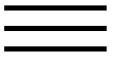


Artificial night lighting affects dawn song, extra-pair siring success, and lay date in songbirds.

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Report

Artificial Night Lighting Affects Dawn Song, Extra-Pair Siring Success, and Lay Date in Songbirds

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Summary

Associated with a continued global increase in urbanization [1], anthropogenic light pollution is an important problem [2]. However, our understanding of the ecological consequences of light pollution is limited [2, 3, 4]. We investigated effects of artificial night lighting on dawn song in five common forest-breeding songbirds. In four species, males near street lights started singing significantly earlier at dawn than males elsewhere in the forest, and this effect was stronger in naturally earlier-singing species. We compared reproductive behavior of blue tits breeding in edge territories with and without street lights to that of blue tits breeding in central territories over a 7 year period. Under the influence of street lights, females started egg laying on average 1.5 days earlier.

Males occupying edge territories with street lights were twice as successful in obtaining extra-pair mates than their close neighbors or than males occupying central forest territories. Artificial night lighting affected both age classes but had a stronger effect on yearling males. Our findings indicate that light pollution has substantial effects on the timing of reproductive behavior and on individual mating patterns. It may have important evolutionary consequences by changing the information embedded in previously reliable quality-indicator traits [5, 6].

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Highlights

• Artificial night lighting advances the start of dawn singing in songbirds • Artificial night lighting increases male success at siring extra-pair young • Artificial night lighting advances the start of laying in female blue tits • Artificial night lighting may lead to unreliable quality-indicator traits



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