EXECUTIVE SUMMARY

During the summers of 2002-03 we studied the biology of saltmarsh breeding birds along the Connecticut coast of Long Island Sound. We paid particular attention to two species of high conservation concern – saltmarsh sharp-tailed sparrow and seaside sparrow – in order to improve our ability to monitor and manage populations of these species. Over the course of our study we collected data from 40 study plots situated in seven marshes. We captured and banded 1042 saltmarsh sharp-tailed sparrows and 183 seaside sparrows. We also found and monitored 167 and 24 nests, respectively, for these two species. In this executive summary we highlight the key results from our work during these two years. Each of these points is elaborated upon in more detail in the main body of this report. The work included herein also is in the process of being prepared for submission to peer reviewed scientific journals, and the report includes appendices that provide the first manuscripts to be submitted. These manuscripts present the work in a somewhat broader scientific context, and thus complement the primary report text, which focuses specifically on Long Island Sound. Readers wishing to receive peer-reviewed publications that emanate from this study should contact the lead author. This study also represents the beginning of a longer term research program designed to better understand the ecology and conservation of salt marsh birds in New England. This work has provided valuable insights into the ecology of these globally important bird populations, and resulted in the species being recognized as globally vulnerable to extinction (BirdLife International, 2004), but additional work remains. Our research group has initiated further research along several avenues and we expect to expand greatly our understanding of salt marsh bird conservation over the next few years. Results from these future studies will be posted on the internet as they are completed (see www.eeb.uconn.edu/faculty/Elphick/).

MAIN RESULTS AND RECOMMENDATIONS

Population size estimates

- All seven of our study sites support sufficiently large populations of saltmarsh sharptailed sparrows to be considered globally important bird areas under current criteria. This result suggests that other salt marsh sites in Connecticut and adjacent states will also meet these criteria and supports the hypothesis that Long Island Sound marshes play a critical role in the global persistence of this species.
- Point count data provide an index of saltmarsh sharp-tailed sparrow and seaside sparrow population size that could be used to rank sites in terms of their sparrow population sizes and to monitor population trends.
- Point counts cannot be used to identify areas with high densities of saltmarsh sharp-tailed sparrow nests, and thus cannot be used to identify or evaluate local habitat quality for saltmarsh sharp-tailed sparrows. In contrast, point counts can be expected to provide an adequate proxy for identifying good quality habitat for seaside sparrows.
Habitat selection
- Juncus gerardi is a good indicator of the very best saltmarsh sharp-tailed sparrow habitat, providing the resolution needed to distinguish among areas of high marsh that differ in the abundance of birds and, to a lesser extent, nests. At a grosser level, the presence of Spartina patens also indicates good areas for saltmarsh sharp-tailed sparrows, but this grass is so common that it lacks the resolution provided by J. gerardi and is therefore not as good an indicator.
- Marsh size, and perhaps associated landscape features, have a large effect on seaside sparrow abundance and are perhaps more important than local habitat features. The presence of tall vegetation, however, is also a good indicator of seaside sparrow abundance, and it is possible that interactions between vegetation height and landscape
features account for discrepancies in the relationship between marsh area and seaside sparrow abundance. Areas with abundant short-form Spartina alterniflora are avoided by nesting seaside sparrows.
- Although perhaps counterintuitive, even highly significant habitat use models with good internal

consistency may not provide good predictions when applied beyond the original set of sites. Combining our information on habitat use with a more detailed understanding of the effects of landscape features and movement behavior is likely to improve the quality of the predictive models.

Nest site selection and demographic parameters

- Saltmarsh sharp-tailed sparrows chose relatively high elevation nest sites, where the vegetation was taller and denser than at random locations, where there was a deep layer of thatch, and where the habitat was dominated by S. patens. Although vegetation characteristics influenced where birds built nests, they did not affect nest success.
- Seaside sparrow nests were placed where the vegetation was very tall, relatively sparse, and dominated by the tall form of S. alterniflora, largely to the exclusion of S. patens.Short S. alterniflora was avoided by nesting seaside sparrows. Nests were most successful when placed in taller, less dense vegetation where there was more S. alterniflora and less S. patens.
- Saltmarsh sharp-tailed sparrows cope with the challenge of living in an environment that floods regularly by adjusting their reproductive behavior temporally, such that most nesting does not coincide with high tides that could flood nests. In contrast, seaside sparrows have solved the same problem by nesting in taller vegetation where they can escape even the highest of tides.
- Of the 1042 saltmarsh sharp-tailed sparrows banded, 30% were recaptured at least once and 8% were captured on at least two plots. In contrast, we recaptured 37% of the 183 seaside sparrows that we banded, with all but 6 recaptures in the same one-hectare plot in which the bird was originally captured. Indicators of avian community health
- Saltmarsh sparrows were easy to detect in our study plots suggesting that it is not difficult to monitor these species
- directly and that there is little need to develop indirect indicators of their presence or abundance.
- Saltmarsh bird communities were significantly nested in our study. The species of greatest conservation concern, however, were the most commonly detected species, and many of the "rare" species in our surveys are common in nearby habitats. Nestedness, therefore, might not be a good basis for identifying indicators in this system.
- Abundance of either sparrow species significantly predicted the total abundance of all other state-listed species, although model-fit was low. Sparrow surveys, therefore, could provide a good general proxy for the abundance of state-listed saltmarsh species, but the precision of such an index is likely to be low for individual sites.
- Our conclusions about indicators should be tempered by the knowledge that our study was limited to some of the state's largest and best salt marsh sites. The on-going expansion of our work to encompass smaller marshes will allow us to verify our conclusions.