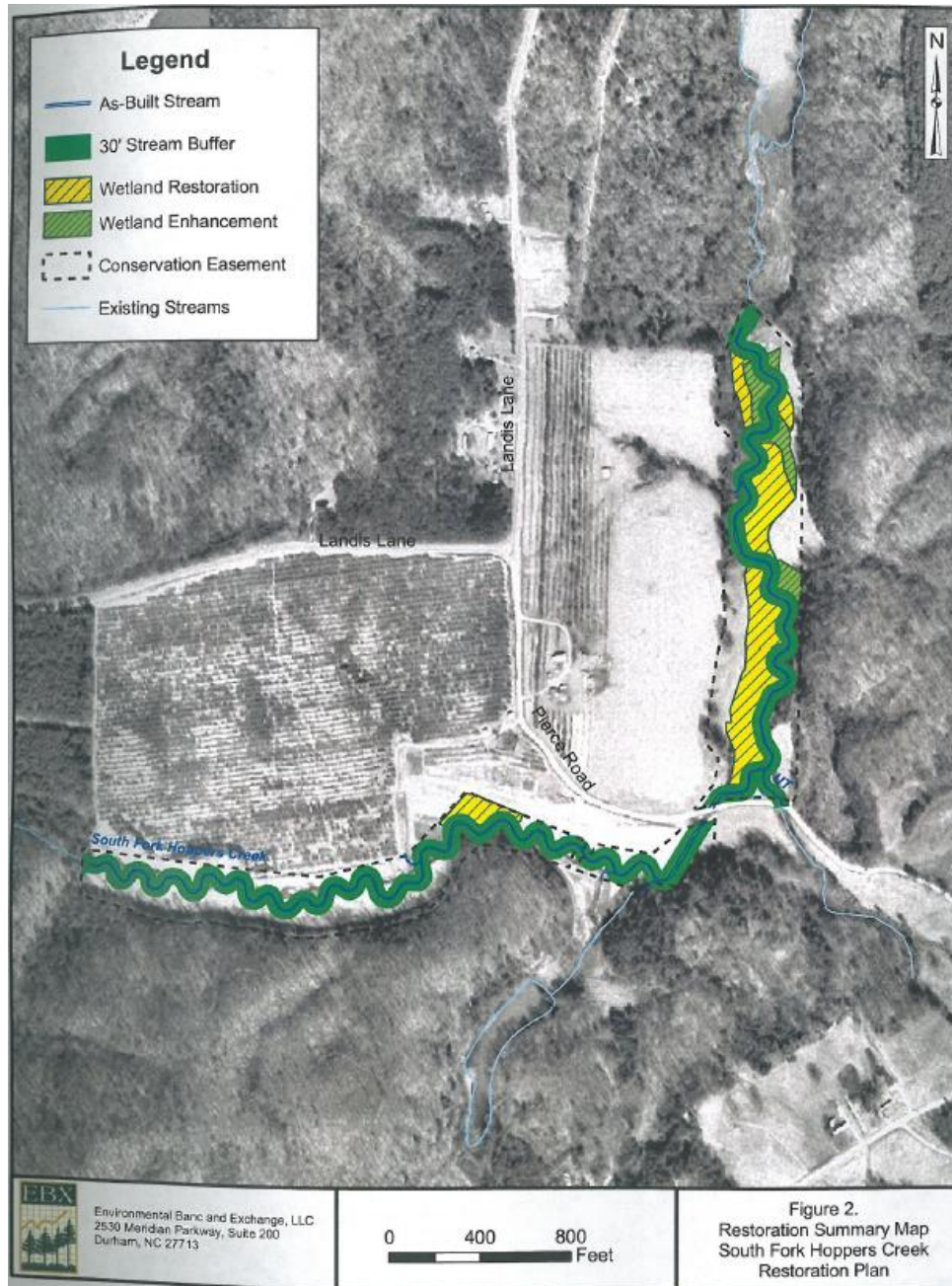
- Four individual components/protocols are used and scaled from 0 (poor) to 1.0 (best).
 1. Hydrogeomorphic Assessment (HGM)
 2. Physical
 - US Environmental Protection Agency - Rapid Bioassessment Protocol (RBP)
 - Habitat Calculations
 3. Chemical
 - Conductivity, pH, and Dissolved Oxygen
 4. Biological
 - West Virginia Stream Condition Index (WVSCI)
 - Benthic Macroinvertebrates Metric
- Other factors and value components used to adjust debit and credit values.
 - Temporal Loss
 - Long Term Protection
 - Extent of Restoration Work
 - Extended Buffer Zone Width

II. North Carolina

South Fork Hoppers Creek Mitigation

- Restored / Enhanced 7.00 acres of Riverine Wetlands
- Restored dimension, pattern and profile to 7,229 LF of stream
- Improved floodplain connectivity, water quality and wildlife habitat
- Established native wetland and floodplain vegetation

Asset Map



Offset Methodology

- Wilmington District of Army Corps uses area for offsets
- Impact: Apply 2:1 ratio to all impacts

<u>Stream:</u>	Restoration:	1 : 1
	Enhancement I:	1.5:1
	Enhancement II:	2.5:1
	Preservation:	5:1
<u>Wetland:</u>	Restoration:	1 : 1
	Enhancement:	2:1
	Creation:	3:1
	Preservation:	5:1

- Mitigation: To meet no net loss impacts must use at least 50% in restoration / enhancement credits

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