# Atlantic Coast Joint Venture's Approach to Conserving Coastal Marshes Through Flagship Species



#### BACKGROUND

Coastal marshes-including tidal salt marsh, and tidal and non-tidal freshwater marshes-are a critical habitat for a wide variety of migratory birds (i.e., waterfowl, waterbirds, shorebirds, and landbirds) and other wildlife, and provide valuable natural and economic benefits for people. Nowhere have the impacts of climate change been felt more acutely than along our coasts. Ground zero for visible climate impacts, seas have been rising for decades - slowly at first and then accelerating in recent decades - drowning marshes and eroding our critical natural protection system. To add insult to injury, centuries of human impacts from farming, transportation, development, and mosquito control have so altered coastal marsh hydrology that the system's



Historical ditching. Internet archive from USFWS story

built in resiliency to tidal flooding has been compromised, exacerbating sea level rise and accelerating marsh loss.

The casualties of this loss are many - coastal protection, fish nursery habitat, carbon stored for millenia, not to mention tourism, and cultural and recreational opportunities. Less visible and less economically quantifiable are the impacts to our native coastal marsh bird communities. In the salt marsh especially, tidal marsh birds as a guild are in decline - some alarmingly so. The most sensitive among them - the Saltmarsh Sparrow and the Eastern Black Rail - are declining precipitously with annual declines of more than 9% and, in the case of Black Rail, a range contraction of more than 300 miles. These proverbial canaries in the coal mine are harbingers of what is to come for other members of the coastal marsh bird community if nothing is done to address the underlying challenges.

#### **OVERVIEW AND FOCUS**

The Atlantic Coast Joint Venture (ACJV) goal is to protect, restore, and enhance coastal marshes to benefit birds, other wildlife, and people, throughout the U.S. Atlantic Flyway, with a focus on three flagship species: American Black Duck, Black Rail, and Saltmarsh Sparrow. Because the ACJV spans the entire U.S. Atlantic coast from Maine south to Puerto Rico, our partners have an outsized responsibility to address conservation challenges to birds within the coastal system. Coastal marsh loss and degradation are listed as priorities in each of the 15 states that border the Atlantic Ocean. The American Black Duck has declined by more than 50% between 1955 and 1985 in the eastern United States. Although the population has remained relatively stable since then, it remains below desired levels while threats to their habitat, such as sea level rise and expanding development, continue to rise. One or more salt marsh birds are also identified as Species of Greatest Conservation Need in each of these states, and Black Rail and Saltmarsh Sparrow are listed as Regional Species of Greatest Conservation Need in both the Northeast and Southeast. Reversing population declines and targeting critical habitat for all three focal species calls for rapid and widespread conservation action, with significant habitat improvements present and functioning on the ground by 2030. It is for these reasons that the ACJV adopted our Flagship Species approach - to achieve coastal marsh conservation by meeting the needs of three flagship species that best represent the diversity of habitat in the coastal system - the Saltmarsh Sparrow, Eastern Black Rail and American Black Duck:

- Saltmarsh Sparrow (the only bird species endemic to salt marshes in the ACJV's geography) is entirely dependent on salt marsh habitat - in particular, the highest elevation portions of the salt marsh system where their nests are relatively safe from tidal flooding. Saving the Saltmarsh Sparrow will require range-wide restoration of salt marshes to restore elevation, hydrology and long-term resiliency along with protection and management of future marsh habitats in the marsh migration zones. Without widespread and urgent intervention, Saltmarsh Sparrow populations are expected to disappear within the next 50 years. The species is scheduled for a federal listing determination in 2024.
- The Federally Threatened **Eastern Black Rail** requires a unique balance of dense grassy vegetation and shallow, perennial water to survive. Historically, these habitat conditions were most commonly found in the highest and driest portions of the salt marsh system and, until recent years, 90 percent of detections came from coastal salt marshes. Since the 1990s, and the acceleration of sea level rise, their populations have collapsed. Few coastal marshes support Black Rail populations today. Preserving their populations will require replicating specific habitat conditions in non-tidal portions of their former range, including managed impoundments, marsh migration zones, wet prairies, and other shallow-water wetlands.
- American Black Duck winters primarily in the vast tidal marshes of the Mid-Atlantic coast where they use a wide variety of marsh habitats. Black Ducks also breed in the Joint Venture region in smaller numbers and breeding populations are expected to benefit from strategies laid out in the Plan. The most generalist of the three flagship species, Black Ducks also use a range of natural and managed freshwater wetlands to meet their needs but rely most heavily on salt marshes and managed impoundments. Although their populations are currently stable, they are threatened by the continuing impacts of sea level rise, habitat loss and development pressure. Maintaining a stable population of Black Ducks will require both long-term conservation of the entire salt marsh system and migration zone, as well as ongoing investments in critical non-tidal habitats such as managed impoundments.

The three species focused plans should help partners better coordinate efforts to conserve coastal habitat for them and their wetland habitats throughout the ACJV region. From Maine south to North Carolina, these three species can overlap in many inland and coastal wetland habitat types, including freshwater, brackish, and saltwater.



From top to bottom: Saltmarsh Sparrow, Ray Hennessy; Black Rail, Brian Tang; American Black Duck, Hal Trachtenberg

### SHARED THREATS ACROSS FLAGSHIP SPECIES

Across all of our plans, the highest-ranking threats are related to climate change and sea level rise (Table 1). These threats include loss of salt marsh habitat due to marsh drowning and historic alterations such as tidal restrictions, ditching and other hydrological impacts that reduce sediment supply or increase invasive species. The inability for marshes to migrate into areas with incompatible land use was identified as a high threat across all three species. Direct mortality due to nest flooding and storms was also identified as one of the highest priority threats for Saltmarsh Sparrows and Black Rails. Other threats were either specific to a particular flagship species or ranked as lower priorities. Comprehensively addressing threats for all flagship species can be achieved by focusing on salt marshes and the marsh migration zone. However, unique strategies to sustain individual flagship species must be employed outside the salt marsh system to fully meet population objectives for Black Rails and Black Ducks.

Threat	Rating	Plan
Loss of Habitat due to sea level rise	Very High	All plans
Direct mortality and nest loss due to sea level rise, storms and flooding	Very High	Black Rail, Saltmarsh Sparrow, Salt Marsh Bird
Historic modifications to salt marsh	Very High	Salt Marsh Bird and Saltmarsh Sparrow
Agricultural practices incompatible with Black Rail habitat	High	Black Rail
Burning of marsh vegetation inconsistent with species' needs	High	Black Rail
Reduced sediment supply	High	Salt Marsh Bird and Saltmarsh Sparrow
Land use incompatible with marsh migration	High	All plans
Tidal restrictions that change hydrology and restrict tidal flow	High/Medium	All plans (Medium for Black Rail)
Incompatible management of impoundments	Medium	Black Rail
Invasive non-native species	Medium	Black Duck, Saltmarsh Sparrow, Salt Marsh Bird
Mallard competition	Medium	Black Duck

Table 1: Threats and threat ratings included in the bird plans:

#### **VALUE OF NON-TIDAL HABITATS**

Each of the flagship species depend, or once depended heavily (Black Rail), upon salt marsh habitats. It was for this reason that within the coastal system, salt marsh habitat conservation was elevated as an important focus of the ACJV. However, only one of these species - Saltmarsh Sparrow - depends exclusively on salt marsh habitat. The Black Rail and Black Duck both require a more comprehensive portfolio of management actions that target additional habitats outside of the salt marsh system (Table 2) and, for the Black Rail, non-tidal strategies may ultimately be the only way to sustain their populations in the long term. Though a variety of non-tidal habitats are required for Black Rails and Black Duck, the species-specific plans focus primarily on emergent and managed wetlands. Non-tidal coastal priorities include:

• Marsh Migration Zone: The marsh migration zone was identified as a high priority in each of the ACJV species and habitat plans. Given large-scale losses in coastal marshes predicted by nearly all

models, it is essential to protect, and keep free from incompatible land uses, enough area to provide space for the marshes of the future. Because migration zones currently abut existing salt marsh, they represent a logical target for creating new habitat within a reasonable dispersal distance from currently occupied areas. Given the rarity of Black Rails, new habitat creation must be done in the most strategic and promising areas to help migrate the population inland.



Freshwater wetland. USFWS

#### • Managed Impoundments: Impoundments

include a variety of habitats where water is actively or passively managed to enhance hydrology and vegetative responses to maximize habitat values. Impoundments are a traditional management tool for waterfowl, including Black Ducks, and tens of thousands of acres of managed wetlands exist throughout the Black Duck Atlantic Coast range. More recently, impoundments have gained recognition as an opportunity to provide important safe havens from tidal flooding for nesting Black Rails if managed to create their unique habitat preferences. Most impoundments are too deep for Black Rail use during the breeding season if managed without consideration of their unique habitat preferences. However, where appropriate conditions exist, these impoundments could be an essential management approach to attract and retain Black Rails.

- Non-tidal Habitats for Black Rail: This includes a variety of non-tidal emergent wetlands, including wet meadows, cattail and sawgrass marshes, and natural or managed areas of very shallow perennial water with dense vegetation. The vast sawgrass and wet meadows of South Florida likely provide abundant nesting habitat. Suitable freshwater habitat conditions can still be found or created on lands where perennial water sources result in consistently wet, but shallow marsh lands with dense vegetation. Areas with some topographical variation may also be important, where there are either wet areas in an otherwise dry landscape or dry areas in an otherwise wet landscape. The Black Rail plan includes strategies for active wetland creation, management, and restoration as well as strategies to manage the larger upland landscape through fire and grazing management. The value of these non-tidal habitats will continue to rise as tidal marshes become increasingly unsuitable for Black Rails due to sea level rise.
- Freshwater Wetlands for Black Duck: Black Ducks rely heavily on a variety of freshwater wetlands, many of which have been drained, filled or otherwise degraded over the last century to meet agricultural and development demands. Restoring hydrology and hydrophytic vegetation to drained or degraded wetlands, controlling invasive species, enhancing water quality or constructing new wetlands in upland areas will help to increase the amount of suitable Black Duck habitat. These habitats will become increasingly important for sustaining the Black Duck population as tidal wetlands continue to be lost or degraded due to sea level rise.

**Habitats not Covered in the Plans**: Due to the coastal marsh focus of the ACJV, not all habitats used by our flagship species are considered in the ACJV plans. Habitats such as forested wetlands, rivers, and streams, are used less frequently by Black Ducks but may play a key role in providing migratory stopover habitats. Likewise, Black Rails historically occupied some upland areas within the Piedmont region. These habitats were not considered to be wise strategic investments, at least in the short term, given the rarity of Black Rails and their current distribution in coastal areas. Although some of these habitats are not the focus of existing strategies

developed for our plans, they are the focus of conservation efforts by ACJV partners, and often benefit greatly from landscape conservation efforts funded by the USFWS's NAWCA and National Coastal Wetland Conservation grant programs.

Plan	Non-tidal Habitat Strategies
Black Duck	Restore and enhance non-tidal wetland hydrology
	Improve Water Level Management in Impounded Wetlands
	Control Exotic and Invasive Species
Black Rail	Create New Non-tidal Black Rail Habitat
	Promote Targeted Impoundment Management
	Develop and Promote Black Rail-Friendly Fire Management BMPs
	Develop and Promote Agricultural Best Management Practices
	Marsh Migration Zone Strategies
All Plans	Prioritize Transition Zone Protection (all plans)
	Develop and Implement BMPs to Facilitate Marsh Migration and Offset Losses (all plans)

Table 2: Non-tidal habitat strategies included in the flagship species plans

## **Coastal Habitats and Benefits to Other Birds**

Carrying out the comprehensive strategies developed in the ACJV plans will benefit a variety of other wildlife species that use the same habitats as our flagship species. Examples of priority bird species that would benefit most are described below.

Salt Marsh: Many avian species use salt marshes as habitat, including those likely to decline due to changes in the amount, quality, or types of salt marsh habitat available (Table 3). We evaluated these species for inclusion in the Salt Marsh Bird Conservation Plan via working group. Species for which changes in this habitat would not have a major effect on their population were not included, even if they are a species of high conservation concern. In the Salt Marsh Bird Conservation Plan (Appendix 1) species were grouped as: (A) Imperiled species that may need consideration for ESA protection (B) Those likely to become imperiled in the relatively short-term (10 to 20 years), (C) Those which might become imperiled in the longer-term (more



Coastal salt marsh. Jack Flannegan

than 20 years), (D) Those for which there is insufficient data to classify ("data deficient").

The planning group recommended that conservation actions focus on species in groups (A) and (B) in the short term and revisit those in group C periodically.

Table 3: Highest priority salt marsh bird beneficiaries of salt marsh conservation efforts\*

Common Name	<b>Priority Tier</b>	Scientific Name	
"Coastal Plain" swamp sparrow (ni- grescens)	А	Melospiza georgiana nigrescens	
Eastern Henslow's sparrow+? (susurrans)	А	Centronyx henslowii susurrans	
Whooping crane	А	Grus americana	
"Acadian" Nelson's Sparrow	В	Ammospiza nelsoni subvirgatus	
Clapper Rail	В	Rallus crepitans	
King rail	В	Rallus elegans	
American oystercatcher	В	Haematopus palliatus	
Lesser yellowlegs	В	Tringa flavipes	
Mottled duck	В	Anas fulvigula fulvigula (FL, GA, SC) and Anas f. maculosa (GA, SC)	
Whimbrel (hudsonicus and Mackenzie Delta breeding population of rufiventrus)	В	Numenius phaeopus (hudsonicus & rufiventris)	
American black duck	С	Anas rubripes	
Boat-tailed grackle	С	Quiscalus major	
"Eastern" willet	С	Tringa semipalmata semipalmata	
Forster's tern (eastern coastal population)	С	Sterna forsteri (Eastern coastal population)	
Glossy ibis	С	Plegadis falcinellus	
Greater yellowlegs	С	Tringa melanoleuca	
Laughing gull	С	Leucophaeus atricilla	
Seaside sparrow	С	Ammospiza maritima	
Tricolored heron	С	Egretta tricolor	
Wood stork (US breeding population)	С	Mycteria americana (US breeding population)	
Marsh Wren	С	Cistothorus palustris (griseus & marianae)	
"Interior" Nelson's sparrow	D	Ammospiza nelsoni (alterus & nelsoni)	
Yellow rail	D	Coturnicops noveboracensis	

Prioritized list of bird species that benefit from salt marsh conservation efforts (Saltmarsh Bird Conservation Plan for the Atlantic Coast, 2019; Table 1)

**Non-tidal Habitats**: Numerous regional planning documents, such as State Wildlife Action Plans, have identified a number of Regional Species of Greatest Conservation Need that share habitat requirements with our flagship species and would benefit from the Coastal habitat prioritization work laid out in the ACJV plans. The species identified in Table 4 have been identified as both regional priorities and as species with overlapping ranges and habitat use with flagship species. We assume that most or all actions undertaken for flagship species conservation are likely to benefit many of these species, though species most closely associated with shallow wetland habitats are likely to benefit the most.

Table 4: Regional species of greatest conservation need that would benefit from non-tidal flagship habitat conservation

Common Name	Scientific Name	Regional Responsibility Category	# States*				
VERY HIGH CONCERN							
Swallow-tailed Kite	Elanoides forficatus	C) 50-75%	14				
HIGH CONCERN							
Grasshopper Sparrow* (and Florida)	<i>Ammodramus savannarum</i> (includes floridanus)	D) 25-50%	15				
Le Conte's Sparrow	Ammospiza leconteii	C) 50-75%	12				
Nelson's Sparrow*	Ammospiza nelsoni subvirginianus	D) 25-50%	10				
Mottled Duck	Anas fulvigula	B) 75-100%	9				
Henslow's Sparrow*	Centronyx henslowii	D) 25-50%	15				
Marsh Wren (Worthington's and Marian's)	Cistothorus palustris (griseus and marianae)	A) 100% (SEAFWA Endemic)	2				
Yellow Rail	Coturnicops noveboracensis	B) 75-100%	11				
Wood Stork	Mycteria americana	B) 75-100%	13				
Roseate Spoonbill	Platalea ajaja	B) 75-100%	11				
King Rail*	Rallus elegans	C) 50-75%	15				
Everglade Snail Kite	Rostrhamus sociabilis plumbeus	C) 50-75%	1				
MODERATE CONCERN							
Little Blue Heron*	Egretta caerulea	C) 50-75%	15				
Snowy Egret*	Egretta thula	D) 25-50%	15				
Least Bittern*	Ixobrychus exilis	D) 25-50%	15				
Yellow-crowned Night Heron	Nyctanassa violacea	C) 50-75%	15				
Whimbrel*	Numenius phaeopus	C) 50-75%	8*				
* Indicates RSGCN in both the NE and the SE. All others are SE RSGCN							

#### **EVALUATING TRADEOFFS**

As with any conservation effort, there will always be tradeoffs in decision-making. What benefits one species may not benefit another, or worse, could negatively affect another species. For our flagship species, risks of negative tradeoffs are somewhat mitigated by the fact that the three species do not overlap geographically in all areas. Black Rails now breed almost exclusively in the Southeast, although there is a small overlap with the winter and breeding range of Black Ducks in the Mid-Atlantic. Although most Saltmarsh Sparrows winter in the Southeast, Black Rail conservation is compatible with their winter habitat needs. Black Duck winter distribution is heavily centered in the Mid-Atlantic, where there is potential conflict with Saltmarsh Sparrow and Black Rail habitat requirements. Work focused on Saltmarsh Sparrows should benefit both Black Ducks and Black Rails, as high marsh habitat is necessary or valuable to both species. Some Black Duck habitat practices could reduce the extent or quality of high marsh habitat (e.g., removal of a tidal restriction that results only in low marsh or creates more open water) or compromise the quality of a managed impoundment for Black Rails (e.g., if water levels are too deep;Table 5).

In Mid-Atlantic states, where all three species co-occur, an evaluation of tradeoffs should be the default and a required element of conservation decision-making. Where potential conflicts do exist, land managers should evaluate potential impacts and avoid management actions that would lead to loss of Saltmarsh Sparrow or Black Rail habitat due to the relative rarity and high conservation status of those species. Projects maximizing cross-seasonal and/or multi-species benefits should be prioritized and efforts that would benefit all three focal species, such as conserving high marsh should be prioritized (Table 5).



Table 5: Anticipated impact of plan strategy implementation on flagship species

		Effect: Highly Beneficial (HB), Beneficial (B), Negative (N), Neutral (-)				
Strategy	Conservation Plan <sup>#</sup>	Saltmarsh Sparrow	Black Rail	Black Duck		
Restore and Enhance Degraded Salt Marsh	SMB, SALS	HB	В	НВ		
Prioritize Transition Zone Acquisition	SMB, SALS, ABDU	HB	HB	НВ		
Develop and Implement BMPs to Facilitate Marsh Mi- gration and Offset Losses	SMB, SALS, BLRA, ABDU	НВ	НВ	НВ		
Increase Use of Dredged Material to Benefit Salt Marsh Habitat	SMB, SALS	НВ	В	НВ		
Integrate Salt Marsh Conservation into NRCS (Farm Bill) Programs	SMB, SALS	НВ	HB	НВ		
Engage Transportation Agencies to Improve Infrastruc- ture	SMB, SALS	HB	В	HB		
Engage/Improve Local Land-Use Planning Process	SMB, SALS	HB	В	В		
Alleviate Impacts from Contaminants and Spills	SMB	В	В	В		
Tide Gate Manipulation (to dampen spring tides)	SALS	HB*	HB*	-		
Predator Management (for SALS)	SALS	HB	HB	В		
Creating/Improving Microhabitats (for SALS)	SALS	HB	HB	-		
Individual Nest Protection (of SALS)	SALS	HB	-	-		
Non-breeding Season (SALS) Habitat Conservation	SALS	HB	В	В		
Create New Non-tidal Black Rail Habitat	BLRA	-	HB	В		
Promote Targeted Impoundment Management (for BLRA)	BLRA	В	НВ	-		
Develop and Promote Black Rail-Friendly Fire Manage- ment BMPs	BLRA	В	НВ	В		
Develop and Promote Agricultural Best Management Practices (for BLRA)	BLRA	-	НВ	-		
Develop Landowner Assurances Program (for BLRA)	BLRA	-	HB	-		
Restore Tidal Wetland Hydrology (for ABDU)	ABDU	B/N*	B/N*	HB		
Restore and enhance non-tidal wetland hydrology (for ABDU)	ABDU	-	-	НВ		
Improve Water Level Management in Impounded Wet- Iands (for ABDU)	ABDU	-	N**	НВ		
Control Exotic and Invasive Species (for ABDU)	ABDU	В	В	HB		
#SMRCD: Salt March Bird: SALS: Saltmarch Sparrow: BLDA: Black Bail: ADDU: American Black Duck						
Sinder Satt Marsh Bird, SALS, Sattharsh Sparrow, BLIA, Black Rall, Abbo, American Black Buck						

\*Direction of effect depends on whether restoration results in restoration or creation of high marsh

\*\* Negative if BLRA habitat is compromised in the process

### CONCLUSION

The broad conservation strategies in the ACJV's Salt Marsh Bird Conservation Plan, together with the speciesspecific approaches developed in the Black Rail, Saltmarsh Sparrow, and American Black Duck plans, provide a comprehensive coastal conservation plan for tidal and non-tidal flagship species habitats along the U.S. Atlantic Coast. While there are other species groups and habitats in the ACJV that face major conservation challenges, our suite of flagship species were chosen due to their high conservation concern, their ability to represent imperiled habitats and other wetland species of concern, and their ability to garner high public interest. The population objectives and conservation strategies in our plans represent a consensus of bird conservation experts from throughout the ACJV as to the best approaches to address and reverse the major population declines experienced by all three species and sustain them for future generations. Implementing the actions in these plans will also provide immeasurable benefits to many other wildlife species and to people through ongoing social, cultural and economic benefits. This work goes far beyond the birds and represents billions of dollars per year in environmental, economic and social value.



Restoring degraded saltmarshes are beneficial to the ACJV three priority species. Lauren Owens Lambert