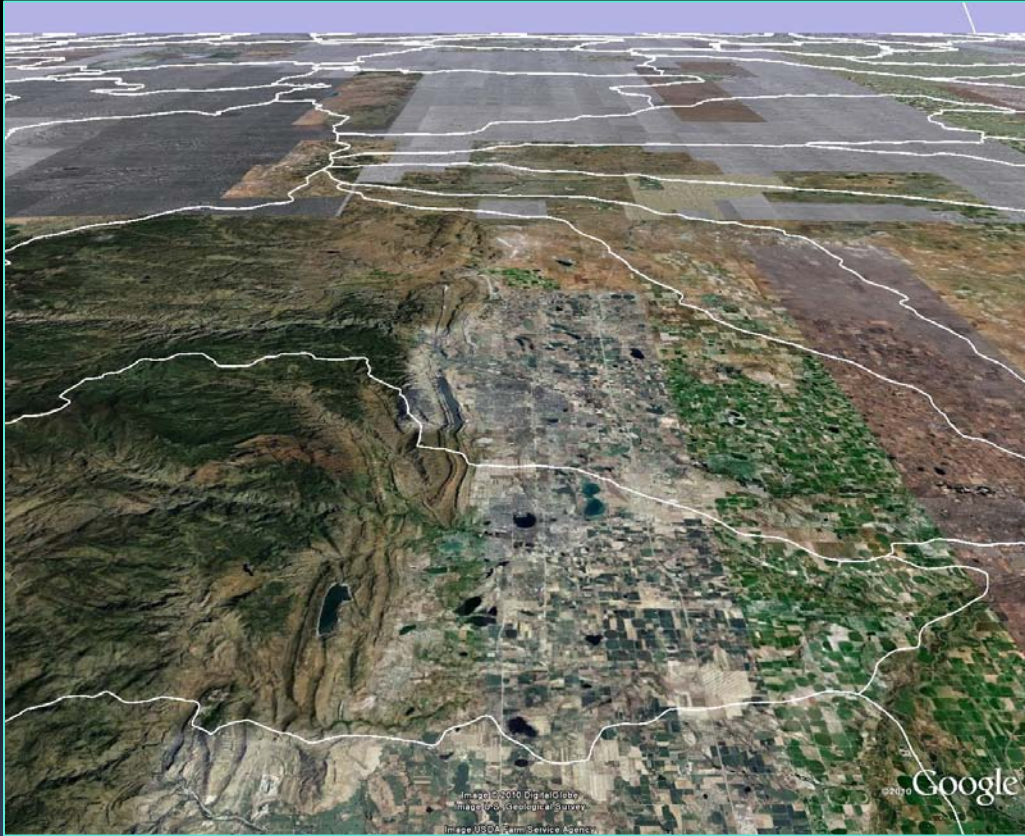


# The Watershed Approach to Wetland Mitigation Planning in Colorado

The power of asking the basic questions

*Brad Johnson - Department of Biology  
Colorado State University*

# Mitigation and the 2008 Rule



## Federal Register

Thursday,  
April 10, 2008

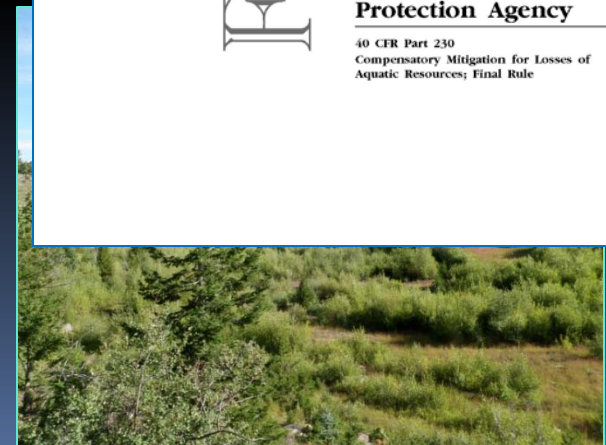
Part II

### Department of Defense

Department of the Army, Corps of  
Engineers  
33 CFR Parts 325 and 332

### Environmental Protection Agency

40 CFR Part 230  
Compensatory Mitigation for Losses of  
Aquatic Resources; Final Rule



# Building the Colorado Watershed Approach

- The 2008 Guidance Vacuum
- Four National Demonstration Efforts
- WA Development Team
  - Rich Sumner, US EPA ORD
  - Dick Clark, Jill Minter, US EPA R8
  - Matt Montgomery, Corps Omaha District
  - Rebecca Pierce, CDOT
  - Joanna Lemly, CNHP
  - Brian Sullivan, CDPW

## Incorporating the Watershed Approach for Wetland Compensatory Mitigation

The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency are undertaking collaborative projects to implement the watershed approach required under the 2008 Mitigation Rule. Each project is developing new tools to better inventory aquatic resources across the landscape that can help managers and regulators prioritize areas and resources for protection, restoration, and conservation. The following summaries highlight the key components of four specific projects and how wetland compensatory mitigation fits into the broader effort to improve watershed health.

### Demonstrating Use of the Watershed Approach for Wetland Compensatory Mitigation in Colorado

By RICHARD SUMNER, J. BRADLEY JOHNSON, and JOANNA LEMLY

**T**he Colorado Front Range Wetland and Watershed Mitigation Project is a collaborative effort to demonstrate use of the watershed approach to compensatory wetland mitigation. Through this collaboration, the project team will demonstrate how to use the approach to guide the type, placement, and amount of compensatory mitigation needed to offset federally authorized wetland impacts. The team is composed of staff from the Omaha District of the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency's Region 8 Office in Denver, the Colorado Department of Transportation, the Colorado Natural Heritage Program, and Colorado State University. Following promulgation of the 2008 Federal Compensatory Mitigation Rule, the team set the goal to develop a standardized way of applying the rule to Clean Wa-

ter Act high-priority actions. The project is organized around the production of five training areas. The notes will be shared with the regulated community, including consultants. The notes will consist of checklists and questions and answers that address the five most types of environmental decisions made about compensatory mitigation:

*Technical notes were developed by U.S. Environmental Protection Agency Staff from EPA Region 8 (Denver), the U.S. Army Corps of Engineers (Denver Regulatory Office, Omaha District), the Colorado Department of Transportation, the Colorado Natural Heritage Program, and Colorado State University prepared this syllabus. The syllabus outlines an assessment framework that is used for making determinations about whether proposed compensatory mitigation is adequate to offset proposed impacts to wetlands. Compensatory mitigation is usually required to offset unavoidable impacts as may be authorized by a federal Clean Water Act Section 404 permit. In addition, the 2008 Federal Compensatory Mitigation Rule specifies that mitigation be implemented using a "watershed approach." The assessment framework is based on the use of the approach.*

- (1) Screening potential compensatory mitigation areas
- (2) Establishing mitigation requirements based on impact sites
- (3) Evaluating the ecological suitability of potential compensatory mitigation sites
- (4) Conducting and debriefing mitigation activities and
- (5) Setting performance standards for mitigation compliance and evaluation.

Embedded within each of the training notes is an assessment framework that represents the watershed approach for the purpose of this project. "watershed approach" means an analytical process that considers the abundance, location, and condition of types of aquatic resources in a watershed, and how these attributes support landscape function and assessment of watershed goals. The framework is used to balance the specific goal of locating mitigation projects for optimal environmental benefit with the practicality of having sufficient property ownership property values, and at Colorado, available water rights.

The project's assessment framework consists of three components: (1) a list of environmental factors considered when making a specific type of mitigation decision. These factors include how water and wildlife move through the landscape; (2) a list of indicators of how human-caused disturbance in the landscape, and at individual sites, affects the condition and functioning of wetlands, based on the underlying, single-conceptual model as developed with indicators to guide wetland impact assess-

### ASSESSMENT FRAMEWORK FOR WETLAND COMPENSATORY MITIGATION

Syllabus for a Watershed Approach to Mitigation Project Review

REVIEW DRAFT: April 14, 2011

#### INTRODUCTION

Staff from EPA Region 8 (Denver), the U.S. Army Corps of Engineers (Denver Regulatory Office, Omaha District), the Colorado Department of Transportation, the Colorado Natural Heritage Program, and Colorado State University prepared this syllabus. The syllabus outlines an assessment framework that is used for making determinations about whether proposed compensatory mitigation is adequate to offset proposed impacts to wetlands. Compensatory mitigation is usually required to offset unavoidable impacts as may be authorized by a federal Clean Water Act Section 404 permit. In addition, the 2008 Federal Compensatory Mitigation Rule specifies that mitigation be implemented using a "watershed approach." The assessment framework is based on the use of the approach.

Assessment framework is defined in this syllabus as a system for the gathering, management, interpretation and reporting of information for aquatic resource regulation and management. It includes a logic flow, algorithms or other formalized approaches that describe how environmental monitoring and assessment information is applied and interpreted to make a regulatory decision.

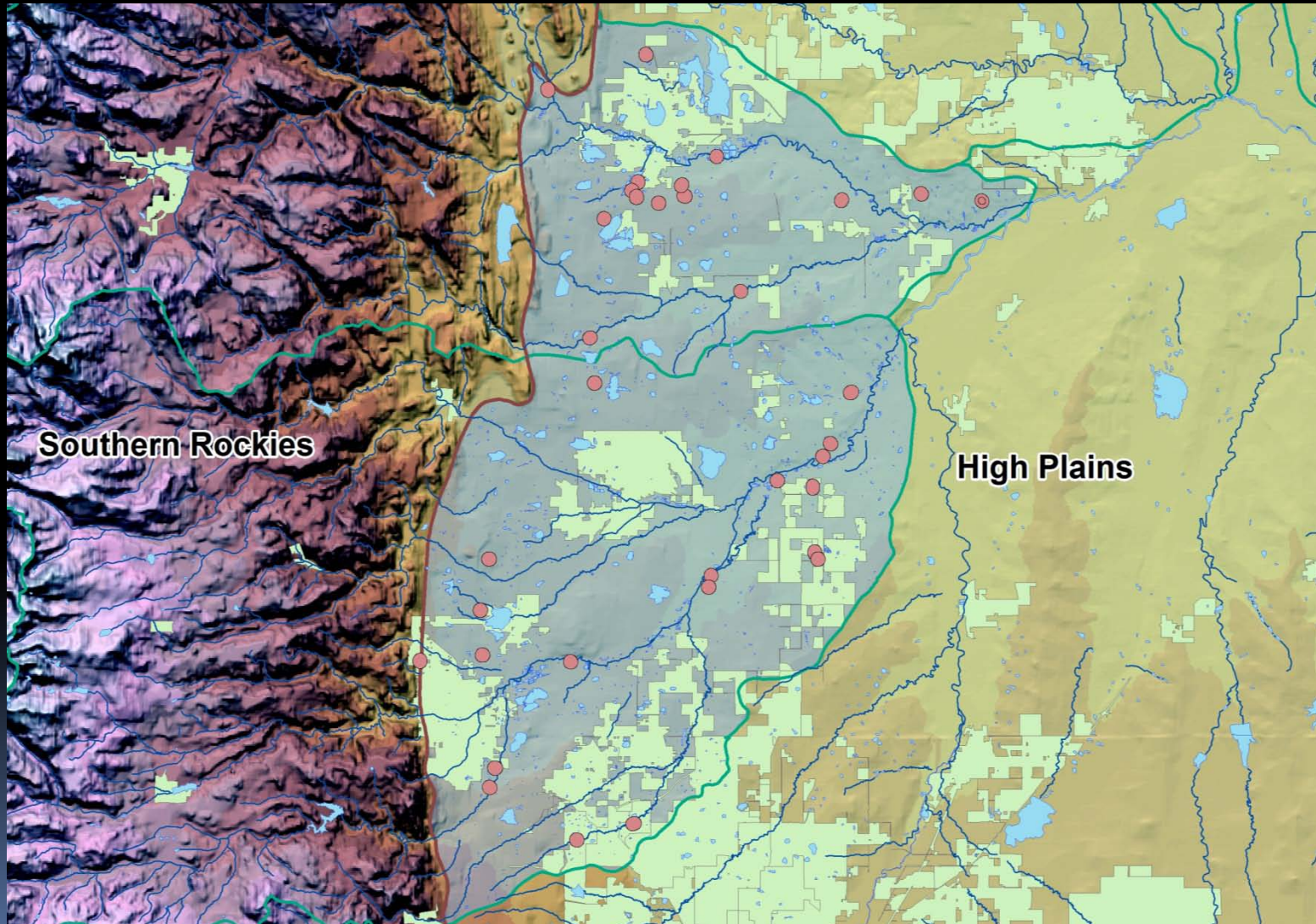
The syllabus was prepared for use by regulatory agency staff, consultants and the regulated community. It is a relatively concise outline of the assessment procedures and indicators used to make mitigation determinations. It is not a comprehensive description or analysis of those procedures and indicators. That type of information is best provided through training. This document can be used to guide such training, hence use of the term "syllabus."

The design of the syllabus is based somewhat on the Washington Department of Ecology document entitled, "Selecting Wetland Mitigation Sites using

Table 1. Syllabus from area.



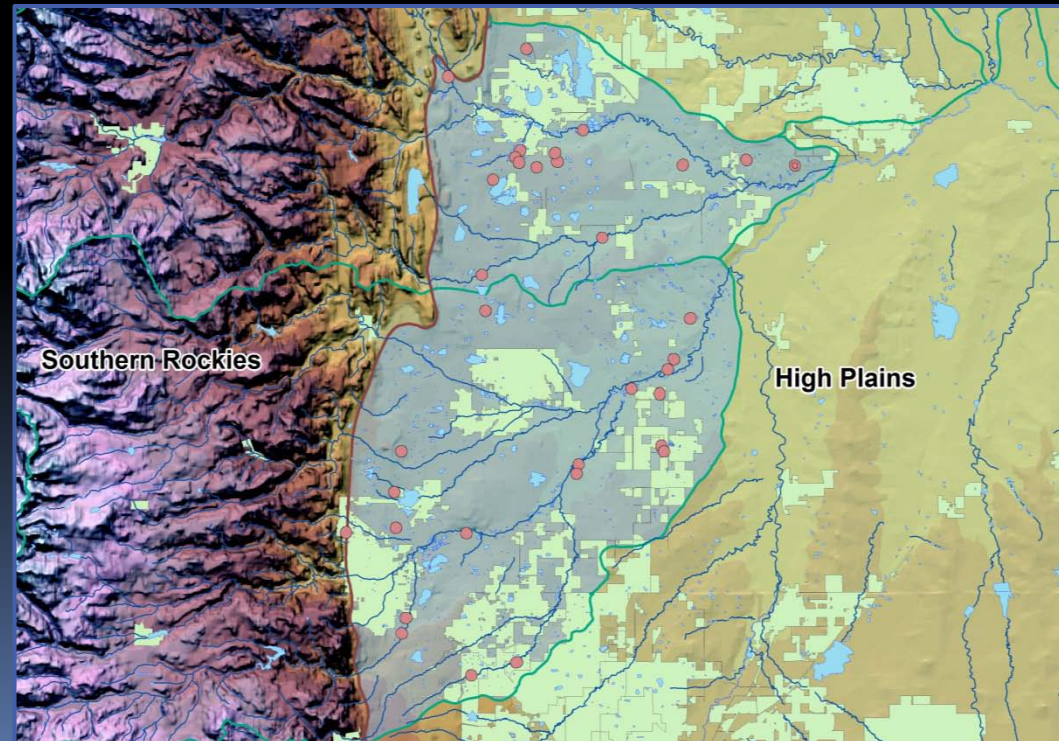
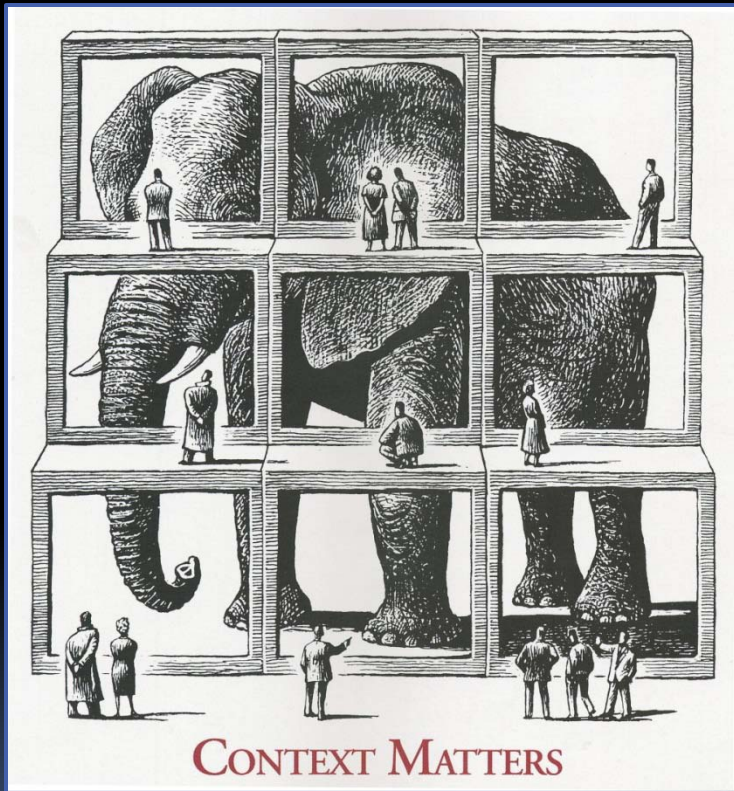
# Front Range Study Area



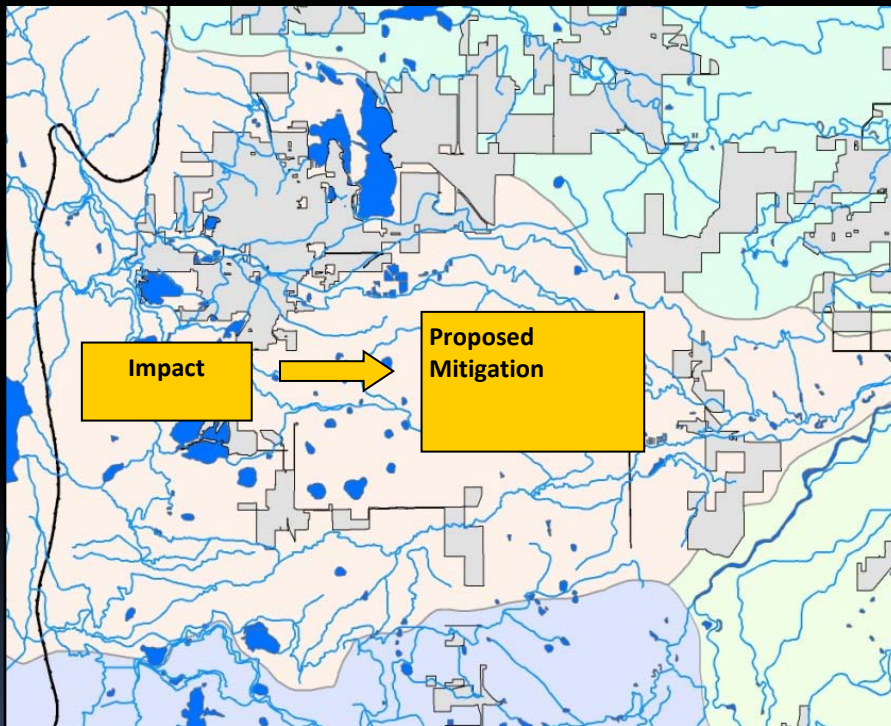
Function, Service, Risk and Assurance

# **TAKING A WATERSHED PERSPECTIVE**

# #1 Lesson - You Have to Know the Context



# Mitigation Planning and Permit Review in the Watershed Context



- Goal is to maintain the integrity of the aquatic system and resultant *Ecosystem Services*
- *Ecosystem Services*: Benefits supplied to human societies by natural ecosystems

# Ecosystem Services, Functions & Hydrogeomorphology

- *Ecosystem Services* are a property of watersheds that arise from the interaction of wetlands, the aquatic system, the upland matrix, and biota.
- *Wetland Functions*: “The things wetlands do”
  - Different types of wetlands perform different functions, or the same functions to different degrees
  - HGM theory describes wetland development and functioning, based on the state of a small number of state variables, or ecological forcing factors.



Riverine



Slope



Depressional



Fringe



# Risk and Assurance

- **Risk** is the probability that proposed mitigation will not offset permitted impacts in the desired way



# Summary of Watershed Approach

- Aim is to increase the overall effectiveness of mitigation
- Currency = ecosystem services derived (in part) from wetland functions
- Method = risk evaluation
- Underlying approach to bring increased understanding and transparency to the permit review process

# Review Criteria Evaluate the Basic Questions

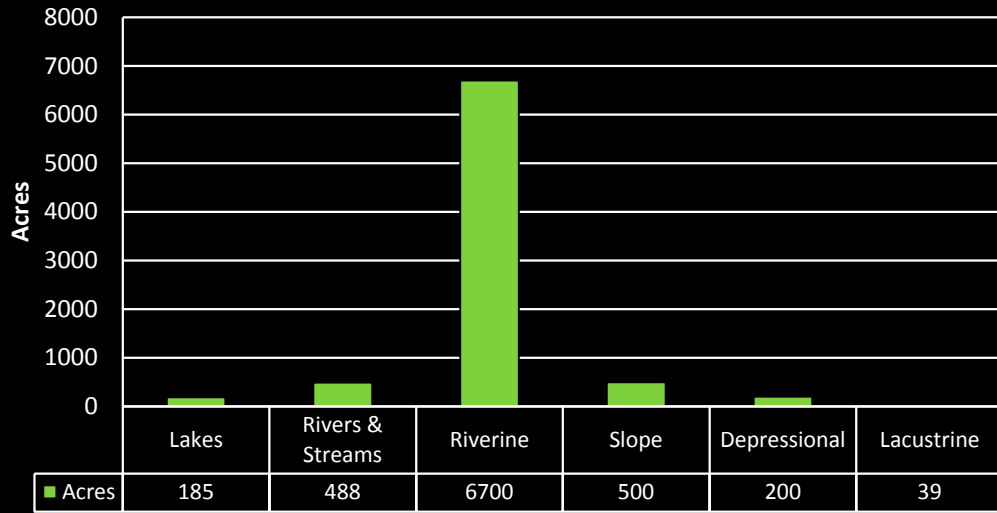
Assessment Results	High Risk Concerns
<b>1. Impact Site Description</b>	
<ul style="list-style-type: none"> <li>Amount of area</li> </ul>	Large Area
<ul style="list-style-type: none"> <li>Aquatic resource type</li> </ul>	Rare Type
<ul style="list-style-type: none"> <li>Special Status Resource</li> </ul>	Documented Special Resource
<b>2. Impact Site Condition</b>	
<ul style="list-style-type: none"> <li>Good, fair, poor</li> </ul>	Good Condition
<b>3. Mitigation Category</b>	
<ul style="list-style-type: none"> <li>Restoration, Enhancement, Preservation, Establishment</li> </ul>	Establishment or Preservation
<b>4. Mitigation Consistency with Watershed Profile</b>	
<ul style="list-style-type: none"> <li>In-kind, improve profile</li> <li>In-kind and sustain profile</li> <li>Out-of-kind, improve profile</li> <li>Out-of-kind, not improve profile</li> </ul>	Out-of-kind, Not Improve Profile
<b>5. &amp; 6. Mitigation Site Suitability (Remote and field review)</b>	
<ul style="list-style-type: none"> <li>Ecologically Suitable, Poor Suitability, Suitability is Uncertain</li> </ul>	Unsuitable or uncertain suitability
<b>7. Review of Performance Standards</b>	
<ul style="list-style-type: none"> <li>Mitigation project involves use of a mitigation bank or site that has met performance standards.</li> <li>Mitigation project will use an existing set of performance standards.</li> <li>Mitigation project involves a wetland type that is difficult to replace, and there are no performance standards</li> </ul>	Use of a difficult to replace wetland type for mitigation, not involving a mitigation bank and with no performance standards

The landscape context

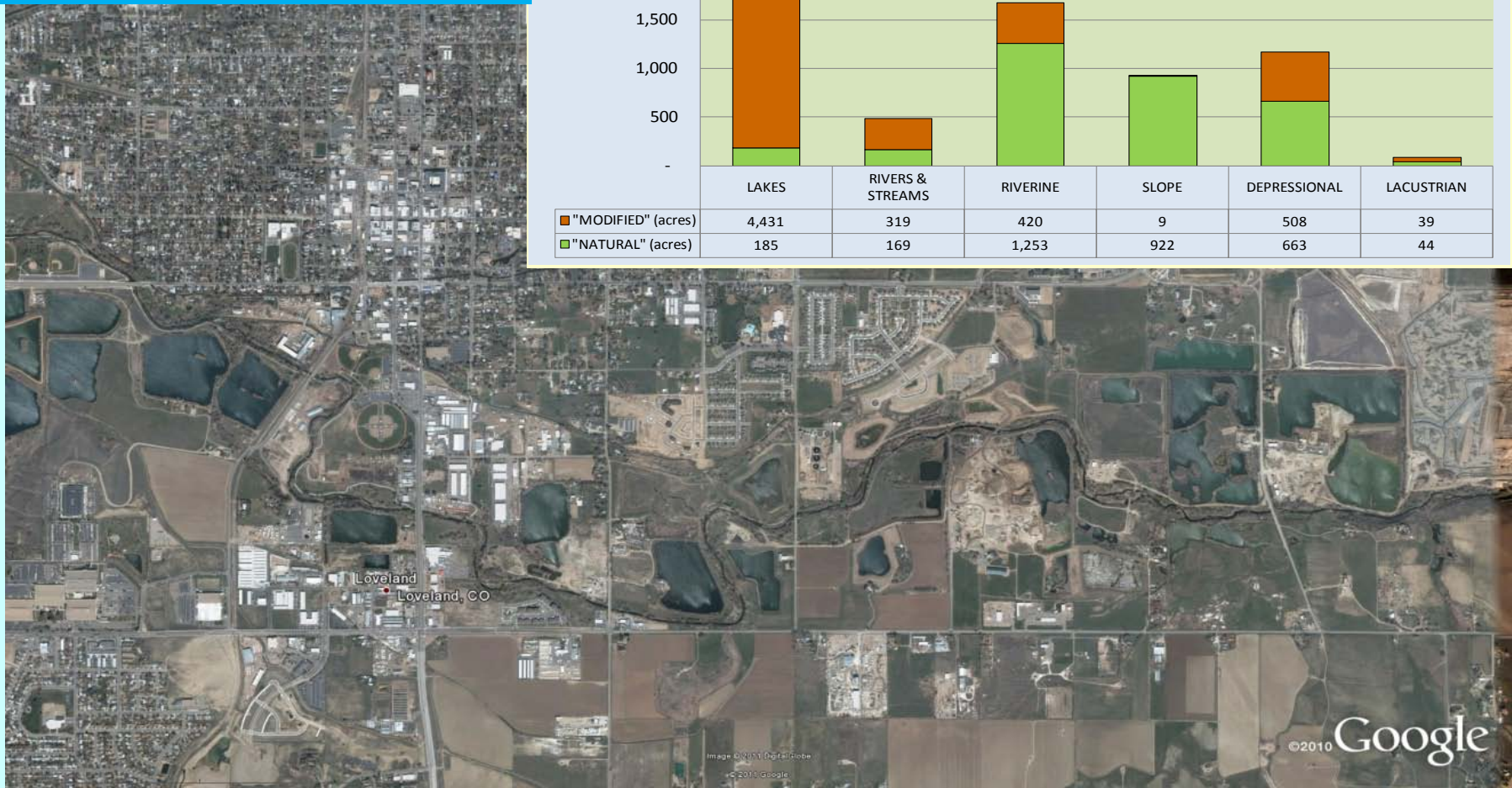
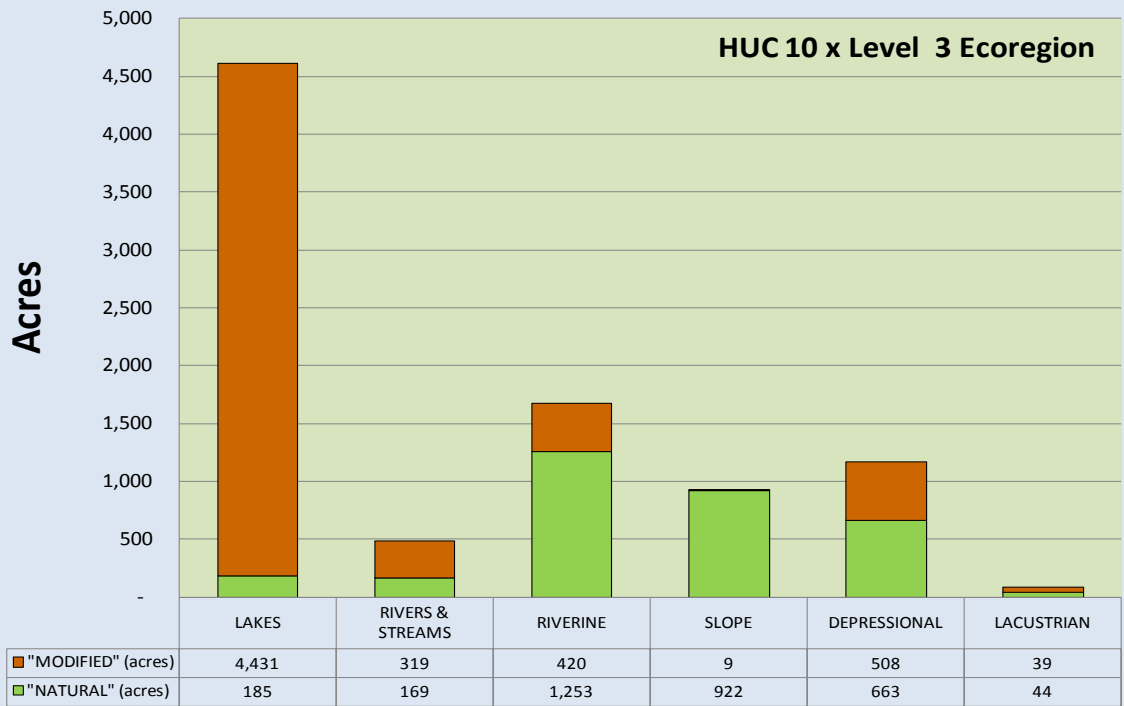
# WATERSHED PROFILE

# Front Range Context

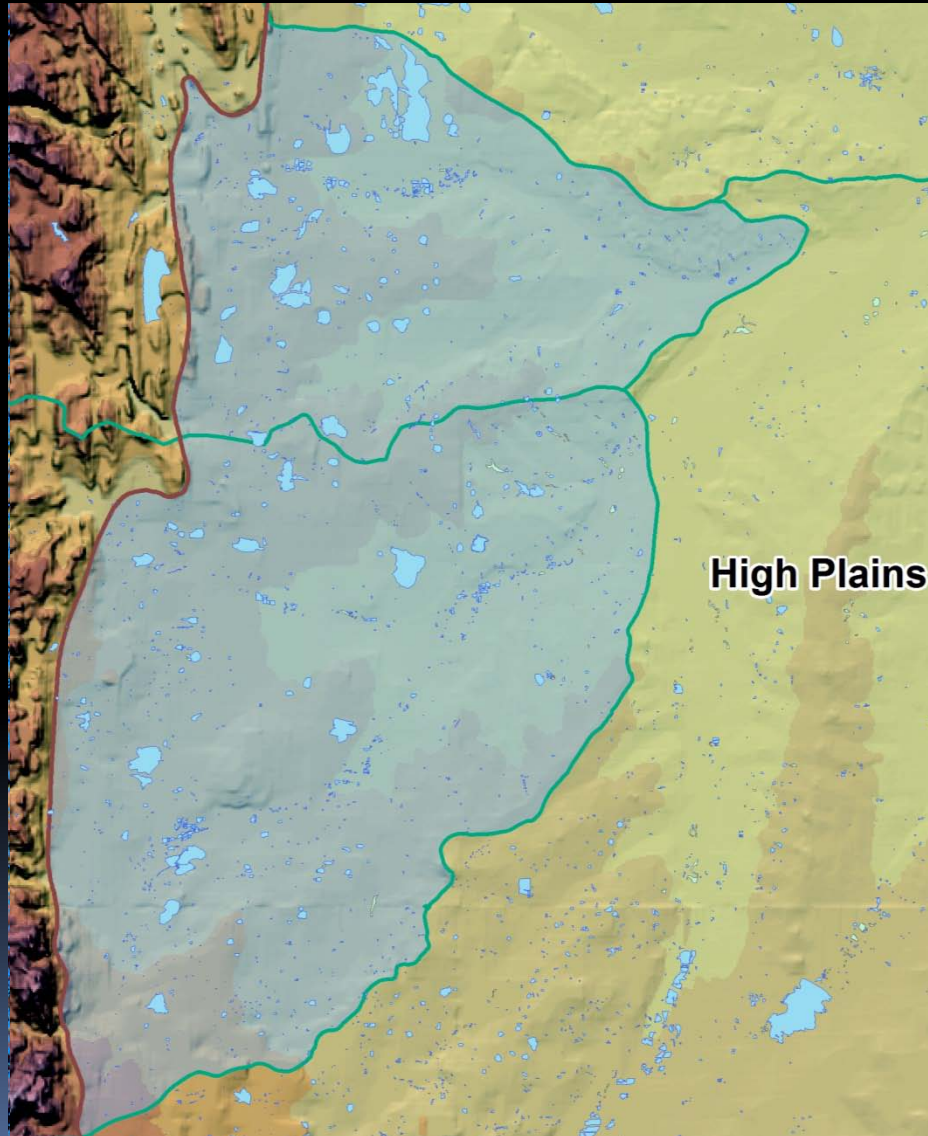
## Reference Condition



Worthington Whittredge

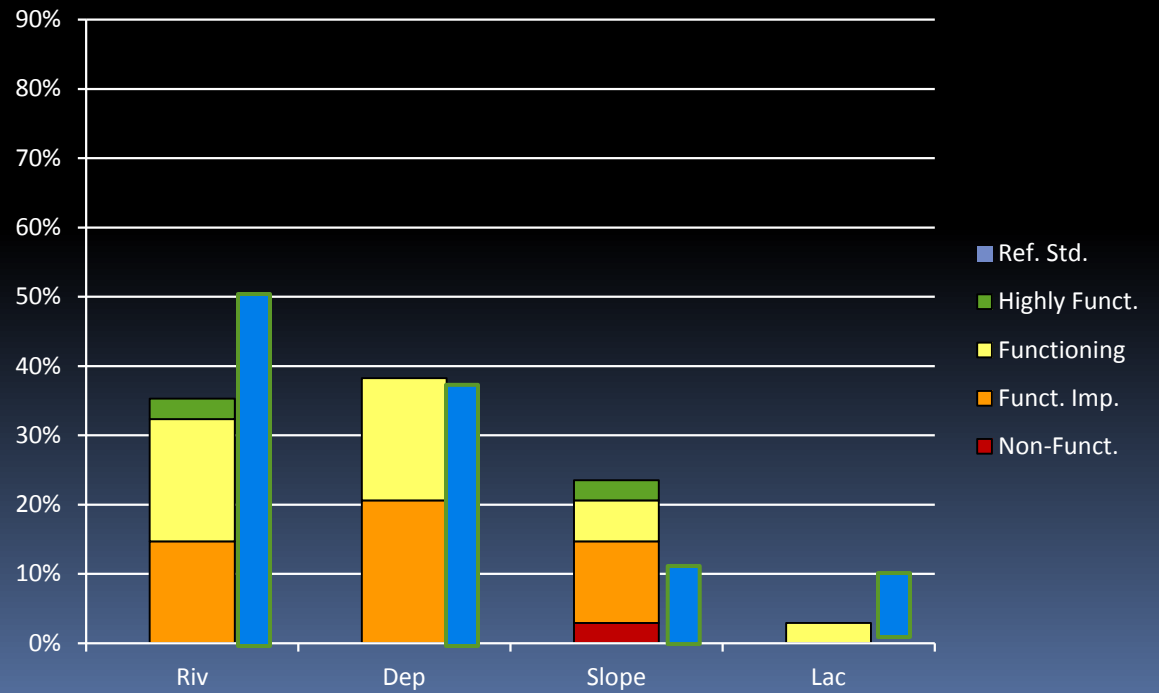


# A Brave New Watershed



Worthington Wh







# Mitigation Site Suitability

## Local Context

Indicators	Yes	No
1. Does the contributing area to the proposed mitigation site contain mostly natural land and aquatic resources in relatively good condition?		
2. Does the project watershed area contain a prevalence of the same aquatic resource type being proposed for mitigation?		
3. Does the proposed mitigation site possess hydric soils or is its substrate in relatively good condition?		
4. Is the proposed mitigation site in proximity to an appropriate type of water source needed to support a desired aquatic resource type?		
5. Is there an adequate buffer area to sustain the proposed mitigation site?		
6. Is the proposed mitigation site in close proximity to a significant natural area?		
7. Can the primary stressors affecting the site can be remedied or significantly reduced?		



# Conclusions

- The watershed approach provides the critical context within which to couch mitigation plans and permit decisions
- It addresses the basic questions which are fundamental to mitigation success
- It increases the transparency and understanding of best mitigation practices and permit review criteria

# Acknowledgements (alphabetical)

- Mark Beardsley, EcoMetrics
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- Joanna Lemly, CNHP
- Jill Minter, US EPA
- Matt Montgomery, US ACE
- Rebecca Pierce, CDOT
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