

## Marsh Birds Guild

**American Bittern** *Botaurus lentiginosus*

**American Coot** *Fulica americana*

**Black Rail** *Laterallus jamaicensis*

**Clapper Rail** *Rallus longirostris*

**Common Gallinule** *Gallinula galeata*

**King Rail** *Rallus elegans*

**Least Bittern** *Ixobrychus exilis*

**Pied-billed Grebe** *Podilymbus podiceps*

**Purple Gallinule** *Porphyryula martinica*

**Sedge Wren** *Cistothorus platensis*

**Sora** *Porzana carolina*

**Yellow Rail** *Coturnicops noveboracensis*

**Virginia Rail** *Rallus limicola*

**Wilson's Snipe** *Gallinago delicata*

*NOTE: The Black Rail is described in more detail in a separate species account. The Wilson's Snipe is also referenced in the Migratory Shorebirds Guild.*

Contributor (2005): John E. Cely

Reviewed and Edited (2012): Craig Watson (USFWS); (2013) Lisa Smith and Christy Hand (SCDNR)

### DESCRIPTION

#### Taxonomy and Basic Descriptions



American Bittern photo by BLM

The members of the Marsh Birds Guild vary widely in appearance and size. The rails and bitterns have long, slender beaks and stilt-like legs for wading while the coot and grebe have shorter legs with webbed feet for paddling. Sizes for the species vary from the large American Bittern at 58 cm (23 in.) to the small Sedge Wren at 11 cm (4.5 in.). The most colorful of the group is the Purple Gallinule. The male has plumage in shades of green, purple, and blue with bright yellow feet and long toes (Sauer et al. 2000).

The Black Rail is the smallest North American rail measuring 10-15 cm (4 -6 in.) in length and 35 g (1.2 oz.) in weight (Eddleman et al. 1994). Adult rails have strikingly red irises, a dark gray to blackish head, gray neck and breast, rufous nape, and a black and white patterned back. Adult males have darker chins and breasts compared to females, but are comparable in size (Eddleman et al. 1994). Juveniles are similar in appearance to adults but are duller overall (Sibley 2003).



Black Rail by Christy Hand, SCDNR

The Clapper Rail is a large rail averaging 36.8 cm (14.5 in.) in length and 290 g (10 oz.) in weight. The adult bird has a grayish back, drab tan belly, long bill, and short tail. The juvenile is similar to the adult but has black on the sides and less distinctive markings (Sibley 2003).

The King Rail is slightly larger than the clapper rail, averaging 38.1 cm (15 in.) in length and

360 g (13 oz.) in weight. The adult male has a brown streaked back, deep orange neck and breast, and a black and white striped flank. The adult female is smaller and drabber than the male. The juvenile is similar to the adult but has a whitish breast with dark speckling (Sibley 2003).

The Virginia Rail averages 24.1 cm (9.5 in.) in length and 85 g (3 oz.) in weight. The adult bird has a long curved bill, gray face, reddish chest, black-and-white striped flank, and black-and-brown patterned back. The juvenile bird has a grayish brown face, darker bill, dull blackish-brown on its upperparts, and dark brown to blackish on the under parts (Sibley 2003).



Yellow Rail photo by USFWS

The Yellow Rail is a small marsh bird averaging 18.4 cm (7.25 in.) in length and 50 g (1.8 oz.) in weight. The adult has a short yellow bill, short tail, buffy yellow chest and face, dark crown and eye stripe, and a yellow and black streaked back. The juvenile is similar to the adult but has a darker bill and more speckling, especially on the neck and head (Sibley 2003).

The Common Gallinule averages 35.6 cm (14 in.) in length and 315 g (11 oz.) in weight. The adult bird has a distinct red bill and face shield, a black head, brown back, dark gray belly, and white flanks. The juvenile bird is similar to the adult but has a brownish-yellow bill without the face shield and is much drabber in color (Sibley 2003).



Common Gallinule by Kevin Smith



Purple Gallinule by Lisa Smith

The Purple Gallinule is a striking bird averaging 33 cm (13 in.) in length and 235 g (8 oz.) in weight. The adult bird has a red bill with a pale blue face shield, a bright green back and wings, and a vibrant blue head and underside. The juvenile bird lacks the face shield, has an orange bill, olive green wings, and a pale brown head and underside (Sibley 2003).

The Sora averages 22.2 cm (8.75 in.) in length and 75 g (2.6 oz.) in weight. The adult bird has a slate gray body, brown and black patterned back, black face, black bib, short yellow bill, and short upright tail with white underneath. The juvenile bird is similar to the adult but lacks the black face and throat, has a brown bill and buffy brown coloring on its chest (Sibley 2003).



Sora photo by USFWS



The American Coot averages 39.4 cm (15.5 in.) in length and 650 g (1.4 lb.) in weight. The adult has a black head, dark gray body, and white bill. The juvenile is similar in appearance to the adult but is a dull grayish color overall (Sibley 2003).

The American Bittern is stocky bird averaging 71.1 cm (28 in.) in length and 700 g (1.5 lb.) in weight. The adult has a thick neck and bill. They have a brown back and a white throat with bold brown striping. The juvenile is similar in appearance to the adult (Sibley 2003).



The Least Bittern is a tiny heron averaging 33 cm (13 in.) in length and 80 g (2.8 oz.) in weight. The adult has a dark brown to blackish back and crown, an orange-brown neck and sides, and a white and orange striped neck and chest. The juvenile is similar to the adult but is paler with a brown crown (Sibley 2003).



The Pied-billed Grebe is a small waterbird averaging 33 cm (13 in.) in length and 450 g (1 lb.) in weight. They have a whitish bill with a black ring around it, brown head and body, and a tufted whitish rump. The juvenile is similar to the adult but the bill is not yet ringed and the head has pale stripes (Sibley 2003).

The Wilson's Snipe was considered to be a subspecies of the Common Snipe (*Gallinago gallinago*) until it received its own species status in 2002 (Banks et al. 2002). The Common Snipe occurs primarily in Europe, Asia and Africa. The Wilson's Snipe averages 26.7 cm (10.5 in.) in length and 105 g (3.7 oz.) in weight. The adult bird is notable for its very long bill and brown body with bold stripes on their back and head. The juvenile bird is similar to the adult but has pale edges along the body feathers (Sibley 2003).



The Sedge Wren averages 11.4 cm (4.5 in.) in length and 9 g (0.32 oz.) in weight. The adult bird is small and buffy with a boldly streaked back, narrow streaks on the crown, and a short upright tail. The juvenile bird is similar in appearance to the adult (Sibley 2003).

## Status

None of the marsh bird species are officially recognized as threatened or endangered in South Carolina, but all are experiencing documented or suspected declines. All species are being negatively affected by the loss and degradation of wetland habitat through drainage, dredging, filling, impounding, and pollutant discharge. The most serious limiting factor to these species is the availability of wetland habitat (NatureServe 2013). Wetlands in the Southeastern United States represented 89% of the total wetland lost in the United States in the mid-1980s (Hefner et al. 1994).

Many of the rail and gallinule species are categorized as game birds and are hunted in South Carolina. The following species and daily bag limits (in parentheses) are listed in the 2013-2014 Migratory Bird Regulations: King and Clapper Rails (15), Sora and Virginia Rail (25), Common and Purple Gallinules (15), and Wilson's Snipe (8). The hunting seasons for marsh birds are during the winter, when both resident and migrant birds are likely to be present in South Carolina.

The rail species present challenges in determining statuses due to a difficulty in detection as a result of their secretive nature and a general lack of information. Partners in Flight (PIF) lists the Black Rail, King Rail, Yellow Rail, and Clapper Rail as species of continental conservation concern (Rich et al. 2004), and the King Rail is listed as endangered by the Canadian Wildlife Service (E. Cuzio, KDFWR, pers. comm.). The Black Rail is a "species of concern" in South Carolina and is currently under consideration by the USFWS to be listed under the Endangered Species Act. Please see the separate Black Rail account for more detailed information. The Clapper Rail is currently experiencing declines at a rate of 1.4% per year in the Eastern region according to the Breeding Bird Survey (BBS) from 1966-2010 (Sauer et al. 2012). According to the BBS (1966-2010) the King Rail is declining at a rate of 2.9% in the Eastern region, and 4.8% in throughout the United States (Sauer et al. 2012). Virginia Rails are currently experiencing localized population declines as a result of habitat loss but they are believed to be increasing overall throughout their range (IUCN 2012). The Yellow Rail is becoming rare in parts of its range, and their short term population trend is declining at a rate of 10-30% (NatureServe 2013). The Southeast US Waterbird Plan (Hunter et al. 2006) lists the Black and King Rail as in need of Immediate Management and of Continental and Regional Concern. Also, this Plan lists the Yellow Rail of Continental Concern and needing Management Attention.

The Common Gallinule has been experiencing long-term (1966 through 2010) population declines of 1.7% per year in the Eastern BBS region. The Purple Gallinule has also been experiencing long-term (1966 through 2010) population declines of 2.7% per year throughout the BBS region (Sauer et al. 2012), and they are currently ranked as apparently secure (S4) in South Carolina (NatureServe 2013). The Sora is experiencing declines of 1.4% while the American Coot is also experiencing declines of 2.1% per year in the Eastern BBS region (Sauer et al. 2012). The American Coot and Purple Gallinule are of Regional Concern requiring Management Attention. Additionally, all of these species are listed as Highest Priority in the South Atlantic Migratory Bird Initiative Implementation Plan (Watson and Malloy 2008).

Both bittern species are listed as of regional concern by PIF, while the American Bittern is listed as a species of “special concern” by SCDNR. The American Bittern is declining in the Eastern portion of its range at a rate of 0.9% per year, and 1.4% per year range-wide (Sauer et al. 2004). Breeding populations of the Pied-billed Grebe are of regional concern according to PIF and are experiencing declines at a rate of 1.8% per year in the Eastern region according to the BBS from 1966-2010 (Sauer et al. 2012). The Pied-billed Grebe, American Bittern, and Least Bittern are of Regional Concern requiring Management Attention. Additionally, all of these species are listed as Highest Priority in the South Atlantic Migratory Bird Initiative Implementation Plan (Watson and Malloy 2008). The Wilson’s Snipe is a species of continental conservation concern under PIF (Rich et al. 2004) and the United States Shorebird Conservation Plan (Brown et al. 2001). The Wilson’s Snipe is currently experiencing declines at a rate of 0.5% per year in the Eastern region according to the BBS from 1966-2010 (Sauer et al. 2012). The Sedge Wren’s status in South Carolina is currently under review but the BBS from 1966-2010 shows an increase at a rate of 0.5% per year in the Eastern region (Sauer et al. 2012).

#### POPULATION SIZE AND DISTRIBUTION

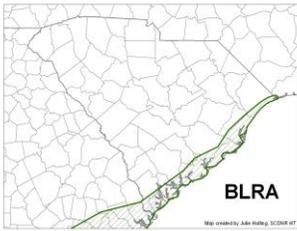
The following table was compiled by Chuck Hunter (USFWS) and summarizes the estimated continental population and trend for each species in this group. These are extrapolated estimates from Breeding Bird Survey data.

Species	Estimated Continental Population & Trend	Residency Status in South Carolina
Yellow Rail	10,000 to 25,000 individuals, stable or unknown trend	Winter
Black Rail*	5,000 to 50,000 individuals, likely declining but unknown to what extent	Permanent
King Rail	60,000 to 100,000 individuals, steep declines	Permanent
Least Bittern	<150,000 individuals - (?)	Summer
American Bittern	~3 million individuals -	Winter
Pied-billed Grebe	385,000 individuals ?	Permanent but rare breeder
American Coot	6 million individuals +	Permanent but rare breeder
Purple Gallinule	<500,000 (all of Western Hemisphere) -	Summer
Wilson’s Snipe	<3 million individuals -	Winter
Clapper Rail	10,000 to 50,000 pairs -	Permanent
Common Gallinule	?	Permanent
Sora	+	Winter
Virginia Rail	+	Winter
Sedge Wren	6.5 million individuals +	Winter

(?) = unknown trend; (+) = increasing; (-) = decreasing

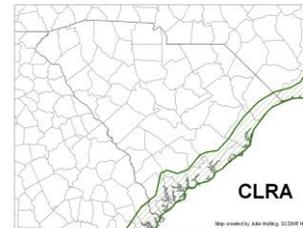
\* See Black Rail species account for additional information.

## HABITAT AND NATURAL COMMUNITY REQUIREMENTS

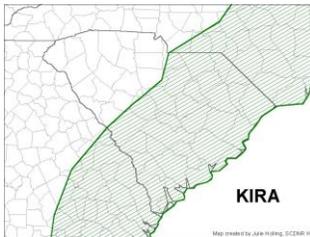


Freshwater and brackish marshes, wet meadows, and flooded grasslands in the Coastal Zone are believed to be the primary habitats of the Black Rail. It is typically found in black-needle rush marshes (*Juncus roemerianus*) and “high marsh” (infrequently flooded) on the edges of marshes, waterfowl impoundments and other wetlands. Cryptic nests are typically built in clumps of vegetation in elevated areas surrounded by a mix of small pools of water and areas with moist soil (Eddleman et al. 1994). Black Rails do not use marsh with significant amounts of standing water and require stable water levels at their nest sites. Succession to woody plants is detrimental to this species. Black Rails are believed to feed primarily on small invertebrates and seeds (Eddleman et al. 1994). They require foraging habitat near their nests sites.

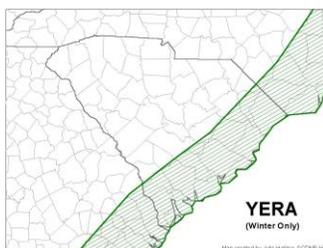
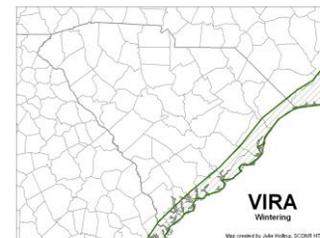
The Clapper Rail is a fairly common breeder of the Coastal Plain marshes (Cely 2003). Clapper Rails are a characteristic species of salt marshes and mangrove swamps. They are usually found in low portions of coastal wetlands that are dominated by cordgrass (*Spartina sp.*), pickleweed (*Salicornia spp.*), or mangroves (Rush et al. 2012). Preferred habitat on the East Coast consists of emergents and scattered shrubs bordering ditches and tidal creeks close to open water (Lewis and Garrison 1983).



The King Rail is primarily found in the Coastal Zone, but can be found in the Coastal Plain and Sandhills Ecoregions. It was formerly found statewide, but few, if any, Piedmont locations are currently known (Cely et al. 1993). Considered a freshwater counterpart to the widely distributed clapper rail of coastal salt marshes, king rails have declined to an alarming extent throughout much of the South. Obvious reasons for declines are not apparent, at least in the Southeast, as adequate habitats, like cattail marshes and other freshwater marshes with emergent vegetation, are widely available. In the Piedmont, the notable increase in beaver populations in the past 35 years should have created King Rail habitat.



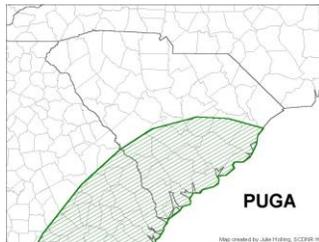
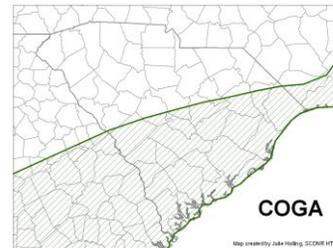
The Virginia Rail is a winter resident found along the South Carolina coastline. They are found in fresh, brackish, and saltwater marshes with robust emergent vegetation. They tend to use drier areas of the marsh than the Sora (Conway 1995).



The Yellow Rail uses freshwater marsh, specifically “damp” marsh, “wet” or low-lying broom sedge fields and pastures, grassy Carolina bays, damp grassy power line right-of-ways and ditch banks. Due to the bird’s small size, it does not use deep-water marshes and impoundments. It is sometimes found in recent clearcuts with scattered puddles of standing water and bunched grasses. Tall or moderate-height grasses seem important for cover. Some woody trees and shrubs

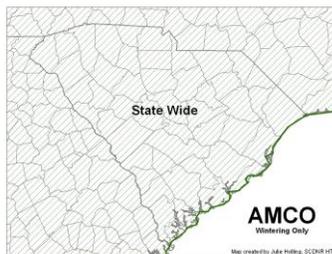
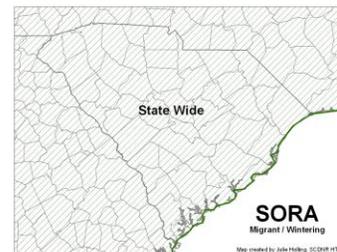
are acceptable features in the habitat, but based on personal observations (Cely) at a Yellow Rail site in lower Richland County, SC over an 8 to 9 year period, succession to woody shrubs and trees seemed detrimental. Fire, mowing, and other successional retardants are probably needed to maintain suitable habitat conditions. Very little is known about the yellow rail's distribution and habitat requirements in South Carolina.

The Common Gallinule is a common breeder of the Coastal Plain marshes (Cely 2003). Common Gallinules reside in a variety of habitats, including marshes, ponds, lakes, canals, borrow pits, rice fields, and rivers with variable levels of emergent plant cover (Bannor and Kiviat 2002).



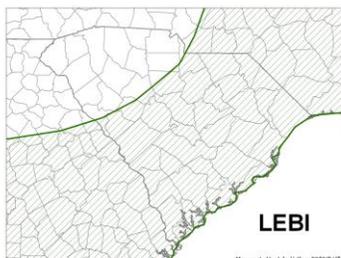
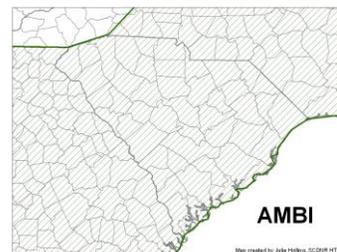
The Purple Gallinule is closely associated with ponds and impoundments with thick mats of lily pads and other floating emergents. It is found primarily in the coastal Zone from the Santee River southward. South Carolina could have the northern-most population on the Atlantic Coast since it is rare, if not extirpated, in North Carolina.

The Sora is a common winter resident of the Coastal Plain region. They frequent freshwater, brackish, and salt marshes. Marshes with an interspersed of shallow water and emergent vegetation are preferred, but they can also be found in vegetated canals, ditches, rice fields, impoundments, mangroves, wet pastures, and small ponds with emergent vegetation (Melvin and Gibbs 2012).



There have been less than 5 documented breeding records for the American Coot, from the Inner Coastal Plain and Outer Coastal Plain. This species is abundant as a statewide winter resident, more so in the Coastal Plain, on ponds, lakes, waterfowl impoundments and other deep-water habitats where submerged aquatic vegetation is available for food. Breeding habitat is poorly known in the State, but it is apparently similar to that of the pied-billed grebe.

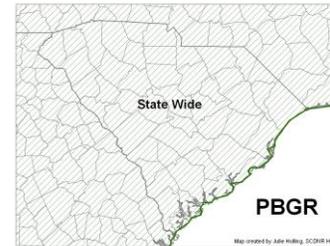
Freshwater, tall, emergent marsh is used by American Bitterns as refuge. Declines may be related to habitat loss on the breeding grounds as more than adequate habitat seems available in South Carolina. The American Bittern is distributed statewide but is probably more abundant on the Outer Coastal Plain.



Similar in distribution and habitat use as the King Rail, the Least Bittern differs in that it has never been known historically to occur as a breeder in the Piedmont. It is most abundant in the Coastal Zone. Habitat requirements may be less exacting than the King Rail, as the Least Bittern is more abundant. Freshwater emergent

marsh is used, especially if cattail is present. In addition, pond and lake margins with emergent vegetation and waterfowl impoundments are frequented. As with most members of the Ardeidae family, the least bittern may need deeper water than King Rails for nesting security purposes.

The Pied-billed Grebe is a fairly common breeder in deep-water impoundments with tall emergent vegetation, in Carolina bays, and in other marshes in the Coastal Zone. In the Coastal Plain, it is localized, while in the Piedmont, it is rare. Key requirements seem to be deeper water for nest protection and escape along with tall emergent vegetation for cover.



A common to fairly common winter resident only, the Wilson's Snipe probably is more widespread in the Coastal Plain. It utilizes wet bare ground, bare agriculture fields with standing water, recently plowed fields, occasionally short grass fields, and sod farms for foraging habitat.

The Sedge Wren is a common winter resident of the Coastal Plain region. While overwintering, sedge wrens can be found in both brackish and freshwater sedge meadows and marshes, pine savannas, wet palmetto prairies, and old fields with dense grass or weeds (McNair 1998).



## CHALLENGES

Loss of wetland habitat is the most obvious problem, but for some species, adequate habitat seems available in South Carolina. Declines may be related to other reasons as yet undefined such as pollutants and/or predators. A marsh bird survey conducted by the SCDNR (Cely et al. 1993) noted that the majority of recorded marsh birds were associated with coastal waterfowl impoundments and managed wetlands. The future of these species in South Carolina could, therefore, be tied to active waterfowl management programs in the State and any threats to those habitats managed for waterfowl. As most marsh bird management is incidental to waterfowl management, more information is needed on marsh bird management needs. In addition, little is known about the basic nesting biology of the 14 species in this guild that breed in South Carolina. Black Rails face many of the challenges identified for other species in the Marsh Birds guild, but also face unique challenges due to their specific habitat requirements.

Fire suppression causes habitat loss because plant succession reduces the suitability of wetland habitats. Prescribed burning is an important tool for managing marsh bird habitat. As development increases along the coasts, managers are more reluctant to use fire as a management tool, and regulations restricting burning have increased. Slow-burning (backing and flanking) fires that leave a mosaic of burned and unburned areas maintain suitable habitat. Most wetlands should not be burned every year because it takes a couple of years for suitable vegetation to re-grow. Fast-moving and multipoint fires can result in marsh bird mortality (discussion at Black Rail Workshop, 2013). Burning during the nesting season can result in the loss of adults and young. The use of aerial ignition to burn huge areas quickly and "clean burns" in which no

patches of vegetation are left are probably particularly dangerous practices for rails and other wetland species.

Effects of climate change and sea level rise are currently being studied, with some models being produced to demonstrate loss of marshes and the inundation of managed wetlands, where these species are generally found. The ability of these marshes to accrete soil and migrate inland will be important to the long-term survival of the species that utilize marshes and the estuarine systems. Some long-term projections show that some of the more inland managed wetlands will retain their infrastructure, while those closer to the ocean will likely be inundated. The ability to restore some of these degraded managed wetlands in more inland areas could be very important to the sustainability of these marsh bird populations.

### CONSERVATION ACCOMPLISHMENTS

The continued preservation of wetland habitats, including freshwater and saltwater marshes, is beneficial to these species. Preservation of areas such as the ACE Basin and Bonneau Ferry Wildlife Management Area has provided excellent resources for these species. Some of the best habitats for these species include existing waterfowl impoundments along the coast. Additionally, Conway (2004) has initiated standardized monitoring protocols for these species.

### CONSERVATION RECOMMENDATIONS

- A critical need is adequate monitoring, both to determine presence and absence and to evaluate population trends; monitoring efforts are especially needed for the 5 secretive rail species.
- Protect and manage wetlands. This includes retarding plant succession through burning, disking, mowing, and other measures that restore natural disturbance regimes. This can be accomplished, in part, by increasing the utilization of federal incentive programs that compensate private landowners for wetland restoration activities and practices that reduce erosion and increase water quality.
- Research basic life history and management needs for the species in this guild in South Carolina's wetland habitats.
- Investigate the basic nesting biology of the 14 species of this guild that breed in South Carolina.
- Survey appropriate habitat to gather distributional data for these species.
- Establish a monitoring initiative to evaluate population trends for this species.

### MEASURES OF SUCCESS

The first measure of success would be to implement long-term population monitoring studies which would yield information about distribution, population status, and trends for this group. The next step is to increase quantity and quality of habitat by implementing the above-mentioned conservation recommendations. The ultimate measure of success is to document stable population trends for declining species and to increase populations for species in which research suggest it is warranted.

## LITERATURE CITED

- Banks, R.C., C. Cicero, J.L. Dunn, A.W. Kratter, P.C. Rasmussen, J.V. Remsen Jr., J.D. Rising, and D.F. Stotz. 2002. Forty-third Supplement to the American Ornithologists' Union Check-list of North American Birds. *The Auk*: 119(3): 897-906. Online: [http://www.aou.org/checklist/suppl/AOU\\_checklist\\_suppl\\_43.pdf](http://www.aou.org/checklist/suppl/AOU_checklist_suppl_43.pdf)
- Bannor, B.K., and E. Kiviat. 2002. Common Gallinule (*Gallinula galeata*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/685>.
- Brown, S., C. Hickey, B. Harrington, and R. Gill, eds. 2001. The U.S. Shorebird Conservation Plan, 2nd ed. Manomet Center for Conservation Sciences, Manomet, MA.
- Cely, J.E., D.P. Ferral and B.A. Glover. 1993. Marsh Bird Survey, Final Report. South Carolina Wildlife and Marine Resources Department. Columbia, South Carolina. 38 pp.
- Cely, J. 2003. The South Carolina Breeding Bird Atlas 1988-1995. South Carolina Department of Natural Resources. Columbia, South Carolina. 305 pp. Portions available <http://www.dnr.state.sc.us/wild/bbatlas/bba.html>.
- Conway, C. J. 1995. Virginia Rail (*Rallus limicola*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/173>.
- Conway, C.J. 2004. Standardized North American Marsh Bird Monitoring Protocols. USGS, Arizona Cooperative Fish & Wildlife Resources Unit. 26 pp.
- Eddleman, W. R., R. E. Flores and M. Legare. 1994. Black Rail (*Laterallus jamaicensis*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/123doi:10.2173/bna.123>
- Hefner, J.M., B.O. Wilen, T.E. Dahl, and W.E. Frayer. 1994. Southeast wetlands; status and trends, mid-1970's to mid-1980's. U.S. Department of the Interior, Fish and Wildlife Service, Atlanta, GA. 32 pp.
- Hunter, W.C, W. Golder, S. Melvin and J. Wheeler. 2006. Southeast United States Regional Waterbird Conservation Plan. Available online: <http://www.waterbirdconservation.org/pdfs/regional/seusplanfinal906.pdf>.
- IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 21 May 2013.
- Lewis, J.C., and R.L. Garrison. 1983. Habitat Suitability Index Models: Clapper Rail. US Fish Wildl. Serv. FWS/OBS-83/10.

- McNair, D.B. 1998. Henslow's sparrow and sedge wren response to a dormant-season prescribed burn in a pine savanna. *Fla. Field Nat.* 26: 46-47.
- Melvin, S.M., and J.P. Gibbs. 2012. Sora (*Porzana carolina*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/250>.
- NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>.
- Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Iñigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, T. C. Will. 2004. Partners in Flight North American Landbird Conservation Plan. Cornell Lab of Ornithology. Ithaca, NY. Partners in Flight website. [http://www.partnersinflight.org/cont\\_plan/](http://www.partnersinflight.org/cont_plan/) (VERSION: March 2005).
- Rush, S.A., K.F. Gaines, W.R. Eddleman, and C.J. Conway. 2012. Clapper Rail (*Rallus longirostris*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/340>.
- Sauer, J.R., J.E. Hines, J. Fallon, K.L. Pardieck, D.J. Ziolkowski, and W.A. Link. 2012. The North American Breeding Bird Survey, Results and Analysis 1966 - 2003. Version 12.13.2011. *USGS Patuxent Wildlife Research Center*. Laurel, Maryland.
- Sibley, D. 2003. *The Sibley Guide to Birds of Eastern North America*. Knopf Doubleday Publishing Group. New York, New York. 432 pp.
- South Carolina Department of Natural Resources. 2013. South Carolina Migratory Game Bird Hunting Guidebook: 2013-2014. Online: <http://www.dnr.sc.gov/regs/migratorybird/regulations.html>
- Watson, C. and K. Malloy. 2008. The South Atlantic Migratory Bird Initiative Implementation Plan. Sept. 8, 2008 Atlantic Coast Joint Venture, U.S. Fish & Wildlife Service. 104 pp.