

# Stream Restoration Symposium 2019

Lessons Learned from Stream Restoration in Other Jurisdictions

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# **Stream Mitigation Banking Industry in the US and Lessons Learned -Brampton, Canada**

**George Kelly**  
November 13,  
2019



# BMP Solutions

## Comprehensive suite of solutions



WETLANDS

Restore, enhance, conserve and preserve existing wetlands, and connect to adjacent areas to create more ecologically rich ecosystems

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STREAMS

Restore, enhance, and preserve existing stream systems using floodplain and natural channel design, and reconnect associated floodplains, which reduces flooding and drastically improves water quality

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SPECIES

Restore, enhance, and preserve high-quality habitats for endangered terrestrial, avian, freshwater, and marine species



STORMWATER  
SOLUTIONS

Achieve TMDL, Combined Sewer Overflows, MS4 and water quality compliance by applying optimized BMPs either Green or Gray, in urban areas at a lower cost and higher performance

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BUFFERS

Reestablish riparian buffers along streams to protect against nutrient pollution and land impacts and also reduces flooding

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ECOLOGICAL  
RESTORATION

Provide comprehensive turnkey solutions through project design, build, monitoring, and ongoing stewardship



# Context of Restoration Economy

- Study undertaken to demonstrate Restoration Economy is \$25b/year (direct and indirect)
- Employment: 126,000 people
- Supported 95,000 other jobs
- 33 jobs per \$1m spent
- Biodiversity work is part of the Restoration Economy



# Biodiversity Report 2017

- Mitigation market approximately \$5b/year market
- US-\$3.8B; Latin America-\$.4 m; Europe-\$15m; India-\$937m; Australia-\$31.8m; Africa-\$4.3m (not include China)
- Tremendous room for growth
- Opportunity to leverage private capital-should not be the domain of merely public funding (\$1.1b in unspent investment capital)



# General Points:

- Markets are Regulatory
- 99 regulations in 33 countries
- BBOP suggested that up to 100 countries now considering offset policy
- No net loss/Biodiversity Net Gain/ Positive Impact
- Little voluntary activity to date and regulatory signal is important (pre-compliance)





# STREAM MITIGATION



# No Net Loss and Evolution of Mitigation Standards

- Market drivers by Clean Water Act goal of “no overall net loss” of wetland acres and functions announced in 1989. Applies to streams as well.
- From 1989 to 1995, mitigation process was ad hoc. Federal Guidance was issued in 1995, which promoted increased mitigation through private sector.
- New regulations effective June 9, 2008, seeks to promote one standard for mitigation. “Preference” for mitigation banking





# Clean Water Act Overview

## Framework

- Statutory: CWA Section 404
- Regulatory: 33 CFR 332 (2008 Mitigation Rule), PA: Chapter 105
- Policy: 1990 WRDA / “No Net Loss”

## Sequence

- 1. Avoidance
- 2. Minimization
- 3. *Mitigation*

## Mitigation Mechanisms

- Mitigation Banks
- In-Lieu Fee (ILF) Programs
- Permittee-Responsible Mitigation (PRM)
- (New regulations effective June 9, 2008, seek to promote one standard for mitigation. “Preference” for mitigation banking)



# Mitigation Plan Requirements

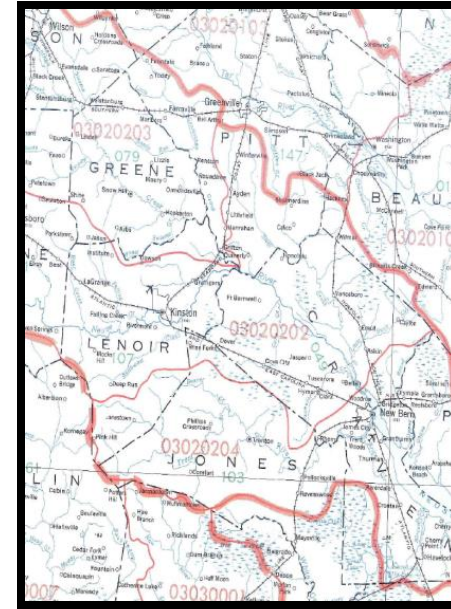
## 12 Steps Required under the 2008 Mitigation Rule

- Objectives
- Site Selection
- Site Protection Instrument
- Baseline Information
- Determination of Credits
- Mitigation Work Plan
- Maintenance Plan
- Performance Standards
- Monitoring Requirements
- Long-Term Management Plan
- Adaptive Management Plan
- Financial Assurance



# Credit Sales: Streams and Wetlands

- Impacts must be within very limited 'service area' of outlined in Mitigation Banking Instrument
- Army Corps makes case-by-case determination to determine if credits acceptable: in-kind, on-site
- Credits must be released and available consistent credit schedule
- The typical credit ratio is as follows:
  - Restoration = 1:1
  - Creation = 3:1
  - Enhancement = 2:1
  - Preservation = 5:1
- The typical credit release schedule is as follows:
  - 15% or Mit. Banking Inst. extension or easement placement
  - 10% after year 1
  - 10% after year 2
  - 10% after year 3
  - 10% after year 4
  - 15% after year 5
  - 25% after success criteria met or year 5





# Streams – Mitigation Protocols

**Approximately 33 states have formal or informal mitigation policy**

- 11 of which were developed before the 2008 Rule
- 13 states currently have formal stream mitigation programs
- Majority of stream banks in southeastern, mid-Atlantic, and Midwest

**30 states have at least one bank with stream credits**

- 19% of all approved mitigation banks provide stream credits

**Assessment Methods for Quantifying Stream Debits/Credits:**

- **Linear Foot** - The most commonly used stream credit type
- **Activity Based** -
  - Distinguish between warm- and cold-water streams
  - Separate credits for stream buffer zones
- **Aquatic Functional Assessments**
  - Scientifically-based
  - Considerations may include: habitat, water quality/chemical, physical/structural, biological or hydrological functions
  - Some states developed functional assessment tools (e.g., rapid bioassessment protocols)





# Typical Project Monitoring Requirements

- Monitoring is required with each mitigation project to determine the degree of success achieved in meeting the objectives of the site, i.e. proper channel function, increased habitat quality, increased water quality, etc.

## As Built Survey

- Upon project completion Districts typically require an as-built report detailing the final specifications of the project.

## Performance Standards

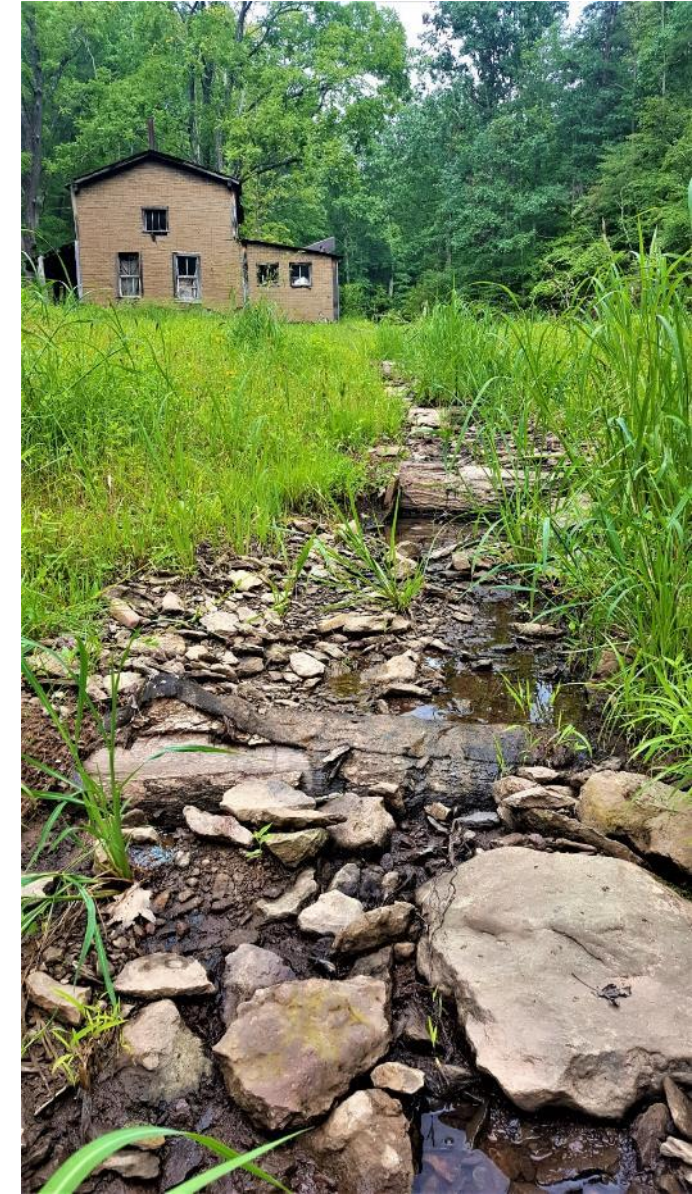
- Ecologically Driven – Often must prove an increase in the functional or conditional score of a project over time to continue to receive credit releases.

## Timeframe

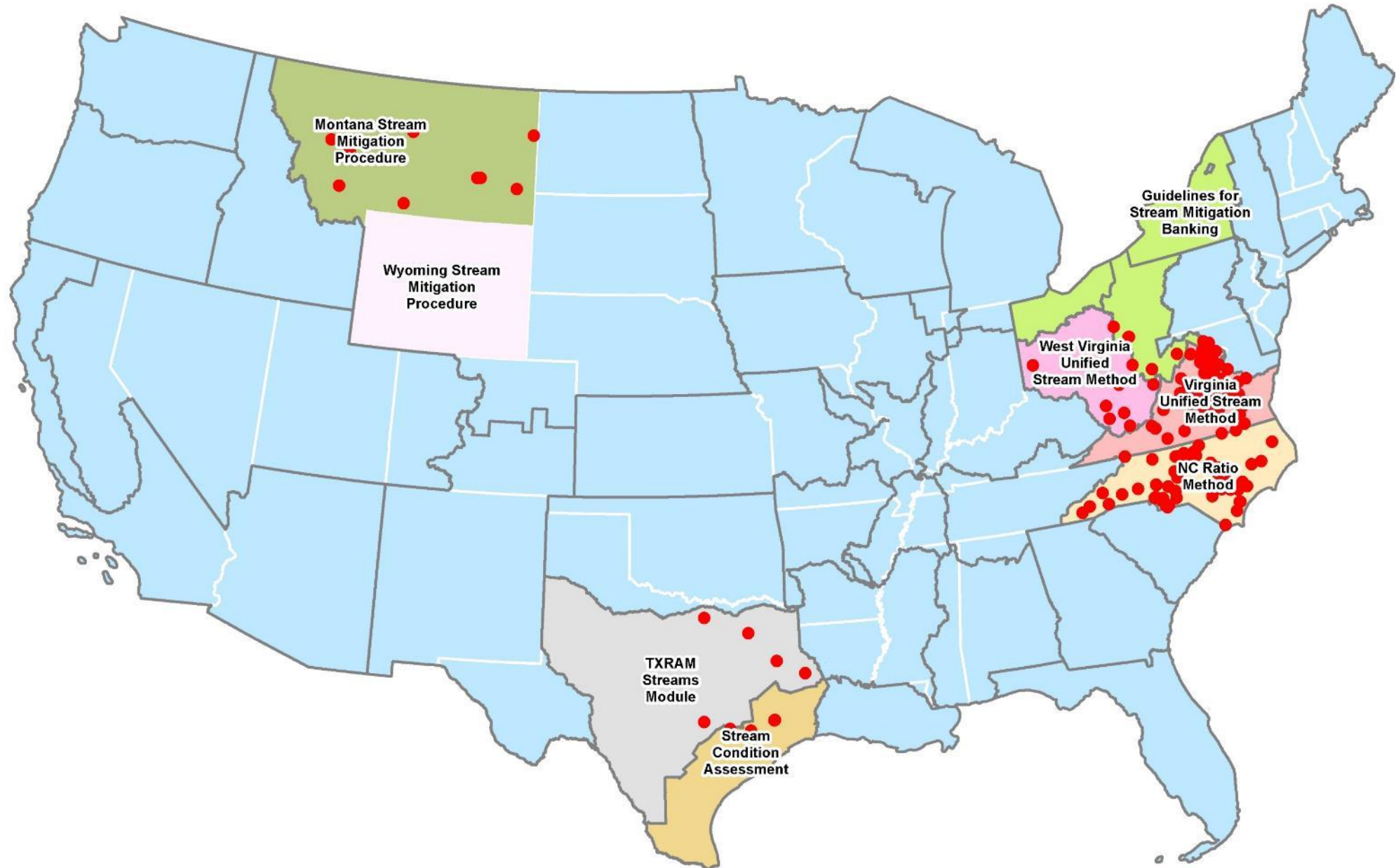
- Streams may be monitored between 3-10 years depending on the project and the USACE District requirements.

## Reports

- Submittal of annual or bi-annual monitoring reports to the USACE documenting the progress of the mitigation site.



# Stream Methodology Example Locations





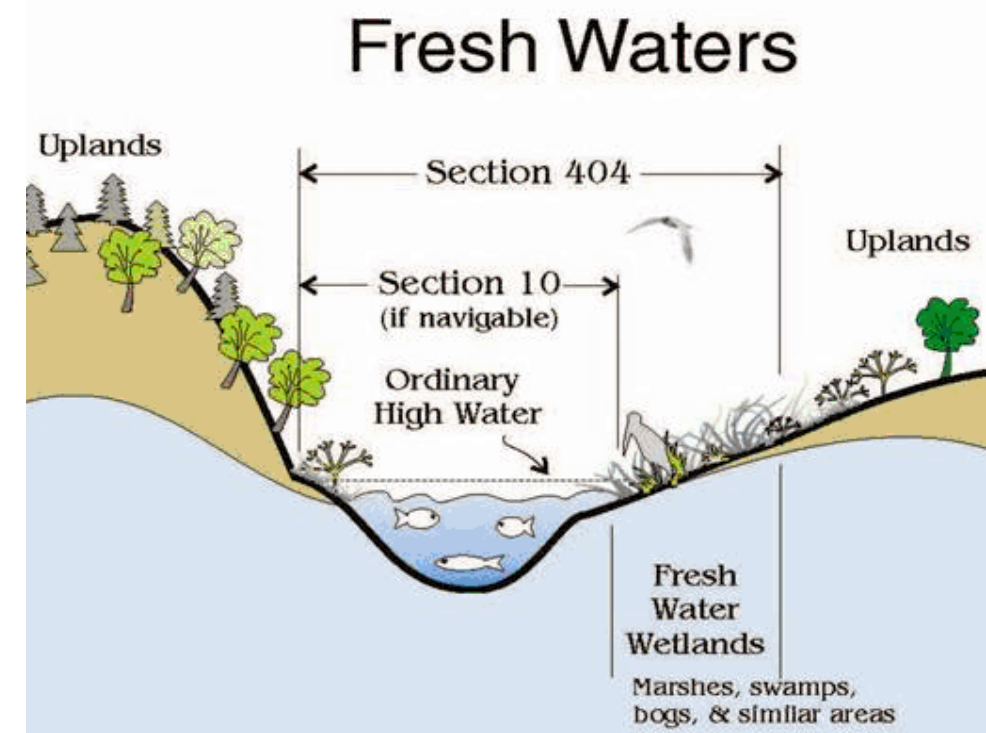
# Streams – Regulatory Thresholds

The project proponent works with USACE and/or state agency to determine type and amount of mitigation required

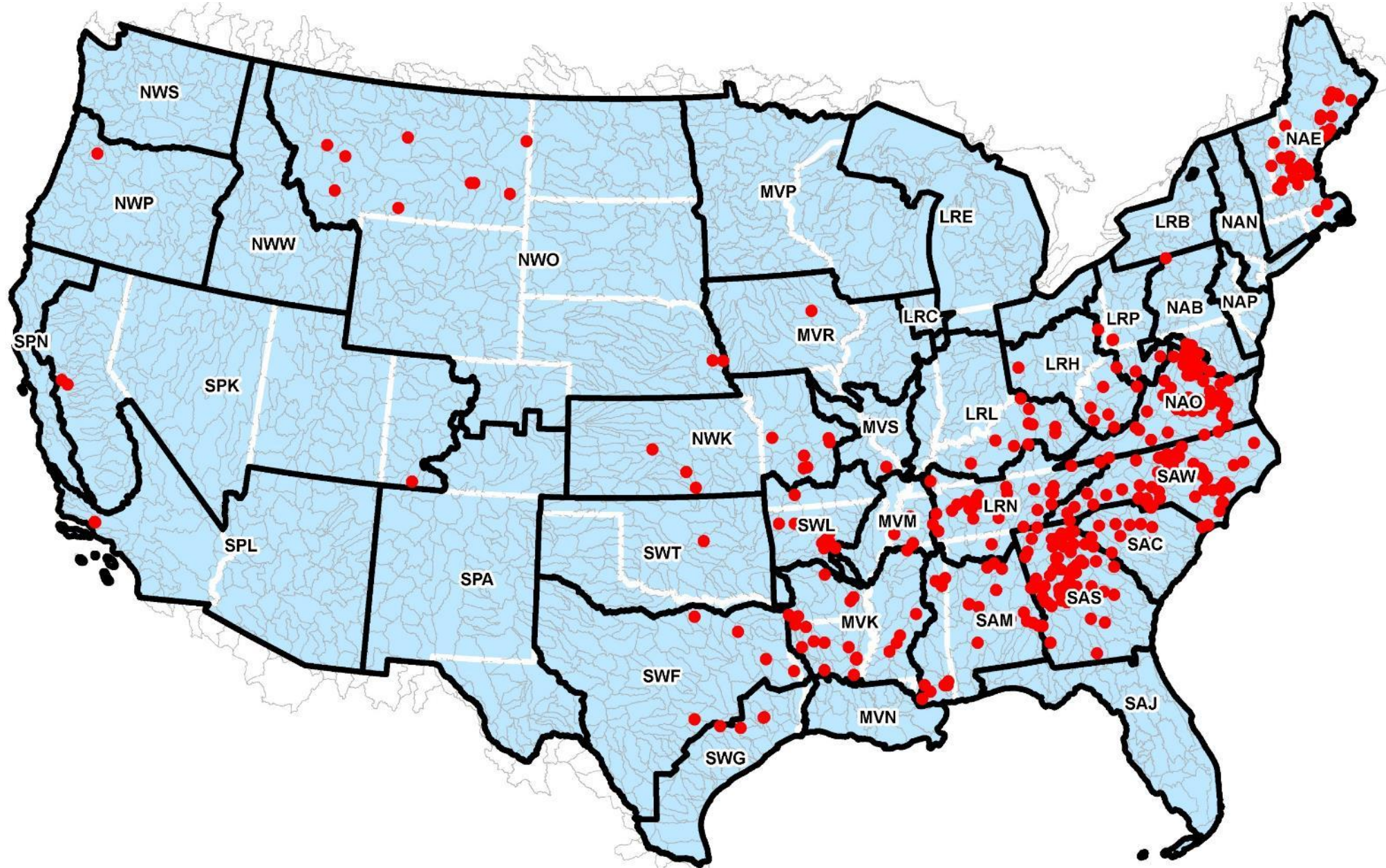
- Corps districts and states have significant discretion:
  - Where and how mitigation occurs
  - Recordkeeping, credit/debit accounting, and
  - What streams, features and functions are credited/debited.

## 54 Nationwide Permits (NWP):

- Pre-Construction Notification (PCN) triggers
- Varied state and regional conditions for mitigation
- **Montana Example:**
  - Mitigation required for linear projects with >300 LF of stream impacts and culvert projects longer than 150 LF
  - Mitigation for linear projects less than 300 LF is evaluated on a case-by-case basis.
- **Savannah District**
  - **Lower threshold: >100 LF** requires mitigation
  - As a general rule, small stream crossings involving utility lines do not require mitigation.



# USACE Districts, Stream Banks, and Watersheds



# Lessons Learned

- Need strict and clear regulations to drive compensation-no exemptions. Voluntary approaches are not successful.
- Uniform standards, uniform mitigation practices and a clear certification and validation process are the keys to effective on-the-ground mitigation. Guidance is very helpful.
- The metrics need to be consistent and understandable to both buyer and seller
- Transfer of liability to mitigation project sponsor if a bank
- Payments systems (in-lieu fees) can undermine effective compensation because true costs are often understated and the monies often do not get spent on compensation. This approach should be used only as a last resort.





# Lessons Learned (Cont.)

- Funding long-term management of the buffer zones through endowments is important and should be funded early in the process
- Existing reference sites are helpful for monitoring the performance of compensation sites.
- Using existed protected areas as compensation should require some form of additionally to be considered as compensation and should be used in limited circumstances.



# Conclusions

- The number of stream mitigation banks and the use of stream mitigation in the United States is rapidly growing
- Standards are evolving towards a more functional approach, however simplicity is preferred, and often methods are based on a judgement call in the field
- There is often little consistency in the application of stream methodologies to both stream impacts and mitigation between neighboring districts
- Markets will vary in pricing and other factors as a result of the stream assessment method that is in place for a specific geographic region



***Robinson Fork MB - Preconstruction***



***Robinson Fork MB – 9mo. Post-Construction***



# *Unlocking the Inherent Value of Natural Resources*



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