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Regular research paper

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## AUTUMN SEXUAL DISPLAY IN TREE SPARROWS [*PASSER MONTANUS* (L.)] AS A COMPONENT OF THE WINTER SURVIVAL STRATEGY

**ABSTRACT:** The evolution of organisms leads to the elimination of behaviors that are costly in terms of energy. One of such behaviors in the Tree Sparrow *Passer montanus* is the autumn display during which these birds construct nests. The purpose of this paper is to find out if this behavior is a part of the strategy for winter survival. The study of Tree Sparrows was conducted near Warsaw, Central Poland. During the breeding season, nest boxes were checked to record the presence of Tree Sparrow nests. Before the autumn display, breeding nests were dyed in order to identify nest material added in the period of autumn display. Nestlings in nest boxes, juveniles, and adults captured in mist-nets were banded with different combinations of color bands to identify their age during visual observations in the period of autumn sexual display. Juveniles and adults caught in mist-nets were classified as molted or not molted birds. In winter, nest boxes were checked to catch the birds roosting in them at night. Autumnal sexual display in Tree Sparrows is similar to the spring display. Both adults and juveniles leave the breeding colony in August and return after molt. They form pairs, copulate and build nests in fall. The autumn display is continued from the first ten days of September to early November. The number of Tree Sparrows participating in the autumn display increases with the percentage of the birds that completed molt in the population. In the first half

of September, 16% of the population completed molt, while 99% in mid-October. On the average, adult birds formed pairs on 11 September (SD: 7.7 days), and juveniles on 17 September (SD: 8.0 days). Nest construction was started, on the average, 14.2±8.7 days after pairing. The advance in nest building was dependent on the time of pair formation. Intensive nest building took place in the last 10-days period of September and in October. Early in November, nest building ceased with the onset of cool weather. The last birds to pair did not construct complete autumn nests and in winter they roosted in shrubs or in tree crowns. The building of autumn nest as a consequence of the autumn display, serving as a roosting place in winter, can be a consequence of natural selection promoting this behaviour.

**KEY WORDS:** autumn sexual display, pair formation, autumn nest building, strategy of winter survival, Tree Sparrow, *Passer montanus*

### 1. INTRODUCTION

According to the rules of survival strategy, energetically demanding behavior should be eliminated by natural selection (Stearns 1992, Weiner 1999, Ricklefs 2000). Although the autumn display in Tree Sparrows *Passer montanus* (L.) requires much energy