



Shifting Sands

By Glenda C. Booth
Photos by Lynda Richardson

We were standing on a broad, flat Cedar Island beach littered with shell bits, an ever-shifting wind-blown strip of sand in Virginia's chain of barrier islands, as waves lapped and a gentle breeze tossed about tangles of seaweed. We zeroed in on a little, white, fluffy cotton "ball" skittering across the sand—a piping plover chick about six days old that had scampered from its nest, which was a barely visible scrape in the sand. On sparsely vegetated beaches like this, fledglings scamper across the dry sand to the surf zone to feed. The only structure in sight is a former Coast Guard Station.

"I'm so lucky to work here," says Coastal Terrestrial Biologist Ruth Boettcher, with the Department (DGIF). "It's really special. It's more unusual to see people than not."

Out on this island, where the relentless beat of the ocean provides a constant soundtrack, the sand is an intermingling of brown, tan, and gray hues, punctuated by black streaks. Bleached shells and shell fragments dot the landscape. *Spartina* grasses sway at the water's edge along the mudflats. Overhead, least and common terns dive; laughing gulls squawk; oystercatchers

squeak; and arriving willets out-squawk them all. Virginia's pristine barrier islands have some of the most unique habitat on the Atlantic coast. It is "nature untamed," wrote local author Kirk Mariner.

Over 100,000 shorebirds move through the islands each spring. Much of Boettcher's work is focused on three species: the American oystercatcher (*Haematopus palliatus*), the state- and federally-threatened piping plover (*Charadrius melodus*), and the state-endangered Wilson's plover (*Charadrius wilsonia*). Every summer for 16 years she has documented the size of the three breeding shorebird populations, their reproductive success, and their distribution in Virginia, in collaboration with biologists from the Virginia Coast Avian Partnership, the Nature Conservancy's Virginia Coast Reserve, and the Chincoteague and Eastern Shore National Wildlife Refuges. This string of beaches, intertidal sand and mudflats, maritime shrub thickets and forest, and salt marshes create an ideal "outdoor laboratory" for her work because human disturbances are minimal.

Virginia's Wildlife Action Plan designates these three species in "greatest conservation need." The plan considers birds to be in conservation need if, for example,

their populations are declining or are at low levels, they face threats, or they occur in a very limited range.

American Oystercatcher

With its bright orange-red, blade-like bill, the boldly patterned black and white oystercatcher probes the shoreline and marshes for bivalves (hence the bird's name). During courtship, the male and female bow to each other and "there's lots of squawking," chuckles Boettcher. For a nest, they scrape out a shallow, plate-sized depression in the sand amid shell deposits.

Boettcher works with the American Oystercatcher Working Group to help preserve these birds and their habitats across the Atlantic and Gulf coasts. Half of Virginia's oystercatcher population breeds on the barrier islands. On the islands, in 2000 there were 267 pairs; in 2015, 462 pairs, a 73 percent increase.

In terms of breeding success, "American oystercatchers typically have relatively high productivity rates on the islands, enough to maintain a stable or increasing population," observes Alexandra Wilke, a Nature Conservancy scientist. She cautions that reproductive rates are highly variable, though. One intense storm can wipe out nests and many young birds.

Piping Plover

Piping plovers are pale brown and white shorebirds, six to seven inches long, with yellow-orange legs and an orange and black bill. Breeding males have a pronounced black collar, breast band, and forehead marking. Breeding females often have a less noticeable collar and forehead mark. Gender can be difficult to determine. In Virginia, these plovers inhabit wide open beaches and sand or washover flats, make shallow, saucer-type nests above the high tide line, and "decorate" them with shell bits. Currently, these birds breed only on barrier islands.

During courtship, piping plovers fly in Figure 8 patterns and make whistle-like peeps. The male "goose steps" around the nest scrape. Chicks leave the nest within four to six hours. Many Atlantic coast breeding piping plovers winter in the Bahamas.

There are currently fewer than 2,000 breeding pairs in the U.S. and Canada.



Previous page: Appearing idyllic, strong winds, shifting sands, and higher ocean levels can easily destroy important barrier island nesting habitat. Above: Ruth Boettcher continues to scan for plovers, recording her findings. Right: A well-camouflaged piping plover nest scraped into a washover flat will hopefully be safe from rising waters, predators, and careless visitors.



Boettcher is part of a multi-state consortium studying this “well covered shorebird,” she says. Piping plover breeding pairs increased on Virginia’s barrier islands from 104 in 1986 to 291 in 2016, an encouraging trend. While breeding success has fluctuated over the last 26 years, in most years the birds have had young at a rate that can maintain a stable population in the Atlantic coast area between Delaware and North Carolina, she maintains.

Wilson’s Plover

Wilson’s plovers have a brown back and white underparts, with one dark band on the chest and a heavy, bullet-shaped bill. This shorebird also makes slight depressions in the dry sand, including decoy scrapes to confuse predators. They forage for invertebrates in the mudflats and marshes.

“Wilson’s plovers are more cryptic than the piping,” Boettcher explains. “They are very people shy and they’re the smart ones. They can see you coming. The one not incubating will lead you astray.” And, she adds, “We never see the courtship.”

Virginia is the northern extreme of the Wilson’s plovers’ breeding range. The birds are known to winter in low numbers in the southern Atlantic and Gulf coasts and in

greater numbers in the Caribbean, coastal Mexico, and Central and South America.

Boettcher confirmed 23 breeding pairs in the state in 1988, 50 in 1991, and 40 in 2016. On the barrier islands, the numbers are somewhat stable but do not meet the state’s recovery goal of 60 pairs sustained for five consecutive years. “It remains unknown whether their breeding success is sufficient to support a stable or increasing population,” she notes.

Boettcher will start marking unfledged young with bands to learn if birds originating in Virginia return to breed in the state.

Exceptions?

Many North American shorebird species are not faring well. “Shorebird populations have shrunk, on average, by an estimated 70 percent across North America since 1973...,” wrote Margaret Munro in the journal, *Nature*, on January 4, 2017. The 2016 State of the Birds report indicates that long-distance migrants, many traveling thousands of miles each year, have experienced the greatest declines.

The health and survival of shorebirds are especially challenged because often these birds are squeezed into a narrow

stretch of coastal habitat, much of it heavily developed. Many shorebird species like the ones Boettcher and her colleagues study require very specialized habitats, areas near salt water or on beaches. An oystercatcher will not nest on a mountain top. A plover will not build a nest in a tree. “Without the barrier island habitats, they could perish,” explains Wilke.

The shorebirds nesting in Virginia seem to be bucking the trend of other states’ breeding populations. Why? Virginia’s barrier islands are probably the most protected islands along the U.S. East Coast, a network of refuges and preserves managed by the Nature Conservancy, the state Department of Conservation and Recreation, and the U.S. Fish and Wildlife Service. The island chain is the longest stretch of undeveloped barrier islands in the global temperate zone, so valuable and sensitive that the United Nations designated it an International Biosphere Reserve.

“The key is protection,” stresses Boettcher, “...no camping, no dogs, no ATVs, and bird closure areas.”

“We attribute the vitality of Virginia’s piping plover population to the combined effects of predator management, public education and outreach, and the unique



An adult Wilson’s plover tries to lead a photographer away from its chicks foraging nearby. Chicks are precocial and feed themselves but need to learn the best foraging locations from their parents.



Sometimes confused with the Wilson’s plover, this adult piping plover remains alert when leading its chicks to food sources. Right: Perfect nesting habitat makes barrier islands a critical resource.



