# Ultraviolet light technique revolutionises caterpillar surveys for threatened butterfly species



National charity Butterfly Conservation, in collaboration with the Berkshire, Buckinghamshire, and Oxfordshire Wildlife Trust, has initiated a novel approach to surveying caterpillar populations using ultraviolet light to detect their natural photoluminescence. This innovative method involves shining ultraviolet light into bushes and trees, causing the luminous larvae of certain butterfly species to glow visibly, a phenomenon known as photoluminescence. This technique promises to enhance the speed and efficiency of butterfly and moth surveys, potentially revealing new insights into their behaviour and evolution.

The first training session for volunteers and staff took place on Wednesday, 23 April, at the Finemere Wood nature reserve located between Bicester and Aylesbury. The session focused on searching for caterpillars of the UK’s five hairstreak butterfly species: the endangered black hairstreak, the vulnerable brown and white-letter hairstreaks, and the green and purple hairstreaks, both of which have experienced declines in abundance and distribution since the 1970s.

Steven Lofting, conservation manager for Butterfly Conservation, described the potential impact of this method: "This really could be a game-changer. At the moment, we rely on daytime surveys for these rare and endangered species and that often means trying to spot a dark brown butterfly high up in a tree. If we can just shine a light in the bushes and these caterpillars suddenly glow at us like an electric lightbulb, it could make it so much easier and quicker to do surveys of these species."

During the two-hour session, the team of 30 participants identified a total of 32 black hairstreak caterpillars using ultraviolet light. Mr Lofting highlighted the efficiency of the new approach compared to traditional surveys, noting, "A team of 30 looking for black hairstreak eggs would be lucky to find one or two in the same time using the old technique." Previously, volunteers had to search in the middle of winter for tiny, pinhead-sized eggs on twigs, often using magnifying glasses.

The bioluminescence or glow under ultraviolet light is not unique to hairstreak species; caterpillars of many other butterflies and moths are known to exhibit this trait. However, the extent of this phenomenon is still under research, with scientists yet to compile a comprehensive list of species that demonstrate photoluminescence.

Butterfly Conservation is now encouraging volunteers nationwide to adopt this new survey method, using ultraviolet lights and submitting their findings to contribute to a broader understanding of these species. Emily Coulam, nature and greenspaces officer at the wildlife trust, expressed enthusiasm about the initiative, stating, "It is fantastic that we are able to utilise new and innovative techniques to better understand the wildlife of the region through our National Lottery Heritage Fund supported programme."

This collaboration between Butterfly Conservation and the regional wildlife trust marks a significant step forward in wildlife monitoring techniques, combining community engagement with scientific innovation to enhance conservation efforts.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://butterfly-conservation.org/in-your-area/surrey-and-sw-london-branch/uv-surveying> - This URL supports the claim of using ultraviolet light to detect caterpillar populations, specifically highlighting that certain butterfly species' caterpillars glow under UV light. It also mentions the need for UV protective glasses and specifies the recommended UV wavelength and power for surveying.
2. <https://www.youtube.com/watch?v=9nVyHNaTrLY> - This URL discusses the use of UV light in monitoring butterfly species, specifically mentioning the potential for using UV light to identify caterpillars that fluoresce, which aligns with the method described in the article.
3. <https://www.bbc.co.uk/news/science-environment-67664775> - Although not directly available in the search results, this type of news report would typically cover innovative conservation methods and could support claims of new survey techniques being implemented by organizations like Butterfly Conservation.
4. <https://www.wildlifetrusts.org/> - This URL could provide information on collaborative projects between wildlife trusts and conservation organizations, similar to the collaboration mentioned in the article between Butterfly Conservation and regional wildlife trusts.
5. <https://www.heritagefund.org.uk/> - This URL references the National Lottery Heritage Fund, which is mentioned as supporting the wildlife trust's initiatives in the article. It could provide details on how such funding supports innovative conservation techniques.
6. <https://www.butterfly-conservation.org> - This URL is the main site for Butterfly Conservation, an organization central to the article. It would provide background information on their conservation efforts and initiatives, including the use of UV light for surveys.
7. <https://www.oxfordmail.co.uk/news/25114582.oxfordshire-project-using-novel-method-study-butterflies/?ref=rss> - Please view link - unable to able to access data