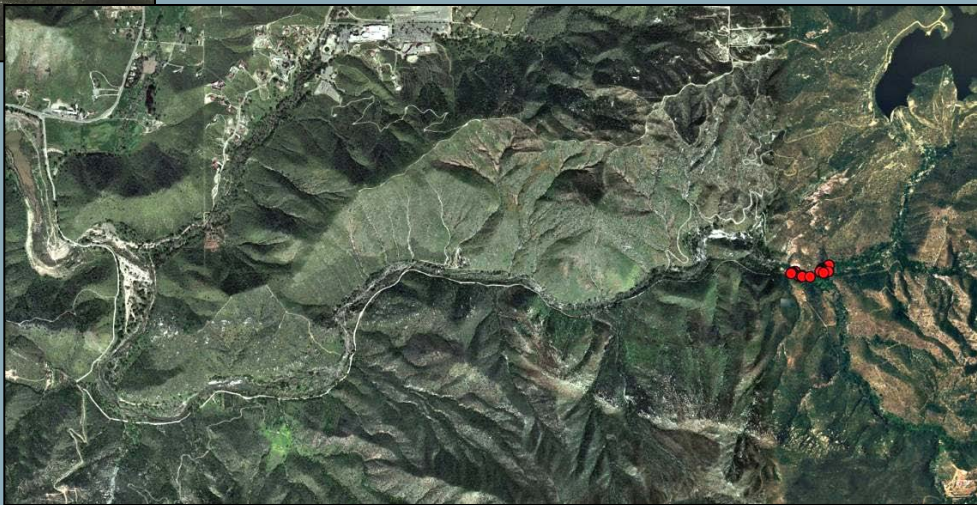




Southwestern pond turtle-

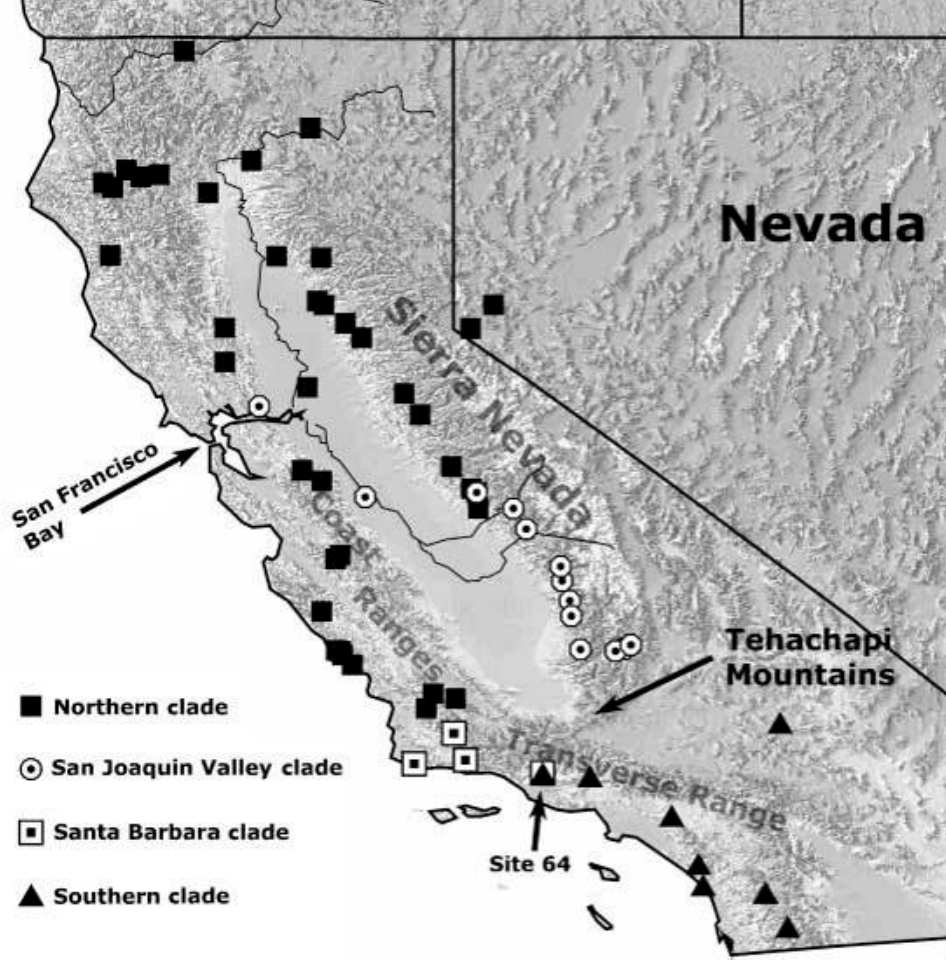
Connectivity strategic plan for western San Diego County update meeting, July 1, 2014



Background-

Spinks and Shaffer,
2005

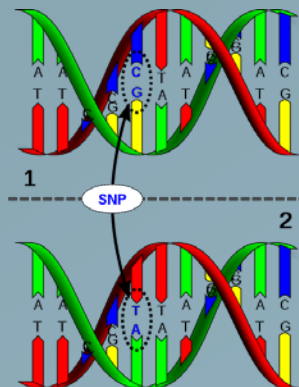
- Populations south of San Francisco highly subdivided
- Southern drainages are generally distinct
- Southern pops. have more variation
- Southern pops. should receive increased conservation attention



Fisher et al. 2014



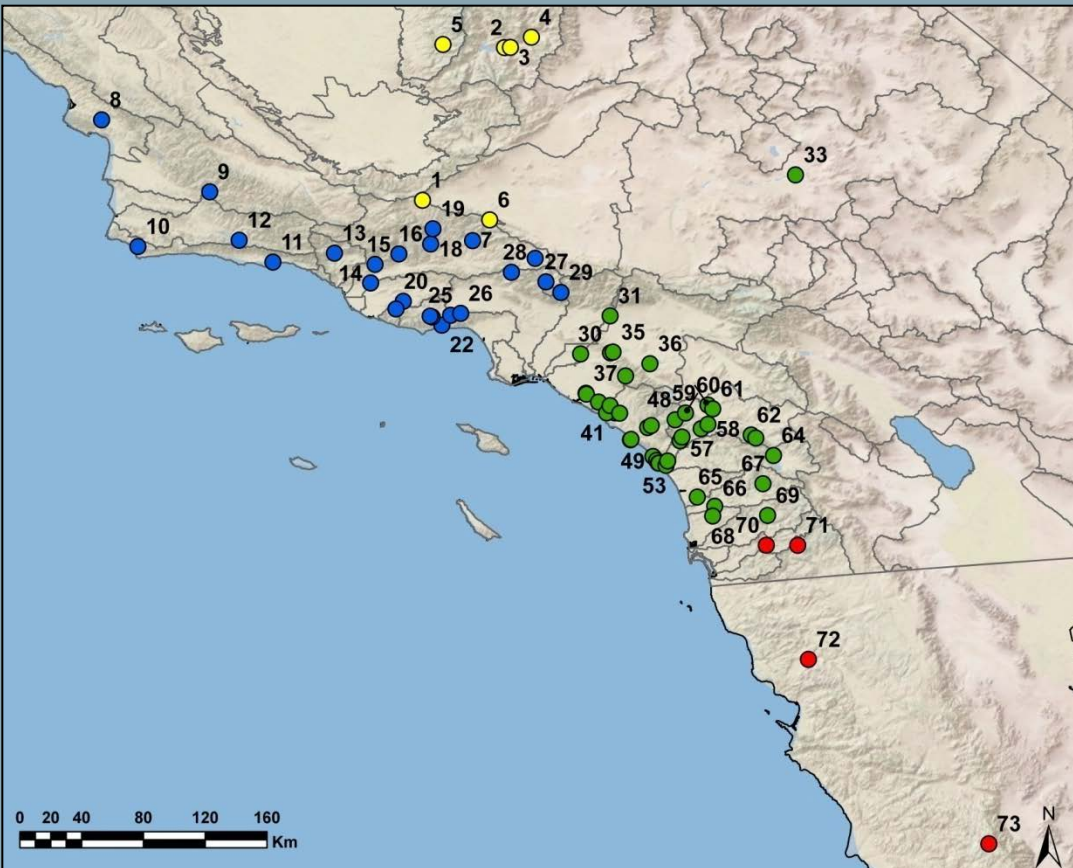
Part of a larger collaboration with Shaffer and Spinks using SNP's (Single-nucleotide Polymorphism)



- 77 SNP loci developed by Phil Spinks
- Power of 20 microsats
- Unambiguous Scoring
- “Genome Scale”
- ~1500 samples range wide

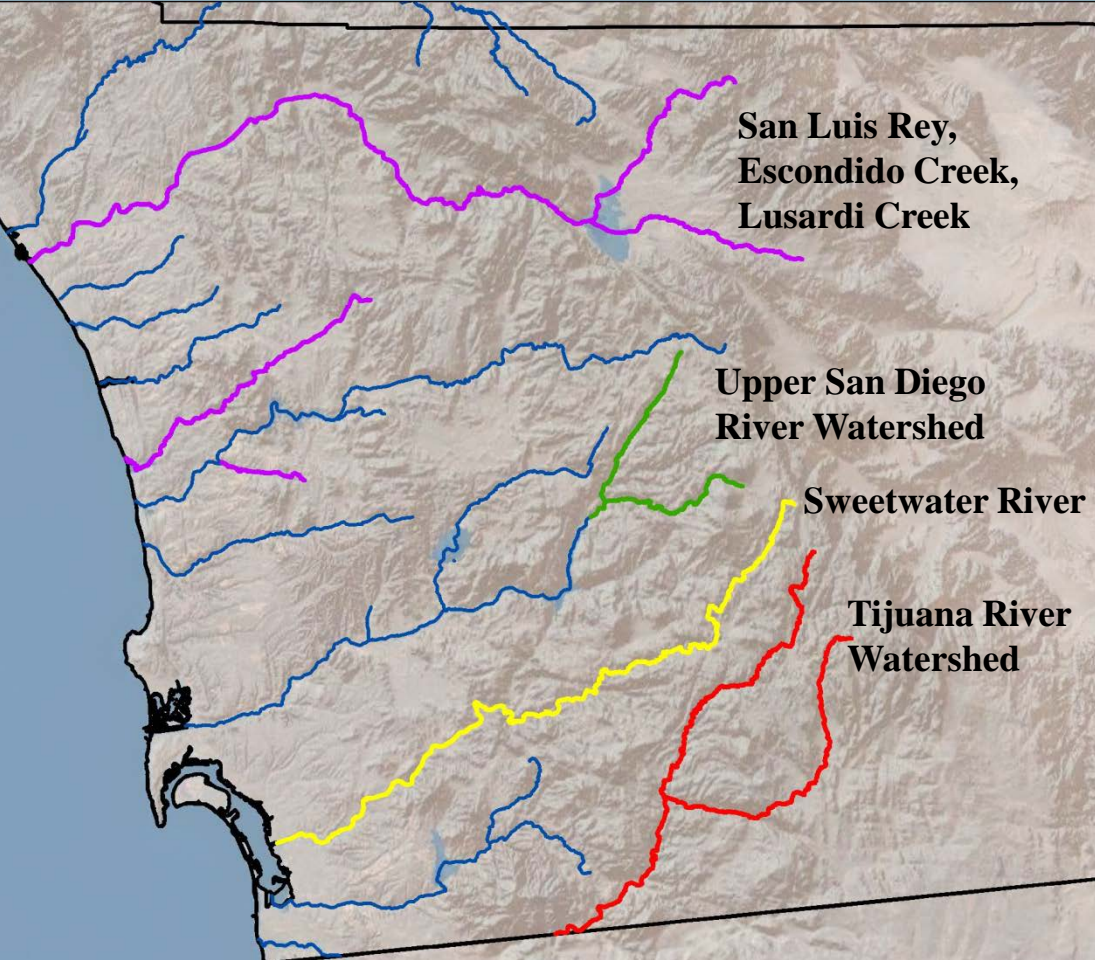
Our focus: hundreds of individuals, dozens of southern California sites

-many of which are historic

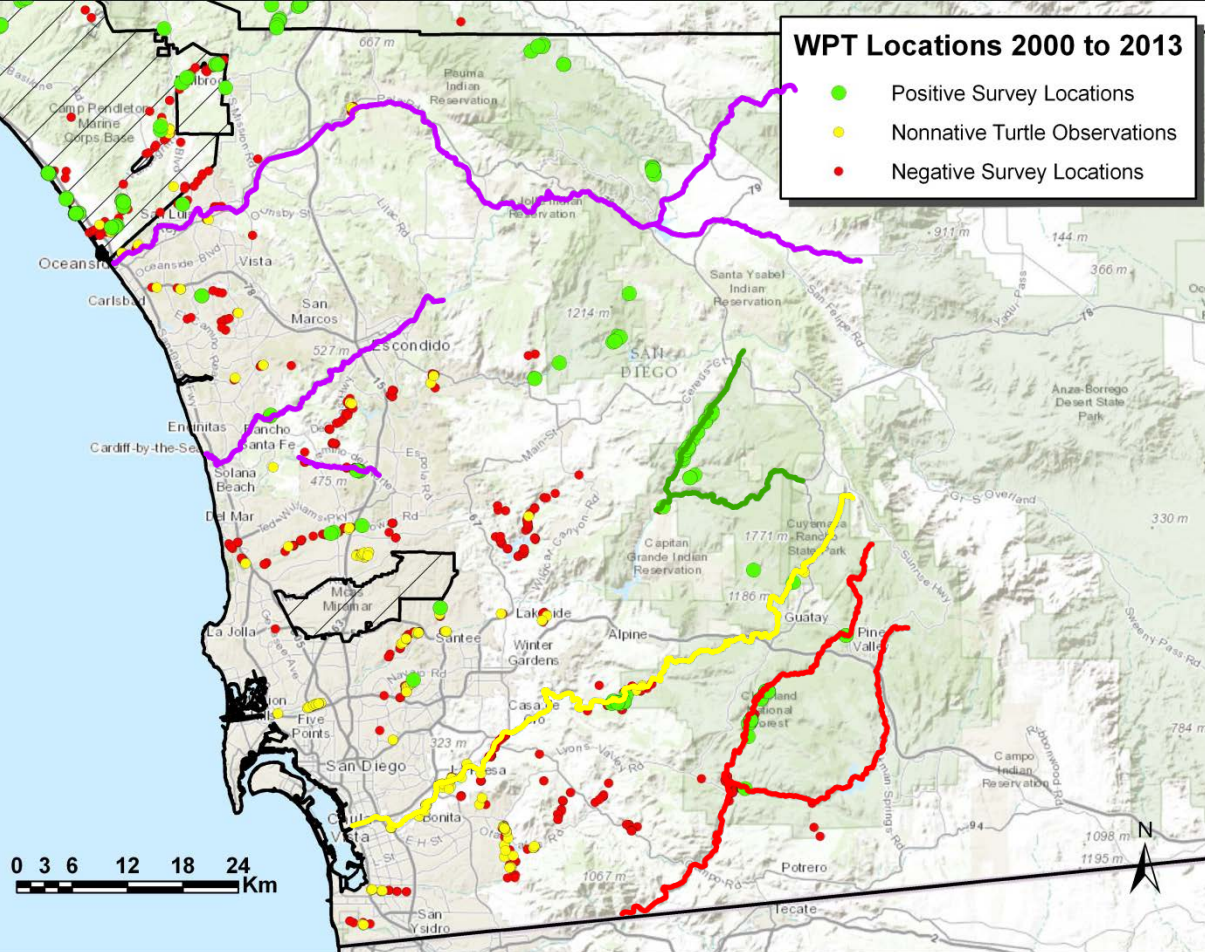


73 populations/
locations were
placed into
four regional
clusters

High genetic
differentiation
between
watersheds



Four proposed
genetic
management
units in plan
areas

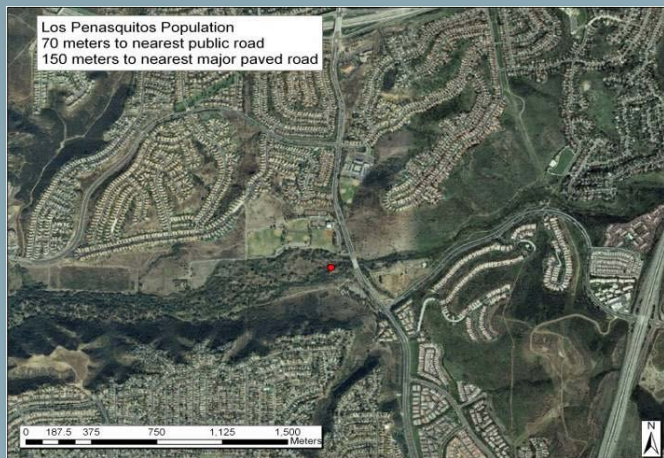
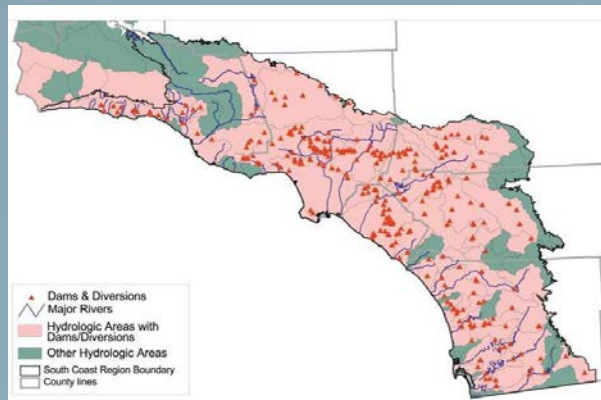


Sampling for WPT Genetics:

- Camp Pendleton
- CDFW
- SANDAG
- County of San Diego
- USFS

Regional and local impacts to individual populations/sites

- Water diversion/impoundment
- Proximity to roads
- Types of roads
- Nonnative species
- Level of access
- Type of access/recreation

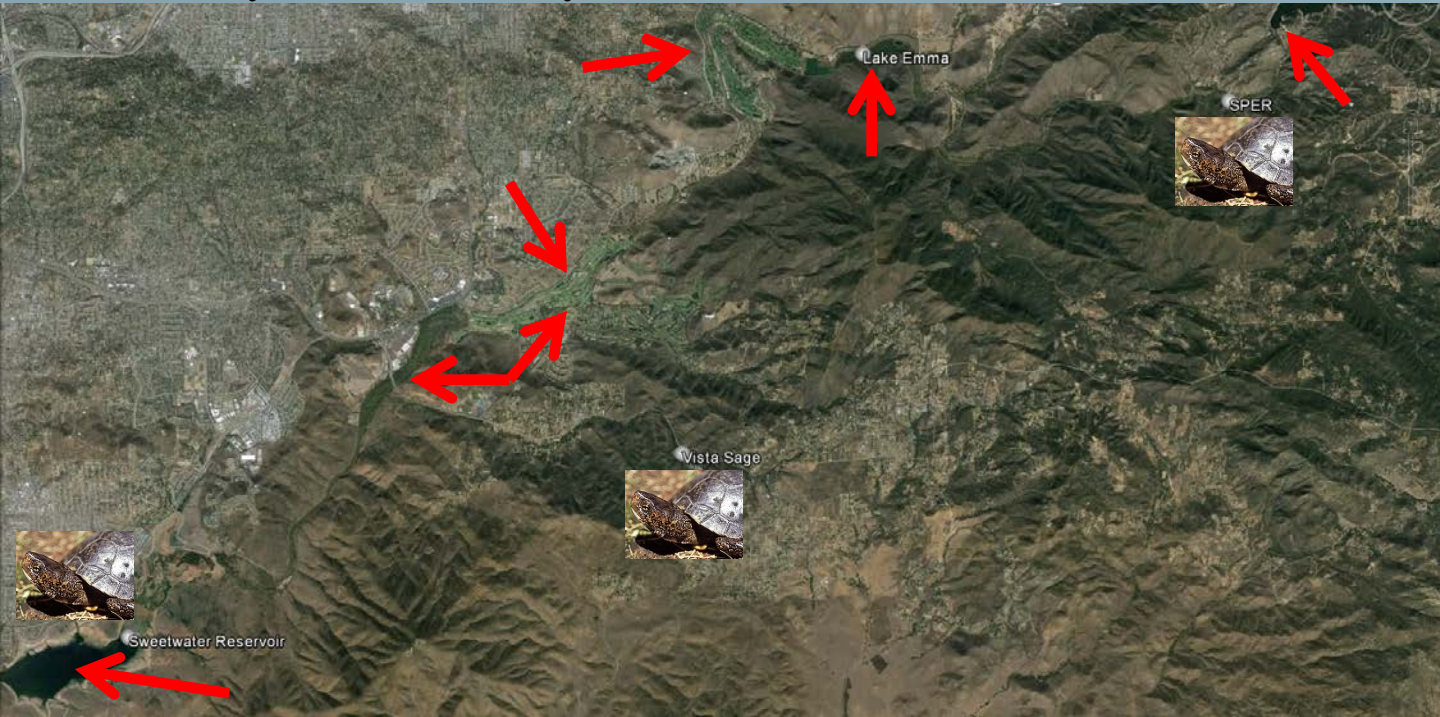


--Example: Sweetwater River--

- Headstarting and nonnatives removal at SPER yields recruitment
- CDFG Reserve—Restricted access and collaborative management
- Nearest downstream turtles: Sweetwater Reservoir and Vista Sage
 - 22-25 km



- Altered hydrologic regime-Loveland Dam
- Nonnative species-Lake Emma, Sweetwater Reservoir, etc.
- Recreation-Two golf courses
- Roads-Hwy 94, Steele Canyon



Management Implications and Thoughts

Keeping clusters intact:

- Look for restoration sites and source populations within the same genetic management unit
- Where should efforts be placed for removal of nonnatives
- Keep restored populations pure, do not mix and match
- How to we enhance disconnected populations (i.e., Sweetwater River)





Western Pond Turtle



Slider