Advanced Mitigation – Part 2

Living the Dream: Insights on Implementation

AEP California State Conference

March 24, 2015

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LAND VERITAS

Advanced Mitigation

Moderator:

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VCS Environmental

Panelists:

Aaron Allen, Chief
North Coast Branch, US Army Corps of Engineers

Hal Holland, Senior Conservation Planner
Westervelt Ecological Services

Tracey Brownfield, Principal & Co-Founder
Land Veritas

AEP Association of Environmental Professionals

Mitigation Banks in the Los Angeles District

Aaron O. Allen, Ph.D.
Chief, North Coast Branch
March 24, 2015

US Army Corps of Engineers
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Disclaimer

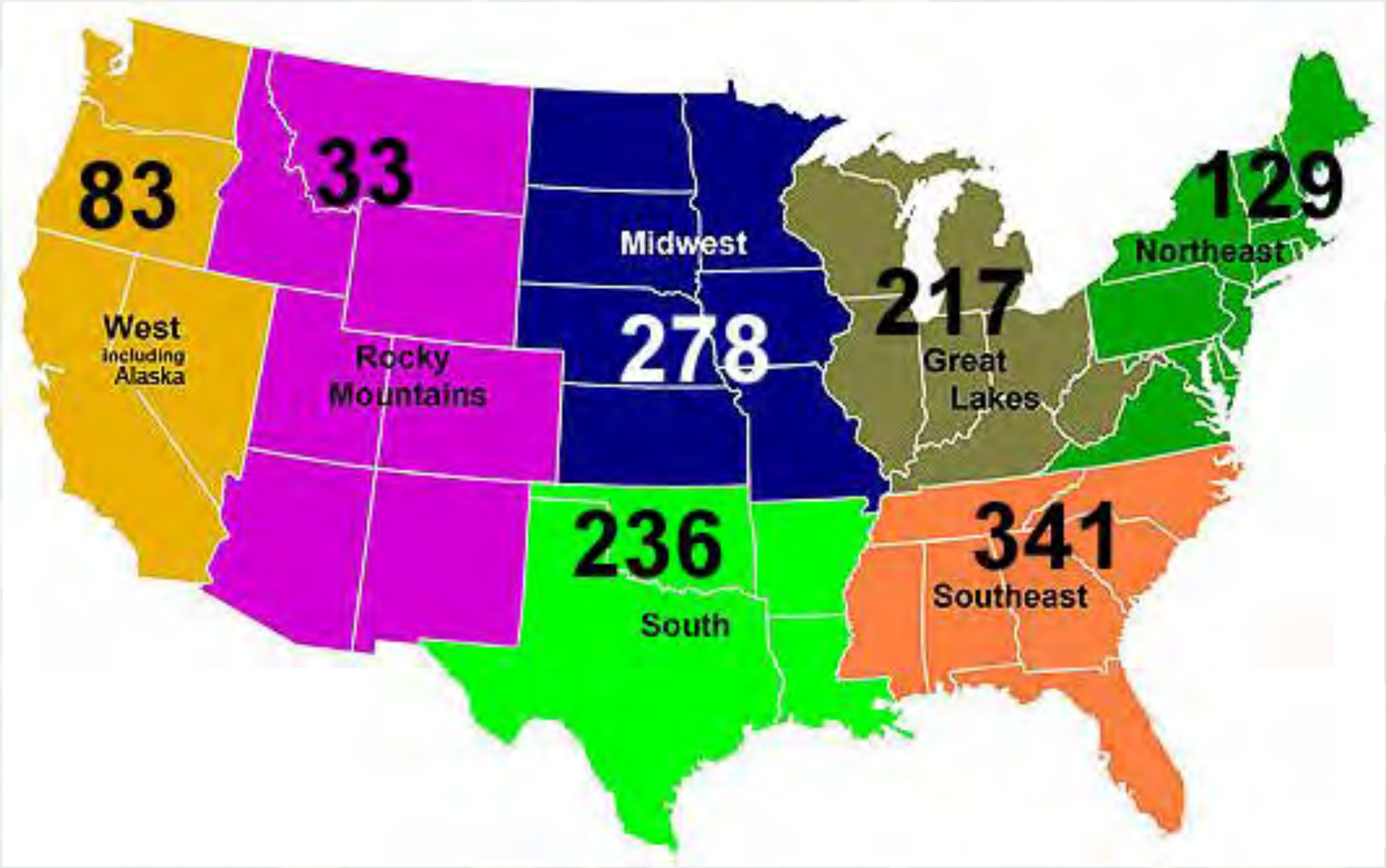
The following presentation does not represent formal guidance from the U.S. Army Corps of Engineers. Instead, the following information is based on case-by-case mitigation decisions that the Los Angeles District has made subsequent to the 2008 Mitigation Rule.

2014 Status (404 and ESA)

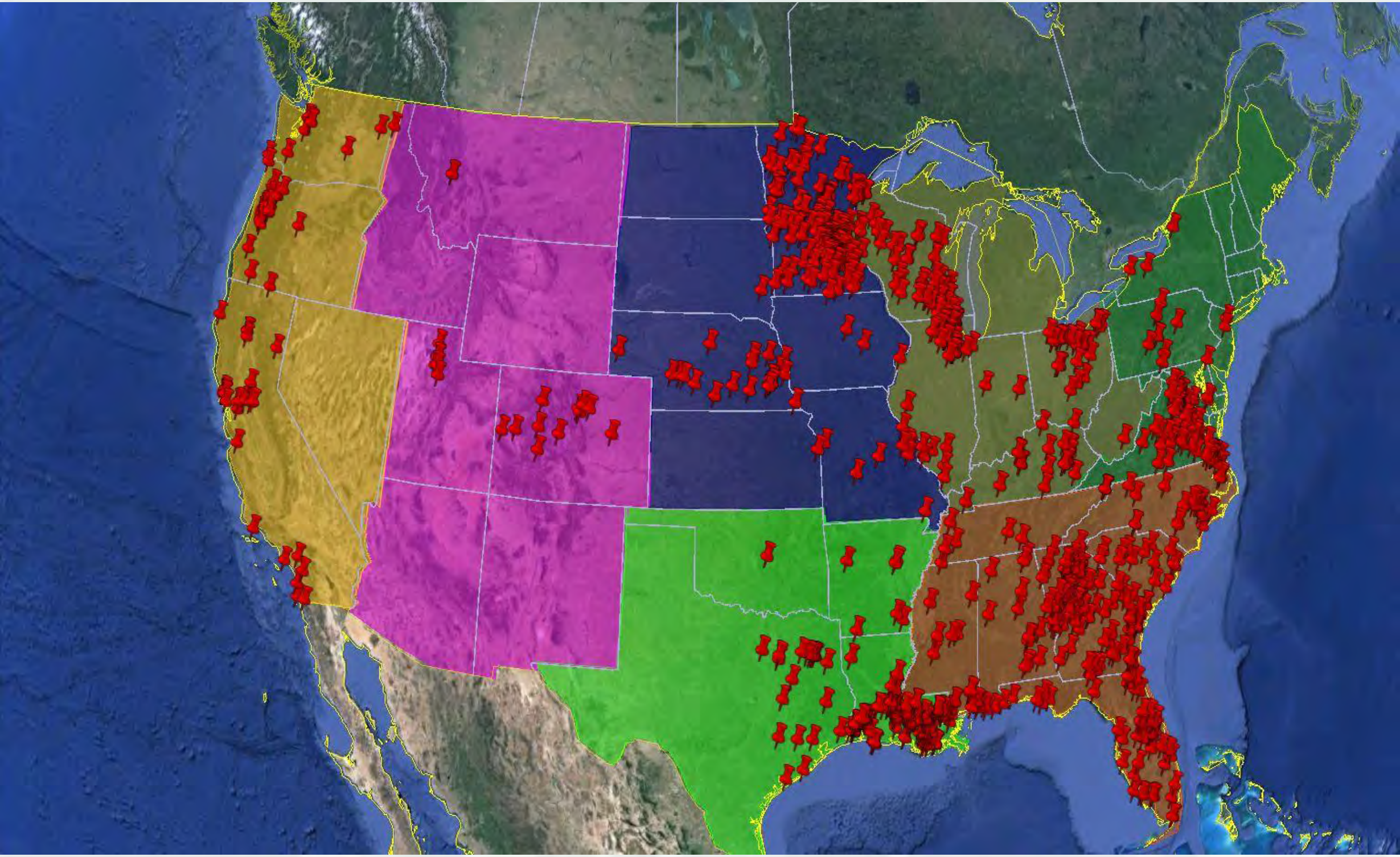
1,965 Bank sites loaded including:

- 64% approved
- 14% pending
- 13% sold out
- 2% suspended
- 7% terminated / withdrawn

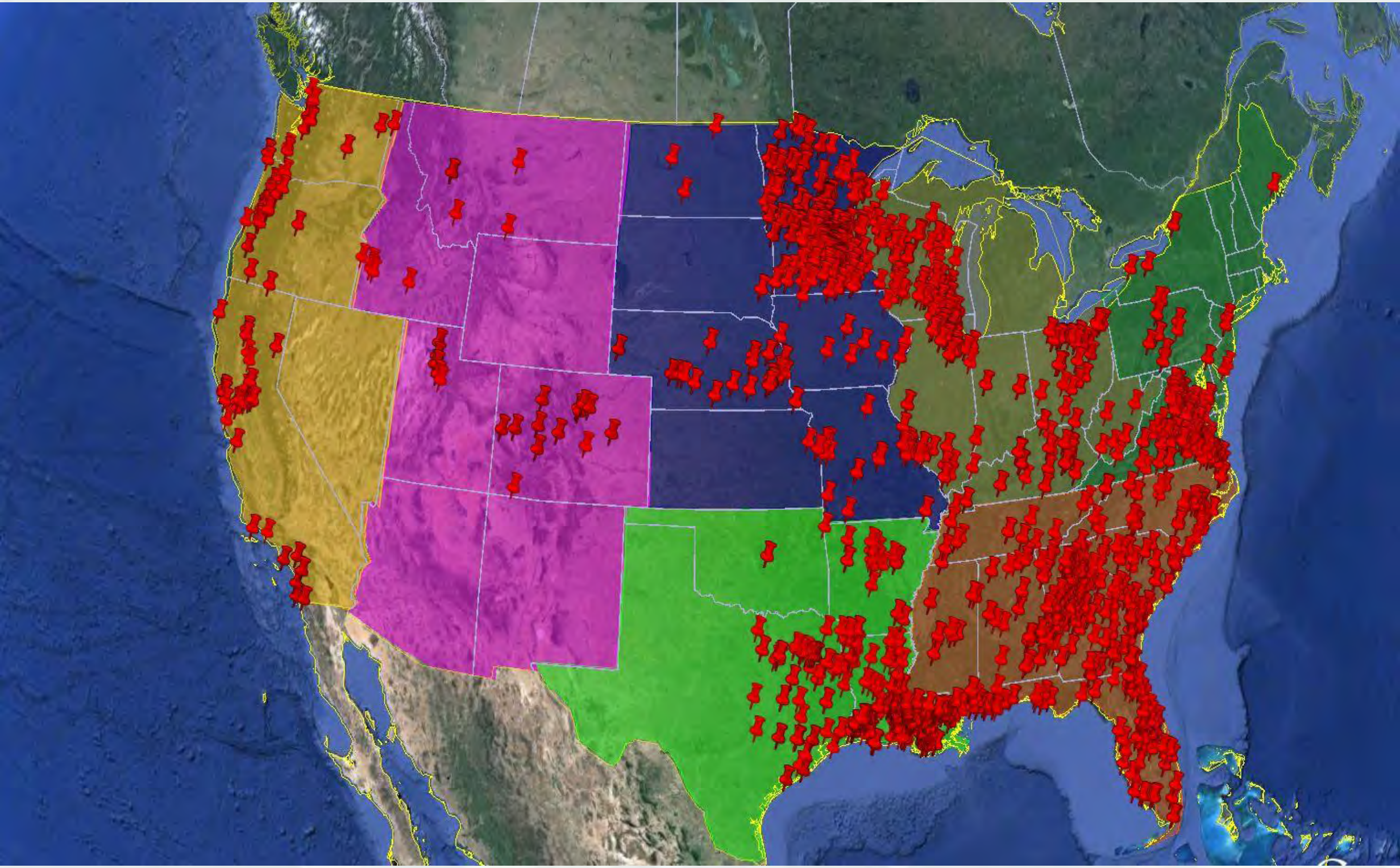
All Approved 404 Bank Sites in RIBITS



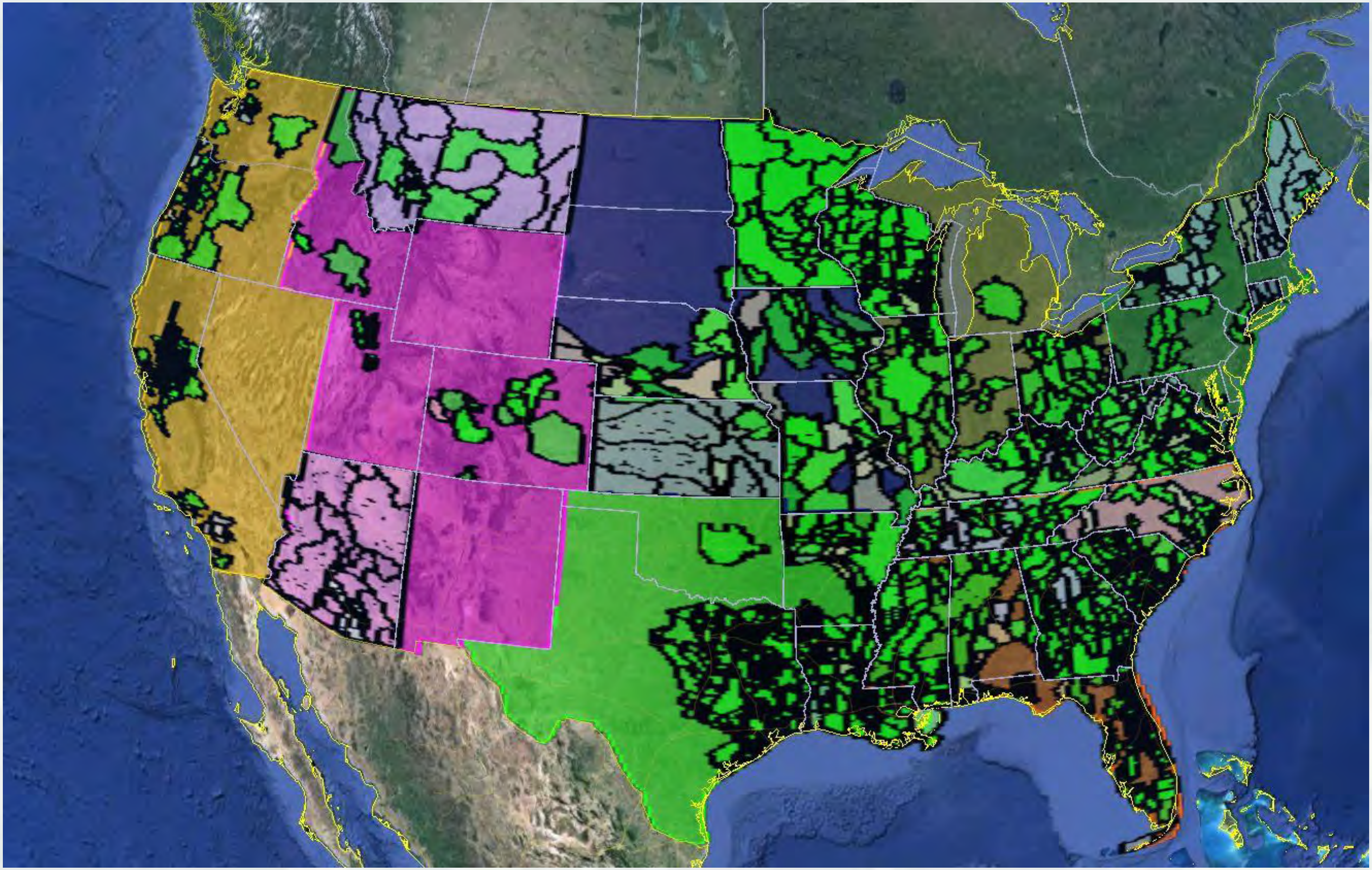
404 Bank Sites 2008



404 Bank Sites End of 2013



Bank and ILF Service areas (end of 2013)

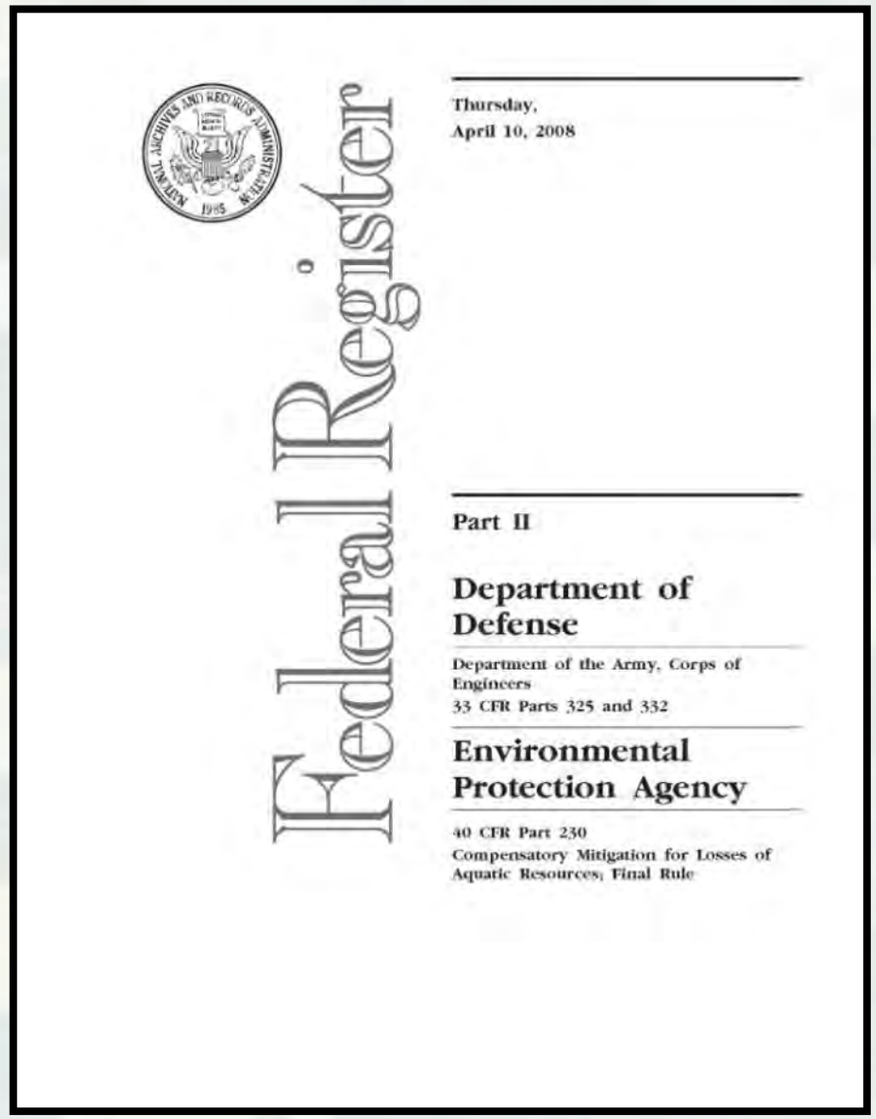


Corps General Mitigation Policy

- Compensatory mitigation is for significant resource losses
  - Specifically identifiable
  - Reasonably likely to occur
  - Of importance to the human or aquatic environment
- All mitigation will be:
  - Directly related to the proposed impacts
  - Appropriate to the scope and degree of those impacts
  - Reasonably enforceable

2008 Corps-EPA Mitigation Rule

- Establishes requirements for mitigation for impacts to aquatic resources
- "Where" and "how" mitigation is conducted
- Governs all forms of mitigation
- Equivalent standards for all forms
- Preference for 3rd party mitigation



General Considerations

- Objectives
  - Offset impacts
  - Practicable
  - Environmentally preferable
- Commensurate with impacts

General Mitigation Requirements

- Mitigation type
  - In-kind preferred
  - On-site/off-site or both
  - Difficult to replace resources (e.g. bogs, fens, streams)
- Timing
- Amount of compensation
  - 1:1 minimum
- Temporal Losses

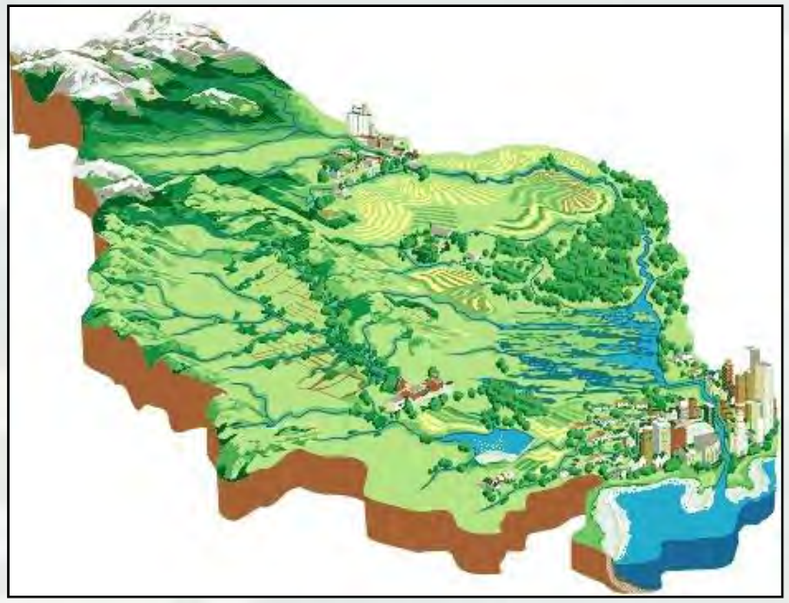
Type & Location of Mitigation

Usually within same watershed as impact AND where most likely to replace lost functions.

- Consider:
  - Habitat diversity
  - Connectivity
  - Land use trends
  - Compatibility with adjacent uses
- Mitigation may be sited on public or private lands

Watershed Approach to Mitigation Selection

- Strategic selection of projects
- Existing watershed plans
- Without suitable plan, use available information on condition and needs
- Consider landscape position and sustainability
- Provide suite of functions
- Level of information and analysis commensurate with impacts



3rd Party Mitigation

- One or more sites where resources are restored, established, enhanced, and/or preserved to offset permitted impacts
- Permittees acquire mitigation credits
- Sponsor assumes responsibility for the mitigation
- Operation and use are governed by an instrument

Benefits of Third Party Mitigation

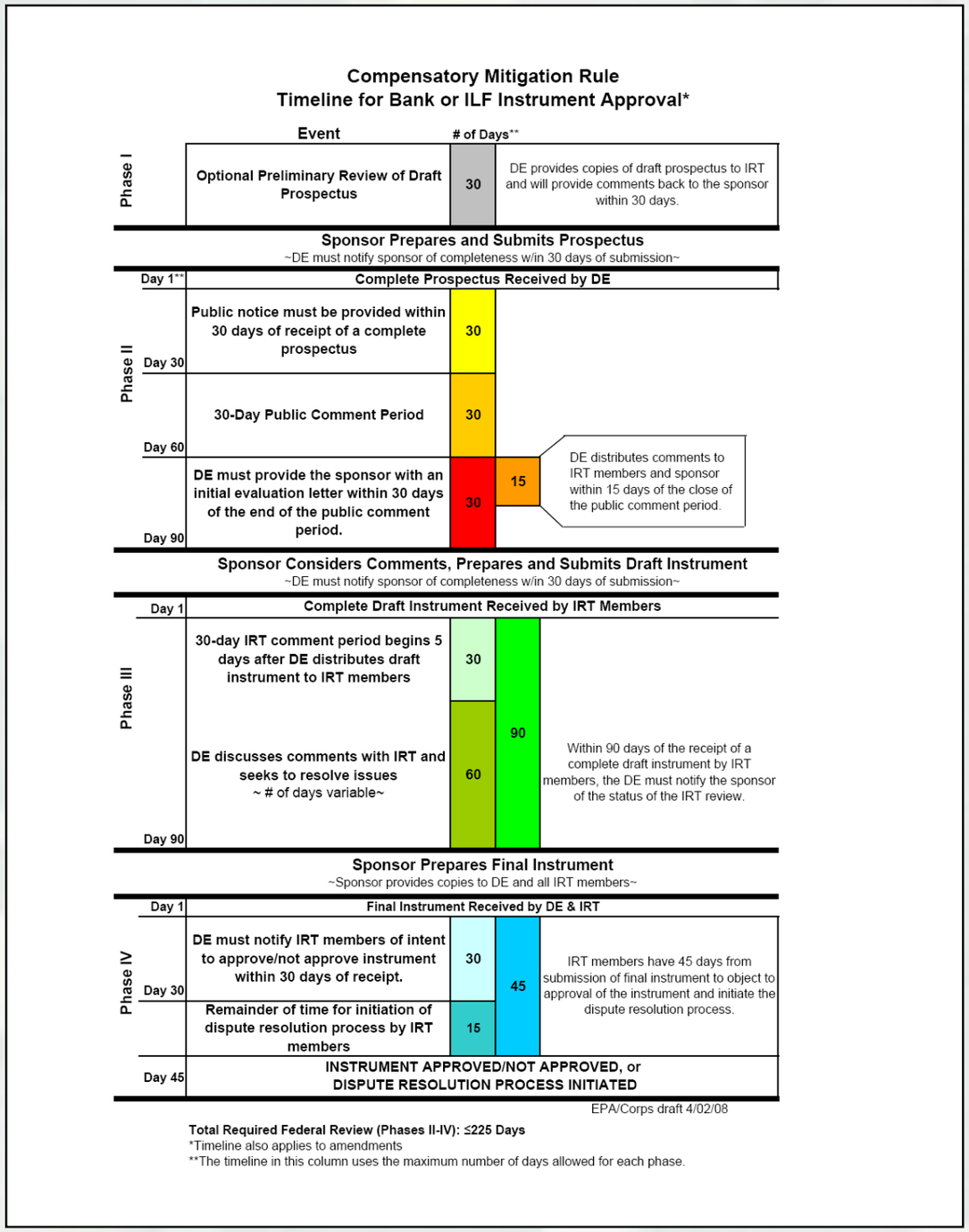
- Reduced risk & uncertainty
- More efficient compliance
- Often greater planning and scientific effort
- May provide mitigation, when permittee-responsible mitigation is not practicable
- May streamline permitting, by reducing effort evaluating mitigation proposal

Drawbacks of 3rd Party Mitigation

- Failure may result in substantial loss of aquatic resource function
- Migration of functions and services
  - Extensive agency effort in instrument development and oversight

3rd Party Instrument Development

- Draft prospectus
- Prospectus
- Draft instrument
- Final instrument



Compensatory Mitigation Rule
Timeline for Bank or ILF Instrument Approval*

	Event	# of Days**	
Phase I	Optional Preliminary Review of Draft Prospectus	30	DE provides copies of draft prospectus to IRT and will provide comments back to the sponsor within 30 days.
	Sponsor Prepares and Submits Prospectus ~DE must notify sponsor of completeness w/in 30 days of submission~		
Day 1**	**Complete Prospectus Received by DE**		
Phase II	Public notice must be provided within 30 days of receipt of a complete prospectus	30	
Day 30	30-Day Public Comment Period	30	
Day 60	DE must provide the sponsor with an initial evaluation letter within 30 days of the end of the public comment period.	30	15 DE distributes comments to IRT members and sponsor within 15 days of the close of the public comment period.
Day 90	**Sponsor Considers Comments, Prepares and Submits Draft Instrument** ~DE must notify sponsor of completeness w/in 30 days of submission~		
Day 1	**Complete Draft Instrument Received by IRT Members**		
Phase III	30-day IRT comment period begins 5 days after DE distributes draft instrument to IRT members	30	90 Within 90 days of the receipt of a complete draft instrument by IRT members, the DE must notify the sponsor of the status of the IRT review.
Day 90	DE discusses comments with IRT and seeks to resolve issues ~ # of days variable~	60	
	Sponsor Prepares Final Instrument ~Sponsor provides copies to DE and all IRT members~		
Day 1	**Final Instrument Received by DE & IRT**		
Phase IV	DE must notify IRT members of intent to approve/not approve instrument within 30 days of receipt.	30	45 IRT members have 45 days from submission of final instrument to object to approval of the instrument and initiate the dispute resolution process.
Day 30	Remainder of time for initiation of dispute resolution process by IRT members	15	
Day 45	**INSTRUMENT APPROVED/NOT APPROVED, or DISPUTE RESOLUTION PROCESS INITIATED**		

EPA/Corps draft 4/02/08

Total Required Federal Review (Phases II-IV): ≤225 Days
*Timeline also applies to amendments
**The timeline in this column uses the maximum number of days allowed for each phase.

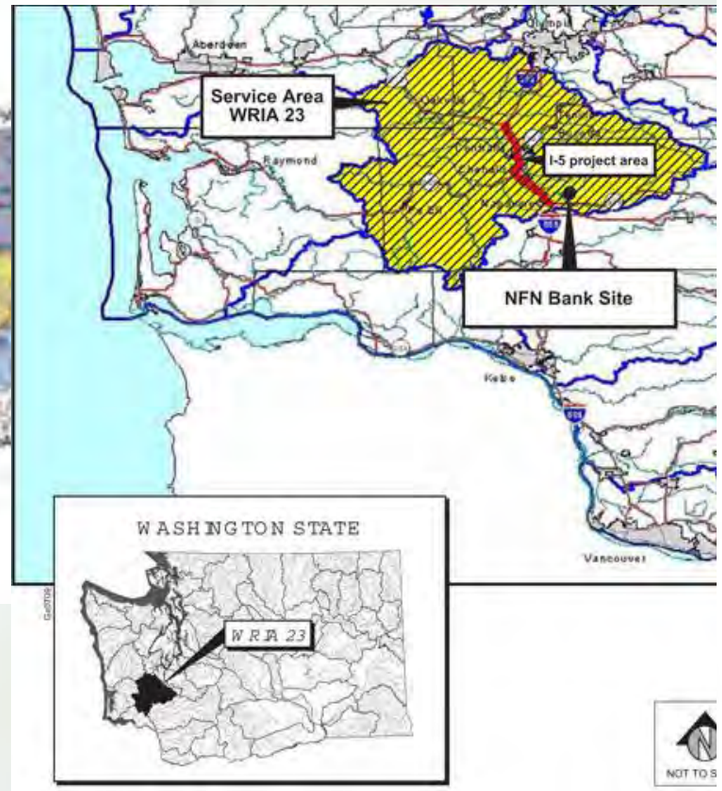
Interagency Review Team

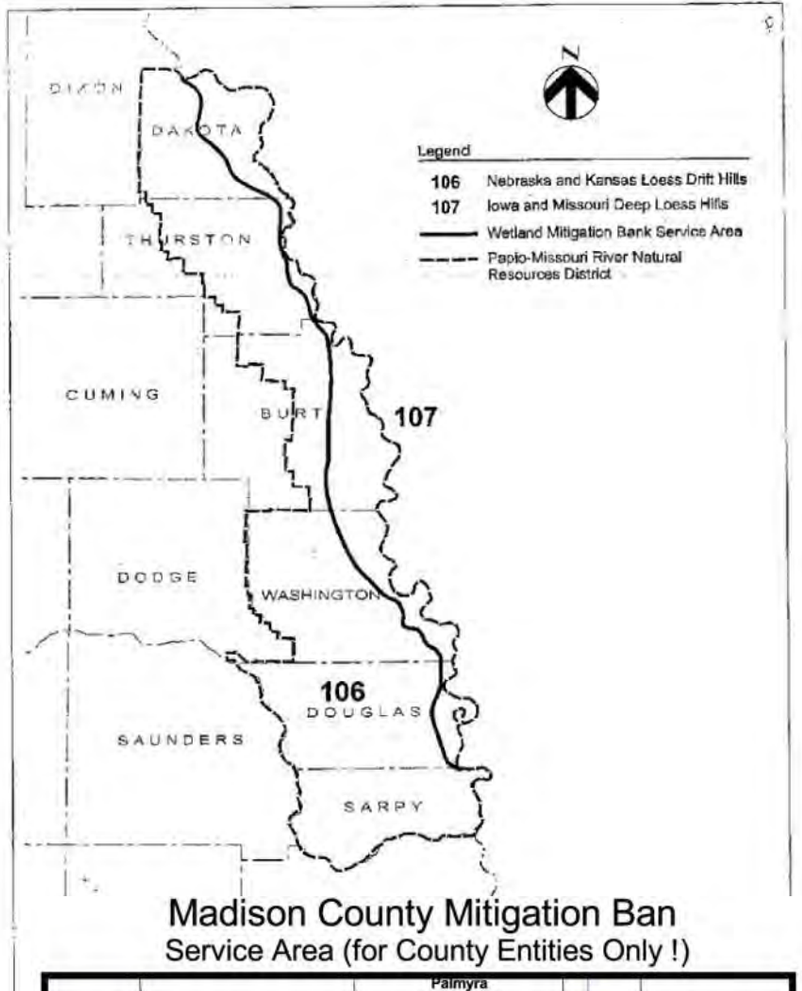
- Reviews establishment and operation of 3rd party mitigation
- Federal, Tribal, State, and local resource agencies
- Coordination required
- Consensus is desired
- Corps makes final decision

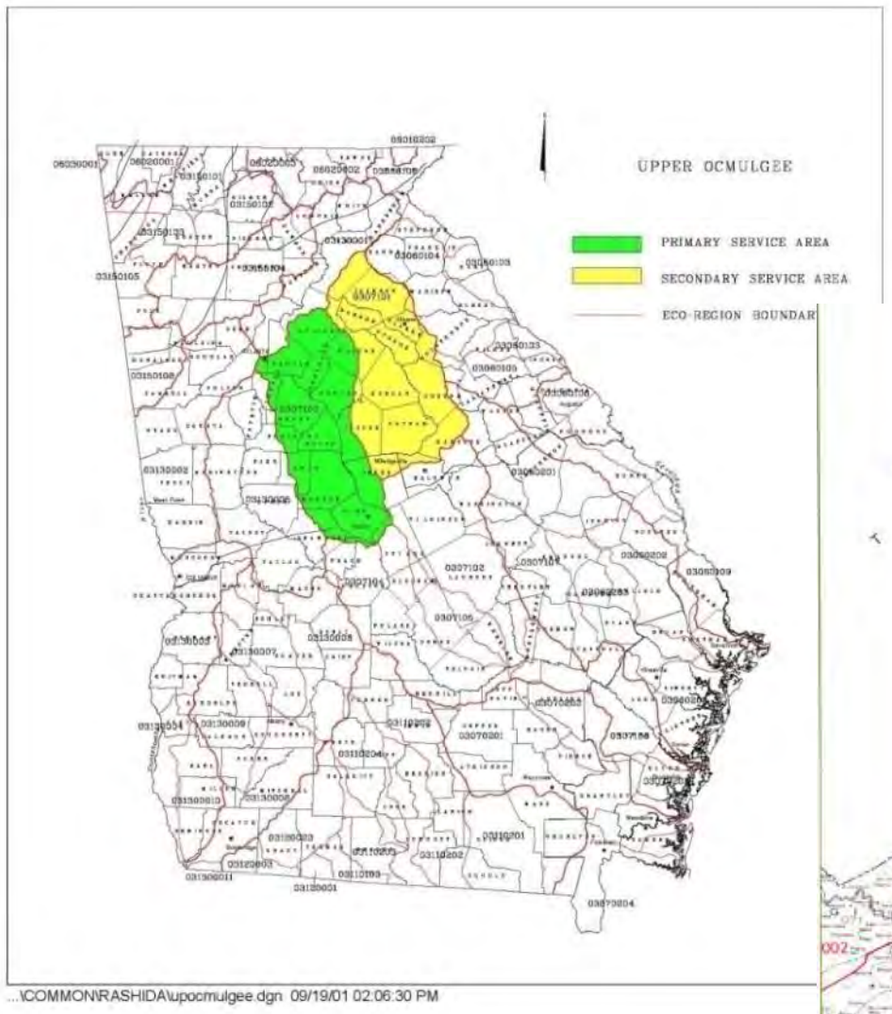
Service Areas

- Geographic area where bank or ILF can provide mitigation
  - May be based on watershed, ecoregion, physiographic province, or other suitable geographic area
  - One or more 8-digit HUCs may form service area
  - May consider economic viability
  - Basis for determining service area must be documented in the instrument

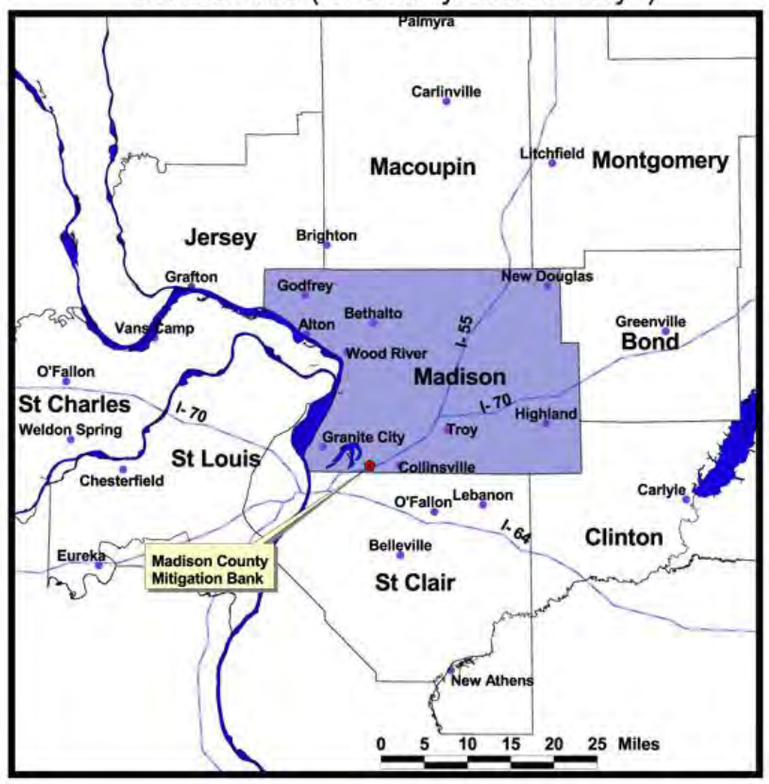
USGS 8-DIGIT CATALOGING UNITS- NORTH CAROLINA







Madison County Mitigation Ban
Service Area (for County Entities Only !)



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Site Protection

"…mitigation project *must be provided long-term protection* through real estate instruments or other available mechanisms, as appropriate."

Financial Assurances

"…(Corps) shall require sufficient financial assurances to ensure a high level of confidence that the mitigation project will be successfully completed, in accordance with applicable performance standards."

Why Financial Assurances?

- Funds to correct or replace unsuccessful mitigation if responsible party is unable/unwilling to do so
- Allow initial credit release for mitigation banks
- Funds for long-term management

Management of Mitigation Projects

- Maintenance Plan
- Long-term management plan identifies:
  - Responsible party(ies)
  - Management requirements
  - Costs
  - Funding

Preference Hierarchy for Mitigation

1. Mitigation bank credits
2. In-lieu fee program credits
3. Permittee-responsible mitigation under a watershed approach
4. On-site and/or in-kind permittee-responsible mitigation
5. Off-site and/or out-of-kind permittee-responsible mitigation

Standard Operating Procedure for Determination of Mitigation Ratios

US Army Corps of Engineers	12501-SPD REGULATORY PROGRAM STANDARD OPERATING PROCEDURE FOR DETERMINATION OF MITIGATION RATIOS	South Pacific Division

Table of Contents

1.0 Purpose. The purpose of this document is to outline the process for determining compensatory mitigation requirements as required for processing of Department of the Army (DA) permits under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. .

2.0 Applicability. This process applies to the Regulatory Program within South Pacific Division (SPD), including its four subordinate districts, Albuquerque District (SPA), Sacramento District (SPK), Los Angeles District (SPL),and San Francisco District (SPN). Subordinate offices or organizations shall not modify this procedure to form a specific procedure. This procedure is applicable for all permit applications received after 20 April 2011.

3.0 References.

Compensatory Mitigation for Losses of Aquatic Resources (33 C.F.R. Part 332).

Smith, R. D., D. R., A. Ammann, C. Bartoldus, M. M. Brinson. 1995. An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands, and

Functional Indices., Wetlands Research Program Technical Report WRP-DE-9. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi.

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm (Version 04DEC98).

Collins, J.N., E.D. Stein, M. Sutula, R. Clark, A.E. Fetscher, L. Grenier, C. Grosso, and A. Wiskind. 2008. California Rapid Assessment Method (CRAM) for Wetlands. Version 5.0.2. 151 pp.

4.0 Related Procedures.

None.

5.0 Definitions.

Compensatory mitigation - The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Condition - The relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.

Enhancement - The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation) - The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions.

Functions - The physical, chemical, and biological processes that occur in ecosystems.

Impact - Adverse effect.

In-kind - A resource of a similar structural and functional type to the impacted resource.

In-lieu fee program - A program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for DA permits.

Attachment 2
Instructions (step 7)

Step name changed to “Risk and uncertainty” to better reflect issues considered.

7	**Risk and uncertainty** Mitigation ratios should reflect the inherent uncertainty of mitigation. Factors to consider include: 1) Permittee-responsible mitigation; 2) mitigation site did not formerly support targeted aquatic resources; 3) difficult-to-replace resources (see 33 C.F.R. 332.3(e)(3) and (f)(2)); 4) modified hydrology (e.g., high-flow bypass); 5) artificial hydrology (e.g., pumped water source); 6) structures requiring long-term maintenance (e.g., outfalls, drop structures, weirs, bank stabilization structures); 7) planned vegetation maintenance (e.g., mowing, landclearing, fuel modification activities); 8) e.g., shallow, buried structures (riprap, clay liners), and 9) absence of long-term preservation mechanism. Note: this list is not all-inclusive. Each factor can range from +0.1 to +0.3 depending on the level of anticipated risk and the amount of maintenance or management required to sustain the compensatory mitigation project. Sum factor adjustments (+0 if no factors). Generally, uncertainty in banks and in lieu fee programs is accounted for in the credit release process.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment PM justification:

Note: if too many uncertainty factors are identified, this may indicate the overall mitigation proposal/design is not acceptable.

Attachment 2
Instructions (step 8)

8	**Temporal loss**: Constructed habitats take time to mature and replace aquatic functions; this typically warrants a higher mitigation ratio in cases where a delay is planned between impacts and full replacement of functions. PM should estimate the time between when the authorized impacts occur and constructed mitigation is expected to replace lost functions, including the monitoring period. In cases where all performance standards are expected to be achieved prior to impacts, no temporal loss should be assessed (for Permittee-responsible only). Similarly, in cases where interim performance standards are expected to be achieved, a lower ratio adjustment may be appropriate. Unexpected delays in compensatory mitigation project implementation should be handled as compliance actions. a. For scheduled, known delays between impacts and construction of mitigation, multiply delay (in months) by 0.05; b. To account for time required for full replacement of functions during monitoring period: generally, if mitigation is comprised of trees/woodlands or saltmarsh, +3; if shrubs, +2; if herbaceous, +1; c. Add adjustments from steps (a) and (b).	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment PM justification:

PDT chose simple approach, rather then using complex and invalidated temporal loss equations proposed in the literature.

Questions?

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Leveraging Mitigation To Achieve Large-Scale Ecological Goals

March 24, 2015

Planning Objectives

Presentation Overview

- Review of Mitigation Alternatives
- Benefits of Regional Planning
- Mitigation Site Selection Process

Forms of Mitigation

Permitee Responsible

- Tailored to Project
- Pay as you go
- Responsible for:
  - Site Selection
  - Development
  - Implementation
  - Performance

High Mitigation Ratio

In Lieu Fee

- Advanced Regional Planning
- Transfer of Liability
- Three Years for Implementation

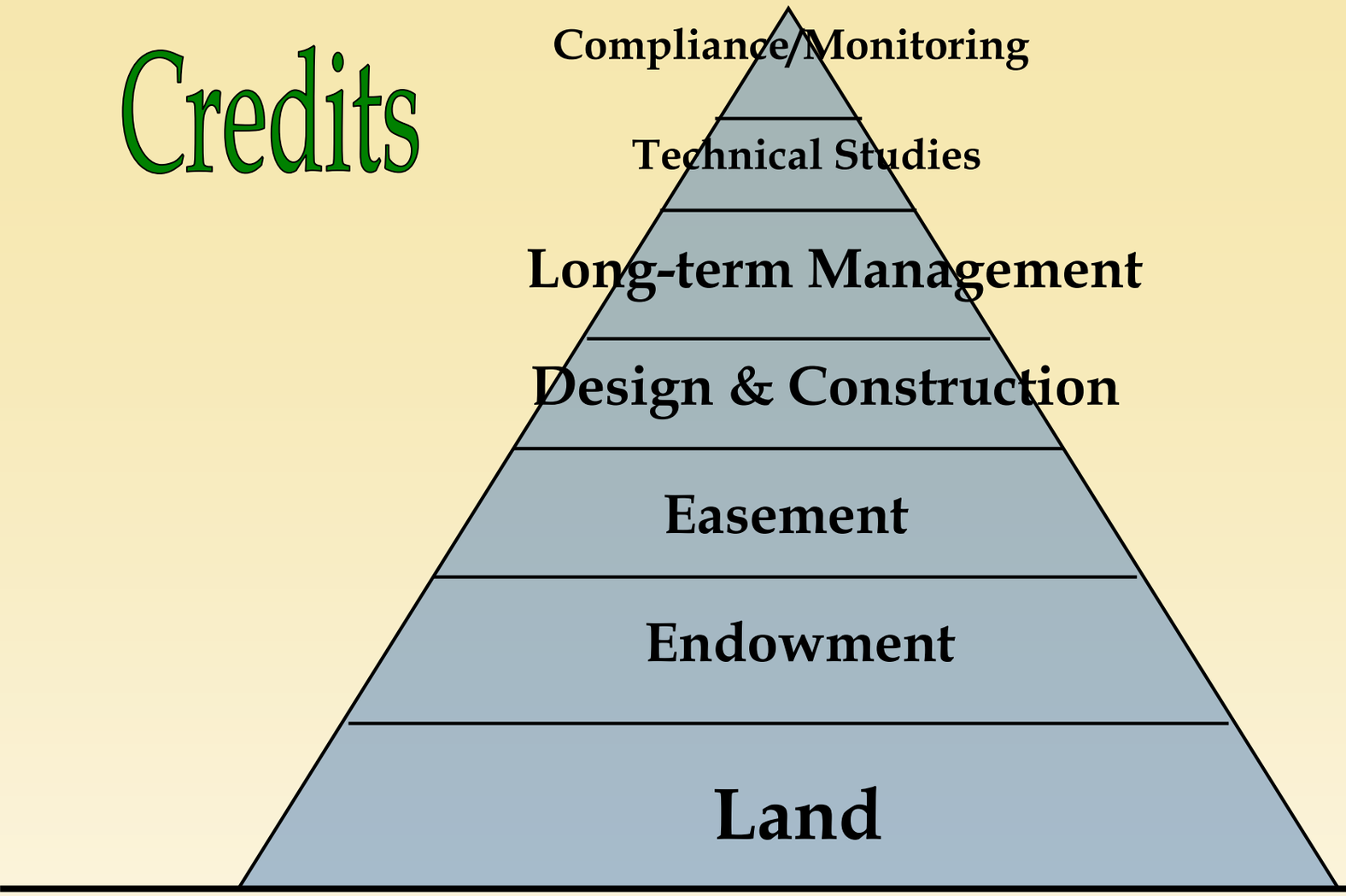
Reduced Mitigation Ratio

Bank Credits

- Advanced Planning
- Transfer of Liability
- Project Implemented
- Cost Certainty

Lowest Mitigation Ratio

Credits



Permittee Responsible Mitigation

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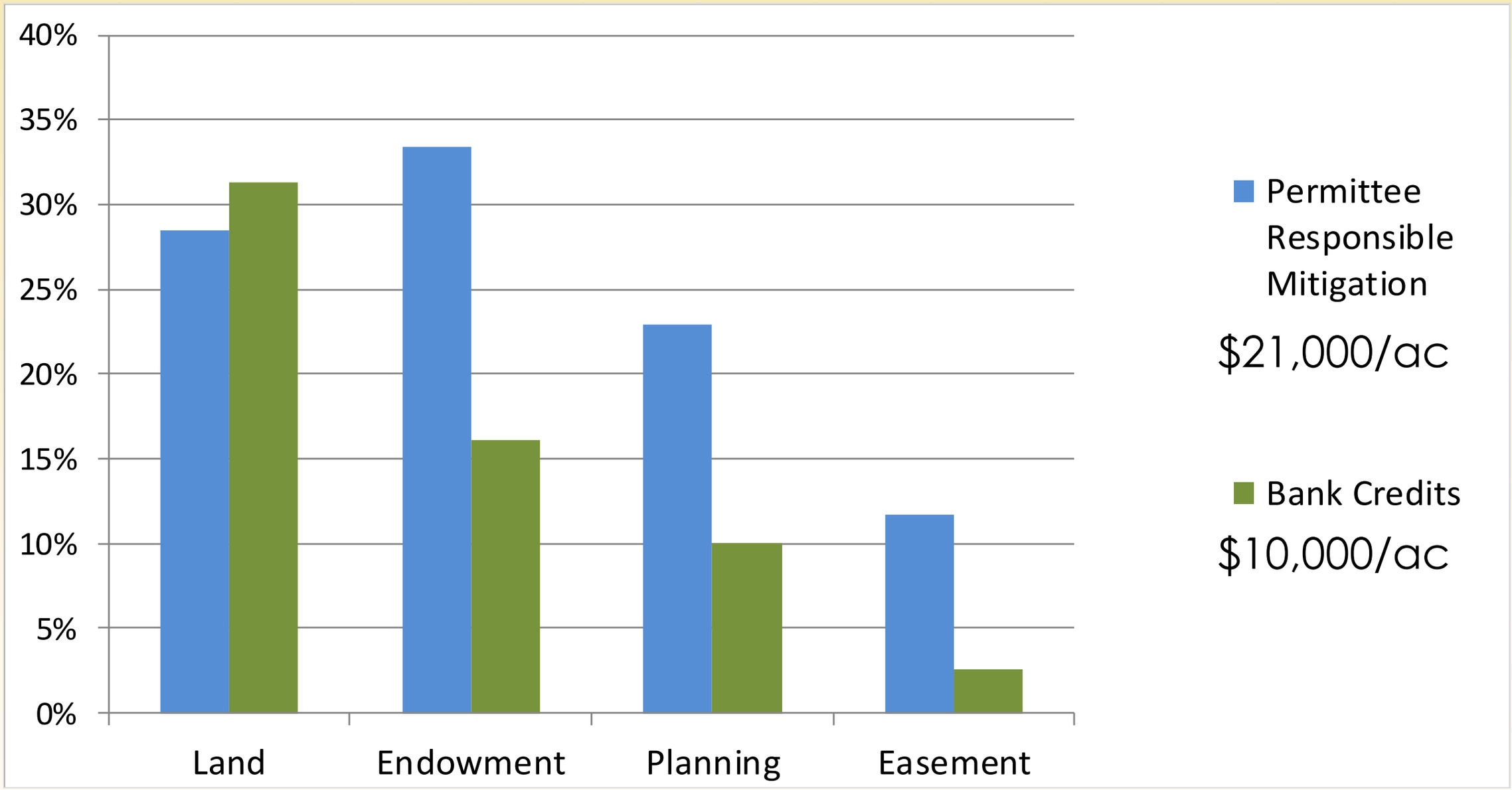

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Mitigation Considerations

Presentation Overview

- Review of Mitigation Alternatives
- Benefits of Regional Planning
- Mitigation Site Selection Process

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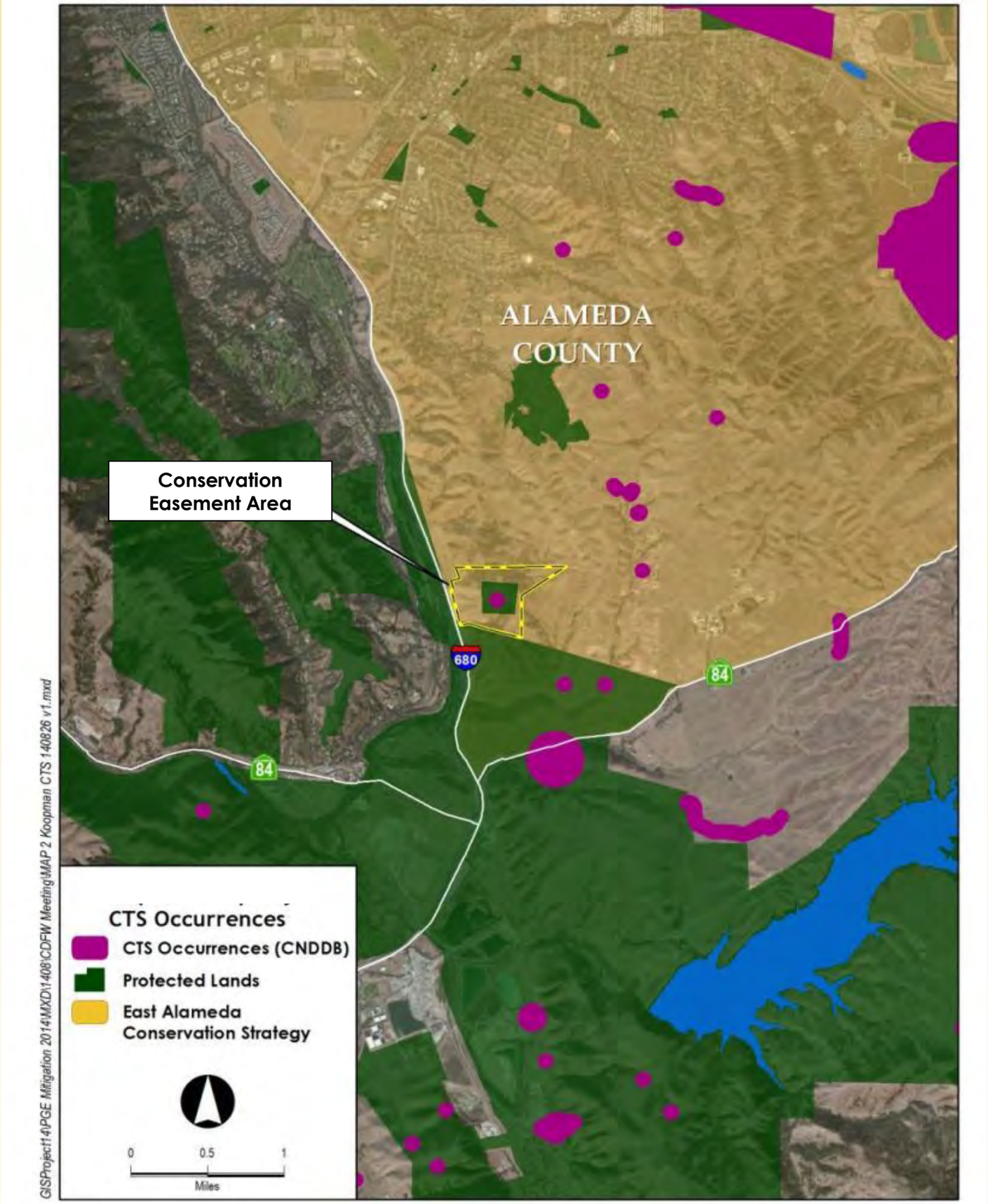
Permittee Responsible Mitigation Site Selection



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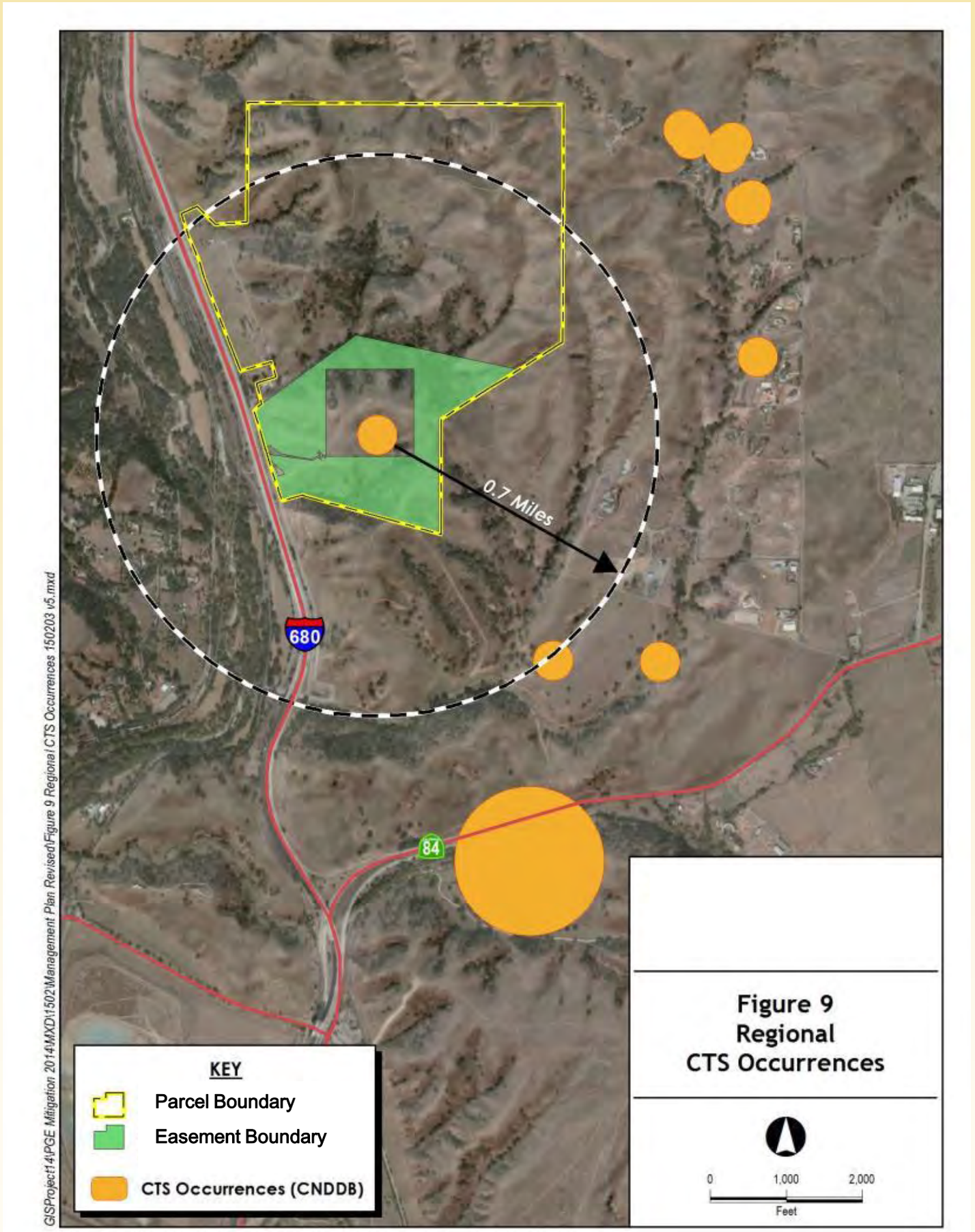
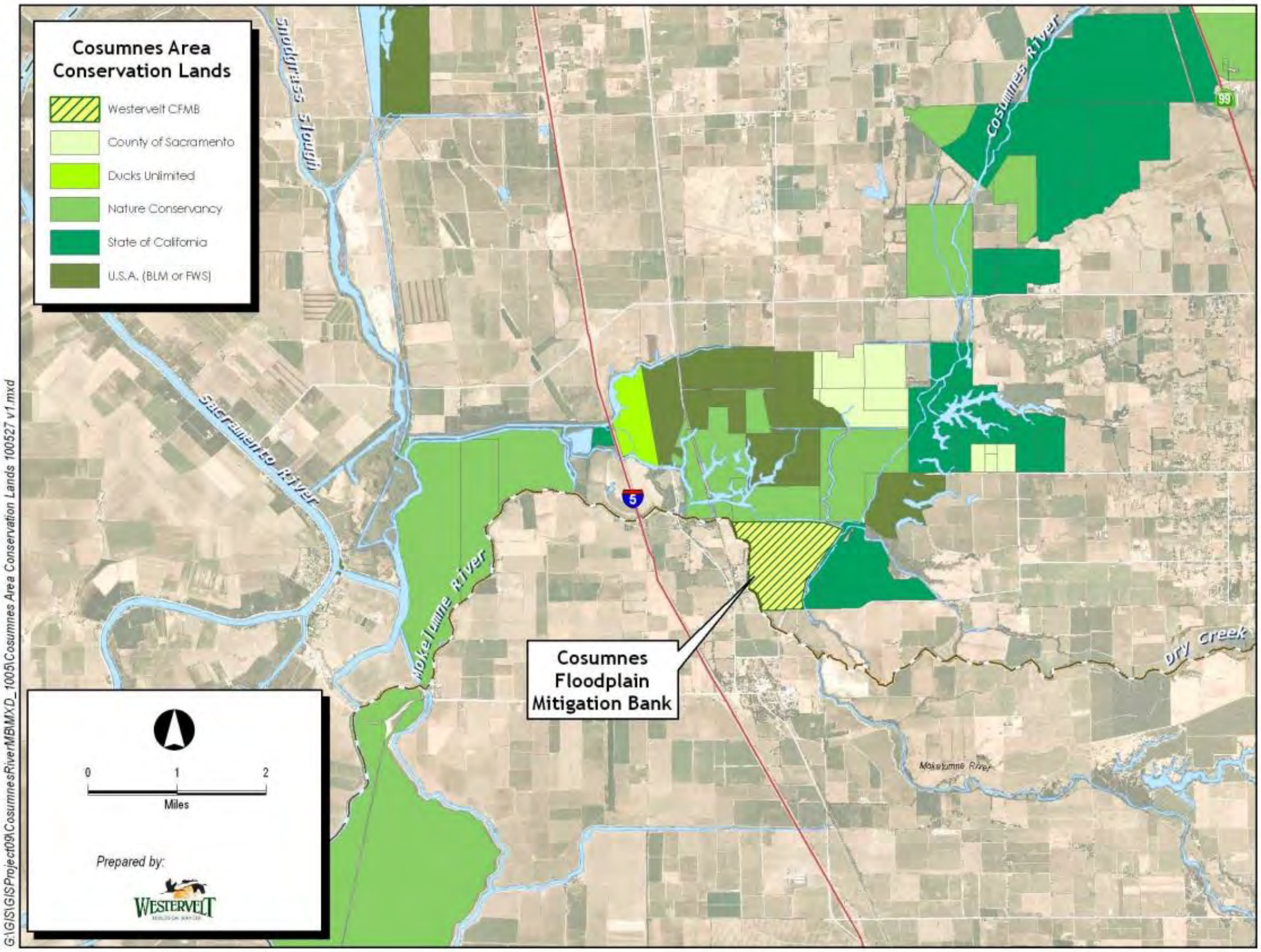
Permittee Responsible Mitigation Site Selection



Mitigation Bank Site Selection



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Watershed Approach to Mitigating Impacts

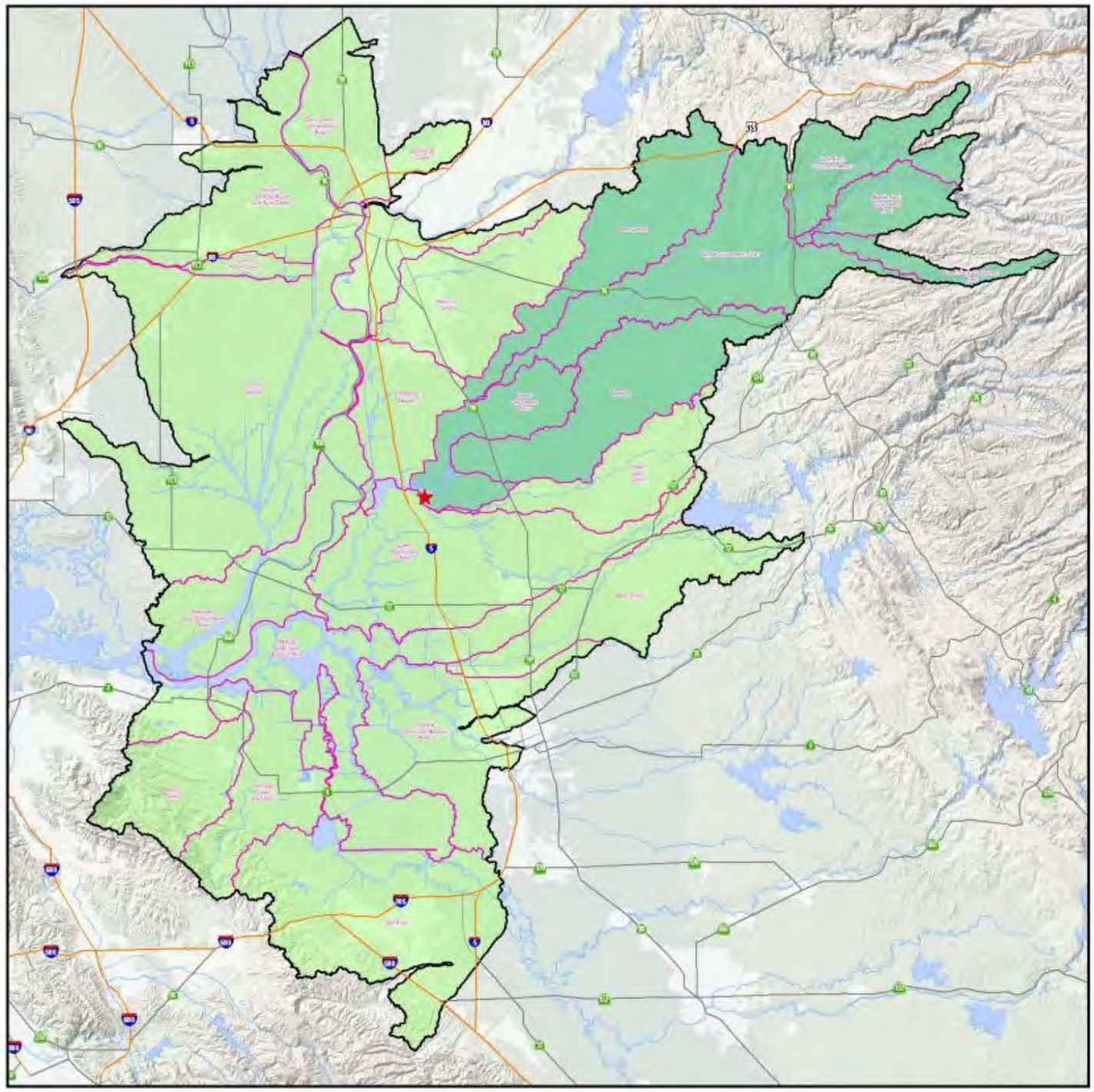

Exhibit B-2
Cosumnes Floodplain Mitigation Bank
Service Area

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In Lieu Fee Program – Planning Area

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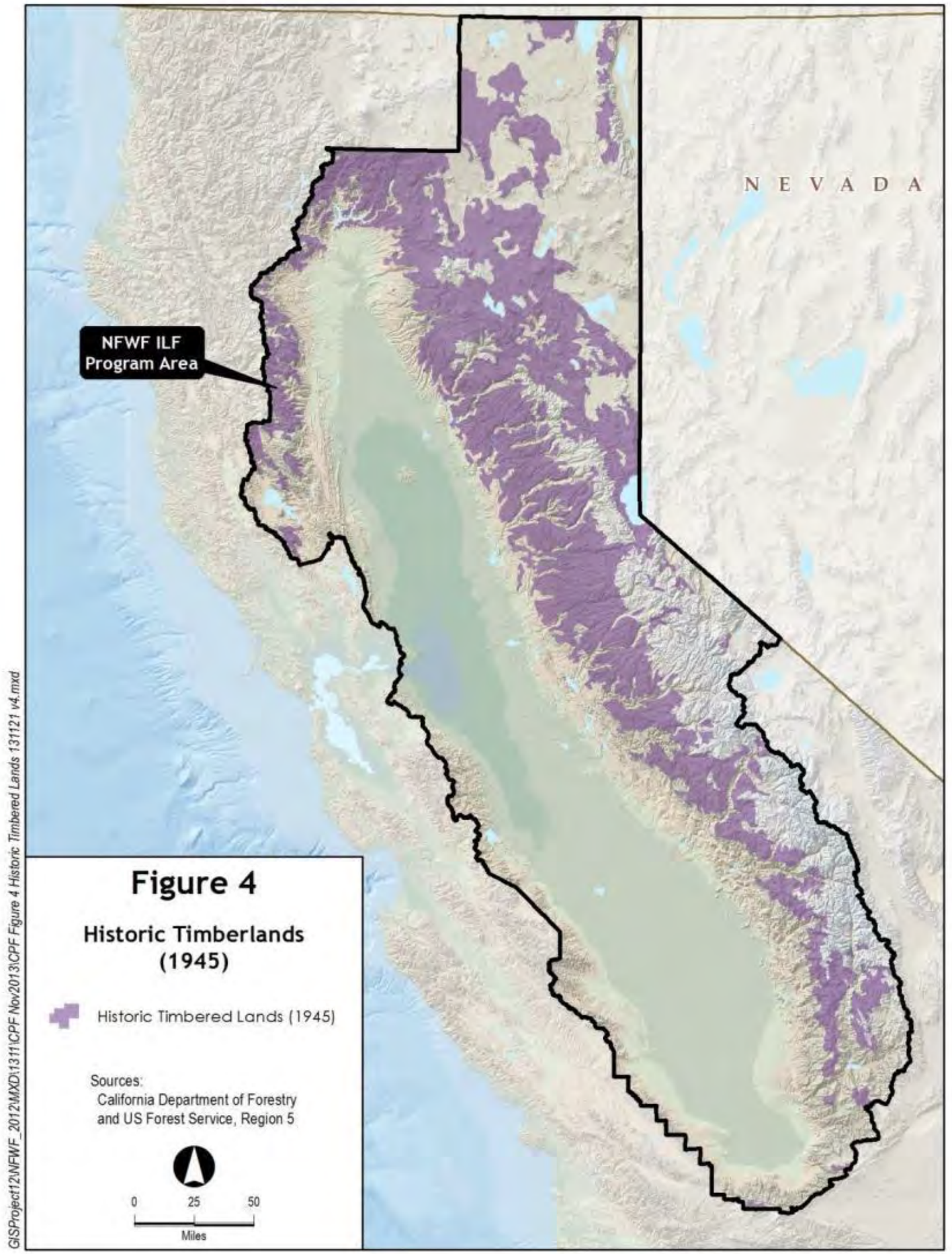
Program Area Assessments



Service Area Targeted Assessments

Redding
Anderson
Red Bluff
Corning
Orland
Willows
Stonyford
Williams
Colusa
Live Oak
Gridley
Oroville
Paradise
Chico
Chester
Susanville
Quincy
Downieville
Yuba City
Nevada City
Grass Valley
Eagle Lake
Lake Almanor
Whiskeytown Lake
Black Butte Lake
Clear Lake
Sacramento River
Little Cow Ck
Bear Ck
Battle Ck
Paynes Ck
Antelope Ck
Mill Ck
Deer Ck
Pine Ck
Big Chico Ck
Thermalito Afterba
Butte Ck
Cottonwood Ck
S. Fork Cottonwood Ck
Thomes Ck
Stony Ck
Wilson Ck
Walker Ck
Lurline Ck
Indian Ck
N. Fork Feather River
Middle Fork Feather River
S. Fork Feather River
North Yuba River
Feather River

Riparian Quality
- Lowest Quality
- Medium Quality
- Highest Quality

0 10 20
Miles

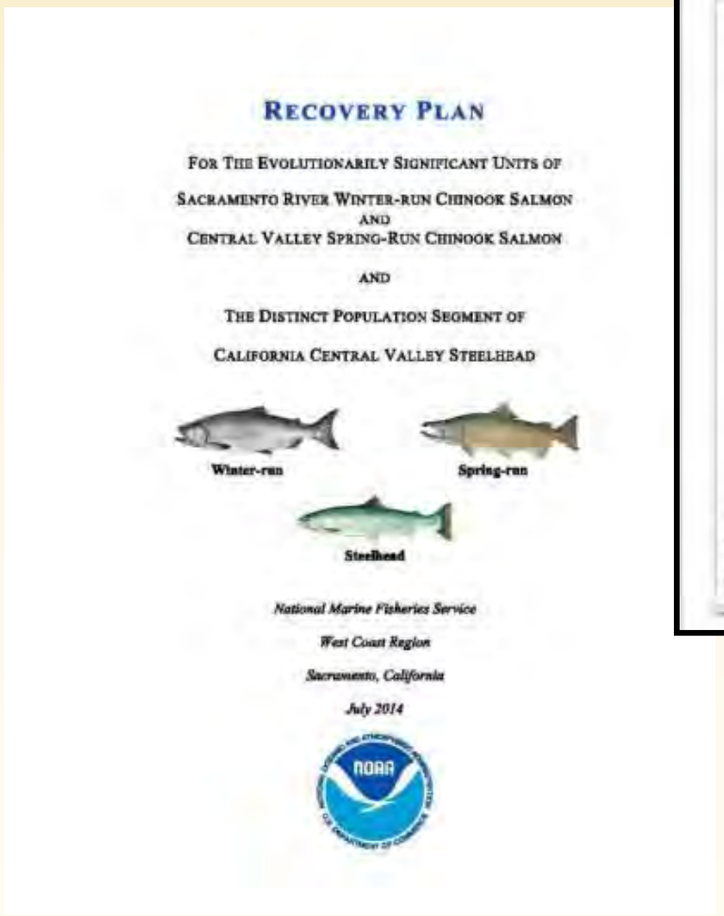
GISProject12\NFWF_2012\MXD\1408\CPF Rev\CPF Figure E-2 Northeast Sacramento Riparian Quality 140808 v5.mxd

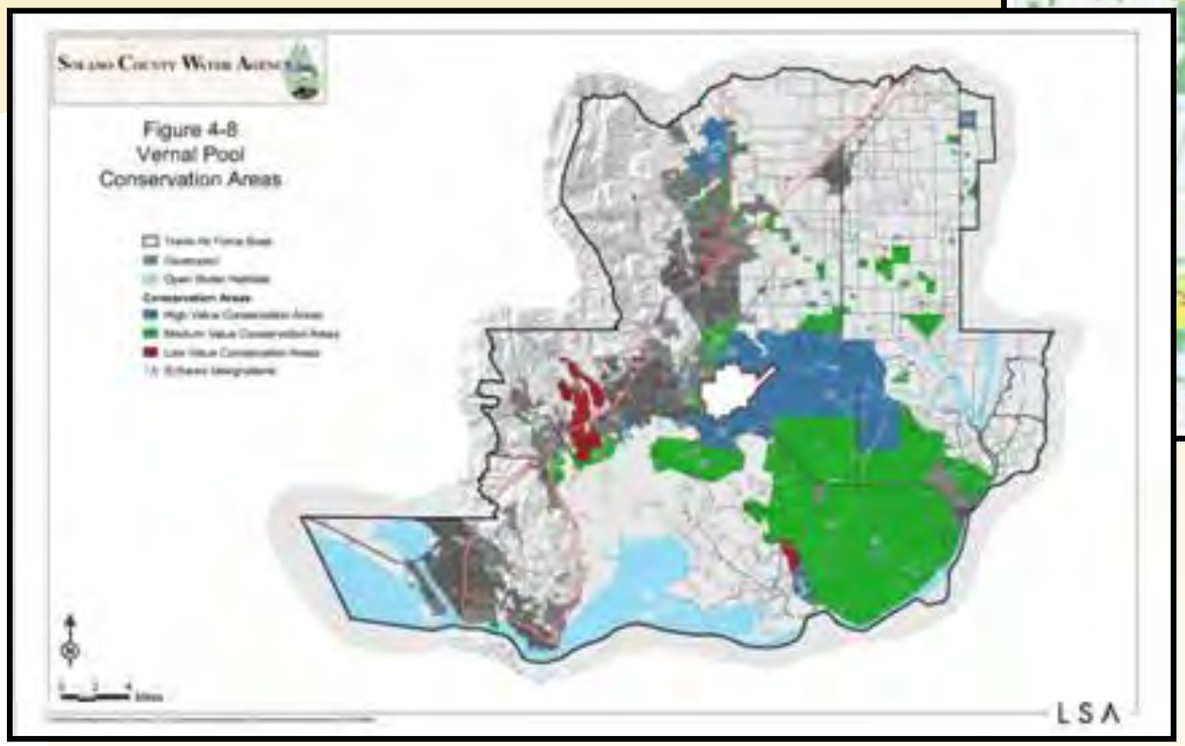
Figure E-2
Northeast Sacramento River Watershed Riparian Quality Map

Regional Planning Tools

Land Trusts
(Sac Valley Conservancy
– Open Space Vision)

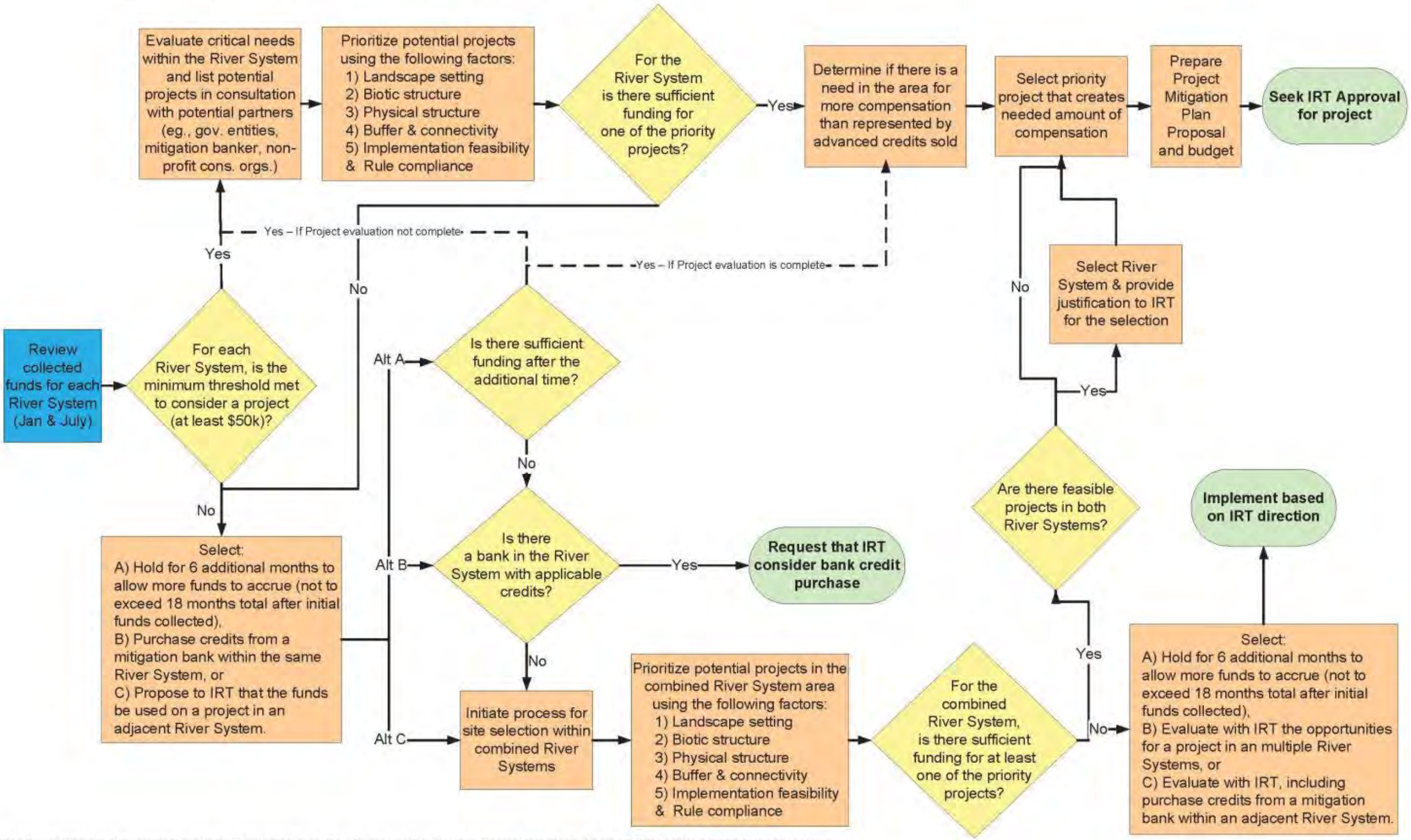
Recovery Plans
(NOAA - Salmonids)





HCPs (Solano County)

Figure 6 – Process for Wetland Mitigation Development



*This figure depicts in a generalized, and at times simplified, form, the mitigation project selection process described in Section 5 of the SAC CA ILF Program Prospectus.

Presentation Overview

- Review of Mitigation Alternatives
- Benefits of Regional Planning
- Mitigation Site Selection Process

Photo Credit: E.C. Hansen

Reno
Carson City
South Lake Tahoe
Yuba City
Sacramento
Stockton
San Francisco
Modesto
San Jose
Merced
Bishop
Fresno
Bakersfield
San Luis Obispo
Navy Canyon
Pioneer Seamount
Guide Seamount
Monterey Canyon
Davidson Seamount

Giant Garter Snake

- GGS Occurrence
- Rice Field
- Central Valley Region

N
W
E
S

G:\GIS\GISProject12\Wildlife Society 2012\MXD\1201\Draft v2\MAP 4 California Rice Agriculture 120116 v1.mxd

Colusa Basin Recovery Unit

GLENN COUNTY

BUTTE COUNTY

COLUSA COUNTY

SUTTER COUNTY

YUBA COUNTY

YOLO COUNTY

Colusa Basin
1913 Soil Survey

N
W E
S

G:\GIS\GISProject12\Wildlife Society 2012\MXD\1201\Draft v3\MAP 8 Colusa Basin Historical Soils 120126 v2.mxd

Colusa Basin Recovery Unit

GLENN COUNTY

COLUSA COUNTY

BUTTE COUNTY

SUTTER COUNTY

YUBA COUNTY

YOLO COUNTY

NAPA COUNTY

Willows

Oroville

Thermalito

Biggs

Gridley

Colusa

Sutter

Marysville

Yuba City

Linda

Olivehurst

Williams

Arbuckle

Colusa Basin
Existing Conservation Lands and Suitable Drainage Corridors

- Protected Conservation Lands
- Proximity to Protected Conservation Lands and Suitable Drainage Corridors
- GGS Occurrence

N
W
E
S

G:\GIS\GISProject12\Wildlife Society 2012\MXD\1201\Final 120131\MAP 6 Colusa Basin Conservation Lands Corridors and GGS Occurrences 120131 v3.mxd

Colusa Basin Recovery Unit

GLENN COUNTY

COLUSA COUNTY

BUTTE COUNTY

SUTTER COUNTY

YUBA COUNTY

YOLO COUNTY

Willows

Williams

Arbuckle

Colusa

Oroville

Thermalito

Biggs

Gridley

Sutter

Marysville

Yuba City

Linda

Olivehurst

Colusa Basin Ecologically Suitable Lands

- HIGHEST
- HIGH
- MED HIGH
- MED
- LOW
- LOWEST
- GGS Occurrence

N W E S

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Hurray! You've emerged from site selection and are ready to start restoration!

RIGHT!?!?!

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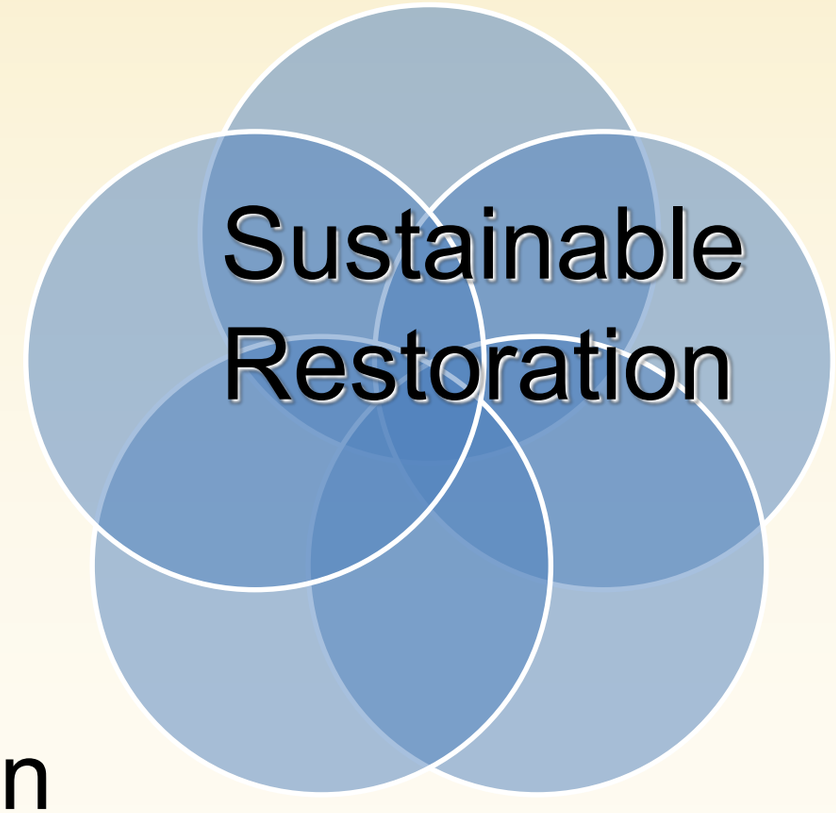
WRONG!!!

Additional site review necessary for long-term SUSTIANABILITY

Criteria for Site Selection

Ecology

Real Estate Rights/ Title



Land Use

Regulation

Political

Colusa Basin Recovery Unit

Willows

Oroville

Thermalito

Biggs

Gridley

Colusa

Williams

Sutter

Marysville

Yuba City

Linda

Olivehurst

Arbuckle

Colusa Basin Williamson Act

Lands Under Williamson Act Contract

GGS Occurrence

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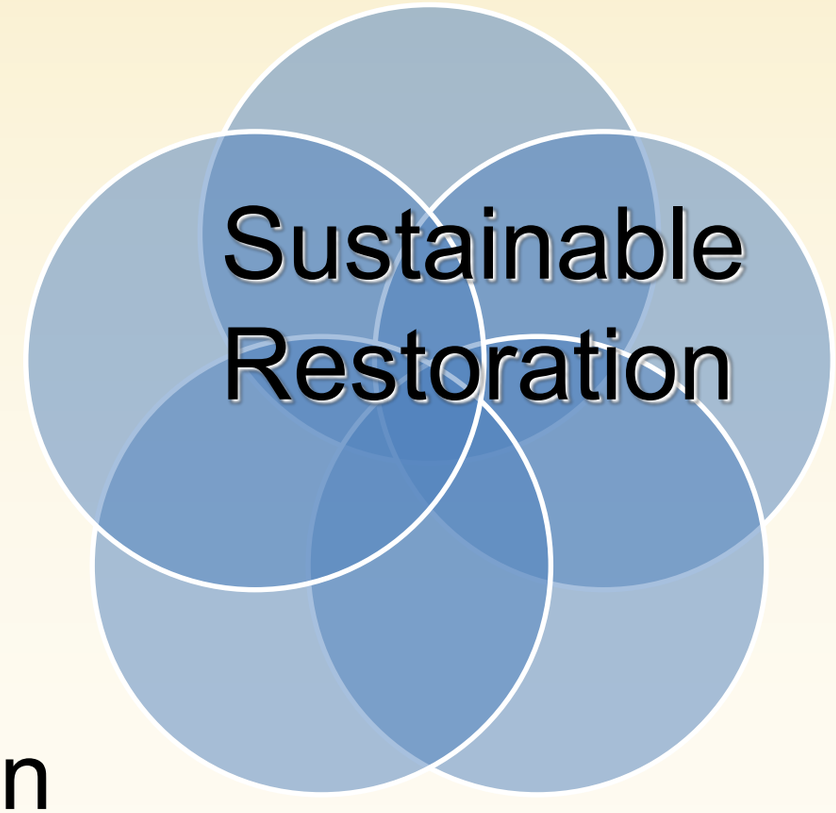
Criteria for Site Selection

Ecology

Real Estate Rights/ Title



Land Use

Regulation

Political

Colusa Basin Recovery Unit

GLENN COUNTY

COLUSA COUNTY

BUTTE COUNTY

SUTTER COUNTY

YUBA COUNTY

YOLO COUNTY

Willows

Oroville

Thermalito

Biggs

Gridley

Loma Rica

Colusa

Sutter

Marysville

Yuba City

Linda

Olivehurst

Wheatland

Williams

Arbuckle

Colusa Basin Central Valley Flood Protection Board

- GGS Occurrence
- Central Valley Flood Protection Board Jurisdictional Area

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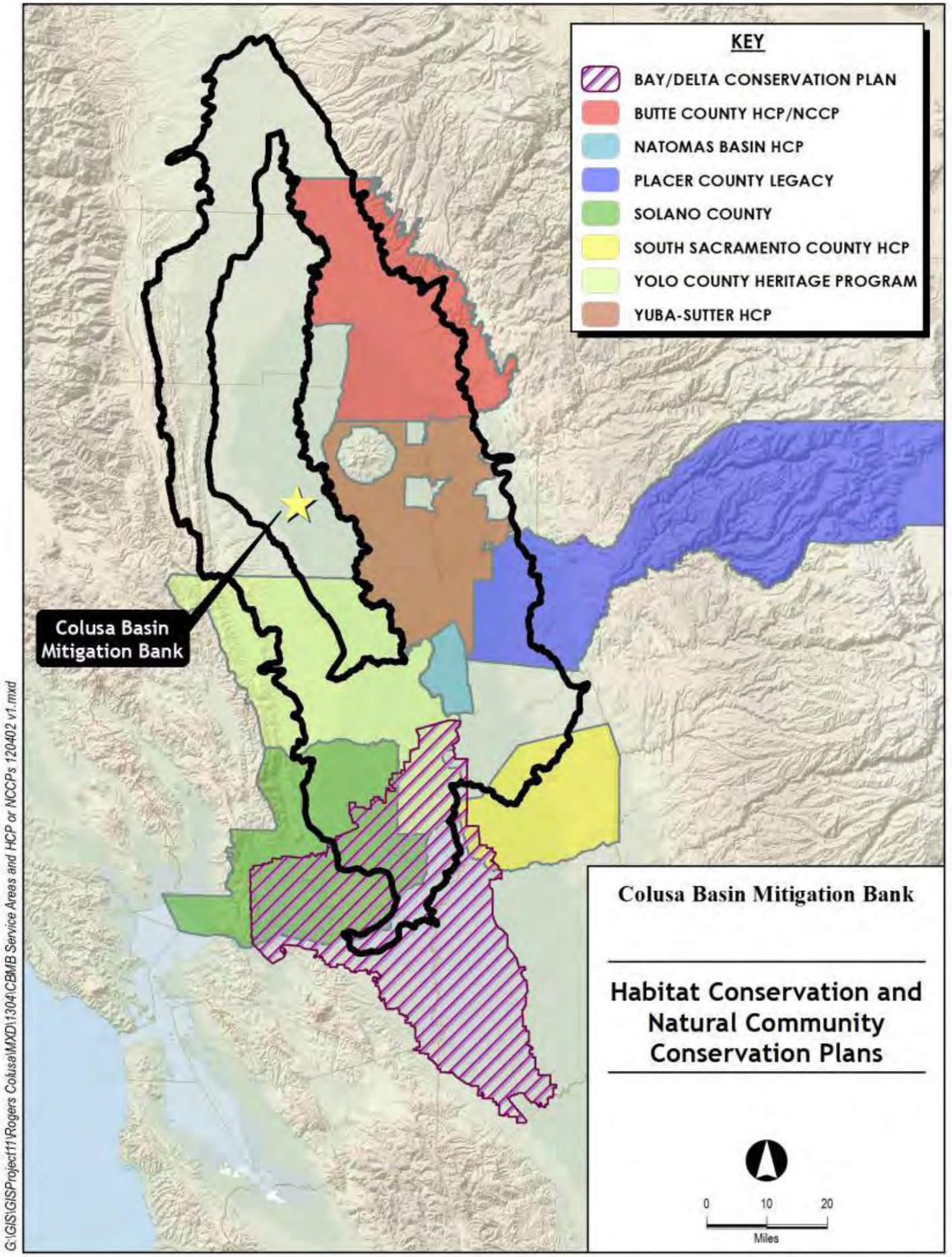
KEY
BAY/DELTA CONSERVATION PLAN
BUTTE COUNTY HCP/NCCP
NATOMAS BASIN HCP
PLACER COUNTY LEGACY
SOLANO COUNTY
SOUTH SACRAMENTO COUNTY HCP
YOLO COUNTY HERITAGE PROGRAM
YUBA-SUTTER HCP
Colusa Basin Mitigation Bank
Colusa Basin Mitigation Bank
Habitat Conservation and Natural Community Conservation Plans
0
10
20
Miles
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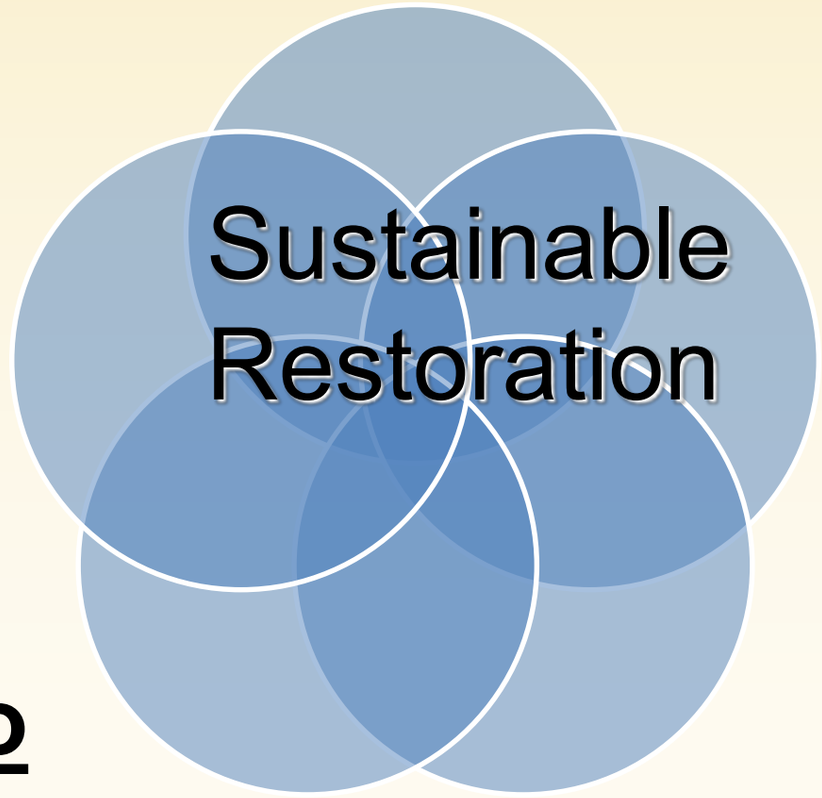
Criteria for Site Selection

Ecology

Real Estate Rights/ Title



Land Use

Regulation

Political

Colusa Basin Recovery Unit

GLENN COUNTY

Willows

COLUSA COUNTY

Williams

BUTTE COUNTY

Oroville

Thermalito

Biggs

Gridley

Colusa

YUBA COUNTY

Sutter

SUTTER COUNTY

Marysville

Yuba City

Linda

Olivehurst

Arbuckle

YOLO COUNTY

NAPA COUNTY

Colusa Basin Existing Refuges, Wildlife Management Areas and Conservation Easements

National Refuge, Wildlife Management Area or Conservation Easement

GGS Occurrence

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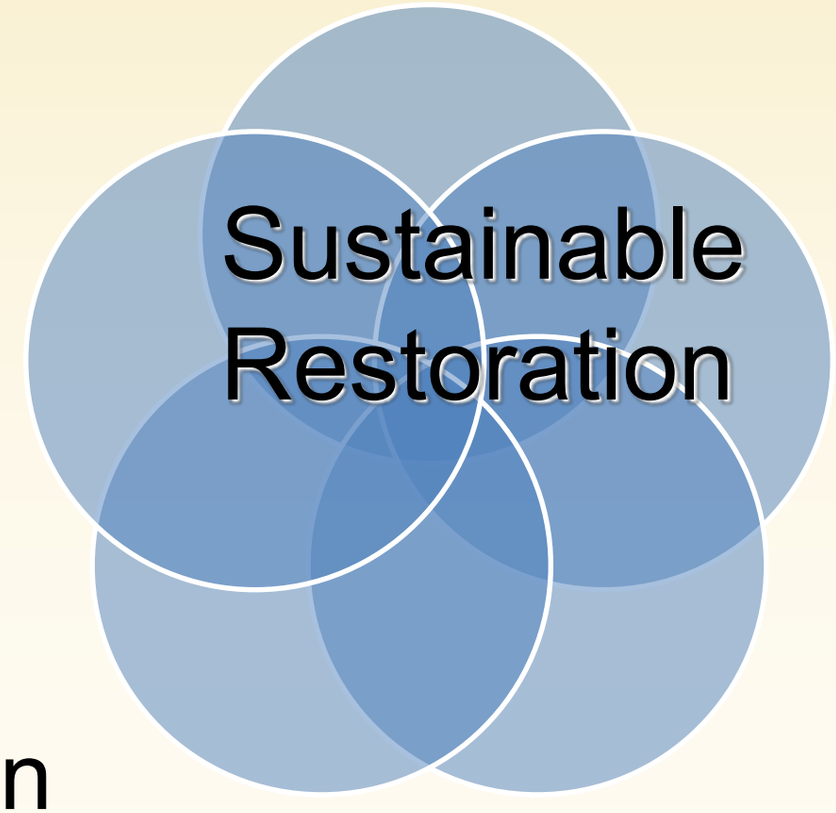
Criteria for Site Selection

Ecology

Real Estate Rights/ Title



Land Use

Regulation

Political

Colusa Basin Recovery Unit

GLENN COUNTY

Willows

BUTTE COUNTY

Oroville

Thermalito

Biggs

Gridley

YUBA COUNTY

COLUSA COUNTY

Colusa

Williams

Sutter

SUTTER COUNTY

Marysville

Yuba City

Linda

Olivehurst

Arbuckle

LAKE

YOLO COUNTY

NAPA COUNTY

Colusa Basin
Oil and Natural Gas Activity

- Oil or Natural Gas Drilling
- Areas of Oil or Natural Gas Production
- GGS Occurrence

N W E S

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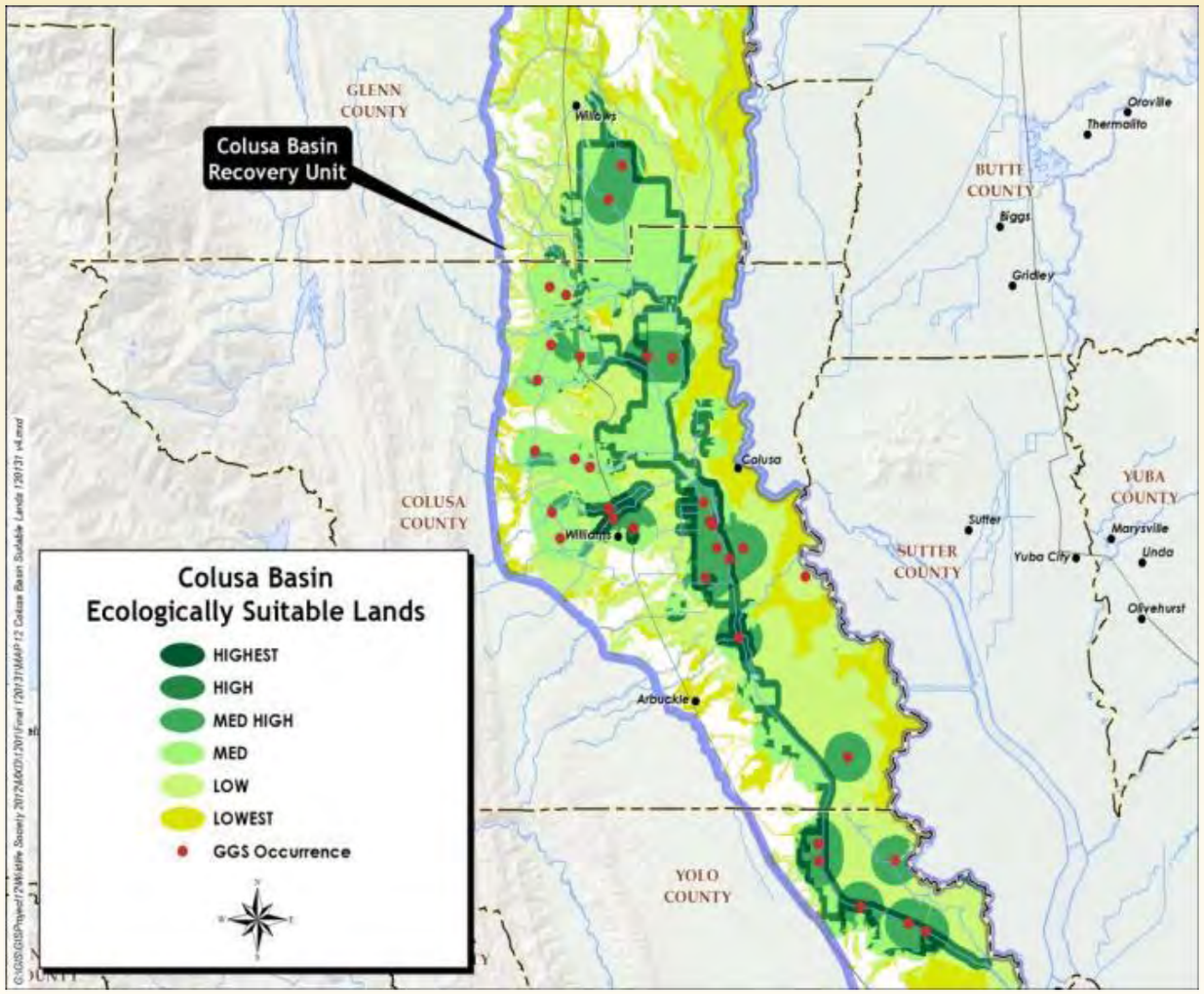
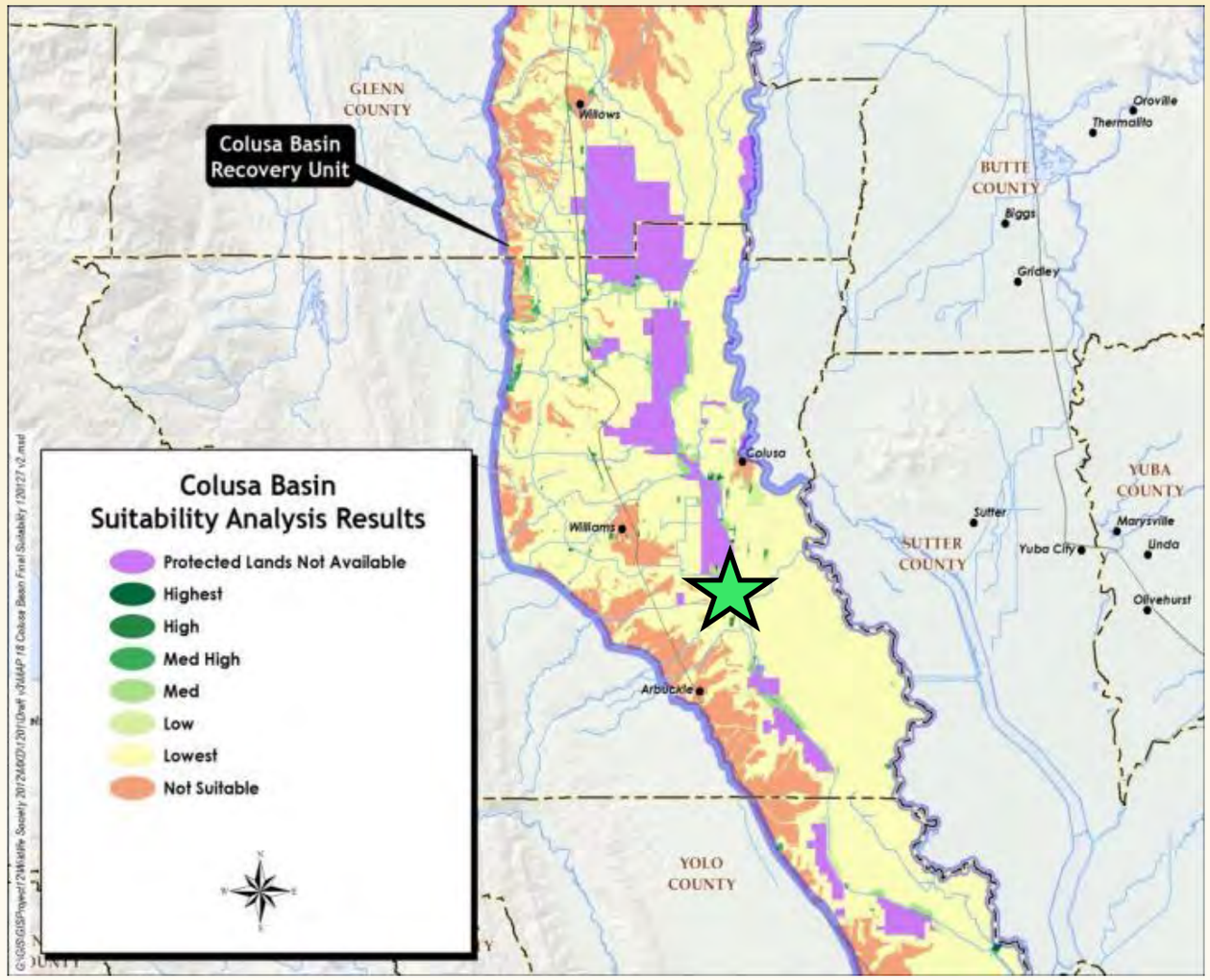
WESTERVELT
ECOLOGICAL SERVICES

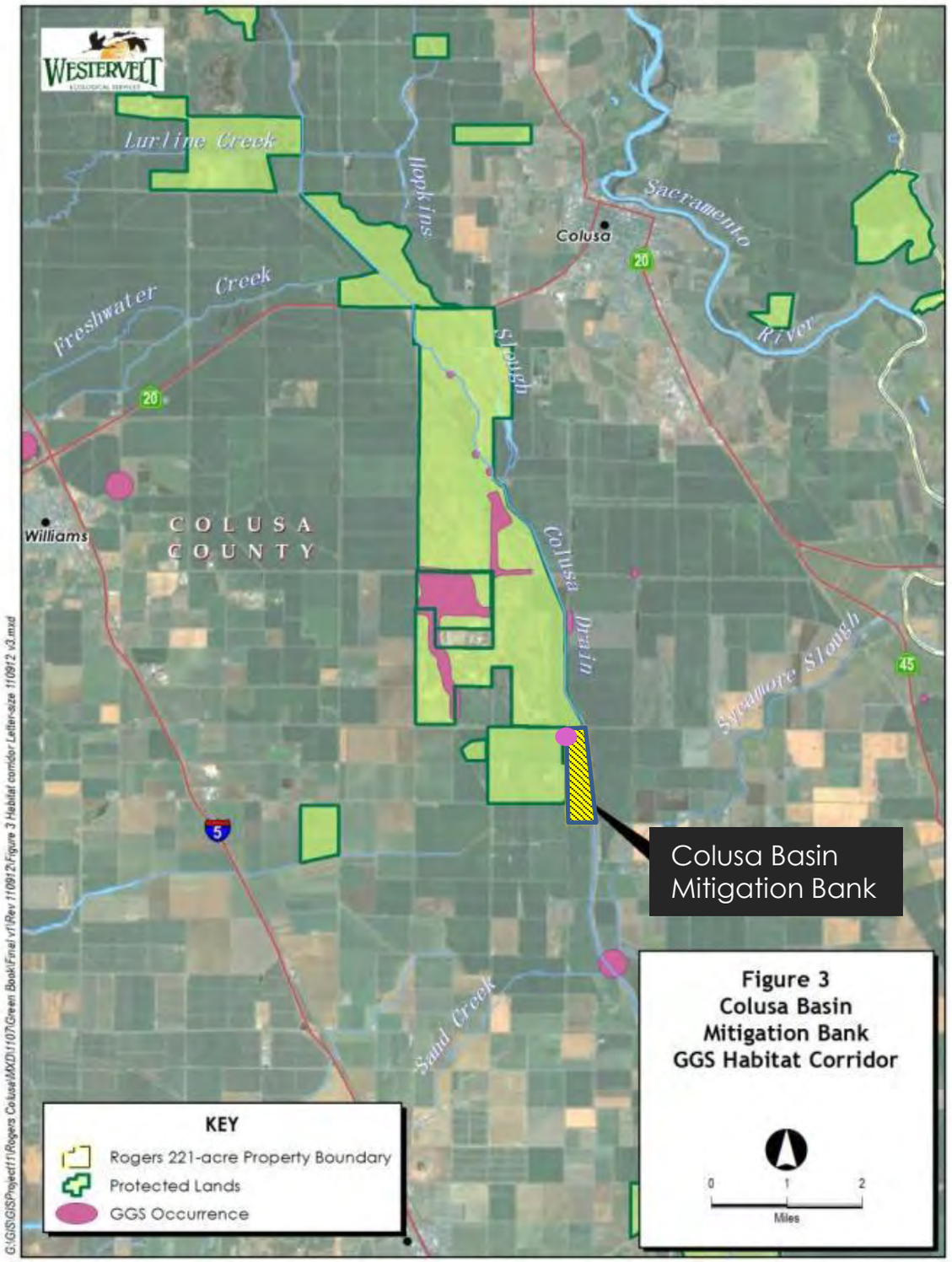
Ecological Suitability

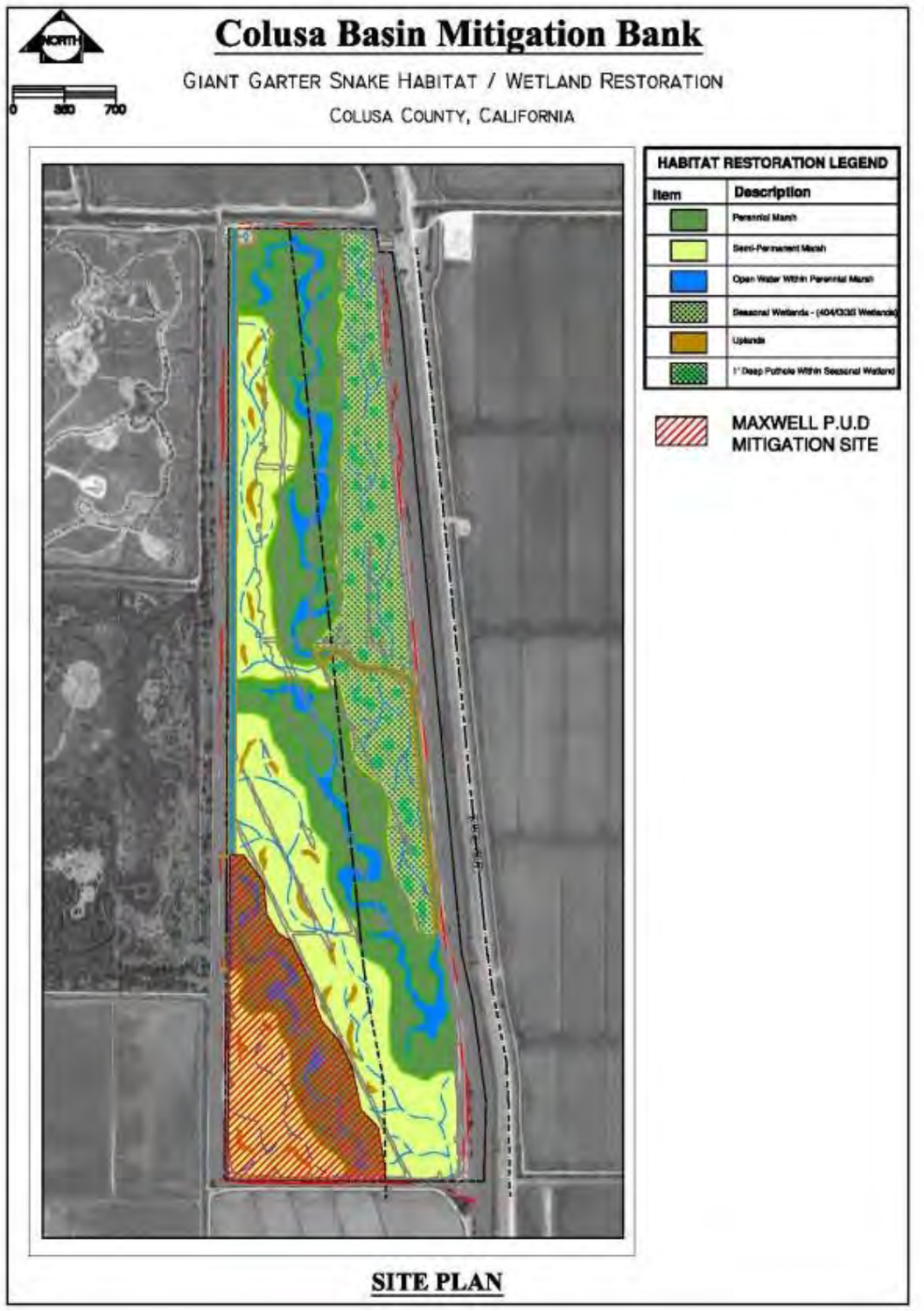


Overall Suitability



Expanding Critical GGS Habitat





Presentation Overview

- Review of Mitigation Alternatives
- Benefits of Regional Planning
- Mitigation Site Selection Process

Real Estate Issues and Negotiations

Don't Want to Encourage Additional Species

200 Ac.
49 Ac.
59 Ac.
34 Ac.
482 Ac.
654 Ac.
112 Ac.
51 Ac.
163 Ac.
24 Ac.
241 Ac.
249 Ac.
71 Ac.
53 Ac.
92 Ac.
88 Ac.
360 Ac.
177 Ac.
80 Ac.
19 Ac.
19 Ac.
85 Ac.
485 Ac.
98 Ac.
275 Ac.
13 Ac.
82 Ac.
19 Ac.
428 Ac.
81 Ac.

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Real Estate Issues and Negotiations

- Don't Want to Sell; High Commodity Prices
- Don't Want to Encourage Additional Species

200 Ac.
49 Ac.
59 Ac.
34 Ac.
482 Ac.
654 Ac.
112 Ac.
51 Ac.
163 Ac.
24 Ac.
241 Ac.
249 Ac.
71 Ac.
53 Ac.
92 Ac.
88 Ac.
360 Ac.
177 Ac.
80 Ac.
19 Ac.
19 Ac.
85 Ac.
485 Ac.
98 Ac.
275 Ac.
13 Ac.
82 Ac.
19 Ac.
428 Ac.
81 Ac.

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Real Estate Issues and Negotiations

- Don't Want to Sell; High Commodity Prices
- Don't Want to Encourage Additional Species
- Multiple Owners; Can't Agree on Terms of Sale

200 Ac.
49 Ac.
59 Ac.
34 Ac.
482 Ac.
654 Ac.
112 Ac.
51 Ac.
163 Ac.
24 Ac.
241 Ac.
249 Ac.
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82 Ac.
19 Ac.
428 Ac.
81 Ac.

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Real Estate Issues and Negotiations

- Don't Want to Sell; High Commodity Prices
- Don't Want to Encourage Additional Species
- Multiple Owners; Can't Agree on Terms of Sale
- Parcel Too Small; Non-economical
- Mentally Unstable or Dementia

200 Ac.
49 Ac.
59 Ac.
34 Ac.
482 Ac.
654 Ac.
112 Ac.
51 Ac.
163 Ac.
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428 Ac.
81 Ac.

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Real Estate Issues and Negotiations

- Don't Want to Sell; High Commodity Prices
- Don't Want to Encourage Additional Species
- Multiple Owners; Can't Agree on Terms of Sale
- Parcel Too Small; Non-economical
- Mentally Unstable or Dementia
- Available for Acquisition

200 Ac.
49 Ac.
59 Ac.
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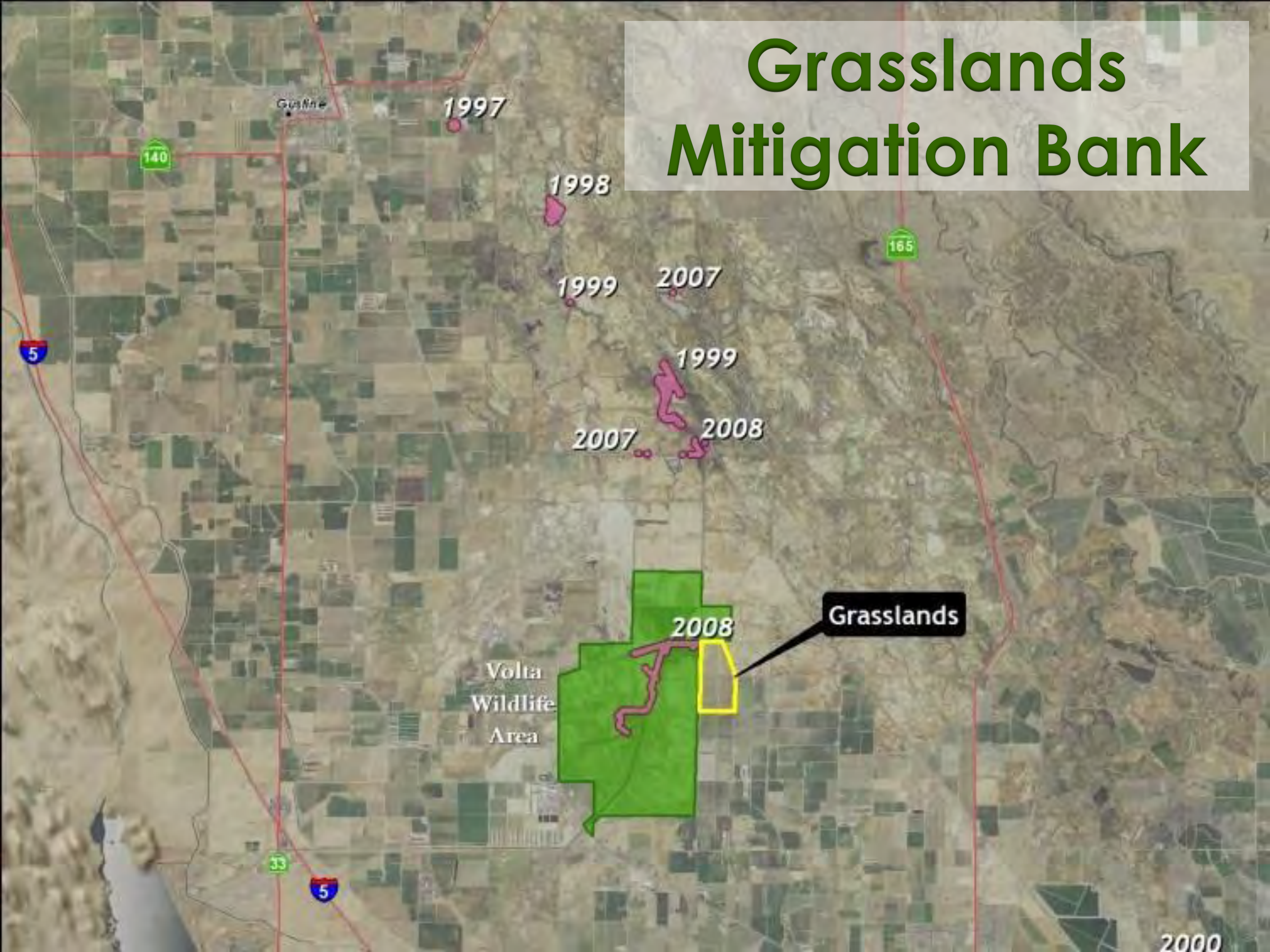
Grasslands Mitigation Bank



WESTERVELT

ECOLOGICAL SERVICES

wesmitigation.com

MITIGATION BANKING

LAND VERITAS

BENEFITS OF BANKING

No Permitting Delays or Temporal Loss

BENEFITS OF BANKING

No Permitting Delays or Temporal Loss

Regulatory Preference for Approved Banks

BENEFITS OF BANKING

No Permitting Delays or Temporal Loss

Regulatory Preference for Approved Banks

Cost Savings and Transparency For Clients: RIBITS

THE PROCESS

THE PROCESS

Evaluate Properties in Target Markets

YEAR 1

LAND VERITAS

THE PROCESS

Evaluate Properties in Target Markets

Procure Resource Rich Land

YEAR 1

LAND VERITAS

THE PROCESS

Evaluate Properties in Target Markets

Procure Resource Rich Land

Stringent Scientific/Financial Due Diligence

YEAR 1

LAND VERITAS

THE PROCESS

Submit Regulatory Applications

YEAR 2

LAND VERITAS

THE PROCESS

Submit Regulatory Applications

Design Bank

YEAR 2

LAND VERITAS

THE PROCESS

Obtain Government Approvals

YEAR 3

LAND VERITAS

THE PROCESS

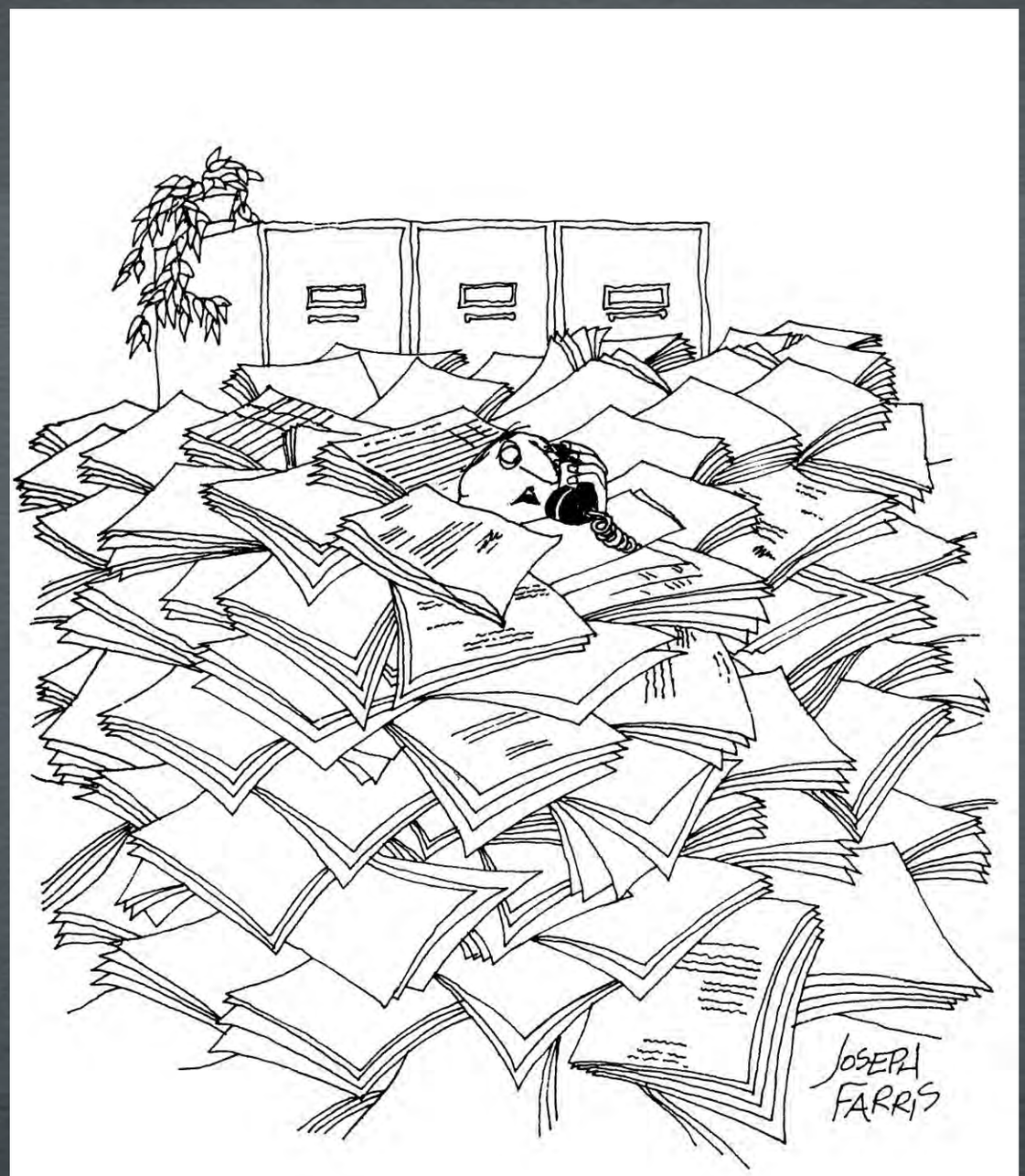
Obtain Government Approvals

Sell Credits

YEAR 3

LAND VERITAS

The Actual Process



"I'll be late for dinner, Dear.
I'm up to my neck in paperwork."

LAND VERITAS

THE ACTUAL PROCESS

Evaluate Properties in Target Markets

YEAR 1

LAND VERITAS

THE ACTUAL PROCESS

Evaluate Properties in Target Markets

Procure Resource Rich Land

YEAR 1

LAND VERITAS

THE ACTUAL PROCESS

Evaluate Properties in Target Markets

Procure Resource Rich Land

Stringent Scientific/Financial Due Diligence

YEAR 1

LAND VERITAS

THE ACTUAL PROCESS

Submit Regulatory Applications

YEAR 2

LAND VERITAS

THE ACTUAL PROCESS

Submit Regulatory Applications

CDFW Shuts Down Banking Program; Applications Put On Hold

YEAR 2

LAND VERITAS

THE ACTUAL PROCESS

Submit Regulatory Applications

CDFW Shuts Down Banking Program; Applications Put On Hold

Tell Your Investors It Will Be Okay

YEAR 2

LAND VERITAS

THE ACTUAL PROCESS

Pavley Bill Puts CDFW Back in Business

YEAR 3

LAND VERITAS

THE ACTUAL PROCESS

Pavley Bill Puts CDFW Back in Business

IRT Established for LA District

YEAR 3

LAND VERITAS

THE ACTUAL PROCESS

Pavley Bill Puts CDFW Back in Business

IRT Established for LA District

Design Bank

YEAR 3

LAND VERITAS

THE ACTUAL PROCESS

Submit Revised Documents to IRT

YEAR 4

LAND VERITAS

THE ACTUAL PROCESS

Submit Revised Documents to IRT

Monthly IRT Meetings To Negotiate Bank Approvals

YEAR 4

LAND VERITAS

THE ACTUAL PROCESS

Submit Revised Documents to IRT

Monthly IRT Meetings To Negotiate Bank Approvals

Begin to Question Your Career Choice

YEAR 4

LAND VERITAS

THE ACTUAL PROCESS

Obtain Government Approvals

YEAR 5

LAND VERITAS

THE ACTUAL PROCESS

Obtain Government Approvals

Sell Credits

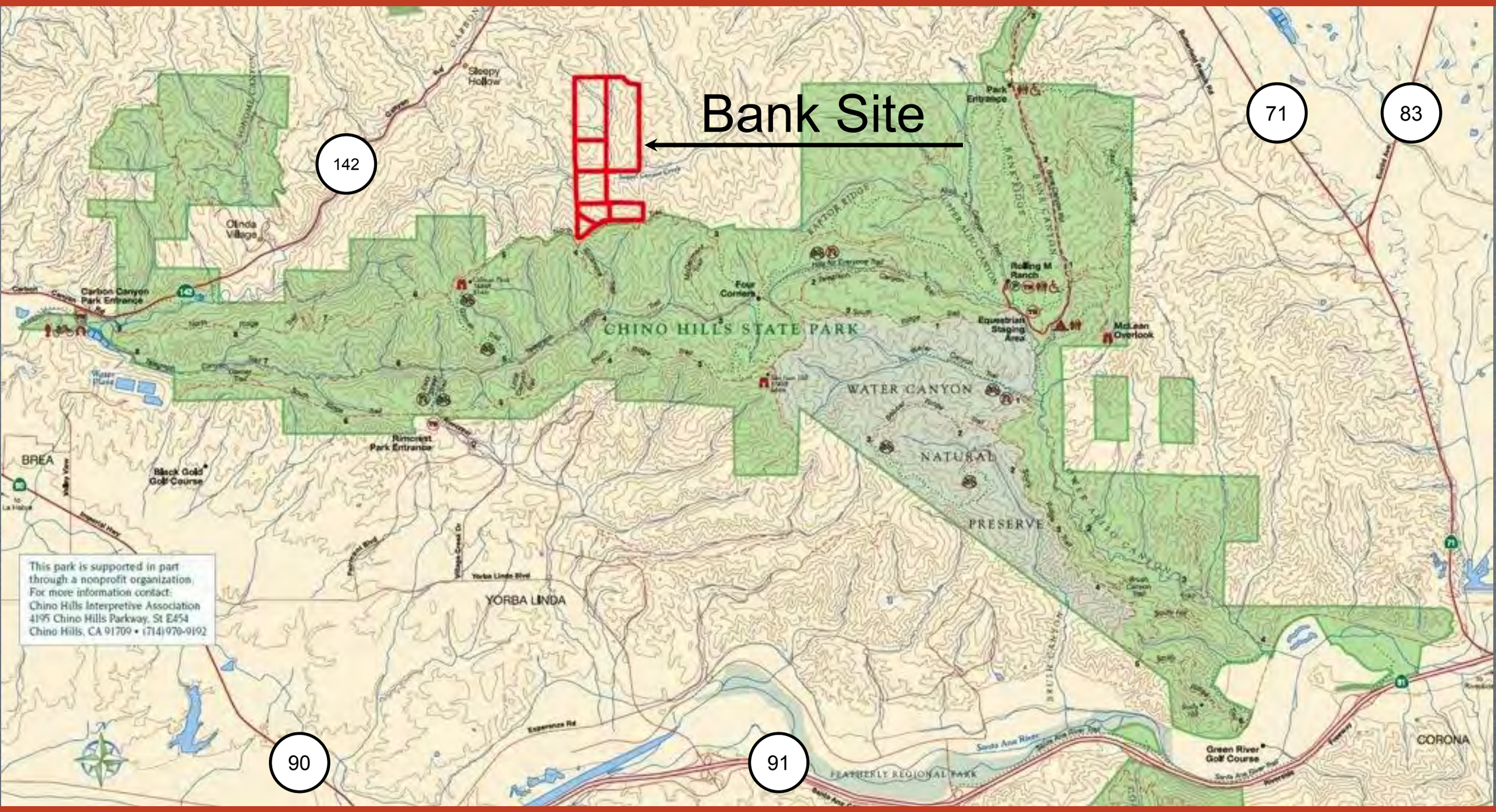
YEAR 5

LAND VERITAS

CASE STUDY - Soquel Canyon Mitigation Bank

LAND VERITAS

CHINO HILLS STATE PARK



LAND VERITAS

SOQUEL CANYON MITIGATION BANK

313 acres, serves Santa Ana River and San Gabriel River watersheds

No existing mitigation banks in service area

High resource value land

Adjacent to State Park

Fire in 2008 and overgrazing damaged native habitat

There will continue to be large mitigation requirements in the service area due to an increasing population and numerous large scale public infrastructure projects

RESOURCES

- 80,000 LF of streams with associated riparian habitats
- Extensive oak and walnut woodlands
- Coastal sage scrub and chaparral communities
- Potential habitat for CA Coastal gnatcatcher, least bell's vireo

SERVICE AREA

LAND VERITAS

SOQUEL CANYON

SOQUEL CANYON

SOQUEL CANYON

LAND VERITAS

SOQUEL CANYON

LAND VERITAS

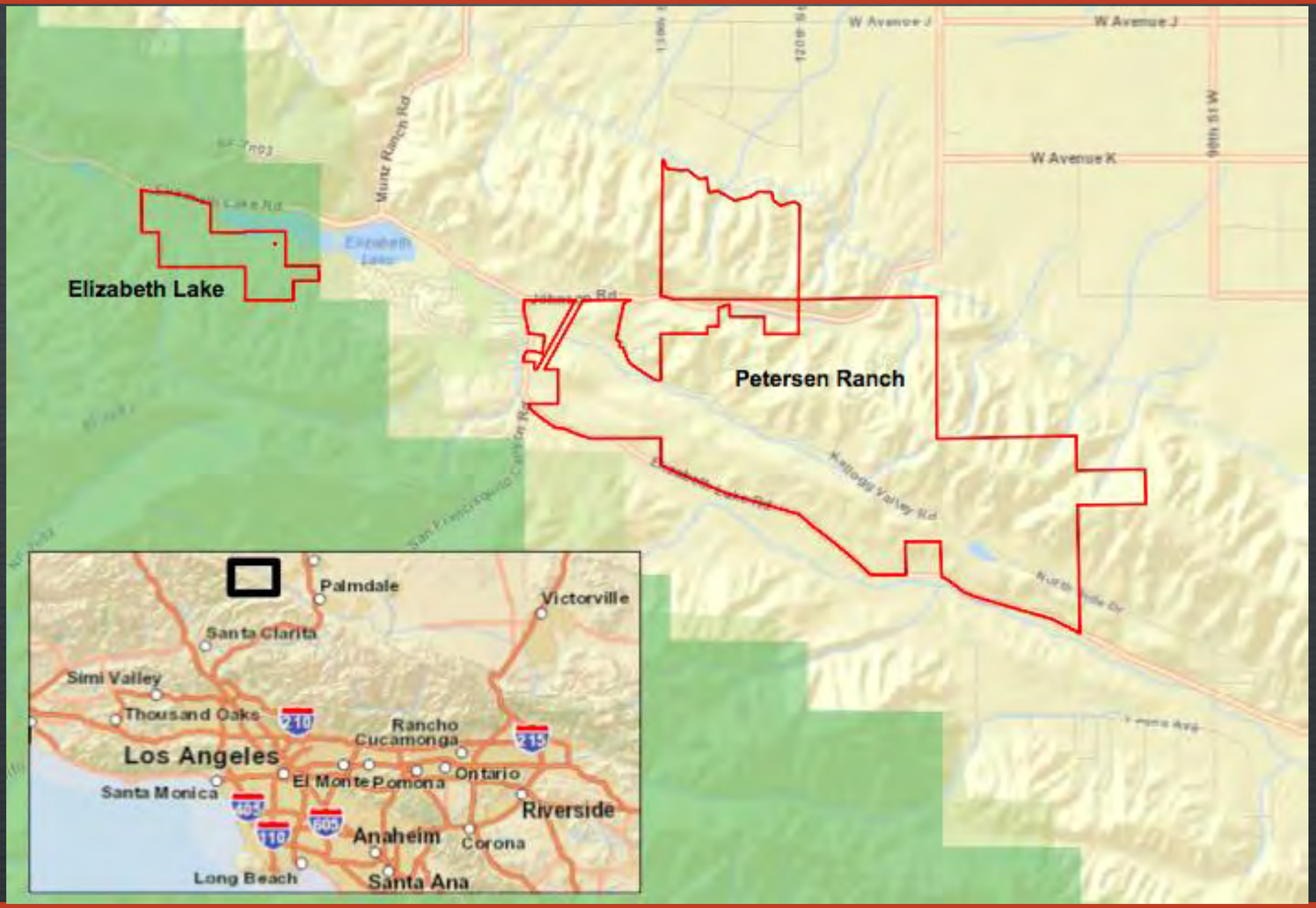
SOQUEL CANYON

LAND VERITAS

CASE STUDY - Petersen Ranch Mitigation Bank

LAND VERITAS

PETERSEN RANCH MITIGATION BANK



LAND VERITAS

PETERSEN RANCH MITIGATION BANK

4,236 acres including 3,919 acre ranch and 300+ acres on Lake Elizabeth

Headwaters of Santa Clara and Fremont-Antelope Valley watersheds

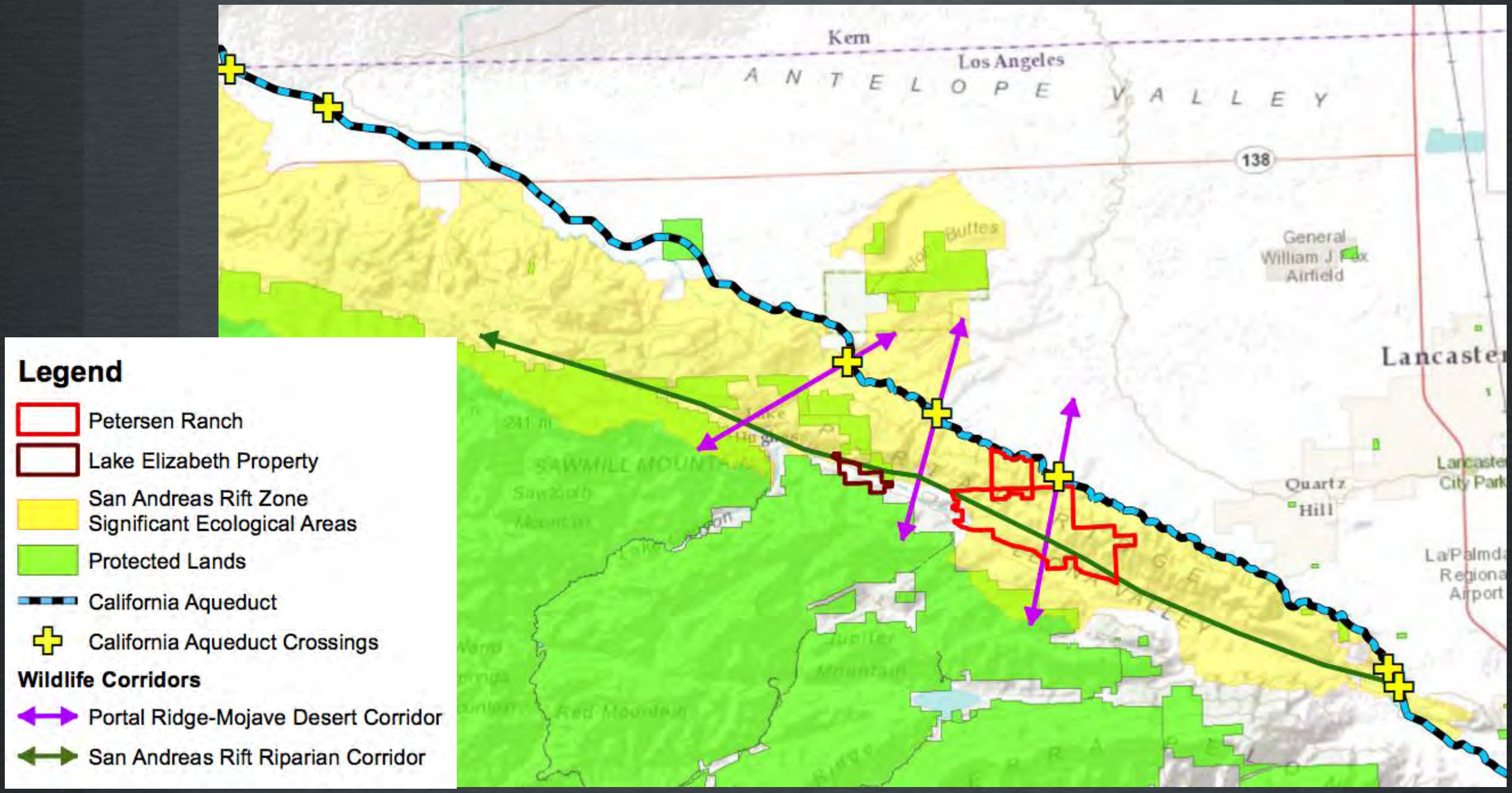
First mitigation bank in LA County

Provides important wildlife linkages between Angeles National Forest and Antelope Valley

The Bank is within the DRECP boundary and in an LA County SEA, with signficant demand from private development, renewable energy, and large scale infrastructure projects

LAND VERITAS

PETERSEN RANCH MITIGATION BANK



RESOURCES

- Location in San Andreas Rift Zone results in over 1,200 acres of wetlands and buffers including desert wash
- Swainson's hawk, tri-colored blackbird and western pond habitat in addition to many other species
- Thousands of acres of diverse vegetation and habitat including grasslands, riparian forests, scrublands, chaparral communities, woodlands and alluvial floodplains

SERVICE AREA

Proposed Service Are

LAND VERITAS

PETERSEN RANCH

LAND VERITAS

PETERSEN RANCH

LAND VERITAS

PETERSEN RANCH

LAND VERITAS

PETERSEN RANCH

LAND VERITAS

PETERSEN RANCH

LAND VERITAS

PETERSEN RANCH

LAND VERITAS

PETERSEN RANCH

LAND VERITAS

Mitigation Banking vs. Applicant Sponsored Mitigation

	Applicant-Sponsored	Mitigation Banking
1. Requires purchase and/or dedication of land for mitigation.	✓	
2. Requires approved Habitat Mitigation and Monitoring Plan (HMMP) prior to permit issuance.	✓	
3. Requires applicant to post letters of credits or bonds for permit issuance.	✓	
4. Requires conservation easement approved by Corps' legal counsel, often prior to grading.	✓	
5. Requires long-term management plan prior to grading.	✓	
6. Requires 3rd party non-profit for CE compliance and long-term management plan.	✓	
7. Requires non-wasting endowments for CE compliance and long-term management, reporting, and maintenance.	✓	
8. Requires plant installation; five years of monitoring, maintenance; and reporting and compliance with performance standards, including CRAM report.	✓	
9. Requires purchase of credits from an approved mitigation bank only.		✓

Thank You

LAND VERITAS

LAND VERITAS

1505 Bridgeway
Suite 209
Sausalito, CA 94965
415-729-3733