Team Arundo del Norte's Arundo Eradication and Coordination Program,

a regional approach:

Uniting weed management and research through information gap identification and adaptive management feedback

Mark Newhouser/ Deanne DiPietro - Sonoma Ecology Center,
David Spencer - USDA ARS Invasive Weed Research,
Ron Unger/ Eric Htain - EDAW

CALFED/California Bay Delta Authority funded project

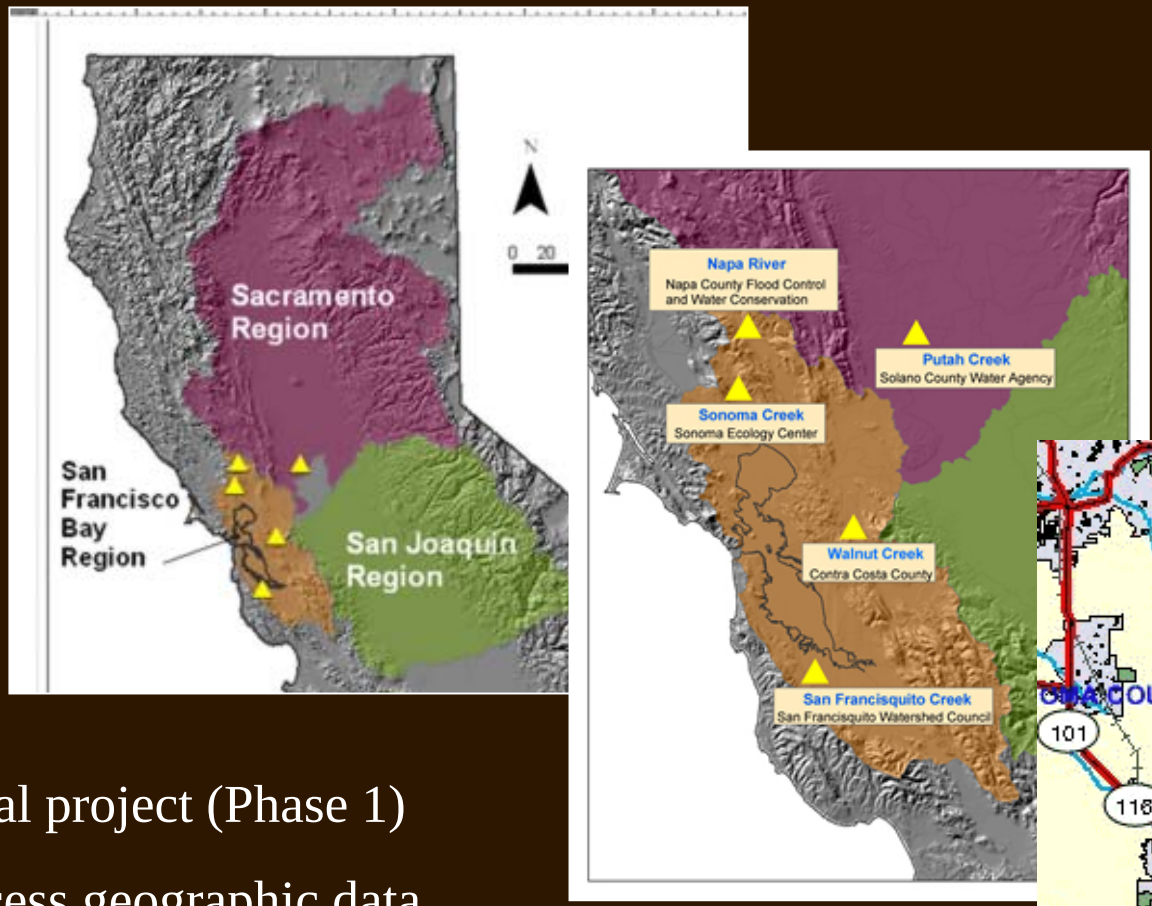
Presentation Outline

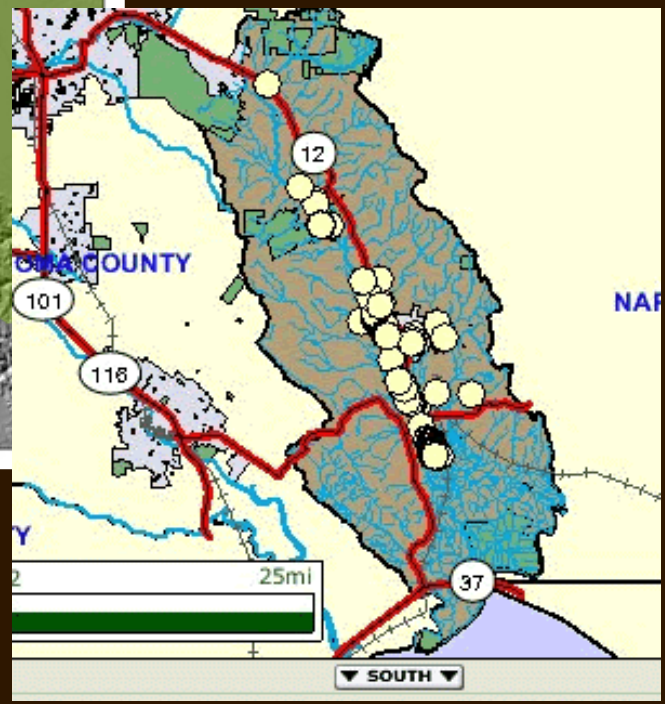
- Program Overview/Update
- Adaptive Management Conceptual Model
- Experimental Design/Implementation
- Environmental Compliance/Programmatic Permitting
- Monitoring Database and Protocol Development
- Distribution Mapping and Eradication Prioritization

Arundo Program Overview

- Phase 1
  - CALFED funded Implementation Project, 2001
  - Eradication, monitoring (5 Partners)
  - Database and monitoring protocol development
- Phase 2
  - CBDA funded Implementation/Research project, 2005
  - Eradication and Monitoring (10 Partners)
  - Experiments, distribution mapping, programmatic permitting and database development

Phase One - Arundo Map Server



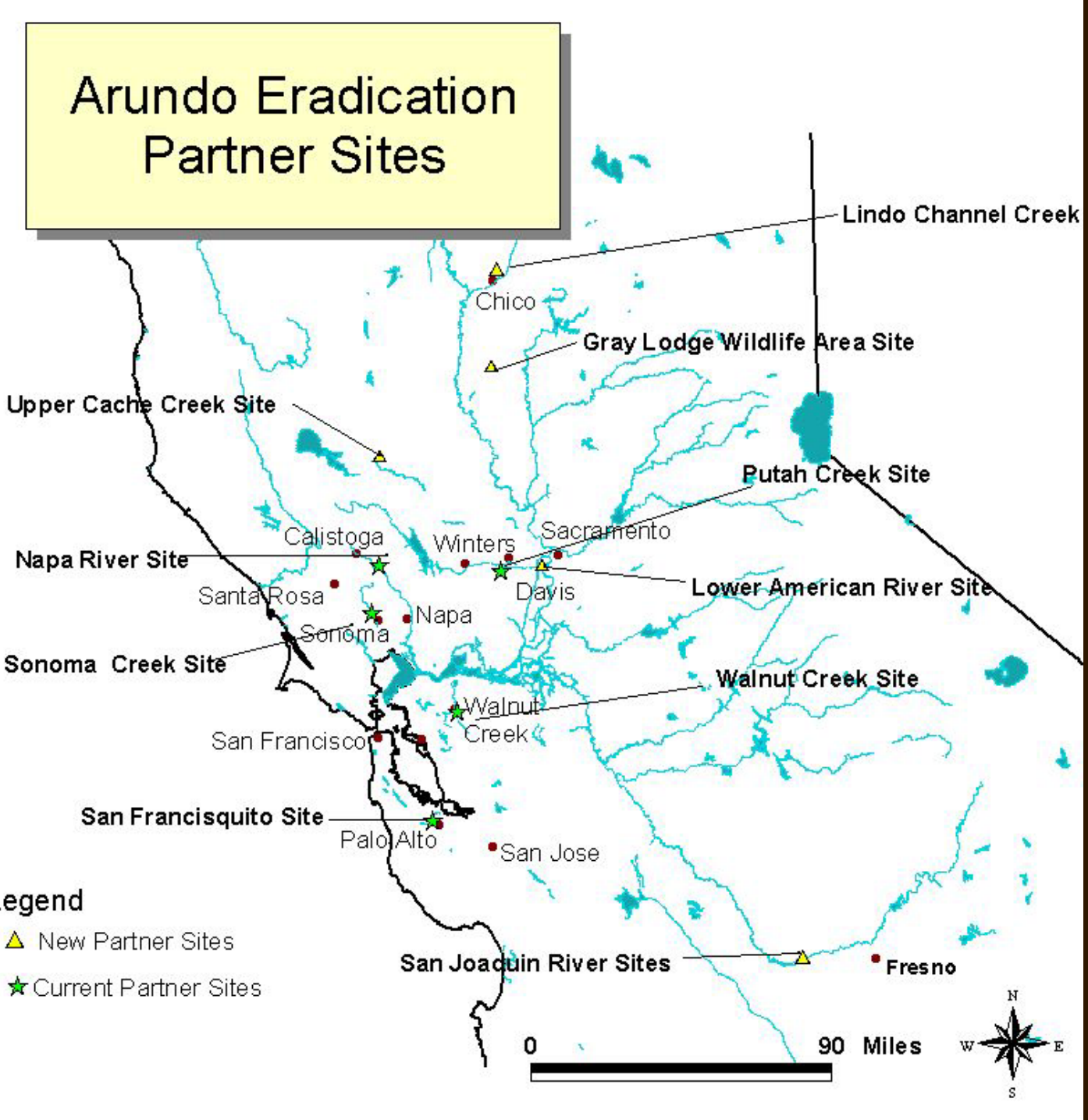


Data from all partners presented in online GIS

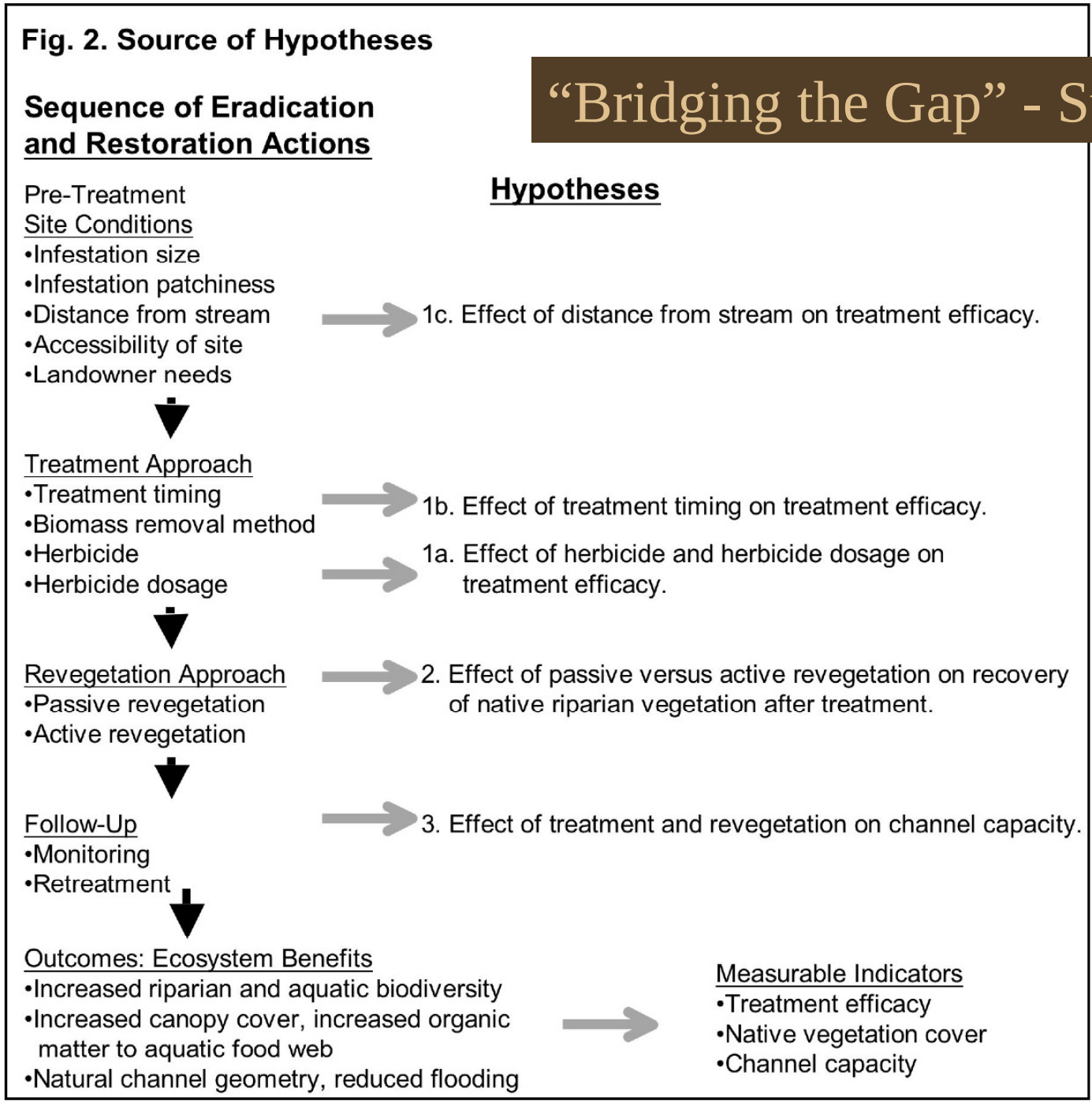
- Total project (Phase 1)
- Access geographic data
- View weed data summaries
- Allows for regional analysis


Phase 2

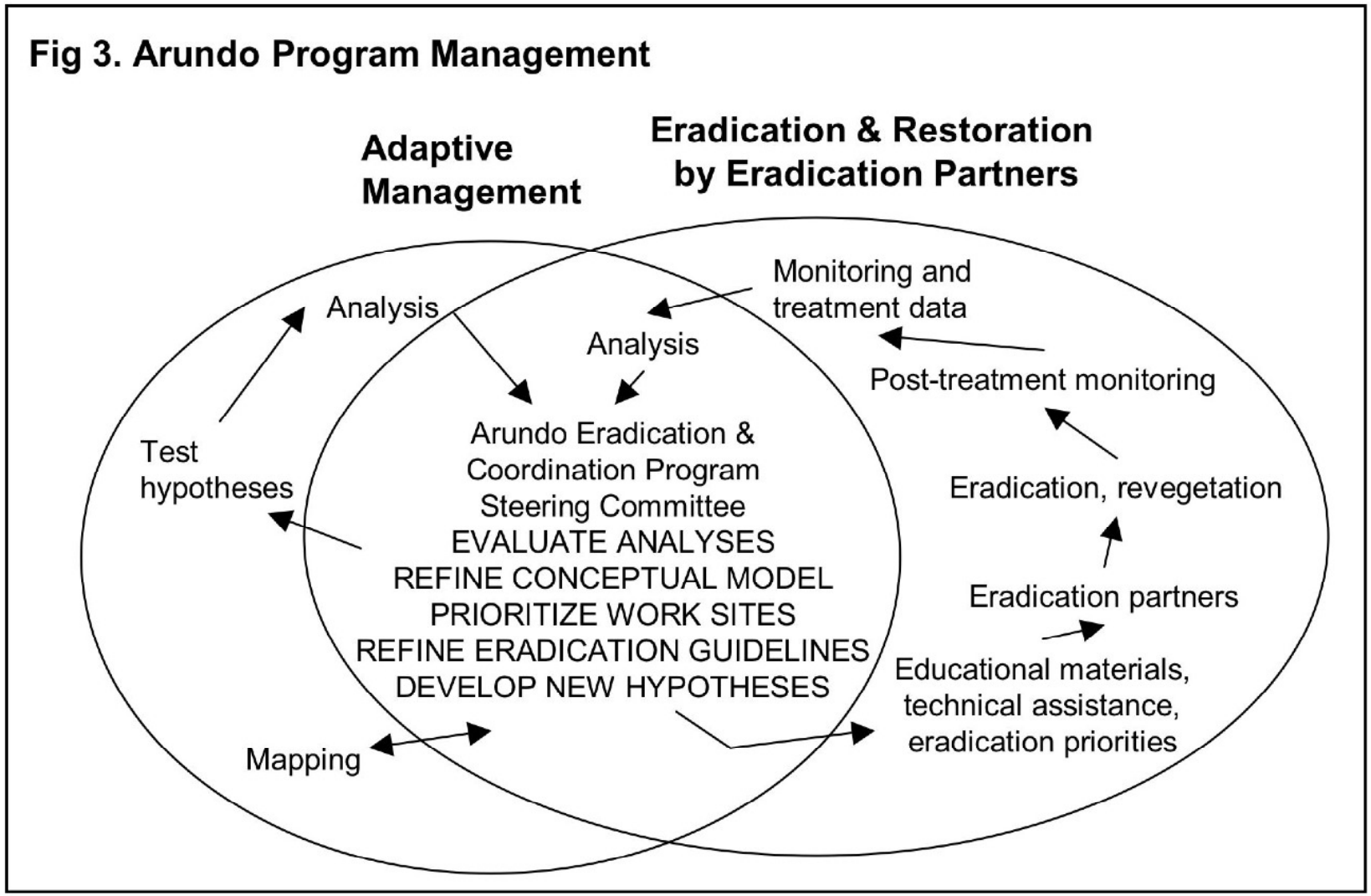
Arundo Eradication Partner Sites



"Bridging the Gap" - Step 1



Conceptual Model – "Bridging the Gap" – Step 2



Experimental Design

- USDA Agricultural Research Service, David Spencer - Experimental Design and Implementation
- Hypotheses and Experiments focus on:
  - Refinements to Arundo control treatment techniques,
  - Riparian vegetation responses to eradication and restoration treatments
  - Geomorphic responses to treatments (HEC-RAS modeling)
- Currently:
  - Assessing and establishing sites in partnering watersheds
  - Collecting transect data
  - Preparing and making herbicide applications
  - Sourcing plant propagules for reveg experiment

Experimental Design Challenges

- Establishing plots on partner sites
- Problems with WIMS on handheld devices
- Lack of partner permits for some sites
- Project delays and seasonal work
- Completing experiments in time for partners to finish eradication

Environmental Compliance - Programmatic Permitting

- EDAW - Ron Unger, Eric Htain, Vance Howard
- Strategic Plan for Permitting
- Project Description Developed
  - Partner boundary maps, methods, listed species
  - Sensitive species biology and avoidance measures
  - Permit applications reference project description

Programmatic Permitting

- DFG CEQA lead, SAAs, Sect. 2081 review
- NMFS - Technical Assistance
- USFWS - Informal Consultation
- State Reclamation Board - Encroachment Permit
- USACE - not applicable based on project actions
- Regional Water Board - not applicable based on project actions

Permitting Challenges

- Different partner regions and rules (5 DFG, 2 USACE)
- Different Partner needs and schedules (new permits, permit renewals or modifications)
- Acceptable permit language negotiation for all partners and regulatory agencies (methods, avoidance measures, scope)
- Permit approval delays and seasonal work
- Sensitive resource data constraints and large geographic scale difficult for agency approvals

Monitoring Database and Protocol Development

Modified WIMS to:

- Monitor surrounding vegetation (native and non-native)
- Monitor absence of other species
- Track management information, such as personnel and costs
- Record revegetation as a treatment

Monitoring protocol

- Necessary for consistent data collection and analysis
- Draft protocol with step by step instructions for partner use
- Training and ongoing support
- Vegetation sampling techniques for Arundo and riparian plant communities
- Provisional funding from CBDA to refine and publish protocol

Data Collection and database Challenges

- Getting data within short implementation project period and small budgets
- Providing technical support to partners for database and monitoring methods and equipment
- Collecting consistent data while adjusting to partner feedback
- Draft protocol likely to change
- Quality data takes time and effort to learn and apply

Distribution Mapping and Eradication Prioritization

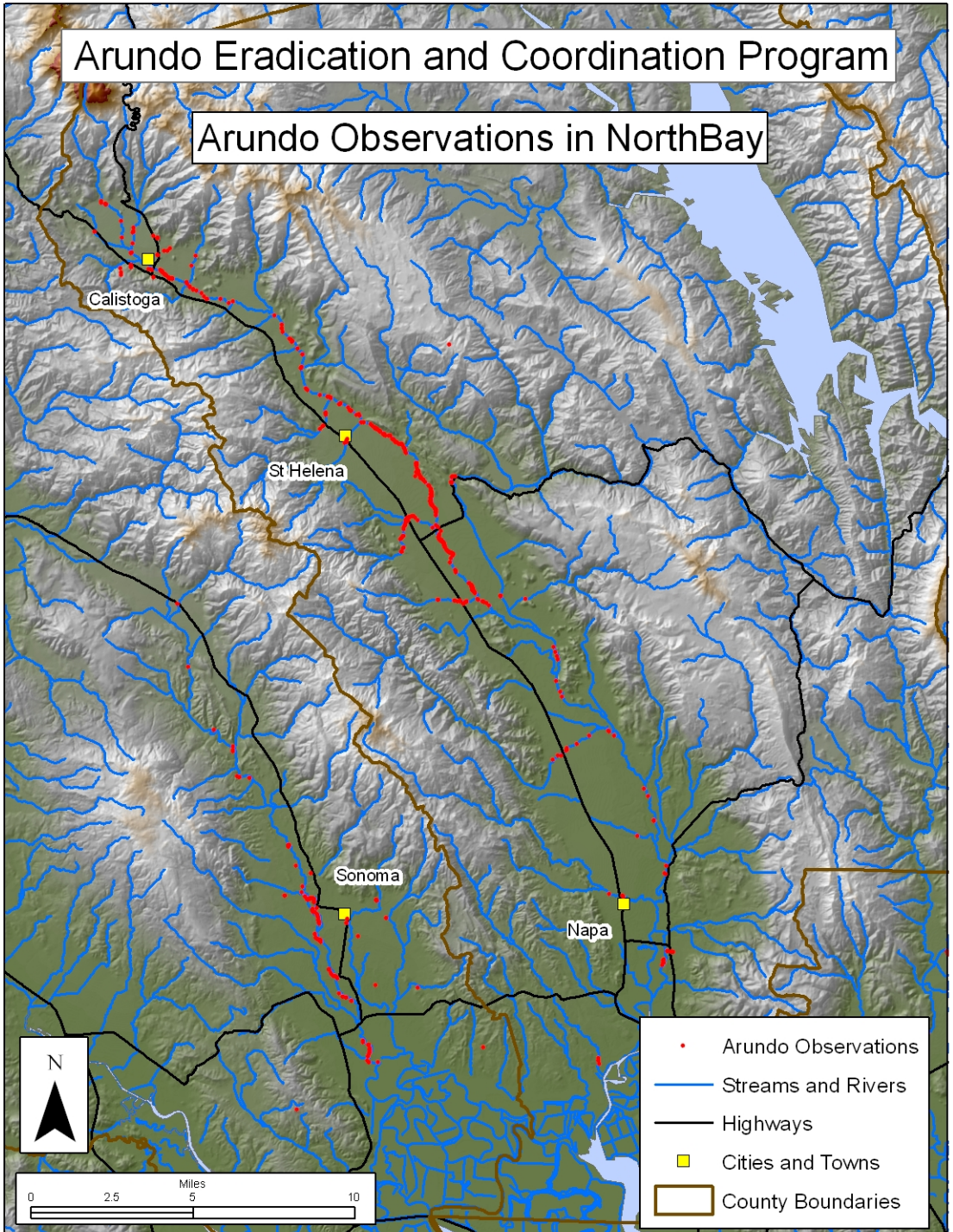
- Need comprehensive distribution map for planning and prioritizing eradication efforts.
  - Increasing weed threats
  - More threatened resources in need of protection
  - Limited funding available
- Researching sources and compiling all available map data in CBDA/CALFED geographic scope
- Overlaying natural resource and sensitive species habitat information to yield eradication priorities
- Upstream sources and outliers in pristine habitats to receive highest priority for eradication

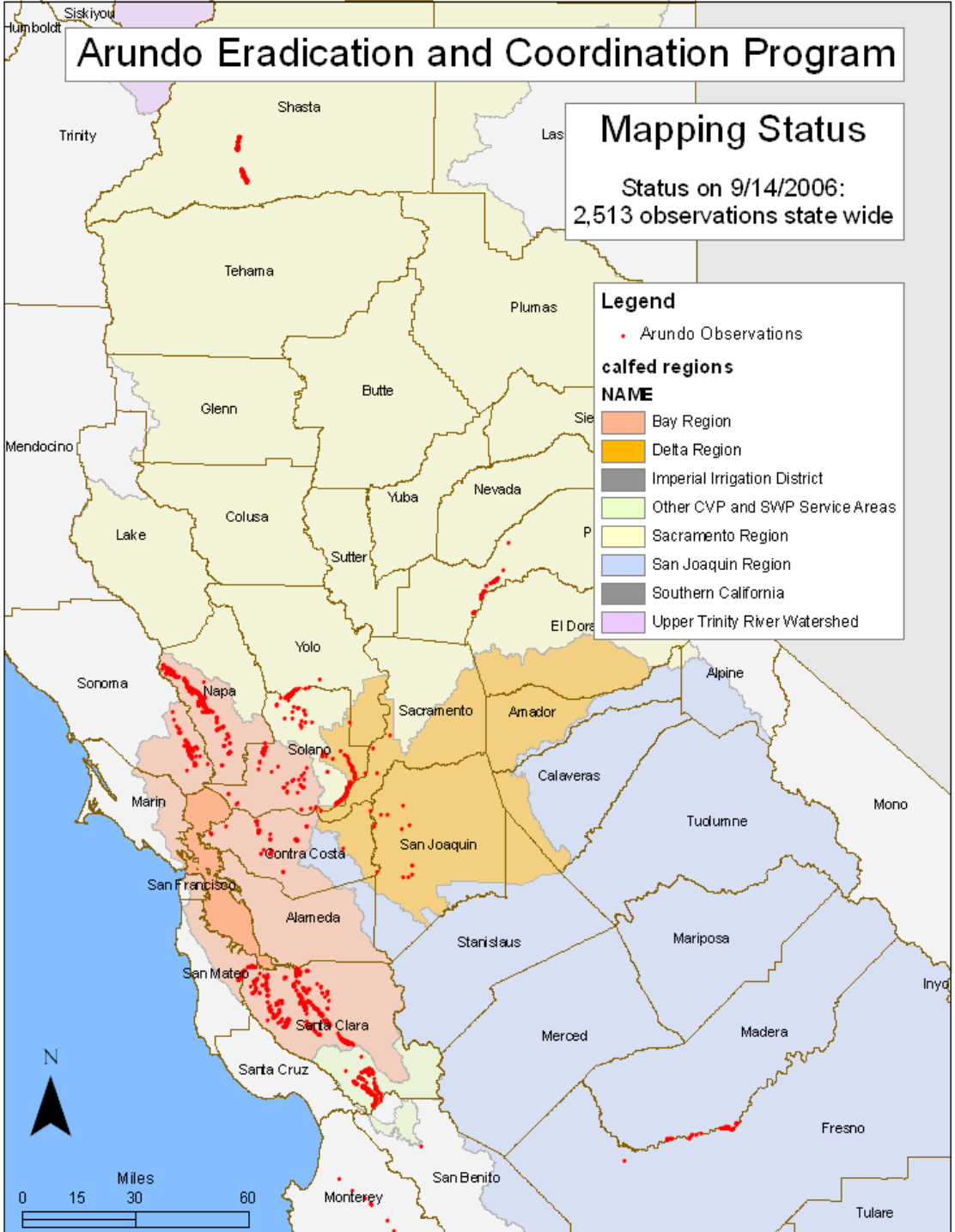
Mapping and Prioritization Challenges

- Finding sources of Arundo map data
- Compiling and formatting data
- Gaps
  - Apparently, no data in several counties (Marin, Alameda, San Mateo, San Francisco county)
  - Need for predictive modeling
- Prioritization
  - Choosing criteria to rate sites (federally designated critical habitat for salmonid, CNDDB, CNPS Inventory of rare and endangered plants, etc.)

If you have Arundo map data – please contact:

Bryan Sesser - bryan@sonomaecologycenter.org


Arundo Eradication and Coordination Program
Arundo Observations in NorthBay
Calistoga
St Helena
Sonoma
Napa
N
Miles
0
2.5
5
10
Arundo Observations
Streams and Rivers
Highways
Cities and Towns
County Boundaries


Arundo Eradication and Coordination Program
Mapping Status
Status on 9/14/2006:
2,513 observations state wide
Legend
Arundo Observations
calfed regions
NAME
Bay Region
Delta Region
Imperial Irrigation District
Other CVP and SWP Service Areas
Sacramento Region
San Joaquin Region
Southern California
Upper Trinity River Watershed
Humboldt
Siskiyou
Trinity
Shasta
Tehama
Plumas
Glenn
Butte
Mendocino
Lake
Colusa
Yuba
Nevada
Sutter
Yolo
Sonoma
Napa
Sacramento
Amador
Alpine
Solano
Calaveras
Marin
Mono
Tuolumne
Contra Costa
San Joaquin
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
Fresno
San Benito
Monterey
Tulare
N
Miles
0 15 30 60

Program Partners

- California State University, Chico Research Foundation - Sandy Gulch
- Solano County Water Agency/ Lower Putah Creek Council
- Napa County Flood Control and Water Conservation District - Napa River
- Lake County Watershed Protection District - Upper Cache Creek
- San Francisquito Creek Watershed Council/Acterra
- Sonoma Ecology Center - Sonoma Creek/GIS Mapping/Database development
- San Joaquin River Parkway and Conservation Trust
- Butte Co. Ag. Commissioner - Gray Lodge Wildlife Area
- Sacramento Weed Warriors, CNPS/Urban Creeks Council - Lower American River and tributaries
- EDAW - Programmatic Permitting
- USDA/ARS - Experimental Design and Implementation
- Information Center for the Environment (ICE) - Database development/Mapping
- The Nature Conservancy - Database development
- USFWS Reserve System - Database development
- California Dept. of Fish and Game - CEQA lead
- California Bay Delta Authority/GCAP - Funder/Contract Manager