



# An Expanding Osprey Nesting Population on San Francisco Bay



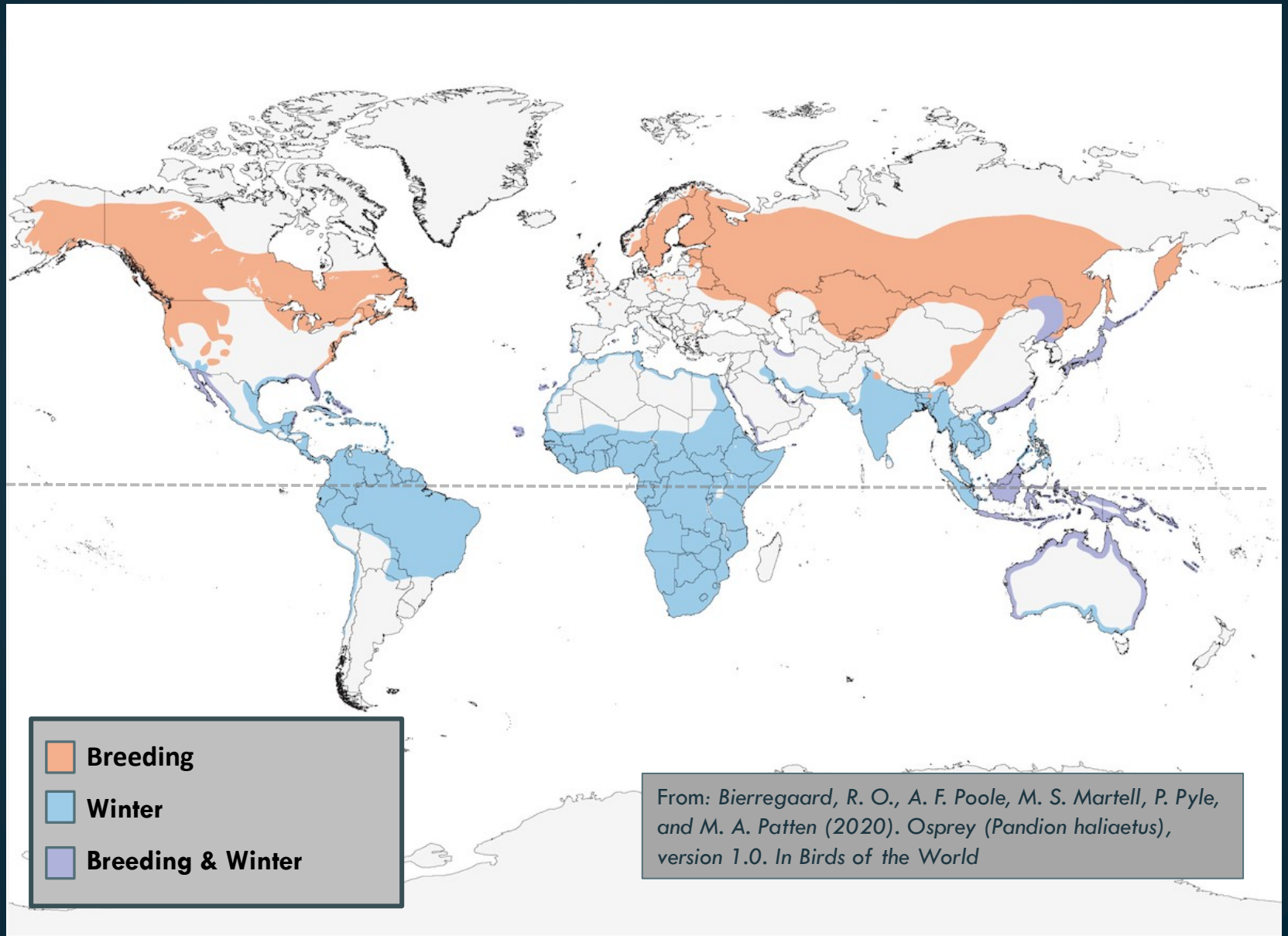
# Osprey (*Pandion haliaetus*)

- Large raptor: L= 22-25", WS=58-72", ~3.5 lb., Female > Male
- Diet almost exclusively live fish
- Highly specialized, e.g., wing anatomy, reversible outer toe, spicules on legs and feet, long curved talons, closeable nostrils
- Cosmopolitan – Breeds or winters on every continent except Antarctica
- Sentinel species for aquatic habitats – e.g., decline during DDT era, then recovery following ban on agricultural use
- Provides opportunity to engage public in observation of raptor breeding behavior





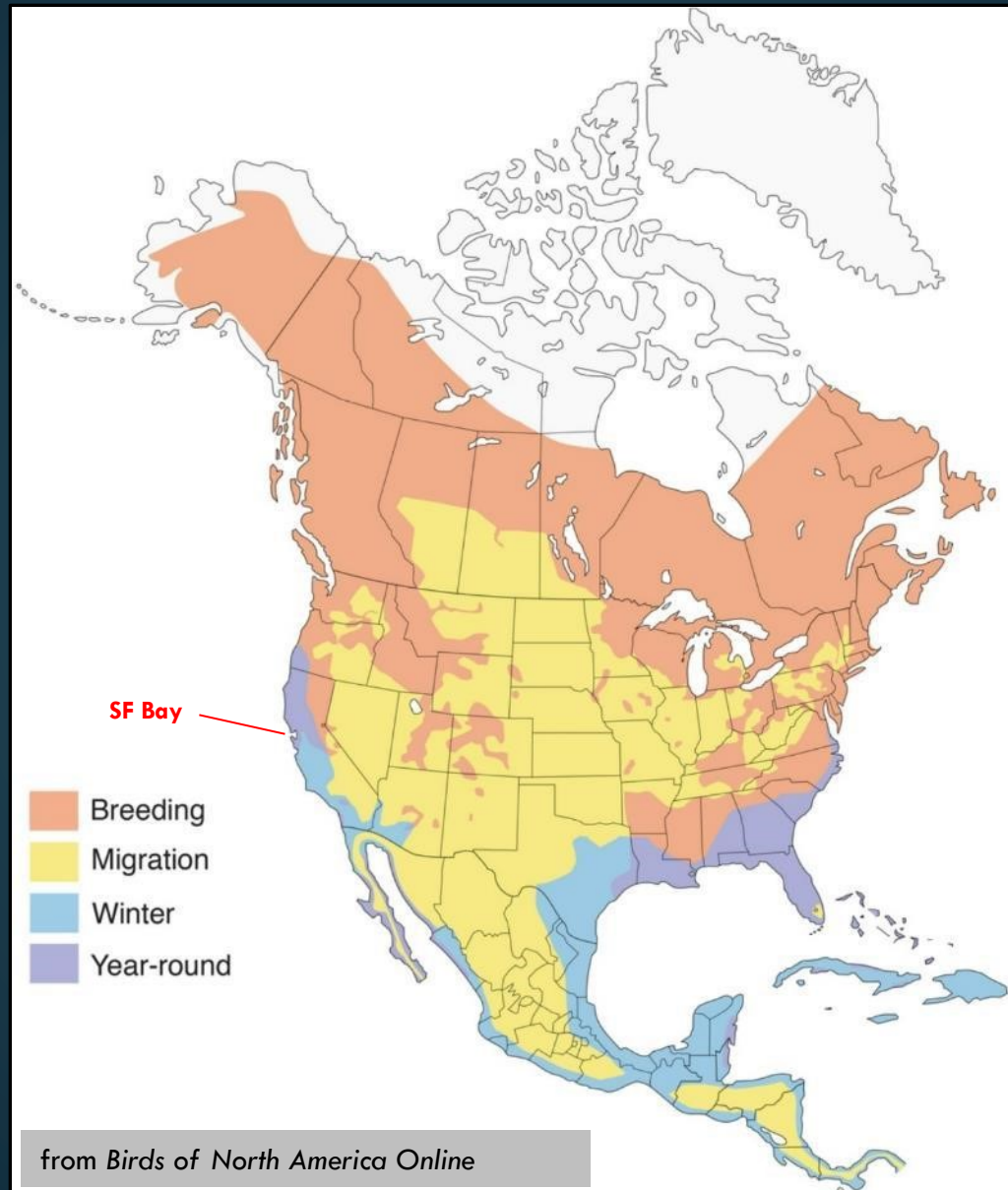
# Osprey Global Range



From: Bierregaard, R. O., A. F. Poole, M. S. Martell, P. Pyle, and M. A. Patten (2020). Osprey (*Pandion haliaetus*), version 1.0. In *Birds of the World*



# Osprey Range in North America



# Ospreys on San Francisco Bay

- 2600 BP-700 BP — No evidence of Osprey remains identified in Emeryville Shellmound excavation (Jack Broughton, U. of Utah)
- Late 18<sup>th</sup>-early 19<sup>th</sup>Century — Formerly widespread over the whole length of California, but rare in Bay Area with the nearest nests on Russian River in Sonoma County (Grinnell & Miller 1944, Grinnell & Wythe 1927)
- Mid-1960s — Colony founded at Kent Lake in Marin County. By 1994, grew to 52 occupied nests, then declined (Jules Evens),

# Ospreys on San Francisco Bay

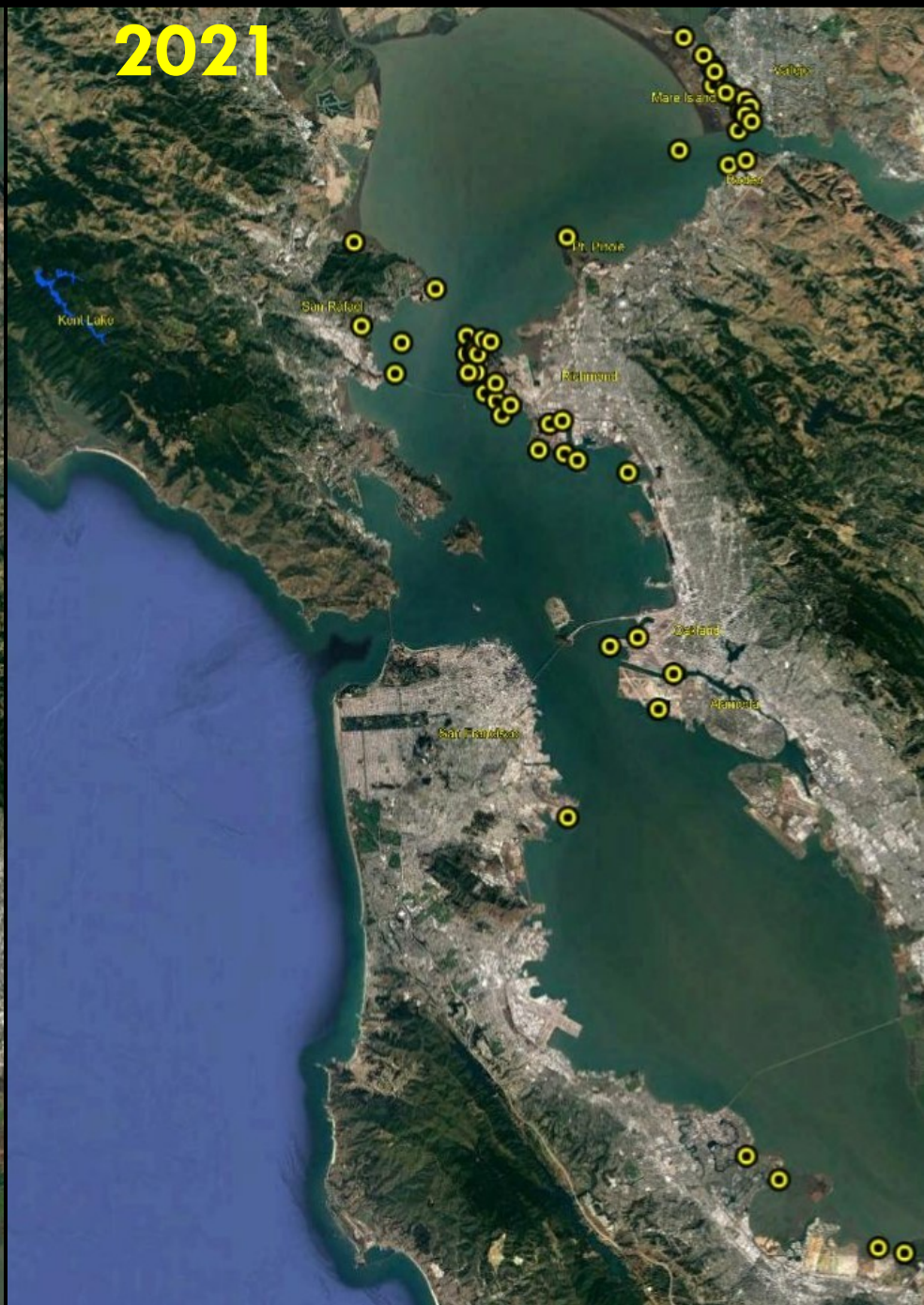
- 1990 – First nest at Mare Island (Leong, Carter, Coburn)
- 1998 - 1999 – 1-2 nests in East Bay (Breeding Bird Atlases)
- 2003 - 2012 – Rapidly growing population at Mare Island with a few nests further south.
- 2012 - 2022 – Osprey nesting census (with Harv Wilson)  
Continued growth and expansion southward



2013



2021



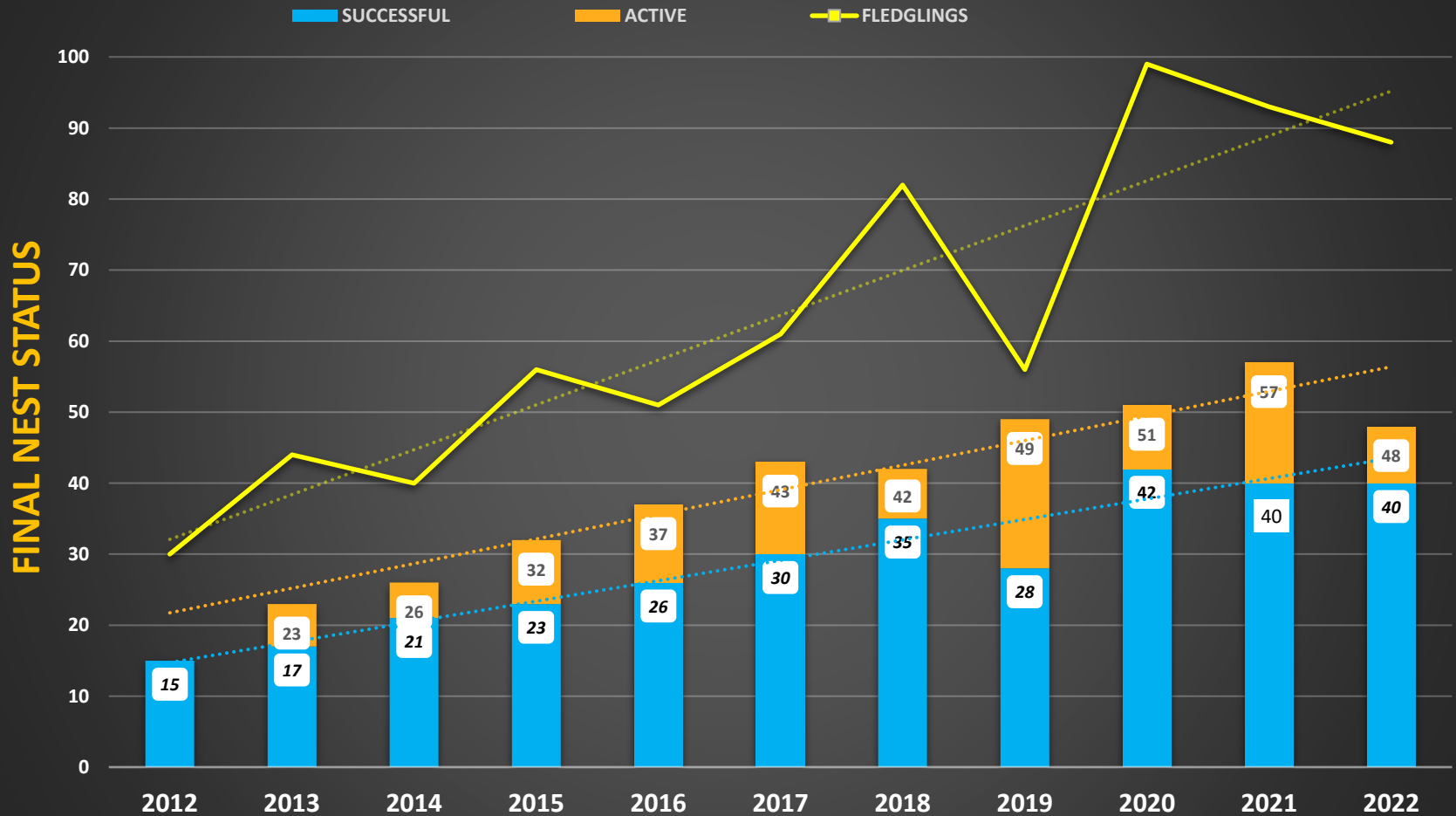
# NEST STATUS DEFINITIONS

Occupied – Osprey pair building or tending to a nest

Active – Eggs laid, incubation or nestlings present

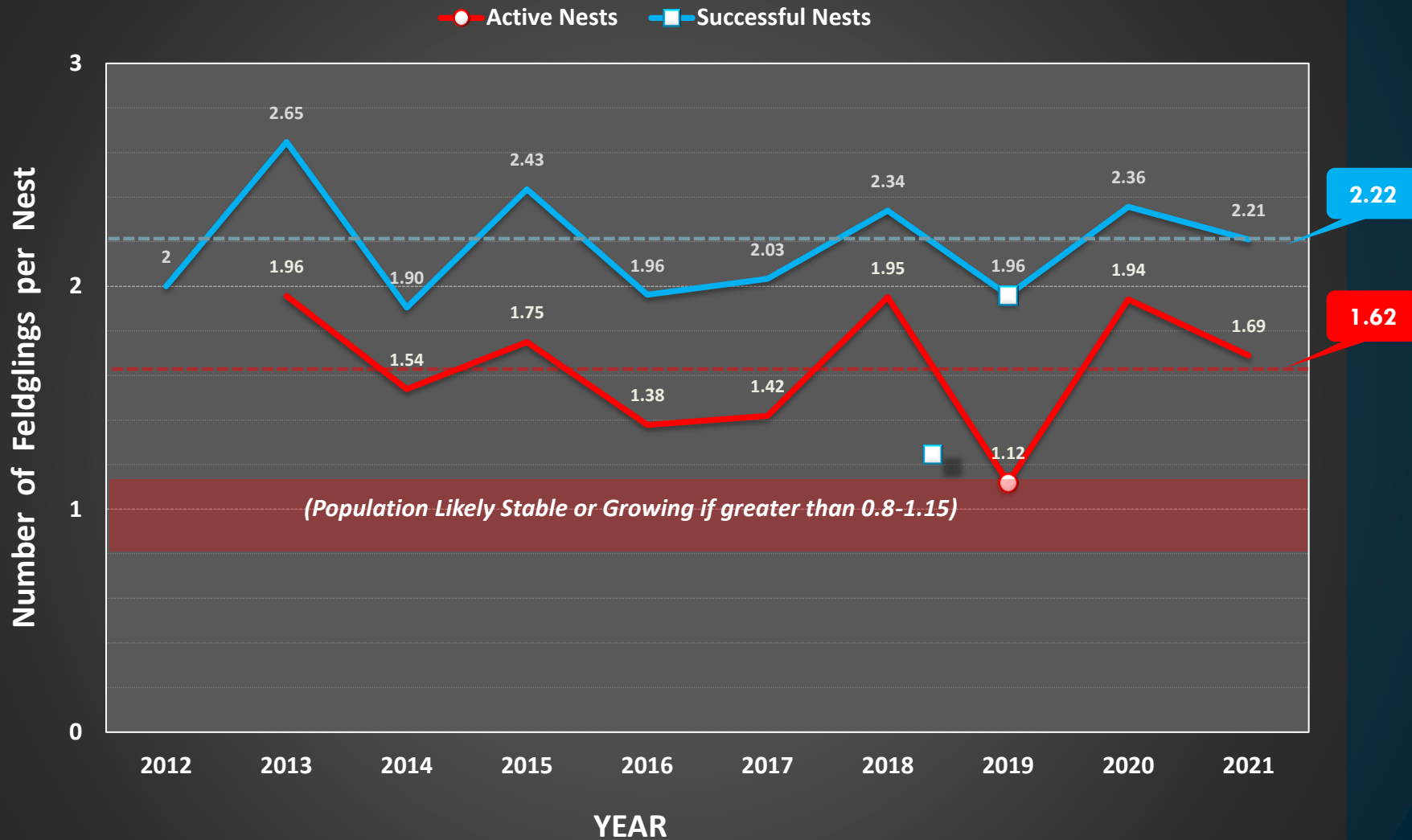
Successful – At least one young fledged (assume if nestlings as old as ~45 days)

# Increase in SF Bay Osprey Nests 2012-2022

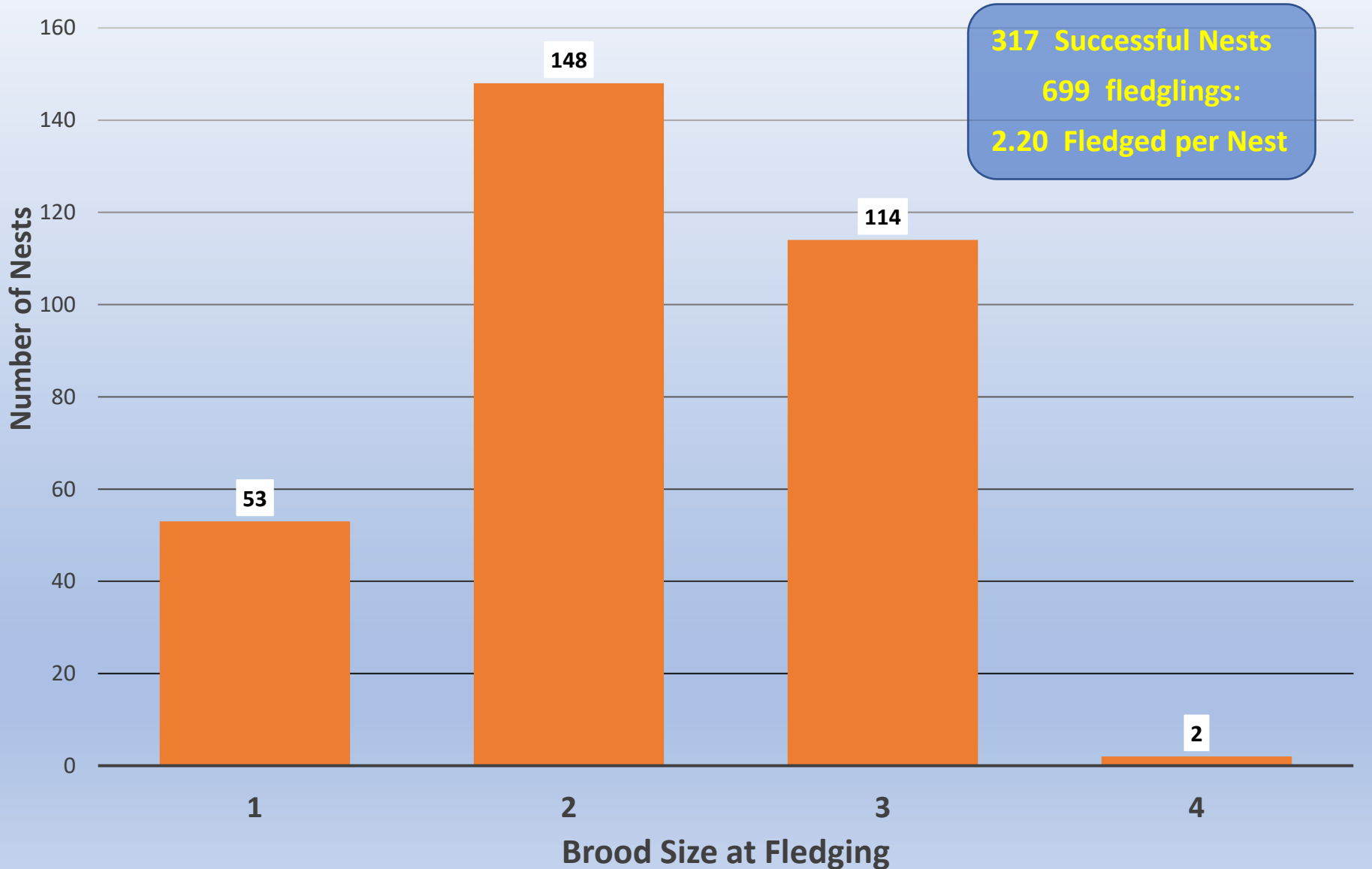




# Productivity of SF Bay Osprey Nests



# SF Bay Osprey Nests 2012-2022



# Natural Osprey Nests





# Mare Island





# San Pablo Bay



# Point Pinole



# Point Potrero, Port of Richmond





# Point Molate, Richmond



# Foster City



# HUMAN THREATS TO OSPREYS AND THEIR NESTS

## THREATS TO INDIVIDUAL OSPREYS

- Persecution – Shooting, egg collectors, millinery. Less of a problem than in the past, although Atlantic Coast Osprey sometimes killed at aquaculture sites on their wintering grounds in Central, South America
- Entanglement – Common hazard for aquatic bird species, especially piscivores. Abandoned fishing line and gear, plastic twine may be brought as nest material, or entangled while foraging.
- Electrocution – Numerous nests are on power poles: A nestling died in 2014 in a nest on utility pole at Mare Island

## THREATS TO OSPREY NESTS

- Deterioration, Collapse – Numerous nests are on old, derelict structures.
- Shoreline Development – Numerous nests on land slated for development
- Removal – Nests may be removed from structures, equipment due to potential conflict with their use. Legal before eggs or young, but Ospreys are very persistent once they select a nest site.
- Human Disturbance – Photographers, other observers approaching, pointing, staring perceived as possible threat, may cause adults to flush from the nest, leaving eggs, nestlings vulnerable. Alarm calling to indicate Too Close – Back Off!

# Successful Use Of Nest Platforms



Chevron, San Pablo Peninsula, Richmond



# Point Molate, Richmond

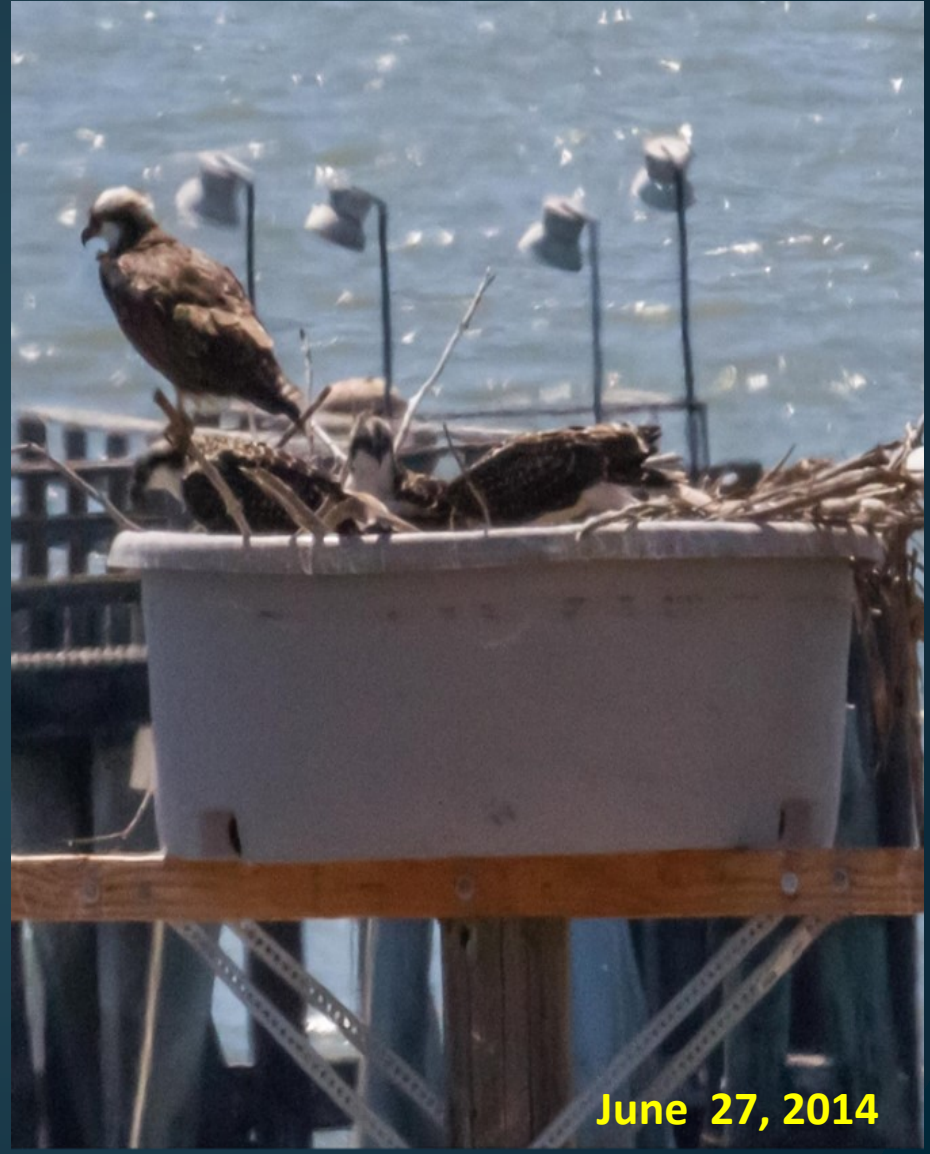




# Point Molate, Richmond



March 11, 2014



June 27, 2014

# Crockett (PG&E)

June 11, 2013



March 19, 2014

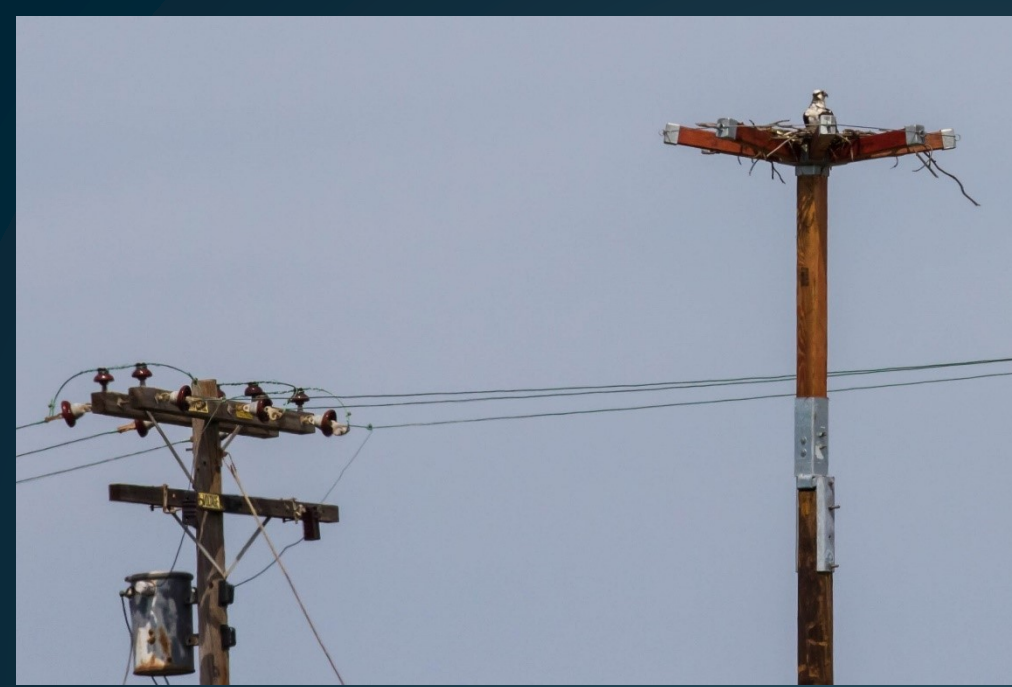


## Chevron Long Wharf, Point Richmond





# Mare Island (Island Energy)





Point San Pablo,  
Richmond (Chevron)



Mare Island  
(XKT Engineering)



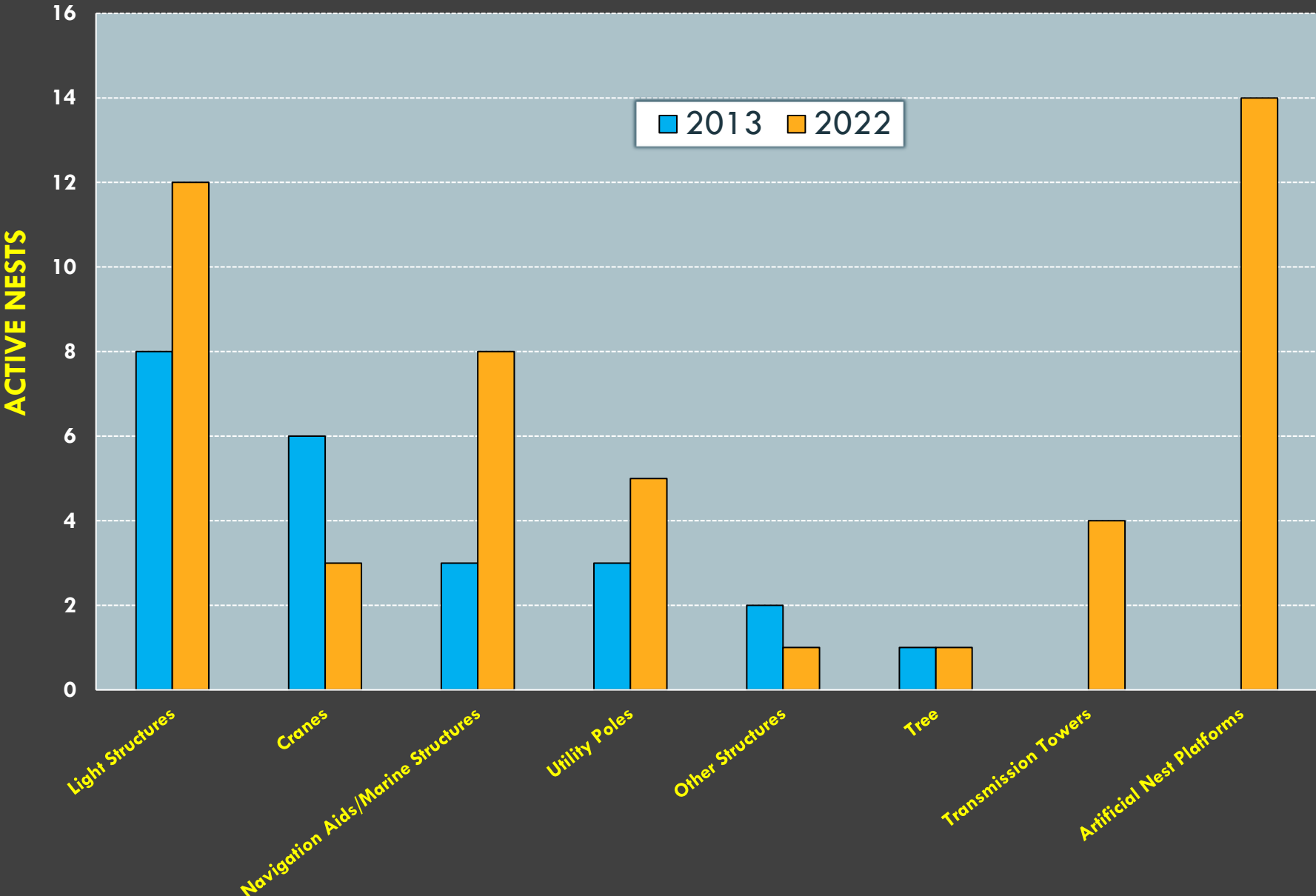
©Marcia Grefsrud

# Brickyard Cove, Richmond

(Shirley Doell and Richmond Yacht Club)



# SHIFT IN OSPREY NEST SITES – 2022 vs. 2013





# Live Streaming Nestcam – Port of Richmond

[SFBayOspreys.org](http://SFBayOspreys.org)





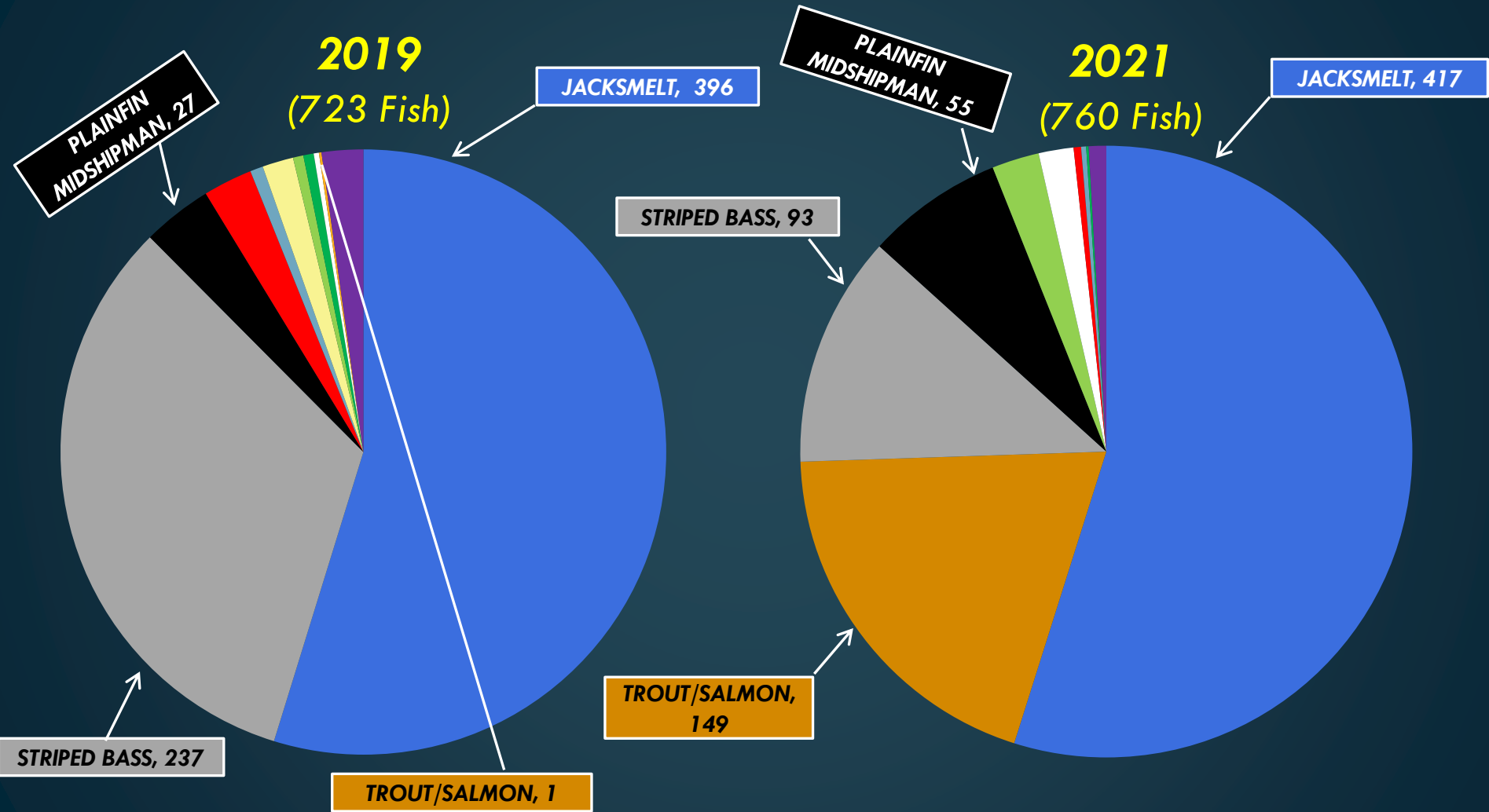
# MARE ISLAND OSPREY NESTCAM



*Island Energy, Friends of the San Pablo Bay Wildlife Refuge*

<https://youtu.be/XxkRzdX012Y>

# FISH DELIVERIES TO WHIRLEY CRANE NEST



- Jacksmelt
- Salmonid
- Striped Bass
- Plainfin Midshipman
- Surfperch sp.
- American Shad
- Starry Flounder
- Halibut
- Bat Ray



# Lightning (Variant Rainbow) Trout!



2020-07-24 07:57:45



San Pablo Reservoir

Lake Temescal

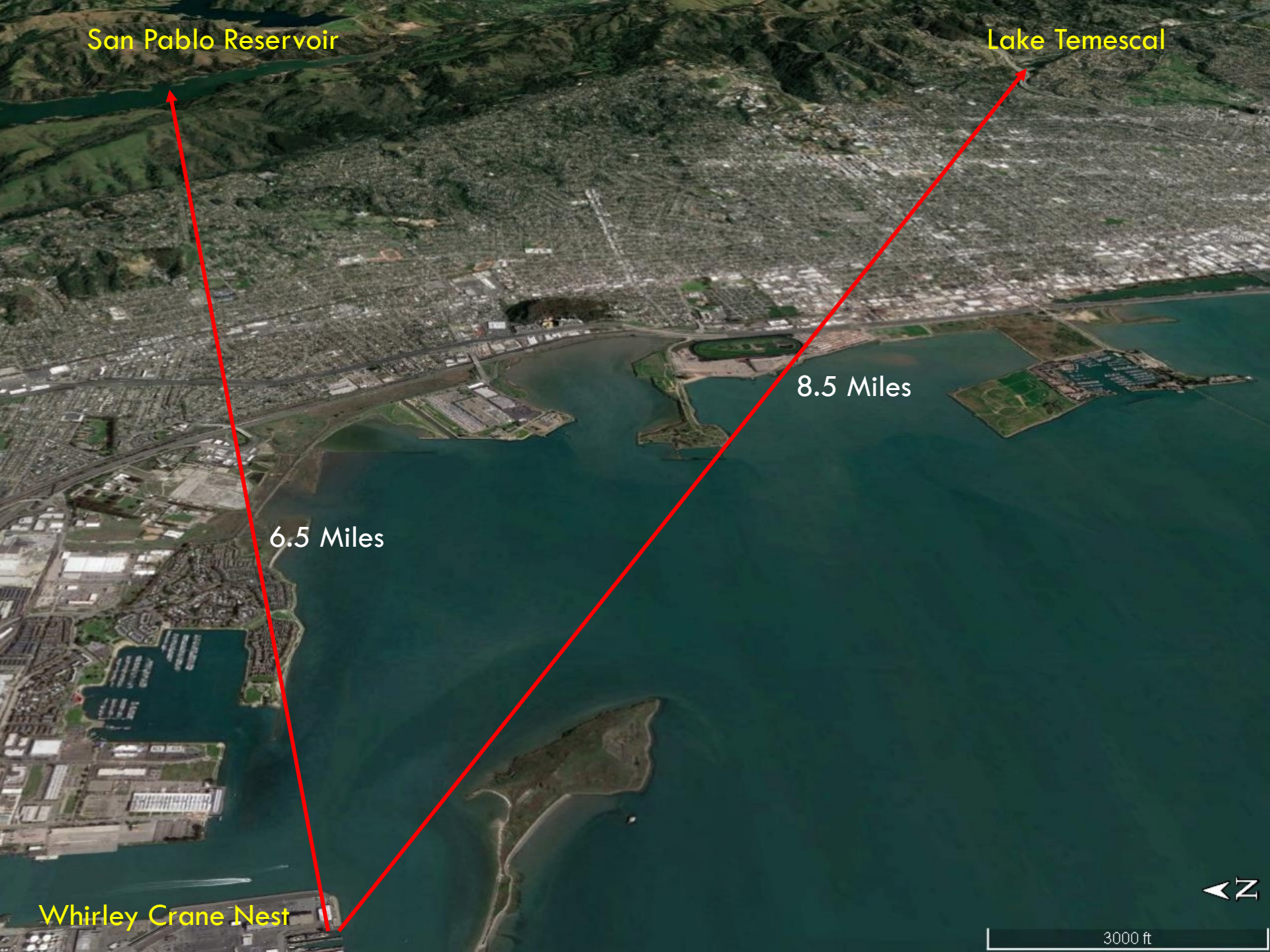
6.5 Miles

8.5 Miles

Whirley Crane Nest



3000 ft





# Black Crappie – Only at San Pablo Reservoir!





# WHERE DO SF BAY OPSREYS SPEND THE NON-BREEDING SEASON?

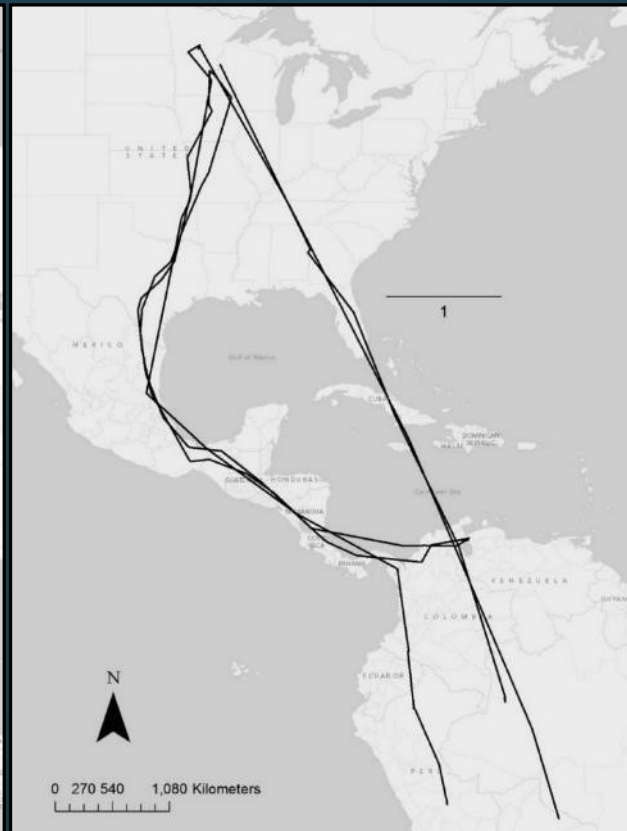
- Almost all leave by October, then begin to return in February
- Juveniles do not return until after their second winter
- A few, mostly or all males, remain in their nest territories, (at least in Richmond area)

# Osprey Spring Migration Routes

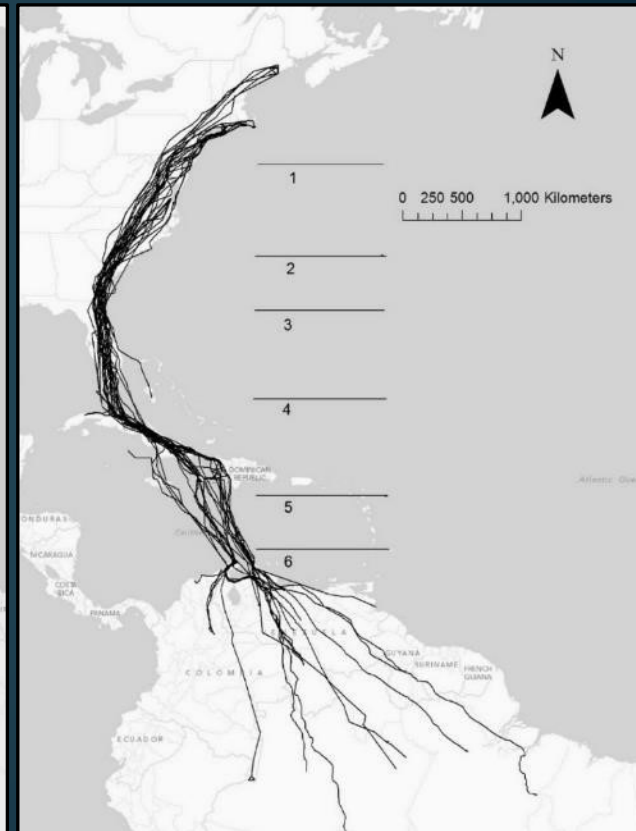
PACIFIC FLYWAY



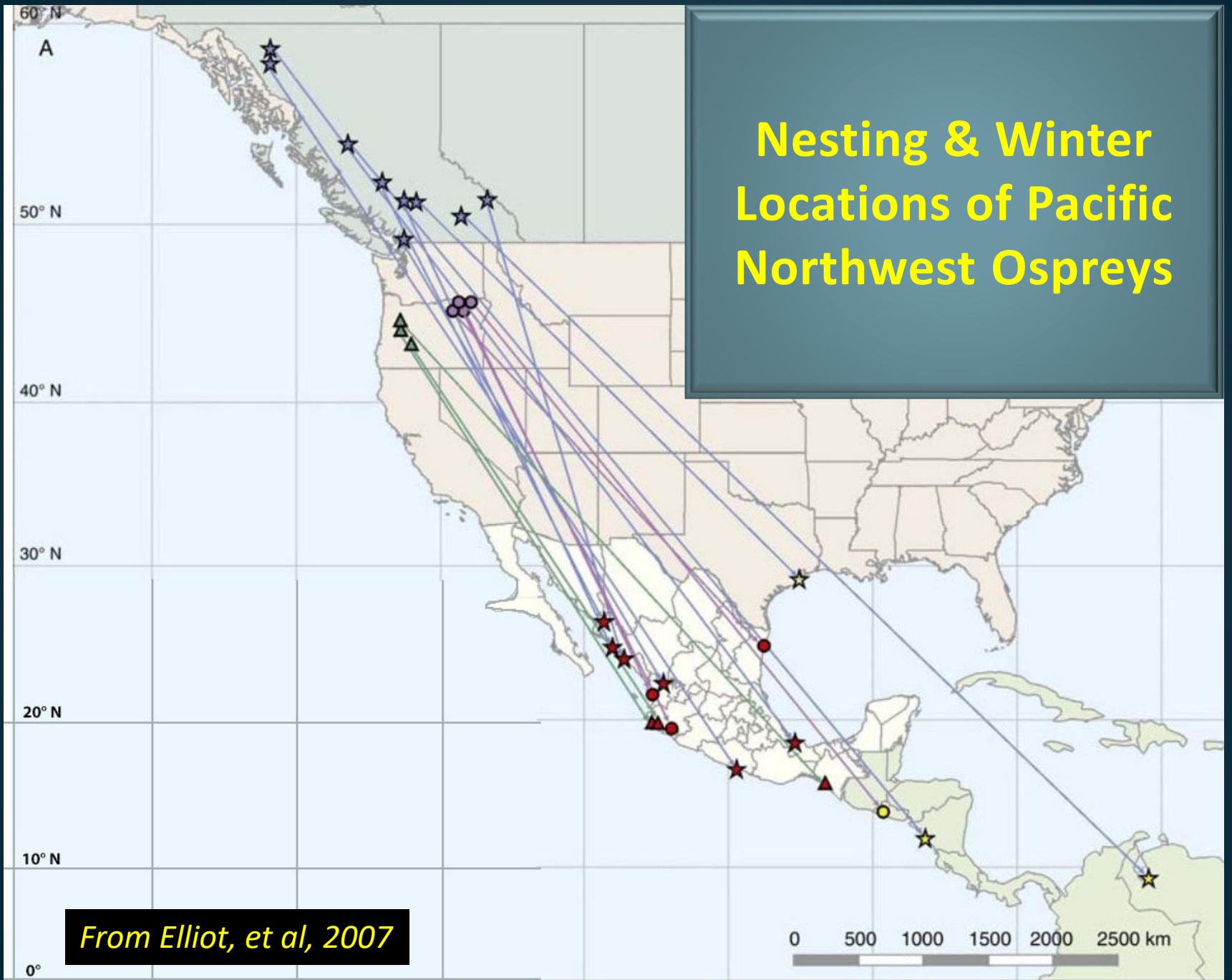
CENTRAL FLYWAY



ATLANTIC FLYWAY



# Nesting & Winter Locations of Pacific Northwest Ospreys



From Elliot, et al, 2007

0 500 1000 1500 2000 2500 km



# Banding of Osprey Nestlings from the Whirley Crane Nest

*(Teresa Ely, Ben Dudek, Anne Ardillo, Step Wilson)*

June 16, 2017



May 16, 2019



June 21, 2018



2018-06-21 10:57:22

Point San Pablo  
May 9, 2020



# Where to Report Band Sightings

- USGS Bird Banding Laboratory – [www.reportband.gov](http://www.reportband.gov)
- Golden Gate Audubon – [ospreysciencedata@goldengateaudubon.org](mailto:ospreysciencedata@goldengateaudubon.org)





“Of all the raptors, the Osprey is the one that can live most happily with modern man, if given a chance.”

*Roger Tory Peterson*