Florian Altermatt

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Moths evolve to avoid lights

By **Virginia Morell** | Apr. 12, 2016 , 7:15 PM

Moths have an almost fatal attraction to lights—so much so that we say people are drawn to bad ends "like moths to a flame." But in this age of global light pollution, that saying has a new poignancy: Moths, which are typically nocturnal insects, are dying in droves at artificial lights. The high levels of mortality should have evolutionary consequences, leading to moths that avoid lights, biologists say. To find out, two scientists tested the flight-to-light behavior of 1048 adult ermine moths (*Yponomeuta cagnagella*, shown above) in Europe. The researchers collected the insects in 2007 as larvae that had just completed their first molt. Three hundred and twenty came from populations that lived where the skies were largely dark; 728 were gathered in light polluted areas. They were raised in a lab with 16 hours of daylight and 8 hours of darkness daily while they completed their life stages. Two to 3 days after emerging as moths, they were released in a flight cage with a fluorescent tube at one side. Moths from high light pollution areas were **significantly less attracted to the light** than those from the darker zones, the scientists report in today's issue of *Biology Letters*. Overall, moths from the light-polluted populations had a 30% reduction in the flight-to-light behavior, indicating that this species is evolving, as predicted, to stay away from artificial lights. That change should increase these city moths' reproductive success. But their success comes at a cost: To avoid the lights, the moths are likely flying less, say the scientists, so they aren't pollinating as many flowers or feeding as many spiders and bats.

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