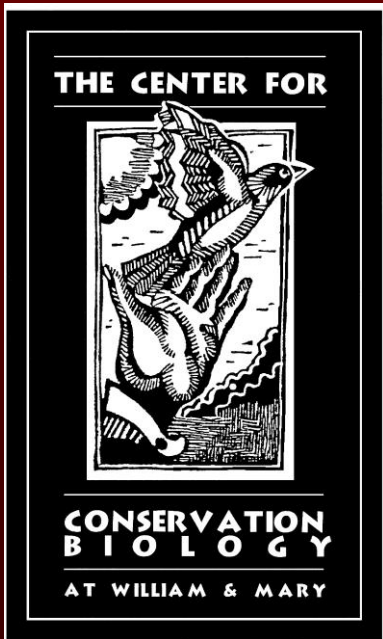


Eastern Black Rail Status in the Chesapeake Bay

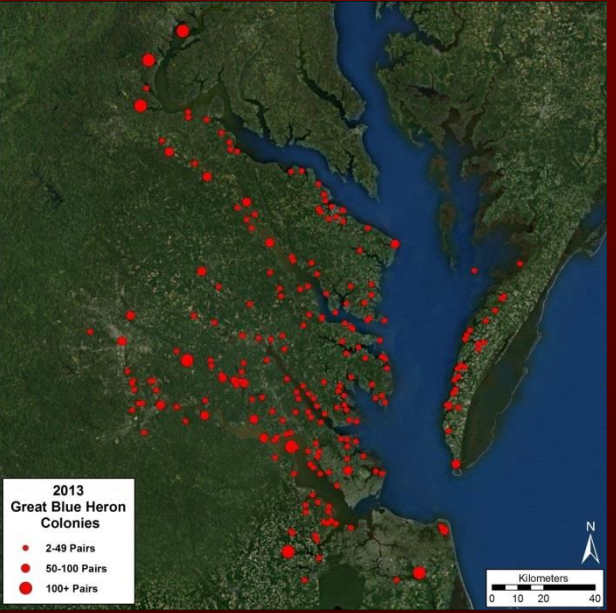
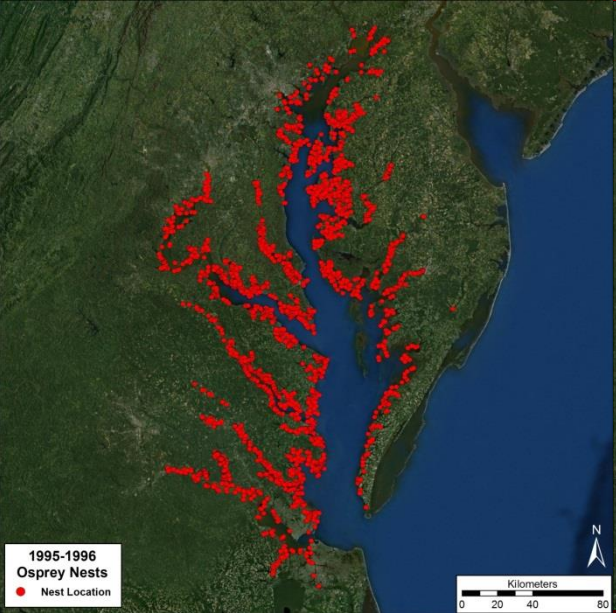
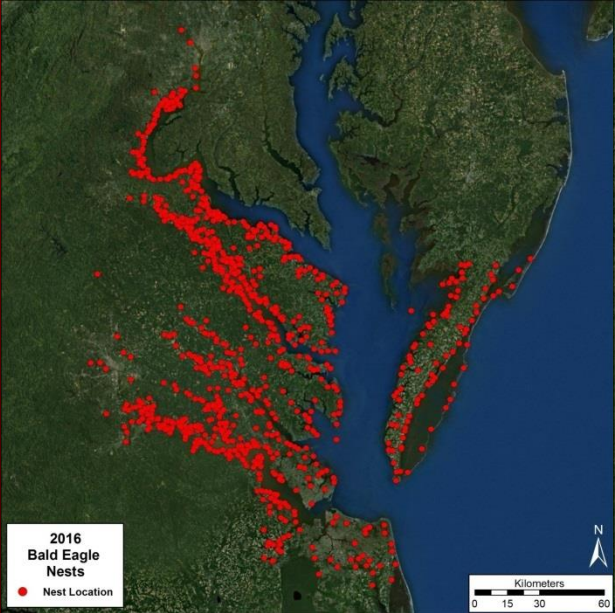
Bryan D. Watts

Center for Conservation Biology
Virginia Commonwealth University
College of William and Mary

<http://www.ccbbirds.org>



Producing information that enables conservation





Virginia Greene

Introduction to Species

General Characteristics

Status and Distribution

Habitat Use

Chesapeake Status

Occurrence Records

Targeted Surveys

Trends

Parade of Insults

Marsh Reclamation

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Final Straw

Sea-level Rise

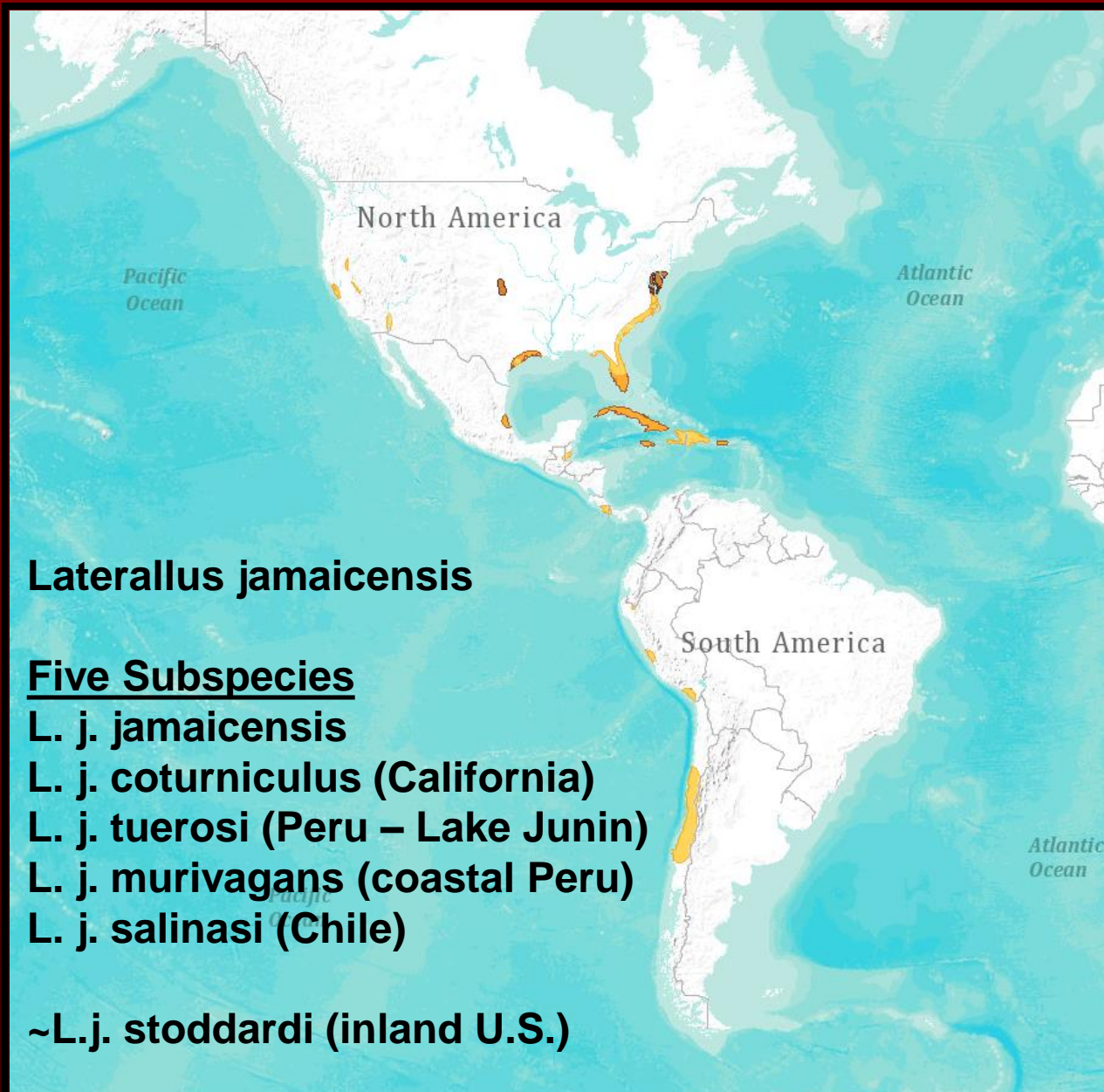
Tipping Points

Mitigation

Dominoes

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Dense overhead vegetation



Walk hydrological tightrope

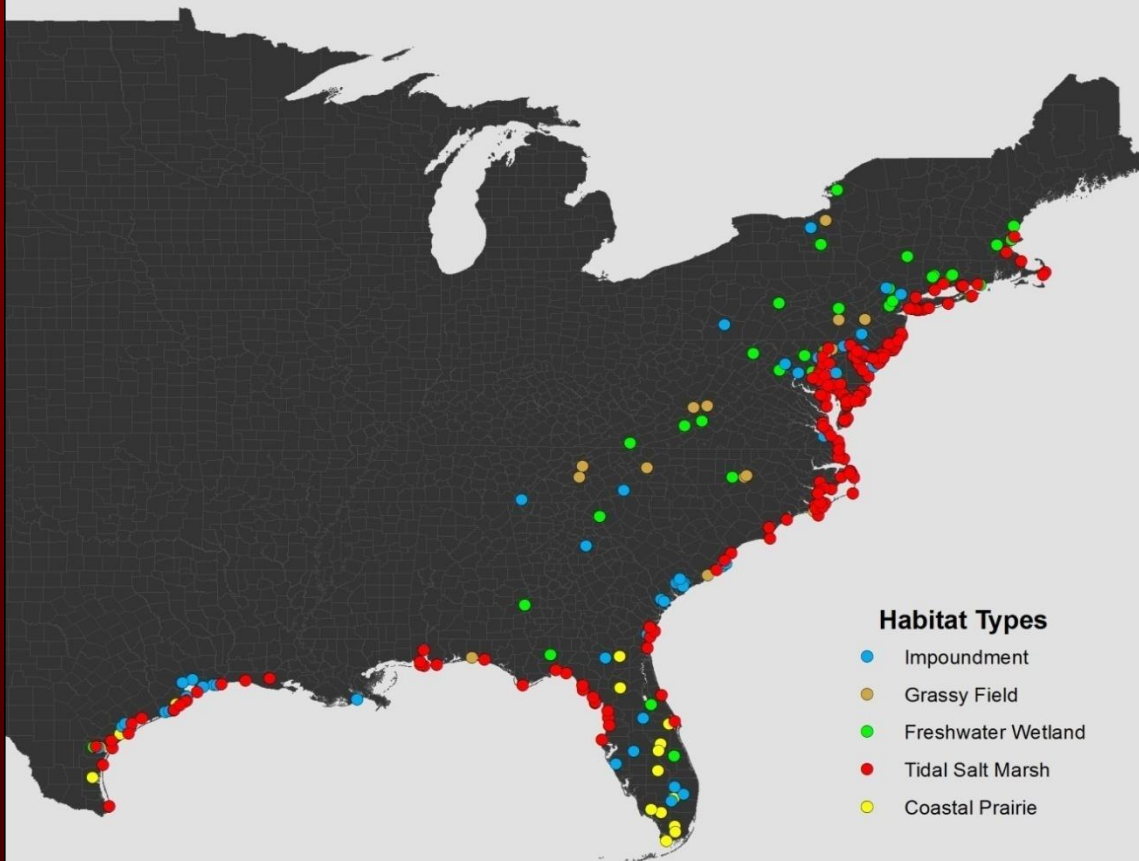


Too Wet

Just Right – moist soil

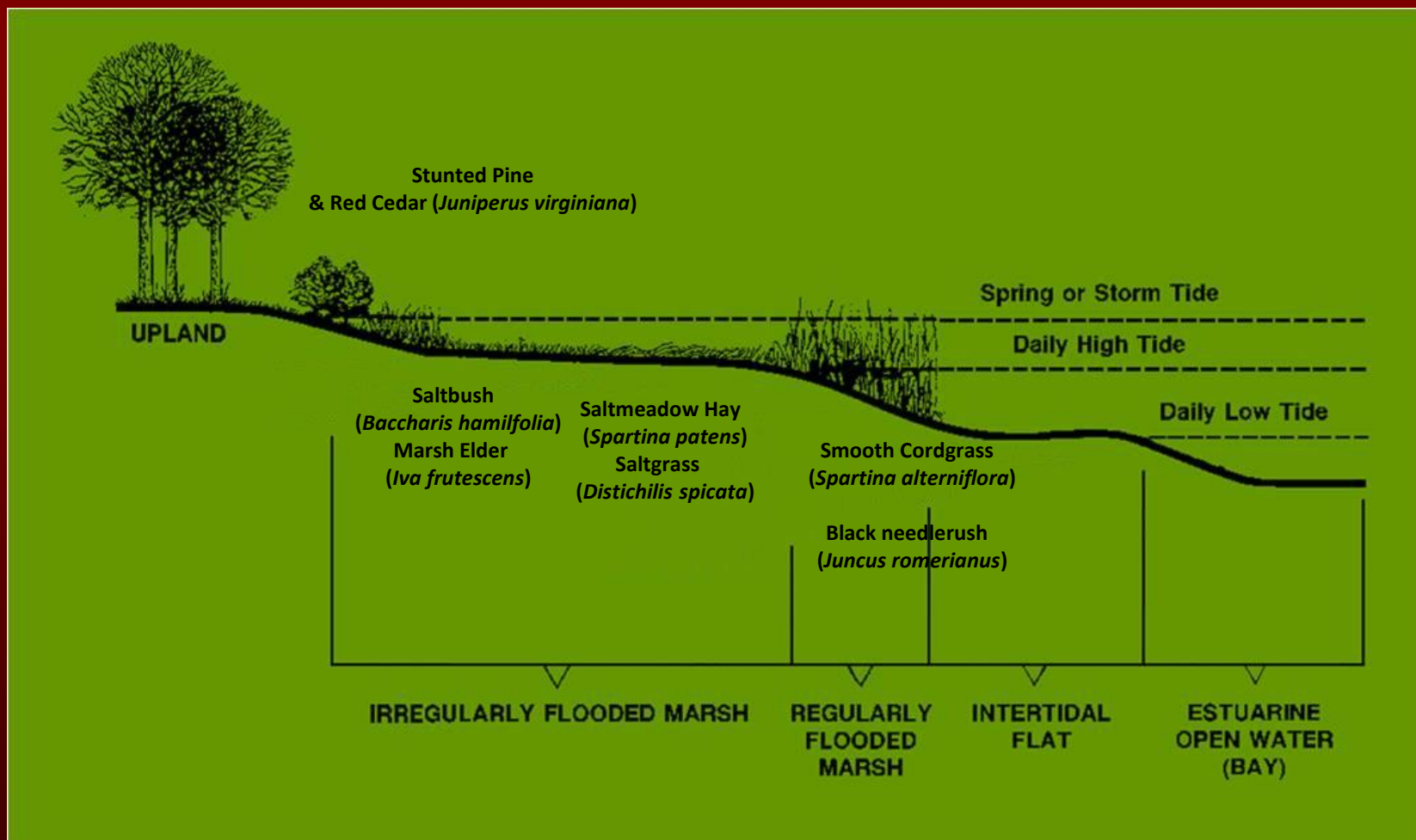
Too Dry

Habitat Types Associated with Eastern Black Rail Detections (Properties of Atlantic and Gulf Coast States, 1836 to 2016)



The Center for Conservation Biology

Habitat	Properties
Saltmarsh	179 (60%)
Impoundment	49 (17%)
Freshwater Wetland	36 (12%)
Prairie	17 (6%)
Grassy Field	15 (5%)

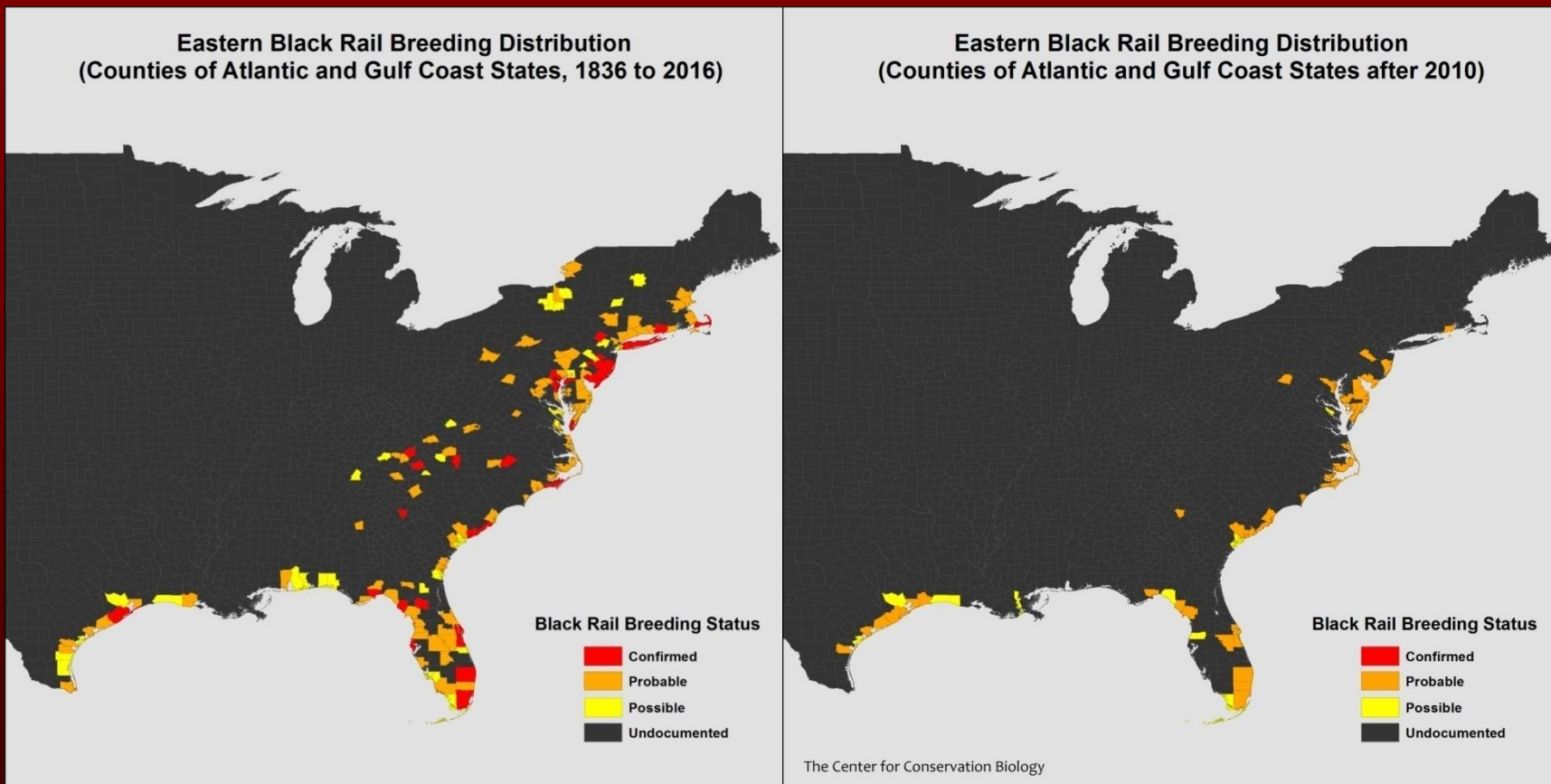


Modified from Tiner 1984





Changes in Occurrence



174 Counties

49 Counties

Watts 2016

Population Estimates (pairs)

STATE	RECENT	UNCERTAINTY
Massachusetts	0	Moderate
Rhode Island	0	Low
Connecticut	0	Low
New York	0	Moderate
Pennsylvania	0-5	Low
New Jersey	40-60	Moderate
Delaware	0-10	Moderate
Maryland	15-30	Moderate
District of Columbia	0	Low
West Virginia	0	Low
Virginia	0-10	Moderate
Northeast Region	55-115	
North Carolina	40-60	Moderate
South Carolina	50-100	Low
Tennessee	0	Low
Georgia	10-40	High
Florida	200-500	High
Alabama	0	Low
Mississippi	0	Low
Louisiana	0-10	High
Texas	100-500	High
Southeast Region	400-1,200	

State Listing Status

STATE	STATE LISTING	HERITAGE RANK
Maine	Not Listed	No Rank
New Hampshire	Not Listed	No Rank
Massachusetts	Not Listed	No Rank
Vermont	Not Listed	No Rank
Rhode Island	Not Listed	No Rank
Connecticut	Endangered	S1 (Critically Imperiled)
New York	Endangered	S1 (Critically Imperiled)
Pennsylvania	Not Listed	No Rank
New Jersey	Endangered	S2 (Imperiled)
Delaware	Endangered	S1 (Critically Imperiled)
Maryland	Endangered	S1 (Critically Imperiled)
District of Columbia	Not Listed	SH (Possibly Extirpated)
Virginia	Endangered	S1 (Critically Imperiled)
West Virginia	Not Listed	No Rank
North Carolina	Special Concern	S2 (Imperiled)
Tennessee	Not Listed	No Rank
South Carolina	Not Listed	SNR (Unranked)
Georgia	Not Listed	S1 (Critically Imperiled)
Florida	Not Listed	S2 (Imperiled)
Alabama	Not Listed	S2 (Imperiled)
Mississippi	Not Listed	S2 (Imperiled)
Louisiana	Not Listed	S2 (Imperiled)
Texas	Not Listed	S2 (Imperiled)



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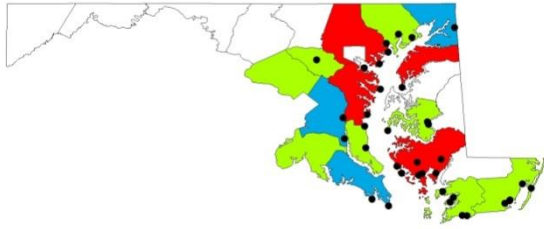
Sea-level Rise

Tipping Points

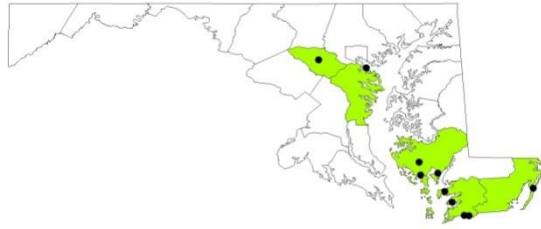
Mitigation

Dominoes

Historic

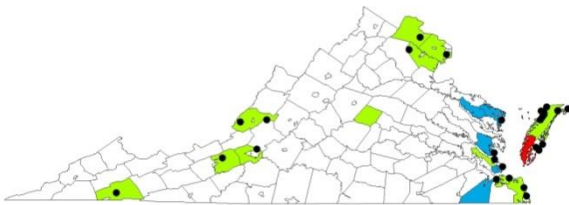


Recent



**Historic
Record**

Historic



Recent



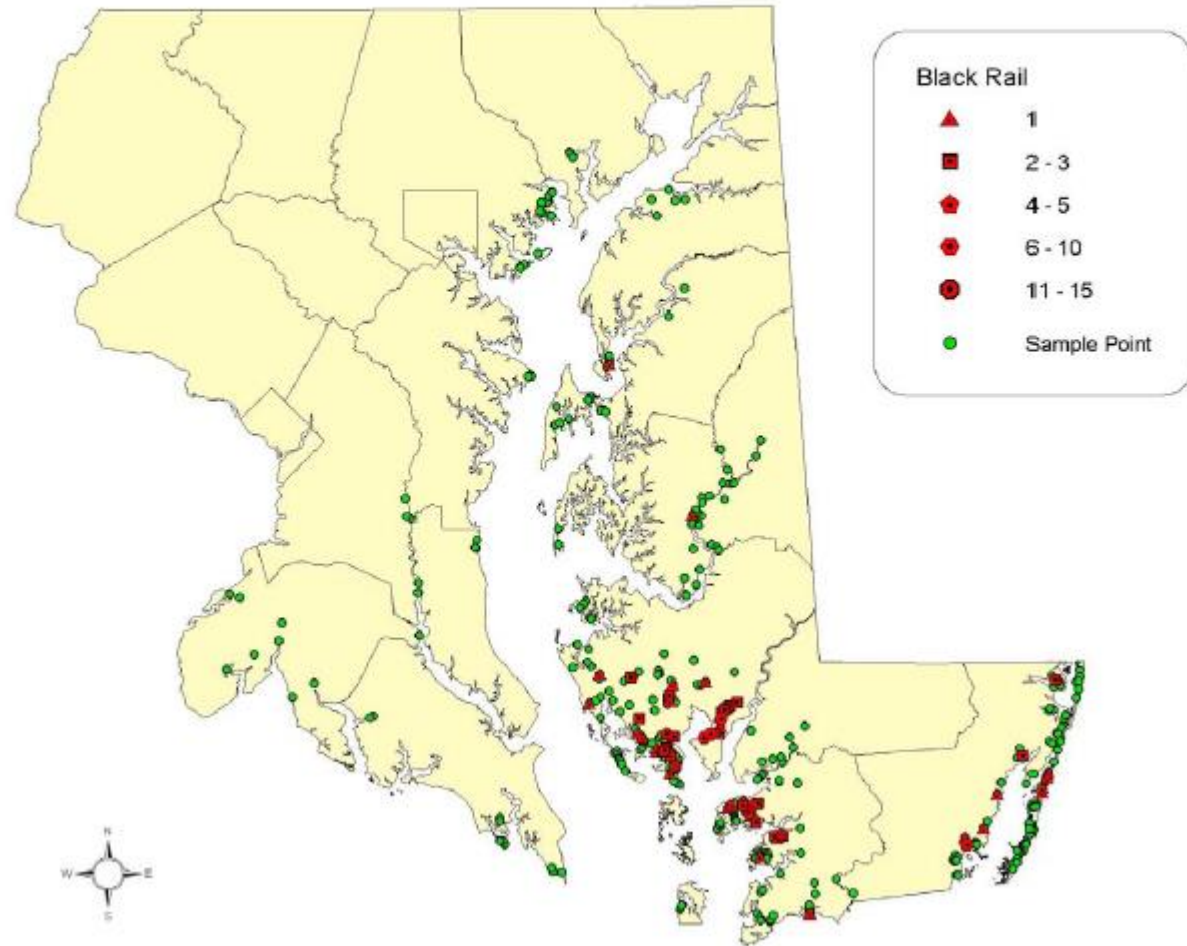
Elliott Island, MD



Targeted Surveys



Figure 5. Distribution and relative abundance of Black Rail during the breeding seasons of 1990 through 1992.



Chesapeake Bay & Region Black Rail Survey 2007 & 2008

Maryland - 101 survey points

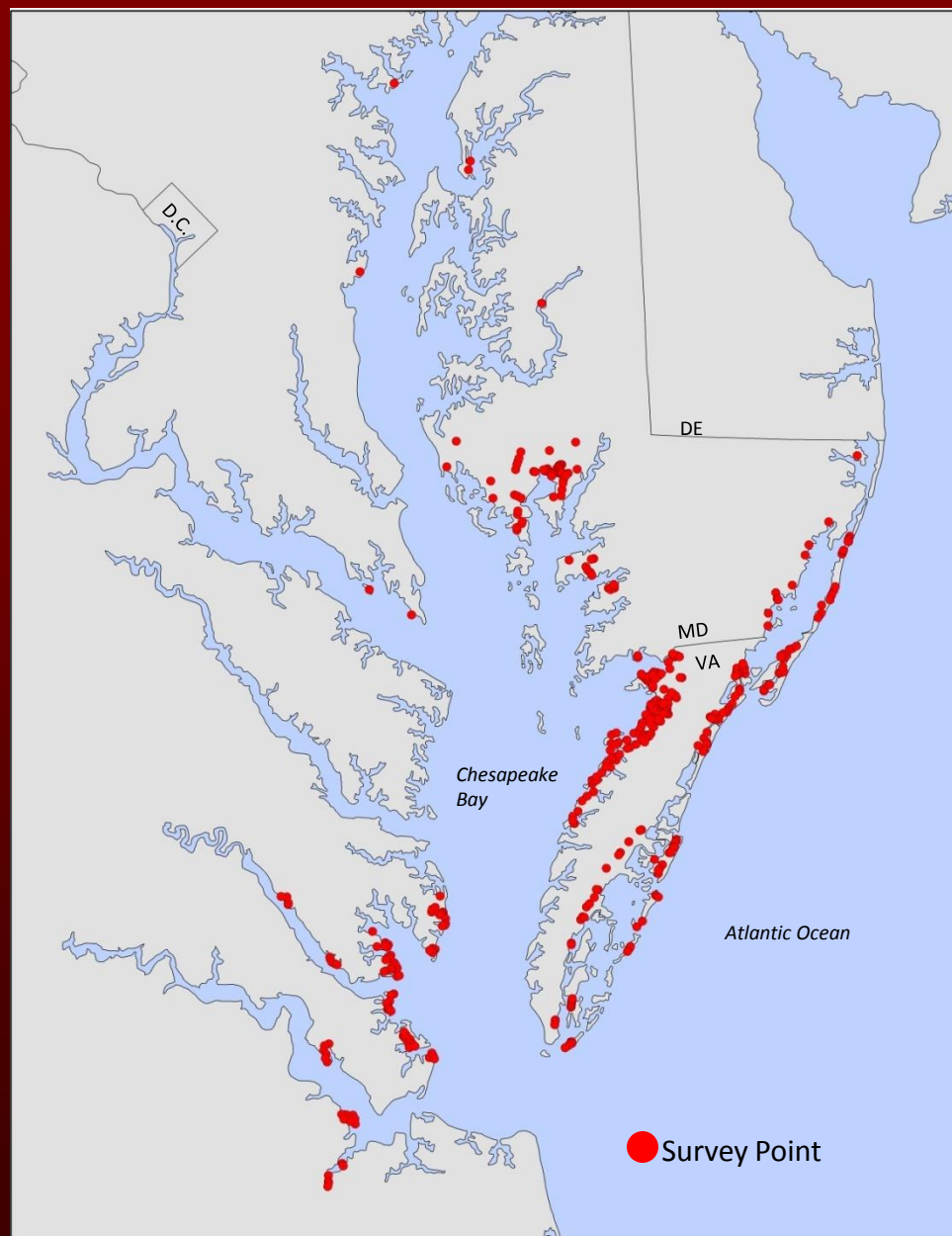
(D. Brinker and J. McCann – MD DNR)

Virginia - 328 survey points

(Center for Conservation Biology)

Shared Protocol

- Long broadcast call-response
- Night surveys
- Boat and Road access
- Pts surveyed 2-3 times



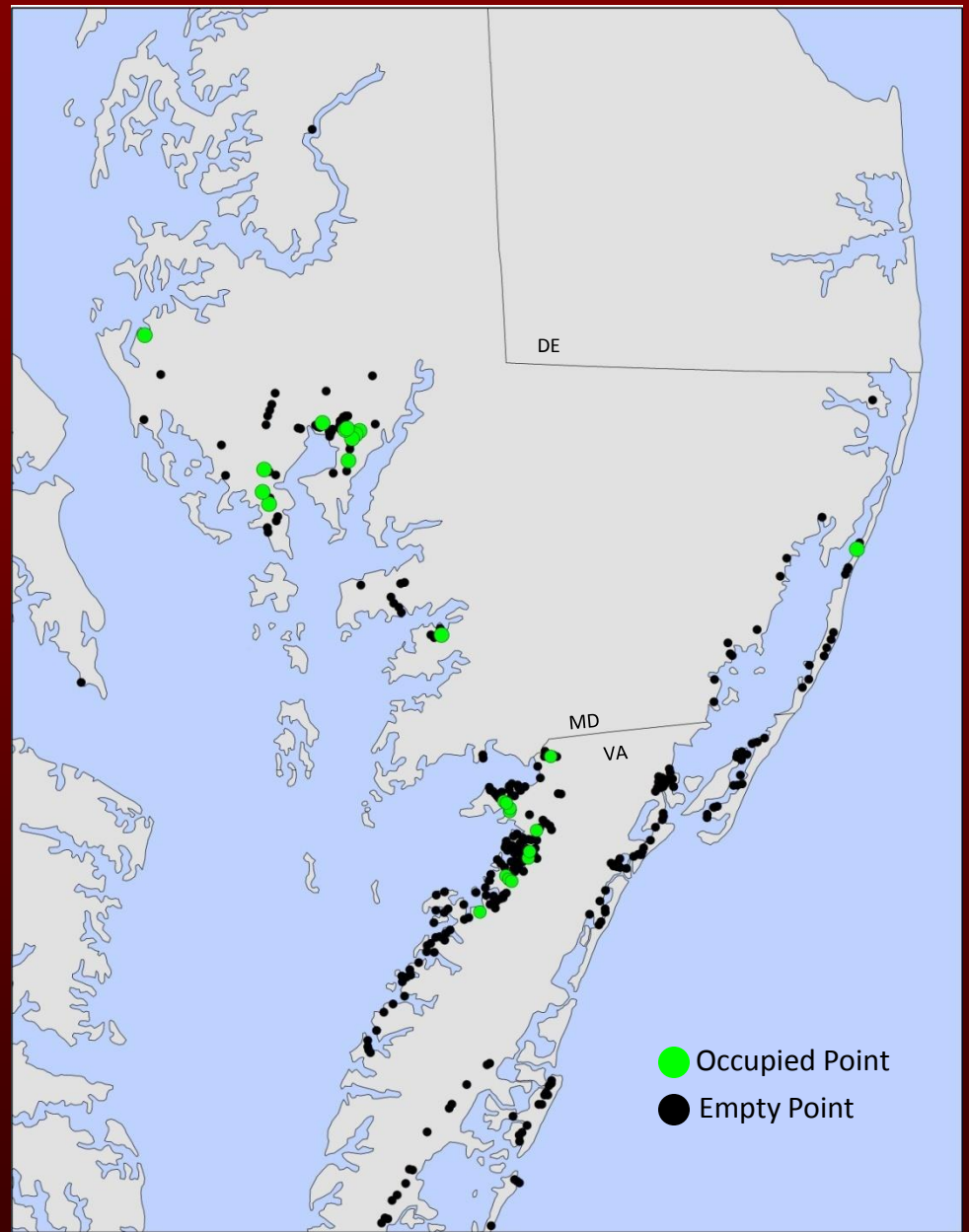
**Chesapeake Bay & Region
Black Rail Survey
2007 & 2008**

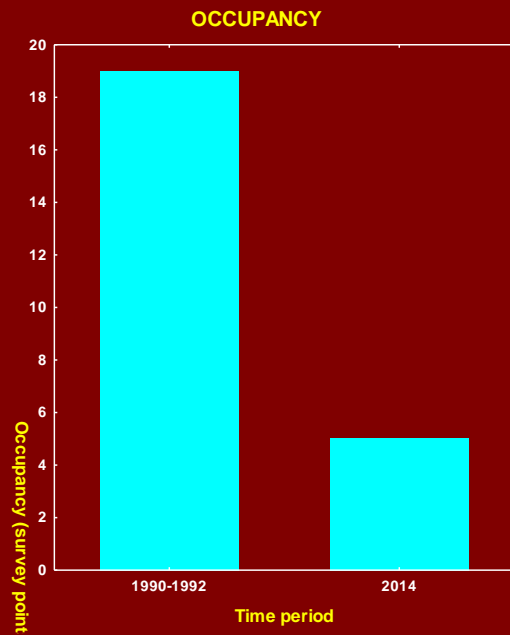
Maryland Detections

12 / 101 pts (12 %)

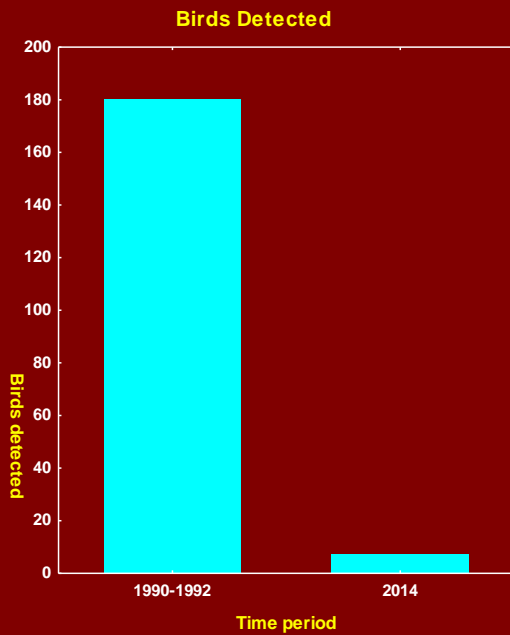
Virginia Detections

12 / 328 pts (4 %)

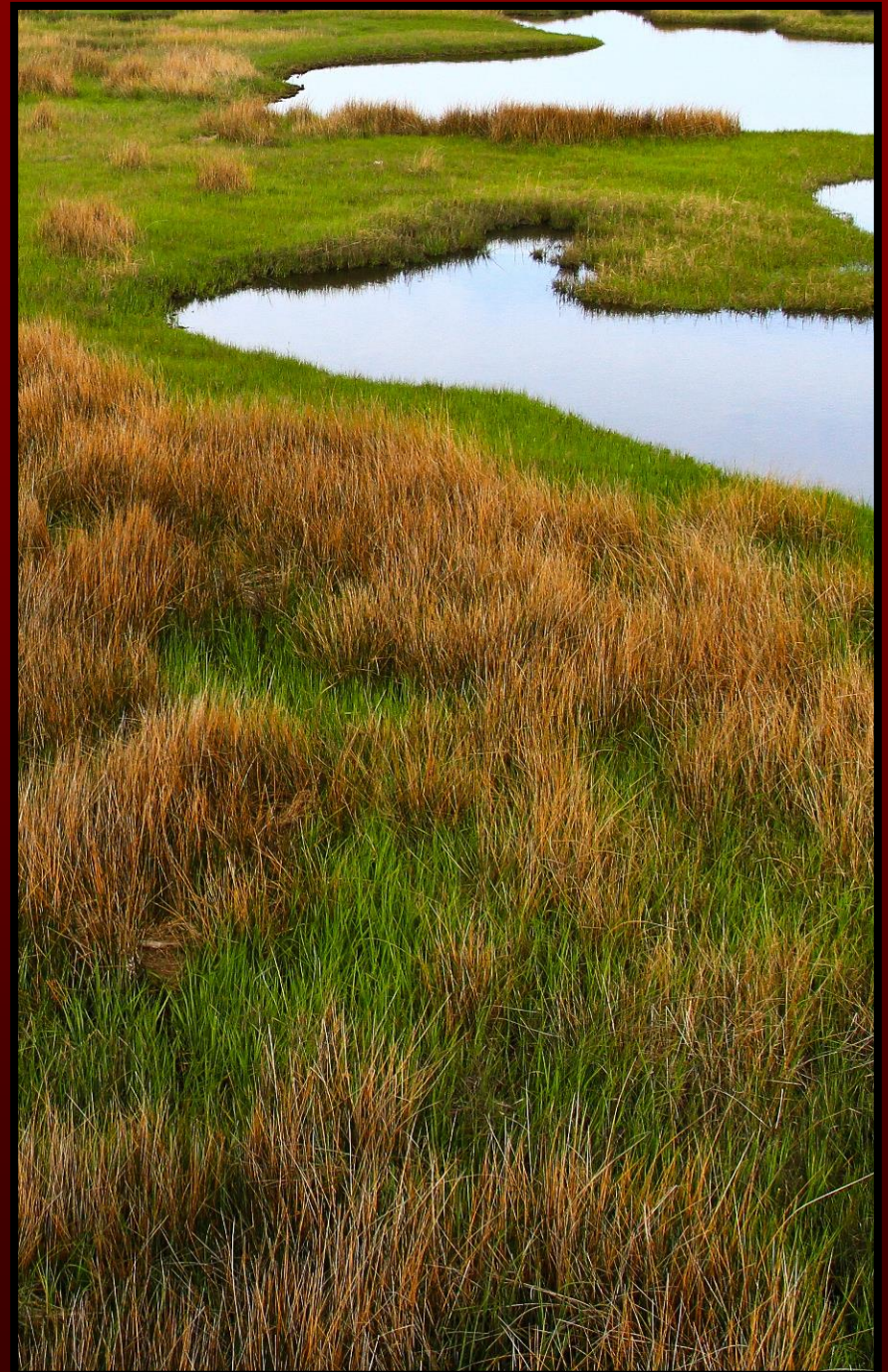




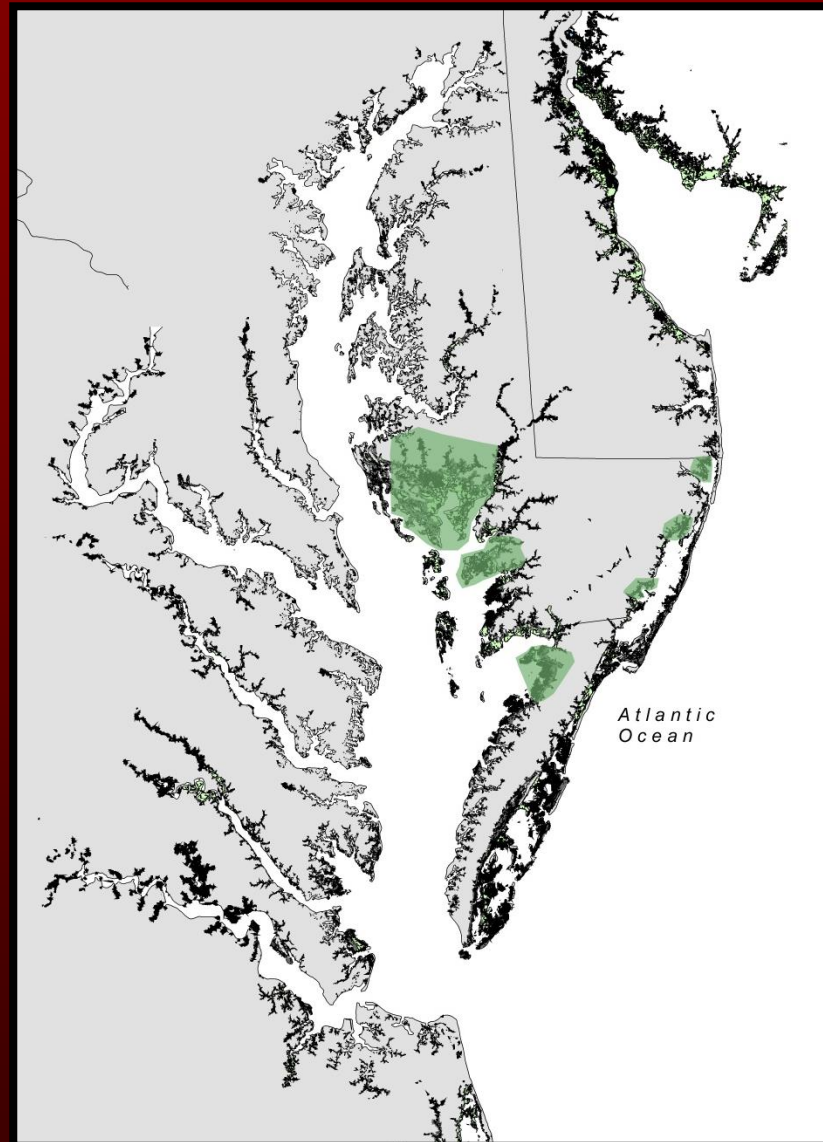
26.3%
5 of 19



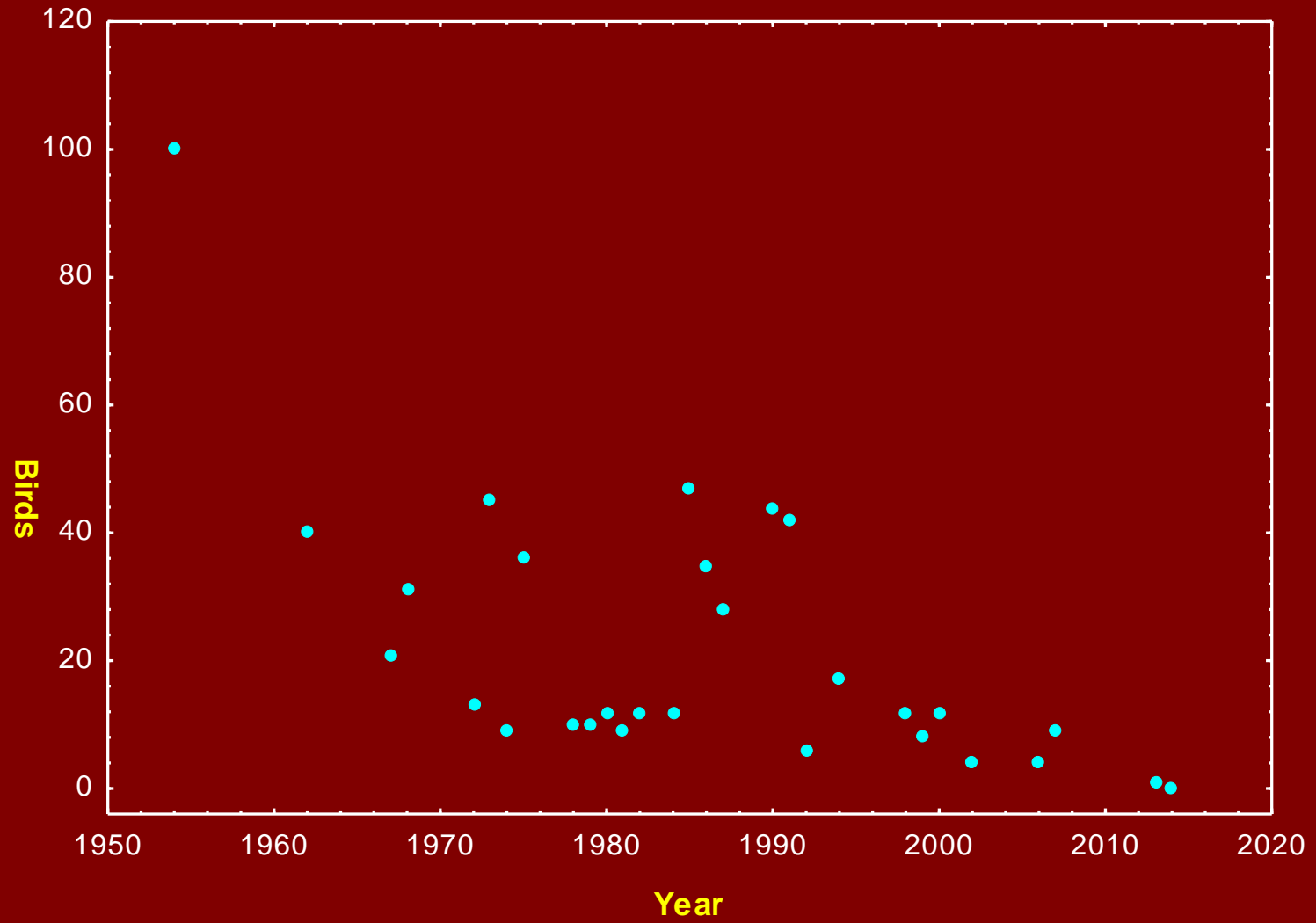
3.9%
7 vs 180



Chesapeake Bay Strongholds



ELLIOTT ISLAND, MD





Virginia Greene

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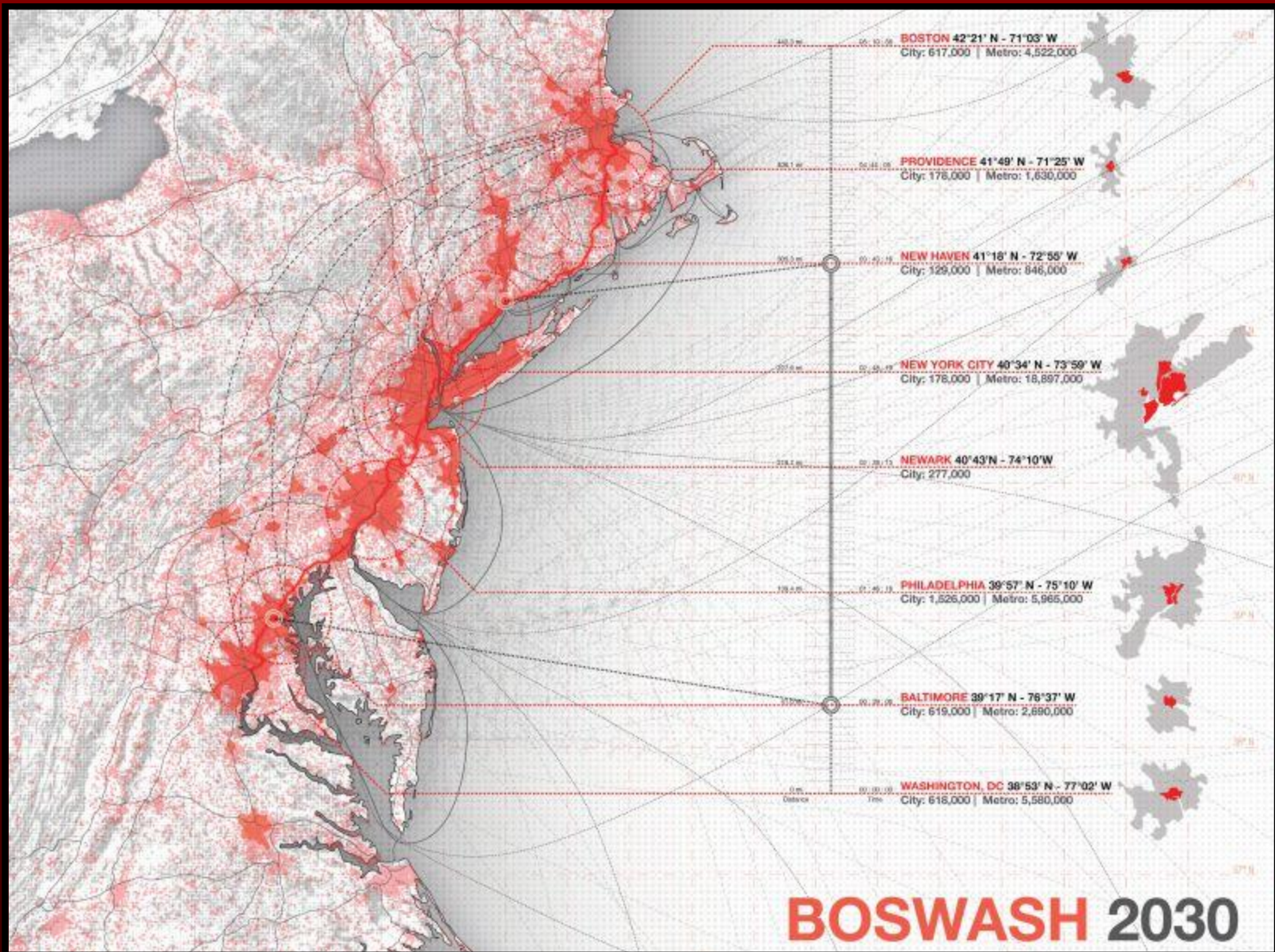
Final Straw

Sea-level Rise

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BOSWASH 2030

Marsh Reclamation



Philadelphia

New Jersey



Salt Hay



Altered Hydrology





Virginia Greene

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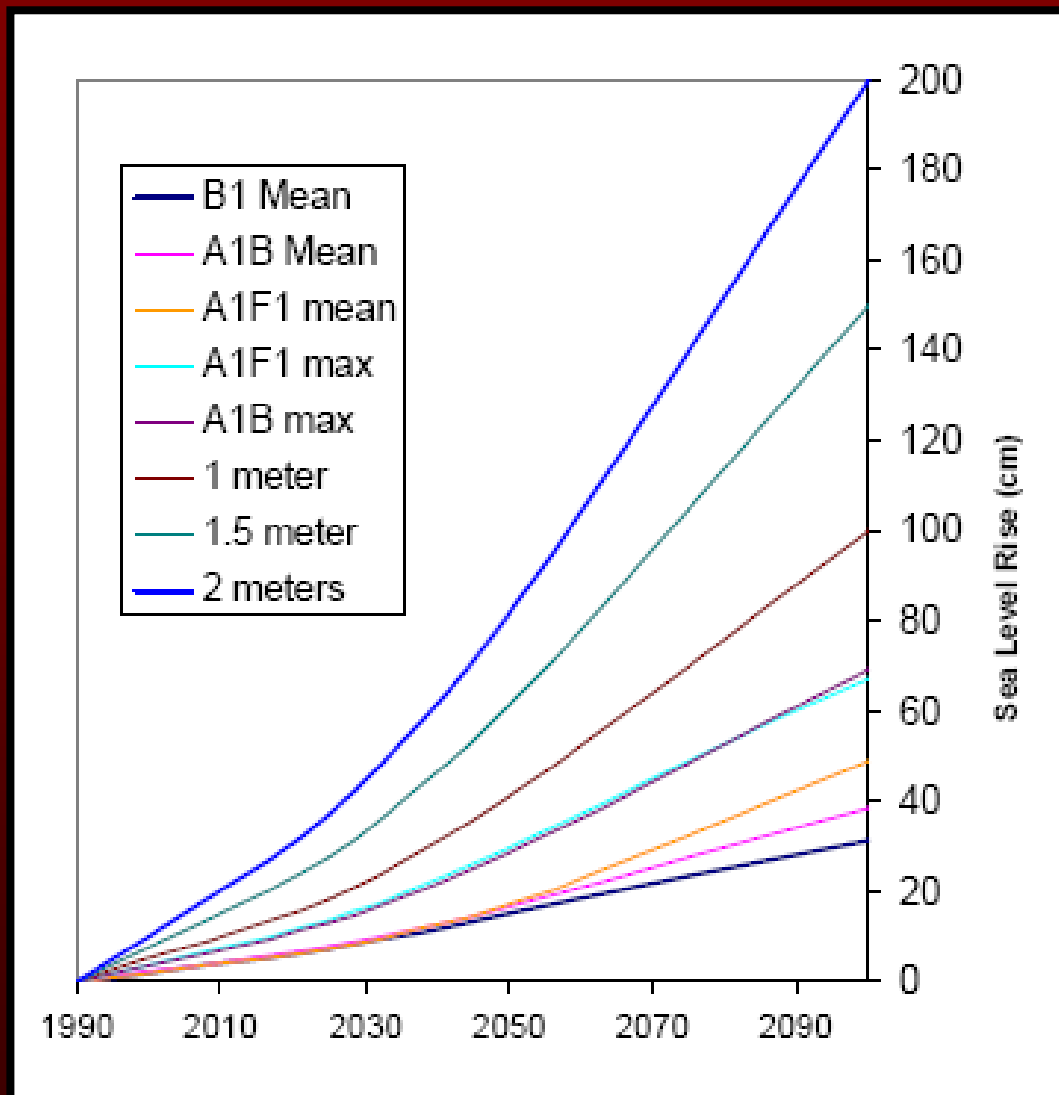
Sea-level Rise

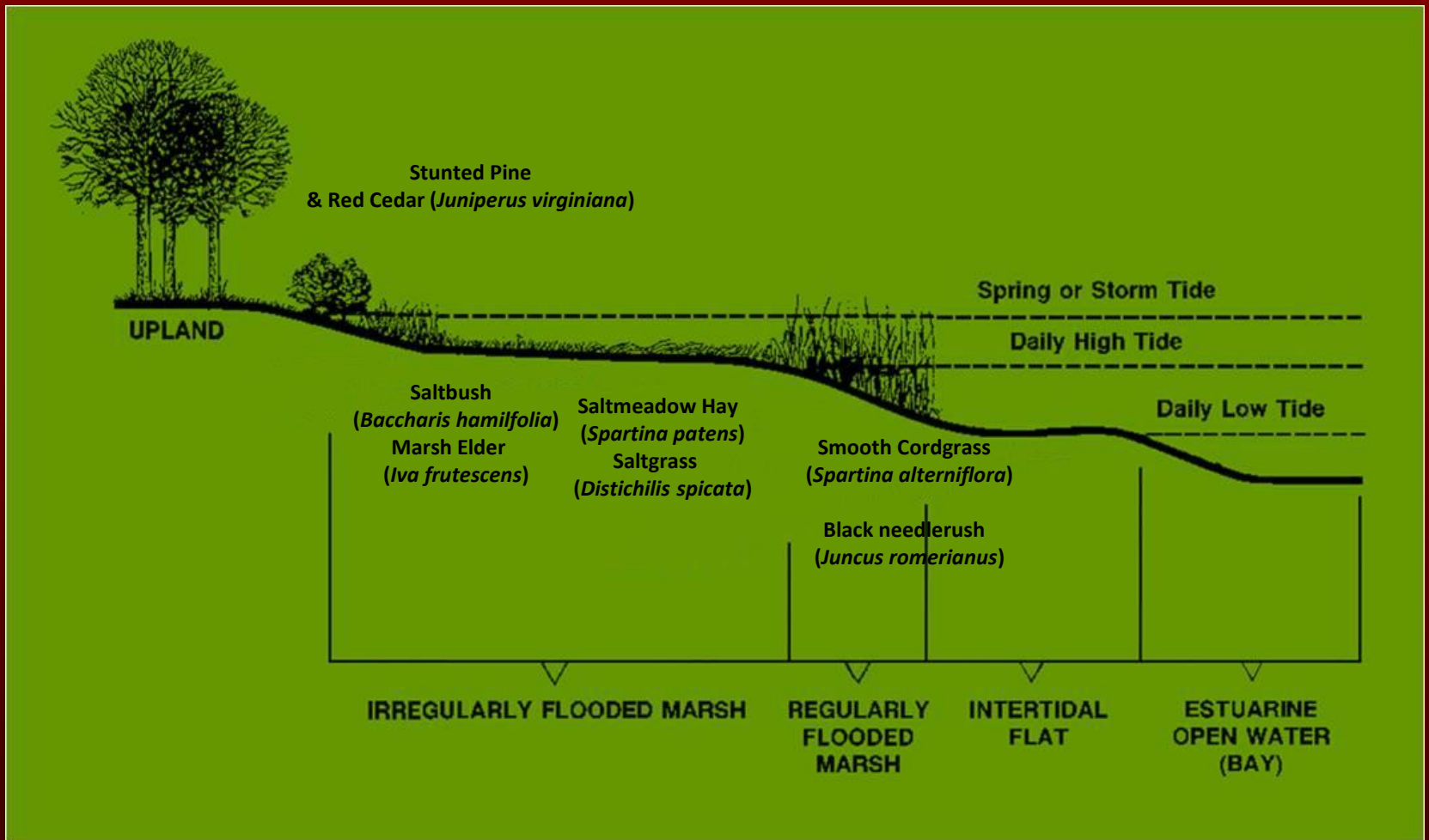
Tipping Points

Mitigation

Dominoes

Sea-level Projections

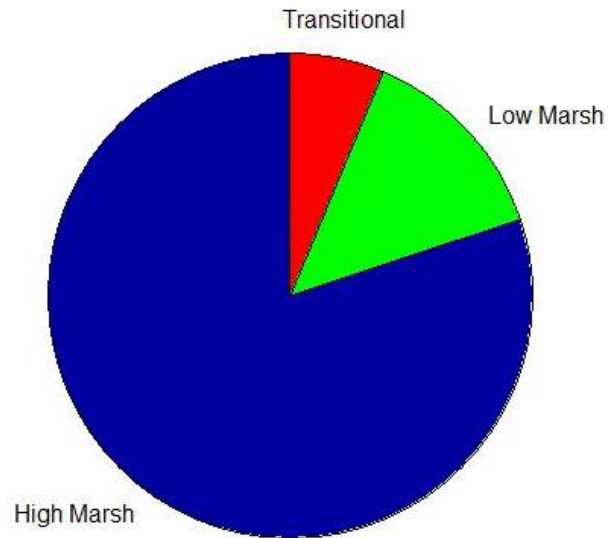




Modified from Tiner 1984

Shifts in Marsh Composition

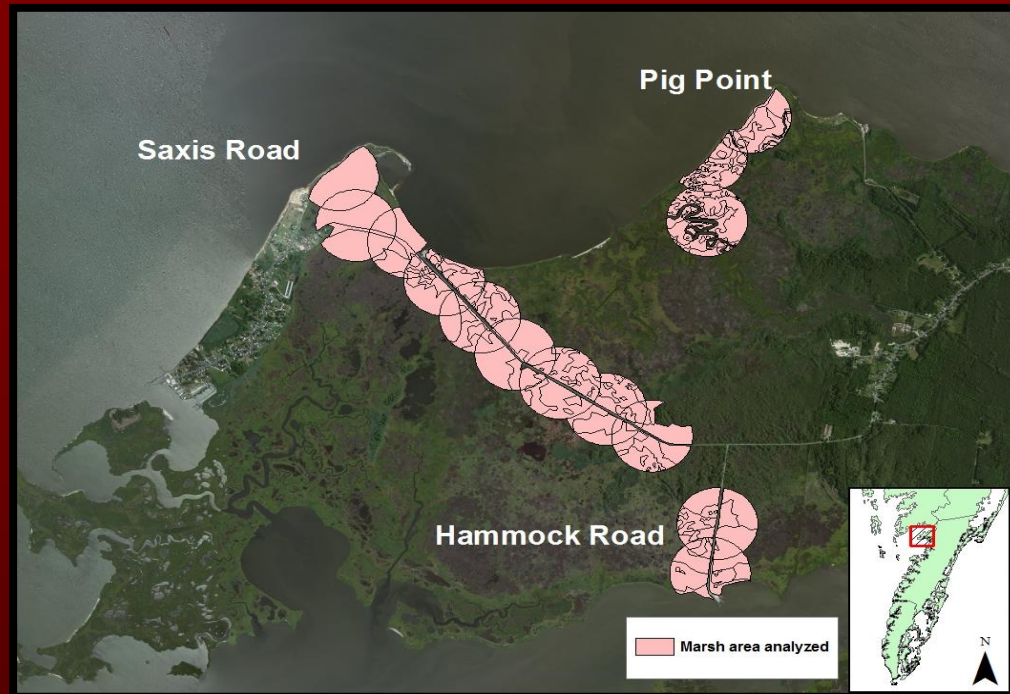
Initial Conditions



Year 2100
2 m SLR

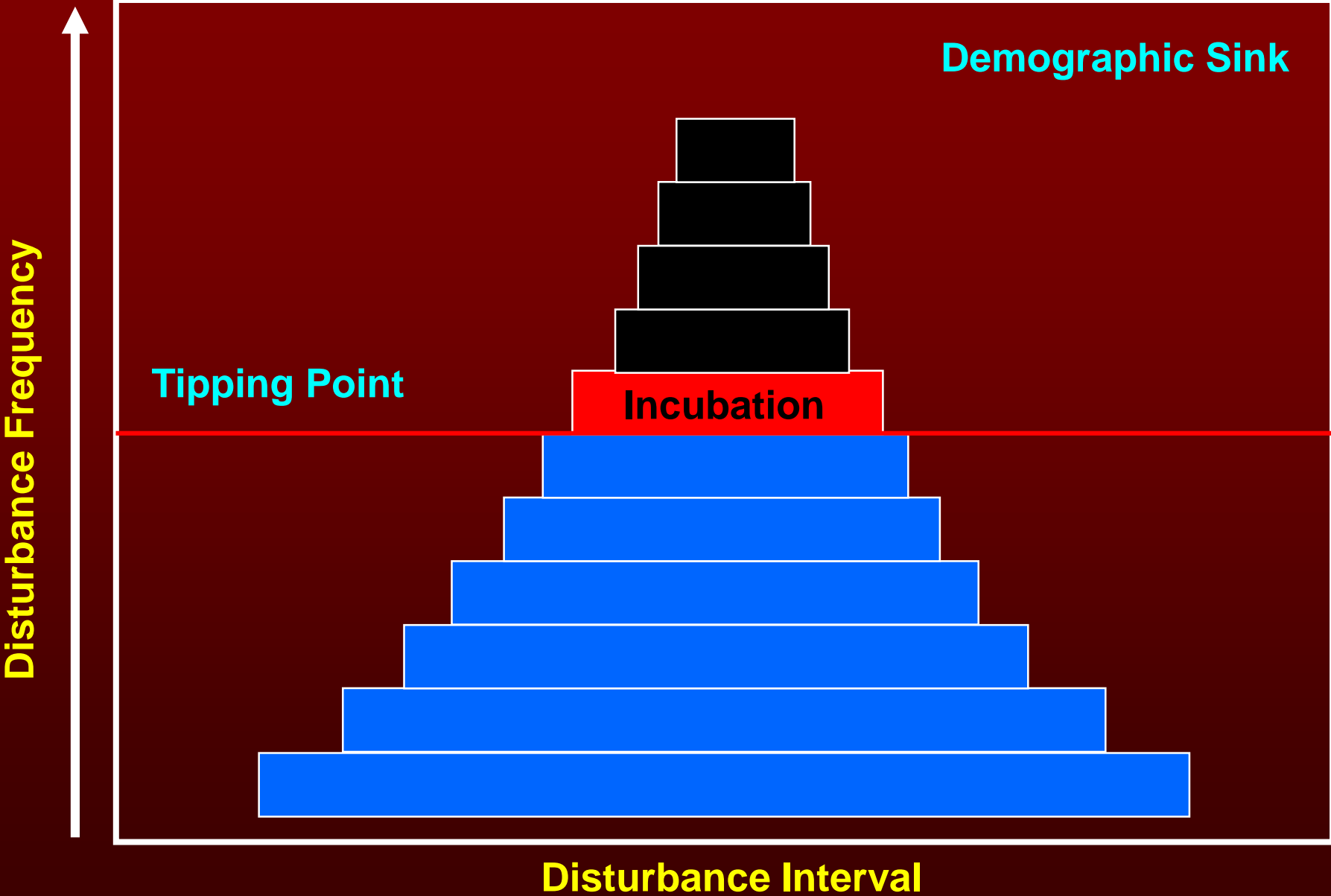


Habitat Changes for Locations where Black Rails Disappeared at Saxis Marsh



Vegetation	Hectares (% cover)	
	1994	2010
Low Marsh	21.7 (40 %)	26.5 (53%)
Black Needlerush	11.0 (21%)	17.4 (35%)
High Marsh	18.8 (35%)	4.8 (9%)
Shrub	2.0 (3%)	1.4 (3%)

Demographic Threshold





Forced up Slope



Elliott Island

1990

2007

2014

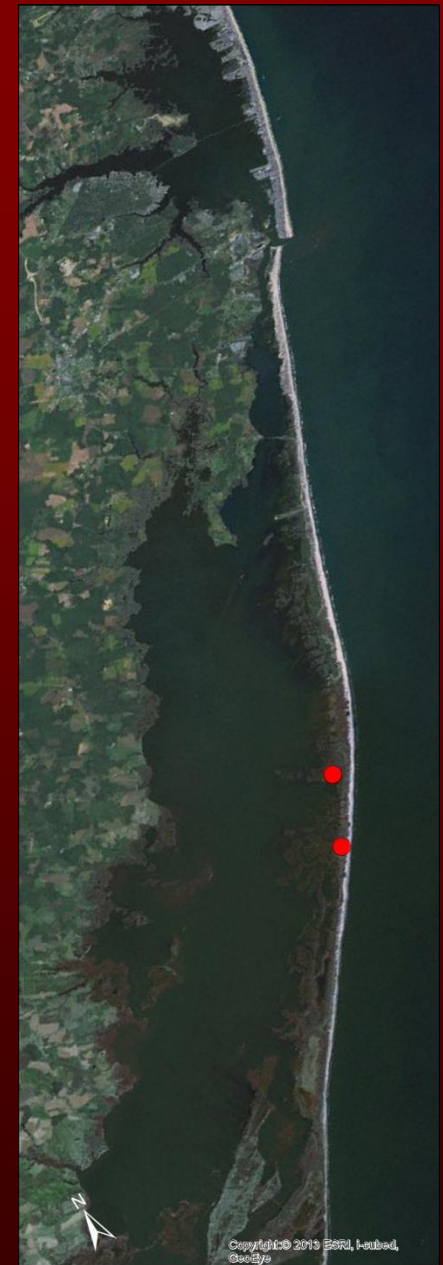
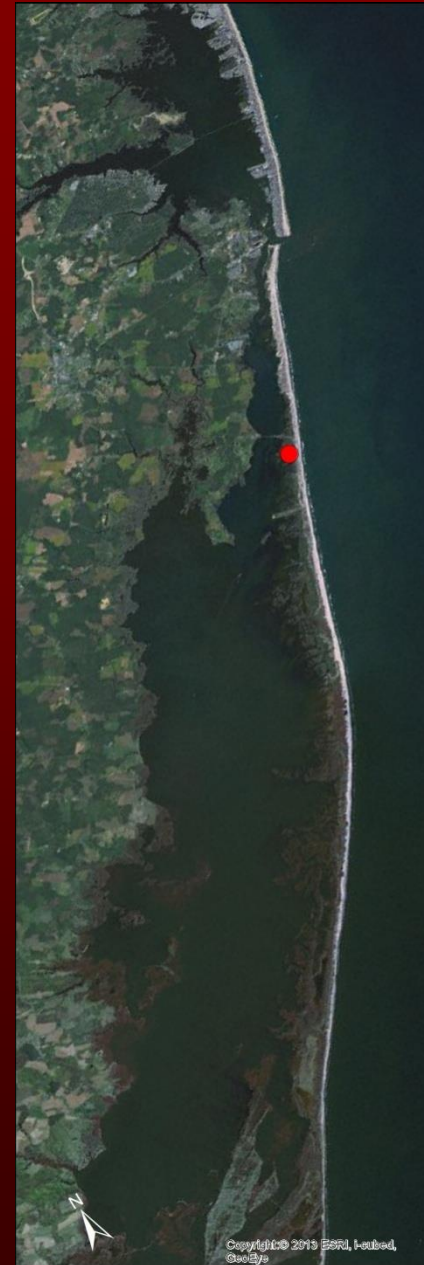


Brinker et al.

1990

2007

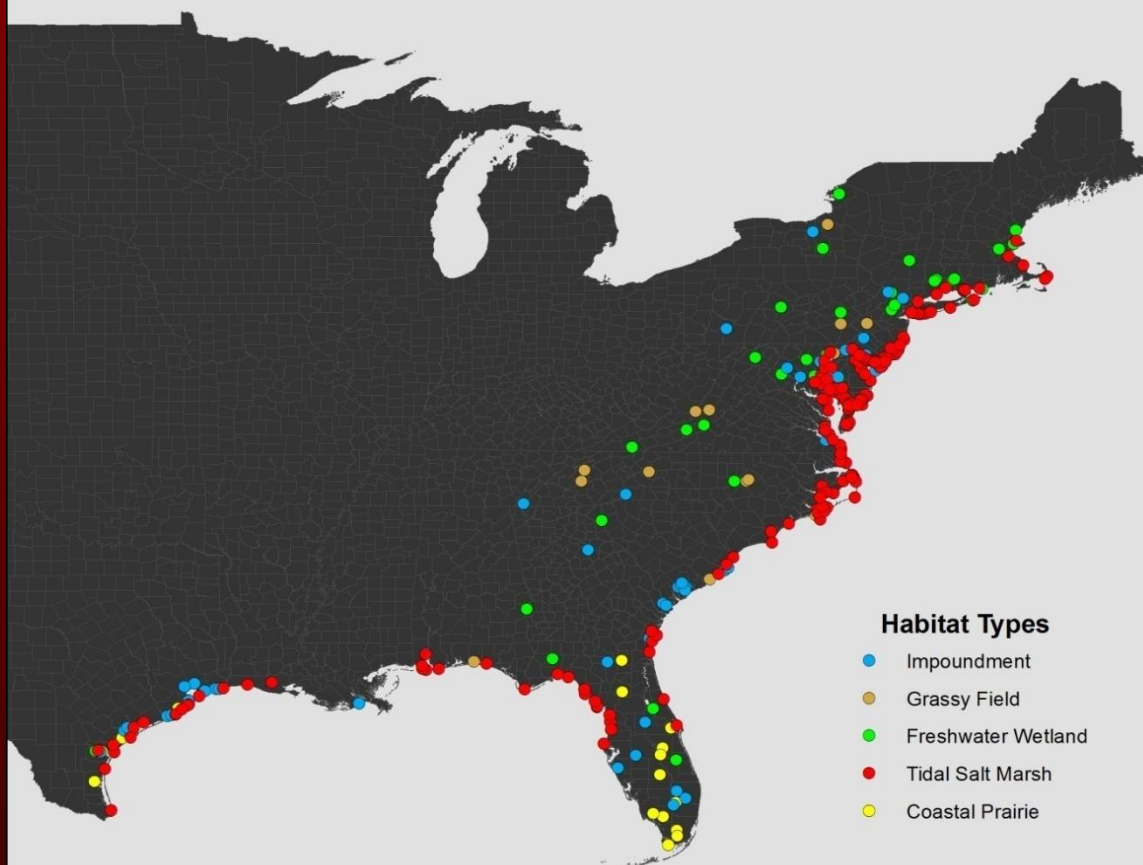
2014



Chincoteague Bay

Brinker et al.

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Next in Line



Henslow's Sparrow



Saltmarsh Sparrow

Sedge Wren

