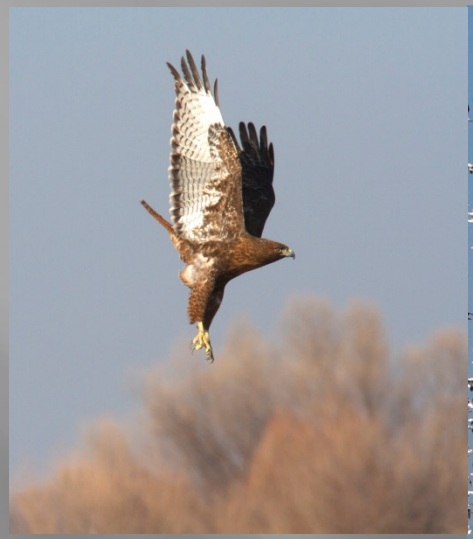
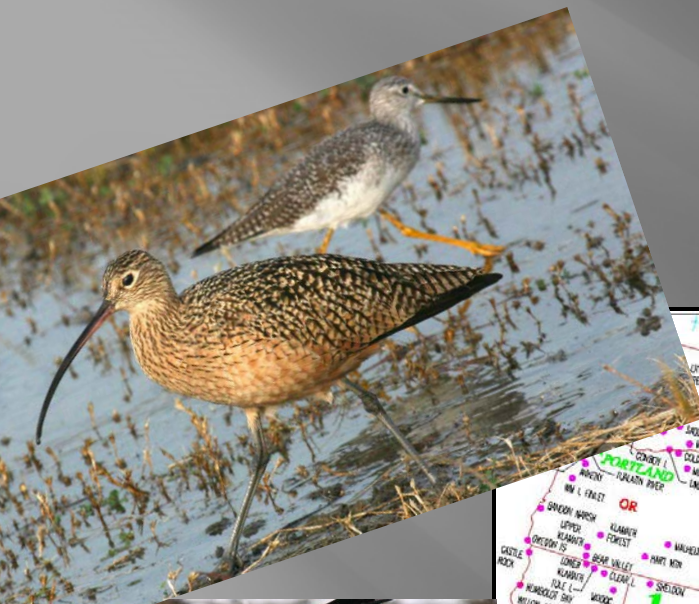
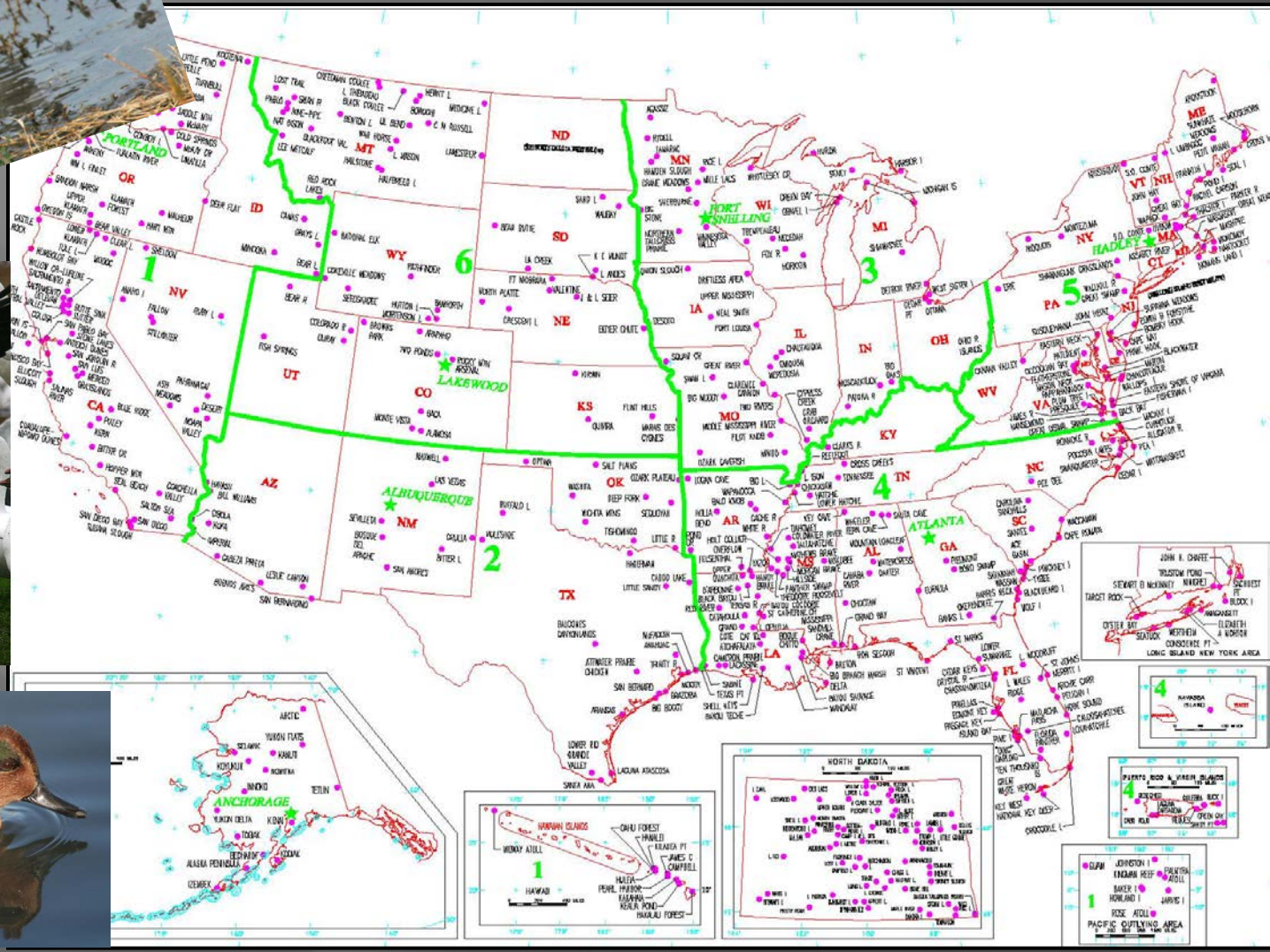
San Luis NWR Complex

Kim Forrest, Wildlife Refuge Manager

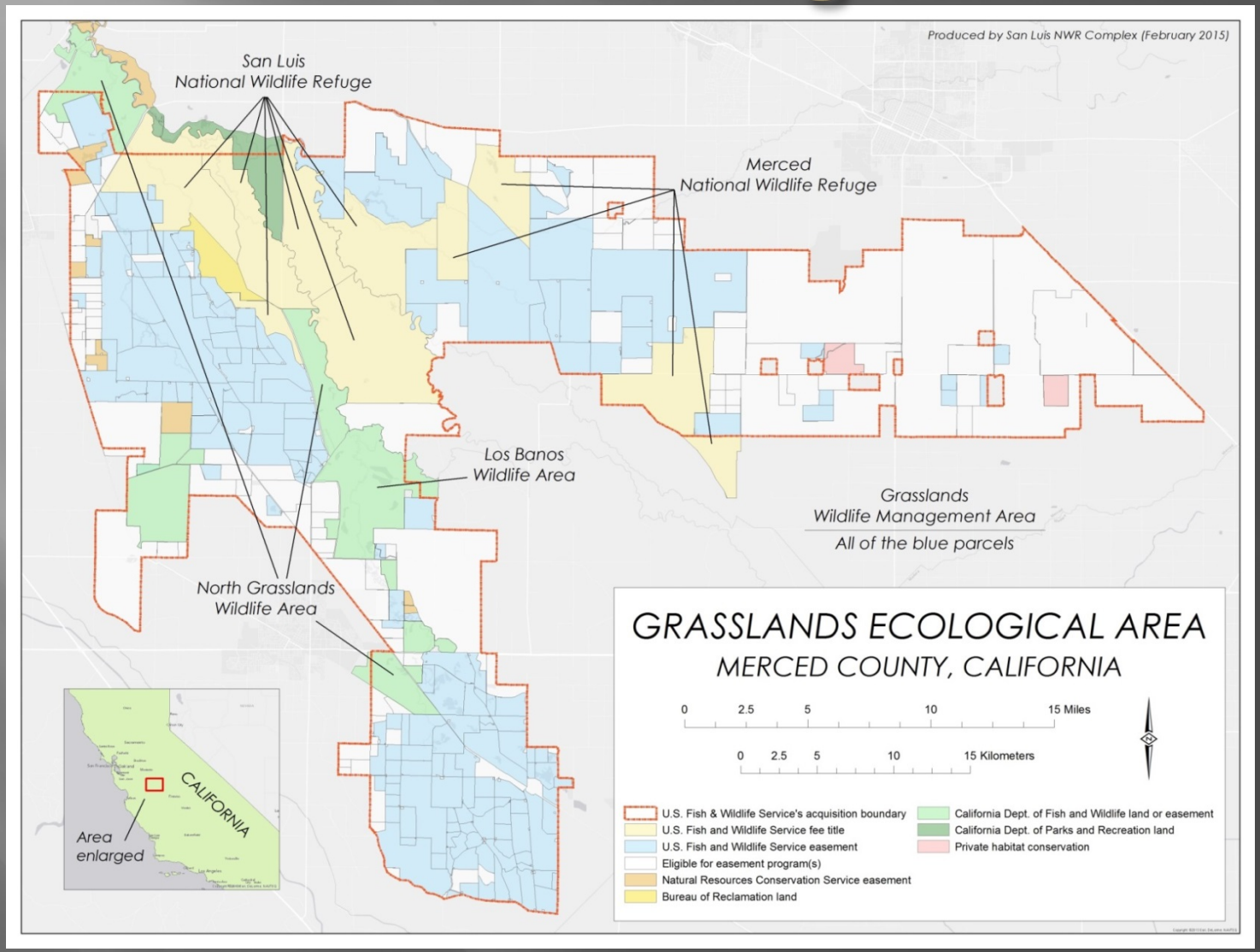


National Wildlife Refuge System





Grasslands Ecological Area



(San Luis NWRC = 45,000 acres fee title + 90,000 acres / 190 parcels under easement)

International Recognition

Ducks Unlimited's "Level 1

Highest Priority" (of 5 continent-wide)

Audubon Important Bird Area

Western Hemisphere Shorebird Reserve Network

Ramsar Wetland of International Importance

Values of San Luis NWR Complex

- Maintains natural biodiversity -- flora and fauna
- Provides vital habitat for migratory and resident wildlife
- Value to endangered / threatened species
- Allows for natural processes to function
- Provides natural pollinators
- Green space
- Recreation
- Values provided at local - regional - national – international levels

Management Aspects

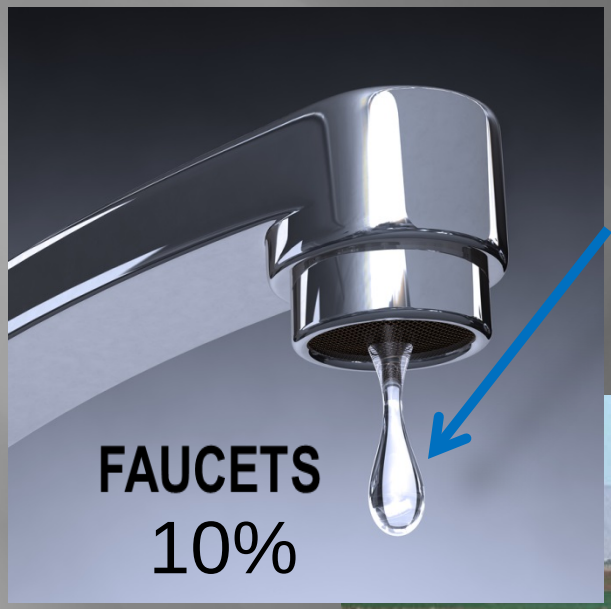
- Low soil disturbance
- Low nutrient inputs
- Low pesticide inputs
- Low energy inputs
- Promotes natural ecological processes

Intensive Water Management

- 150 separately-managed wetland units
- 300 water control structures
- $20 million in water management infrastructure
- Flood-up, drawdown, irrigation timed very carefully:
  - Coincide with bird use (1/2-million waterfowl and 15,000 cranes arriving in fall, peak in winter, ¼-million shorebirds in spring)
  - Drawdowns and irrigations timed with soil temperatures, soil moisture, rainfall, desired vegetation, wildlife need

Intensive Habitat Management

Public Use



Water

Based on data from:
Calf. Dept. of Water Resources,
California Water Plan Update 2013.

FISH & FLOWS
47%

Wetland Water Quality

- Reflects the nature of the source water and typically improves it
- Wetlands are a sink and generally filter contaminants
- Wetlands act as a recharge basin
- Wetlands aid in flood control

Water Quality

- San Luis Drain agricultural water draining to River*:
  - 2010: 14,710 ac-ft., selenium = .75 ton, salt = **67,670 tons**
  - 2011: 18,020 ac-ft., selenium = 1 ton, salt = **87,520 tons**
- San Luis NWRC wetland water draining to River:
  - ~3,000 - 10,000 acre-feet/year
  - salt ~ **12 - 40 tons** (0.00015 - 0.0005% of Drain water)

***Grassland Bypass Project 2010 – 2011: Table 2b. Comparison of Salinity and Salt Loads, Water Years 1997 – 2011, and Table 3b. Comparison of Selenium Measurements Water Years 1997 – 2011**

Yes, San Luis uses herbicides

From CA Dept. of Pesticide Regulation:

- Over 173 million pounds of pesticides (active ingredients) were reported applied statewide in 2010. The greatest pesticide use is in the San Joaquin Valley. The top five counties were Fresno, Kern, Tulare, San Joaquin, and Madera. All are major producers of agricultural products.

- SJV counties + SJ Co.: pounds of pesticide active ingredients applied, and rank in CA:
  - Kings County -- 6,743,291 lbs. (#9)
  - Kern -- 25,782,086 lbs. (#2)
  - Stanislaus -- 5,961,801 lbs. (#10)
  - Tulare -- 13,148,843 lbs. (#3)
  - Fresno -- 30,283,617 lbs. (#1)
  - Merced -- 7,736,269 lb. (#7)
  - Madera -- 9,129,884 lbs. (#5)
  - San Joaquin -- 9,421,118 (#4)

- **TOTAL – 108,206,909 lbs.** (63% of CA total)
  - **Roughly 22 lbs./ac.**

- San Luis NWR Complex: an average of **750 lbs.** of herbicide active ingredient are applied annually (0.0000076% of SJV total).
  - **Roughly 0.017 lb./ac.**

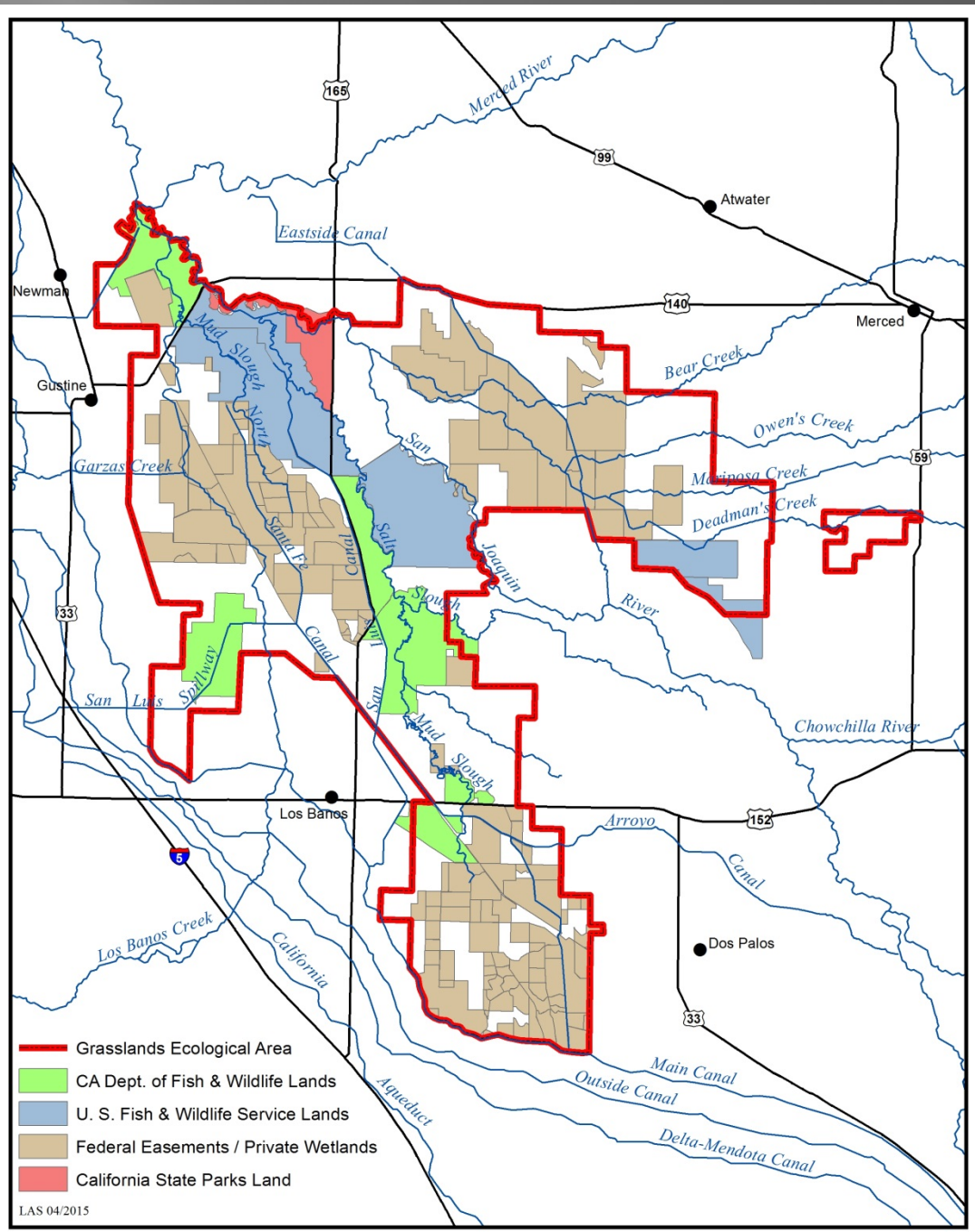
What San Luis could do with $30,000/year…

- Add 130 acres of wetland for 7 months, increasing Merced NWR wetlands 15-20%
- Hire 4 part-time college interns to do work that has been dropped, including water quality monitoring
- Bus over 3,000 school children to the refuge
- Hire tractor operator for 8 months

What WE could have done with $1.3 million…

- Average cost of purchased and pumped water (2005-14) = $144/ac. ft. & $20/ac. ft., respectively
- $1.3 million = 900-6,500 ac. ft. / yr. for 10 years
- 900-6,500 ac. ft. ~ 200 – 1,400 acres
- of managed wetlands
- On San Luis NWRC, 1,000 acres of wetlands remain dry every year due to lack of funding


Questions?


Merced River
Eastside Canal
Atwater
Newman
Merced
Gustine
Mud Slough North
Bear Creek
Owen's Creek
Garzas Creek
San Joaquin River
Mariposa Creek
Deadman's Creek
Santa Fe Canal
Salt Slough
San Luis Spillway
San Luis Canal
Mud Slough
Chowchilla River
Los Banos
Arroyo Canal
Los Banos Creek
California Aqueduct
Dos Palos
Main Canal
Outside Canal
Delta-Mendota Canal
Grasslands Ecological Area
CA Dept. of Fish & Wildlife Lands
U. S. Fish & Wildlife Service Lands
Federal Easements / Private Wetlands
California State Parks Land
LAS 04/2015