# Level 1 Tools for Wetland Management

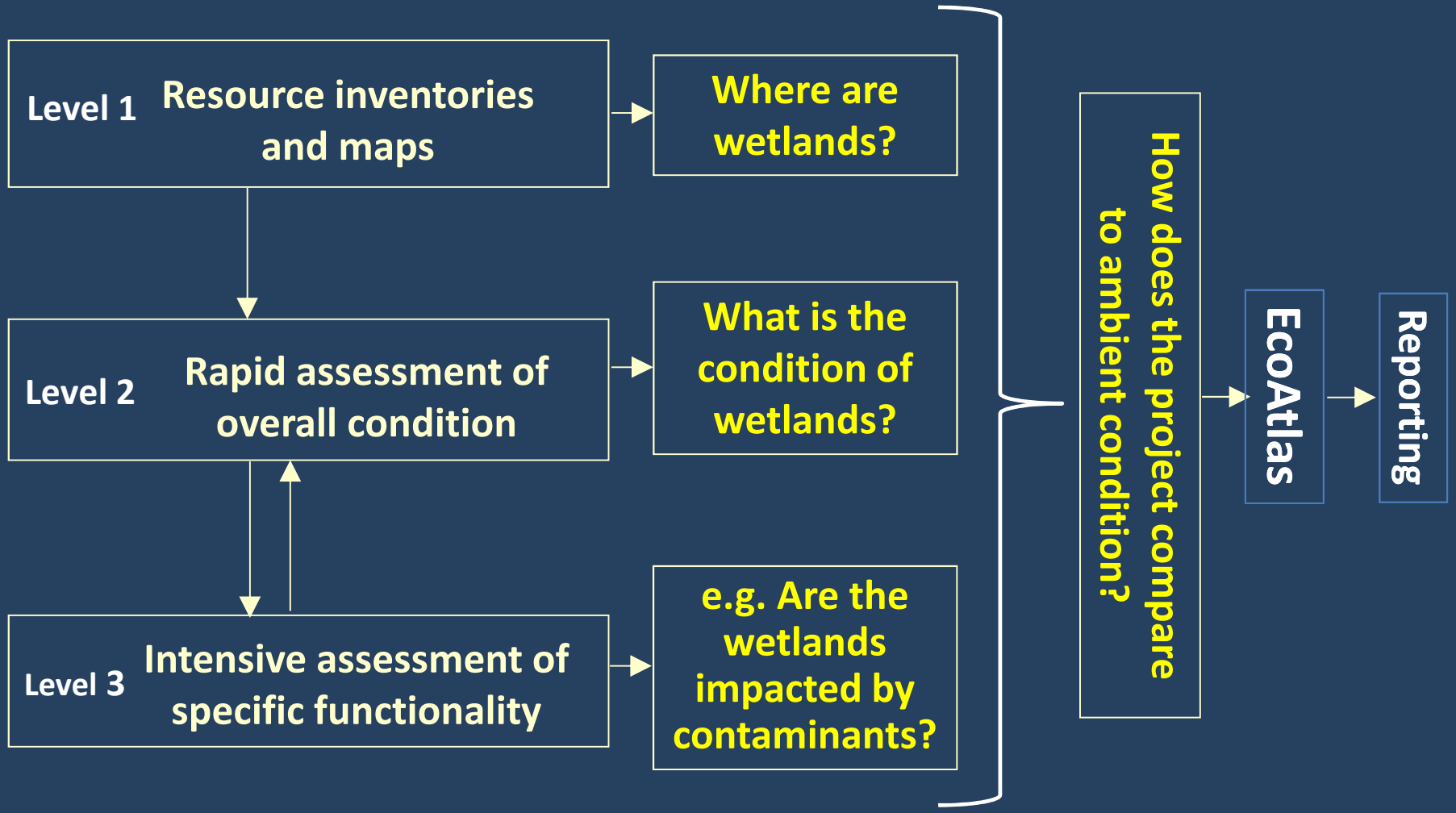
## Putting the Pieces Together

Kristen Cayce (SFEI) and Eric Stein (SCCWRP)

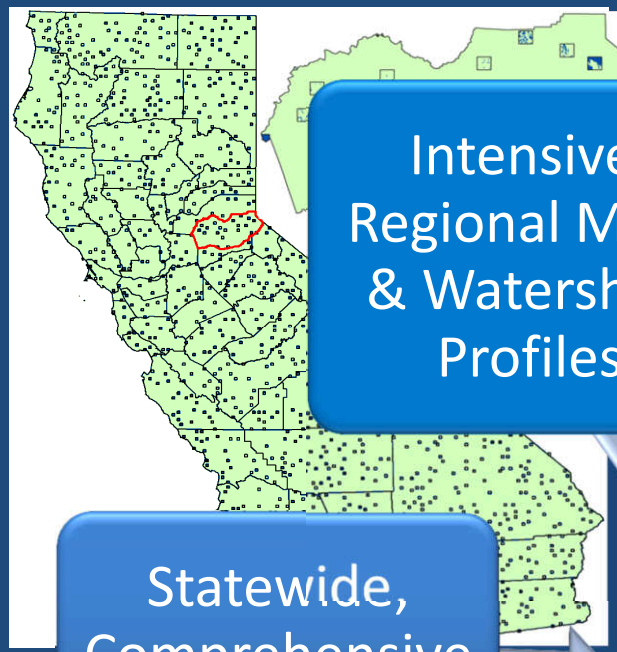
CWMW Meeting

August 14, 2012

# Wetland and Riparian Area Monitoring (WRAMP)

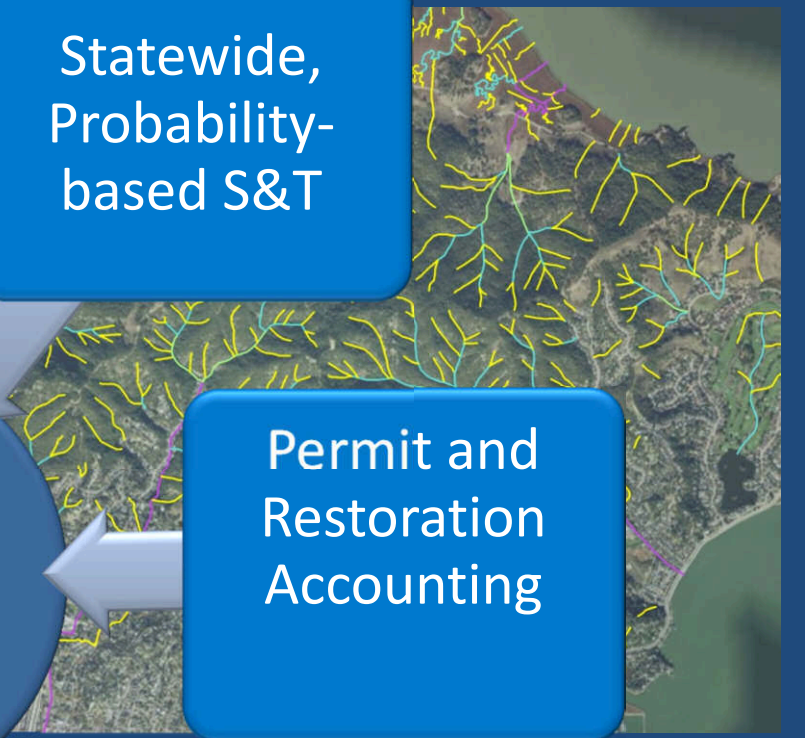


# California's Complete Level 1 Strategy



Intensive, Regional Maps & Watershed Profiles

Statewide, Probability-based S&T



Statewide, Comprehensive Mapping Standards

Level 1 Strategy

Permit and Restoration Accounting

Bayfront F
Basic Info
Project T
Project A
7° N -122.524° W
Project Identification ?

| ID | Type |
|---|---|
| 02-21-C0675 | RWQCB - 401 Certification Letter Site Number |
| 1600-2007-0260-3 | CDFG - Fisheries Restoration Grant |
| 2007-400538N | USACE - File Number |
| M98-60 | BCDC - Record Number |

Habitat Plan ?

| Habitat | Activity | Acres | Source |
|---|---|---|---|
| Estuarine wetlands | Created,Enhanced | 0.3 | Tracker Form |

Making Progress on key elements but lack overall implementation strategy

# Toward a Full Level 1 Toolkit

- Core elements
  - Mapping Standards
  - S&T
  - Watershed Profiles
  - Project Tracking
- Data sharing and dissemination tools
- L1 Implementation Strategy

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# Need for a Standardized Basemap

***GOAL = piece together program-specific & project-specific maps to improve statewide coverage***

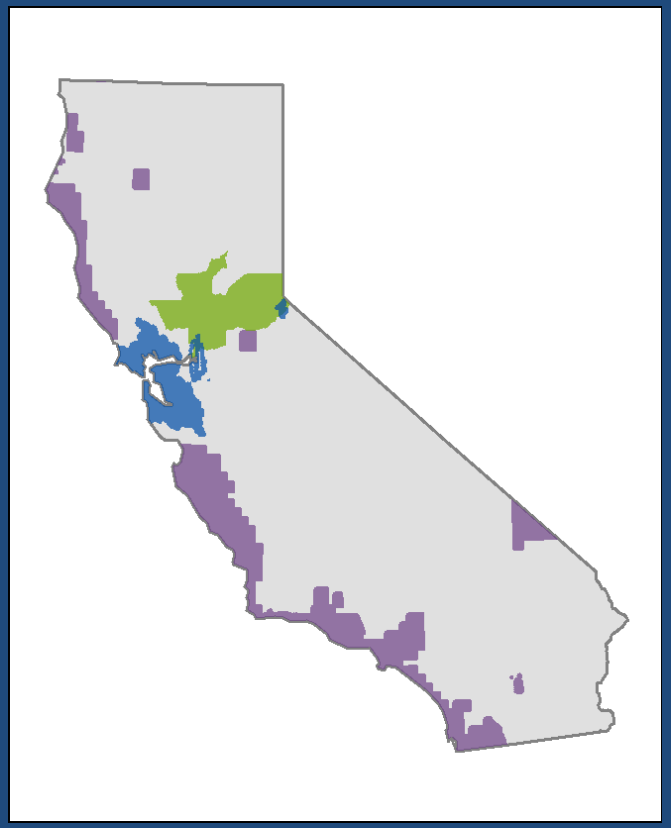
- Lots of different mapping efforts
  - Need standard mapping protocols
  - Need data quality objectives /QA
  - Need common classification system
- Must be able to accommodate multiple programs
  - Different levels of detail for different scales

# California Aquatic Resource Inventory (CARI)

- Comprehensive map of CA wetlands and streams
  - Will include riparian
- Standard mapping protocols and classification
- More accurate and current than available wetland/stream maps (Intensification of NWI & NHD)
- Can accommodate different resolutions/level of detail

# CARI Status

- CARI v.0
  - "Best Available" statewide dataset
    - BAARI, TARI, 6 County ARI, So Cal Wetland Mapping Project, NWI/NHD
  - September 2012 release as EcoAtlas basemap
- CARI v.1
  - Upgrade the datasets nearest to CARI standards (2013)



# CARI Technical Advisory Team

- Representatives from local, regional, state and federal agencies
  - USGS, National Hydrography Dataset
  - USGS, Interagency Watershed Mapping Committee
  - USFWS, National Wetland Inventory
  - State Water Resources Control Board
  - State Coastal Commission
  - CA Dept of Fish and Game
  - CA Dept of Water Resources
  - Bay Conservation and Development Commission
  - So Cal Coastal Watershed Research Program
  - San Francisco Estuary Institute
  - Marin County Planning Department
  - CSU Northridge

# How can you Get Involved

- Participate with workgroups
- Support use of CARI standards in your programs
- Encourage submittal of maps to EcoAtlas
- Use and promote the maps

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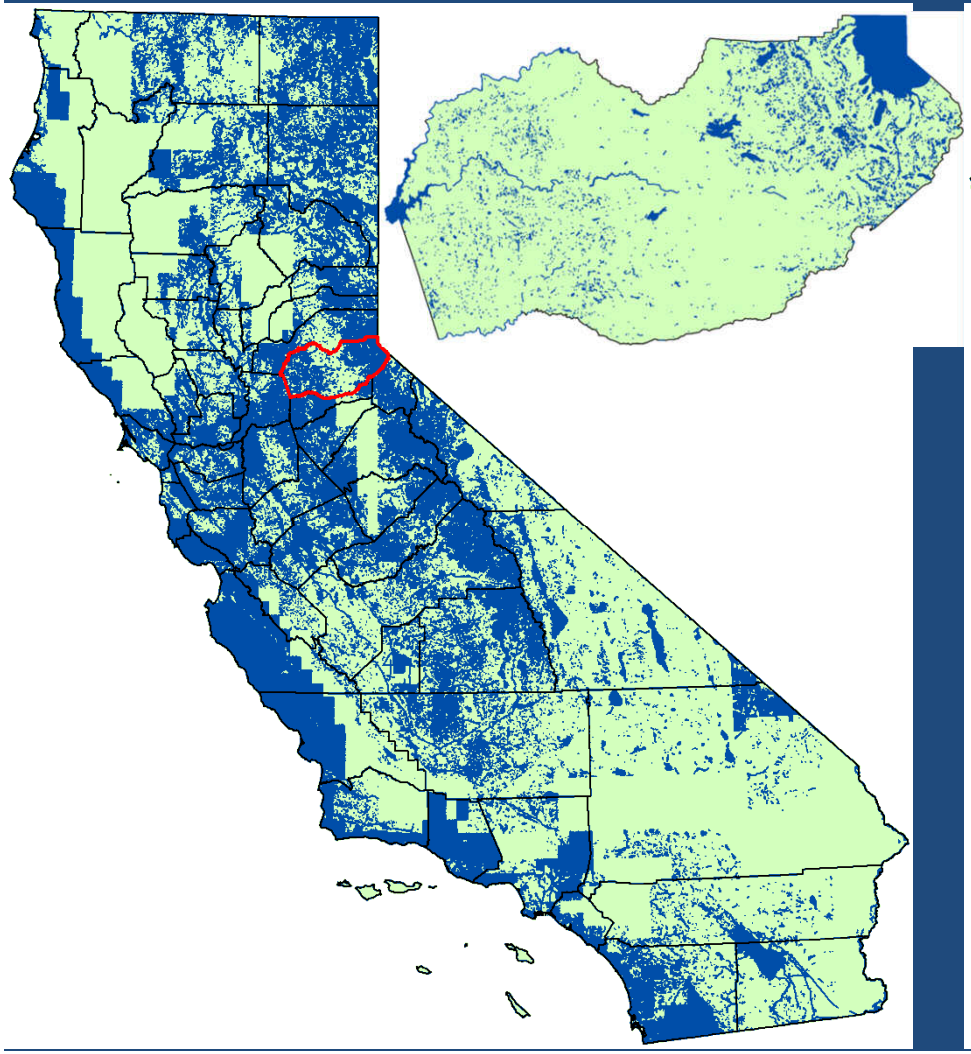
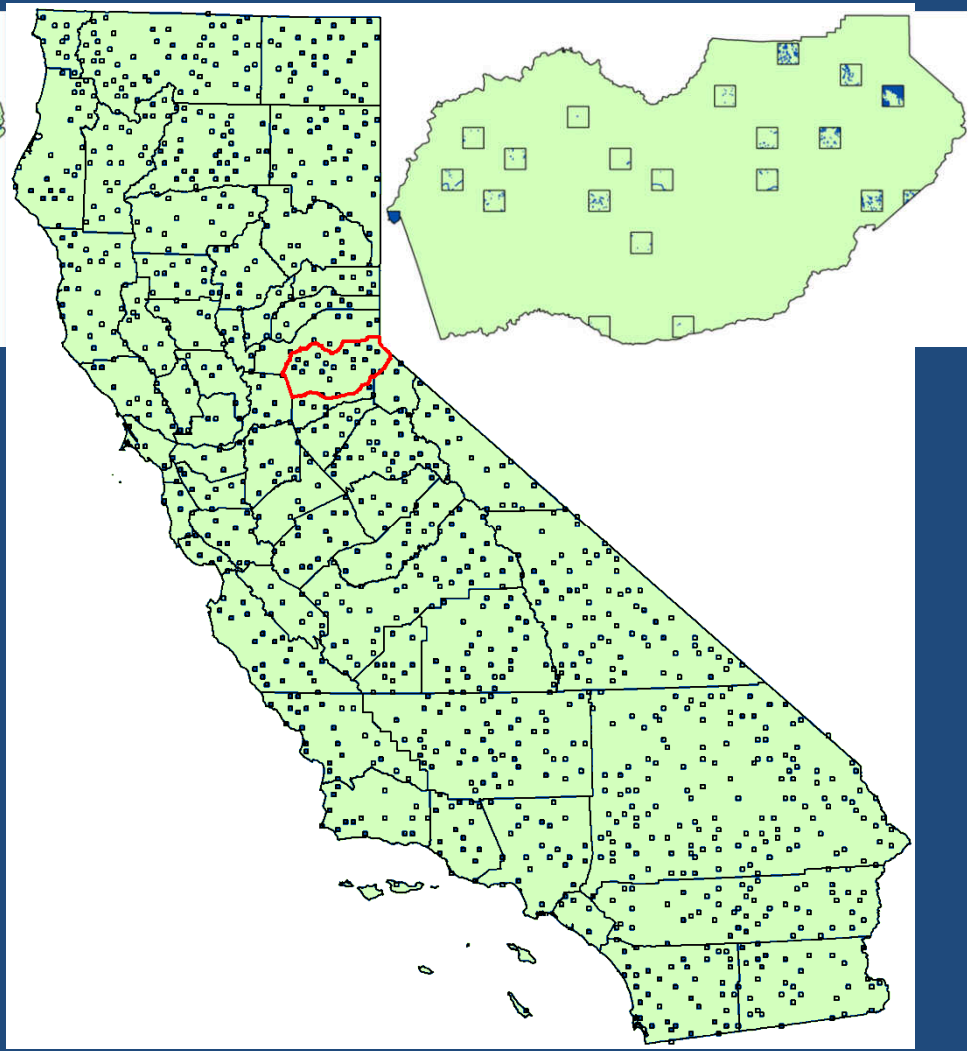
# What does a probability-based approach look like?

## Comprehensive Approach

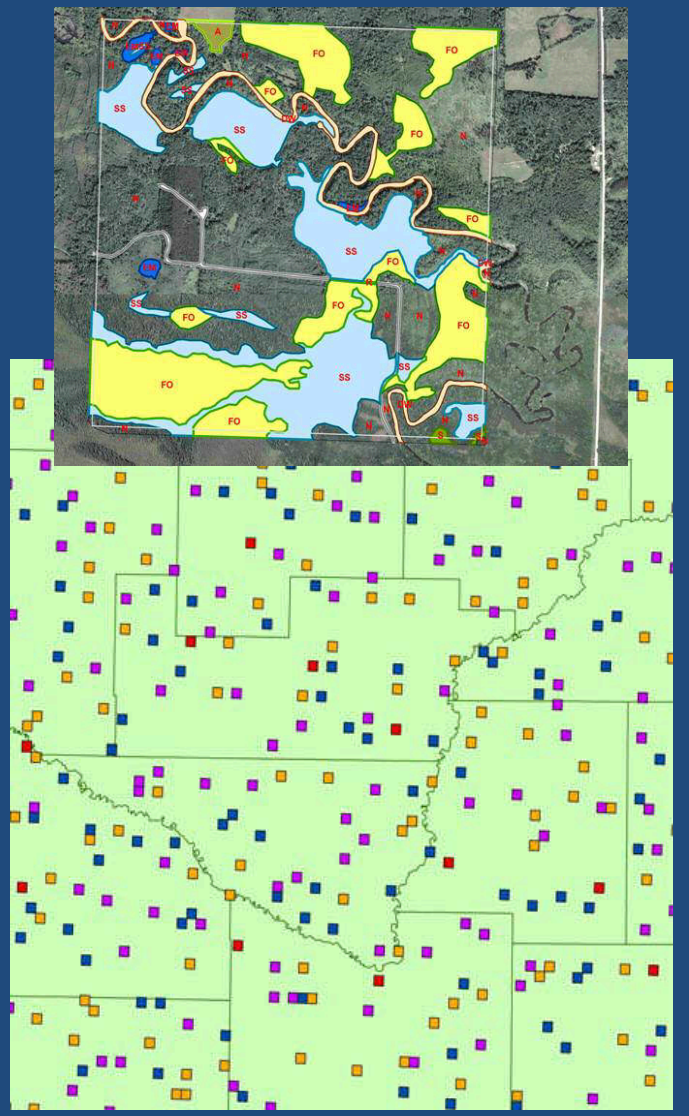


## Probabilistic Approach



# Study Approach

1. Review existing programs
2. Test various design options
3. Evaluate rigor vs. costs
4. Provide recommendation to CA Wetland Monitoring Workgroup
5. Test proposed design
6. Compare to traditional mapping
7. ***Phase 2 (beginning Sept 2012):***
   - ***Implementation of S&T program***
   - ***Developing change assessment methodology***



# Overall Design Goals

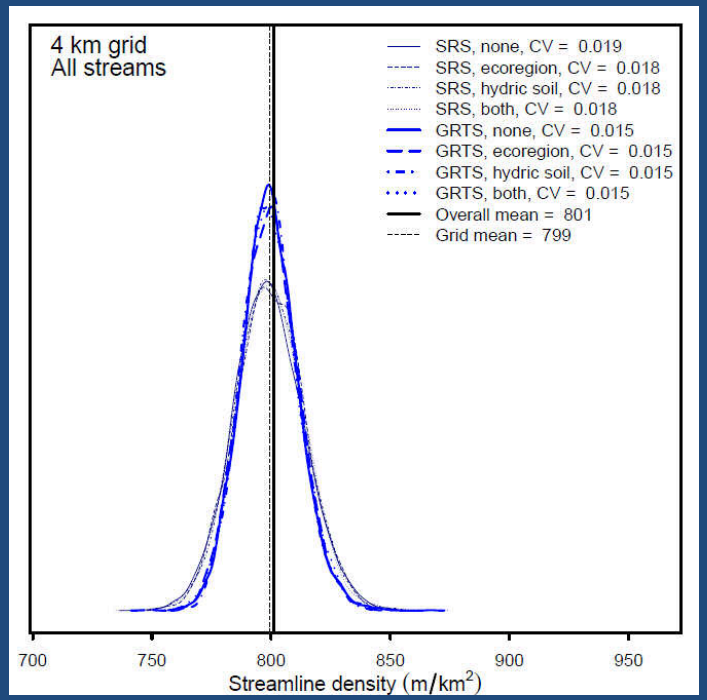
- Report both status and trends
- Provide accurate information for all aquatic resources (e.g., wetlands, streams, and deepwater habitat)
- Target reporting for every five years, one year ahead of the National Condition Assessment
- Support regional or question-based intensification of sampling and coordination with other agency programs

# General Design Feature from TAC Discussions

- Use the entire state as a sample frame, not just areas with known aquatic resources
  - Sample locations should be selected from a square grid, placed over the entire State.
- Select a master sample of locations for observation across all of California
  - Allows nesting for local intensifications
- Map and classify all aquatic resources **and** upland areas within selected plots
  - Use new, “proposed” California wetland classification system
  - Include general upland classifications to support change assessment

# Design Options

- Which sampling method?
  - Simple Random Sampling vs. GRTS
- Whether to stratify?
  - Unstratified
  - Stratify by geography (e.g. Ecoregion)
  - Stratify by soil type
  - Stratify by soil + ecoregion
- What plot size?
  - 1 $km^2$, 4 $km^2$, 9 $km^2$, 16 $km^2$
- How many plots?
  - Cost analysis with plot size
- Panel design to balance status and trends assessment
  - Fixed plots
  - New plots each cycle
  - Hybrid design

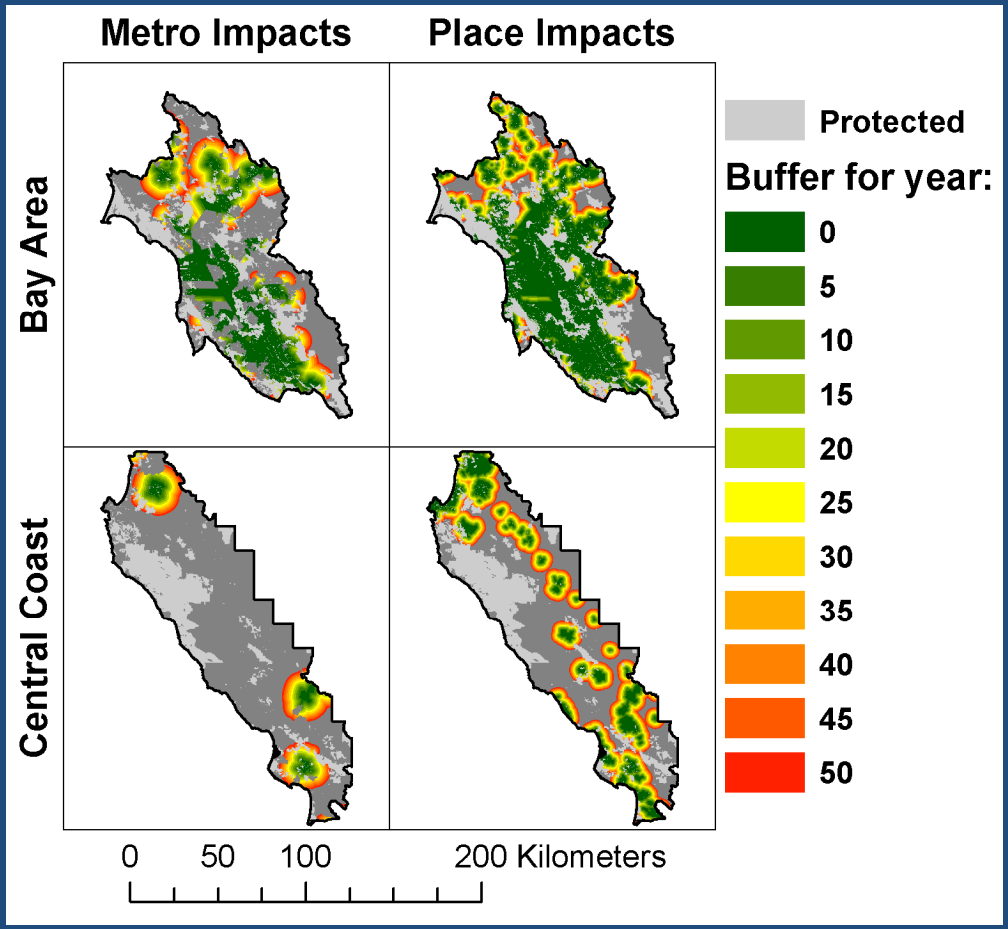


# Questions Addressed & Answered

- Which sampling method?
  - GRTS
- Whether to stratify?
  - Unstratified sampling
- What plot size?
  - $4km^2$
- How many plots?
  - 2,500 – 3,000 depending on cost constraints

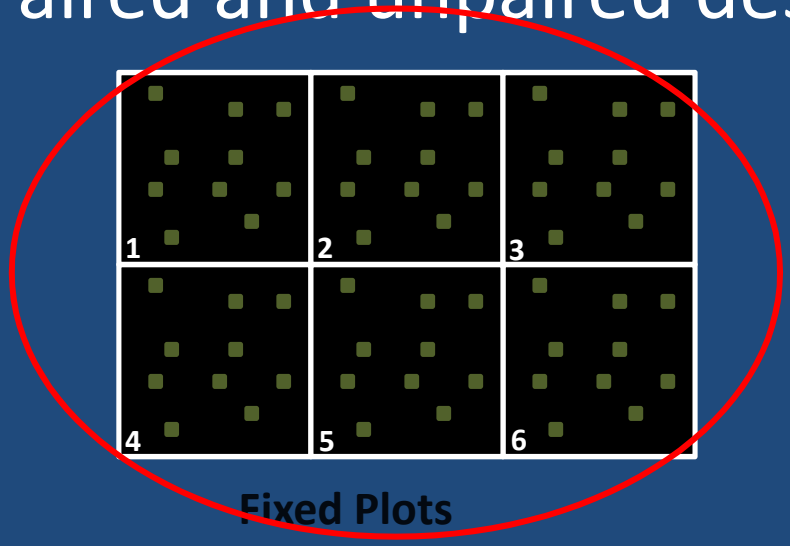
# Simulated Wetland Impacts

- Two growth scenarios
- Two locations
- 50 years
  - 10 x 5 yr increments
- Avoid protected areas
- Assume 50% wetland loss per impact grid

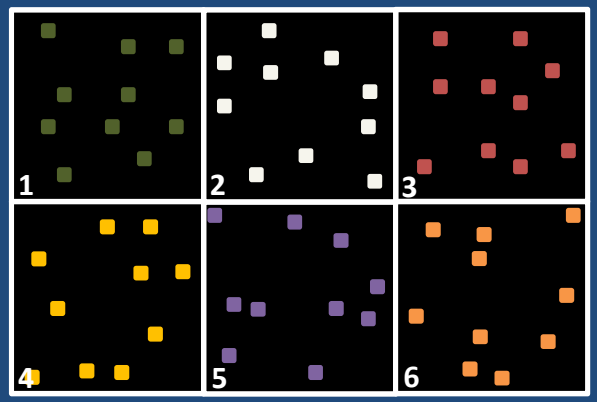


# Temporal Observation Strategy

- Paired and unpaired designs

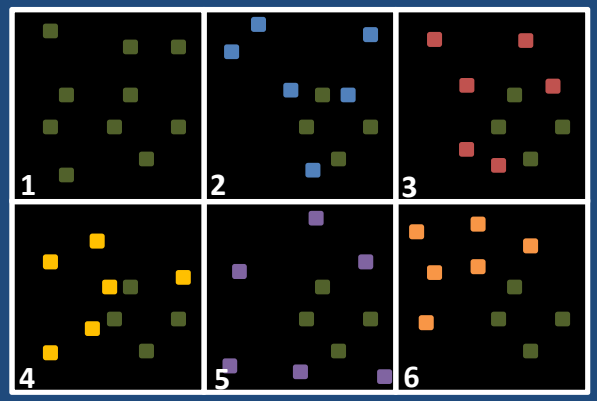



Fixed Plots




Moving Plots

- Hybrid designs



# Status

- Technical report being finalized
- Finalize recommendations to State – Sept. 2012
- CNRA/DFG to develop policy recommendations
- Begin Phase 2 – Sept 2012
  - Change assessment methodology
  - Develop SOPs and DQOs
  - Create sample frame for the state
  - First phase implementation (200 plots)

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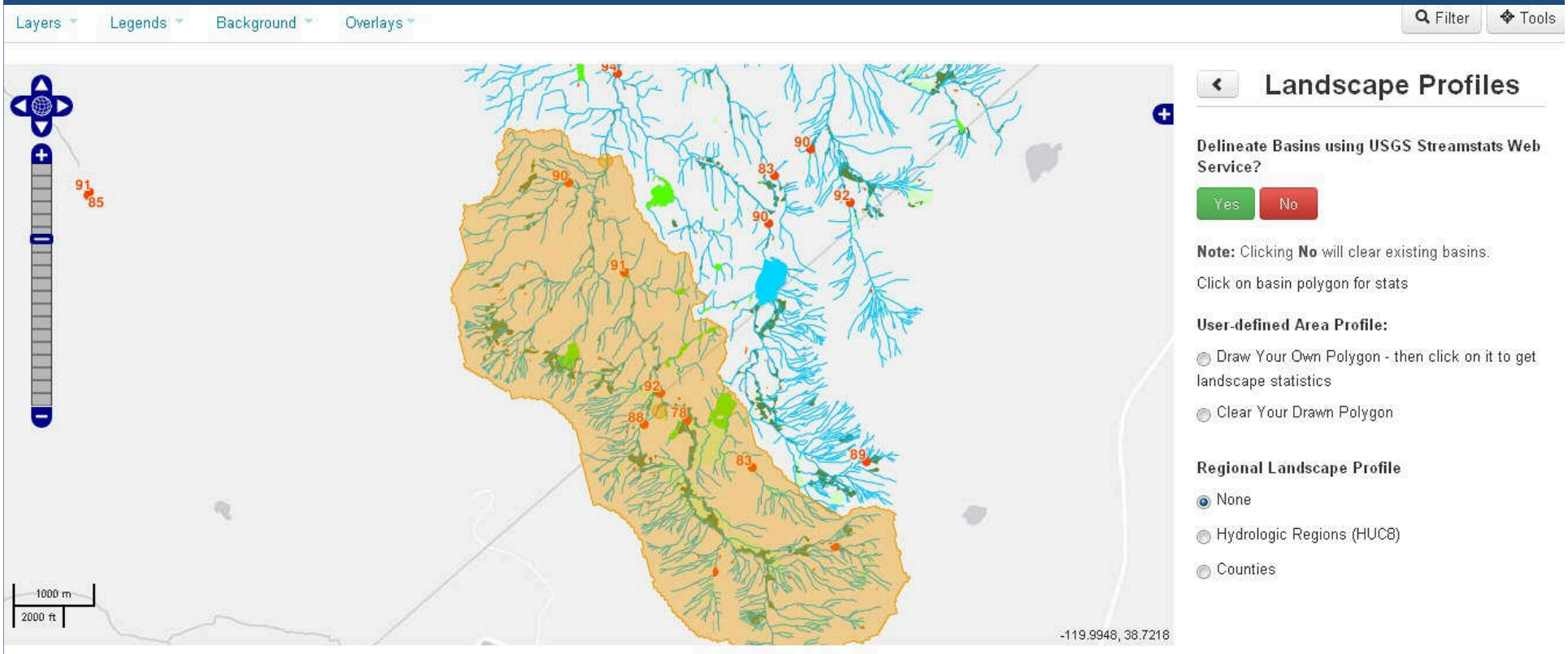
# Watershed/Landscape Profiles



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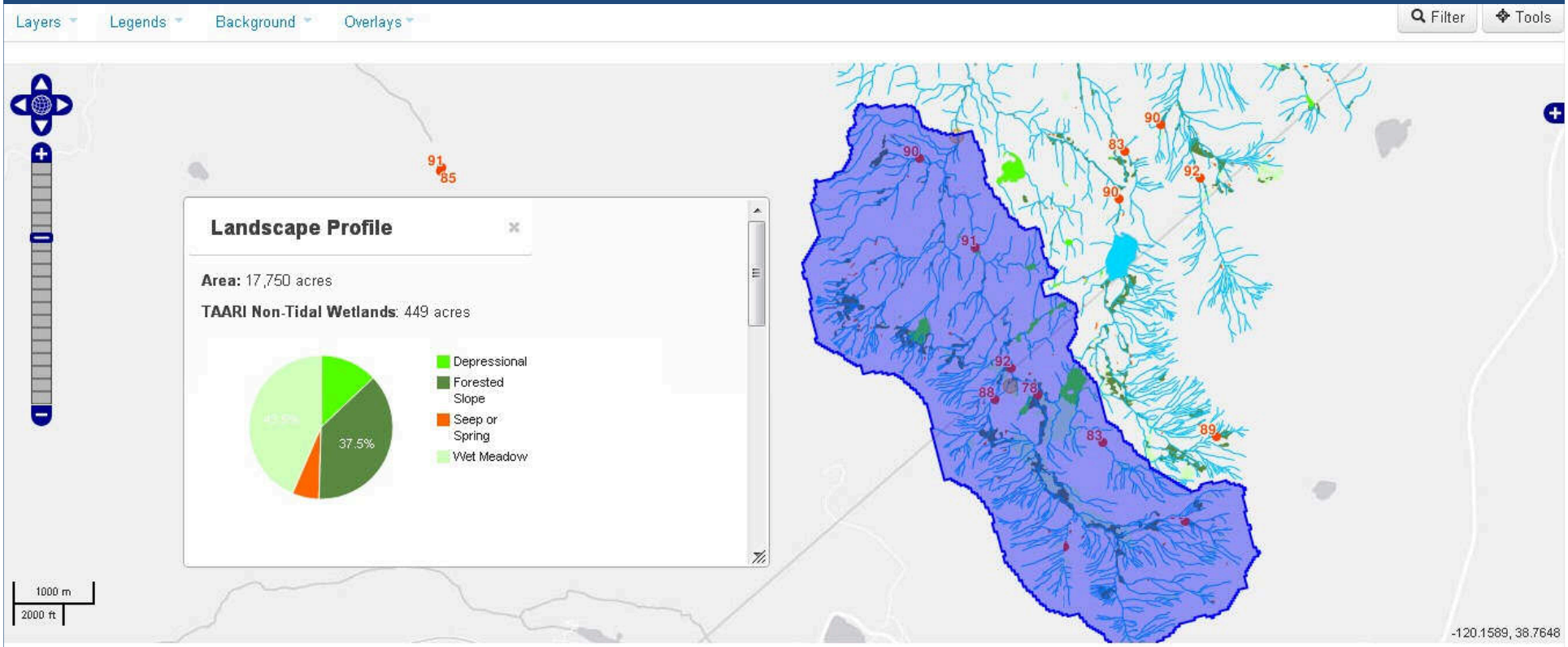

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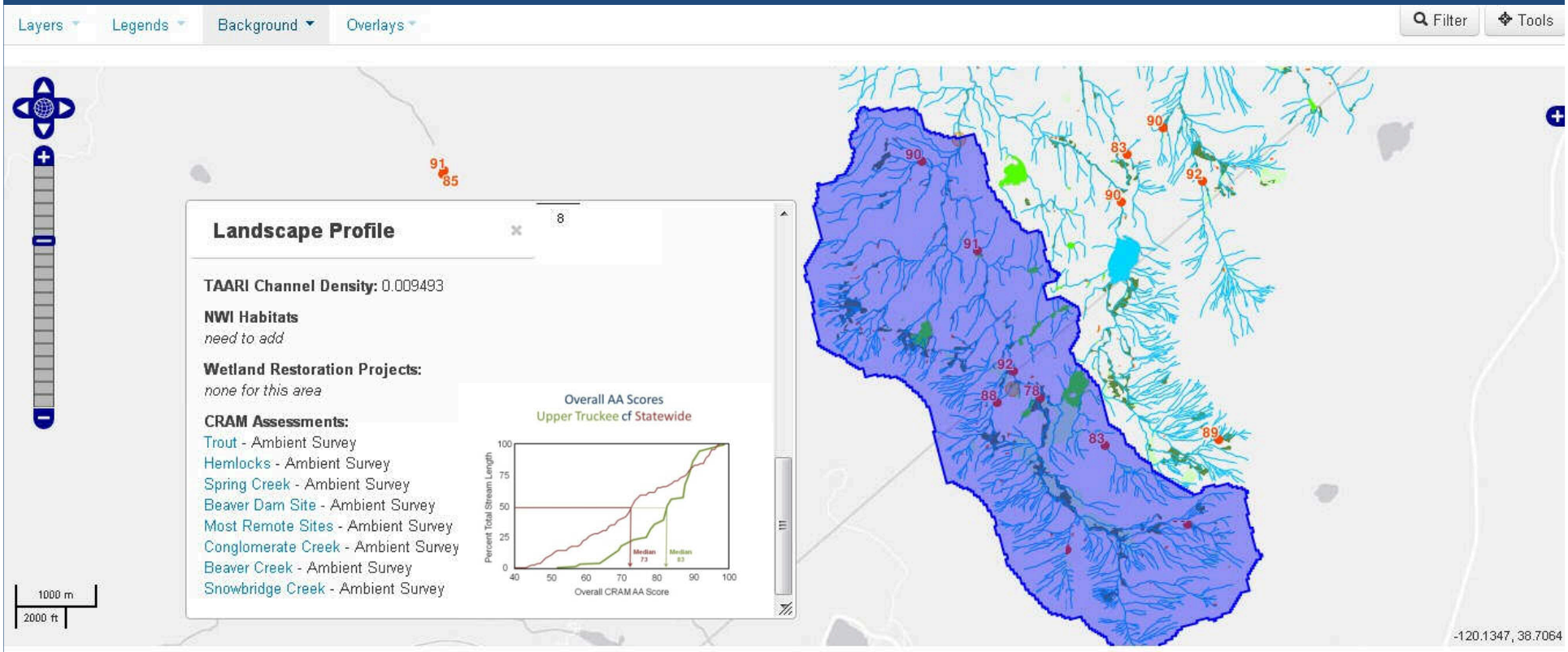

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# Online 401

- Pilot project underway with selected Regional Boards:
  - Notification of scheduled administrative actions
  - Case histories
  - Capacity to summarize actions  throughout regions
- Anticipated challenges:
  - Accommodating particular needs of individual Water Boards
  - Data upload
  - System operation and maintenance

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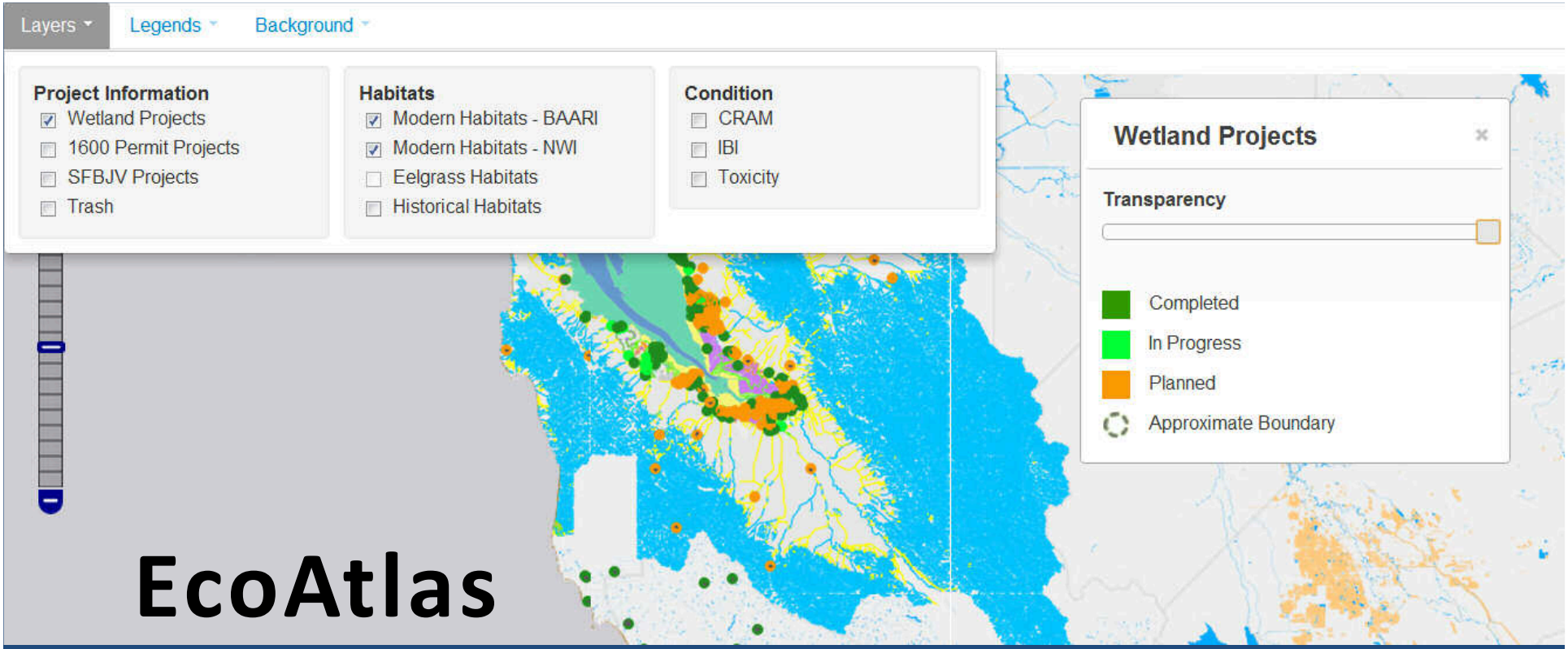


## EcoAtlas is WRAMP user interface

Initial focus is support for WRAPP

- CARI as basemap and for L1 assessments
- 401 Online for project tracking
- L2 and L3 data for field-based assessments
- Watershed Profiles for mitigation plans and Integrated Reporting

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# Need Level 1 Committee of CWMW

- How do we integrate all L1 tools to make overall assessments of wetland/stream extent and distribution?
- Which agencies will be stewards of the L1 products?
- How can we best coordinate efforts across State and Federal programs?
- Who will develop training and technical support?
- Who will manage sample draws under the status and trends programs?
- How will ongoing program management be funded?

# Plan Moving Forward

- Continue to develop L1 tools
- Begin initial L1 strategy discussions through S&T and CARI advisory teams
- Apply for 104(b) funds to establish L1 Committee that will develop L1 implementation strategy

**SUPPORT L1: "IT'S YOUR MAP TOO"**

Thank you