Breeding Ecology and Nest Site Selection of American Oystercatchers on the Upper Texas Coast

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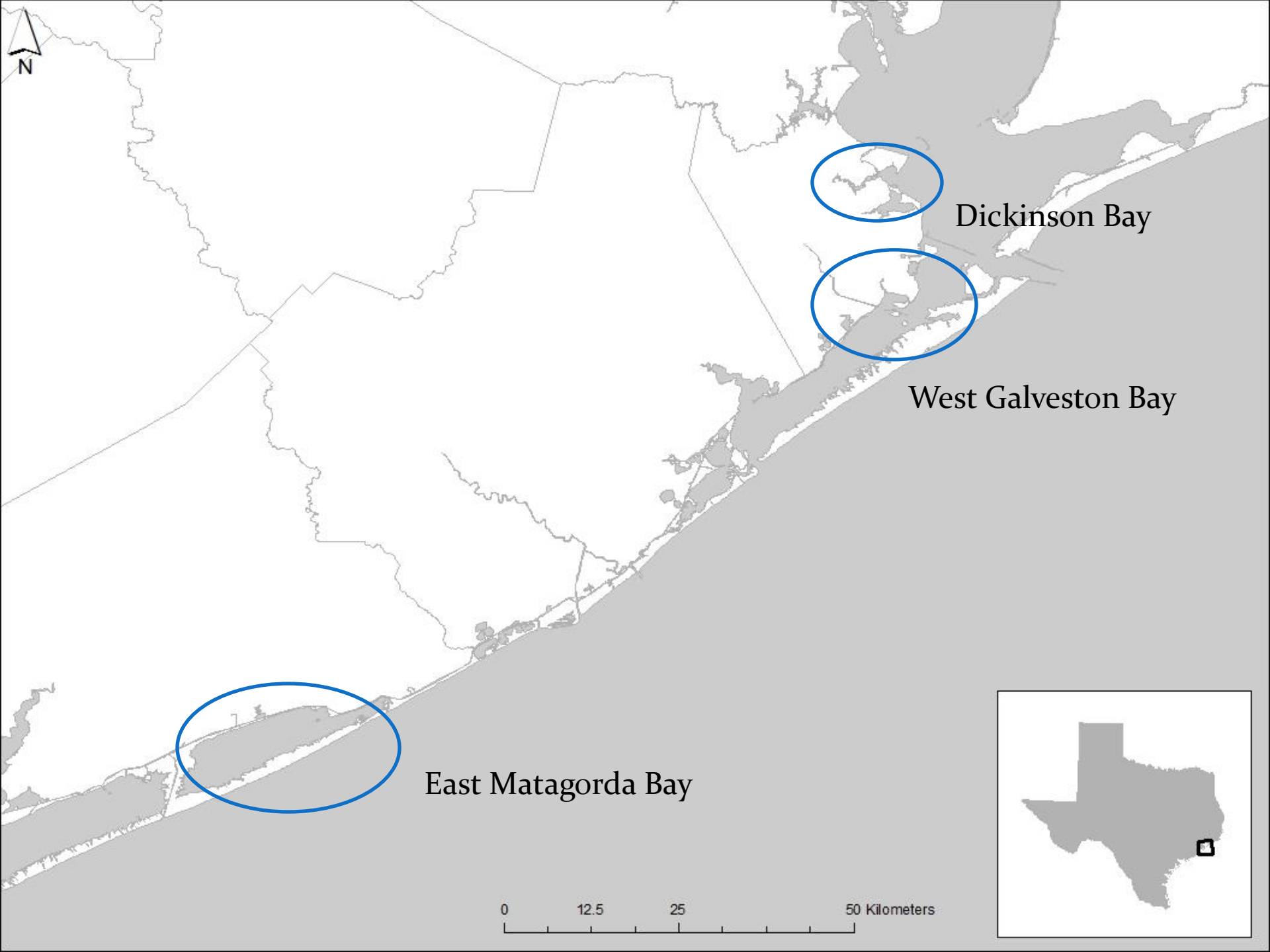
Objectives

- Examine breeding ecology of Oystercatchers in Texas
  - Implement a mark-resighting program
  - Monitor nests to assess reproductive success

- Investigate microhabitat and landscape scale predictors of oystercatcher nest site selection


N
Dickinson Bay
West Galveston Bay
East Matagorda Bay
0
12.5
25
50 Kilometers

Monitoring

- Birds banded
- 2011
  - 63 adults, 40 chicks
- 2012
  - 54 adults, 14 chicks
- 2013
  - Total 150 adults, 80 chicks

Reproductive Success

- 141 nests
- 2011
  - 58 nest attempts
  - 46 breeding pairs
  - 36 chicks fledged
  - 0.78 chicks/pair
- 2012
  - 81 nest attempts
  - 48 breeding pairs
  - 10 chicks fledged
  - 0.21 chicks/pair

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Habitat Selection

- Compare use vs. non-use (Johnson 1980)

- 2 spatial scales
  - Nest site
  - Landscape

Nest Microhabitat

- Surveyed live vegetation at nest plots
- Equal number of non-use plots
- Paired t-tests

Nest Microhabitat

- 2012, 74 nests
- n=148
- 15% nests on shell with no vegetation
- Overall nests averaged 30% live vegetation

	Nest Plots		Non-use Plots		*P*-value
	Mean	±SD	Mean	±SD	
Live Vegetation	29.97%	26.12%	30.84%	40.25%	0.843
Shell	64.34%	28.97%	61.18%	43.68%	0.517

Nest Microhabitat

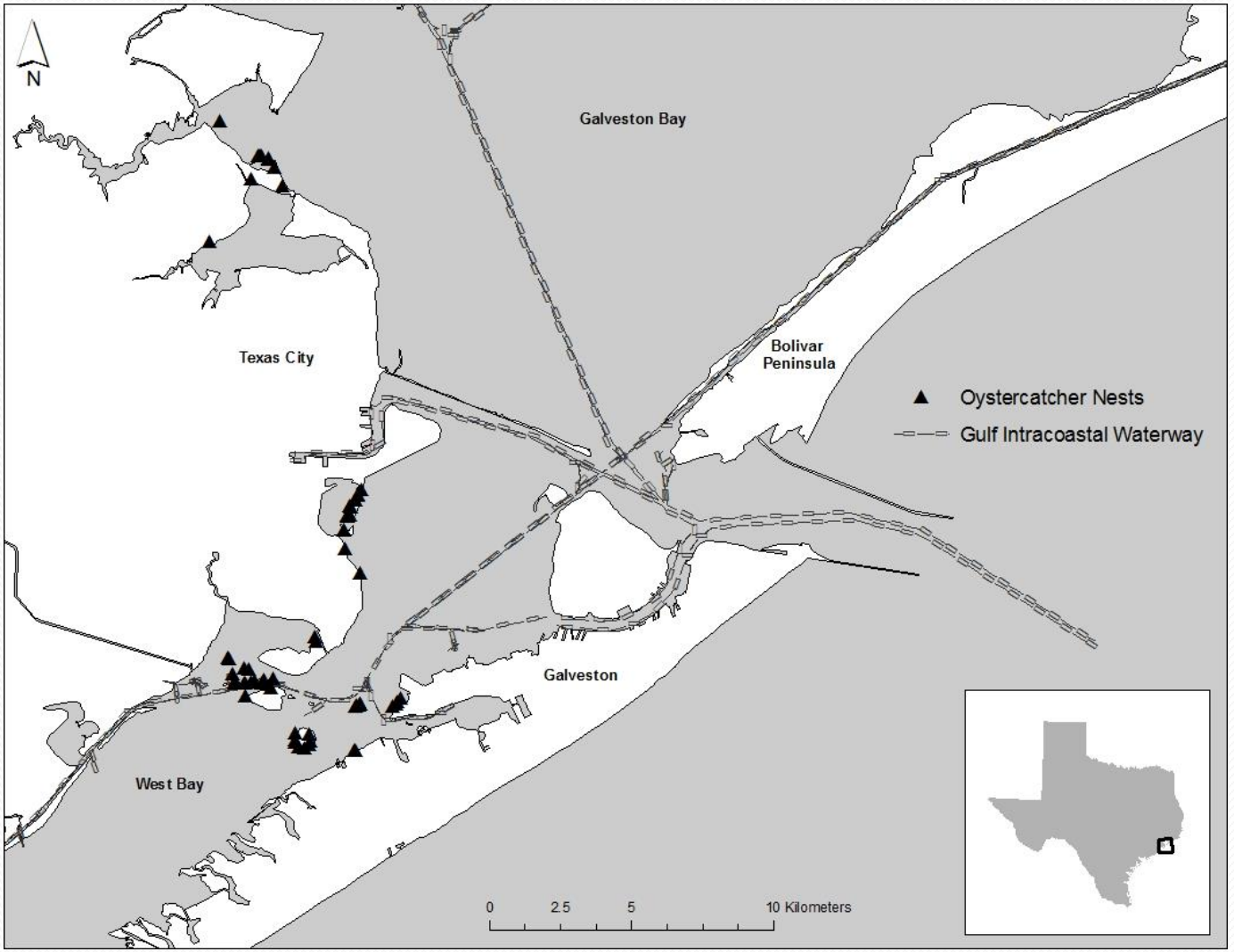
Sea purselane
(*Sesuvium portulacastrum*)

Carolina wolfberry
(*Lycium carolinianum*)

Sea ox-eye daisy
(*Borrichia frutescens*)

Saltwort
(*Batis maritima*)

Landscape


N
Galveston Bay
Texas City
Bolivar
Peninsula
Oystercatcher Nests
Gulf Intracoastal Waterway
Galveston
West Bay
0
2.5
5
10 Kilometers

Landscape

- Distance to Urban Landcover (NLCD)
- Distance to Oyster reefs
- Distance to Gulf Intracoastal Waterway
- Distance to Beach Access Points
- Elevation
- % shell, rock, or sand substrate (NLCD)

Landscape

- Goal: AIC_c
- Univariate logistic regression for each variable
- All were significant, except beach access
- Eliminated distance to beach access points from further analysis

Landscape

Model	ΔAICc	*w*	Number of parameters	-2LL
Shell + Oyster + Urban	**0**	**0.44**	**4**	**62.01**
Shell+ Oyster + Urban + Elevation + GIWW	1.26	0.23	6	58.79
Shell+ Oyster + Urban + Elevation	1.35	0.22	5	61.14
Shell + Oyster + GIWW	4.22	0.05	4	66.23
Shell + Oyster	4.87	0.04	3	69.05
Shell + Oyster + Elevation	6.71	0.02	4	68.72
Oyster	43.2	<0.001	2	109.51
Shell	56.94	<0.001	2	123.25
null	117.37	<0.001	1	185.76

Results

- Best supported model
- Negative relationship
  - Distance to oyster reefs
  - Distance to urban landcover
- Positive Relationship
  - % shell substrate
- Confirms that distribution is limited by availability of intertidal areas supporting shellfish beds

Discussion

- Landscape scale
- Oyster reefs and the presence of shell substrate for nesting are important factors in determining how oystercatchers select their nest sites.
- Conservation and restoration

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Questions?