

Expert recommends local habitat protection to save Saltmarsh Sparrows

May 16 2016, by Beth Staples



Credit: Kate Ruskin

When Laura Garey wades into tidal marshes at sunrise to survey Saltmarsh Sparrows, the University of Maine graduate student also spies deflated balloons, trash and pollutants.

These reservoirs at the intersection of land and sea also are increasingly being damaged by [coastal development](#), sea-level rise and more frequent

storm surges.

All of which makes it tough on songbirds, including Saltmarsh Sparrows, who mate, build nests and feed in coastal marshes.

These specialist birds rely on tidal marshes in critical periods of their lives, and cannot successfully reproduce and survive in nonmarsh habitats.

Garey, who is pursuing a master's degree in ecology and environmental sciences, has tracked the at-risk Saltmarsh Sparrow in southern Maine during its breeding season until the nests failed or the nestlings fledged.

The dearth of this songbird is one of the findings of a five-plus-year project of the Saltmarsh Habitat & Avian Research Program (SHARP). Garey and other scientists from UMaine, as well as researchers from other universities and agencies, collaborated on the project.

In addition to the Saltmarsh Sparrow, researchers studied the reproduction of four other species across the Northeast U.S.: Nelson's Sparrow, Seaside Sparrow, Clapper Rail and Willet—all of which utilize tidal marshes.

Since 2011, the cooperative undertaking has included about 200 participants who estimated the population sizes of 23 wetland bird species across nearly 2,000 surveyed locations in 10 states from Maine to Virginia.

The findings are alarming.

Since 1998, the number of Saltmarsh Sparrows has dropped about 9 percent annually in the northeastern U.S. and nearly 11 percent annually in Maine, says UMaine research professor Brian Olsen, a principal

investigator with SHARP.

Olsen puts it another way: Nearly eight out of every 10 birds has disappeared in the last 15 years.

Which means the birds—which grow to about 5 inches and weigh about half an ounce—are headed for extinction within 50 to 80 years.

Saltmarsh Sparrows currently have no special protection at the federal level within the U.S., the only country where they are found. UMaine researchers say the species should be considered for federal listing as Threatened or Endangered. Now.

The promising news, says Olsen is that individuals, government agencies and conservation groups can take action to reverse the trend and to protect critical marsh habitats.

"We know we're losing tidal marsh habitats on the East Coast, we know we're losing birds in those marshes, and we know that local actions can halt these losses if we act now," Olsen says.

SHARP's mission is to promote long-term conservation of tidal marsh birds and the ecosystem that supports them by advising research-based management action in the northeast U.S.

Its findings and recommendations are in the 161-page report, "The Conservation of Tidal Marsh Birds: Guiding action at the intersection of our changing land and seascapes" released in August 2015.

One recommendation is to have unrestricted tidal flow to salt marshes.

Some roads or railways that pass through coastal marshes are built on deposited fill. And culverts, if installed at all, can be too small for

enough tidal water to flow through to maintain natural salt marsh vegetation upstream.

The altered composition of the marsh isn't conducive to tidal specialist birds.

Maureen Correll, who earned her doctorate at UMaine, discovered that tidal restriction is the dominant driver of the decline of tidal marsh songbirds—even more so than sea-level rise.

On average, tidal-marsh specialists—birds that spend their annual life cycle in the salt marsh—are declining in tidally restricted areas but are maintaining populations in marshes where tidal flow is unrestricted.

"We're responsible for our backyards," says Correll.

The way bridges are built and culverts installed and fertilizer is applied to land around the marshes does make a difference at the local level, says Olsen.

Case in point: The researchers found rates of survival and production of tidal marsh birds are highly variable in the Northeast, which suggests local actions matter and can lower the risk of species being wiped out.

"There are daily choices that can literally trickle down," he says.

Sea-level rise also is a problem for the species.

Tidal flooding and extreme coastal storms have resulted in more frequent nest failures and a decline in the population of Saltmarsh Sparrows in the northeastern U.S.

With the increase in frequency in flood tides, the window is shorter for

tidal marsh nestlings to hatch and be able to fly before they drown.

Females weave nests just above the high-tide mark but below the top layer of the marsh grass so they're hidden from predators.

As depicted on the PBS Nature special "Location, location, location," which was filmed at SHARP study locations, the cycle of Saltmarsh Sparrow egg-laying is tied to the lunar cycle.

The time from when the female begins laying eggs until the last chick is fledged is generally 24 to 26 days. The lunar cycle repeats, on average, every 29.53 days, causing especially high tides for a few days each month—when the moon is either full or new.

And with [sea-level rise](#), the high tides are getting higher. Just a slight change in the timing or level of tides can eliminate the "safe" window of 24–26 days during which a sparrow nest can survive and fledge.

While unhatched eggs can float and survive in the nest, chicks younger than 5 days aren't likely to be strong enough to climb to higher ground during the particularly high tides.

A few inches can mean the difference between life and death for the birds, who generally can fly when they're 8 to 11 days old.

In New Hampshire, scientists have experimented using floating habitat islands to increase the nesting success of Saltmarsh Sparrows.

In addition to unrestricted tidal flow and building floating nesting islands, SHARP suggests conservation groups and municipalities purchase open land adjacent to coastal marshes so marshes have the potential to migrate landward.

Birds, say the researchers, provide vital ecological functions. Across the country, birds pollinate plants, disperse seeds, scavenge carcasses and recycle nutrients back into the soil.

And they're sentinels. When they don't fare well, it's a warning that something is amiss. In coastal marshes, birds may be one of the most sensitive indicators of environmental health.

In addition to being important habitat for coastal birds, tidal marshes purify water, protect coastal infrastructure from storm surges, are nurseries for fisheries and are areas for public recreation.

Regional cooperation and coordination are imperative to maintain tidal bird populations into the next century, say the report's authors.

Britt Cline's research may prove beneficial throughout the region.

Cline, who earned her doctorate in wildlife ecology at UMaine and is a postdoctoral research associate at University of Delaware and SHARP, is developing an index to quantify the health of marshes on large spatial and temporal scales.

The index will include information about plants, birds and other environmental factors, including tidal marsh elevation and water quality.

Having numbers that quantify the health of coastal marshes will be valuable for evaluating restoration practices, says Olsen.

While it may be too late for Black Rails—surveyors spotted only 10 in two years, indicating a possible complete collapse of the Mid-Atlantic population—there's time and reason to work to save other species.

"When we save birds from large-scale threats, we see that what's good

for the birds is also good for us," said National Audubon science director Gary Langham in "Audubon" magazine.

"This is true about agriculture, fishing, climate change. As we solve their problems we solve ours. This is about everyone's quality of life."

Meaghan Conway, who is pursuing a doctorate in ecology and environmental sciences at UMaine, agrees.

She says actions of people who live a considerable distance from the coast still can impact tidal marshes and species that depend on them for survival.

Conway knows.

She and other UMaine scientists who participated in the project have witnessed repercussions of restricted tidal flow, pollution, carbon emissions and balloon releases on songbirds and their habitat.

More information: The full report, a summary and each participating state's summary are available at www.tidalmarshbirds.org/

Provided by University of Maine

Citation: Expert recommends local habitat protection to save Saltmarsh Sparrows (2016, May 16) retrieved 2 May 2024 from

<https://phys.org/news/2016-05-expert-local-habitat-saltmarsh-sparrows.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.