



# Mitigation and Conservation Banking- An Economic Market

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Presented at

Sustainable Development on Reservation Grounds

The Leadership Series

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# What is a Mitigation or Conservation Bank?

- Definition:
  - A land account approved by agencies that is drawn on to compensate for adverse environmental impacts elsewhere but within a defined service area.
  - Sites are chosen and managed for their natural resource value and special-status species or sensitive habitats.
  - Sites may be natural (preservation), enhancement, restoration and/or creation of habitat.

# Two Primary Sources of Demand for Mitigation



- Section 404 of the Clean Water Act
- The Federal Endangered Species Act

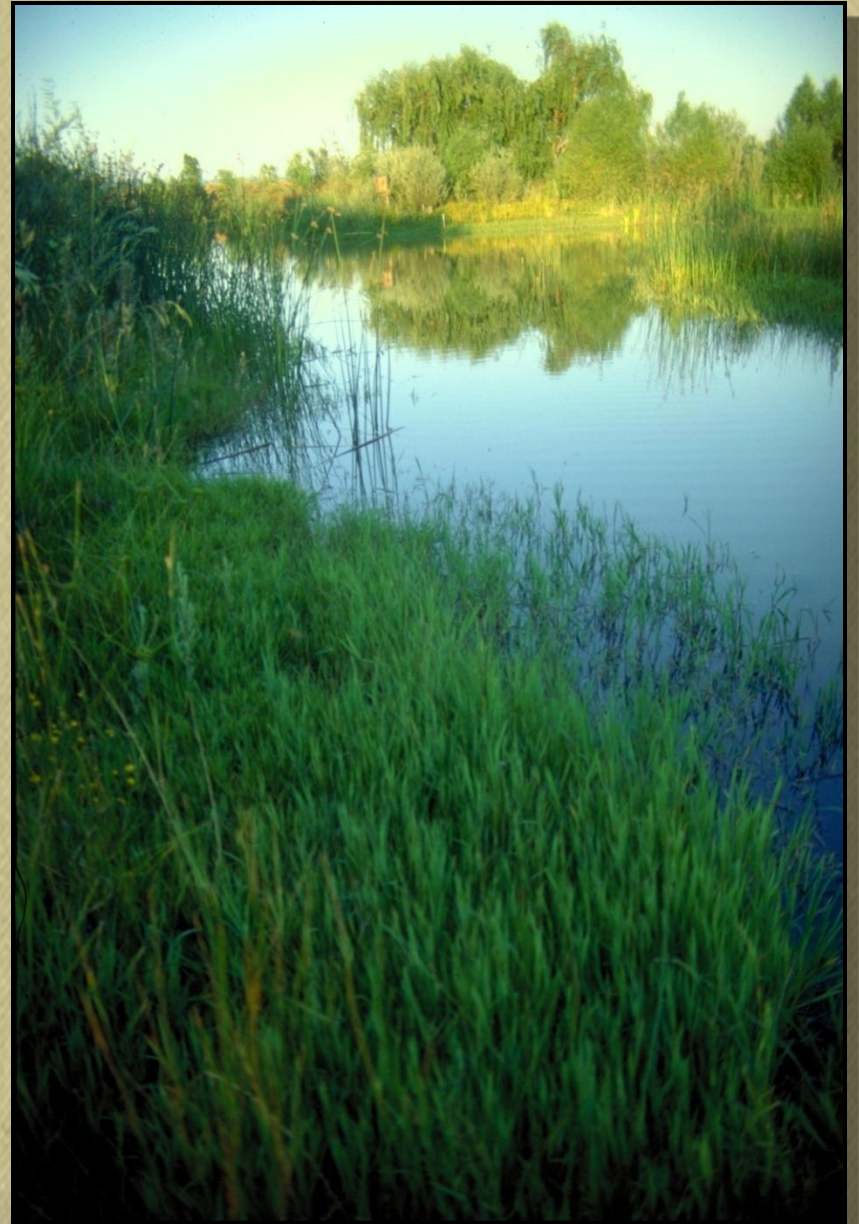
# Other Sources of Demand

- Natural Resources Damage Assessments
- State Wetland Protection Authorities
- State Endangered Species Authorities
- Local Government Natural Resources Protection Ordinances



# Kinds of Mitigation

- Avoid the impact
- Minimize the impact
- Replace or compensate residual impact



# The Mitigation Banking Concept

- Mitigation Banks: Large areas of restored or preserved wetlands and/or habitat set aside to compensate for impacts to wetlands and/or habitats
- Ecological Advantages of Mitigation Banks:
  - Mitigation before impact
  - Large preserve size
  - Resources and expertise
  - No-net loss for wetlands
  - Assist recovery



# The Two Primary Sources of Demand Lead to Two Different Types of Banks

- Wetland mitigation banks - 404
- Listed species conservation banks-ESA





# Mitigation Banks

- Approval by a Interagency Review Team
- Consistency with the 2008 Federal Mitigation Rule
- Focus on creation or restoration of U.S. Army Corps wetlands jurisdictional area

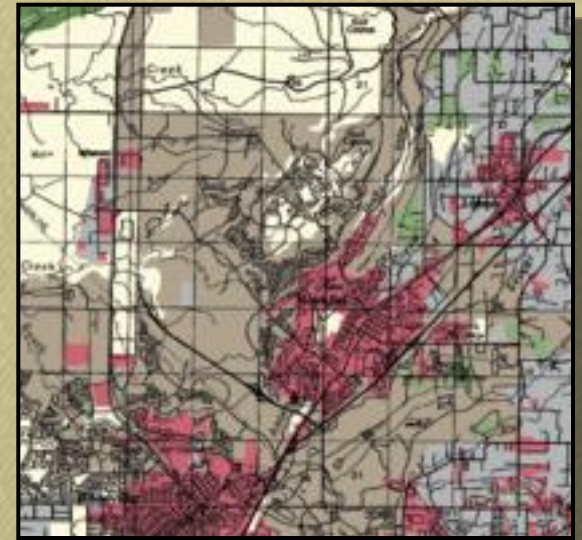


# Conservation Banks

- Approval by the U.S. Fish and Wildlife, National Marine Fisheries Service and/or State Fish and Game Departments
- Consistency with individual species mitigation protocol and bank crediting methodology, if any
- Focus on preservation, enhancement, and management of endangered species habitat
- Assist in implementing recovery plans

# Market Survey and Feasibility Study: Multi-Staged, Multi-Disciplinary

- Check regional general plans
- Conduct habitat trend analysis
  - Analyze historical area wetland trends
  - Identify target habitats
- Create an initial financial proforma
- Acquire resource agency conceptual consent



# Constraints and Opportunities Analysis

- What are the current soils and hydrology?
- Is there water management potential?
- Is there existing land use compatible with the project?
- Are the surrounding land uses going to negatively impact the project?
- What are the local Biota? Are there Special Status Species?

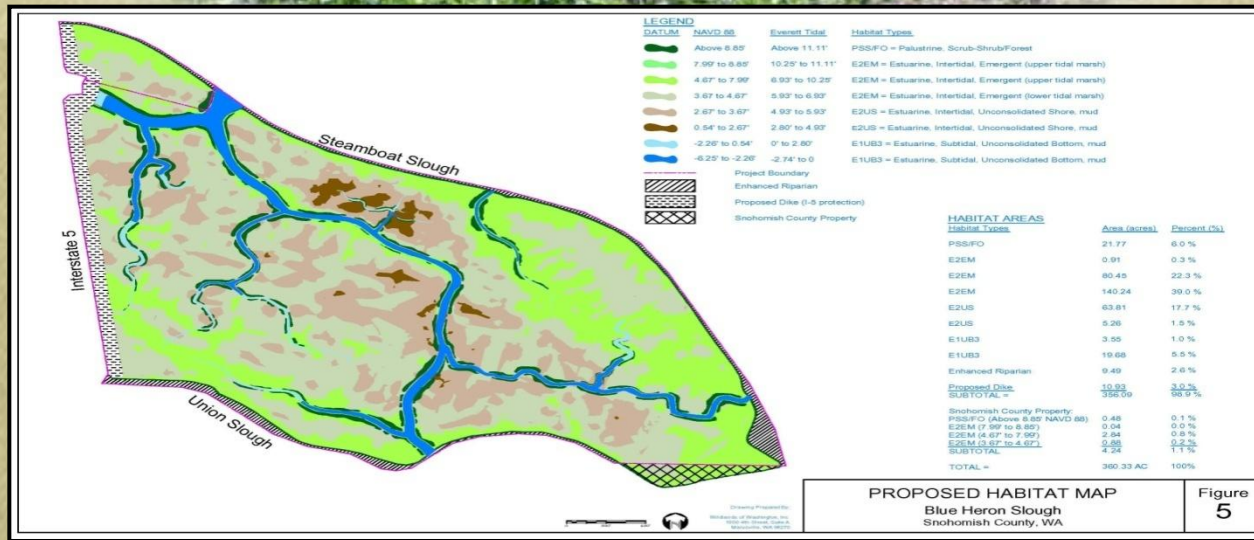


River Ranch, CA

# Wetland Delineation/ Permitting

- Wetland Delineation/  
Clean Water Act,  
Section 404 Permit
- Comply with state environmental regulations
- Section 401 water quality certification
- General stormwater permit for construction activities
- Biological and cultural resources clearance
- Local agency grading permits or other permit requirements



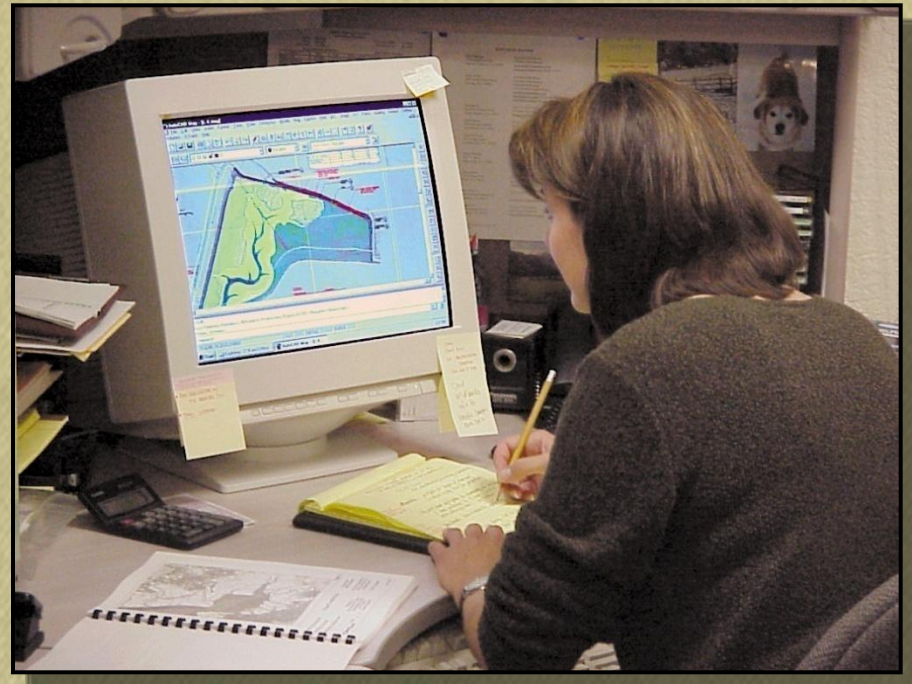


# Conceptual Development Plan

- Design goals and objectives
- Descriptions of targeted compensatory habitats
- Generalized mapping of created, enhanced, and restored habitats
- Water management strategies
- Long-term vegetation management techniques
- Resource agency conceptual approval

# Development Plan

- Site preparation
- Specific site design
- Grading plans
- Construction specifications
- Plant palettes and planting techniques
- Water delivery and management
- Performance standards: hydrological and vegetation
- Maintenance and monitoring techniques
- Closure plan



# Legal and Administrative Documentation

- Mitigation Banking Instrument
- Financial proforma
- Conservation Easement grant
- Bank closure plan
- Performance guarantees
- Declaration of Trust
- Deed Restrictions
- Permits



# Financial Proforma

- Sales forecasts
- Land allocation costs
- Construction costs
- Maintenance and monitoring costs
- Land improvement costs
- General/administrative expenses
- Endowment fund allocations



# Marketing

- Outreach
  - Agencies
  - BIA
  - Professional organizations
  - Consultants
  - Conferences
- Direct Sales
  - Developers
  - Local govt.
  - State agencies
  - Federal agencies
  - Land-Use attys
  - Engineering firms



# Habitat Construction

- Survey
- Grade
  - Excavate and compact soil as needed
  - Place stockpiled topsoil and finish grade
- Install water management system
- Acquire and plant vegetation
- Create special habitat structures
- Measure/verify habitat areas





# Maintenance

- Irrigation
- Water management/  
manipulation
- Weed control
- Plant replacement



# Types of Monitoring

- Must be scientifically defensible and economical
- Some common methods Wildlands uses include:
  - Avian point counts
  - Nest monitoring
  - Night spotlighting
  - Random samples from plots created using a geographic information system
  - Point intercept method along random transects
  - Abundance estimates
  - Complete counts for small sites



# Baseline: Post Construction



# 6 Months after Construction



# 15 Months after Construction



# 5 Years after Construction



# Long-Term Stewardship

- Long-term management plan
  - Adaptive management
  - Water management
  - Water management structure maintenance
  - Vegetation management
  - Animal control
  - Endowment account



# Recent studies on mitigation support the high standards of mitigation and conservation banking

- Legal protections
- Financial protections
- Biological protections



Source: blm.gov

## National Academy of Science (2001)

- ...the high standards of wetland mitigation banks can provide the best way to address individual wetland impacts.

## United States General Accounting Office (2001)

- ...Other approaches such as in-lieu mitigation have proven to be very unsuccessful
- ...in fact, often there is no verification as to whether the mitigation was even implemented.

# The Society of Wetland Scientists (2004)

- ...supports wetland mitigation banking to improve mitigation success and contribute to the goal of no net loss of wetlands.

“Habitat Loss, Fragmentation, and Restoration” by Gary R. Huxel & Alan Hastings (1999)

- ...mitigation banking can help accomplish optimal habitat placement by linking currently uninhabited but suitable habitat to occupied habitats.