Between paradise and peril: a story of American Oystercatchers in the Cedar Keys

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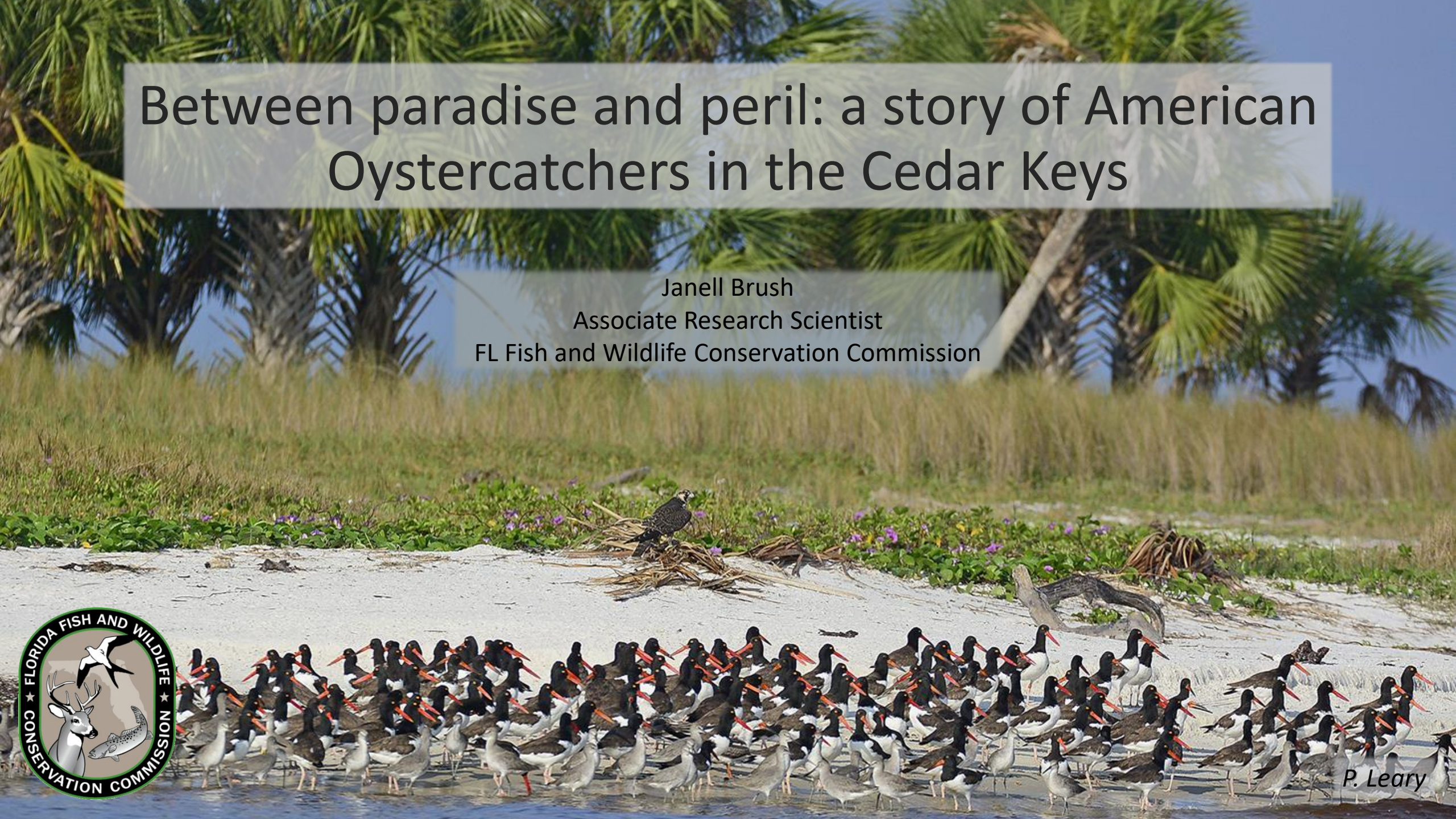


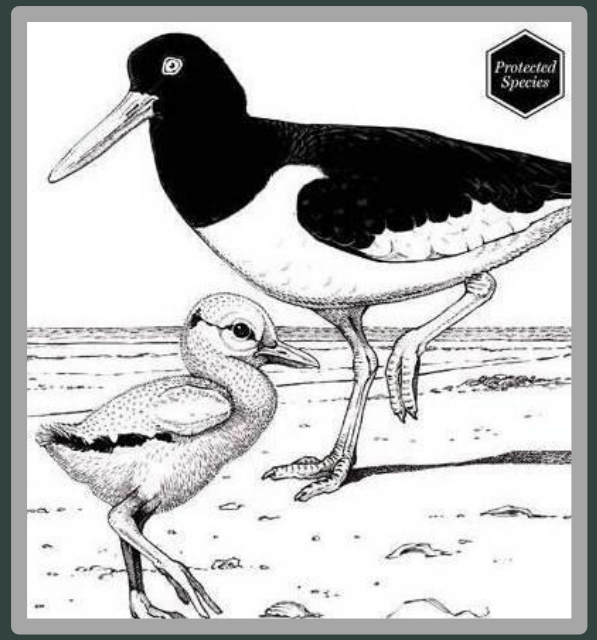
P. Leary

U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

American OYSTERCATCHER WORKING GROUP

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

NATIONAL FISH AND WILDLIFE FOUNDATION NFWF



UF IFAS UNIVERSITY of FLORIDA
MOLLUSCAN SHELLFISH Aquaculture & Restoration Laboratory

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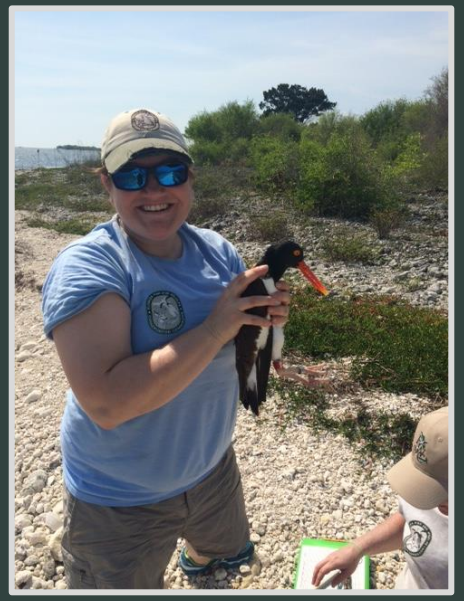
Amy Schwarzer

Doris & Pat Leary

Cody Griffin

Bobbi Carpenter



Joe Marchionno

Jeremy Wood

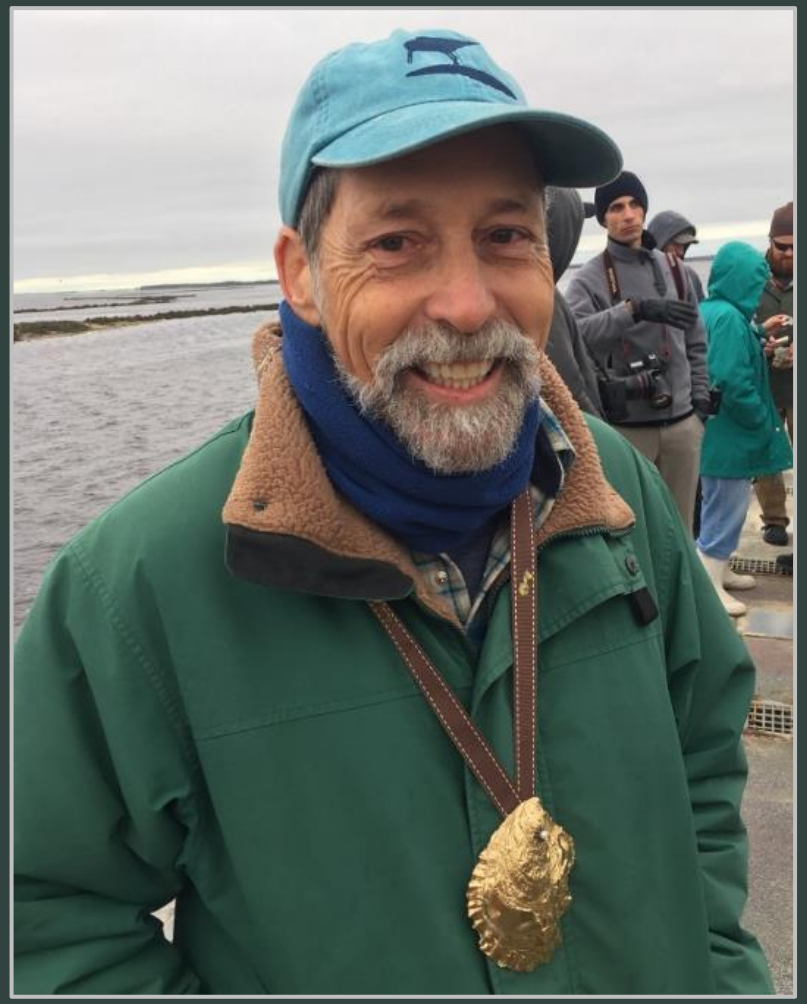
American OYSTERCATCHER WORKING GROUP

Airport Middle Roost
510 Oystercatchers

50 Banded

- *14 NC*
- *10 MA*
- *9 NJ*
- *6 VA*
- *4 FL*
- *4 GA*
- *2 NY*
- *1 SC*

Oyster Research



Peter “Oyster King” Frederick

- Seavey et al. 2011
  - 66% net decline in extent of oyster reefs since 1970
  - 88% loss of offshore reefs (over 30 years)
  - No apparent shortage of oyster larvae in the nearshore ecosystem

esa ECOSPHERE

Decadal changes in oyster reefs in the Big Bend of Florida’s Gulf Coast

J. R. Seavey,[1,†] W. E. Pine, III,[1] P. Frederick,[1] L. Sturmer,[2] and M. Berrigan[3]

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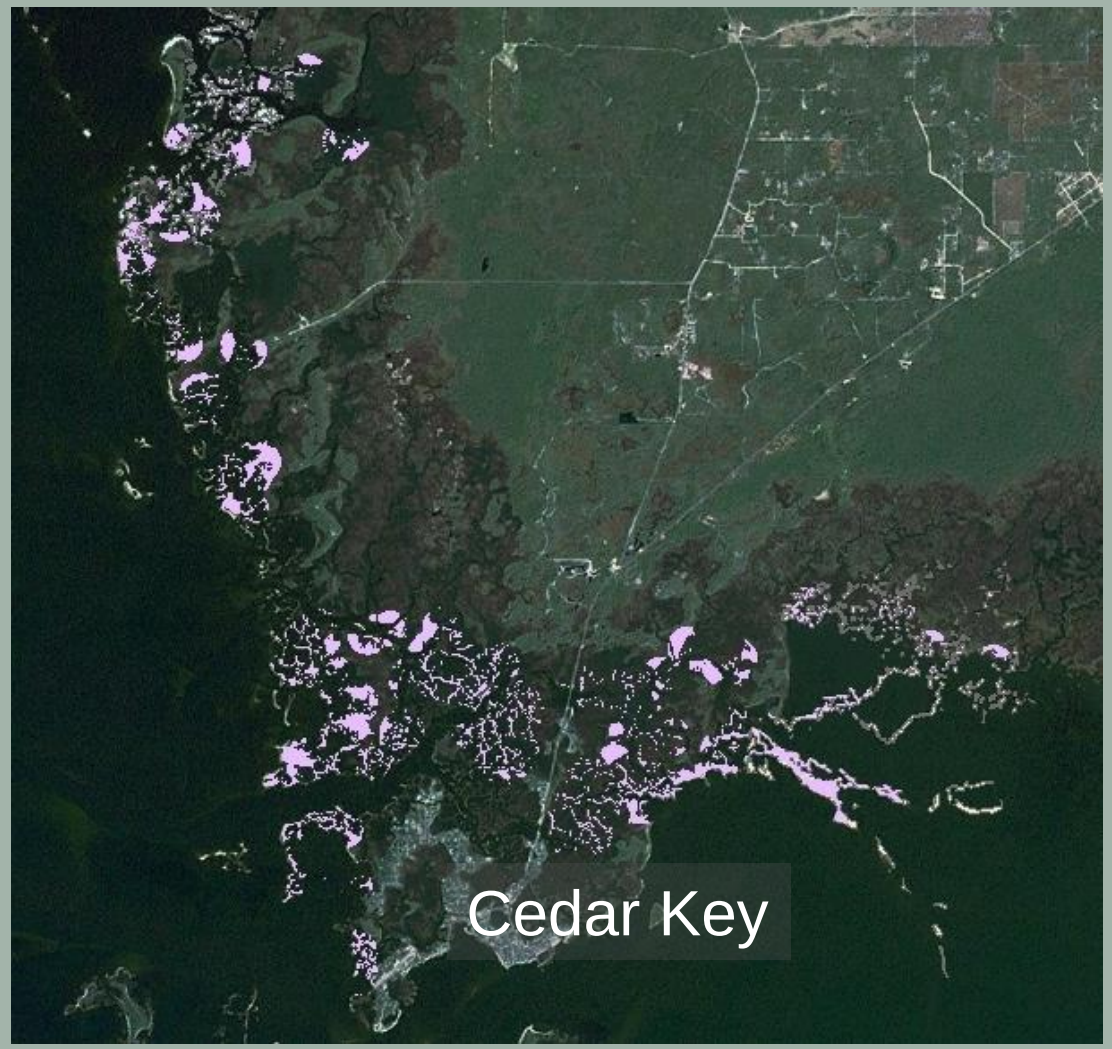
Citation: Seavey, J. R., W. E. Pine, III, P. Frederick, L. Sturmer, and M. Berrigan. 2011. Decadal changes in oyster reefs in the Big Bend of Florida’s Gulf Coast. Ecosphere 2(10):114. doi:10.1890/ES11-00205.1

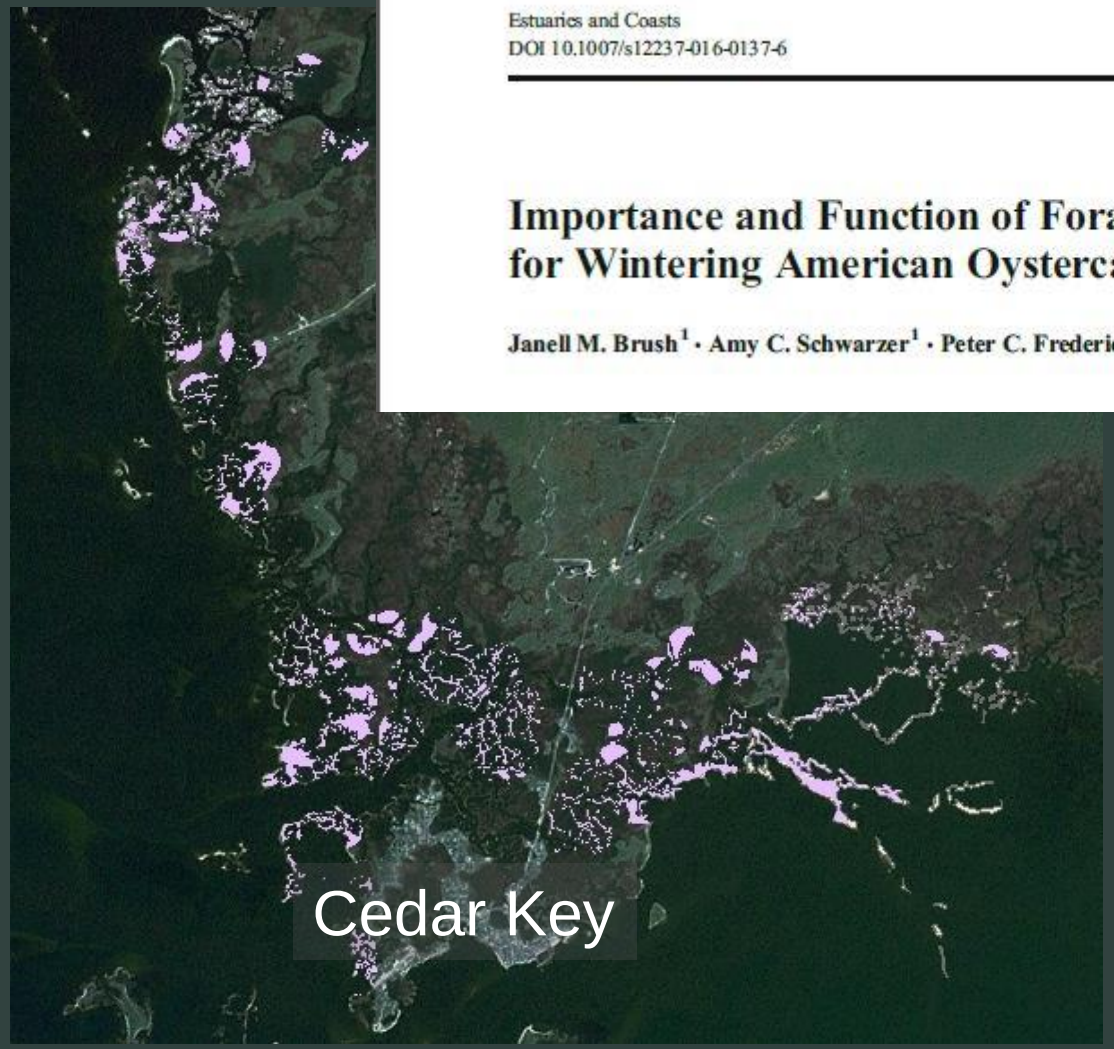
Wintering American Oystercatchers



- Phase I: 2011-2013
  Describe the importance and function of foraging and roost habitat for Wintering American Oystercatchers and to identify factors that may be limiting for this wintering population

- Phase II: 2014-2017
  Use the results from Phase I to target areas for restoration to benefit the wintering population.

Wintering American Oystercatchers

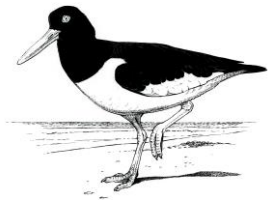


Estuaries and Coasts
DOI 10.1007/s12237-016-0137-6

CrossMark

Importance and Function of Foraging and Roost Habitat for Wintering American Oystercatchers

Janell M. Brush[1] · Amy C. Schwarzer[1] · Peter C. Frederick[2]



Wintering American Oystercatchers

- Prey availability
  - 95% of prey items were oysters
  - 37 minutes of foraging per day to satisfy daily energy needs

Not currently limited by prey availability

Limiting Factor: High Tide Roosts

- Offshore reefs
  - Documented declines
  - Eroding at accelerated rates
  - Small number of available roosts
- Optimal view of approaching predators
- Far from the mainland and woody vegetation
- Smaller in size
- Potential consequences associated with using suboptimal roosts
- Overlap with areas of recreational use

Roost Enhancement

- Phase II: 2014-2017
  Use the results from Phase I to reduce threats to the wintering population.

Roost Enhancement

Roost Enhancement

- Project sustainability
  - Increased reef area, elevation, oyster resettlement
  - Withstood storms and Hurricanes
- Economic impacts
  - Stimulated local economy and developed project support

Oysters and Wintering Oystercatchers

- Seavey et al. 2011
  - 66% net decline in extent of oyster reefs since 1970
  - 88% loss of offshore reefs (over 30 years)
  - No apparent shortage of oyster larvae in the nearshore ecosystem
- Brush et al. 2017
  - 95% of prey items are oysters
  - Limited by number of roosts available at high tide – primarily use offshore reefs
  - Potential costs associated with suboptimal roost locations

Banded Birds

Horseshoe Beach

Wintering Oystercatcher Survival

(November – February)

American OYSTERCATCHER WORKING GROUP

Data Source

2007-2018

Doris & Pat Leary

Cedar Key

Yankeetown

Wintering Oystercatcher Survival

Availability of High Tide Roosts

Wintering Oystercatcher Survival

Availability of High Tide Roosts

P. Leary

Wintering Oystercatcher Survival

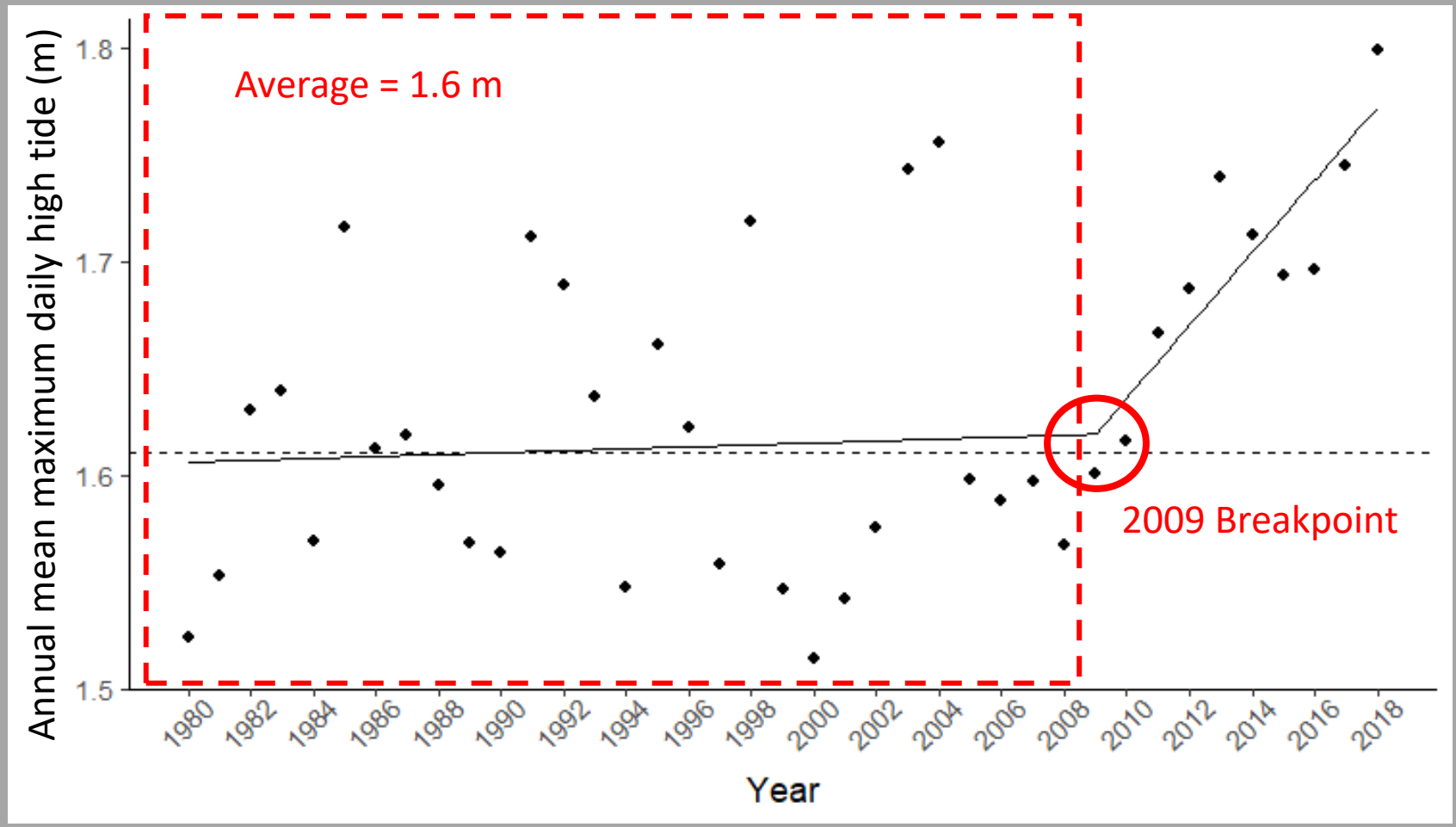
Wintering Oystercatcher Survival

Availability of High Tide Roosts

Maximum daily high tides

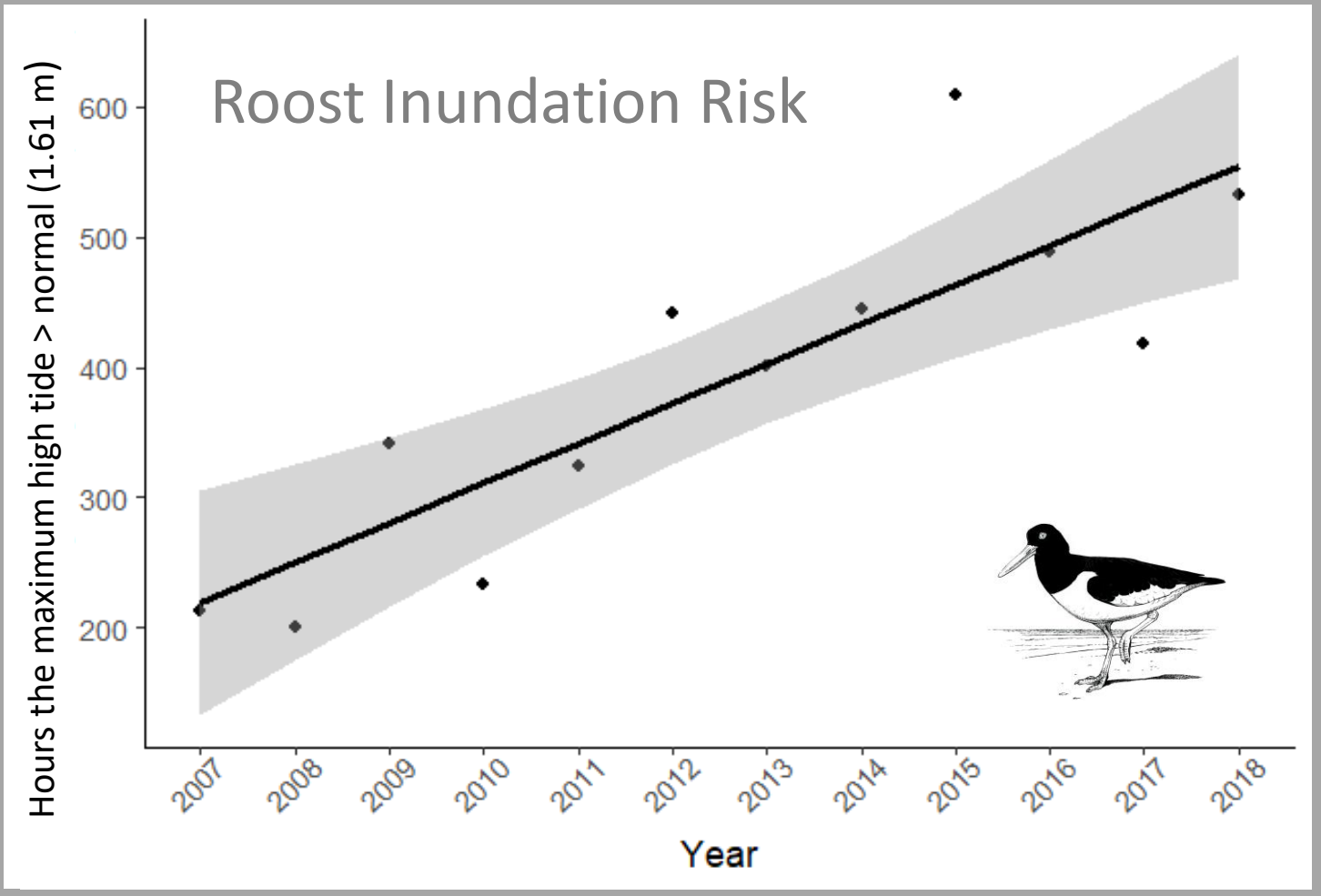
Wintering Oystercatcher Survival

Roost Inundation Risk

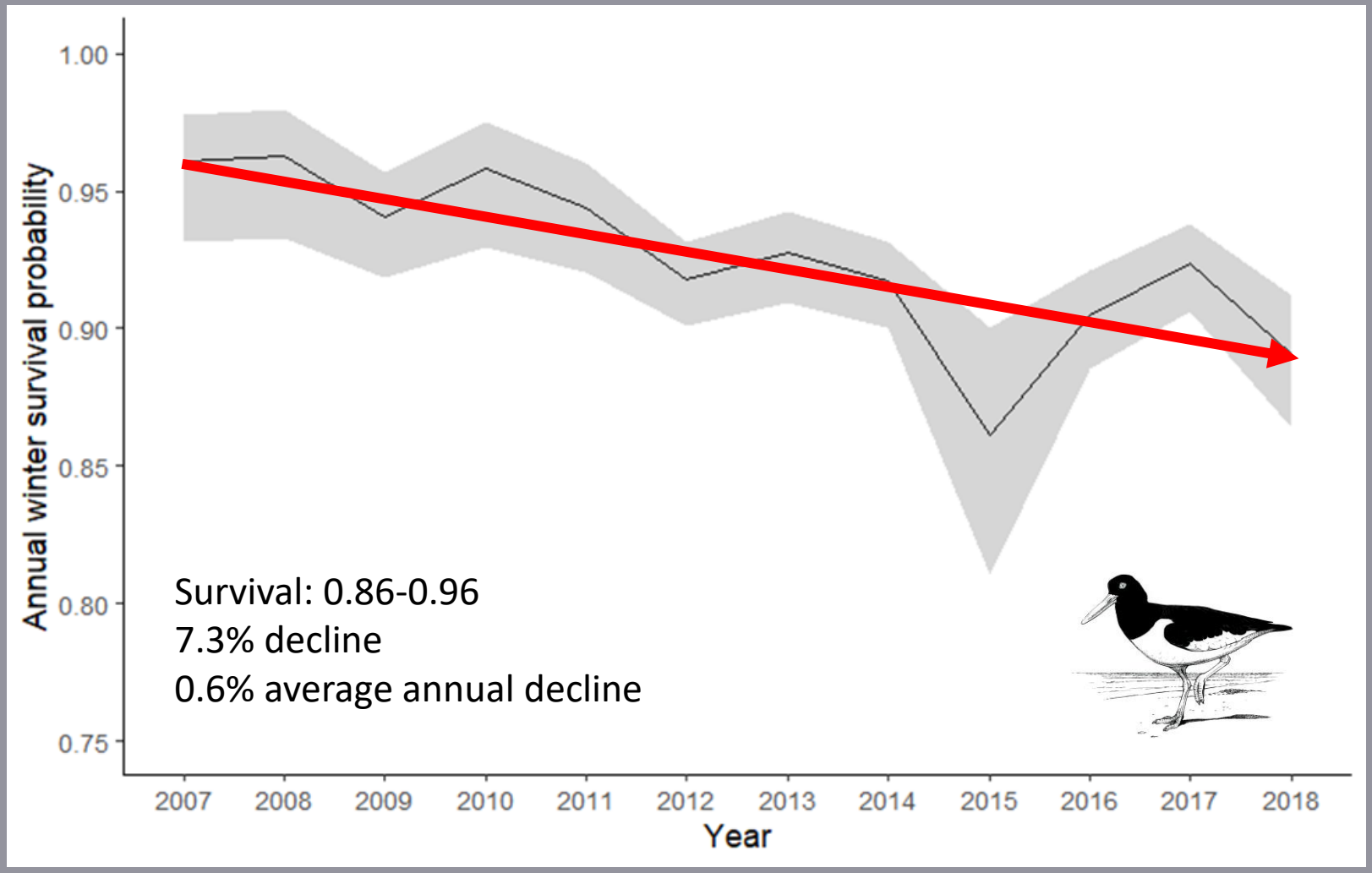


Wintering Oystercatcher Survival

Covariate = # hours per year the max high tide > 1.6



Survival Results



Results

- Adult birds have very strong winter site fidelity
- Survival rates are high
- Duration of extreme higher tides had a significant negative effect on survival
- Use of suboptimal roosting habitats - increased predation risk

P. Leary

Conclusions

- Population dynamics are sensitive to changes in adult survival
- Potential range-wide population effects
- Restoration to enhance offshore high-tide roosts
- Importance of oysters

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RESEARCH ARTICLE

THE JOURNAL OF WILDLIFE MANAGEMENT

THE WILDLIFE SOCIETY

Decline in annual survival of American oystercatchers wintering in Florida linked to extreme high tides

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Thank you!

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