

Piping Plover and Least Tern Monitoring and Research—2023



Jason Bruggeman, PRRIP EDO

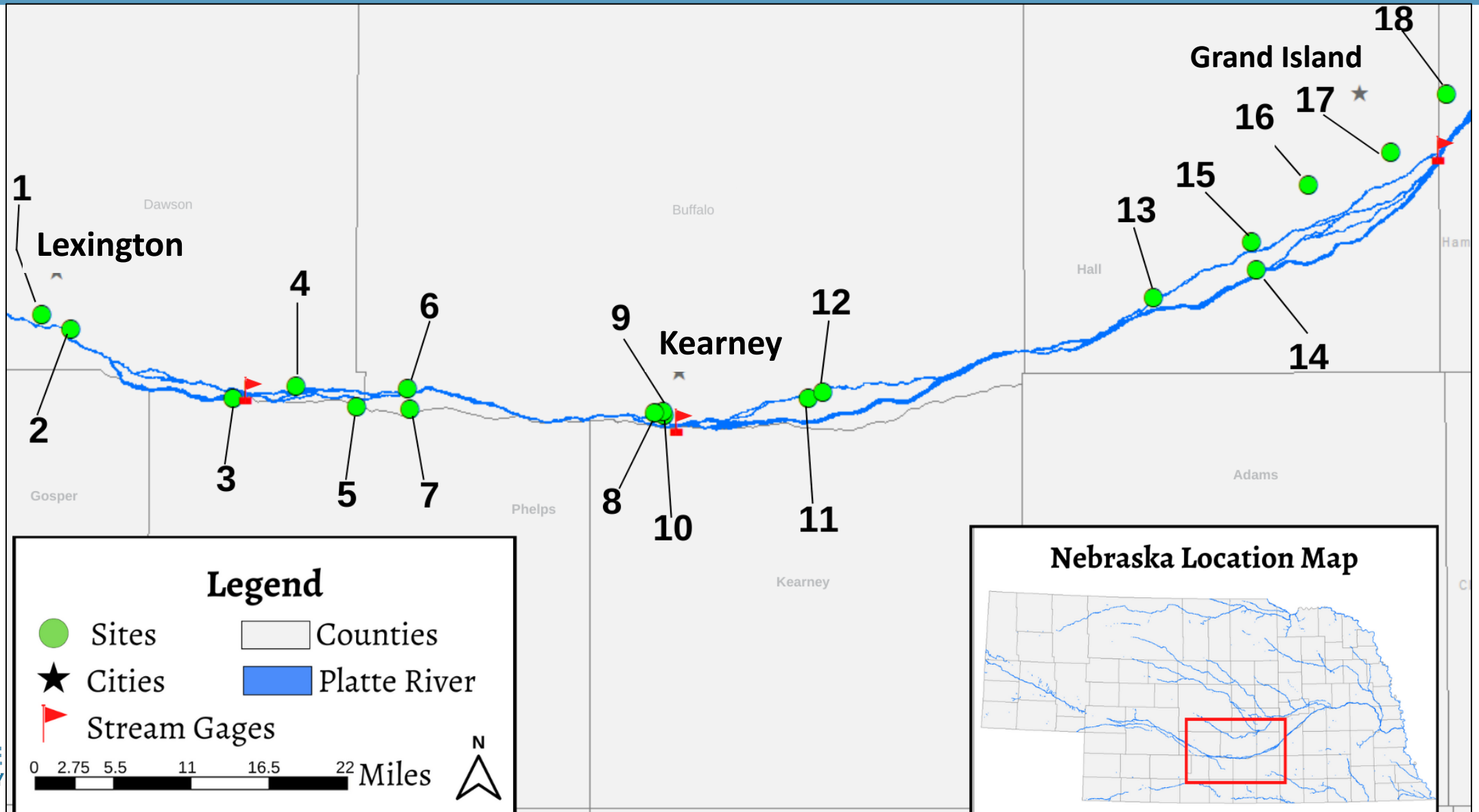
Technical Advisory Committee Meeting, January 16, 2024

PRRIP Plover and Tern Monitoring

- Management objective:
 - Improve productivity
 - Increase number of fledged chicks
 - Reduce adult mortality
- Status indicators:
 - Number of breeding pairs
 - Fledge ratios
- Extension Big Questions
 - Predation and plover productivity



Study Areas



PRRIP Monitoring Methods

- River and off-channel sand and water (OCSW) site surveys
 - May 1 – August 1
 - Twice monthly
 - Twice weekly if nesting
- Predator research at six OCSW sites
 - Remote camera monitoring
 - Predator track surveys

PRRIP 2023 Monitoring—Plovers

- Nested at 10 of 18 OCSW sites
- One river site nest
- 41 peak estimated breeding pairs (BPE)
- 40 of 48 nests successful
- 143 chicks
- 58 fledglings

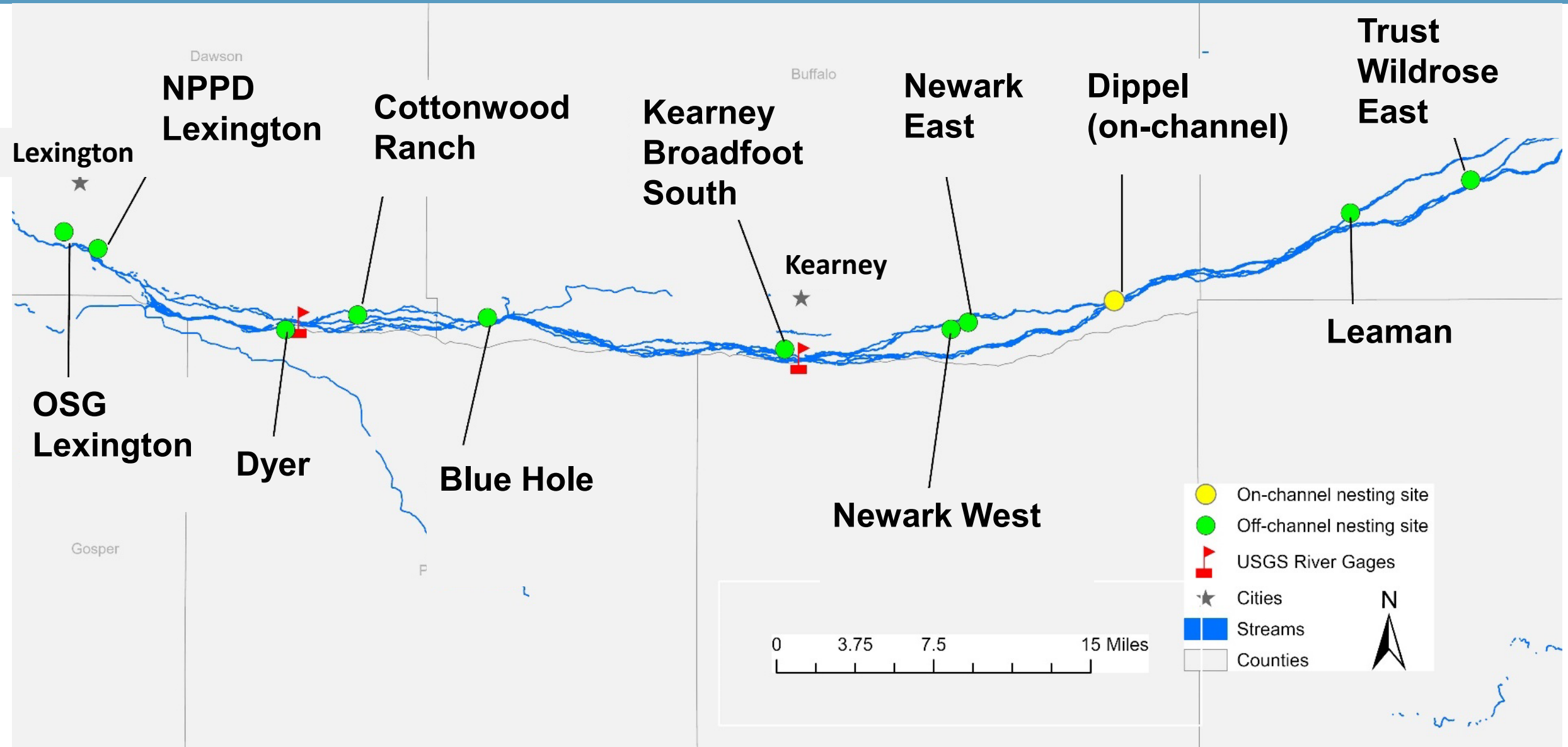


PRRIP 2023 Monitoring—Plovers

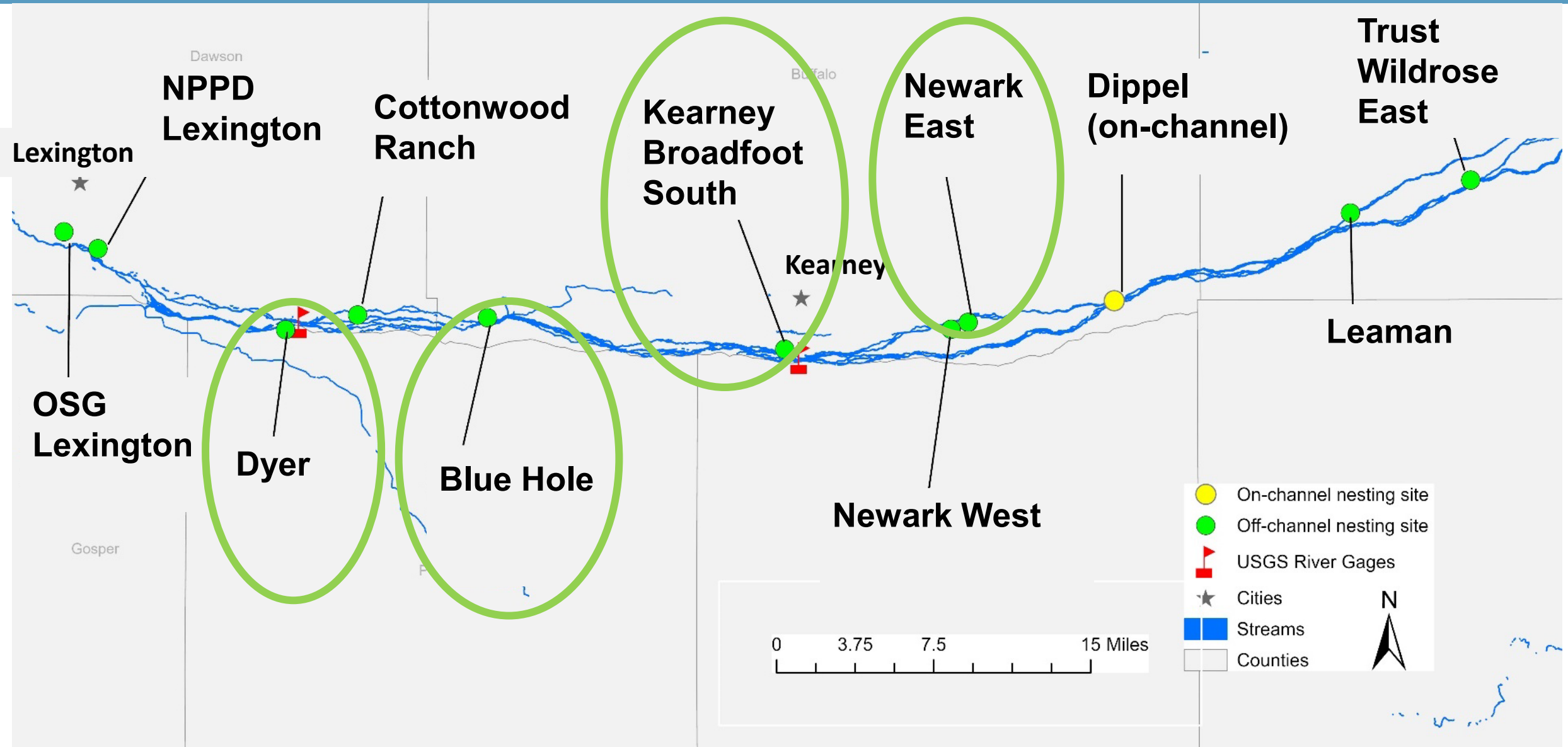
- Nested at 10 of 18 OCSW sites
- One river site nest
- 41 peak estimated breeding pairs (BPE)
- 40 of 48 nests successful
- 143 chicks
- 58 fledglings
 - 1.41 chicks/BPE



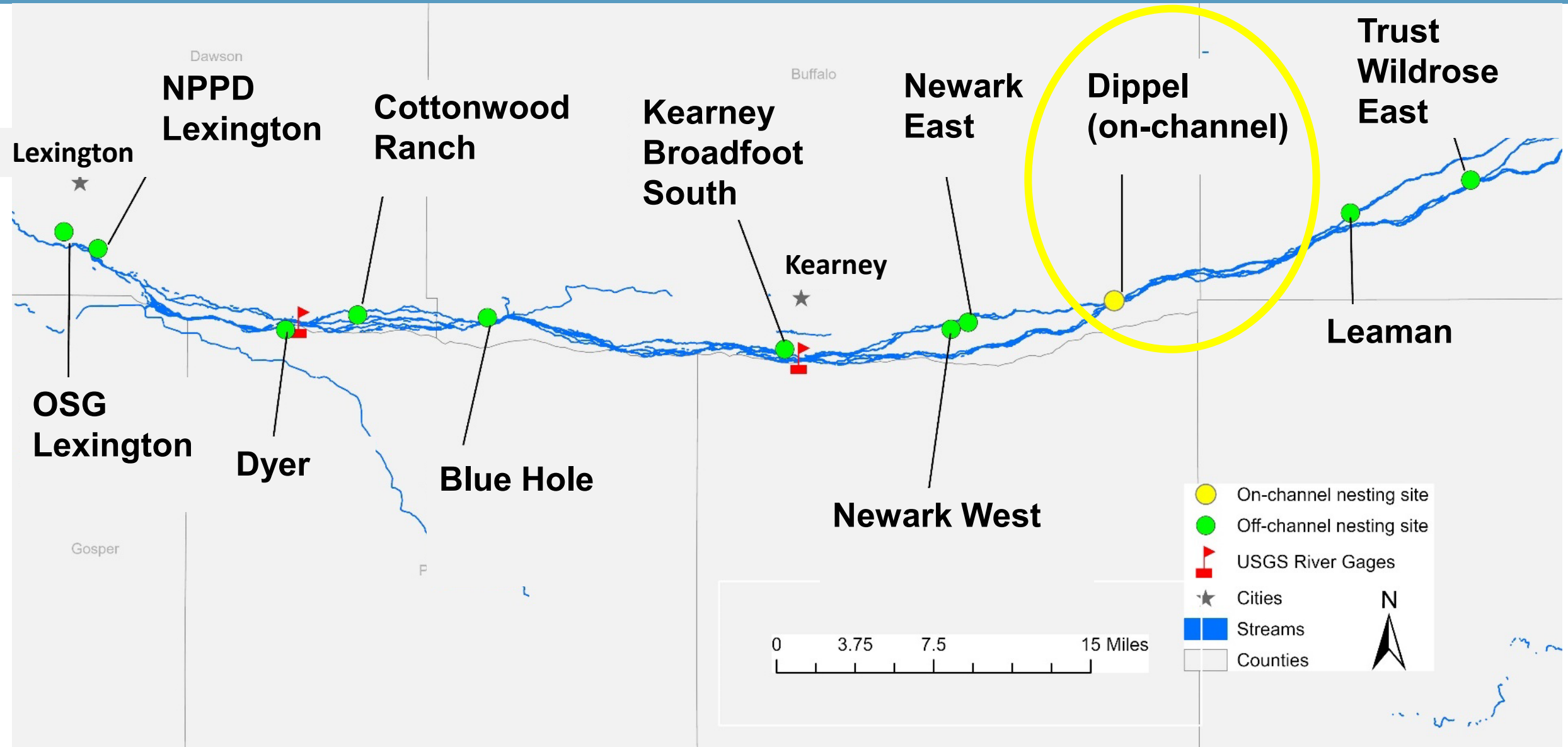
Spatial Variability in Plover Productivity



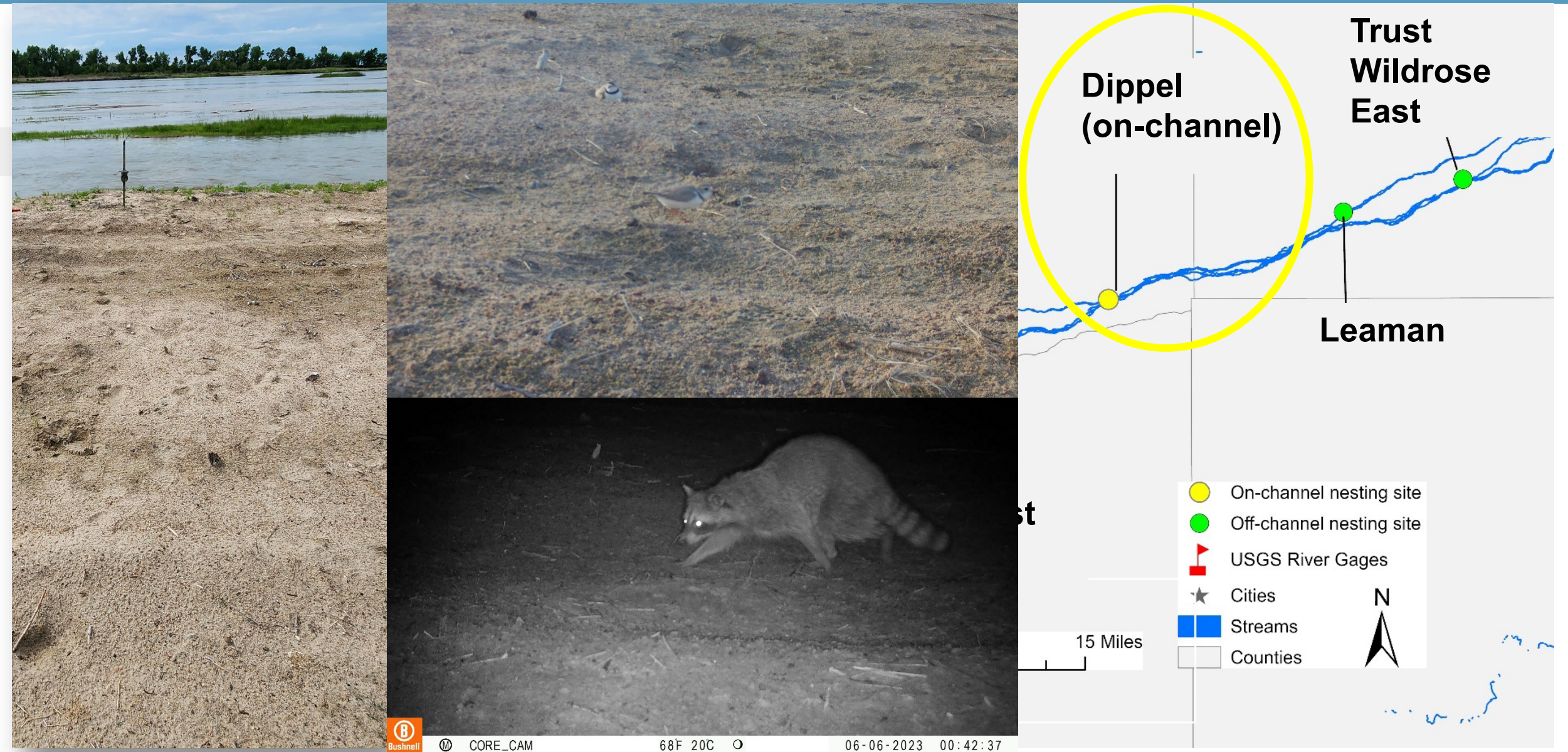
Spatial Variability in Plover Productivity



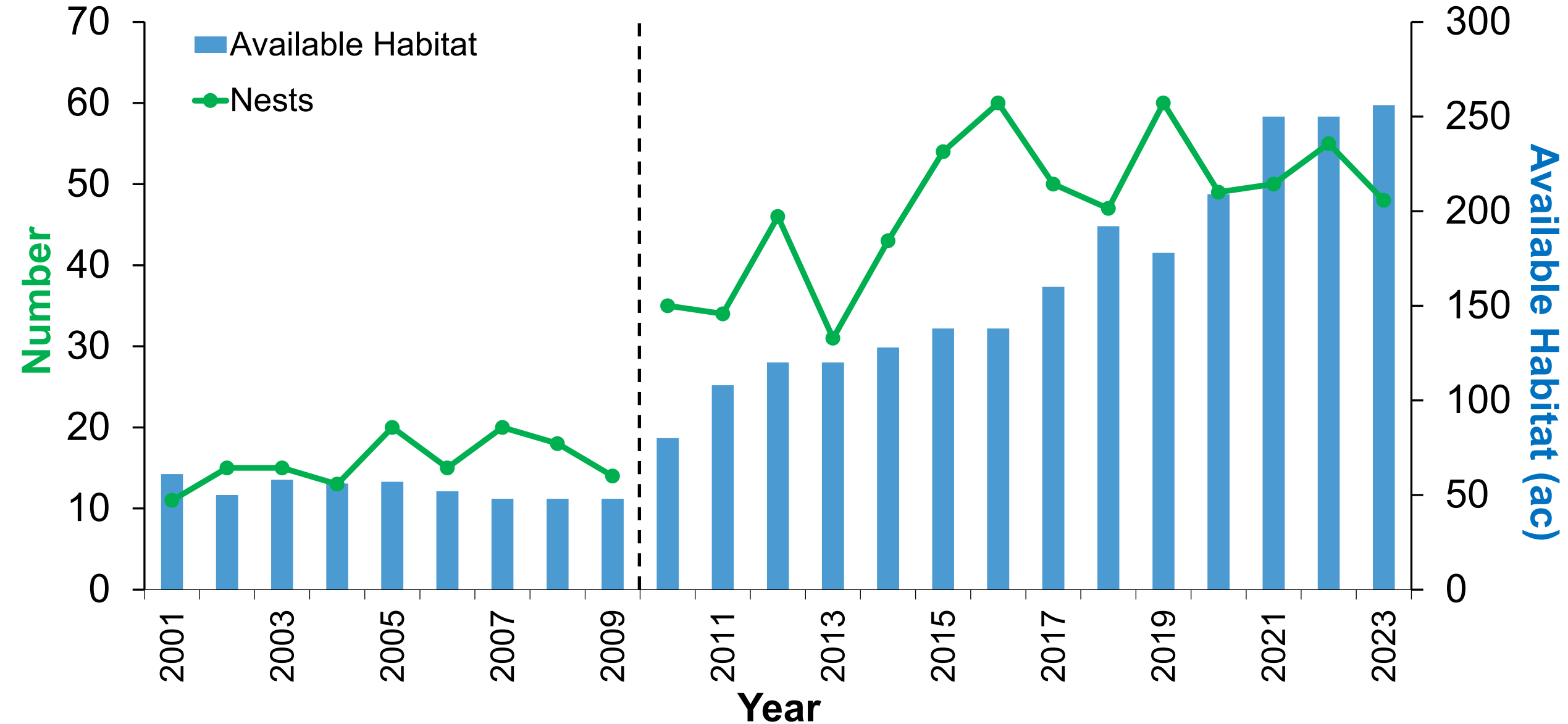
Spatial Variability in Plover Productivity



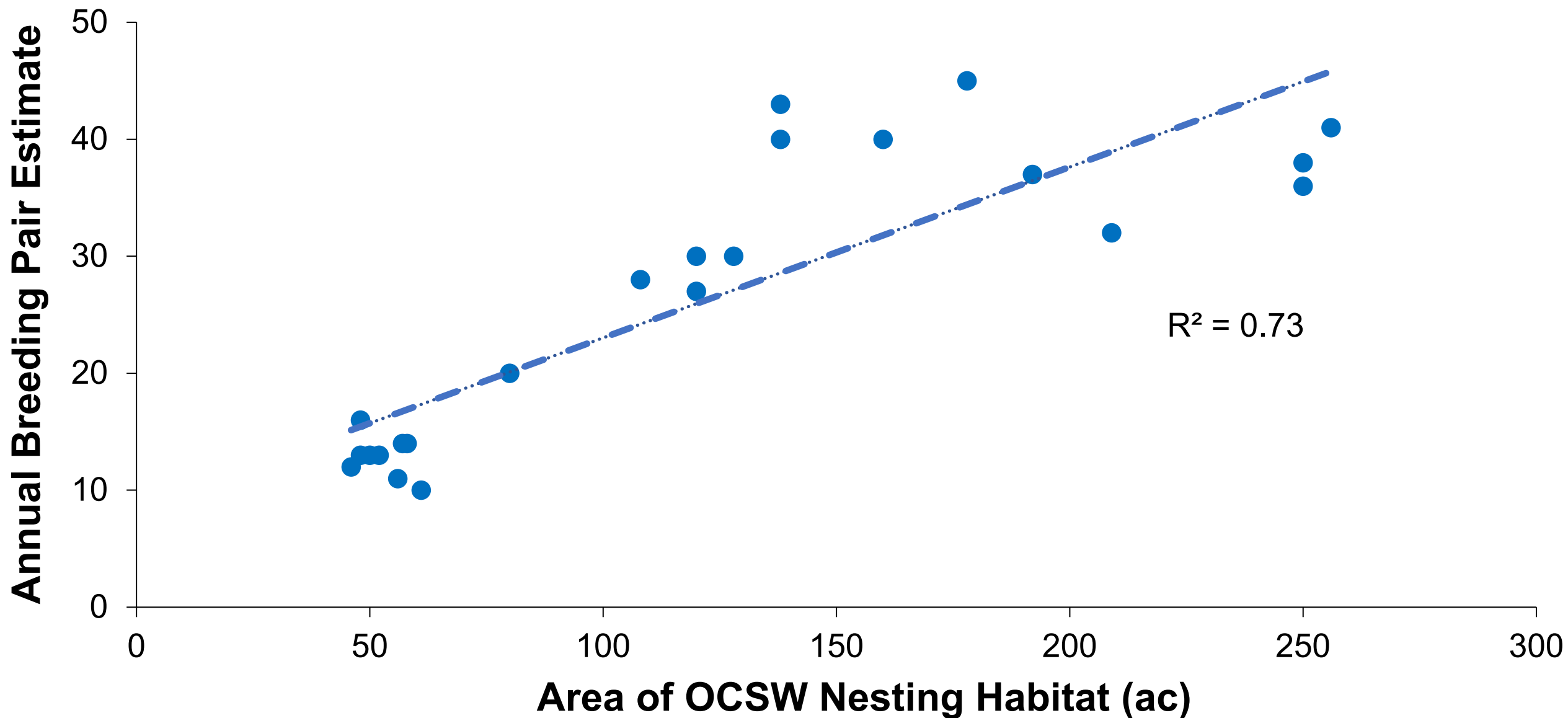
Spatial Variability in Plover Productivity



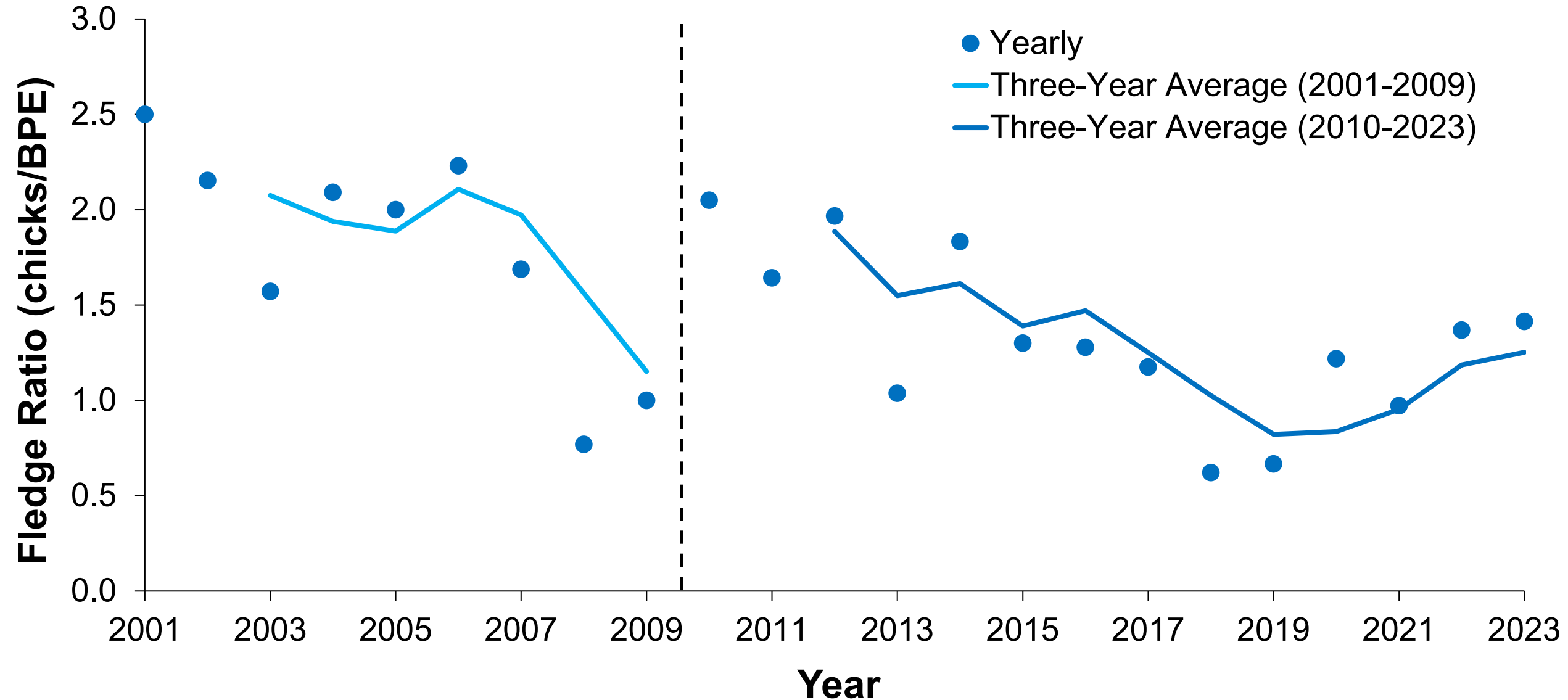
Plover Nests and Habitat 2001–2023



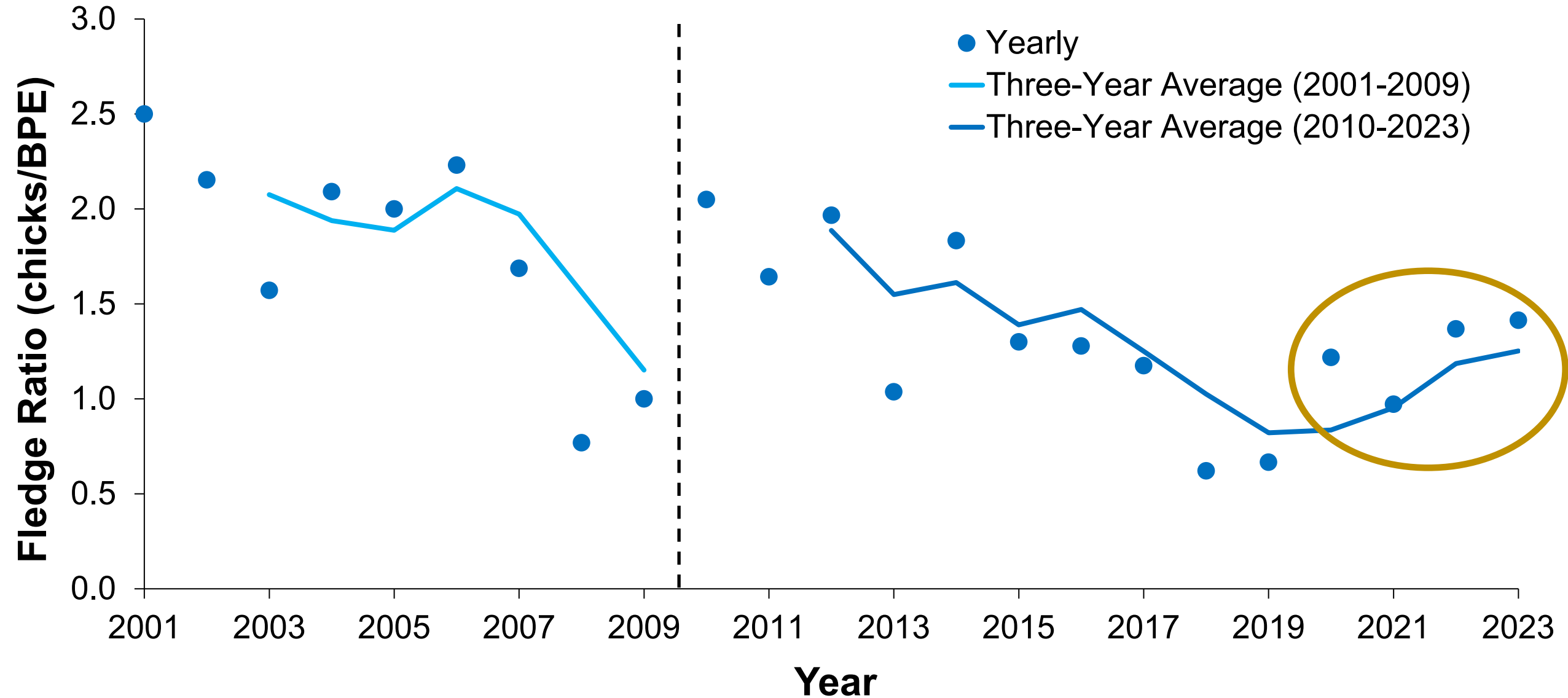
Plover Breeding Pairs and OCSW Habitat



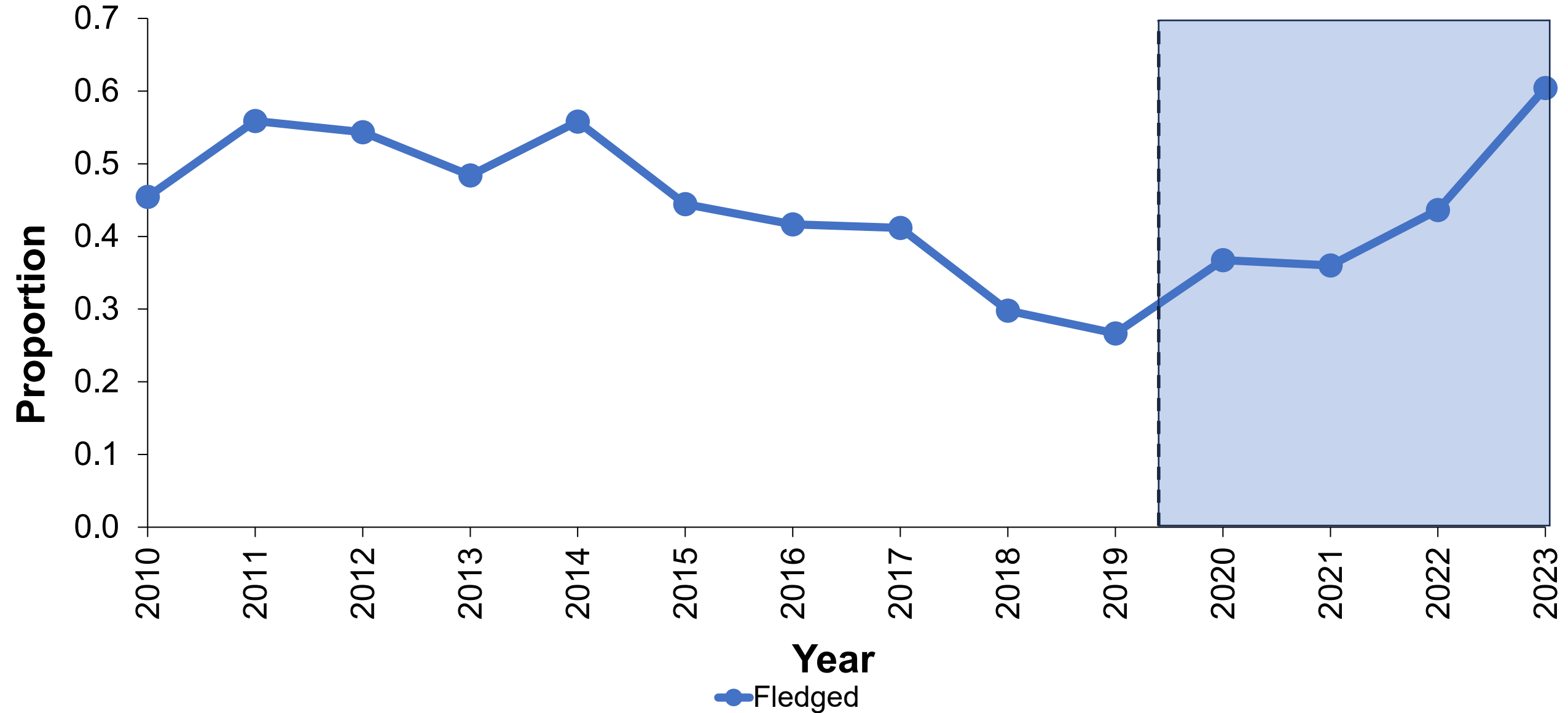
Plover Fledge Ratios



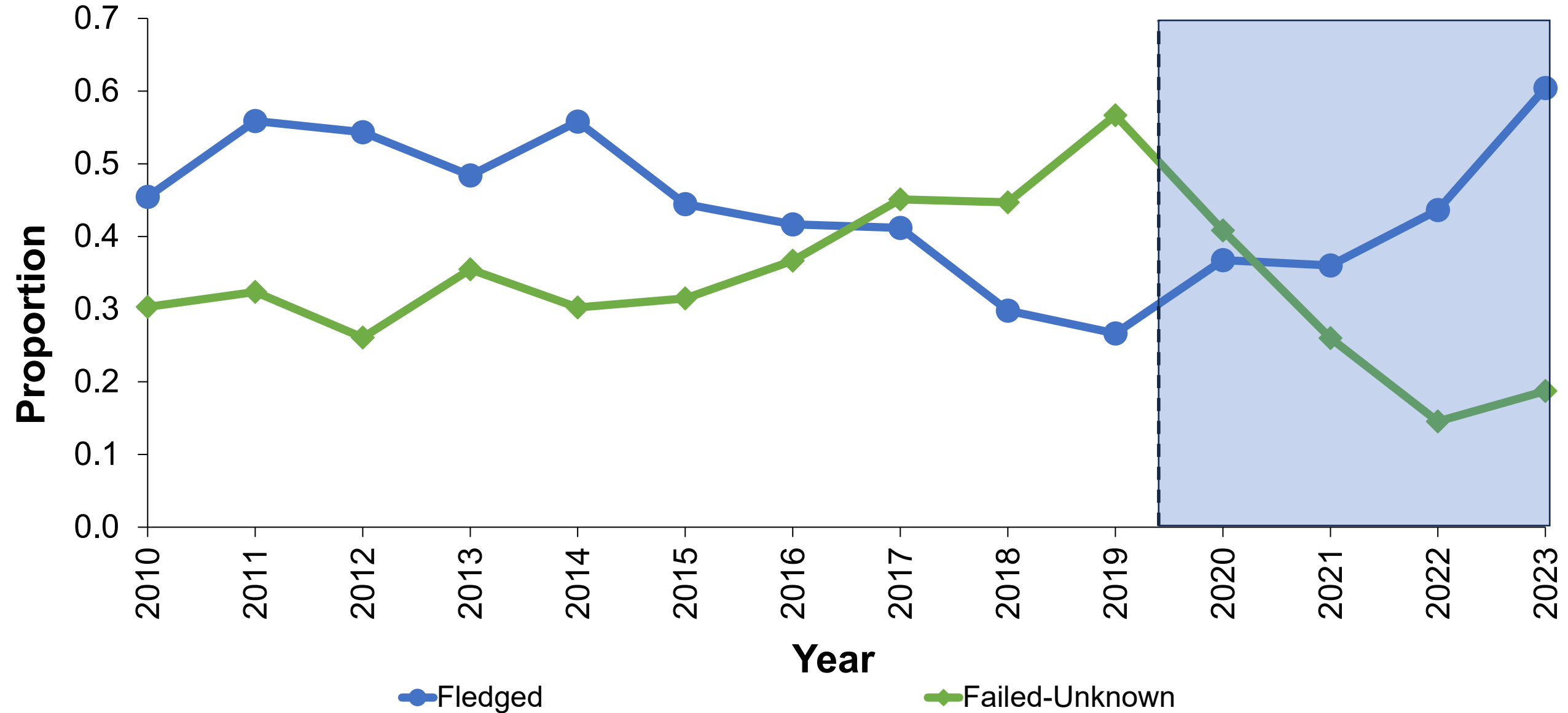
Plover Fledge Ratios



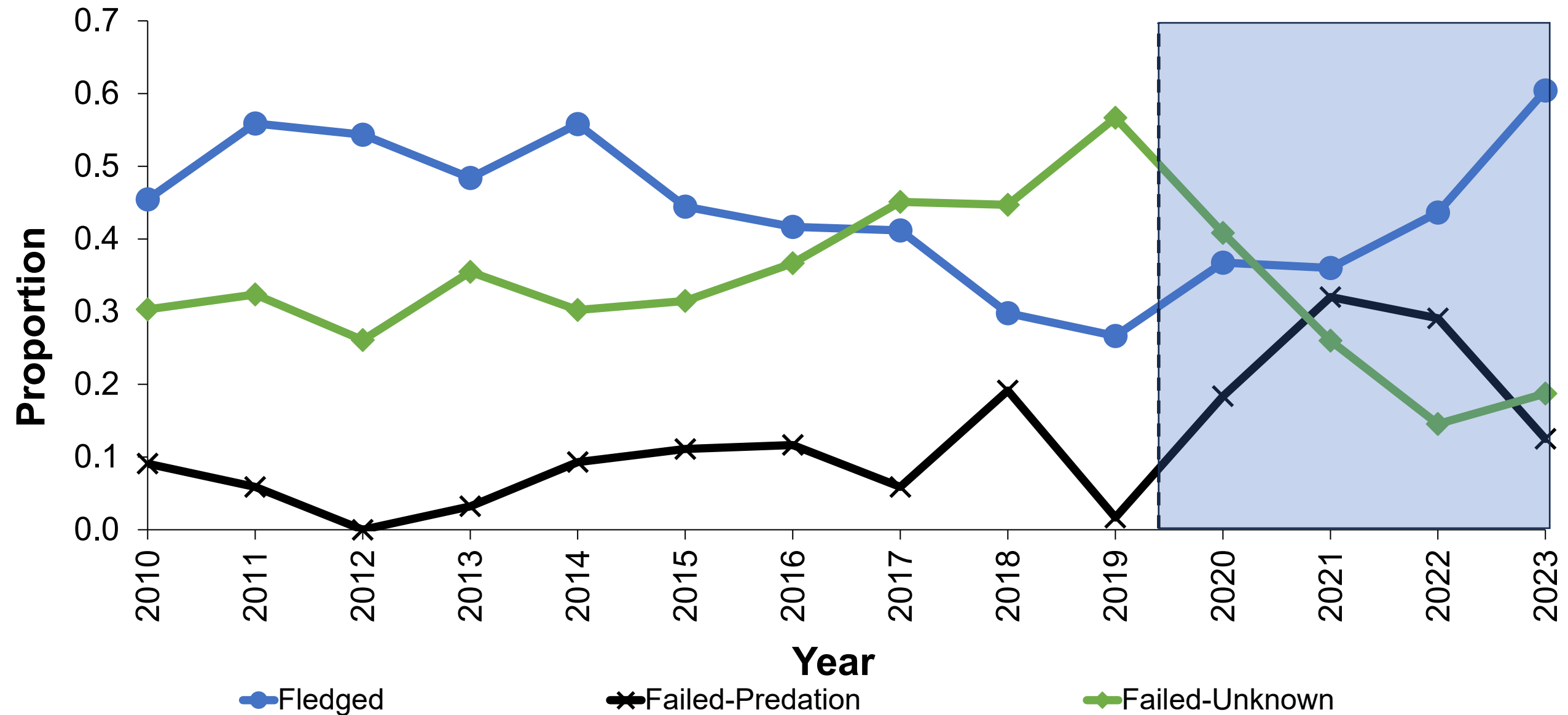
Plover Nest and Brood Fates



Plover Nest and Brood Fates



Plover Nest and Brood Fates

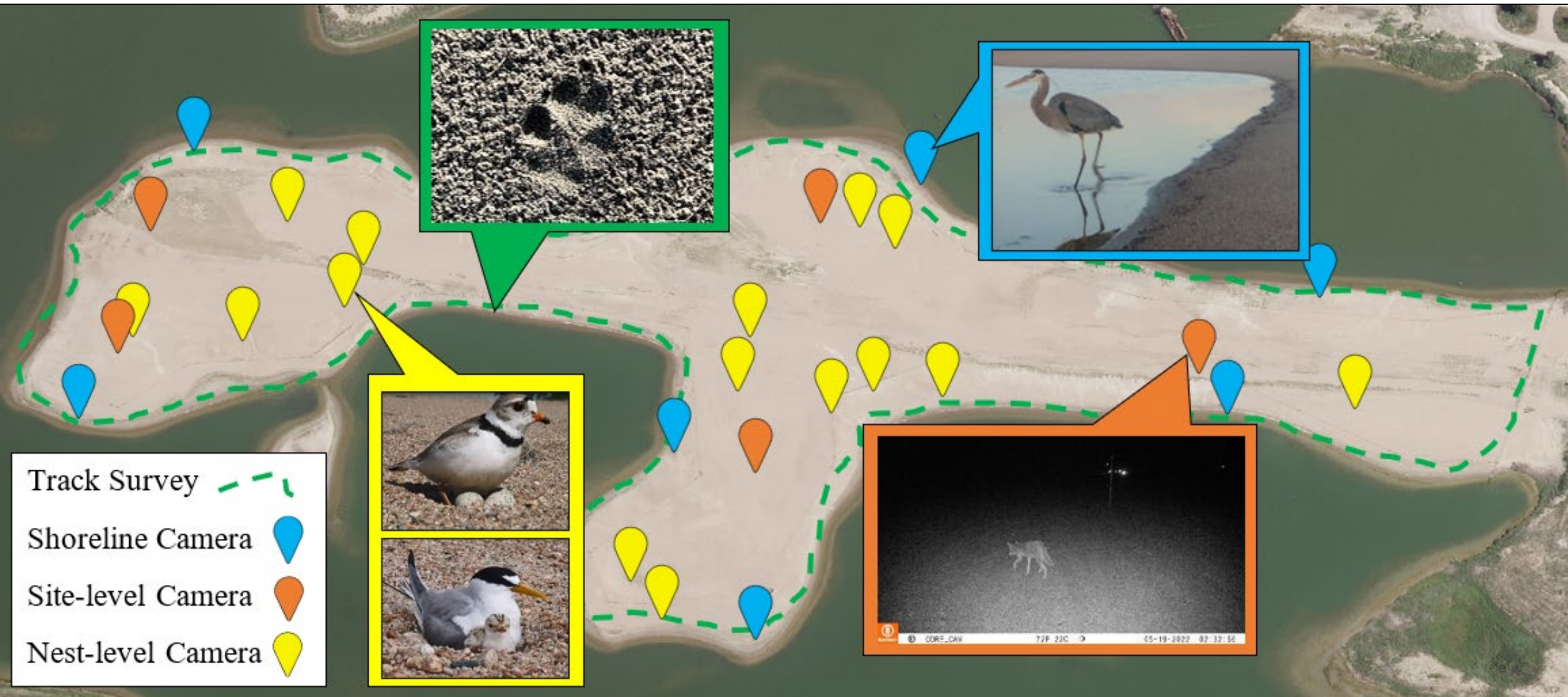


Predator Management Methods

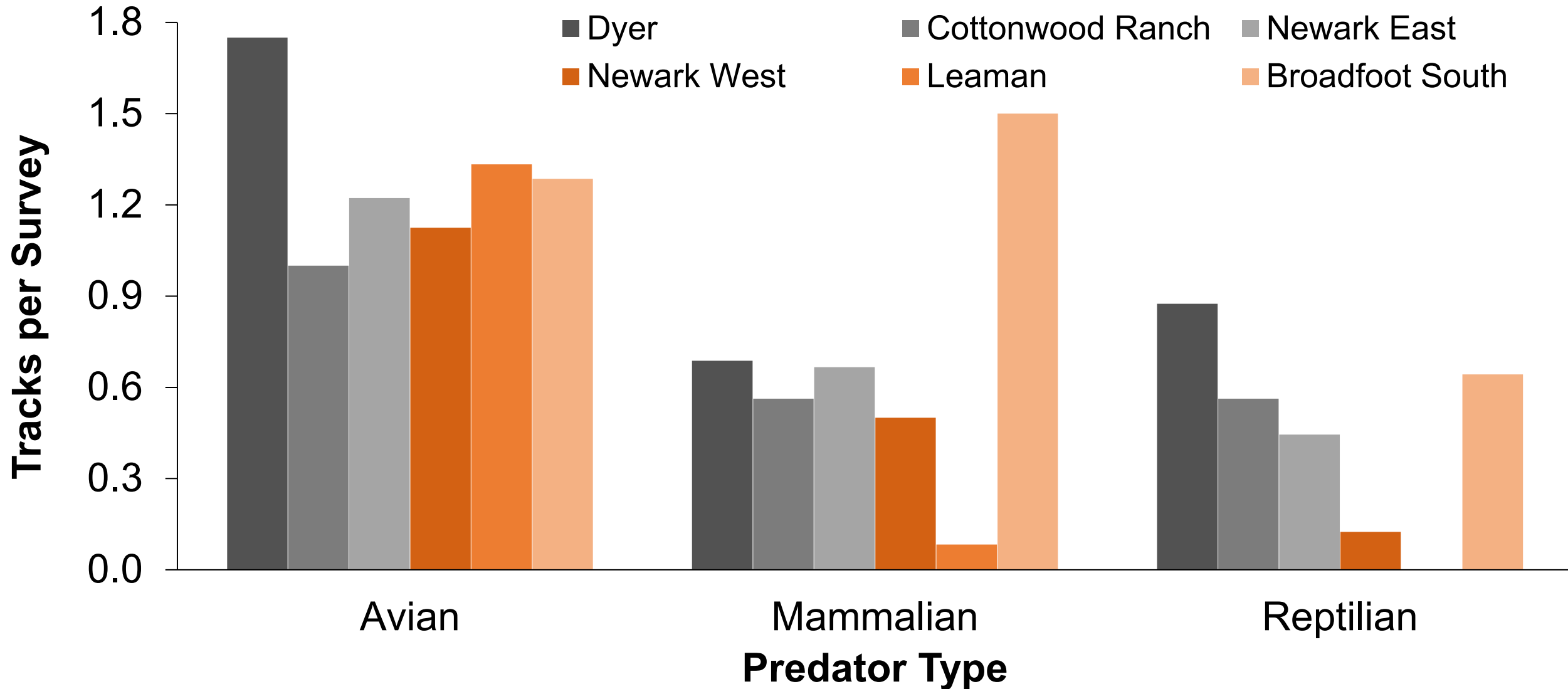
- Basic (seven sites)
 - Peninsulas
 - Electrified fence—entrance
 - Fence panel wings
 - Tree removal
 - Avian spikes
 - Trapping
- Additional (three sites)
 - Predator exclusion fencing
 - Deterrent lighting



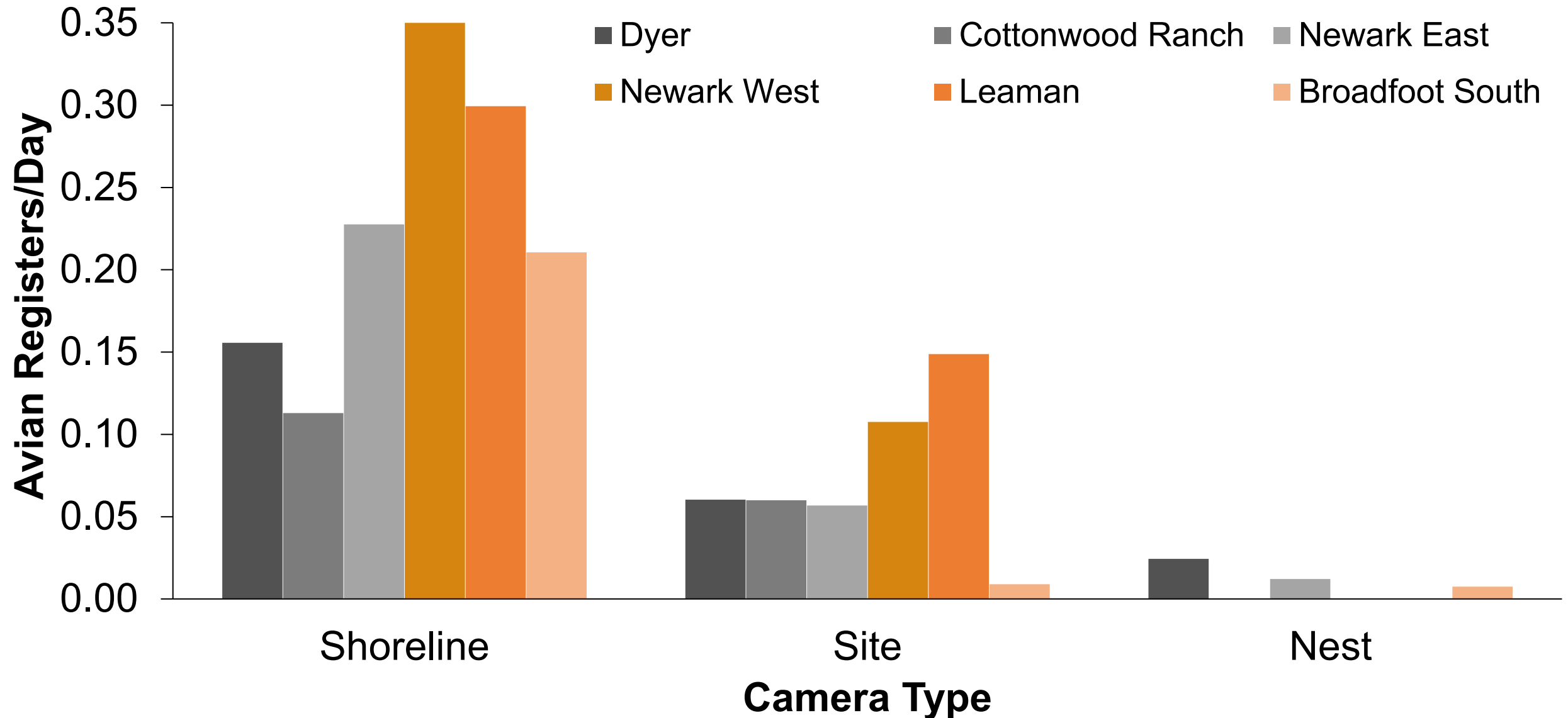
Predator Monitoring Methods



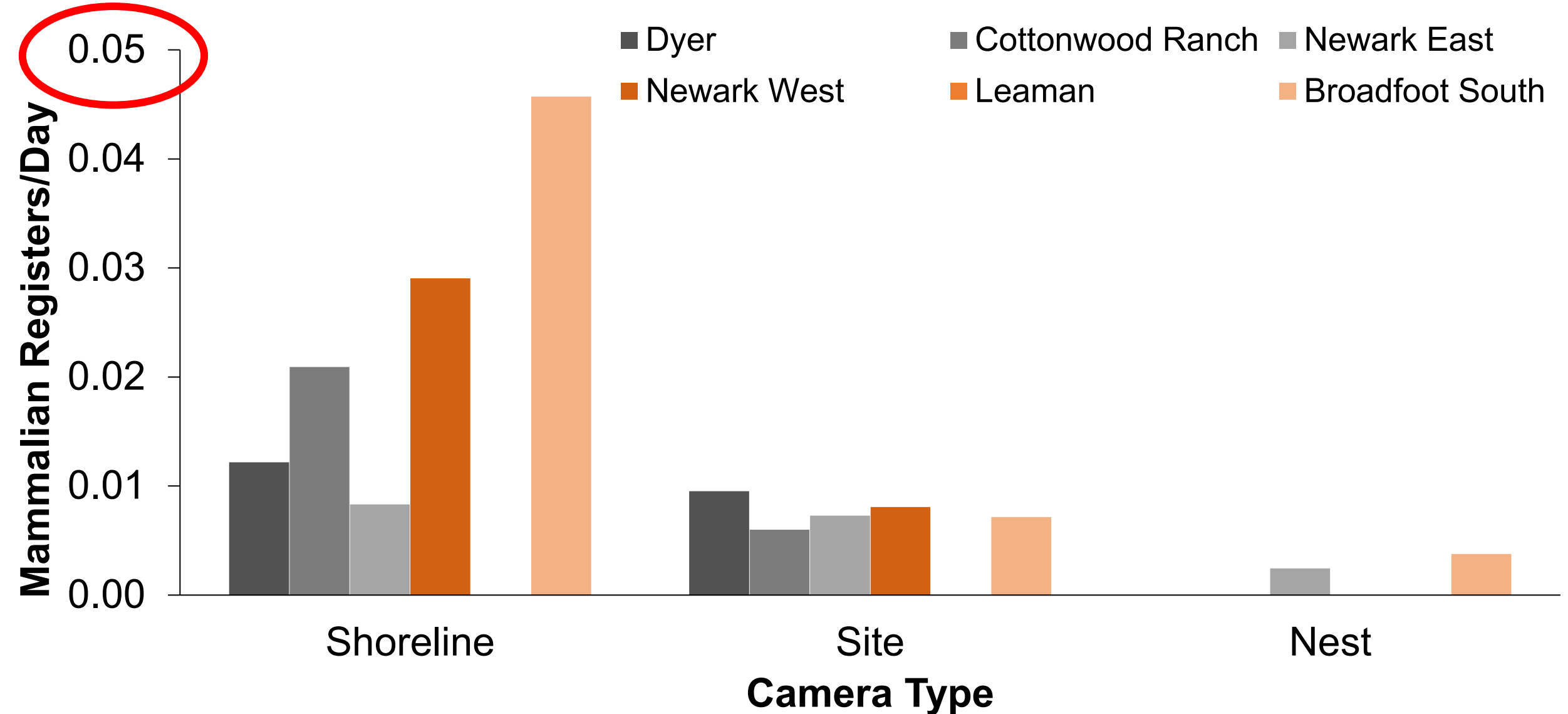
Track Surveys



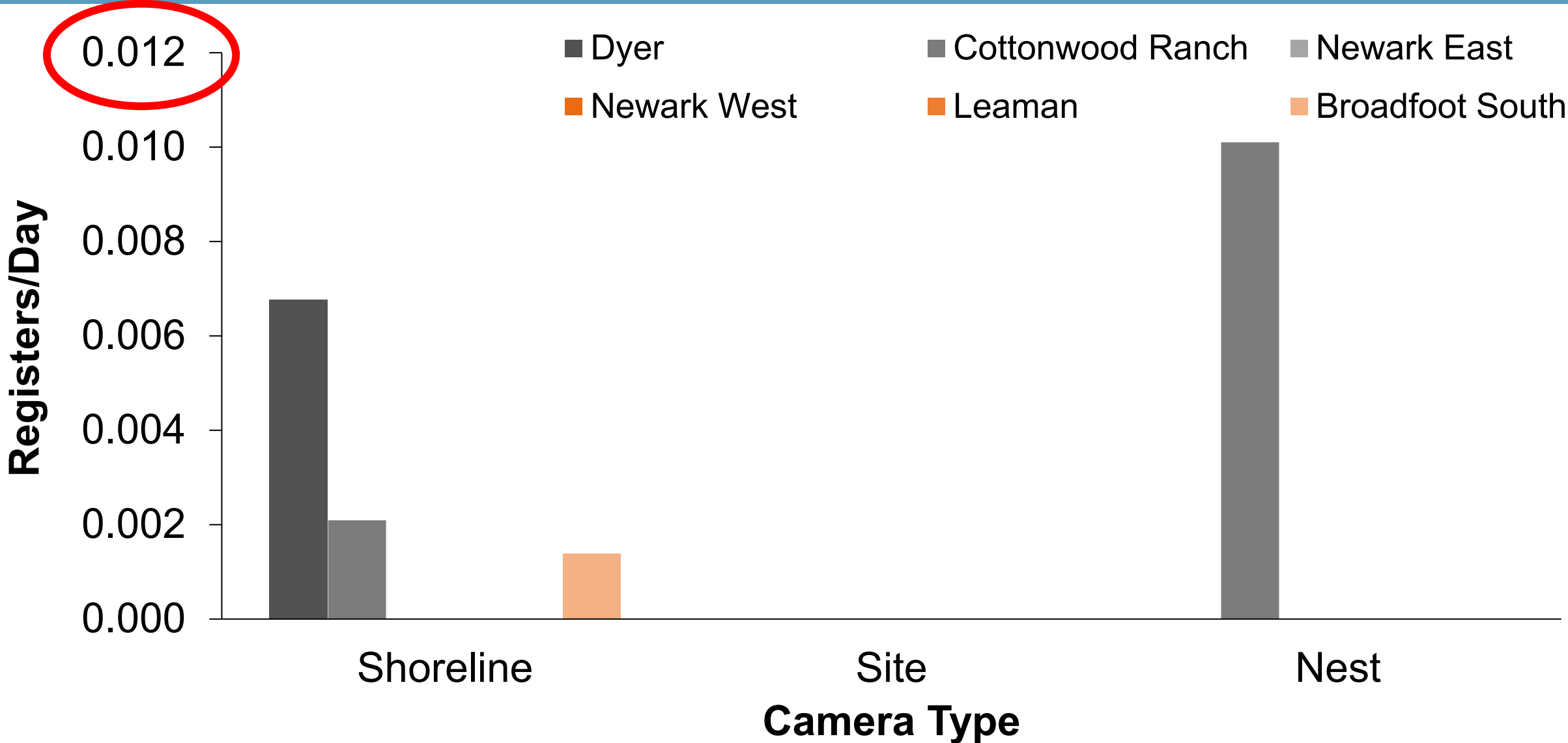
Camera Monitoring—Avian Species



Camera Monitoring—Mammalian Species

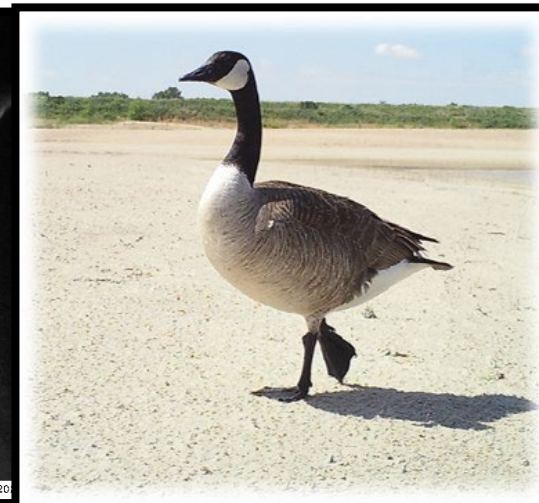


Camera Monitoring—Reptilian/Amphibian Species

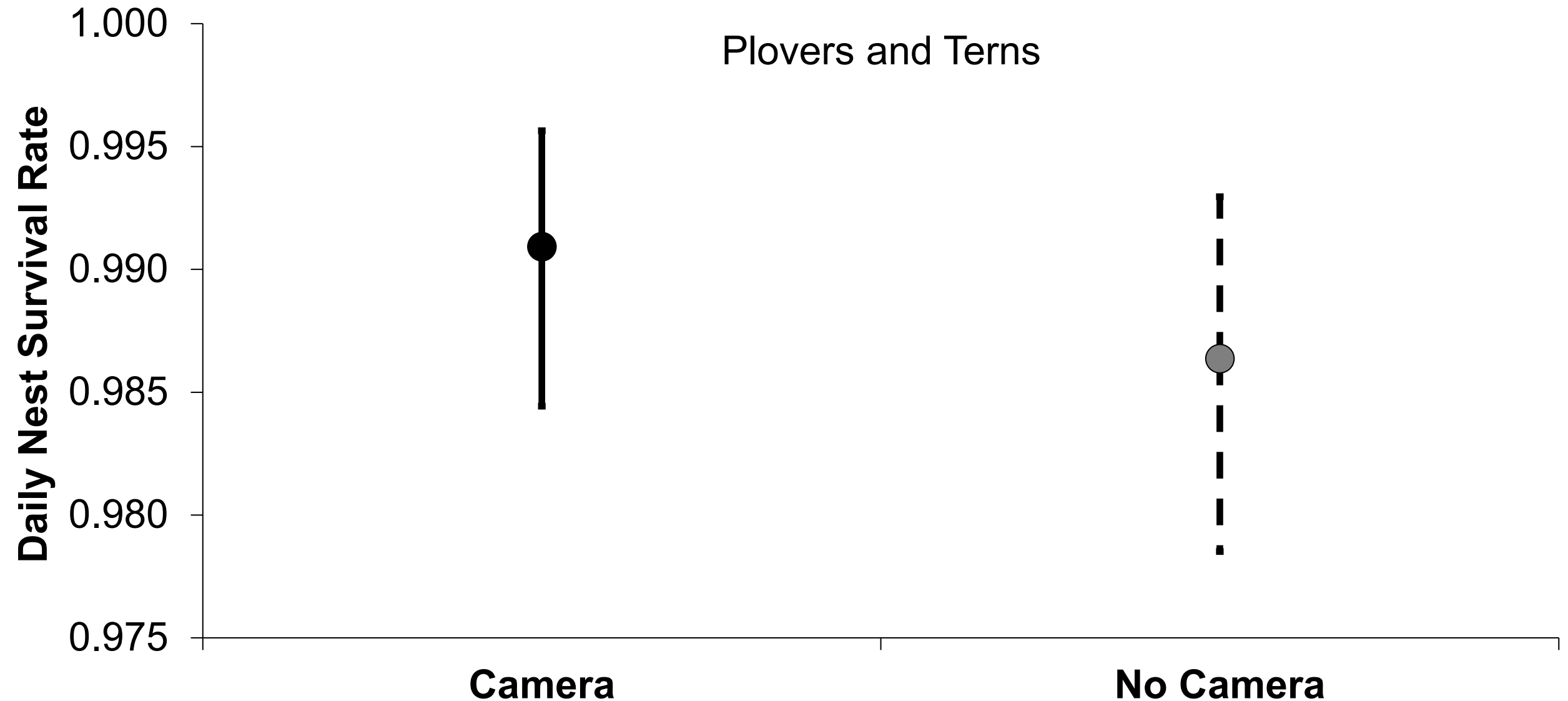


2023 Nest Depredation

- 10 total predation events
 - 5 plover nests; 5 tern nests
- Predator species
 - Great horned owls (5 nests)
 - Bull snake (2 nests)
 - Coyote
 - Raccoon
 - Canada goose



Effects of Cameras on Daily Nest Survival



2023 Summary

- Positive trend in plover productivity
- Highest fledge ratio since 2014
- Lower nest predation
- Cameras effective for fating nests
- Brood fates remain an information gap
- High annual variability in nest success and fledge ratios among sites

