



**Wildflower restoration at  
Sacramento River National Wildlife Refuge**

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# Codora

- 274.5 acres restored
- 4 plant communities
- 21 species planted
- 21,731 total plantings



11/27/2012

# La Barranca

- 143 acres restored
- 5 plant communities
- 31 species planted
- 39,039 total plantings



08/23/2012



# Grassland & Understory

- **Creeping wildrye**– rhizomatous; suppress kickxia
- **Blue wildrye**– robust bunchgrass; suppress yellow starthistle
- **Purple needlegrass** – lighter soils; early to flower/seed
- **Meadow barley**– weed suppression during initial grassland establishment



# Grassland & Understory

- Monoculture of perennial grasses
- Limits resources for wildlife
- Reduces resiliency of native plant community
- Intermediate step

# Functional diversity

- Conserve local ecotypes of indigenous species
- Improve restoration success
- Promote robust understory and grassland communities



# Why now?

- Trajectory of floodplain habitat restoration
- Reliance on selective herbicides
- Response of woody and grasses to edaphic conditions





# Alluvial Soils

- Gravel, sand and silt deposition
- Channel migration





## Dry Sand & Gravel Sites

## Frequently Flooded Swales

**Sky lupine**



**Bolander's sunflower**



**Vinegar weed**



**Hairy evening primrose**



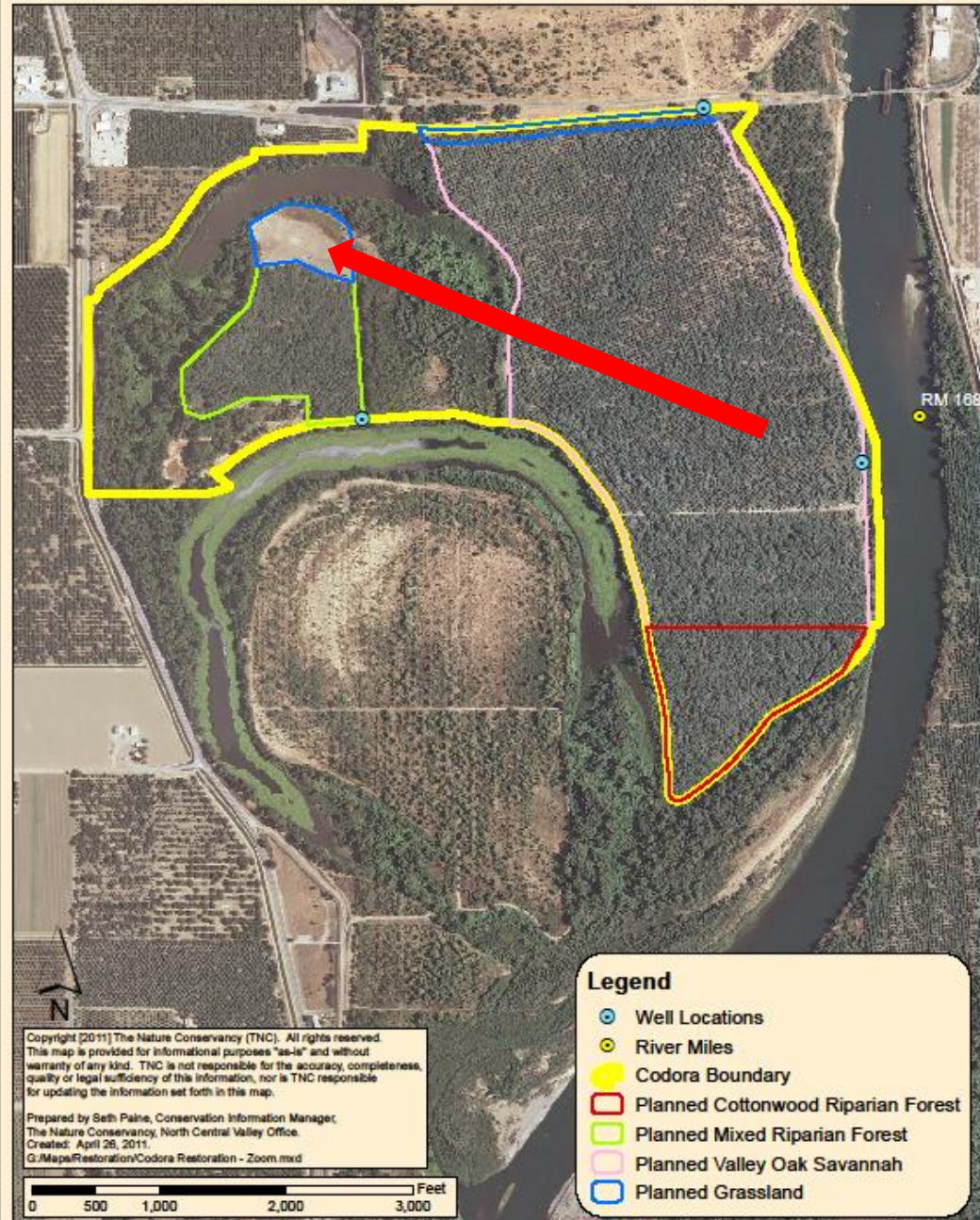


# Opportunities for Restoration

- Plant concurrently with large scale restorations; use soils data as the main indicator
- Seed native wildflowers into established perennial grasslands; select for areas of poor native grass establishment
- Return to older restorations where seeding the understory was not part of the original restoration plan

1. Plant concurrently with large scale restorations; use soils data as the main indicator
  - Rolled into restoration plan i.e. grant term
  - Native wildflower volunteers
  - Manual control of kickxia
  - Pilot site: Codora

## Codora Restoration



2. Seed native wildflowers into established perennial grasslands; select for areas of poor native grass establishment

- Most intensive weed control
- Capay study – wildflower response to grazing
- Pilot site: Capay



3. Return to older restorations where seeding the understory was not part of the original restoration plan

- Response of woodies
- Develop an inventory of sites to include local soil assessment and existing herbaceous plants
- Pilot site: Rio Vista





## Thank You

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