ABA Blog

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Swamp Sparrows learn the songs they hear best

by Nate Swick

Via A DC Birding Blog:

Perhaps it goes without saying that oscine perching birds - known more generally as songbirds - whose elaborate songs are learned rather than innate, are expecially sensitive to external interference that affects the vocalizations they hear during that crucial period. In fact, that hypothesis has been long presented, and accepted, in the scientific community with regard to human noise and how it can disrupt birdsong. But it wasn't until recently that the hypothesis was put to the test, and the results are in. A noisy environment shapes the way interpret their own species' songs for the rest of their life. The guinea pig... er... bird, as it was, for this important work? The well-known Swamp Sparrow.

From a report on the study in Science Daily:

> The team designed the study to test a 30-year-old hypothesis suggesting that young birds memorize and later sing the clearest songs they hear during their critical learning period. In the experiment, Nowicki and his collaborators collected nine male, swamp-sparrow nestlings and hand-raised them in a soundproof room.
>
> Twice a day for 12 weeks, the birds heard recordings of 16 song types sung by adult males of their species. Eight song types were degraded, or noisy, by being broadcast across a typical sparrow territory of 25 meters and then re-recorded. The other eight were clean copies of similar-sounding, but different songs. When the birds later matured and began to sing, they only repeated the clear songs.
>
> "It wasn't too surprising that the sparrows preferred them," said Duke behavioral ecologist Susan Peters, lead author of the study. "What is exciting is how clear-cut the results are. All of the birds learned clear songs and none learned any of the degraded songs," she said.

This study has obvious implications for populations of urban birds, who are subject to external noise of mostly human origin, but more fascinating are the questions it raises with regard to the wider diversity of birdsong, not only among separate species but critically, *within*, a single species (think Song Sparrows or Warbling Vireos). It seems to be suggesting a mechanism by which learned bird songs can even drive speciation. Think of it as cultural selection instead of natural selection.

Anyway, cool stuff. The full paper is published in the most recent issue of *Biology Letters*, and available to subscribers online.

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