

# Wetland Restoration and Enhancement Projects in Southern California

**Cher Batchelor**

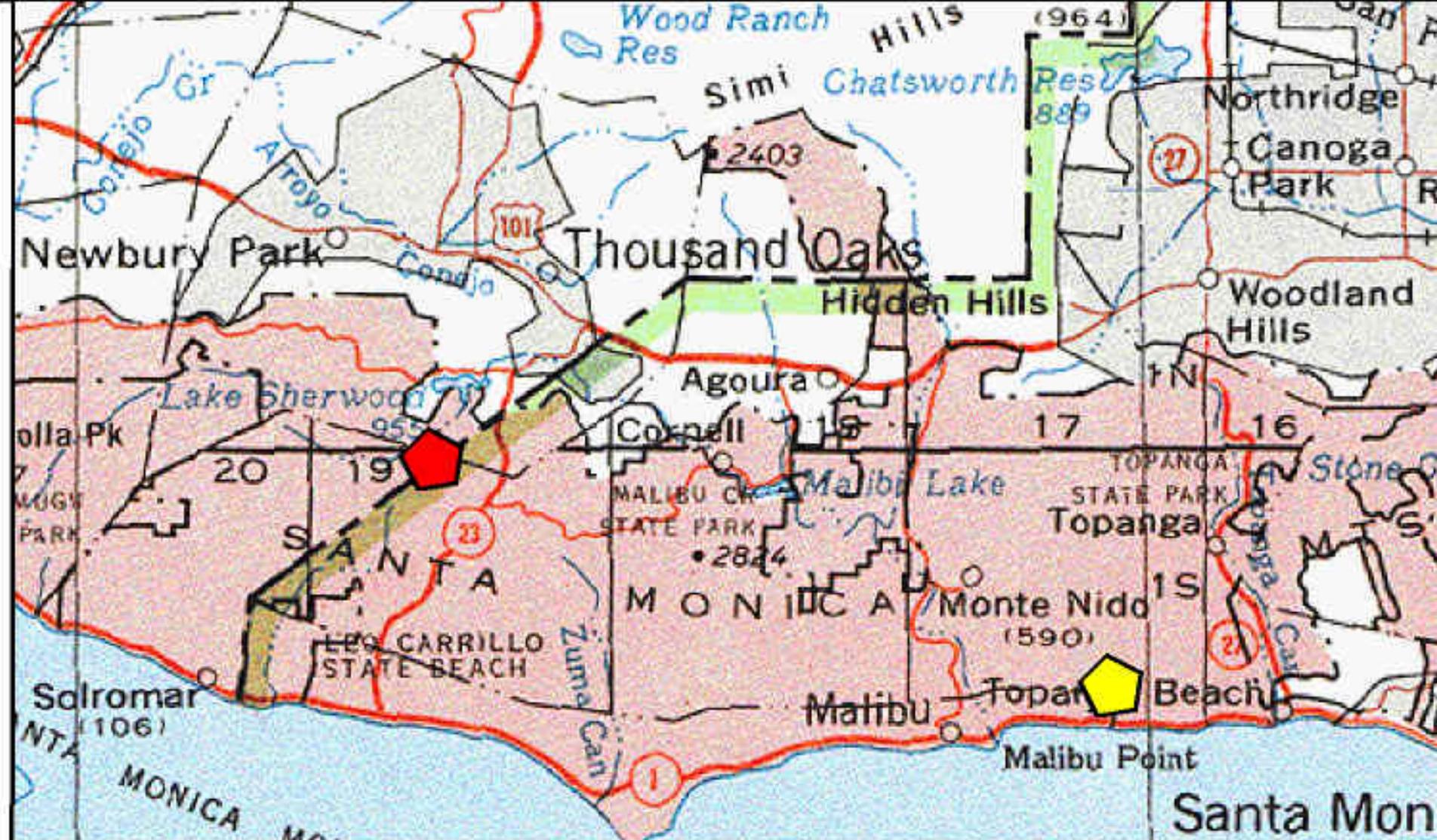
*David Magney Environmental Consulting*

# Discussion Topics

- Comparison of two examples of wetland restoration projects in southern California
- Determining success through monitoring
- Problems to meeting mitigation success criteria
- Solutions to meeting mitigation success criteria

# Project Backgrounds and Comparisons

- Odyssey Program Elementary School, Malibu, California (1998)
  - Wetland mitigation project along a portion of Las Flores Creek riparian corridor (part of the Las Flores Canyon Environmental Sensitive Habitat Area)
- Duggan property, Carlisle Canyon, on County line of Ventura and LA counties (1999)
  - Wetland restoration project at several impact sites along Carlisle Creek



**RED** = Duggan Property  
**YELLOW** = Odyssey Program

—|—|— = ~ 3 miles



# Odyssey Program

## Wetland Mitigation Project

- Conducted construction work to restore fire-damaged buildings and landscaping
- Two California Sycamore trees removed without California Coastal Commission (CCC) authorization
- CCC conditioned Odyssey Program to mitigate for loss of sycamores at a 10:1 ratio
- Conditions also requiring enhancement of existing riparian habitat along Las Flores Creek
- DMEC contracted to provide independent habitat assessment, evaluate replacement of sycamore trees, & develop mitigation/monitoring plan

# Duggan Property Wetland Restoration Project

- Road regraded to improve property access.
- Earth work performed in portions of jurisdictional waters within two unnamed, intermittent creeks.
- Ms. Duggan applied, after-the-fact, for CDFG authorization for repair and restoration activities.
- DMEC retained to conduct biological assessment, and prepare restoration and monitoring plan.

# Determining Success Through Monitoring

- ◉ Importance of Control Sites for Mitigation Monitoring
- ◉ Success Criteria Surveys

# Importance of Control Sites for Mitigation Monitoring

- Control sites *not* used for the Odyssey Program
  - CDFG requiring success based only on quantitative results
  - CDFG establishing success criteria based on their typical mitigation standards
  - Not establishing success criteria by referencing specific onsite biological and environmental conditions
- Control sites recommended for the Duggan Property
  - CDFG compliance requirements based on restoration back to natural conditions measured against control sites
  - DMEC determined ecological conditions on similar adjacent habitats used as control sites for comparison with mitigation efforts implemented on impact sites

# Importance of Control Sites for Mitigation Monitoring (continued)

- Control sites provide a reasonable and measurable mechanism to determine restoration objectives are met after 5 years.
- Instead of using artificial plant growth and cover success thresholds, it is recommended to measure and compare habitat function with control sites.
- Control site survey results create site-specific indices and comparison standards for species richness, habitat structural diversity, and percent cover by natives

# Success Criteria Surveys

- Monitoring objective: establish status, progress, and success of restoration/mitigation effort by meeting predetermined success criteria measured by:
  - Planting survival;
  - Planting growth (width & height);
  - Plant and wildlife species richness;
  - Percent absolute native vegetative canopy cover; and
  - Habitat structural diversity (number of strata).

# Success Criteria Surveys (continued)

- Monitoring data should also include:
  - Annual photo documentation;
  - Succession of native species;
  - Colonization by invasive/exotic species;
  - Recommended planting maintenance
    - Plant protection kit and irrigation system repairs
    - Planting replacements; and
  - Trash/foreign materials present at restoration site.

# Problems to Meeting Mitigation Success Criteria

- ⦿ Arbitrary growth requirements
  - Requirements not based on reality
- ⦿ Unrealistic growth expectations
  - Example: 100% cover by natives in 5 years
  - May have 100% cover by natives, but is species richness being met?
- ⦿ Lack of adequate mitigation maintenance
  - Inadequate irrigation
  - Inadequate invasive exotics control
  - Not replacing dead plantings to meet required survival rates

# Solutions to Meeting Mitigation Success Criteria

- Avoid arbitrary and unrealistic growth requirements and expectations by:
  - Using control sites to establish comparison standards and measurement indices for determining mitigation success
- Ensure adequate mitigation maintenance to:
  - Meet mitigation goals within the 5-year monitoring period