



NDCEE

National Defense Center for Energy and Environment



DoD Executive Agent

Office of the
Assistant Secretary
of the Army
(Installations and
Environment)

Ecosystem Banking Best Practices

Elizabeth Keysar, NDCEE/CTC

The NDCEE is operated by:  *Concurrent Technologies Corporation*

Technology Transition – Supporting DoD Readiness, Sustainability, and the Warfighter

Report Documentation Page

*Form Approved
OMB No. 0704-0188*

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE JUN 2010	2. REPORT TYPE	3. DATES COVERED 00-00-2010 to 00-00-2010			
4. TITLE AND SUBTITLE Ecosystem Banking Best Practices		5a. CONTRACT NUMBER			
		5b. GRANT NUMBER			
		5c. PROGRAM ELEMENT NUMBER			
6. AUTHOR(S)		5d. PROJECT NUMBER			
		5e. TASK NUMBER			
		5f. WORK UNIT NUMBER			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Defense Center for Energy and Environment (NDCEE), Concurrent Technologies Corporation, 100 CTC Drive, Johnstown, PA, 15904		8. PERFORMING ORGANIZATION REPORT NUMBER			
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)			
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)			
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES Presented at the NDIA Environment, Energy Security & Sustainability (E2S2) Symposium & Exhibition held 14-17 June 2010 in Denver, CO. U.S. Government or Federal Rights License					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 27	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Presentation Highlights

- Best Practices Study Objectives
- Preliminary Findings
 - Best Practices: Non-military
 - United States Army Context
- Conclusions



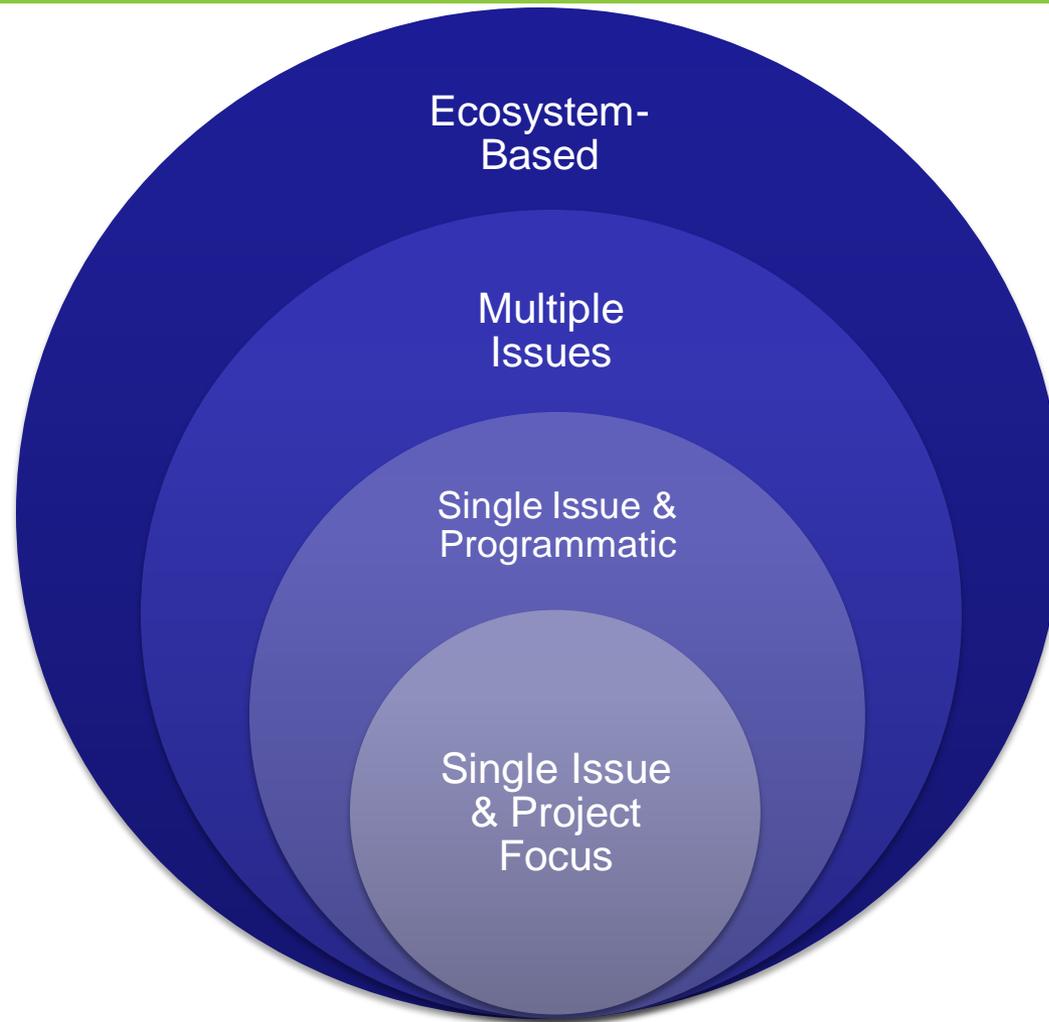
Study Objectives and Methods

- How are other federal and state agencies meeting mitigation requirements?
- What are the benefits of using these approaches?
- What are important lessons learned?
- What can be transferred to the Army?
 - Current practice and context
- Literature review
 - Case selection
 - Case study follow-up
- Interviews with military subject matter experts
 - Case study visits

Best Case Sources

- Case Studies, Center for Environmental Excellence by the American Association of State Highway and Transportation Officials
- 2005 Status Report on Compensatory Mitigation in the United States, Environmental Law Institute, April 2006
- State Wetland Protection - Status, Trends, & Model Approaches, Appendix: North Carolina, Environmental Law Institute, 2008
- Banks and Fees – The Status of Off-Site Wetland Mitigation in the United States, Environmental Law Institute, 2002
- Federal Highway Administration (FHWA) Exemplary Ecosystem Initiatives, FHWA, 2006
- Results of the FHWA Domestic Scan of Successful Wetland Mitigation Programs, FHWA, December 2005
- 2009 Environmental Excellence Awards, FHWA
- National Cooperative Highway Research Program, Report 482, Guidelines for Selecting Compensatory Wetlands Mitigation Options, National Academy of Sciences - Transportation Research Board, 2002
- Success Stories in Transportation Enhancements, National Trails Training Partnership, Nature Conservancy, Revised November 2000

Approaches for Mitigation Banking





Ecosystem-based

Multiple Issues

Single Issue &
Programmatic

**Single Issue &
Project Focus**

- Challenges of this approach continue to accumulate
 - Difficult to monitor
 - Inefficient/not cost effective
 - Poor ecological results
 - Often are not permanent
 - Internal capability/performance may not be sufficient
- Historically, lack of drivers for alternatives
- Includes project-by-project credit purchases

Case Selection: Relevance to the Army

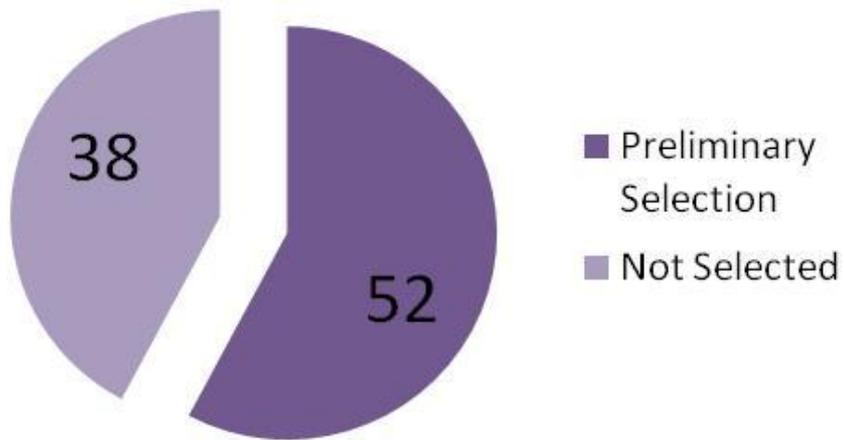
- Off-Site Banks
- Geographic locations across the United States
- Variation
 - Scale
 - Size
- Ecosystem issues similar to those of Army installations
 - Community development pressure
 - Habitat/endangered species
 - Multiple mitigation needs

Case Selection: Relevance to the Army

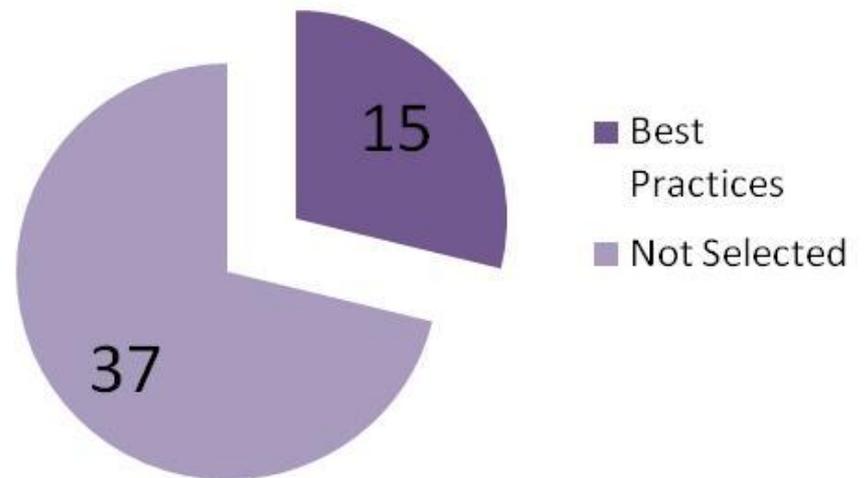
- Outcome criteria
 - Transfer compliance burden for mitigation to other entities
 - Utilize expertise for ecosystem management that the organization doesn't have
 - Achieve multiple mitigation credits or ecosystem-related objectives in a single bank
- Outcomes beyond mitigation objectives
 - Creation or maintenance of wildlife habitat
 - Recreation and other benefits to the community
 - Buffering and other benefits to adjacent preserves and wildlife management areas
 - Contribution to local and state ecosystem objectives
 - Creation of new partnerships with stakeholders

Selection of Best Practices

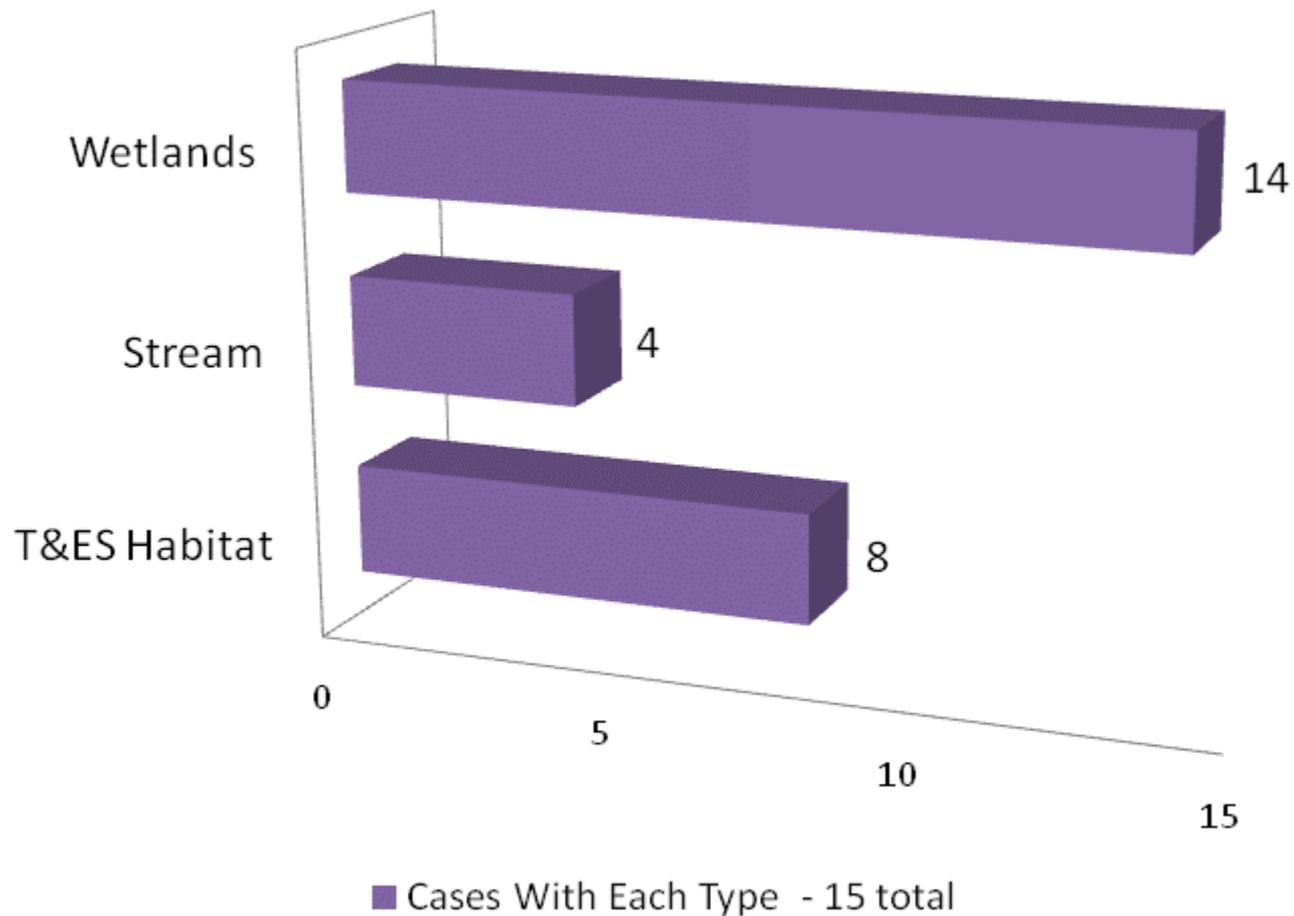
Preliminary - 52 of 90



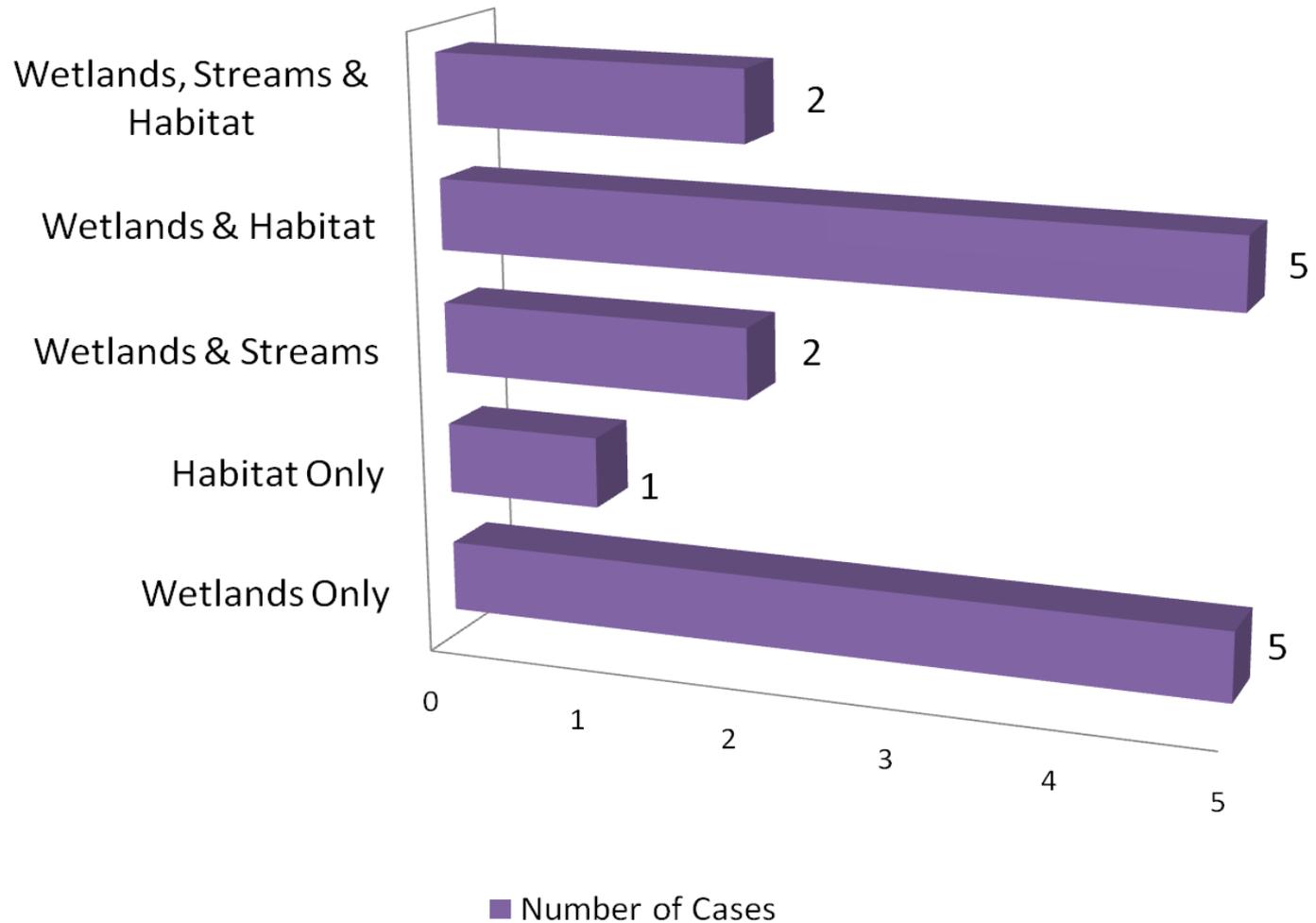
Final - 15 of 52

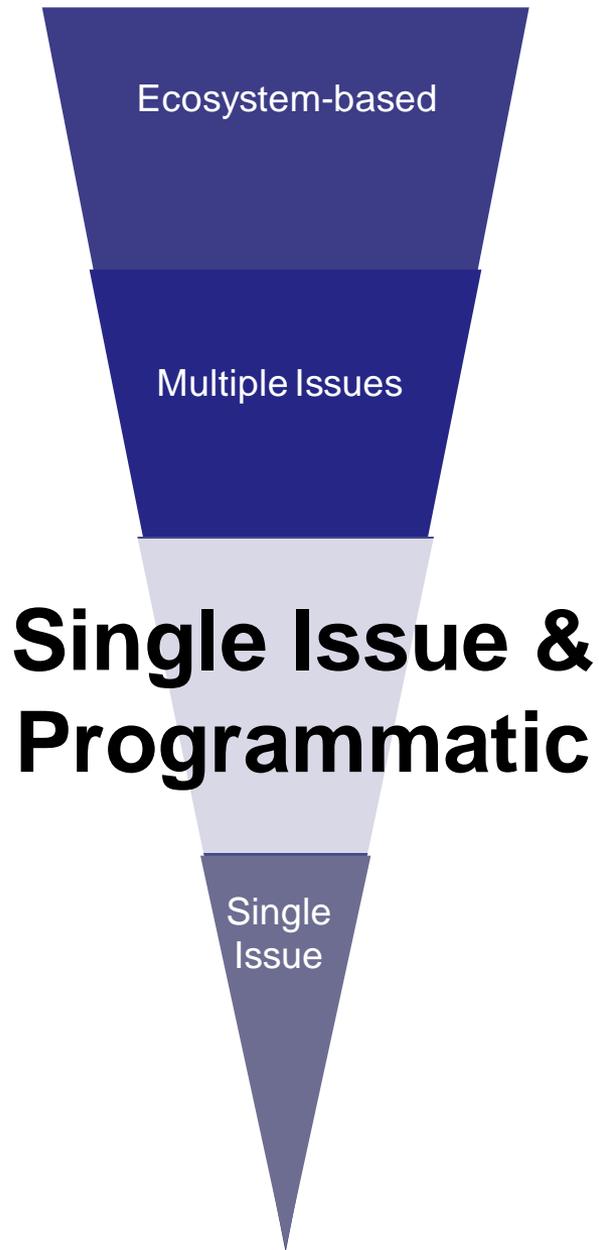


Types of Mitigation – Cases With Each



Types of Mitigation – Per Case





- Arkansas Highway and Transportation Department
 - Owns/manages banks, wetland focus
 - Partner agency administers banking
- Texas Department of Transportation
 - Owns/manages banks, wetland focus
 - Partner agency manages banking



- Alabama Department of Transportation
 - Two banks provide conservation credits
 - Has begun focus on stream mitigation
- North Carolina Department of Transportation
 - State-wide strategic effort to manage wetland and stream mitigation
 - Very high compliance for both issues
- Oregon Department of Transportation
 - Blends wetland program with habitat/species objectives
 - Banks currently produce both credits

Ecosystem -based

Multiple Issues

Single Issue &
Programmatic

Single
Issue

- County of San Diego
 - County-wide focus on native vegetation and habitat for many species
 - Many partners to integrate into planning activities across the county
 - Coordination between all bank and preserve owners and developers
- Florida Department of Transportation
 - Shifted to regional, multi-use mitigation
 - Many agencies work together for mutual benefits
 - Established large preservation corridors and mitigation “parks”

Findings to Date: Non-Military

- Drivers for innovation
 - Ecological ineffectiveness of traditional mitigation
 - Delays in completing mitigation
 - Lack of capability and/or performance in the organization
- Best practices
 - Establishing partners for significant roles or other benefits
 - Stacking or seeking multiple credits in banking projects
 - Utilizing an ecosystem-based approach
 - Allowing different approaches in a mitigation program
- Innovation was necessary, but results are not clear

Findings to Date: Army



Single Issue
& Project
Focus

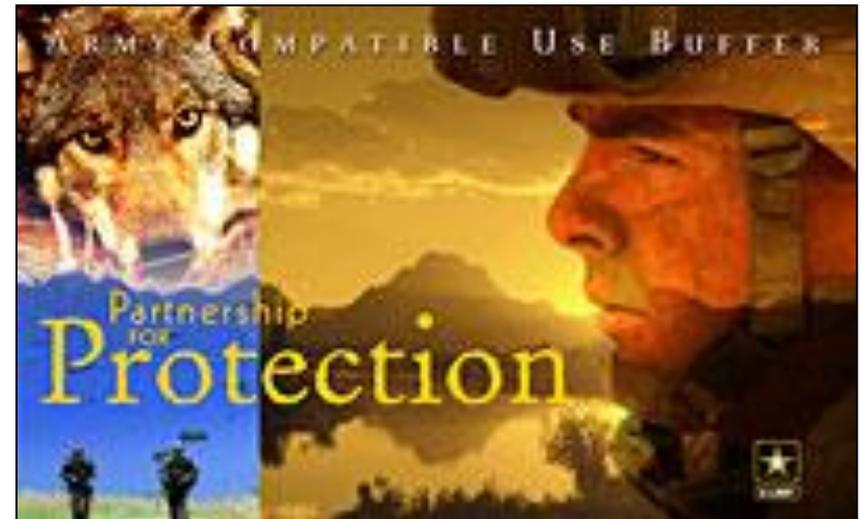
- Regulatory mitigation requirements typically met on-post
- This practice cannot continue:
 - Concern about permanent restrictions on military lands
 - Continued pressure to natural resources due to changes in off-post land use

Findings to Date: Army

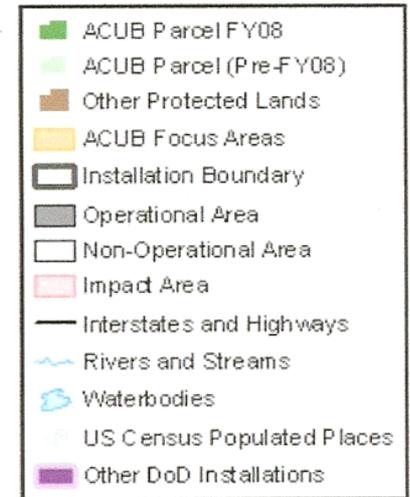
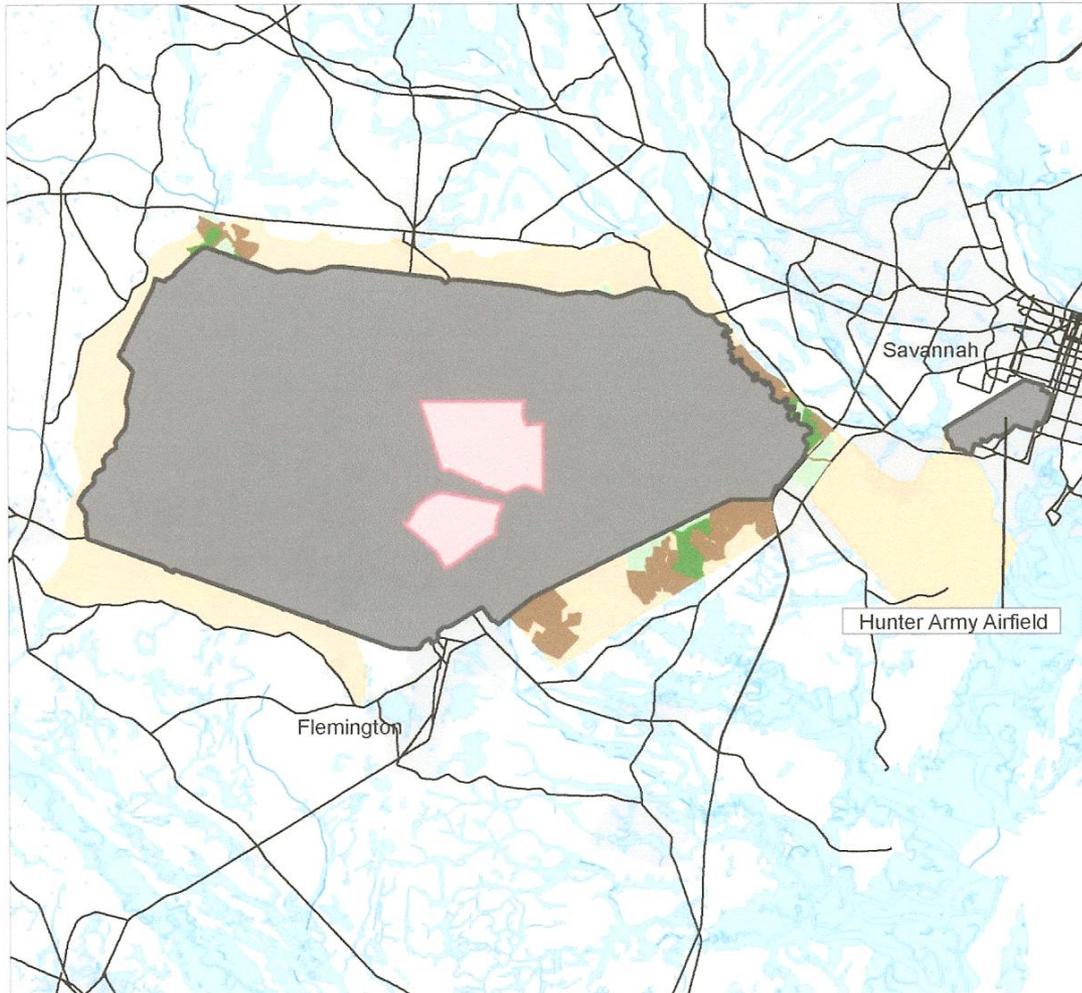
- Opportunities for off-site mitigation
 - Commercial banks
 - Partner-led banking on buffer lands
 - Easements and other land purchases
 - Recovery Credit Systems
- Challenges
 - Complexity
 - Field work to identify parcels and willing land owners
 - Project-driven focus
 - Funding

Opportunity: Partner-led Banking Army Compatible Use Buffer Program

- Mission-driven
 - Capability, capacity, accessibility
- Address encroachment concerns
 - Threatened & endangered species
 - Population growth and land use change
- Partners contribute funds
- Willing land owners



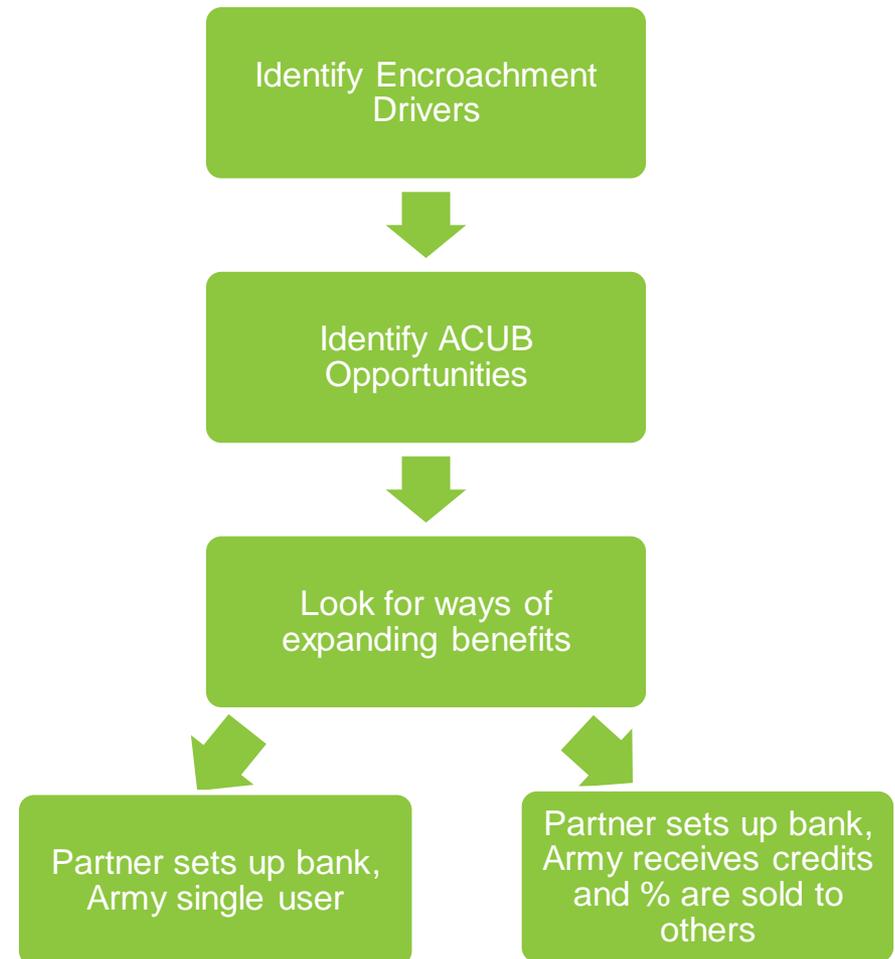
ACUB – Fort Stewart, Georgia



Source: *FY08 ACUB Year End Summary*,
Army Environmental Management Command
<http://aec.army.mil/usaec/acub/index.html>

Opportunities with ACUB

- Continue education internally and externally
- Look for opportunities for multiple benefits in each buffer transaction, even if they may not be needed today
 - Regulatory drivers, CWA, ESA, etc.
 - Before the deal is made!



Fort Benning ACUB

- Large number of military construction projects = need for wetland and stream mitigation credits
- Shortage of available credits from restoration (preferred)
- 400 acres ACUB conservation easement
- Mitigation credits established by preservation; sole source to Fort Benning
- Within impacted watershed – ecologically a “no brainer”
- Creative and innovative landowner working with existing partner – The Nature Conservancy
- Time and thought needed ahead of time when “layering” programs

Opportunity – Recovery Credit Systems

- Establish Credits
 - Identify threats to species and habitats
 - Identify action needed to address these threats
 - Only federal agencies
 - Only listed species
- Must provide a net benefit to the species
- Alternative to Conservation Banks
 - Ability to engage private land owners
- Temporary or Permanent depending on nature of impacts

Fort Hood RCS: Golden Cheeked Warbler

- Successful “proof of concept” demonstration
- Temporary credits apply to temporary impacts – permanent credits are needed for permanent impacts
- Engagement of private landowners in conservation
- Need to ensure adequate monitoring
- Working to ensure achieve a net benefit to the species
 - Management actions
 - Conservation metrics



Opportunities with RCS

- Potentially lower costs for mitigation
- Maximum flexibility to meet all possibilities where and when appropriate
- Still being developed and tested

**Price
per
Credit
?**



Fee-Simple
Acquisition

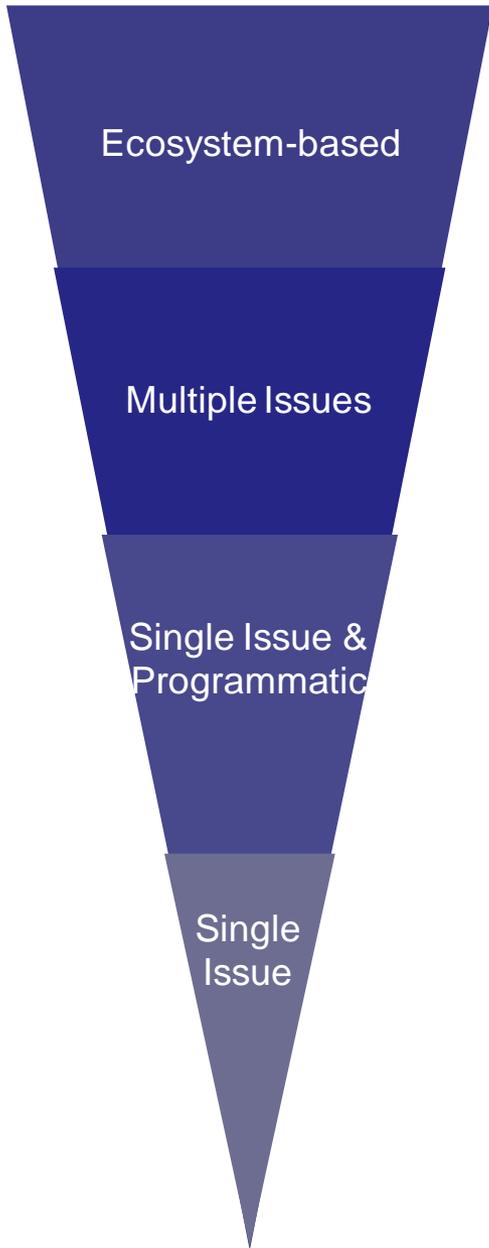
Conservation
Easements

Recovery Credit
Systems

Conclusion

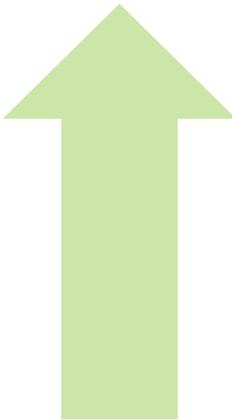
- When does it make sense?
 - Any time the military, community, and environment benefit
 - Management responsibility by partner
 - Meeting multiple objectives to increase return on investment
- More complexity: each base, each property, each property owner - all are unique
 - Equals more upfront investment
 - Solutions need to be flexible – what works best for the situation





Ecosystem-based, Future-oriented,
Landscape Scale, Partnering

More Time,
More Risk



More Options,
More Benefits

Clearly defined regulatory or
encroachment issue that must be
addressed



National Defense Center for
Energy and Environment



DoD Executive Agent

Office of the
Assistant Secretary
of the Army
(Installations and
Environment)

www.ndcee.ctc.com

Points of Contact

Ms. Elizabeth Keysar
NDCEE/CTC
keysar@ctc.com
(770) 631-0137

NDCEE Program Management Office
(703) 602-5500

This work was funded through the Office of the Assistant Secretary of the Army (Installations and Environment) and conducted under contract W74V8H-04-D-0005 Task 0501. The views, opinions, and/or findings contained in this paper are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision unless so designated by other official documentation.