Alameda Creek Watershed Conference, 2023

Presenters:

Becky Tuden

Doug Bell

Ed Culver

East Bay Stewardship Network

East Bay Regional Park District

Healthy Parks Healthy People

ACKNOWLEDGEMENTS

Fisheries Workgroup
Josh Phillips, Joe Sullivan, Ed Culver - EBRPD
Brian Sak, Neal Fujita, Renn Randall SFPUC / Bert Mulchaey - EBMUD

Mammals Workgroup
Sue Townsend, PhD – Wildlife Ecology and Consulting
Steve Bobzien, Dave Riensche, and Doug Bell, PhD - EBRPD
Jessica Appel - SFPUC / Jonathan Price - EBMUD
Gina Benigno - CA State Parks / Cary Richardson - CCWD

Amphibian Workgroup
Tammy Lim, Ed Culver - EBRPD
Wynne Moss, PhD - CU Boulder / Jessica Purificato - EBMUD
Jessica Appel, Alan Striegle - SFPUC

Bird Workgroup
Doug Bell, PhD, Michele Hammond - EBRPD
Erica Walther, Joe DiDonato - ESA
Jonathan Price -EBMUD / Jessica Appel, Andrea Irons – SFPUC
Tom Gardali, Matt Reiter, Erin Conlisk, PhD – Point Blue
David Wiens, USGS/Patrick Kolar

Vegetation Workgroup - Dina Robertson, Michele Hammond, Peter Hopkinson, Allison Rofe, Pam Beitz, Kristen Van Dam – EBRPD / Galen Peracca – AECOM / Jessica Appel, Mia Ingolia, Ellen Natesan, Scott Simono – SFPUC / Gina Benigno – CA State Parks, Abigail Fateman – ECCHCP / Heath Bartosh – Nomad

Technical /Moral /Funding Support:
Matt Graul, Katherine Dudney, Kristina Kelchner, Ana Alvarez, PhD, Carol Johnson, Juliana Schirmer, Drake Hebert, Christie McKaskey, Dave Drueckhammer, Sharon Farrell, Cyndy Shaffer, Janet Klein, Ellen Natesan, Erich Pfuehler, Lisa Baldinger
EBRPD Board of Directors

Partners & Key Participants
Becky Tuden, Tammy Lim, Josh Phillips, Sunshine Townsend, Doug Bell
Bert Mulchaey– East Bay Municipal Utility District
Jessica Appel, Ben Dudek – SFPUC
Gina Benigno – CA State Parks
Cary Richardson- CCWD

East Bay Stewardship Network

Participants in January 2020 Scientific Engagement Workshop

Michelle O'Herron, O'Herron & Company
Sue Townsend, PhD

WHAT IS AN ECOLOGICAL HEALTH ASSESSMENT?

Use the most current (existing) data and best professional judgment to create a baseline measurement of the ecological health of the East Bay

This ecological baseline is quantitative and science-based and peer-reviewed

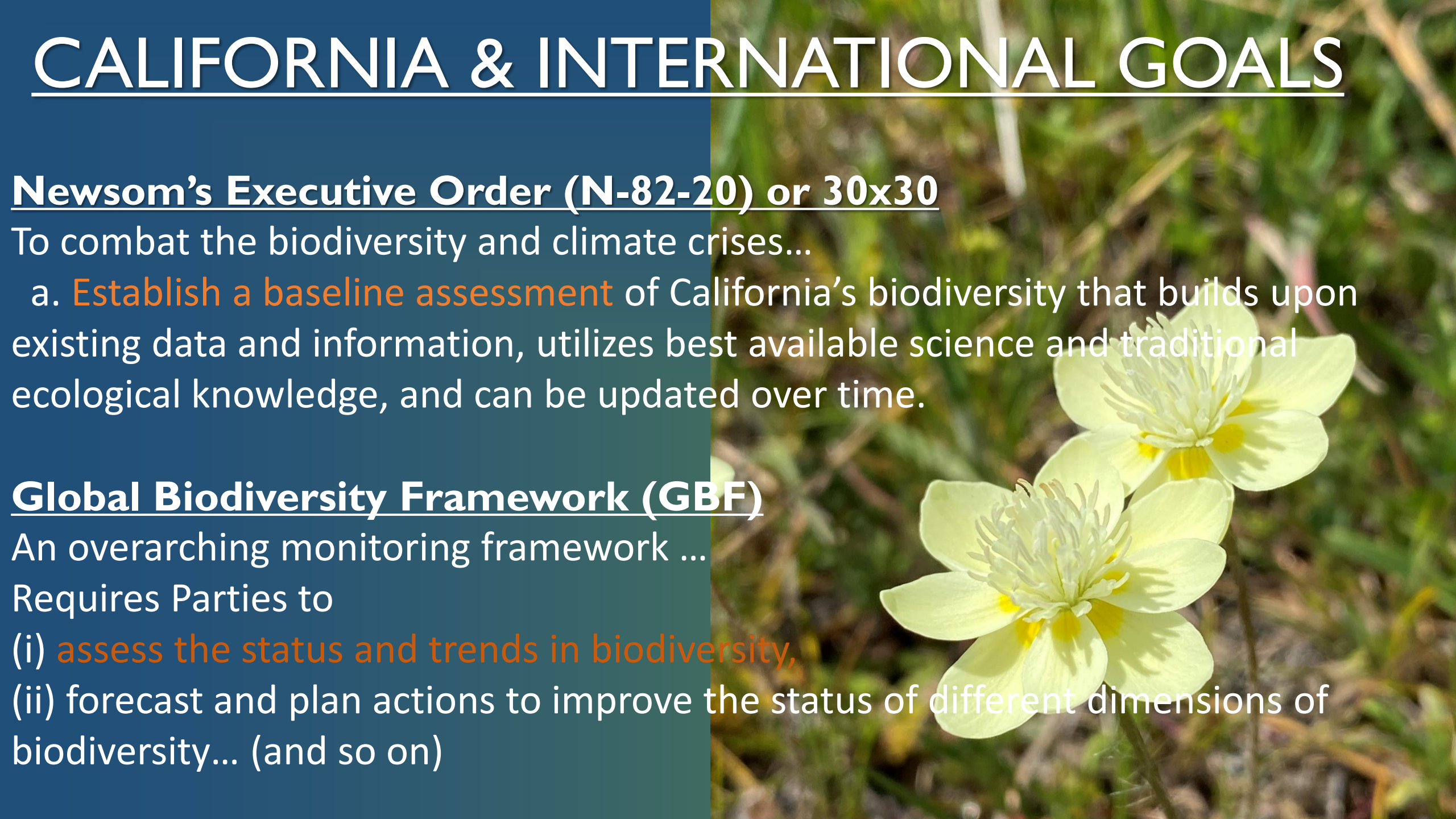
Conducted on a landscape-wide scale and revisited every few years to measure change

Identifies key data gaps in our understanding

Helps inform our future management actions

East Bay Stewardship Network

CALIFORNIA & INTERNATIONAL GOALS



Newsom's Executive Order (N-82-20) or 30x30

To combat the biodiversity and climate crises…

a. Establish a baseline assessment of California's biodiversity that builds upon existing data and information, utilizes best available science and traditional ecological knowledge, and can be updated over time.

Global Biodiversity Framework (GBF)

An overarching monitoring framework …

Requires Parties to

(i) assess the status and trends in biodiversity,

(ii) forecast and plan actions to improve the status of different dimensions of biodiversity… (and so on)

PARTNERSHIP

East Bay Stewardship Network

- California State Parks
- Contra Costa Water District
- East Bay Municipal Utility District
- East Bay Regional Park District
- San Francisco Public Utilities Commission

Collectively manage over 225,000 acres

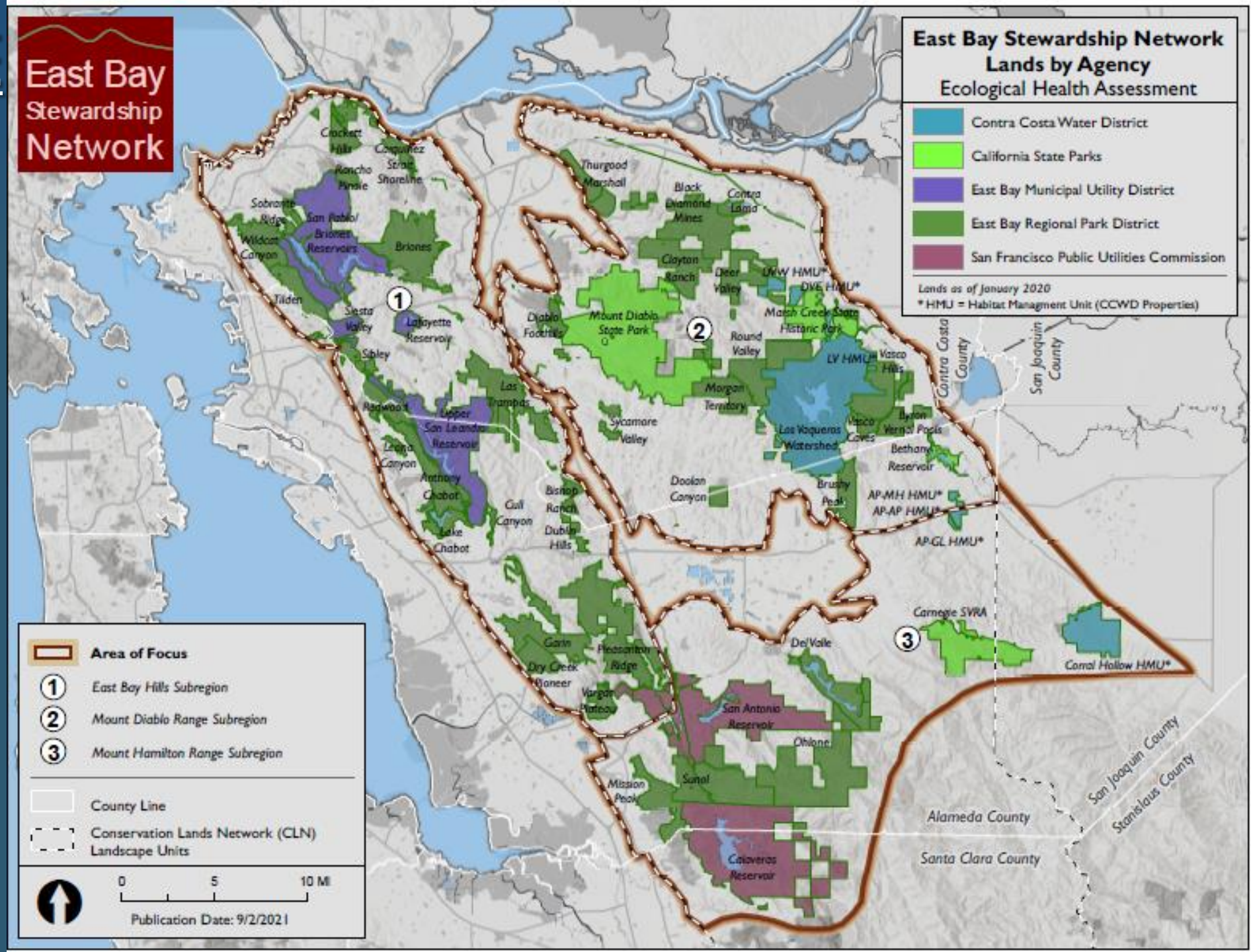
East Bay Regional Park District

Healthy Parks Healthy People

LANDSCAPE WIDE AREA OF FOCUS

- East Bay Hills
- Mt. Diablo Range
- Mt. Hamilton Range

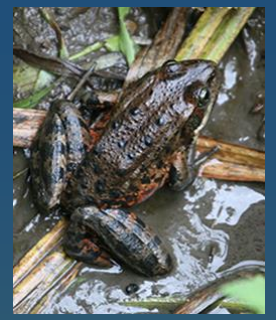
- Coastal Areas- NOT included in Study



USE INDICATORS TO MEASURE HEALTH

- Not Everything is Evaluated – Representative of Health

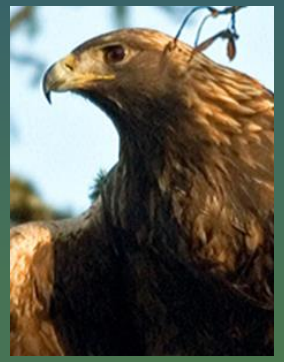
FISH



AMPHIBIANS

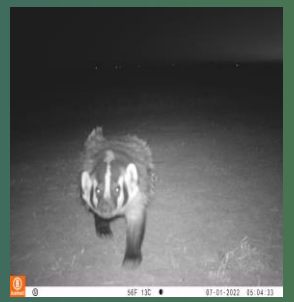
- Need Sufficient Data
  - Across Study Area
  - Over Time (~2009-2019)

BIRDS



- Consider charismatic species

MAMMALS



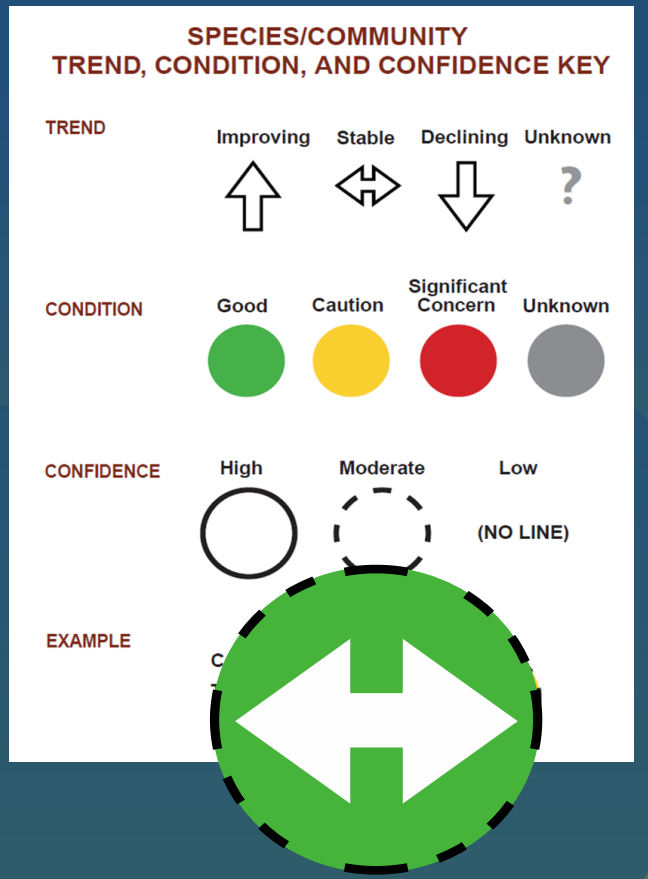
East Bay Stewardship Network

California Red-Legged Frog

METRIC: measures the condition of the indicators.

Healthy is the **desired condition**

Metric 1: CRLF Presence
Metric 2: CRLF Breeding
Metric 3: CRLF Metapopulations
Metric 4: Presence of Invasive Non-Native Species



THRESHOLD: Measures when metric changes condition.

Metric 1: CRLF Presence

Condition Thresholds:

- *Good:* The number of ponds occupied by the CRLF in the Area of Focus is maintained or increased.
- *Caution:* The number of occupied ponds decline by 10%.
- *Significant Concern:* The number of occupied ponds decline by 20%.

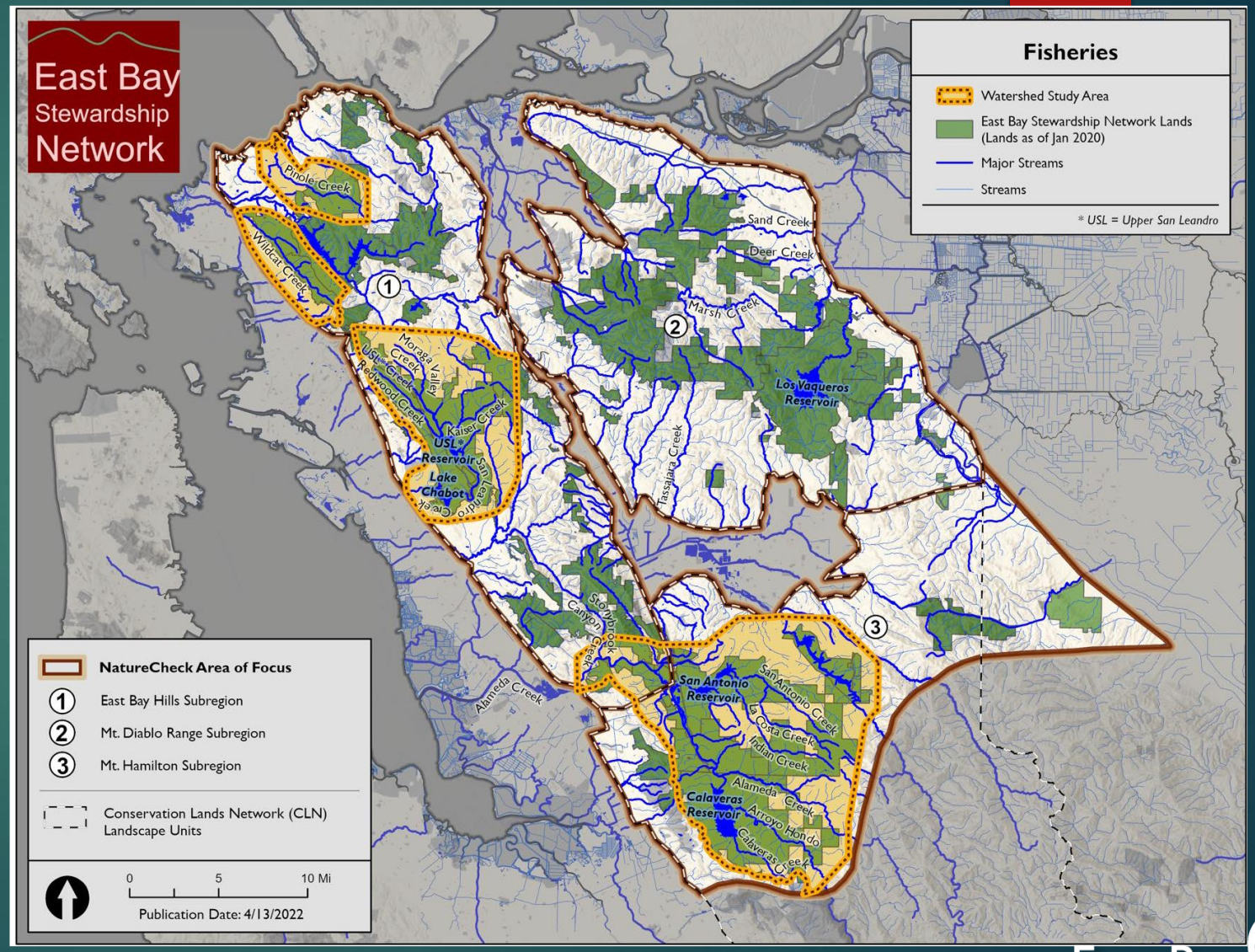
Trend: Unchanging
Condition: Good
Confidence: High

FISH

- Four Watersheds in two Subregions

- East Bay Hills Subregion
  - Pinole
  - Wildcat
  - San Leandro
- Mt. Hamilton Subregion
  - Alameda

- 2009-2019 time period



East Bay Regional Park District

FISH Results

- Long-term data going back decades
- Heavily impacted by development and human activity
- Climate change
- Fish passage barriers

Backpack Electrofishing

- EBRPD, EBMUD, and SFPUC all use similar, comparable backpack electrofishing techniques

- Use Pulsed Direct Current to deliver short bursts of electricity to water to immobilize fish

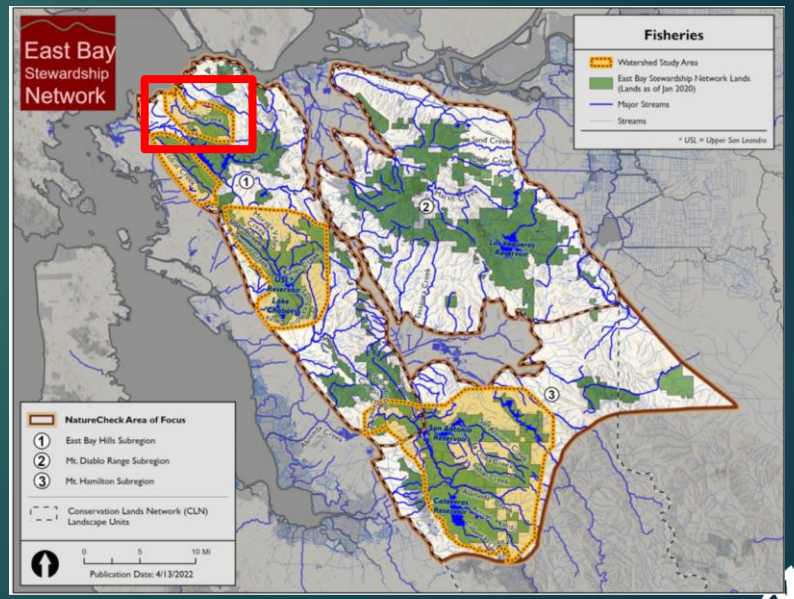
East Bay Regional Park District

Native Fishes of the East Bay streams

East Bay Regional Park District

Pinole Watershed

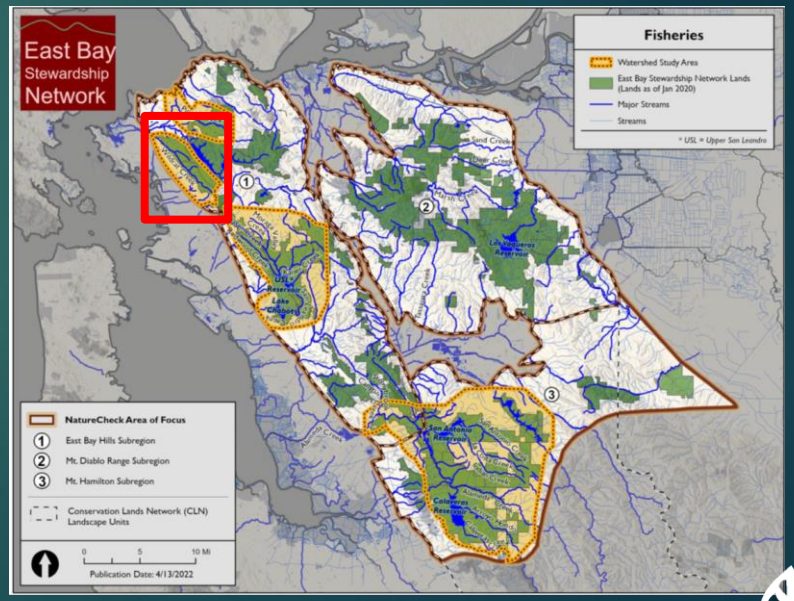
- Sampled 8/10 years
- Four native species
- One non-native species



East Bay
Regional Park District

Wildcat Watershed

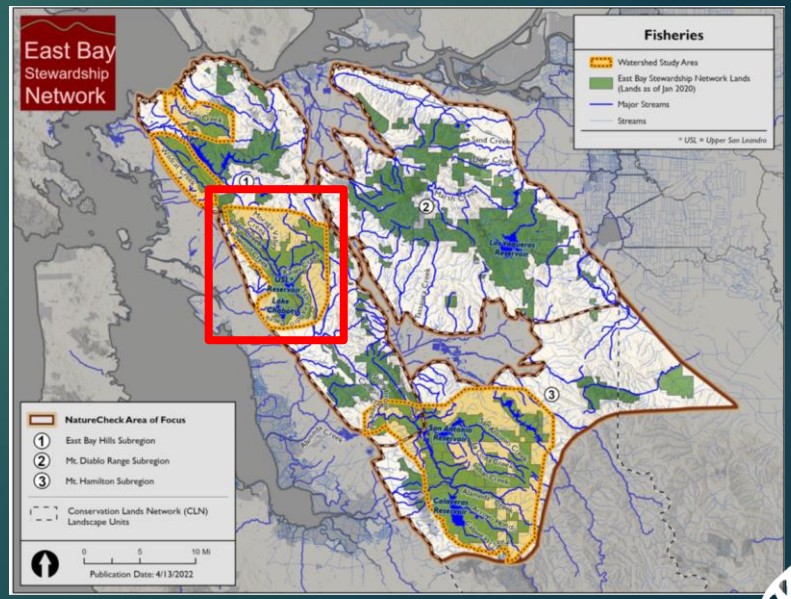
- Sampled 9/10 years
- Three native species
- Three non-native species



East Bay
Regional Park District

San Leandro Watershed

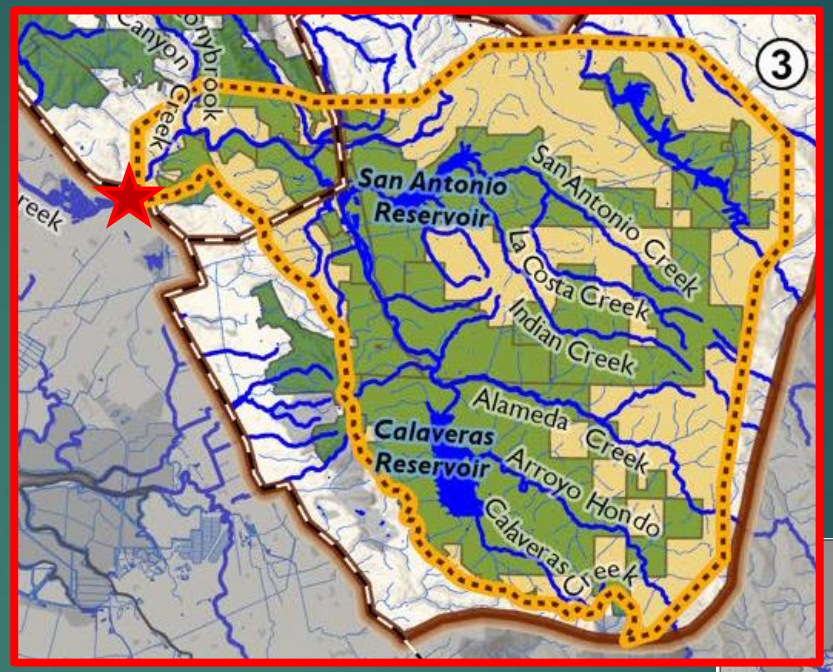
- Sampled 10/10 years
- Four native species
- Five non-native species

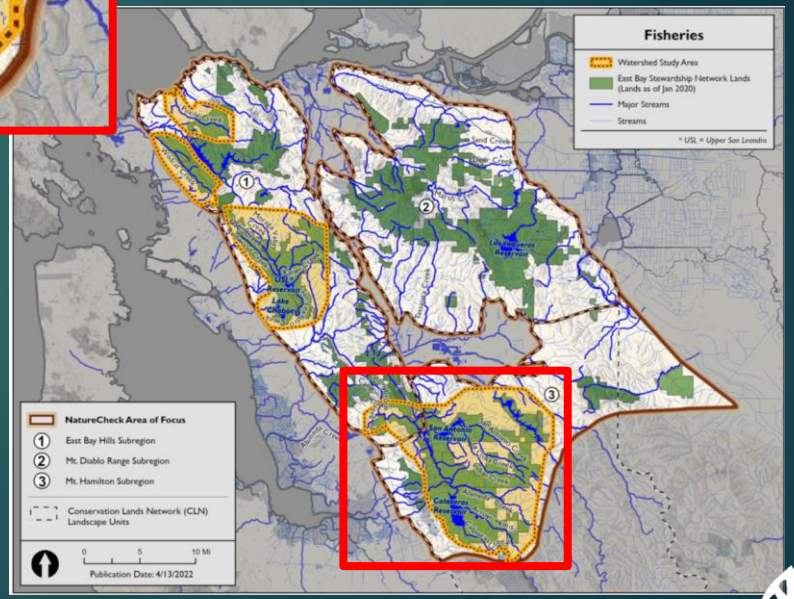


East Bay Regional Park District

Alameda Watershed

- Sampled 10/10 years
- Eight native species
- Four non-native species





East Bay Regional Park District

Results – Native Fishes

- Greatly diminished from historical records
- Resilient over the ten-year period analyzed
- Native populations persist

Results – Rainbow Trout

- Some streams still support anadromy
- Ongoing restoration projects to increase habitat connectivity
- Restoration of anadromy to Alameda Creek in 2023

Alameda Watershed - Update

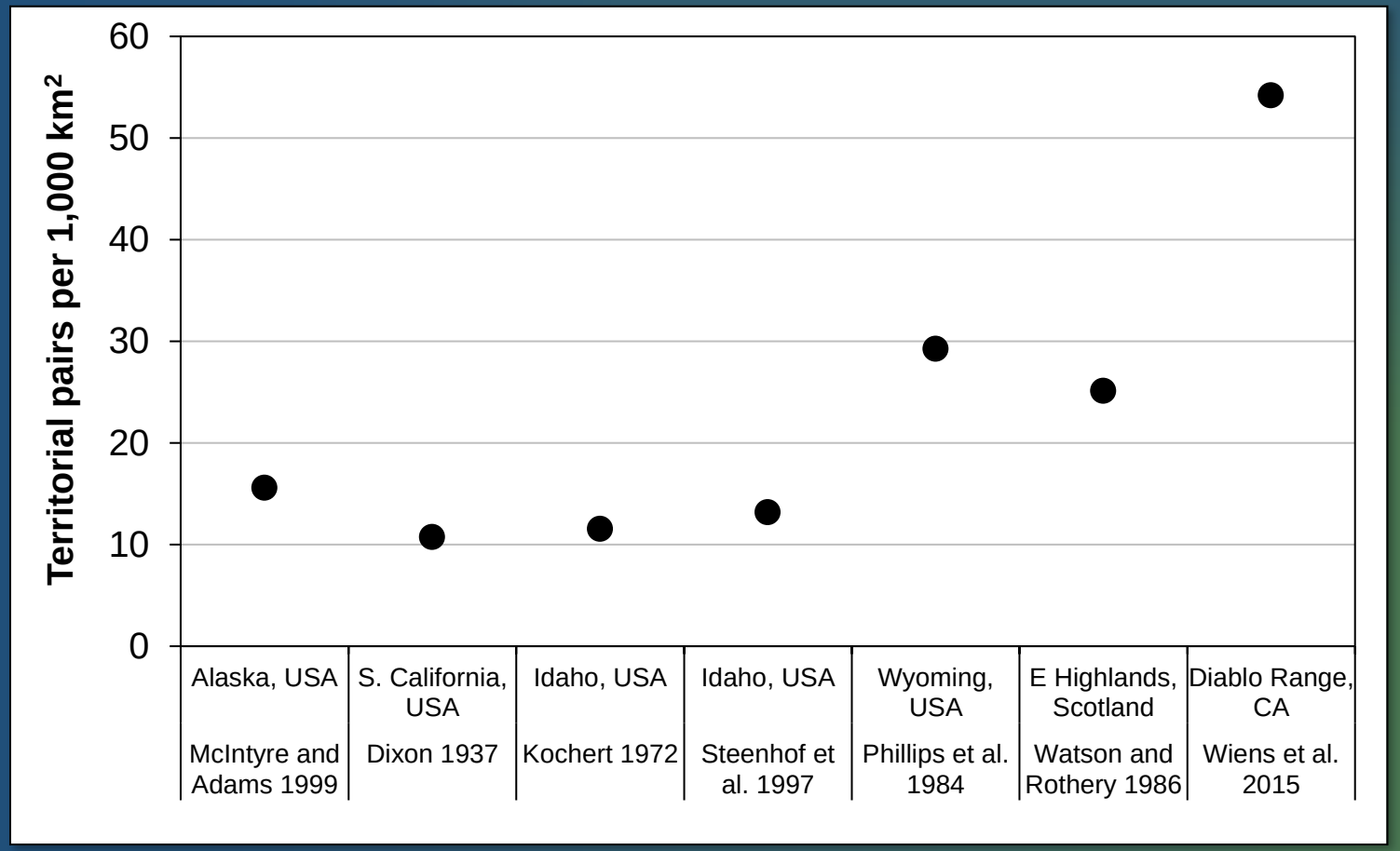
- Fish bypass at BART Weir operational – December 2022
- Historic rainfalls – January and February 2023
- Chinook salmon showed up at the fish bypass, and successfully passed upstrea
- Pacific Lamprey observed migrating upstream using the new fish bypass
- The week of April 17th, a juvenile rainbo trout, tagged by SFPUC was detected in the BART Weir Ladder Complex, 15 miles downstream of where it was originally tagged

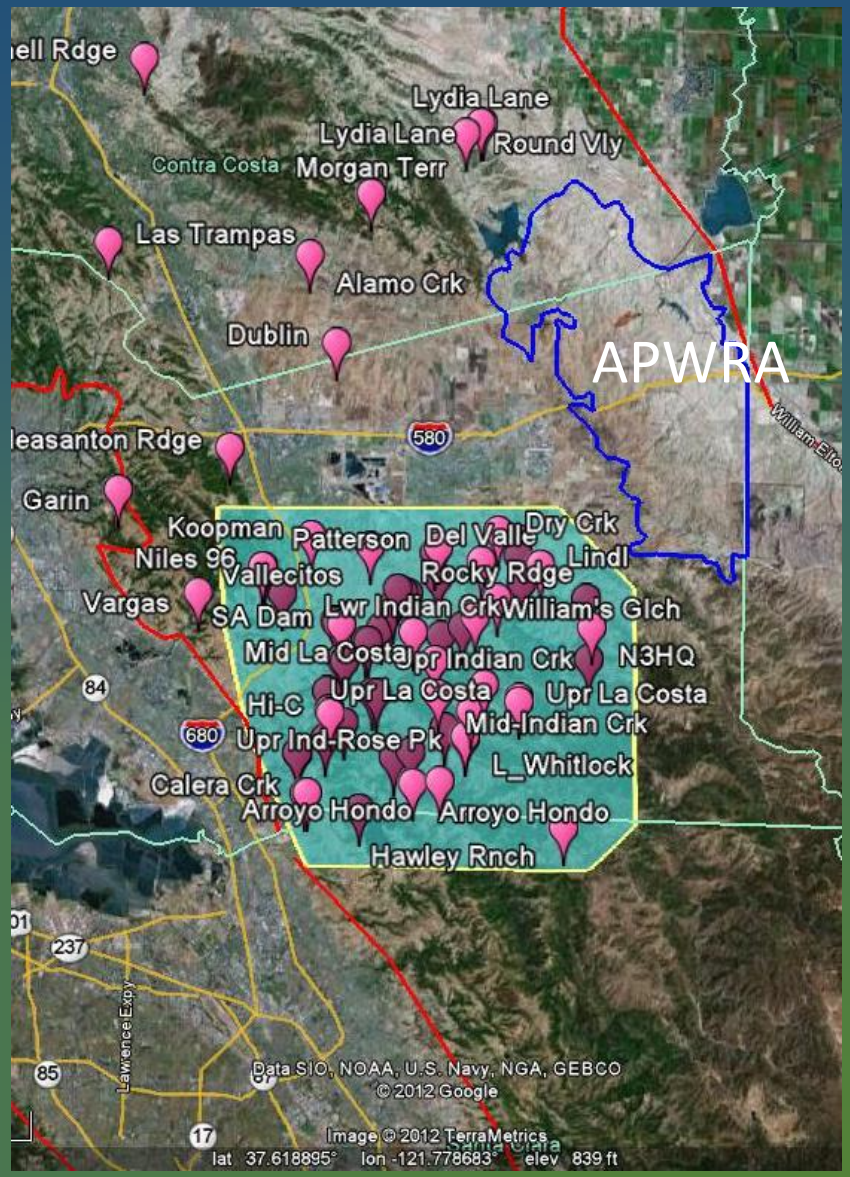
Golden Eagle

- Iconic predator
- Long-lived
- Data sets
  - Historical
  - EBRPD 1980s - present
  - USGS 2014 - present

Golden Eagle

Densest Population of Territorial Pairs





Golden Eagle – Altamont Pass Wind Resource Area

Fatality Rate = 67 Eagles/MW/Year *

Need reproduction of 216-255 pairs*

*Smallwood and Thelander 2008

Joe DiDonato

Golden Eagle - USGS Study

Multistate Occupancy Modeling

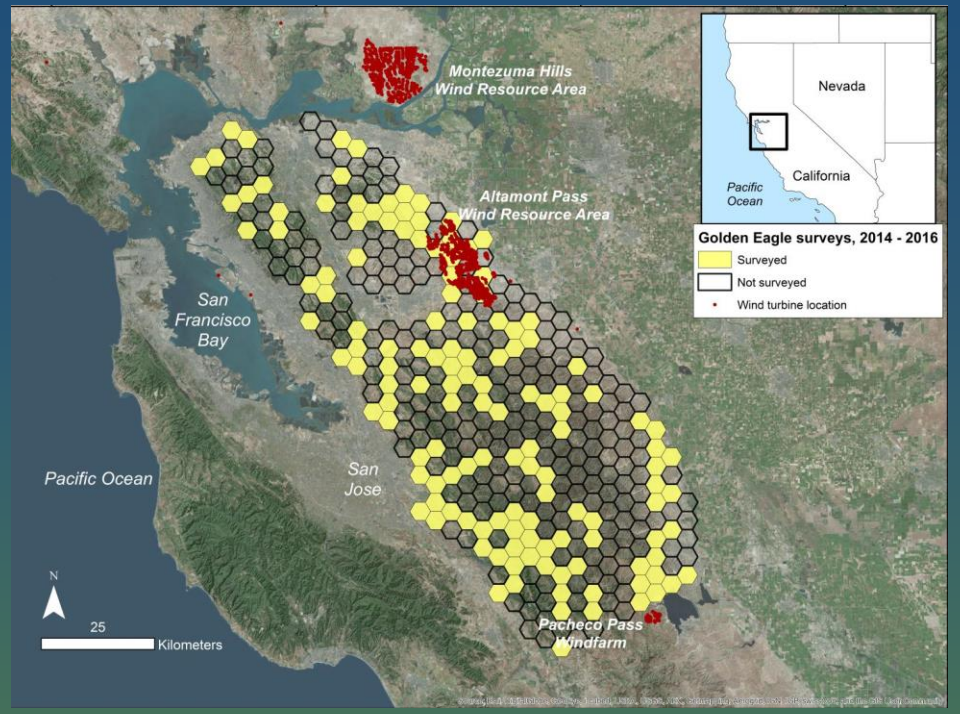
138 of 373 hexid survey sites

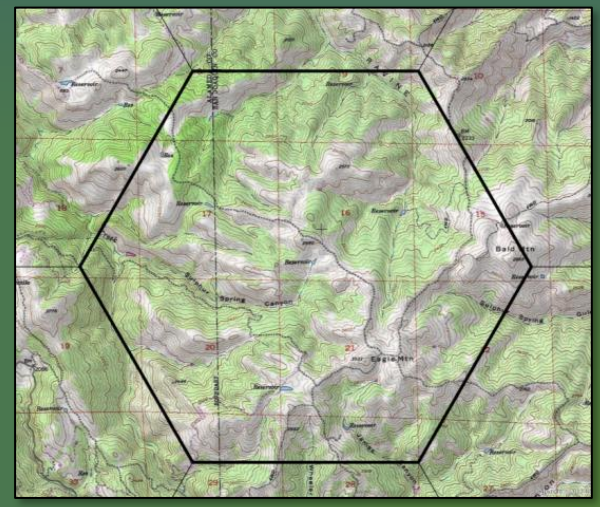
1,385 ha/site = mean territory size*

Four repeat visits per site
(15 Dec – 31 July)

Per visit, classify site as:

- no pair detected (**state 0**)
- occupied with no young (**state 1**)
- occupied with young (**state 2**)





* (*Hunt, Wiens, Law et al. 2017*)

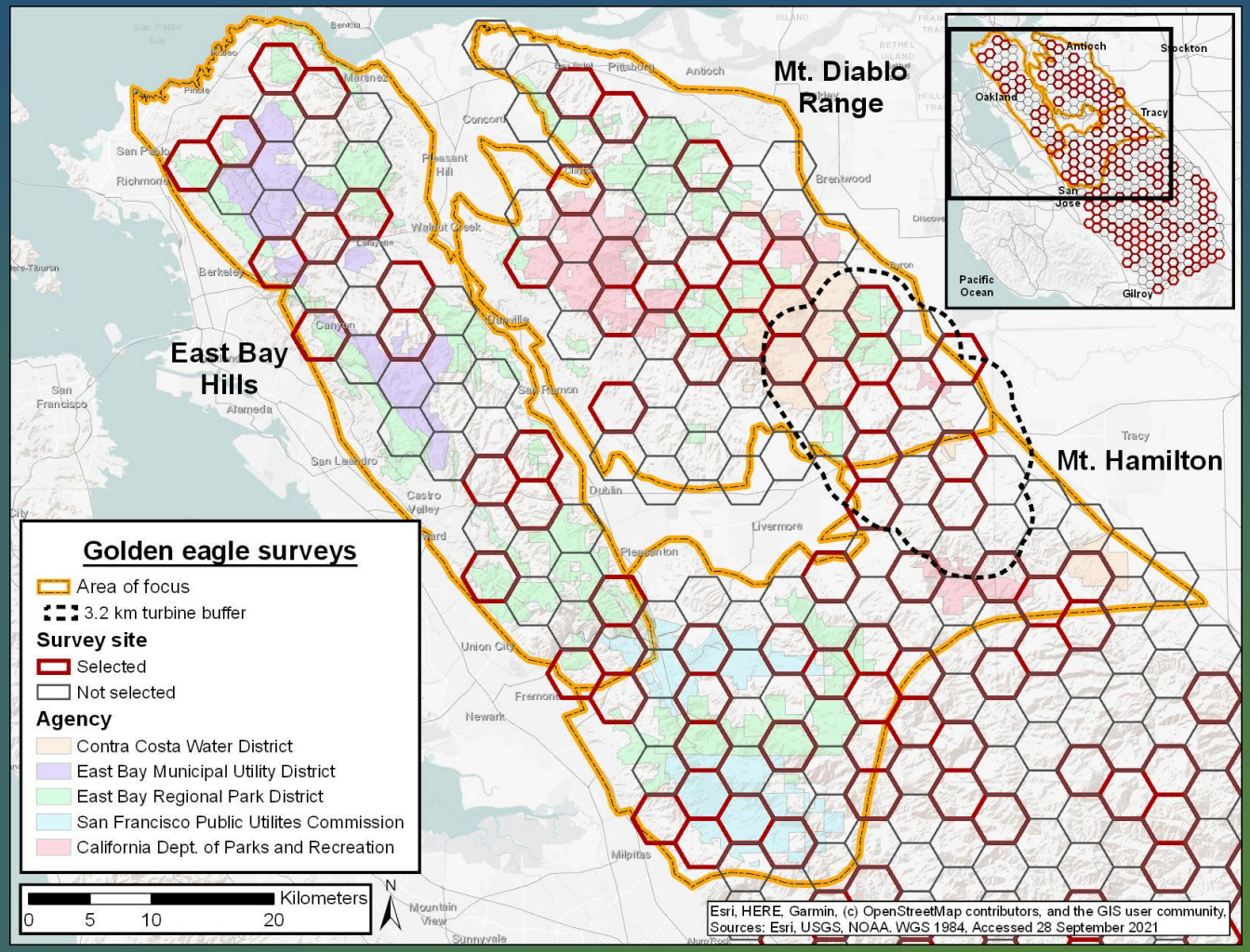
Golden Eagle – Nature Check

Metrics (57 of 160 sites):

1. Site occupancy
2. Reproductive rate
3. Territorial subadults

Analysis:

1. Survey data
2. Occupancy modelling



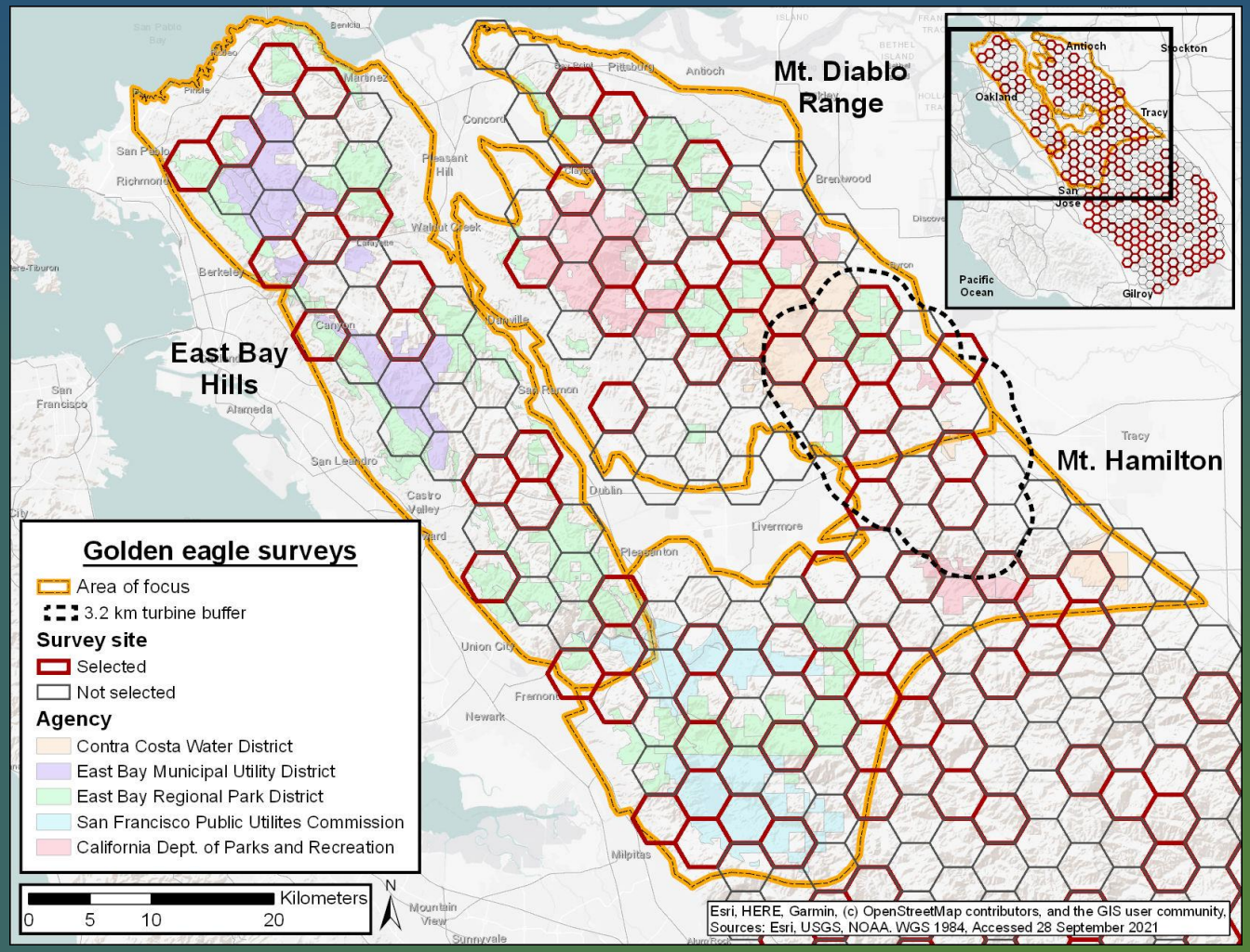
Golden Eagle – Results

1. Site Occupancy

   Good/Unchanging

2. Reproductive Rate

   Caution/Unchanging but highly variable



Golden Eagle – Results

3. Territorial Subadults

East Bay Hills 5%

Good/Unchanging

Mt. Diablo 12%

Caution/Unknown

Mt. Hamilton: 5%

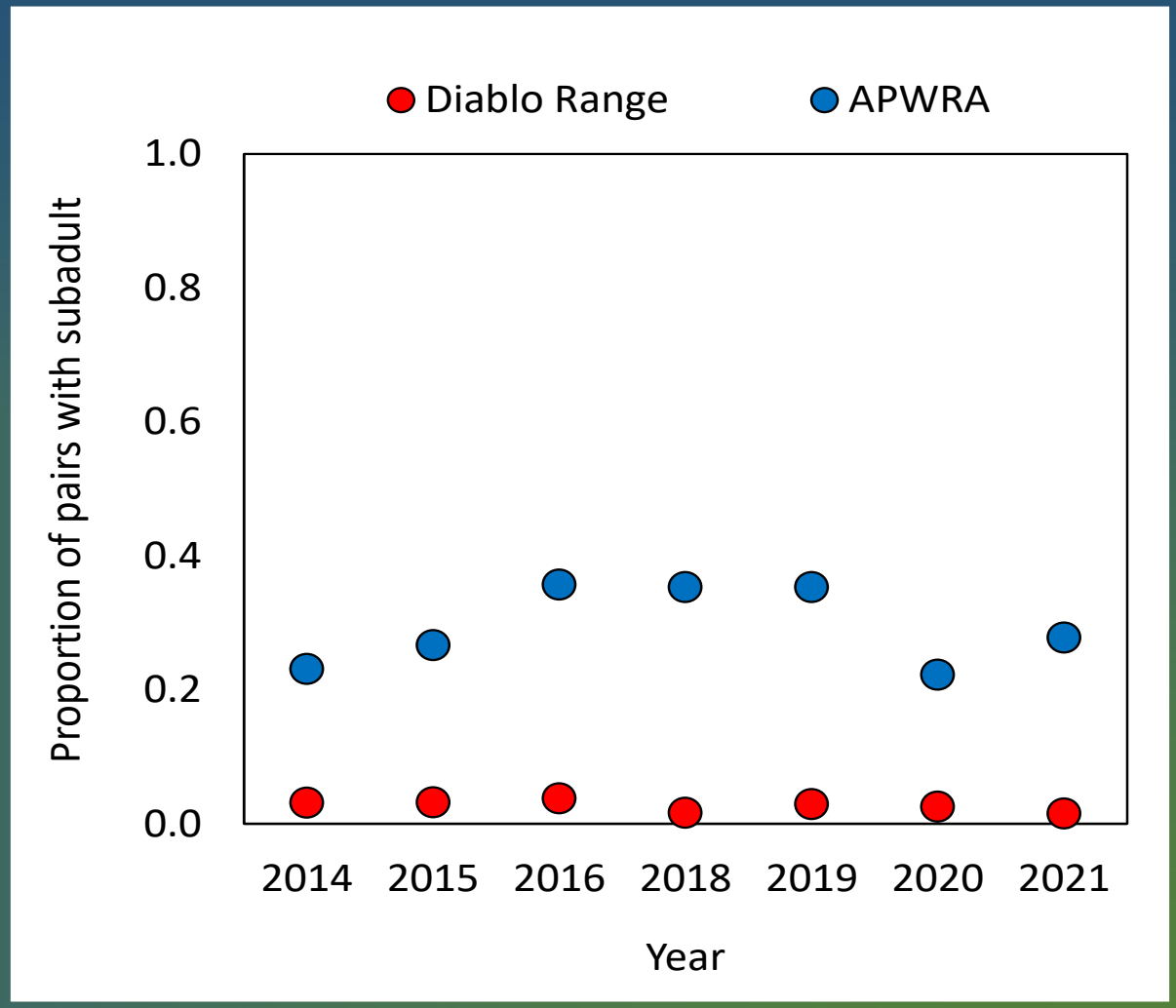
Caution/Unknown

Caution, Unchanging, High Confidence

Golden Eagle – Diablo Range vs APWRA

3. Territorial Subadults

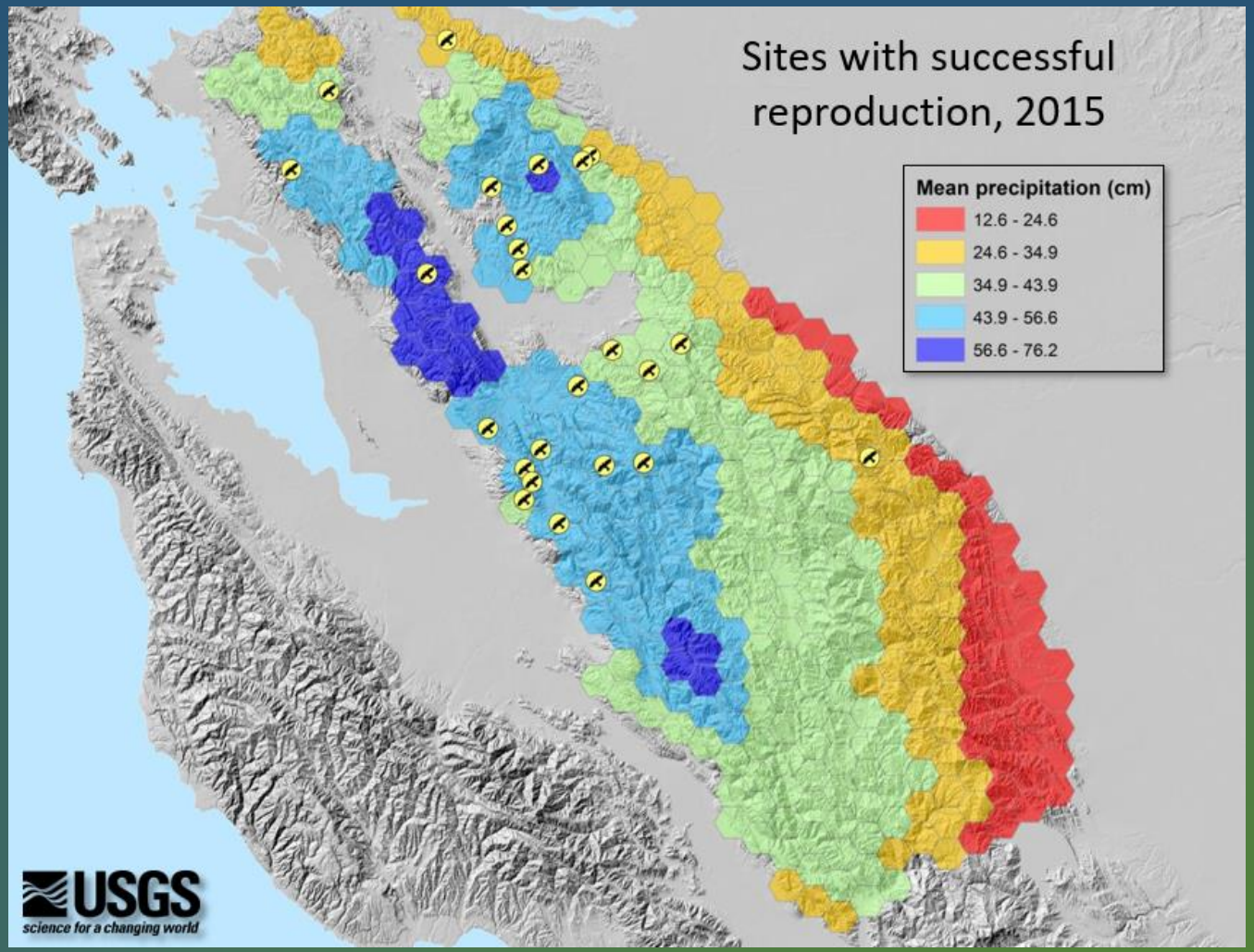
APWRA	29%
Diablo Range	3%



Wiens and Kolar 2021

Golden Eagle – Climate and Reproduction

Survey Sites
- Surveyed: 134
- Occupied: 89
- Nesting attempts: 24
- Successful: 15

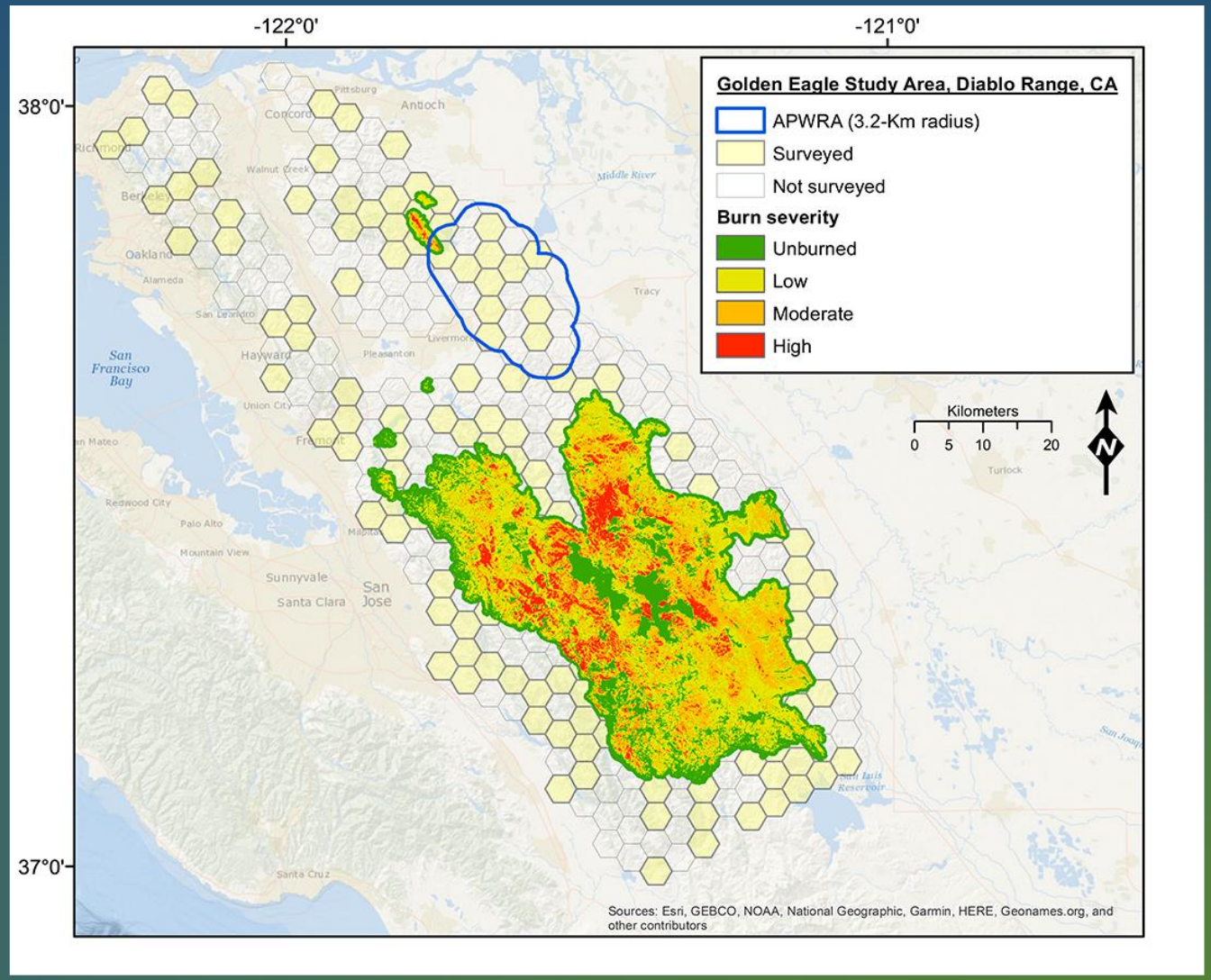


Wiens et al. 2018

Golden Eagle – Megafires

2020 SCU Lightening Complex Fire

Study area burned:
159,294 acres



Wiens and Kolar 2021

GROUND SQUIRREL

ANALYSIS

- Limited Data but KEYSTONE Species
- Metrics:

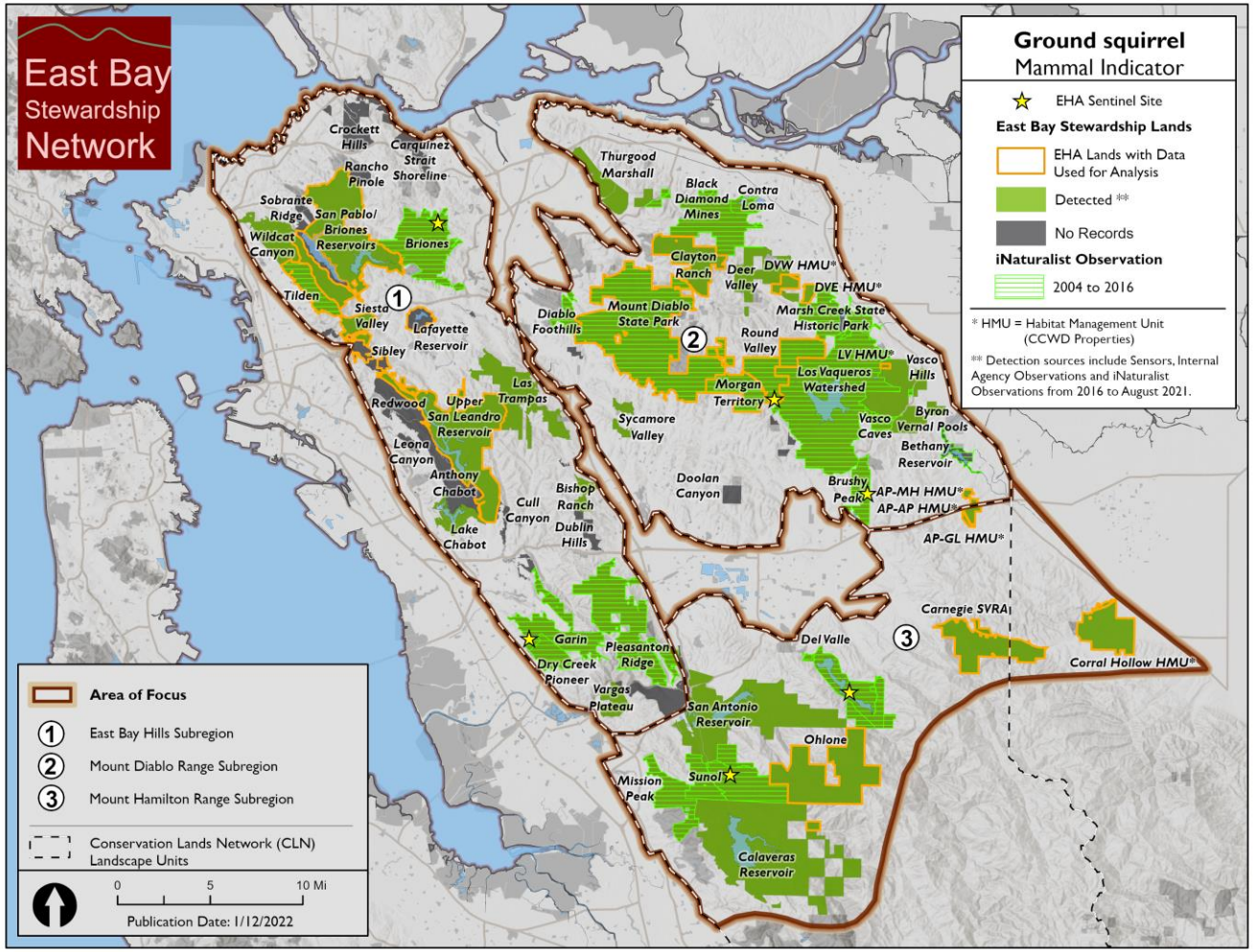
  Presence/Absence

  Abundance – Sentinel Sites

  Grassland Suitability

Community Science:

https://www.inaturalist.org/projects/california-ground-squirrel-census?tab=stats



NEXT STEPS

Complete Fine Scale Vegetation Mapping

Complete Vegetation Community Indicators:
Chapparal, Oaks, Grassland, Redwoods, others?

Grant Funding to help with Data Gaps – i.e. Invertebrates

Leveraging more Regional Participation

NEXT NATURECHECK REPORT - 2027/2028

East Bay Stewardship Network

East Bay Regional Park District

Healthy Parks Healthy People

EBParks.org/natural-resources/NatureCheck

Thank you!

Questions?

East Bay Stewardship Network

East Bay Regional Park District

Healthy Parks Healthy People