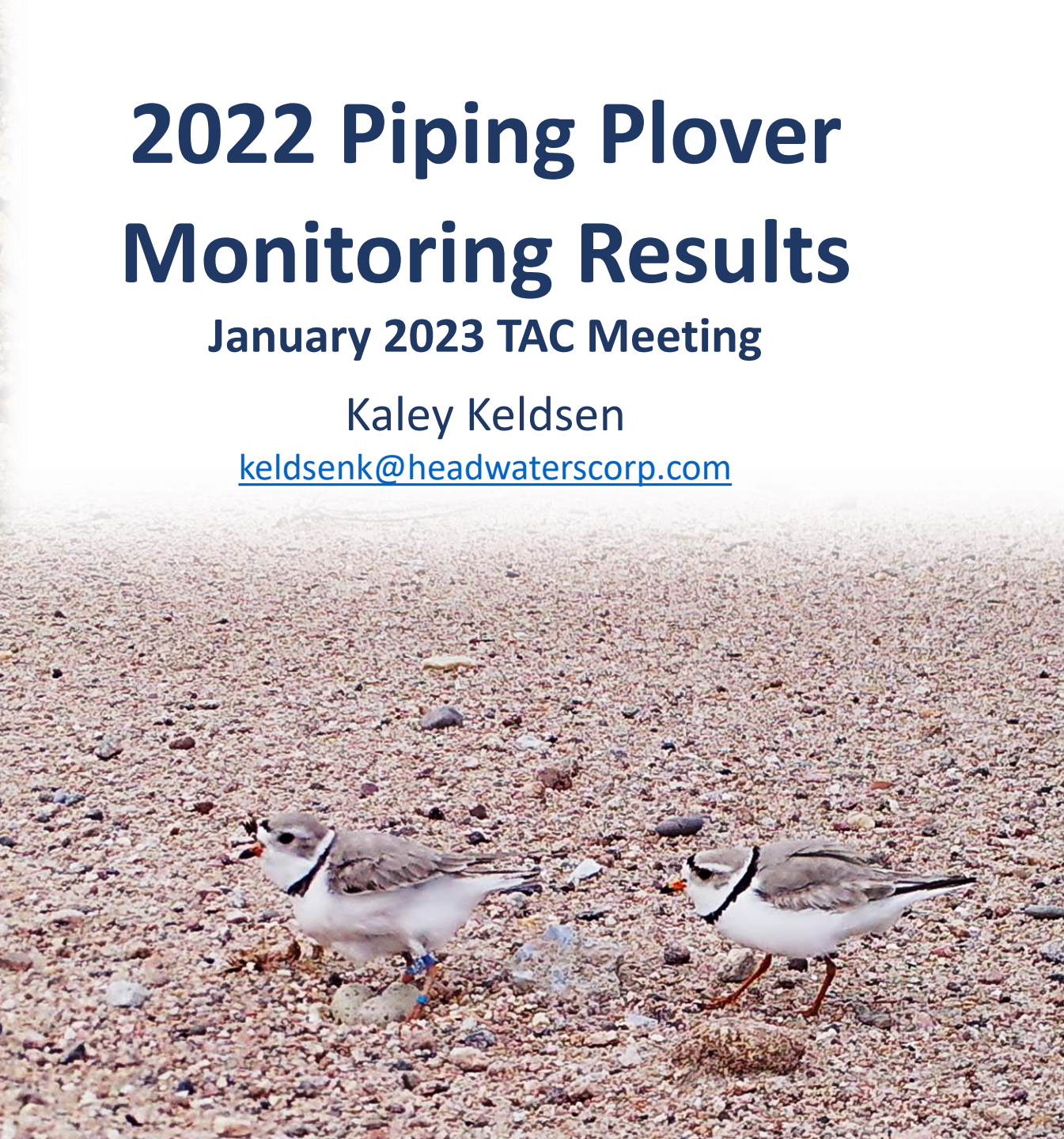
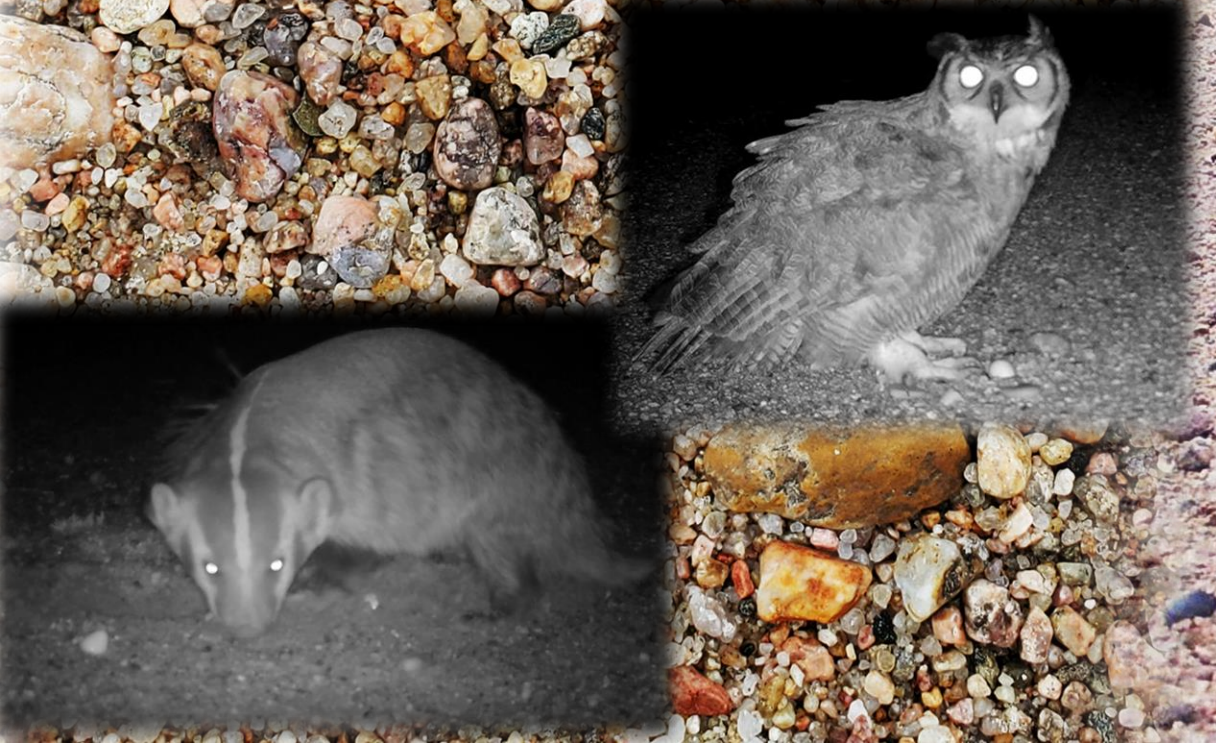


# 2022 Piping Plover Monitoring Results

January 2023 TAC Meeting

Kaley Keldsen

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# Extension Big Questions

- #8—Predation effect on PPL productivity?



**Impact**



**ID**



**OR**

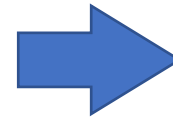


**Timing**

- #9—Management effectiveness at mitigating PPL losses due to predation?



**Effectiveness**



**Develop predator management**



**PPL Response**

# Extension Big Questions—Why?

- #8—Predation effect on PPL productivity
- #9—Management effectiveness at mitigating PPL losses due to predation
- OCSW Sites = Predictable habitat

## Benefits



## Drawbacks





# Extension Big Questions—How?

- #8—Predation effect on PPL productivity
- #9—Management effectiveness at mitigating PPL losses due to predation

## Performance Indicators:

- Breeding Pairs
- Fledged chicks
- Fledge Ratios
- Adult and chick mortality



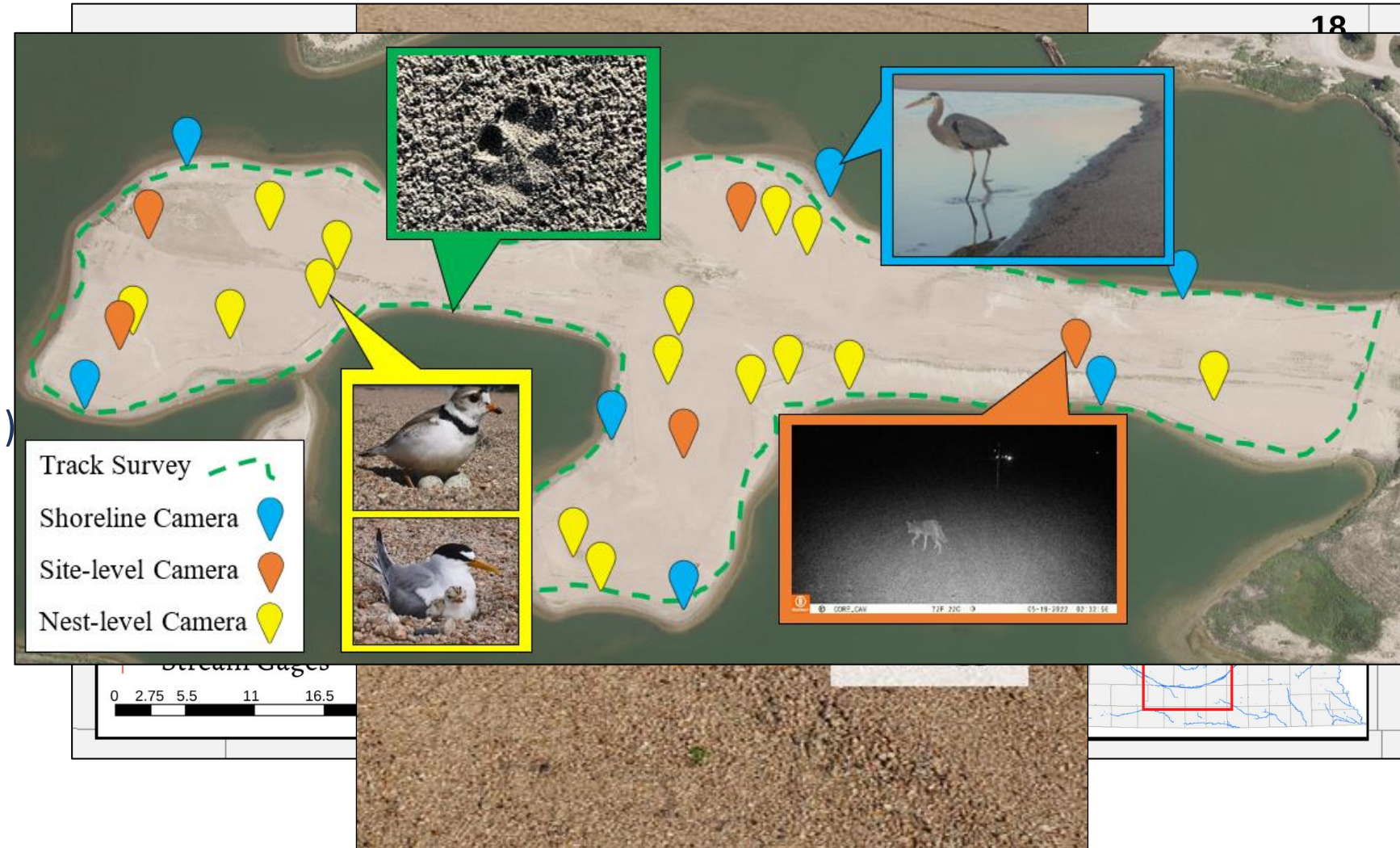


# Extension Big Questions—How?

- #8—Predation effect on PPL productivity
- #9—Management effectiveness at mitigating PPL losses due to predation

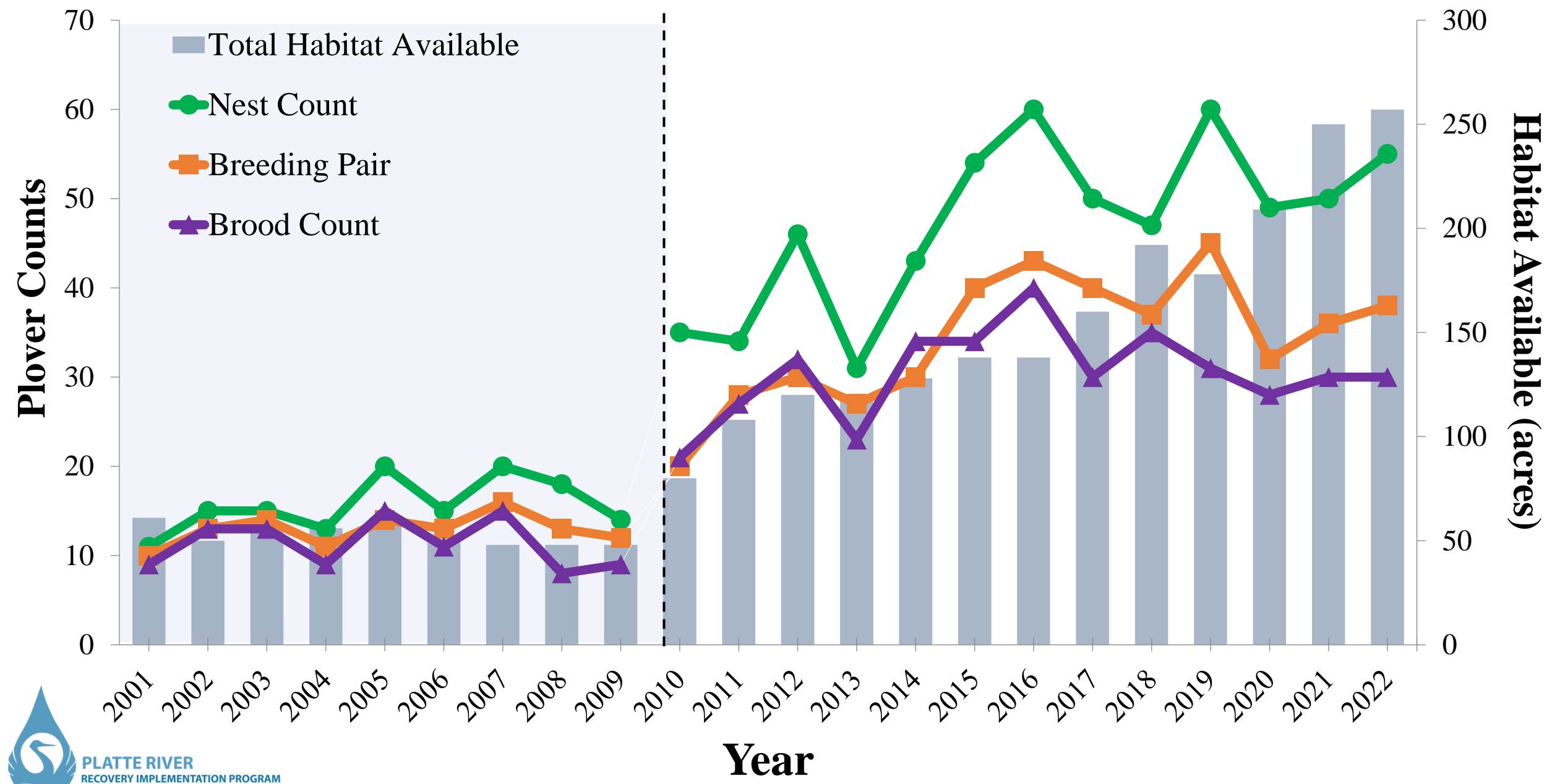
## Monitoring Methods:

- River Surveys
- Nesting Surveys @ OCSW
- Inside Camera Monitoring
  - Predator Management
    - Status Quo (SQ)
    - Additional Management (AM)
- Predator Monitoring

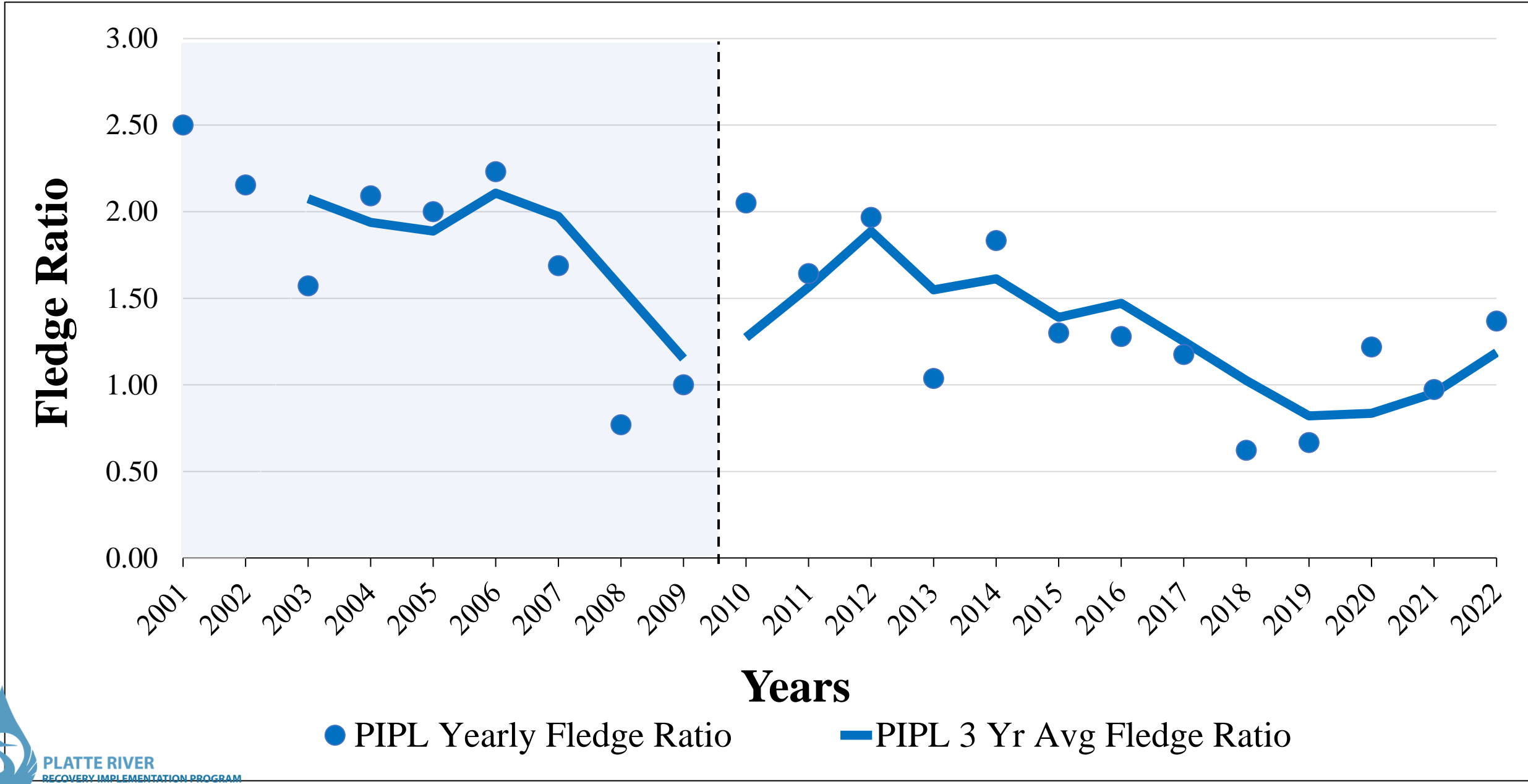


# Questions on Monitoring Methods?

# Plover Results—Nesting, Breeding Pairs, Available Habitat

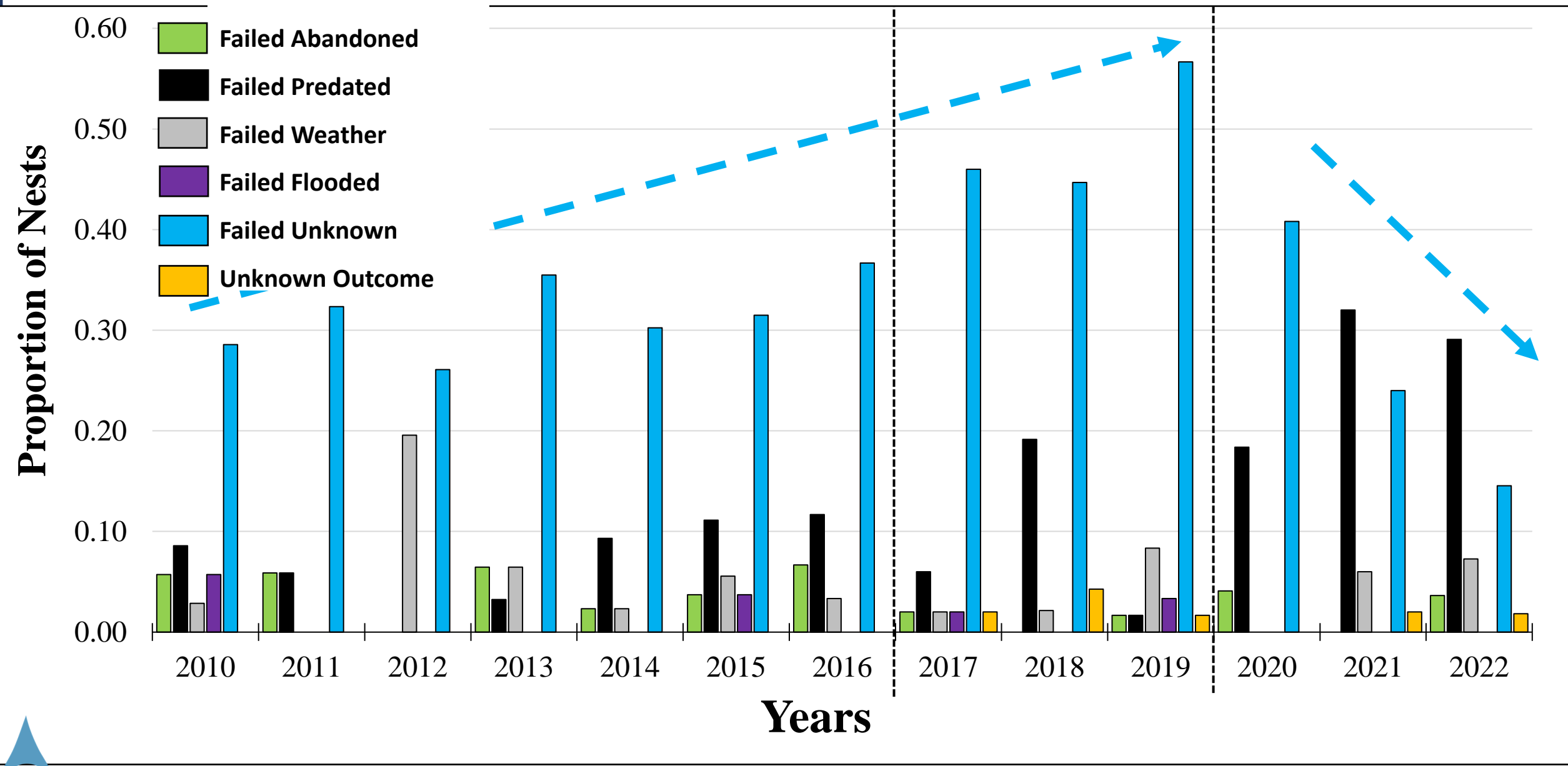


# Plover Results—Fledge Ratios





# Plover Nest/Brood Losses



# Plover Incidental Take Table

Allowable Take <sup>A</sup>	First Increment													E
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Inundating Flow														
Inland Lakes														
Habitat Restoration and Land Manag.								1 <sup>C</sup>						
Research and Monitoring														
Percent of Nests and Chicks Observed at Site Lost Due to Predation <sup>F</sup>														

## USFWS Threshold:

Loss of 70% of nests or 80% of chicks to predation in 3 of 5 years for sites that average at least 3 plover nests.



# Plover Incidental Take Table

	First Increment													Extension		
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
																1 <sup>B</sup>
g.								1 <sup>C</sup>								
					1 <sup>D</sup>		1 <sup>E</sup>									
Percent of Nests and Chicks Observed at Site Lost Due to Predation <sup>F</sup>																

## Table Color Code:

No data available

Below established limit for allowable take for a given year. Shaded cells without values had no documented take.

Exceeded the established limit for allowable take for a given year.

## Plover Incidental Take Table

			First Increment													Extension				
			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
Off-channel Sand and Water Nesting Sites	Percent of Nests and Chicks Observed at Site Lost Due to Predation <sup>F</sup>																			
	Nests	OSG Lexington																		
		NPPD Lexington			17%			20%								20%	29%			
		Dyer																21%	36%	
		Cottonwood Ranch						50%												
		Blue Hole	17%	20%					13%	38%		8%	25%	14%	43%	20%				
		Johnson	33%									100%								
		Ed Broadfoot and Sons																		
		Kearney Broadfoot South			31%										11%	31%				
		NAI Kearney Broadfoot South																		
		Newark West						17%								25%	88%			
		Newark East													17%	14%				
		Leaman															50%	100%		
		Trust Wildrose East						25%			50%									
		Hooker Brothers Southeast																		
		Chicks	OSG Lexington																	
	NPPD Lexington															20%				
	Dyer								33%											
	Cottonwood Ranch																			
	Blue Hole											61%								
	Johnson																			
	Ed Broadfoot and Sons																			
	Kearney Broadfoot South									6%				16%						
	NAI Kearney Broadfoot South																			
	Newark West															27%	100%			
	Newark East																			
	Leaman																			
Trust Wildrose East																				
Hooker Brothers Southeast																				



| Questions?

# Evaluating Effectiveness of Management

## Evidence:

1. Predator Presence (PP)
2. Losses to predation
3. Productivity of PPLs

## Effective:

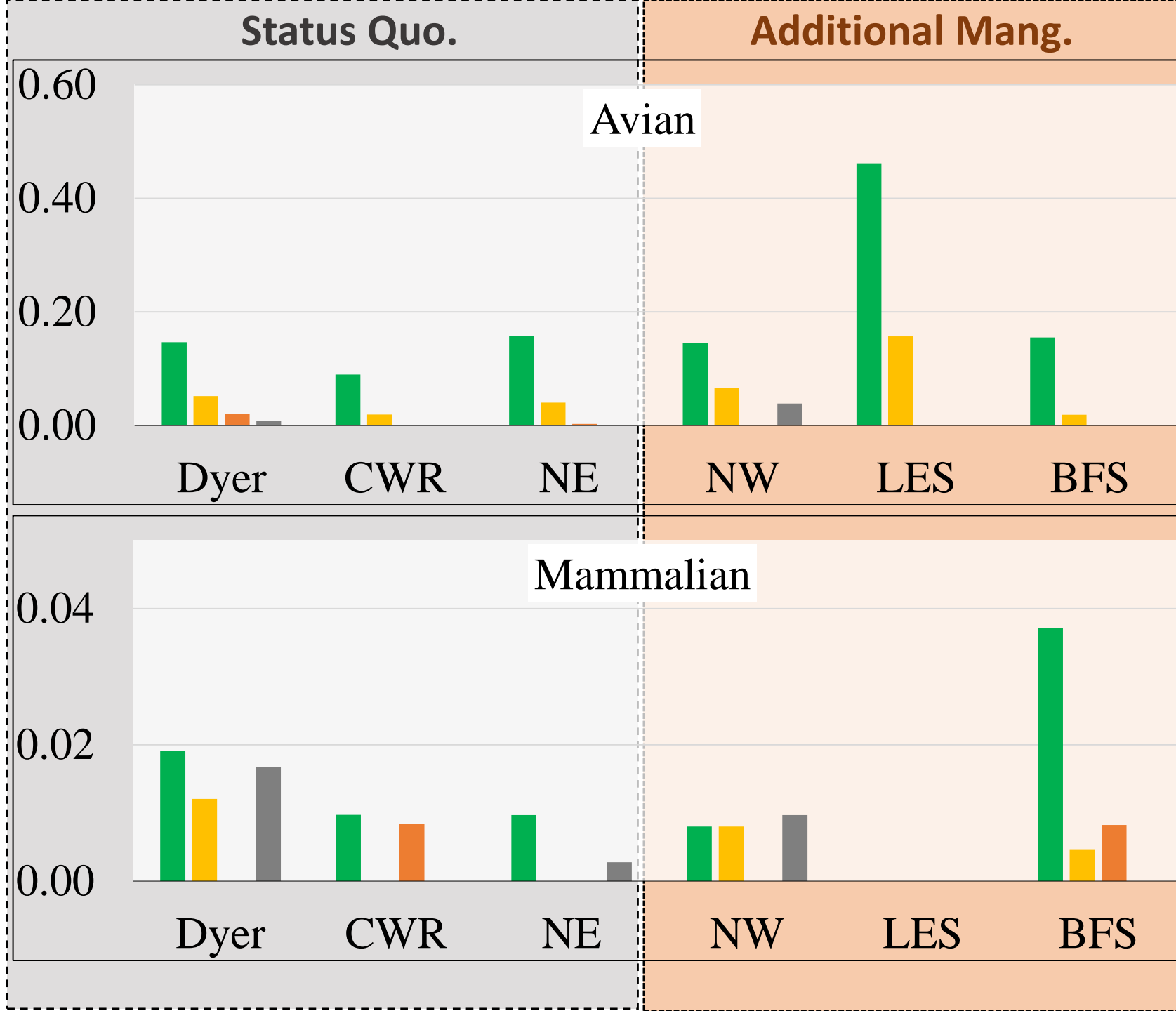
1. PP ↓ outside to inside & at nests
2. Reduction in PP ↑ at **AM** sites
3. ↓ Losses to predation
4. ↑ Productivity



# Effectiveness of Barriers

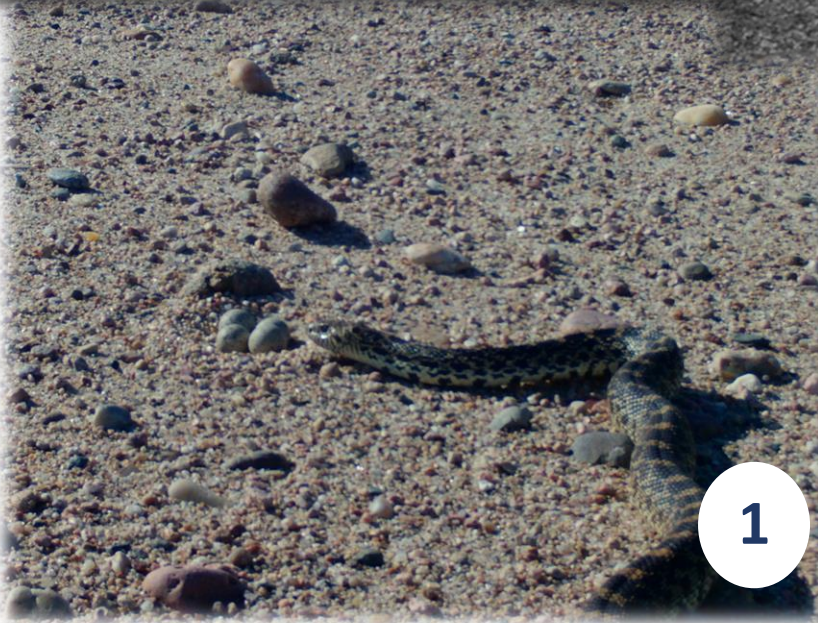
- Shoreline
- Site
- Nest Regs
- Nest Pred. Events

Unique Predator Registers



# Nest Predation

## Mugshots:



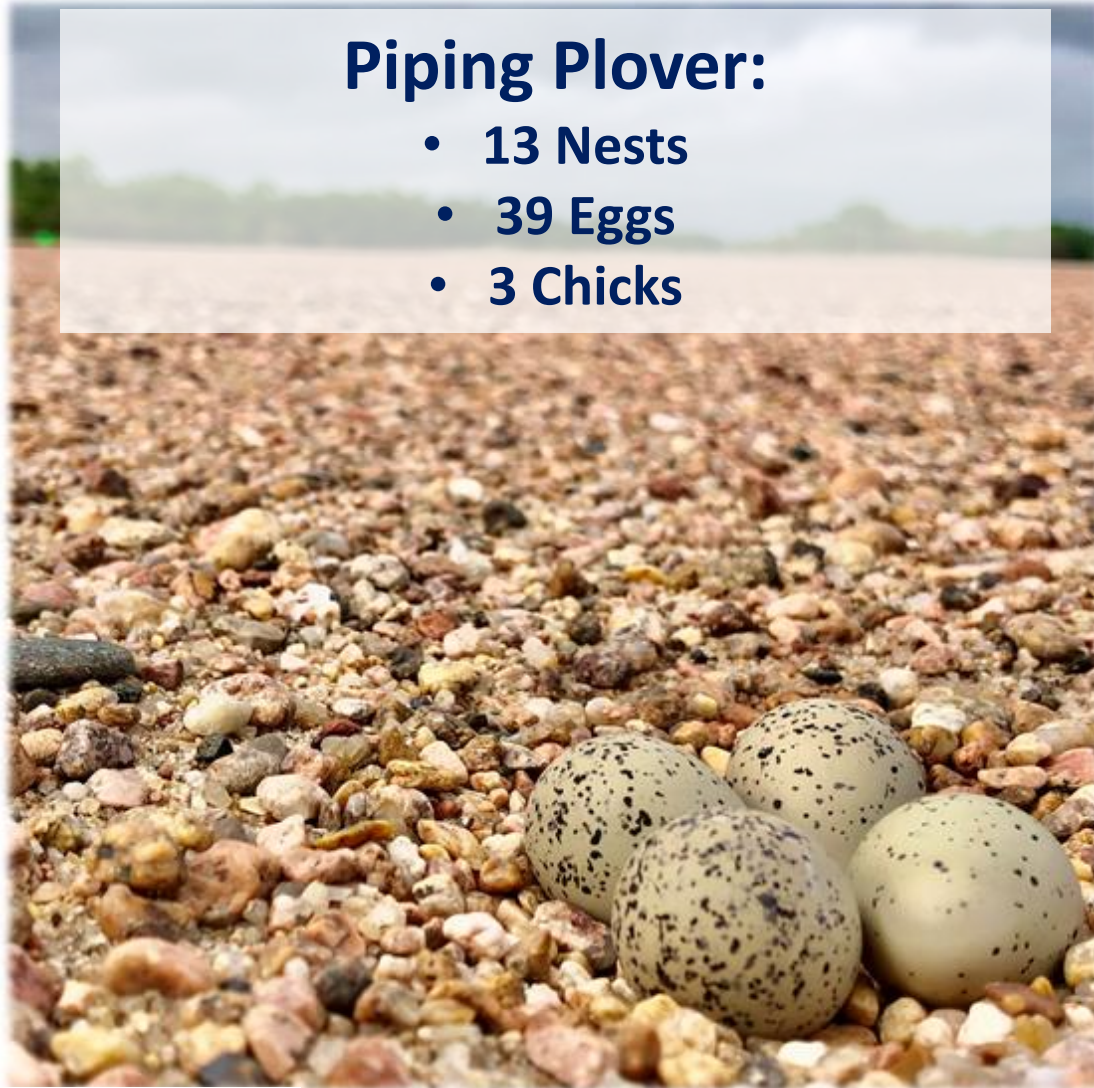
**19  
Predated  
Nests**



# Predation Impact

## Piping Plover:

- 13 Nests
- 39 Eggs
- 3 Chicks



## Least Tern:

- 6 Nests
- 11 Eggs
- 3 Chicks



Fate 94% of eggs laid and fate 95% of chicks at **camera monitored nests**



# Discussion/Questions

## 19 Nest Predation Events:

- 58% = SQ Sites, 42% = AM Sites
- ~Effective ↓ # of nests lost to predation







# Nest Predation

## Mugshots:



7  
Dyer  
2 LT  
  
NW  
5 PPL



**=19 Total  
Nests Predated**