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Fireflies coordinate rhythmic lighting patterns

The lighting patterns created by swarms of fireflies are not random, but rather synchronized. The article “How Swarms of Fireflies Sync Their Flashes,” written by Sabrina Imbler in the *New York Times* on July 7, 2021, goes over a study report which shows that fireflies can arrange different blinking patterns when they reach a specific density. Imbler (2021) provides a detailed and precise description of the experiment, compares the results to previous studies, and discusses other factors that remain unanswered by the study report.

Imbler (2021) reveals that male fireflies flash the light stored in their abdomen in specific patterns to attract females and accomplish other mating rituals. And although the sudden synchronization and flashing patterns have been perceived as an accidental phenomenon by many scientists, she refers to the research study conducted by Dr. Sarfati and Orit Peleg, published in the scientific journal *Science Advances*, to confirm that insects coordinate lighting patterns. Dr. Sarfati and Dr. Peleg strategically filmed large groups of mating fireflies on the Great Smoky Mountains and reconstructed a three-dimensional zone mapping the lighting patterns and analyzing the rhythmic flashes. The results revealed that male fireflies often flashed in a propagation pattern, where one firefly started lighting immediately after the one next to it. Additionally, they created a cascading wave pattern, starting from the ground and ending with the ones above. Other times, they flashed in bursts, where one firefly lights up when it sees another one do it.

Imbler (2021) uses a clear and comprehensive vocabulary to inform the reader of the different flashing patterns created by light-emitting insects like fireflies. She does not use complex scientific terms and allows for readers with a minimum understanding of bioluminescent organism behavior to fully grasp the information shown. For example, Imbler (2021) gives the reader a visual representation of the overlapping field of vision and the different lighting patterns generated by a certain group of fireflies. Furthermore, Imbler (2021) considers previous studies by other scientists and compares the results and observations to those of Dr. Sarfati and Dr. Peleg. She also includes other experts' opinions, such as Gonzalo Marcelo Ramirez Avila, a Bolivian researcher who was not involved in the research, and Lynn Frierson Faust, who concurred with the observations and the results of the study. The writing is entirely objective. Although Imbler (2021) explains how the 3-D reconstruction model of the fireflies' flashes helped Dr. Sarfati and Dr. Peleg confirm that fireflies coordinate several flashing patterns, she also points out that the experiment leaves many questions unanswered. For example, it does not explain why fireflies spontaneously flash one after another or how they respond with similar flashes from various distances.

All in all, Imbler (2021) gives the reader a clear description of the experiment and considers outside sources to validate the ideas shown.

References

Imbler S. 2021, July 7. How swarms of Fireflies sync their flashes. The New York Times.
[accessed 2022 February 15]. <https://www.nytimes.com/2021/07/07/science/fireflies-sync-flashes.html>