SALTMARSH HABITAT & AVIAN RESEARCH PROGRAM:

Conserving tidal marsh birds in our changing land & seascapes

Massachusetts –

Summary of key findings

I. Saltmarsh Vital Statistics:

- Massachusetts supports 17,582 ha of saltmarsh
- Saltmarsh comprises <0.01% of the land area of Massachusetts

II. SHARP Field Effort:

- 257 survey points visited in 2011 and 2012
- 1 demographic study plot, encompassing 27.9 ha investigated by Parker River NWR staff and UNH crews
- 456 birds banded among 10 species
- 27 nests monitored for 2 species

III. Survey Results:

- 11,964 ha of saltmarsh surveyed by SHARP
- 20 SGCN observed
- Key tidal marsh bird responsibilities for Massachusetts:
    - **Saltmarsh Sparrow**: 3rd highest abundance in northeast region, highest in New England; 10% of northeast regional population
    - **Common Tern**: 3rd highest abundance (5,000 individuals) in northeast region; highest in New England; 12% of northeast regional population using tidal marshes
    - **Virginia Rail**: 3rd highest abundance (200 individuals) in northeast region; highest in New England; 2% of northeast regional population breeding in tidal marshes
    - **Yellow-crowned Night Heron**: 3rd highest abundance (30 individuals) in northeast region; highest in New England; 2% of northeast regional population in tidal marshes
- Abundance estimates of focal species: (95% CI)
    - **Clapper Rails**, 187 individuals (33 to 340 individuals)
    - **Willets**, 5,103 individuals (1,915 to 8,291)
    - **Nelson's Sparrow**, too few detections to estimate abundance
    - **Saltmarsh Sparrows**, 6,152 individuals (3,406 to 8,897)
    - **Seaside Sparrows**, 316 individuals (4 to 627)
- Trend estimates of focal species:
    - **Clapper Rail**: Massachusetts data too sparse to model; for USFWS Region 5, significant declines estimated at -4.6% annually since 1998
    - **Willet**: within both Massachusetts and USFWS Region 5, no evidence of population change, 95% CI overlapped zero

- **Nelson's Sparrow**: Massachusetts data too sparse to model; for USFWS Region 5, significant declines estimated at -4.2% annually since 1998
- **Saltmarsh Sparrow**: within Massachusetts, no evidence of population change, 95% CI overlapped zero; for USFWS Region 5, significant declines estimated at -9.0% annually since 1998
- **Seaside Sparrow**: Massachusetts data too sparse to model; for USFWS Region 5, no evidence of population change, 95% CI overlapped zero.

- Extent of saltmarsh modifications among 257 survey points:
  - 66.5% of survey points had ditching within 100 m of survey point
  - No evidence of Open Water Marsh Management within 100 m of any survey point
  - 44.4% of survey points were upstream from a tidal restriction; second most of any state.

IV. Demographic Results:

- Nest monitoring of focal species
  - **Clapper Rail**: none monitored
  - **Willet**: none monitored
  - **Nelson's Sparrow**: 1 nest monitored, 0.04 nests/ha, insufficient data to calculate daily nest survival or fecundity
  - **Saltmarsh Sparrow**: 26 nests monitored, 0.93 nests/ha, daily nest survival probability=0.97, seasonal fecundity=0.37 broods/ female annually
  - **Seaside Sparrow**: none monitored
- Population viability analysis
  - **Saltmarsh Sparrow**:
    - Mean growth rate at Parker River NWR: -0.03 in 2018, declining to -0.14 by 2063
    - Median time to extinction at Parker River NWR is >50 years
  - **Nelson's Sparrow**: not estimated
  - **Seaside Sparrow**: not estimated

V. Regional Conservation Implications

- On average, tidal-marsh specialists have declined across New England and USFWS Region 5 as a whole over the last two decades.
- For Saltmarsh Sparrows, these declines are most severe on marshes with tidal restrictions, although the trend remains across all specialists even when excluding Saltmarsh Sparrow.
- Within Connecticut (the only state where historical nesting data were available), nest density is also declining for Saltmarsh Sparrows, Seaside Sparrows, and Clapper Rail, with Saltmarsh Sparrows showing the strongest decline. The declines can be explained by increases in rates of nest flooding since 2002.

- Seasonal reproductive success (incorporating nest success and renesting rates) for Seaside Sparrows declined from south to north within USFWS Region 5, and Nelson's Sparrow reproductive success was highest at the farthest upriver marshes.
- Saltmarsh Sparrow seasonal reproductive success was highly variable across the range and is driven more strongly by local rather than regional patterns. Nests across the range were equally likely to be flooded, but predation rates increased to the south.

VI. For Additional Information, Contact:

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- Or visit our website at: **www.tidalmarshbirds.org**

Photo by Greg Shriver