Radar study shows 46 million grasshoppers descended on Las Vegas

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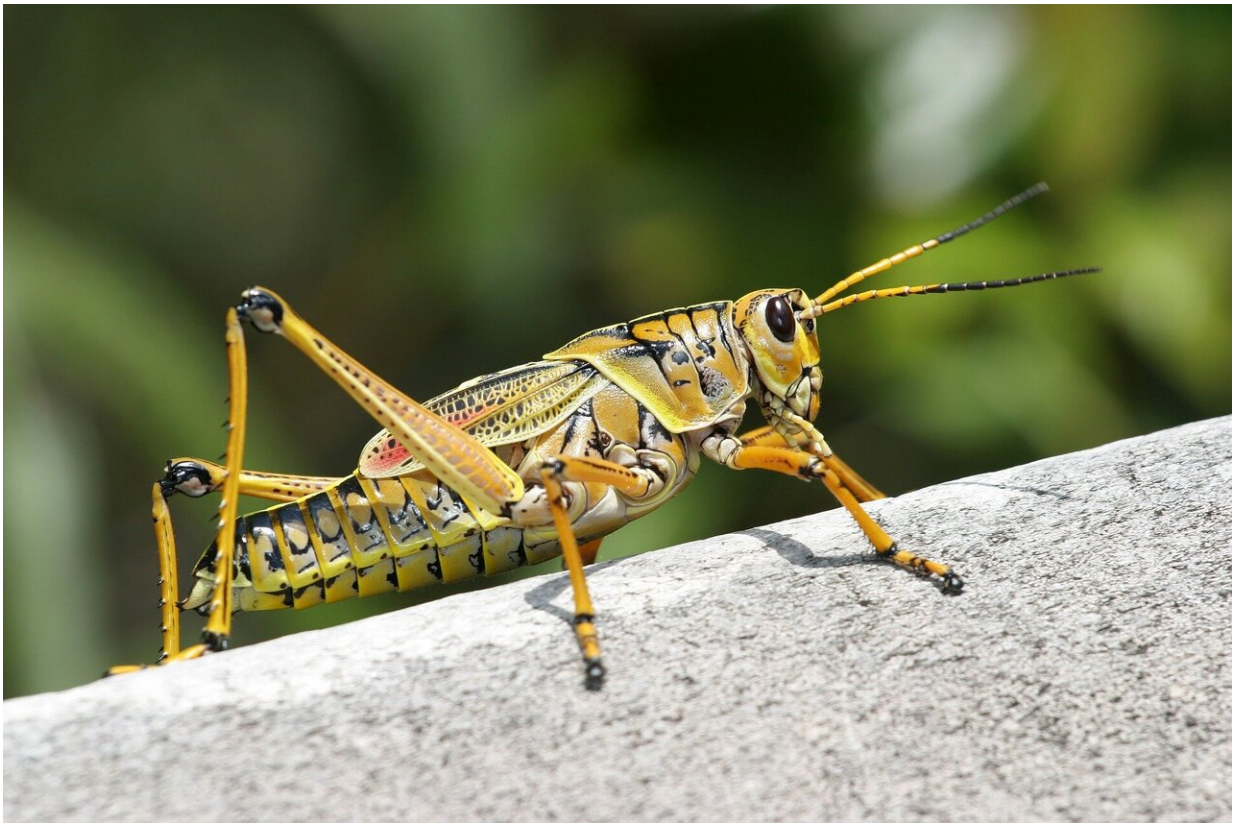

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A team of researchers from the University of Oklahoma, and one from the University of Notre Dame, has found that on July 27, 2019, approximately 46 million pallid-winged grasshoppers hovered over Las

Vegas, Nevada—one of the brightest-lit cities in the United States. In their paper published in the journal *Biology Letters*, the group describes using radar data to study the grasshoppers.

In the middle of July 2019, people in Las Vegas began to notice grasshoppers filling the air at night. Each day, the numbers grew, peaking on July 27. So great were the numbers that locals began to refer to them as "the great grasshopper invasion of 2019." The researchers on this new effort thought the event might prove useful in learning more about the impact of artificial light on insects at a regional scale. Most studies of the impact of artificial light on insects have been at the local level.

To learn more about the night of the grasshoppers, the researchers obtained data from weather stations around Las Vegas and the U.S. National Oceanic and Atmospheric Administration archives. They observed a cloud resembling a thunderstorm that appeared on radar screens around and over the city of Las Vegas. They then used the data from the radar (the size and density of the clouds) and grasshopper data (their average size and weight) to calculate the number of grasshoppers that appeared that night.

The data showed that on the peak night, the number of grasshoppers was approximately 46 million, which, the researchers note, would weigh approximately 30.2 metric tons. It also showed that the densest clouds of grasshoppers were centered over the most brightly lit parts of the city. Las Vegas is known for its huge, bright neon signs, which attract visitors and their money. In this instance, however, it appears the bright lights attracted the grasshoppers. It is still not clear why the grasshoppers amassed into such numbers on that fateful night, but local weather reporters noted that the prior winter had been unusually wet.

The researchers noted that the grasshoppers appeared to arrive into the

city during daylight hours, landing and settling on every available surface—it was only after the sun set and the bright lights came on that the grasshoppers took to the sky. They suggest that the behavior of the grasshoppers is ample evidence of the impact artificial lighting can have on insect behavior.

More information: Elske K. Tielens et al. Nocturnal city lighting elicits a macroscale response from an insect outbreak population, *Biology Letters* (2021). DOI: 10.1098/rsbl.2020.0808