

Secret Biofluorescence Discovered in Toxic Fire Salamanders

Prelims: Current events of national and international importance | Environment

Why in News?

Recently, researchers published a discovery revealing that Europe's familiar fire salamander (*Salamandra salamandra*) possesses a hidden biofluorescent glow under ultraviolet (UV) light.

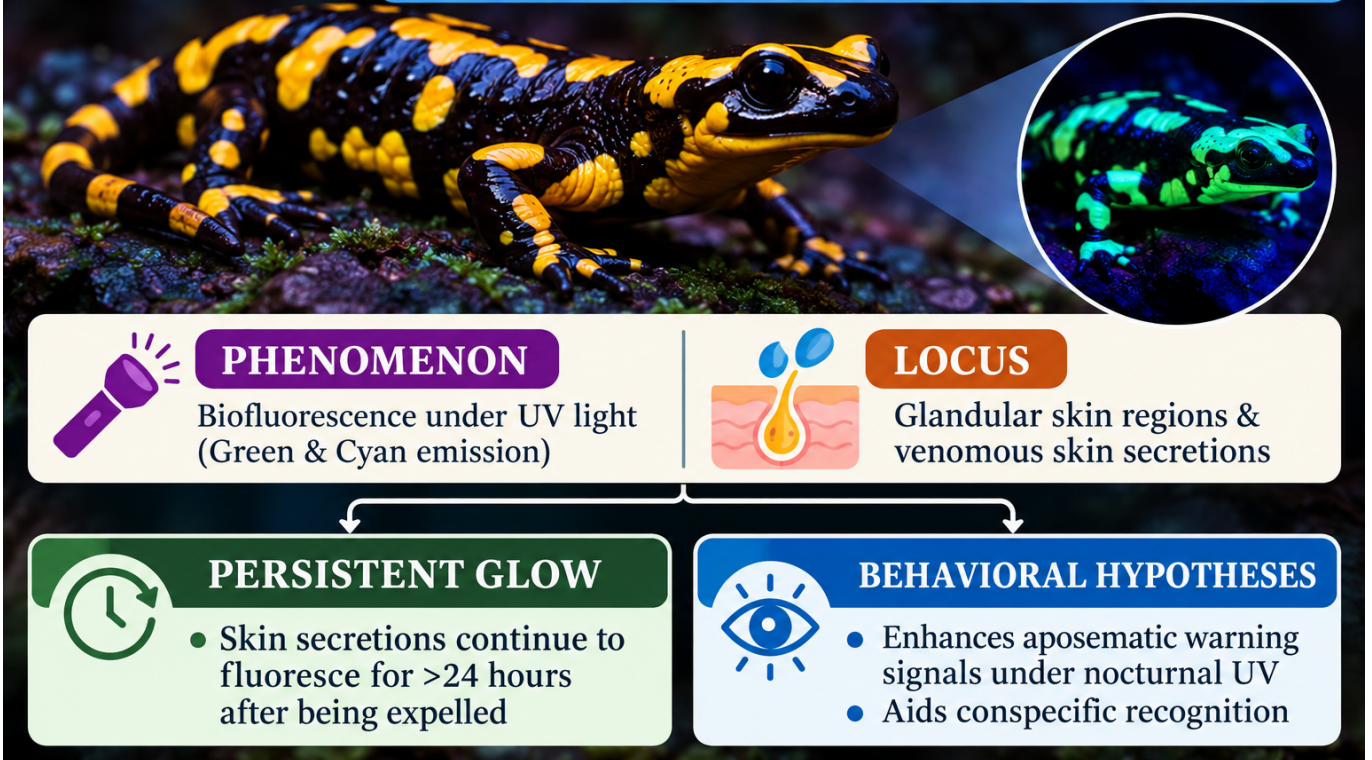
Key Findings

- **Glandular Origin and Persistent Secretions**
 - When exposed to UV light, the salamander's skin particularly along its yellow markings and underside re-emits visible green and cyan light.
 - Crucially, the **venomous skin secretions** expelled by the animal continue to glow brightly for more than 24 hours after release, pointing to unique chemical properties.
- **Ecological & Evolutionary Hypotheses**
 - **Enhanced Aposematism** - Fire salamanders rely on bright yellow-and-black warning coloration (*aposematism*) combined with toxic steroidal alkaloids (**samandarines**) to deter predators.
 - Fluorescence may amplify these visual signals under dim, UV-rich nocturnal conditions.
 - **Conspecific Communication** - May serve as a visual marker allowing salamanders to locate or recognize each other in dense, dark forest habitats.

Strategic Significance

- **Overlooked Terrestrial Adaptations**- Biofluorescence in a well-studied terrestrial vertebrate underscore how advanced optical and field tools continue to reveal hidden biological traits.
- **Conservation Context** - The International Union for Conservation of Nature (IUCN) classifies fire salamanders as vulnerable in parts of their range due to habitat fragmentation and chytrid fungal threats.
- Understanding their sensory ecology and nocturnal behaviors aids targeted conservation planning.

FIRE SALAMANDER BIOFLUORESCENCE



Reference

[Science Daily | Secret glow in toxic fire salamanders](#)