

Migratory Shorebird Guild

Piping Plover *Charadrius melodus*
Semipalmated Plover *Charadrius semipalmatus*
Black-bellied Plover *Pluvialis squatarola*
American Golden Plover *Pluvialis dominica*
Wimbrel *Numenius phaeopus*
Long-billed Curlew *Numenius americanus*
Greater Yellowlegs *Tringa melanoleuca*
Lesser Yellowlegs *Tringa flavipes*
Solitary Sandpiper *Tringa solitaria*
Spotted Sandpiper *Actitis macularia*
Upland Sandpiper *Bartramia longicauda*
Semipalmated Sandpiper *Calidris pusilla*
Western Sandpiper *Calidris mauri*
Dunlin *Calidris alpina*

Sanderling *Calidris alba*
Red Knot *Calidris canutus*
Marbled Godwit *Limosa fedoa*
Buff-breasted Sandpiper *Tryngites subruficollis*
White-rumped Sandpiper *Calidris fuscicollis*
Pectoral Sandpiper *Calidris melanotos*
Purple Sandpiper *Calidris maritima*
Stilt Sandpiper *Calidris himantopus*
Wilson's Snipe *Gallinago gallinago delicata*
American Avocet *Recurvirostra Americana*
Least Sandpiper *Calidris minutilla*
Short-billed Dowitcher *Limnodromus griseus*
Long-billed Dowitcher *Limnodromus scolopaceus*

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DESCRIPTION

Taxonomy and Basic Description

The migratory shorebird guild is composed of birds in the Charadrii suborder. Migrants in South Carolina represent three families: Scolopacidae (sandpipers), Charadriidae (plovers) and Recurvirostridae (avocets). Sandpipers are the most diverse family of shorebirds. Their tactile foraging strategy encompasses probing in soft mud or sand

for invertebrates. Plovers are medium size birds, with relatively short, thick bills and employ a distinctive foraging strategy. They stand, looking for prey and then run to feed on detected invertebrates. Avocets are large shorebirds with long recurved bills and partial webbing between the toes. They feed employing both tactile and visual methods.

Shorebirds are characterized by long legs for wading and wings designed for quick flight and transcontinental migrations. Migrations can span continents; for example, red knots migrate from the Canadian arctic to the southern tip of South America. Less frequently, shorebirds may migrate from the northeastern to southeastern U.S., as is the case for the piping plover. Migratory shorebirds in South Carolina may be transient birds on a northbound flight in the spring, a southbound flight in the fall, or wintering birds. Plumage can be strikingly different between summer and winter. Although nesting habitat includes inland tundra and prairies, during the non-breeding season, they forage and roost in mixed species flocks primarily on the coast. Thus, they are aptly named shorebirds.

Status

Although long-term monitoring is absent, surveys of migrant shorebirds in the last three decades indicate most shorebirds are in serious decline (Manomet 2004). Although many shorebird species are in need of protection afforded by federal listing, piping plovers are the only listed



shorebird in South Carolina; this species is considered threatened both in the state and federally. The U.S. Shorebird Conservation Plan (<http://shorebirdplan.fws.gov>) combines six categories to classify the conservation status of declining shorebirds to prioritize conservation efforts. Classifications range from “highly imperiled” to “low concern” (U.S. Fish and Wildlife Service 2004a; U.S. Fish and Wildlife Service 2004b). For the purposes of the Plan, however, those in the “low concern” category are still considered a priority since the group as a whole faces the same basic threats.

Highly Imperiled	High Concern	Moderate Concern	Lower Concern
piping plover	American golden plover	Black-bellied plover	Semipalmated plover
long-billed curlew	Whimbrel	American avocet	Spotted sandpiper
red knot	Marbled godwit	Greater yellowlegs	White-rumped sandpiper
buff-breasted sandpiper	Ruddy turnstone	Lesser yellowlegs	Pectoral sandpiper
	Sanderling	Dunlin	Long-billed dowitcher
	Solitary sandpiper	Semipalmated sandpiper	
	Upland sandpiper	Least sandpiper	
	West sandpiper	Purple sandpiper	
	Short-billed dowitcher	Stilt sandpiper	

Conservation status of high priority migratory shorebird species found in South Carolina (U.S. Fish and Wildlife Service 2004a).

POPULATION DISTRIBUTION AND SIZE

Population sizes of most species are not known because shorebird migration can span continents and breeding grounds are mostly inaccessible arctic and sub-arctic habitats. Censuses at stopover areas are useful for estimating minimum population size. Most migrant species are present year round but are less abundant during short arctic summers. Spring migration along the Atlantic coast is from March to May and fall migration is from July to October (Helmers 1992). Peak shorebird from Cape Romain National Wildlife Refuge (CRNWR) to Dewees Inlet (the Cape Romain Region), occurred in late March while minimum counts were in late June (Dodd and Spinks 2001).

In 1974, Manomet Center for Conservation Sciences (<http://www.manomet.org>) coordinated International Shorebird Surveys (ISS) to monitor shorebird numbers at important stopover sites. Presently, this program is the only statewide shorebird monitoring program in South Carolina. Eleven sites are surveyed in South Carolina: Huntington Beach State Park, Yawkey Wildlife Center, Cape Romain NWR, Pitt Street Bridge, Folly Island, Kiawah Island, ACE Basin NWR, Bear Island Wildlife Management Area (WMA), Hunting Island State Park, Harbor Island, Savannah River Dredge Spoil Site, and Savannah River NWR. Surveys are conducted during fall and/or spring migrations by state and federal employees and volunteers. Data from these surveys are used to identify important areas to individual species, important habitat types and population trends (Manomet 2004).

Surveys of the Cape Romain Region, in comparison with other ISS, indicate this region is the most important area in South Carolina for shorebirds (Sprunt and Chamberlain 1970; Marsh and Wilkinson 1991; Dodd and Spinks 2001; Manomet 2004). The Western

Hemisphere Shorebird Reserve Network (<http://www.manomet.org/WHSRN/>) identified essential migratory sites for the western hemisphere also using ISS data. These “Hemispheric Sites” host over 500,000 shorebirds annually, or 30 percent of a species flyway population. Cape Romain NWR is one of only 15 “Hemispheric Sites” identified in North and South America (Harrington et al. 1989; Manomet 2004).

Piping plovers nest in more southern latitudes; thus, an estimate of breeding adults is possible (5,500 breeding adults throughout the species range). The number of wintering piping plovers in South Carolina is approximately 80 individuals. This is greater than one percent of the estimated population (Ferland and Haig 2002).

Statewide surveys of marbled godwits are possible because they are uncommon yet distinctive shorebirds roosting together in a few sites in South Carolina. Statewide surveys by SCDNR in December 2002 counted 345 marbled godwits. Surveys in the Cape Romain Region in December 1988 were consistently over 500 birds (Marsh and Wilkinson 1991), suggesting this species is declining in South Carolina.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Shorebirds roost and forage in coastal wetland habitats as well as inland. They feed on invertebrates found in mudflats, sparsely vegetated shallow water, beaches and oyster reefs. They also regularly feed on horseshoe crab eggs in the spring. Additionally, the purple sandpiper uses rocky intertidal habitats, such as jetties. Different bill lengths and feeding strategies allow mixed species flocks to forage in the same area while exploiting different food resources. Along the coast, tides influence both diurnal and nocturnal foraging. Foraging activity is focused around the time of low tide. At high tide when foraging grounds are covered, birds roost in flocks on high shell rakes, beaches, estuarine islands and, occasionally, docks. Shorebirds may require different habitats for daytime and nighttime roosting. Roosting sites may contain thousands of shorebirds. Dunlin, sanderlings, red knots, small sandpipers and plovers primarily use beaches. Short-billed dowitchers and marbled godwits are found on oyster reefs and docks. Greater yellowlegs, spotted sandpipers and ruddy turnstones use a variety of habitats (Dodd and Spinks 2001).

South Carolina contains many managed coastal wetlands (285.1 km² or 110.1 mi.²) that were historically used for rice production; these areas are currently managed for waterfowl. Managing for spring shorebird migrations requires specific manipulation of water levels. Shallow water can be periodically maintained in wetlands during August to October for fall shorebird migration (Williams et al. 2002). Management of wetlands for shorebirds and waterfowl provides supplemental habitat that may be preferred to natural mudflats (Weber and Haig 1996).

CHALLENGES

Members of this guild share both roosting and foraging sites and are usually impacted by the same factors. Shorebirds are especially vulnerable to habitat degradation because

they congregate in large flocks at key stopover sites to replenish fat during long migrations (Myers et al. 1987)

Because of the complicated life history associated with birds of this guild, there are many challenges in conserving these species. Disturbance by humans and boat traffic at foraging areas reduces feeding efficiency, thereby reducing the fat available for migration or winter survival. Disturbance at roosting sites results in an expenditure of energy each time the birds are flushed and may have a cumulative effect of depleting fat reserves, particularly at key stopover areas. There has also been a decline in invertebrate available (for foraging) due to beach renourishment. Over harvests of horseshoe crabs for pharmaceutical use may also impact available forage. Finally, oil spills that degrade marine environments can have potentially major impacts on migrating shorebirds, both by disrupting feeding patterns and by leading to the direct mortality of food sources.

CONSERVATION ACCOMPLISHMENTS

The SCDNR coordinated or conducted several surveys, including a coast-wide survey of marbled godwits and large shorebird roosts. SCDNR coordinated surveys in South Carolina as part of the international piping plover surveys (Ferland and Haig 2002). Additionally, SCDNR has conducted year-round shorebird surveys in the Cape Romain Region (Dodd and Spinks 2001).

CONSERVATION RECOMMENDATIONS

- Conduct statewide surveys of large shorebird concentrations and marbled godwit roost sites in order to document important areas or habitats and document annual variability.
- Participate in piping plover surveys and color band resighting.
- Participate in International Shorebird Surveys created and sponsored by Manomet Center for Conservation Sciences.
- Reduce disturbance at foraging and roosting areas by educating the public as to the effects of disturbance and the status of shorebirds.
- Work with government and private land managers to manage important shorebird roost sites.
- Help private landowners manage wetlands efficiently. Brochures and technical advice from trained professionals may be necessary.
- Continue cooperative efforts with the US Fish and Wildlife Service to census and manage important shorebird roosting and foraging sites within Cape Romain National Wildlife Refuge.
- Disseminate information on and encourage use of integrated management of wetlands typically managed solely for waterfowl.
- Develop web site with information on the status, management and natural history of shorebirds in South Carolina.
- Participate in Cape Romain NWR biological review to encourage closure of important shorebird stopover sites.

MEASURES OF SUCCESS

This guild of birds is subject to rapid shifts in distribution and abundance and will require adaptive management to respond to these changes. Management priorities may shift if the severity of species' declines is further documented.

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