

Increase of the California Gull Population in the San Francisco Bay and the Impacts on Western Snowy Plovers



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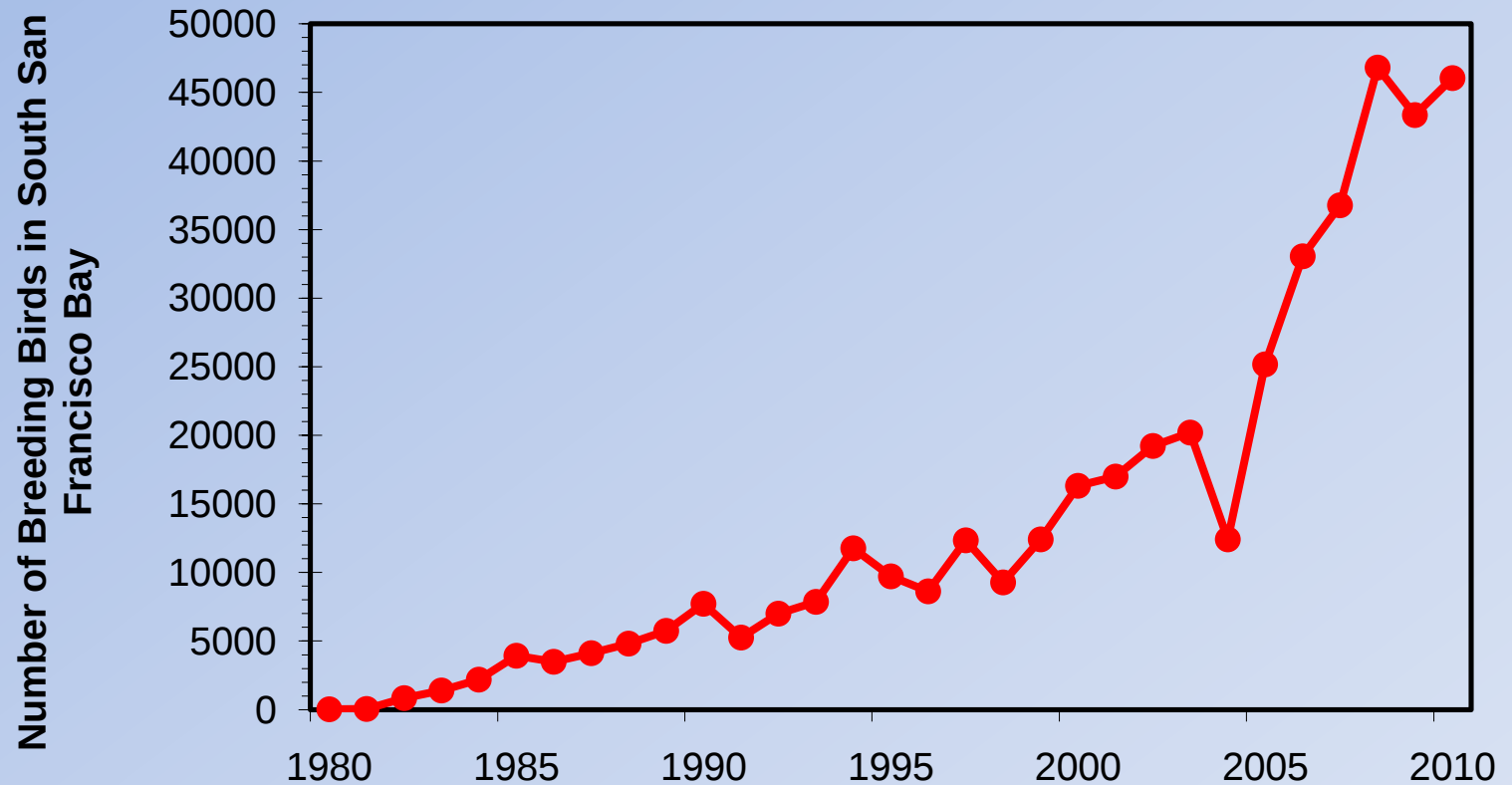
Jill Bluso Demers, San Francisco Bay Bird Observatory

Cheryl Strong, US Fish & Wildlife Service

Joshua T. Ackerman, USGS Davis Field Station

Scott A. Demers, H.T. Harvey & Associates

Breeding California Gulls – San Francisco Bay



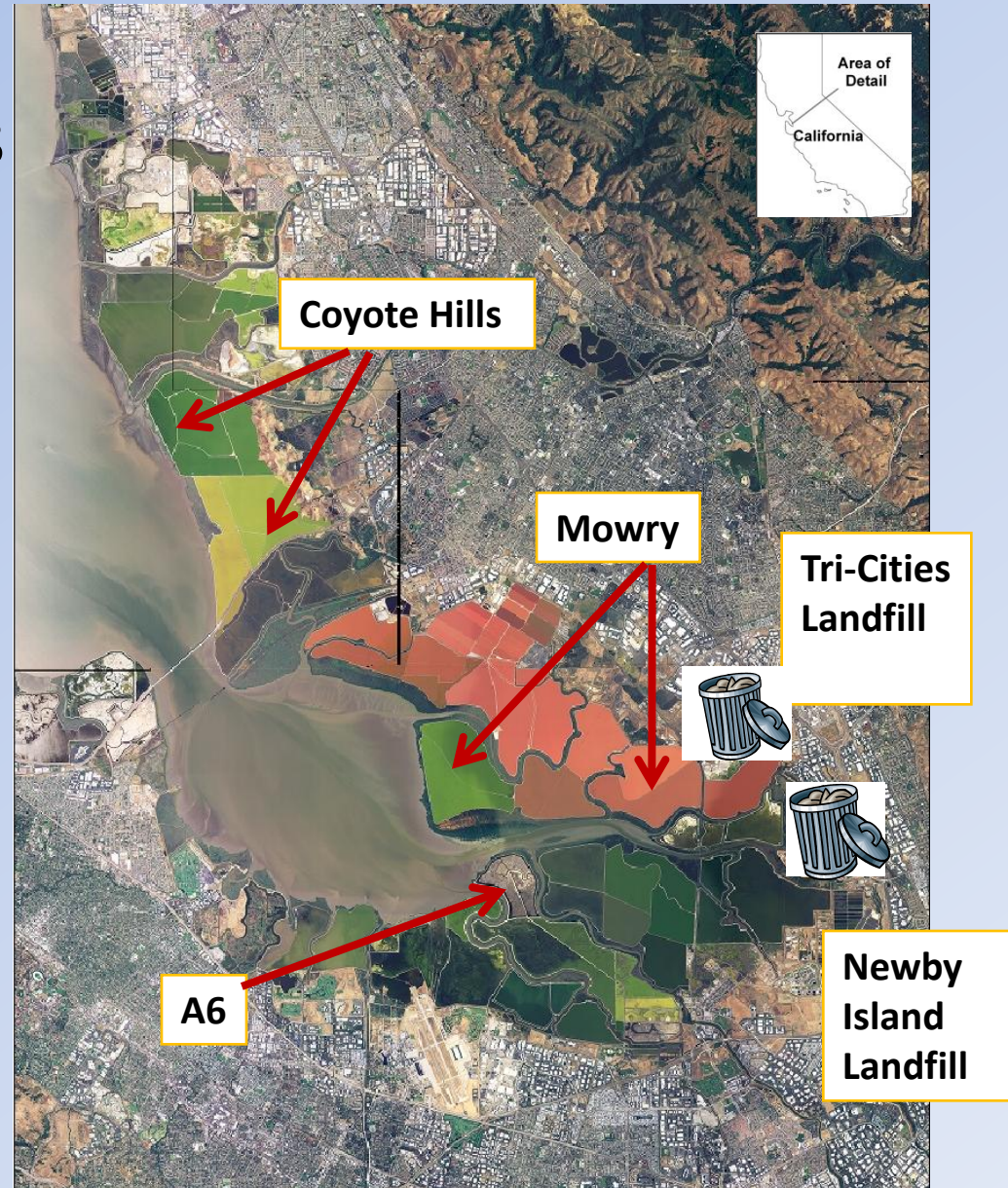
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● California Gull

Breeding Gulls – San Francisco Bay

Why are California Gulls in SF Bay?

- Salt Ponds
- Access to landfills



Western Snowy Plover

(Charadrius alexandrinus nivosus)



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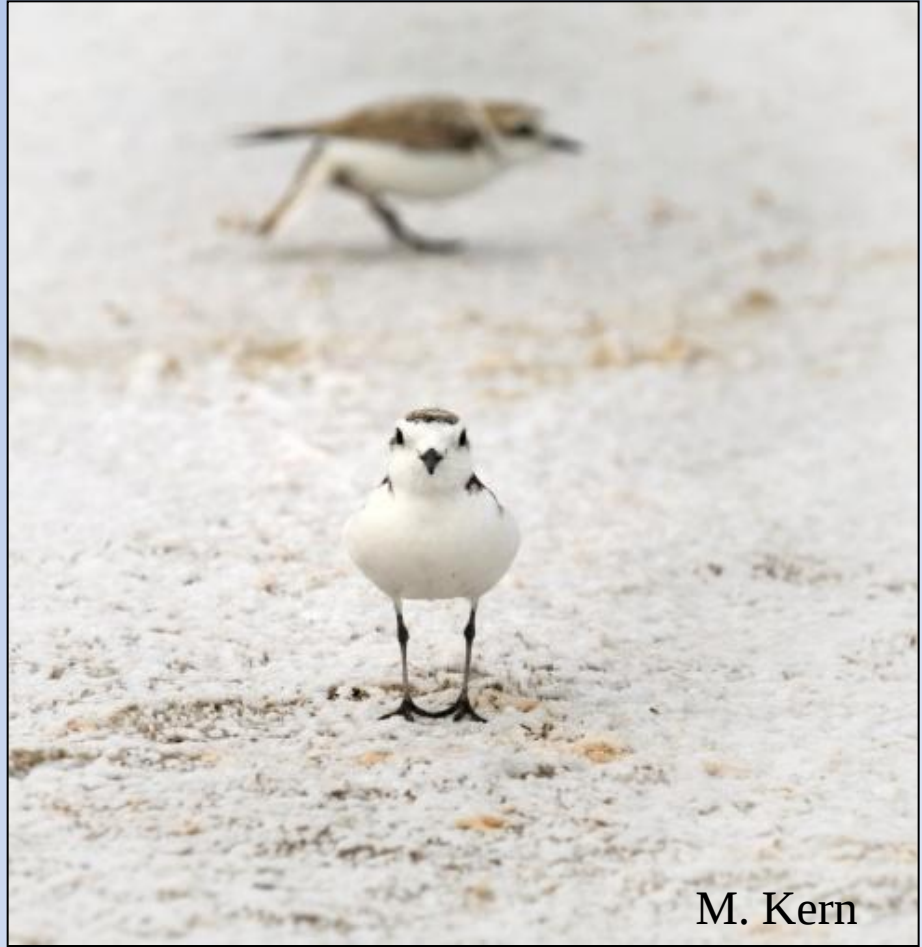


B. Griffin



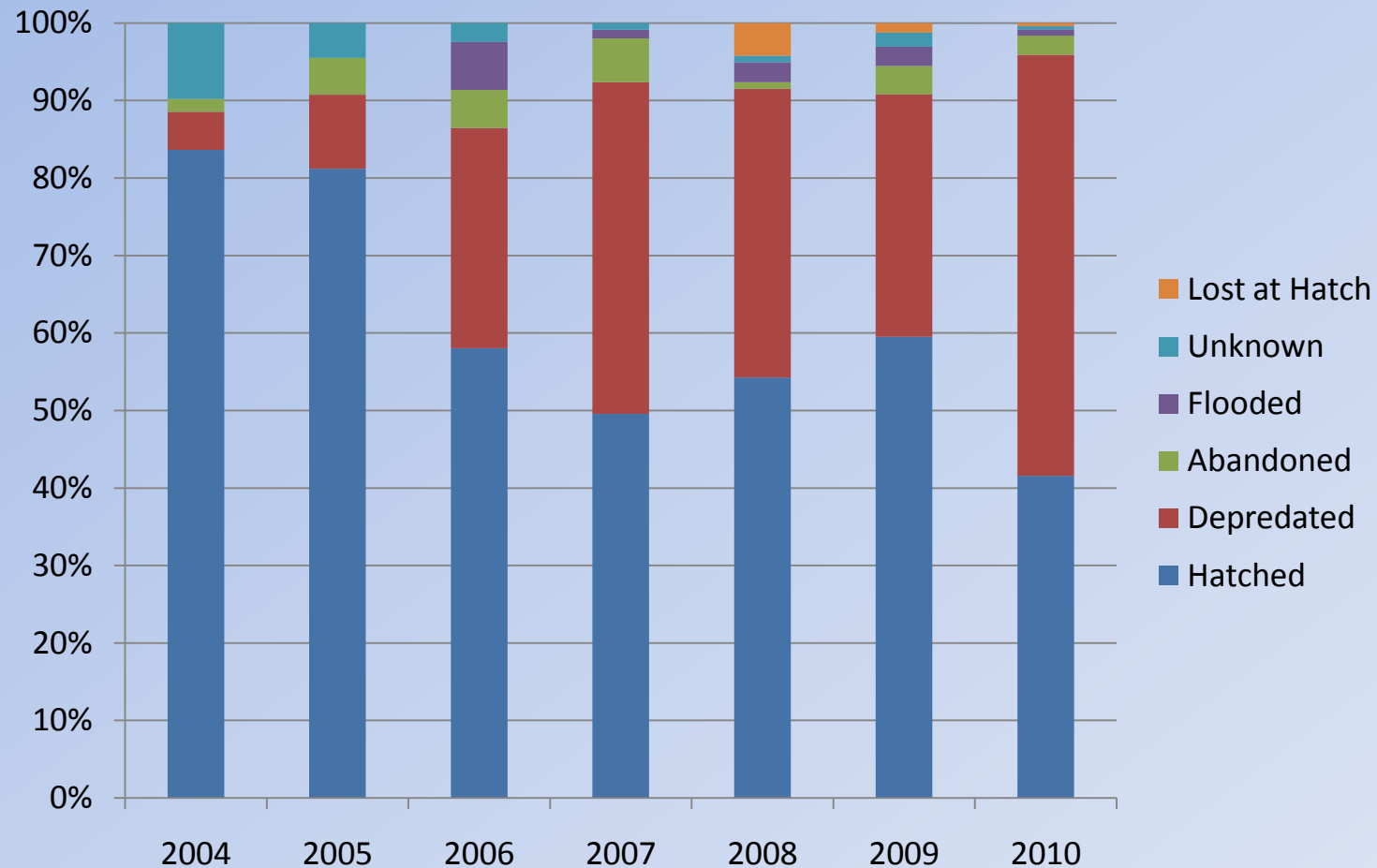
Western Snowy Plover Recovery Goals

- San Francisco Bay goal: 500 birds
- Support 250 breeding birds within SBSP Restoration Project area
- Estimate between 130-200 plovers in Bay



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Observed Plover Nest Success in the South Bay: 2004 - 2010



South Bay Salt Pond Restoration Project: Addressing Key Uncertainties



- How to increase the number of Snowy Plovers nesting and nest success in project area?
- What impact are California Gulls having on plovers and other breeding waterbirds?
- Where will the A6 gulls breed after the levees are breached?

Methods: Snowy Plover Habitat Enhancement





Methods: Snowy Plover Habitat Enhancement

- Compared shell plots to control plots
- Plots randomly placed in ponds
- Monitored nesting March - August

2009 – 7 shell and control plots

2010 – 12 shell and control plots





Results: Snowy Plover Habitat Enhancement

2009

	Control Plot	Shell Plot
Nests monitored	0	24
Density (nests/ha)*	0	3.43
Observed Hatched	-	67%
Observed depredated	-	13%
Mayfield Nest Success	-	79%

All other Eden Landing nests
66
0.07
56%
44%
59%

2010

	Control Plots	Shell Plots
Nests monitored	3	42
Density (nests/ha)*	0.25	3.50
Observed Hatched	0%	31%
Observed depredated	100%	64%
Mayfield nest success	0.17	40%

All other Eden Landing nests
97
0.10
32%
66%
35%

* $P \leq 0.015$



Results: Snowy Plover Habitat Enhancement

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Results: Snowy Plover Habitat Enhancement

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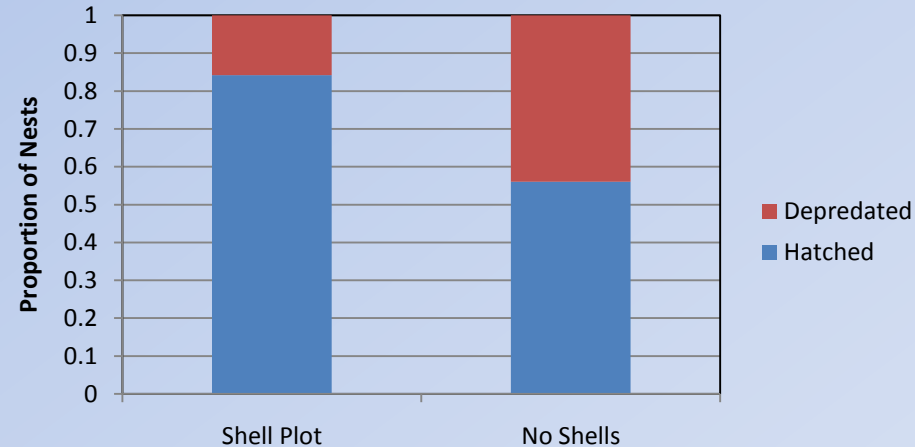
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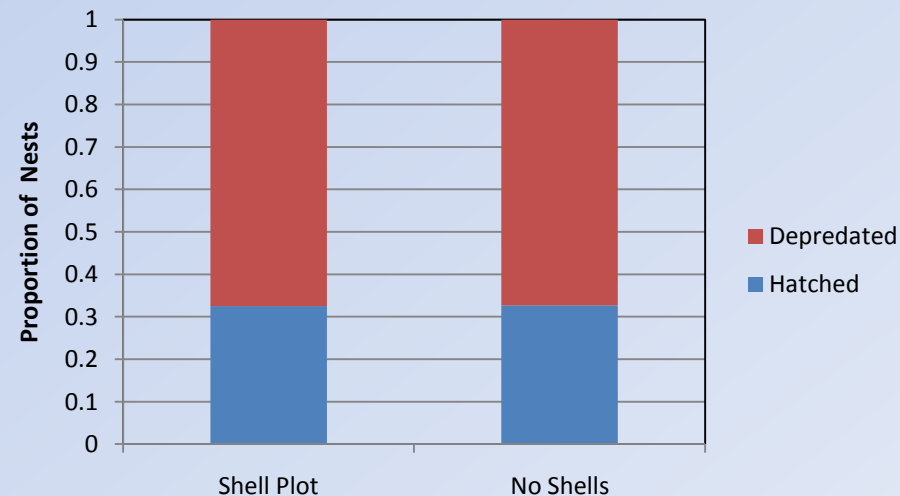


Results: Snowy Plover Habitat Enhancement

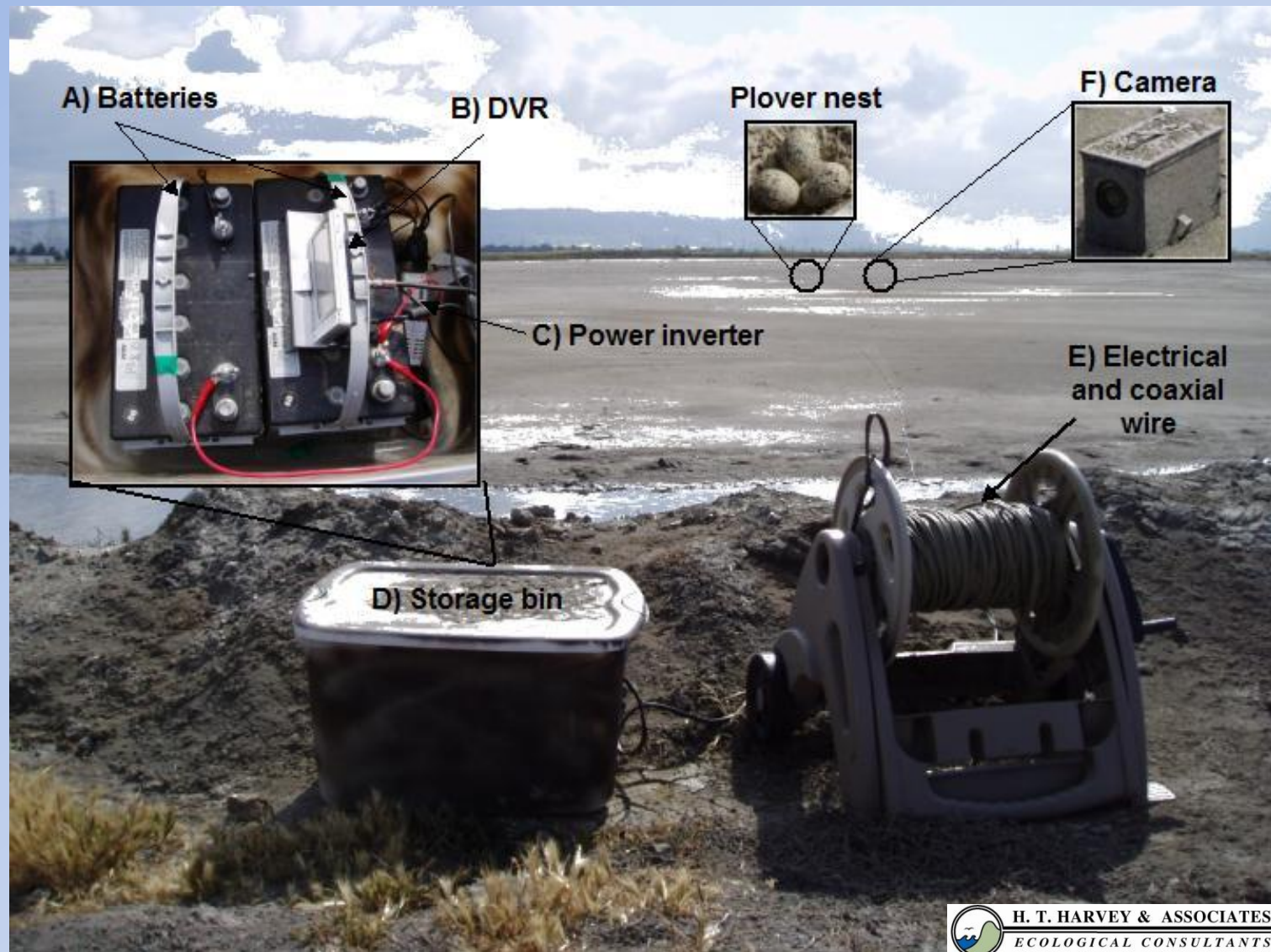
2009: Shell plot nests more likely to hatch than non-shell plot nests
($\chi^2 = 4.98$, $df = 1$, $P = 0.03$)



2010: No difference in likelihood of hatching between shell plot nests and non-shell plot nests
($\chi^2 = 0.0002$, $df = 1$, $P = 0.98$)



Methods: Nest Camera Studies



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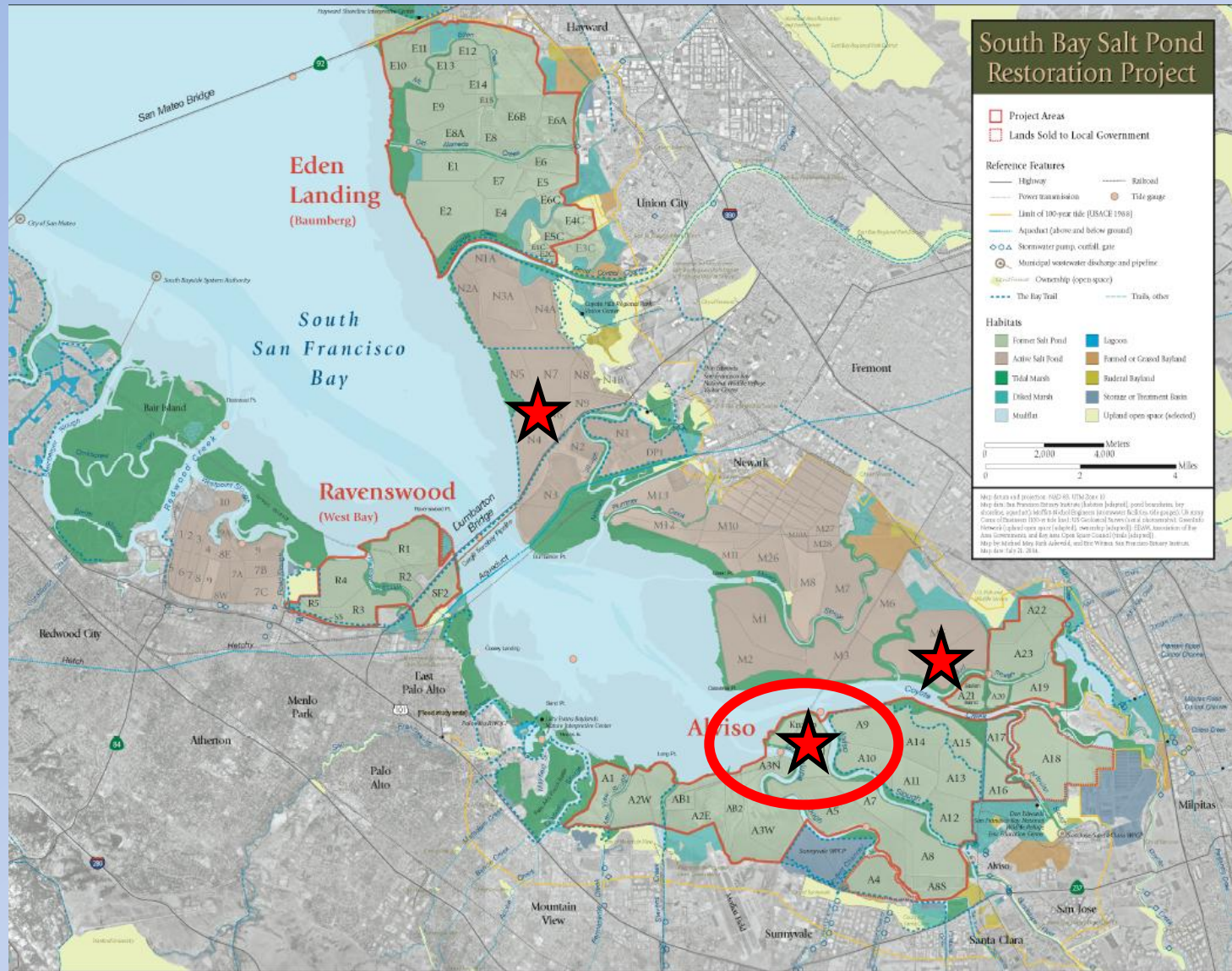


Results: Nest Camera Studies



Nest predators
recorded with cameras

	2009	2010
California Gull	2	2
Northern Harrier	3	0
Red-Tailed Hawk	2	0
Common Raven	1	0
Ruddy Turnstone	0	1
Grey Fox	0	1
Total number of nests monitored	24	21



Breeding Gulls – Where to go?

- A6 – conversion from salt pond to tidal habitats in 2011

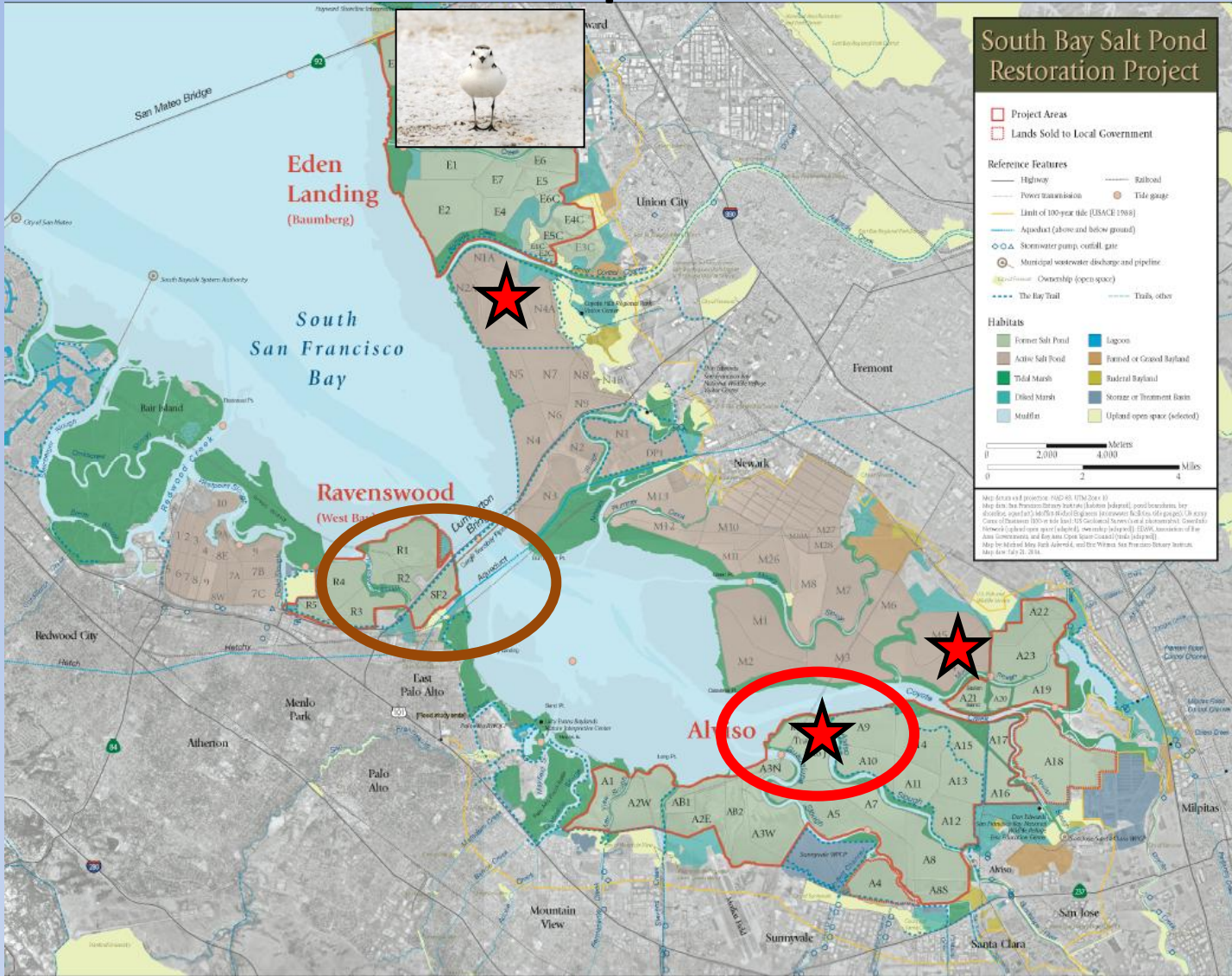




The chart displays monthly precipitation data over a 30-month period. The y-axis represents precipitation in millimeters (mm), ranging from 0 to 1600. The x-axis shows months from January 2007 to June 2010. A red arrow points to June 2008, highlighting a sharp drop in precipitation. A blue arrow points to December 2009, indicating a period of low precipitation. The data shows a significant peak in September 2007 (approx. 1480 mm) and a sharp decline in June 2008 (approx. 160 mm).

Year	Month	Precipitation (mm)
2007	Jan	0
2007	Feb	720
2007	Mar	300
2007	Apr	980
2007	May	570
2007	Jun	910
2007	July	1070
2007	Aug	1340
2007	Sep	1480
2007	Oct	560
2007	Nov	960
2007	Dec	620
2008	Jan	260
2008	Feb	660
2008	Mar	660
2008	Apr	470
2008	May	800
2008	Jun	160
2008	July	200
2008	Aug	100
2008	Sep	60
2008	Oct	100
2008	Nov	180
2008	Dec	200
2009	Jan	90
2009	Feb	500
2009	Mar	180
2009	Apr	40
2009	May	100
2009	Jun	300
2009	July	480
2009	Aug	50
2009	Sep	190
2009	Oct	520
2009	Nov	120
2009	Dec	110
2010	Jan	0
2010	Feb	0
2010	Mar	0
2010	April	0
2010	May	10
2010	June	60

Impacts of Expanding Gull Population



Tracking A6 Gulls: Color-Banding



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Recommendations

- **How to increase the number of Snowy Plovers nesting in project area?**
- Shell plots may not be the answer to meeting Snowy Plover goals
- May need more managed ponds than project planned



C. Robinson-Nilsen

Recommendations

- **What impact are California Gulls having on plovers and other breeding waterbirds?**

- Depredate plover nests and chicks
- Depredate avocet, stilt and Forster's Tern chicks (Ackerman et al., USGS)

- **Where will the A6 gulls breed after the levees are breached?**

- Continuing research throughout South Bay and surrounding areas



Recommendations

- Time for some adaptive management!
- Project Develop California Gull Management Plan
 - Monitoring gull movements after A6 breach
 - Explore options and develop thresholds to implement control measures
 - If control measures are used, monitor to determine effectiveness



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Questions?

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Endangered Species Recovery

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members

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