

# Light at night, melatonin and bird behaviour

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Low light levels, similar to those found in urban areas at night, can have a significant effect on melatonin production in birds at night. This suggests that melatonin could be mediating changes in bird behaviour at night. Reporting in *BioMed Central's* open access journal *Frontiers in Zoology*, the researchers suggest that altered melatonin production may cause birds to interpret increased light during the night as shorter nights.

Although the use of artificial [light](#) at [night](#) has had a broad range of positive benefits for human life, it has also shown to have negative impacts on certain behaviours and physiological processes in humans and animals. However, the research into the mechanisms behind the effects that increased light at night can have on wild animal populations remains limited.

In [birds](#), light at night has resulted in a range of bird behaviour changes, including earlier activity in the mornings and changes in breeding patterns. It has been suggested that this may be due to an inability to detect how long days are, but the mechanism behind this is unknown. As [melatonin](#) has a significant role in the daily and seasonal cycles of behaviour and physiology, researchers tested how it was affected by artificial light levels in European blackbirds. To this end, the scientists exposed birds to low intensity light-at-night and looked at whether this altered the nocturnal production of melatonin and activity compared to birds that were exposed to near darkness at night.

Daily patterns of melatonin concentrations were decreased by low intensity light-at-night in both summer and winter. Combined with the

observations of altered activity during the night, the group suggested that the light-induced decreases in melatonin production could result in an altered perception of day length, resulting in the birds behaving as if they were exposed to longer days when compared to birds kept under dark nights.

"Our findings may have important implications for understanding the control of seasonal processes, such as reproduction, in urbanized birds," said Davide Dominoni of Max Planck Institute for Ornithology and lead author of this paper.

**More information:** Dominoni, D. et al. Urban-like night illumination reduces melatonin release in European blackbirds (*Turdus merula*): implications of city life for biological time-keeping of songbirds, *Frontiers in Zoology* 2013, 10:60. [DOI: 10.1186/1742-9994-10-60](https://doi.org/10.1186/1742-9994-10-60)

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