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**Butterfly Pavilion First to Complete Lifecycle of a Colorado Firefly Under Human Care -
A Milestone for Invertebrate Conservation.**

***Breakthrough in firefly conservation opens new paths for protecting native species
and wetland ecosystems.***

WESTMINSTER, CO (July 24, 2025) — In a scientific breakthrough, Butterfly Pavilion, the world's first Association of Zoos and Aquariums-accredited standalone, nonprofit invertebrate zoo, has successfully closed the full lifecycle of a native Colorado firefly species (*Photuris* sp.) under human care for the first time ever. This unprecedented achievement sets a new standard for firefly conservation and invertebrate research worldwide.

The breakthrough moment came this summer with the emergence of a female firefly born and raised entirely under human care at Butterfly Pavilion. After mating with wild-collected males, she laid viable eggs. On Saturday, July 19, one of those eggs hatched into a tiny larva, confirming successful reproduction and marking the completion of the full firefly lifecycle in captivity — egg, larva, pupa, adult — a feat accomplished by only a handful of institutions across the globe.

"This is more than a research milestone. It's a breakthrough that opens the door to restoring firefly populations across the American West and beyond," said Rich Reading, Ph.D. Vice President of Science and Conservation at Butterfly Pavilion. "Fireflies capture imaginations, and they also tell us about the health of our planet. This moment proves we can take action to help safeguard their future."

A Conservation Journey Eight Years in the Making

Butterfly Pavilion's Firefly Lifecycle Project began in 2017 to study the biology and behavior of Colorado's elusive fireflies, species so unknown that many Coloradans don't even realize they exist. Each summer, the team secures permits to collect adult fireflies from wild habitats near Fort Collins, Colorado, to breed and raise in a controlled lab setting.

Over the years, Butterfly Pavilion's curatorial and research team made painstaking efforts to recreate the environmental conditions fireflies need to survive, tweaking everything from humidity levels to feeding protocols. It can take two to three years for a firefly to mature from egg to adult. The first three lab-reared fireflies, two females and one male, emerged in 2023. A fourth male emerged in 2024, and the fifth, a female emerged this summer.

"Raising fireflies is one of the most complex challenges in invertebrate conservation," said Francisco Garcia Bulle Bueno, Butterfly Pavilion's Director of Research and Conservation.

“Now that we’ve closed the loop, we can scale efforts to support wild populations and even one day reintroduce fireflies to habitats where they’ve disappeared.”

Why It Matters: Saving Fireflies, Protecting Ecosystems

Fireflies are more than magical; they are indicator species for wetland health. Their decline signals deeper problems in the environment. Yet due to their elusive larval stage and long development time, fireflies have remained a mystery to science, making effective conservation difficult, until now.

This project opens the door to:

- **Captive breeding programs** to “head-start” firefly populations.
- **Reintroduction efforts** into vulnerable habitats.
- **Habitat restoration strategies** informed by lab-based research.
- **Collaborative firefly conservation nationwide** by sharing techniques with other institutions.

What’s Next

Butterfly Pavilion is now preparing to raise multiple generations in captivity and expand its research to additional firefly species. The ultimate goal is to build sustainable, genetically diverse populations and contribute to large-scale restoration efforts.

As a global leader in invertebrate research, conservation, and education, Butterfly Pavilion will also lead education and public outreach to help communities protect local firefly habitats, from turning off outdoor lights in summer to avoiding pesticides near wetlands.

How the Public Can Help

- **Support Butterfly Pavilion’s Efforts:** Donate to advance firefly and invertebrate research to help protect the small but mighty species that sustain our planet, <https://butterflies.org/participate/donate/>
- **Dim your lights:** Turn off outdoor lights at night to help fireflies find mates without interference.
- **Protect wild areas:** Preserve wetlands, meadows, and forest edges where fireflies breed and thrive.
- **Avoid chemicals:** Avoid the use of pesticides and herbicides, they can harm firefly larvae and their food sources.
- **Respect their space:** Stay on trails, avoid using flashlights, and never catch or disturb fireflies.
- **Mow less:** Let parts of your lawn grow wild with native plants to give fireflies places to live and lay eggs.

About Butterfly Pavilion

Butterfly Pavilion, established in 1995 and celebrating its 30th anniversary this year, is the first Association of Zoos and Aquariums (AZA)-accredited, stand-alone, non-profit invertebrate zoo in the world, located in Westminster, Colorado. Butterfly Pavilion's mission is to foster an appreciation of invertebrates while educating the public about the need for conservation of threatened habitats in the tropics and around the world. Beyond Colorado and the United States, Butterfly Pavilion conservationists are doing important invertebrate research projects around the world from Mongolia and Tanzania to Sumatra and Mexico. Learn more at www.butterflies.org

Multimedia available:

- High-res images of fireflies and lab-raised firefly
- Video footage of adult bioluminescence behavior
- B-roll of Butterfly Pavilion's firefly collecting and lab area

Butterfly Pavilion interviews available upon request with:

- Rich Reading, Ph.D., Vice President of Science and Conservation
- Francisco Garcia Bulle Bueno, Director of Research and Conservation
- Lead curatorial and conservation team members