

A NOTE ON MARSH SPARROW SONGS WITH COMMENTS BY JON GREENLAW

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The marshes on the south side of Shinnecock Bay between Southampton and Quogue, Suffolk, are notable for dense, interspersed populations of two marsh sparrows, Seaside Sparrow (*Ammodramus maritimus*) and Saltmarsh Sharp-tailed Sparrow (*Ammodramus caudacutus*), which sometimes nest within a few feet of each other. According to written descriptions, sonoagrams, and recordings, the advertising songs of these two species are very much alike: short, buzzy, unmusical announcements with similar tonal qualities. This would seem to offer a natural opportunity for field comparison of the vocalizations of these closely related birds. However, in thirty years of observations, I have never been able to hear individuals of the two species singing together. Perched, singing sparrows in the Shinnecock marshes have, in my experience, always turned out to be Seaside. This is decidedly not the case in nearby Peconic and Gardiner's bay marshes where I have, on a number of occasions, heard sharp-tails in longer, less well-defined, buzzy songs. The contradictions between available information and field experience have begun to clarify themselves only relatively recently with new information on the relationships among *Ammodramus* species.

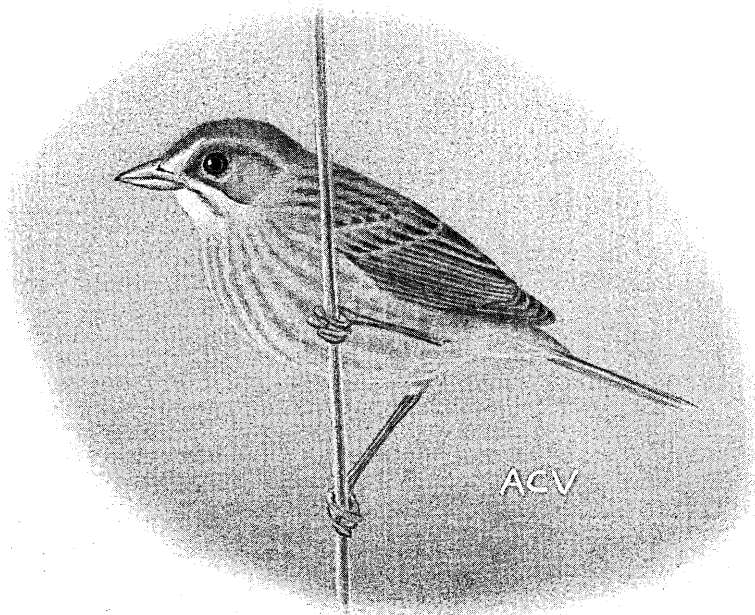
Sharp-tailed sparrows, collectively, are "nonterritorial and promiscuous" (Greenlaw and Rising 1994). Their sexual system has been described as a form of "scramble competition polygyny" (Post and Greenlaw 1982) in which males roam the marshes looking for available females. Greenlaw and Rising note that the males of what they call "southern populations" (i.e. Saltmarsh Sharp-tailed) sing much less than their northern counterparts, Nelson's Sharp-tailed Sparrow, (*Ammodramus nelsoni*), and they also remark that southern male sharp-tails sing only 'Complex Whisper Songs' and "do not perform a short, loud, ritualized Primary Song during a discrete bout of singing". This difference in vocalization was one of the principal reasons that the sharp-tailed sparrows were split.

It now seems plausible to me that all or most of the short, repeated vocalizations given as sharp-tail song in the literature and heard on almost all recordings (the sources of which are often unidentified) belong to Nelson's Sharp-tailed Sparrows. Saltmarsh Sharp-tailed Sparrows sing only the very different 'Complex Whisper Song.' Thus, the oft-noted sim-

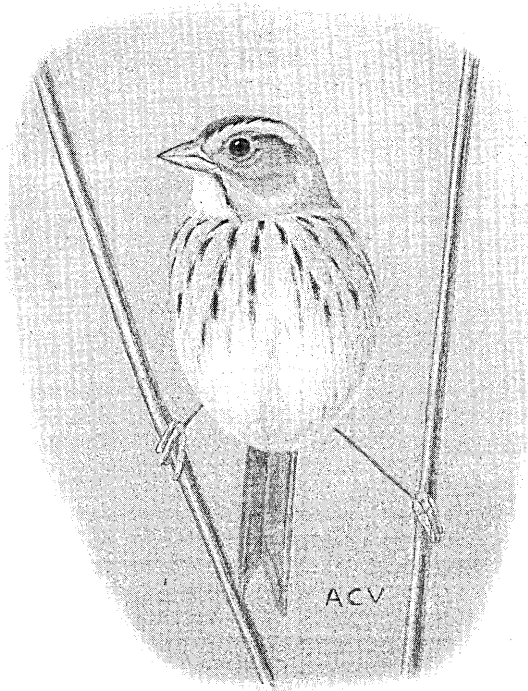
ilarity between Seaside and sharp-tailed sparrow songs must refer to Nelson's Sharp-taileds only, and on-the-spot field comparison between the songs of these two would be difficult if not impossible as their breeding ranges do not overlap!

Again according to Greenlaw and Rising, 'Primary Song' in what is now known as Nelson's Sharp-tailed Sparrow "evidently has sexual and advertising (?dominance) functions even in the absence of territorial behavior" but the 'Complex Whisper Song' in the southern or Saltmarsh Sharp-tailed Sparrow "evidently has a sexual (nonadvertising) function only." In the Shinnecock marshes, male Seaside Sparrows adopt prominent perches on saltmarsh bushes or reeds to sing their short but far-carrying advertising songs, and they do so persistently throughout the breeding season. Saltmarsh Sharp-tailed males also commonly adopt perches, but apparently mainly as lookout posts, in their search for available females. There may be some element of visual display in this but, according to Greenlaw (pers. comm.), it is probably incidental to the lookout function.

If Saltmarsh Sharp-tailed Sparrows lack an advertising song, why do they sing at all? One possibility that occurred to me is these rather restricted male vocalizations might simply serve notice to returning or



Seaside Sparrow



Saltmarsh Sharp-tailed Sparrow

wandering females that male sparrows are active in a given marsh. In this case, persistent singing on the coastal marshes by the closely related Seaside Sparrows might also serve to advertise suitable territory to sharp-tailed females and the necessity for sharp-tailed males to sing at all would be much reduced. However Jon Greenlaw (pers. comm.) doubts this explanation because of (1) the seasonal pattern of singing in Saltmarsh Sharp-taileds which begin singing shortly after their arrival and continue well into August; (2) the many studies indicate that display behaviors (i.e., behaviors used in communication) arise and are maintained from intraspecific sources so that "a simple proximate explanation of singing behavior in sharp-tails begs the adaptive question"; and (3) Nelson's Sharp-tailed Sparrow, although also non-territorial, sings loud songs in bouts from conspicuous perches even though it shares its habitats with either Le Conte's Sparrow (in interior plains, James Bay; see Murray 1969), or with the Savannah Sparrow (Maritimes, JSG study). These species are territorial, aggressive, and dominant over Nelson's Sharp-tails, just as the Seaside Sparrow is dominant over Saltmarsh Sharp-taileds.

In any case, it would appear that the evolutionary loss or suppression of advertising song in Saltmarsh Sharp-taileds may be related to inter-specific interactions between the sharp-tail and Seaside Sparrow, a dominant, territorial relative using the same habitat (see Murray 1969 and 1971). This might explain why sharp-tails appear to be (at least in some areas) more likely to sing on bayside marshes where Seasides do not breed, than in habitat where they breed together. As I have already noted, there are no Seaside Sparrows at all in the range of Nelson's Sharp-tailed Sparrow which does use advertising songs, but there is a large overlap in the breeding range of the two southern species, *caudacutus* and *maritimus*. Both occupy seaside marshes from the Delmarva peninsula north to the dividing line between the two sharp-tails in Maine. However, Seaside Sparrows are almost completely restricted to salt marshes near the outer beaches while Saltmarsh Sharp-tailed Sparrows will also use estuarine marshes away from the coast (there was formerly a small population of Seasides in the Piermont marshes on the Hudson River; see Bull 1974).

This social interaction between related species with very different breeding systems (hybridization is recorded but is very rare) might help explain why marshes with persistently singing, territorial Seaside males often also host dense populations of non-territorial Saltmarsh Sharp-tailed Sparrows that sing very little (interior bay populations of Sharp-tailed Sparrows appear to be much lower than in coastal marshes). It might even have played a role in the divergence of the two sharp-tailed species.

Many interesting questions arise. Do sharp-tails occur on all Seaside Sparrow marshes within their joint range? Are there jointly occupied marshes where, unlike Shinnecock, both species are equally vocal? How do sharp-tail sparrow population densities in jointly occupied coastal marshes compare with those at other breeding sites where they are the only marsh sparrow but appear to be more thinly distributed? Do Saltmarsh Sharp-taileds ever use short advertising songs in seaside or estuarine marshes or are their vocalizations always confined to variations of the longish and rather ill-defined (and non-stereotyped) 'Complex Whisper Song'? At the very least, the matter deserves further investigation.

JON GREENLAW'S COMMENTS

The peculiar behavior of the sharp-tails needs to be more widely known. Many widely held assumptions (e.g., that they are territorial; that spot-census methods are suitable for censusing them; that descriptions of singing behavior observed in northern populations also applies to behavior in southern coastal populations) are simply incorrect. In particular, the vocalizations of these birds have been, until recently, little known or understood.

HISTORICAL CONFUSION ABOUT SHARP-TAILED SPARROW SONGS

Eric Salzman's (ES) conclusion that descriptions of songs of "sharp-tailed sparrows" in the older literature, often with accompanying comparisons to Seaside Sparrow songs, referred (mainly) to Nelson's Sharp-tailed Sparrow, is sound. I too had reached this conclusion, and that helped to stimulate the paper that I did on behavioral and morphological diversification in the sharp-tailed sparrow complex (Greenlaw, *Auk* 110: 286?303, 1993).

Until recently, standard bird guides described only the songs of Nelson's Sharp-taileds as representative of all populations then known under the name "Sharp-tailed Sparrow". Misidentification also has been a problem. I found a tape recording of a Seaside Sparrow song in the Cornell sound archives misidentified as that of a "Sharp-tailed Sparrow". Indeed, with a few notable exceptions, I found evidence that most previous field workers did not know the song of the Saltmarsh Sharp-tailed Sparrow. Elliott (*Kingbird* 12: 115?123, 1962), in his comparative review of Seaside and "Sharp-tailed" sparrows on Long Island, was equivocal about the song of sharp-tailed sparrows. He offered R.T. Peterson's transliteration of the song of Nelson's Sharp-tailed Sparrows as also representative of Long Island birds. But, he added that he once heard a fall male singing "the weakest song of any sparrow that I know—a rather rarely uttered intermittent mouse-like squeaking barely audible for 25 feet." He evidently regarded this song (which is the only song-like vocalization in Long Island birds) only as an unusual autumnal vocalization. Likewise, Witmer Stone (*Bird Studies at Old Cape May*, vol. 2: 906, 1937) provided a mnemonic for local sharp-tailed sparrows that probably represented a misidentified variant song sung by Seaside Sparrows. Even some recent descriptions of and remarks about songs in the sharp-tailed sparrow group are misleading or incorrect. Sibley (*Birding* 28: 196-208, 1996) asserts that "songs" (in contrast to singing performance) of Saltmarsh Sharp-taileds are so similar to those of Nelson's Sharp-taileds (he describes the general pattern as "a wheezy fading hiss with a lower pitched cluck at the end") that they are unlikely to be useful in field identification. This remark makes me wonder whether Sibley knew the song of Saltmarsh Sharp-tailed Sparrows. His description aptly portrays the songs of Nelson's Sharp-taileds, but misses the mark on "songs" in Saltmarsh Sharp-taileds. He uses Donald J. Borror's (*Ohio J. Sci.* 61: 161-174, 1961) observations on songs in the sharp-tailed sparrow complex as support for his assertion but, in fact, Borror, who devoted much of his

professional lifetime to recording bird songs, may not have known the song of the Saltmarsh Sharp-tailed Sparrow. His sharp-tailed sparrow recordings (archived at The Ohio State University) included no examples of Saltmarsh Sharp-tailed Sparrow songs, but he obtained good examples of the songs of Nelson's Sharp-tailed Sparrow and Seaside Sparrows. In his paper on sparrow songs, Borror (1961) described geographic variation in the songs of sharp-tailed sparrows, but he did not provide illustrative spectrograms. His mnemonic characterizations of interior, Maritime, and mid-Atlantic populations imply overall similarity in song structure among populations (which Sibley reiterates) in the different regions, with small differences in introductory or terminal syllables.

In reality, song presentation by the Saltmarsh Sharp-tailed Sparrow differs radically from the more typical presentation of Nelson's Sharp-taileds. Also, the songlike elements (or phrases) in the "Complex Whisper Song" of Saltmarsh Sharp-taileds are variable and bear only superficial resemblance in structure (or, to my ear, in audible sound) to the Nelson's Sharp-tailed Sparrows songs (see spectrograms in Greenlaw and Rising 1994). I routinely use songs to monitor presence or absence of the two species of sharp-tails on marshes in Maine where both may occur. Maine birders also are using the songs to distinguish the species during the breeding season. The two species also co-occur on marshes from New Jersey north through southern New England during a brief time from mid-May into the first week of June (JSG, pers. observation). The presence of Nelson's Sharp-taileds within breeding populations of Saltmarsh Sharp-taileds at this time is readily determined by hearing their distinctive and diagnostic songs (and singing performances).

SINGING BEHAVIOR IN SALTMARSH SHARP-TAILED SPARROWS

ES's remarks about differences in singing behavior between "bay" (Peconic Bay system) and barrier beach (South Shore) marshes are intriguing, but they are based on impressions formed during field visits that are not described. Problems of detection may arise from the muted quality and unexpected presentation of songs by Saltmarsh Sharp-taileds. Windiness on the marshes compounds the problem, making it even more difficult to hear a singing bird unless it is very close. Also, since singing is most frequent early in the morning, there is a good chance that an observer who checks a marsh in mid-morning would hear few or no songs. Our experience with marked populations farther west on Long Island (Oak Beach, West Gilgo, Tobay) is that Saltmarsh Sharp-tailed Sparrows spend time singing both on and off Seaside Sparrow territories. Still, most male perchers that one sees sing only

sporadically, but if one follows a male long enough, it will nearly always sing sooner or later. Moreover, we found no marshes—either ones co-occupied by Seaside Sparrows, or ones used only by sharp-tails—on which sharp-tails failed to sing at all. I predict that close observation of individual sparrows in the Shinnecock and other East End marshes will confirm our experience. However, I would not be surprised if quantitative differences occurred in the frequency of singing by male Saltmarsh Sharp-tailed Sparrows among eastern Suffolk County populations. But, this matter can only be addressed by using quantitative methods.

I have visited marshes from Virginia to Maine to study Saltmarsh Sharp-tailed Sparrows. In all of these marshes, males employ the 'Complex Whisper Song'. The songs sound the same to my ears on Maine marshes, where Seaside Sparrows do not occur, as in New York or New Jersey, where both marshland sparrows co-occur. Also, although breeding Nelson's Sharp-tailed Sparrows do not, (as ES points out,) co-occur geographically with Seaside Sparrows, they do share their habitats, at least partially, with Savannah (*Passerculus sandwichensis*) and Le Conte's (*Ammodramus leconteii*) sparrows. Both of the latter species sing loud, space-centered "advertising" songs, and both are dominant over Nelson's Sharp-taileds living in the same marshes.

William Post and I are in the process of preparing a manuscript on evolution of the social system in the sharp-tailed sparrow complex. It will address the use of space, mating, and parental care, and the nature of interspecific social interactions between marshland sparrows. Singing behavior will be examined in relation to its role in sharp-tail social organization. In an evolutionary sense, we think that Seaside Sparrows played a modifying role in influencing singing behavior in Saltmarsh Sharp-tailed Sparrows. Perhaps the prolonged, quiet nature of their songs is related to consequences of dominance behavior in Seaside Sparrows. But, Saltmarsh Sharp-taileds still exhibit the same distinctive life style irrespective of their associations in different communities of marsh birds.

FUNCTION OF SINGING

Our evidence on the function of singing in Saltmarsh Sharp-tailed Sparrows suggests that this behavior is mate-related. Females respond to singing males when the former are receptive. Male sharp-tails may gain advantages by "advertising" their presence, even in a quiet way (the sound is localized), to females that may be present and potentially receptive. We have observed receptive females approaching singing males and presenting a sexual "invitation" display. Thus, male Saltmarsh Sharp-

tailed Sparrows commonly practice two different "strategies" that promote their mating success: the traditional one of singing by the male and "solicitation" display by the female, and a forced-mating "free-for-all" in which males seek unsolicited matings with nearly any female that they find (Greenlaw and Post, unpubl. data).

I predict that male Saltmarsh Sharp-taileds will be found singing on the South Shore marshes of eastern Suffolk just as we found them in the western Suffolk marshes. ES presents, admittedly, a neat model system--nearby marshes, some with only sharp-tails, and others with Seaside Sparrows and sharp-tails--and perhaps there are quantitative differences in singing time-budgets. There certainly needs to be a systematic study of this issue.

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