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Wonderful Insects

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Abstract: Among invertebrates, insects are distinguished by their diversity and abundance. When we think of bugs, we always think of invisible and harmful creatures. But this is a big mistake! You will see this if you carefully study their world. In this article, you will learn about these unique characteristics of beetles.
Key words: Firefly, phosphorescence, trachea, luciferin, ATP, climate change, larvae, cuticle, segments.

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Annotatsiya: Hasharotlar umurtqasiz hayvonlar orasida xilma-xilligi va son jihatdan ko‘pligi bilan boshqalaridan ajralib turadi. Qo‘ng‘izlar deganda biz doimo ko‘rimsiz va zararli jonzotlarni ko‘z oldimizga keltiramiz. Lekin bu juda katta xato! Ularning olamini yaqinroqdan o‘rgansangiz, bunga o‘zingiz amin bo‘lasiz. Ushbu maqolada siz qo‘ng‘izlarning shunday noyob xususiyatlari bulan tanishasiz.
Kalit so‘zlar: Yonar qo‘ng‘izlar, fosforli porlash, traxeya, lusiferin, ATF, iqlim o‘zgarishi, lichinkalari, kutikula, segmentlari.

Чудесные насекомые.

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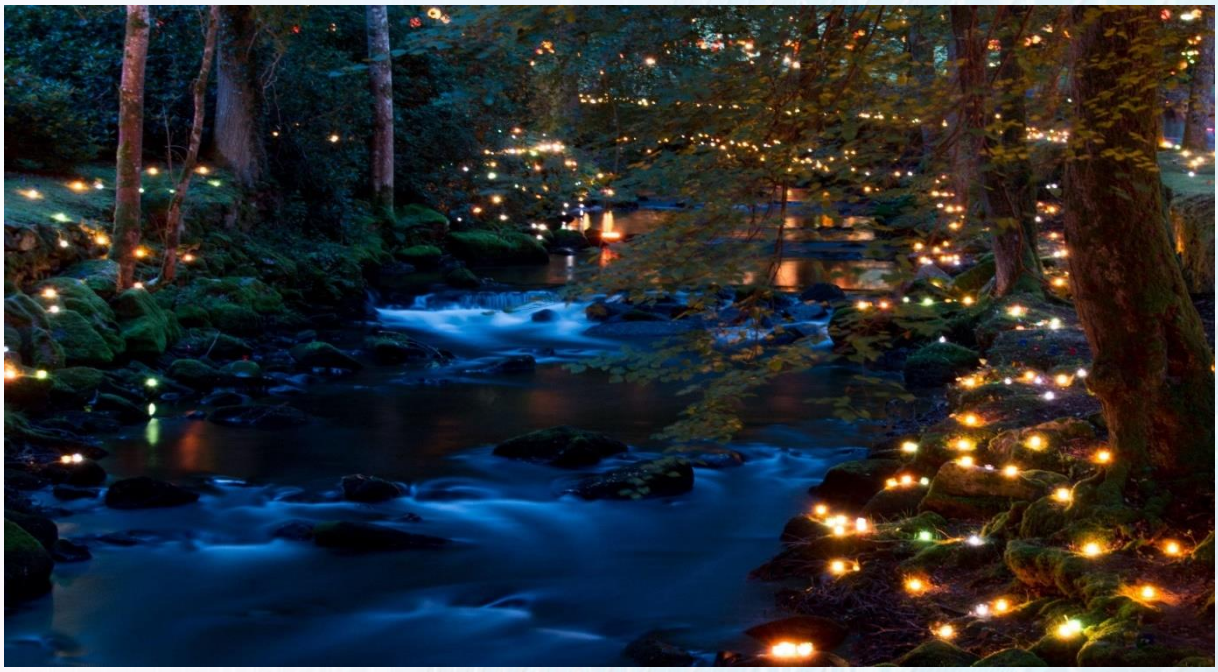
Аннотация: Среди беспозвоночных разнообразием и обилием отличаются насекомые. Когда мы думаем о жуках, мы всегда думаем о невидимых и

вредных существах. Но это большая ошибка! В этом вы убедитесь, если внимательно изучите их мир. В этой статье вы узнаете о таких уникальных характеристиках жуков.
Ключевые слова: Светлячок, фосфоресценция, трахея, люциферин, АТФ, изменение климата, личинки, кутикула, сегменты.

Lights burning in the dark of night give the forest a charming look and beauty. Trust me, you'll be even more amazed when you learn that these twinkling lights are living creatures!



Miraculous insects are insects belonging to the Coleoptera family, which includes more than 2000 species. Fire beetles do not like to live in groups, they live alone. Most species are nocturnal, but some are active during the day. During the day, insects hide under bark, stones or mud, rest on grass, and are active at night. Fire beetles get their name because their eggs, larvae, and adults have the ability to glow. The earliest written information about these insects is found in a Japanese poetry collection from the end of the 8th century.

Fire beetles are very common, heat-loving insects, found in all parts of the world: North and South America, Africa, Australia and New Zealand, Europe

(including Great Britain), Asia (Malaysia, China , India, Japan, Indonesia and the Philippines).

The body of most of the insects is covered with hairs, is elongated and has a structure common to all beetles, its size is about 4 mm to 3 cm, it is not bright in color: brown representatives are more common. The beetle has big eyes and 11 whiskers on its small head.

According to the nature of nutrition, different types of fire beetles differ. Herbivores are harmless insects that feed on flower nectar and pollen. These insects live in grass, bushes, moss or under fallen leaves. And at night they go hunting. Fire beetles feed on small insects, larvae of other insects, small animals and decaying plants. Their predators attack spiders and ants. There are species whose adults do not eat at all, and do not even have a mouth. Most representatives of fire beetles are known for their ability to emit a phosphorescent glow, which is especially noticeable in the dark. In some species, only males can glow, in others only females, and in others both (for example, Italian fire beetles). Males emit a bright light during flight. Females are inactive and usually glow brightly on the surface of the soil, and in many species the light even radiates from their larvae and eggs. The life span of these insects lasts 1-2 years. The organs that allow fireflies to emit light are photogenic cells (lights) surrounded by nerves and tracheas (air tubes). Outwardly, the lights look like yellowish spots covered with a transparent film (cuticle) on the lower part of the abdomen. They can be located in the last segments of the abdominal cavity or evenly distributed throughout the body of the insect. Beneath these cells lie cells filled with uric acid crystals that can reflect light. Together, these cells work only when there is a nerve impulse from the insect's brain. Oxygen enters the photogenic cell through the trachea and oxidizes the combination of luciferin (a biological pigment that emits light) and ATF (adenosine triphosphoric acid) with the help of the enzyme luciferase, which accelerates the reaction, and as a result, the insect begins to glow with blue and yellow light. Interestingly, an ordinary light bulb (incandescent bulb) converts only 4% of its energy into light, and if we consider that the rest of the energy is dissipated as heat, these insects use about 98% of their energy as light. spends to release, but the body does not heat up at all!

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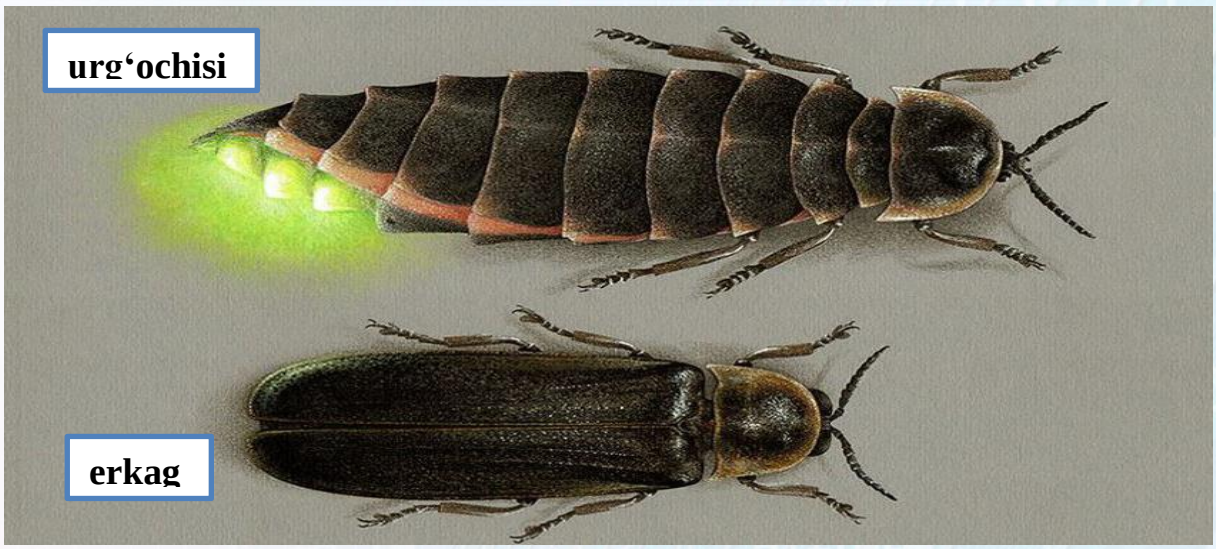

W. F. Buck classified all light signals of fireflies into the following types: pulsating, flashing, steady, fading, bright or dim

Fire beetles and their larvae are poisonous to most predators. The larvae of many species of these insects glow. The function of the larvae's glow is a warning signal for the prey that wants to eat them. Through a special light rhythm, the beetles use it to attract mates, scare away predators and protect the boundaries of their territory.

Besides:

. search and attraction signals in men; consent, rejection and post-copulatory signals in females;

.they send signals of aggression and displeasure.

Since the settlers who came to America from Europe did not have candles, they lit their homes with fireflies placed in jars. Even today, Indians go into the forest at night and tie large luminous beetles to their hands or shoes. Insect light helps with vision and repels poisonous snakes. In Japan, ancient nobles also collected beetles in baskets and used them for lighting. Poor students prepared their lessons under the green-white light emitted by insects. In ancient times, in western India, women's hair was decorated with these insects. It was very fashionable.

The number of fireflies on earth is rapidly decreasing!

Due to climate change and human occupation of their habitats, fire beetles are decreasing in the world.

This is primarily due to environmental pollution with artificial light. The abundance of artificial light sources distracts insects, so many of them cannot find a partner for themselves and do not breed. Another important issue is the use of pesticides, which is also the reason for their decrease. In Japan, some species of these insects are specially protected because they destroy tapeworms, the intermediate hosts of animal and human parasites.

Only by including these miraculous insects in the "Red Book" can they be prevented from decreasing in number and disappearing as a species! While getting acquainted with the information about the life of these miraculous insects, one thought does not leave me alone: is it possible to bring these insects to Uzbekistan and breed them? Imagine if instead of artificial lights in our parks, amusement parks and other places, fireflies would glow!

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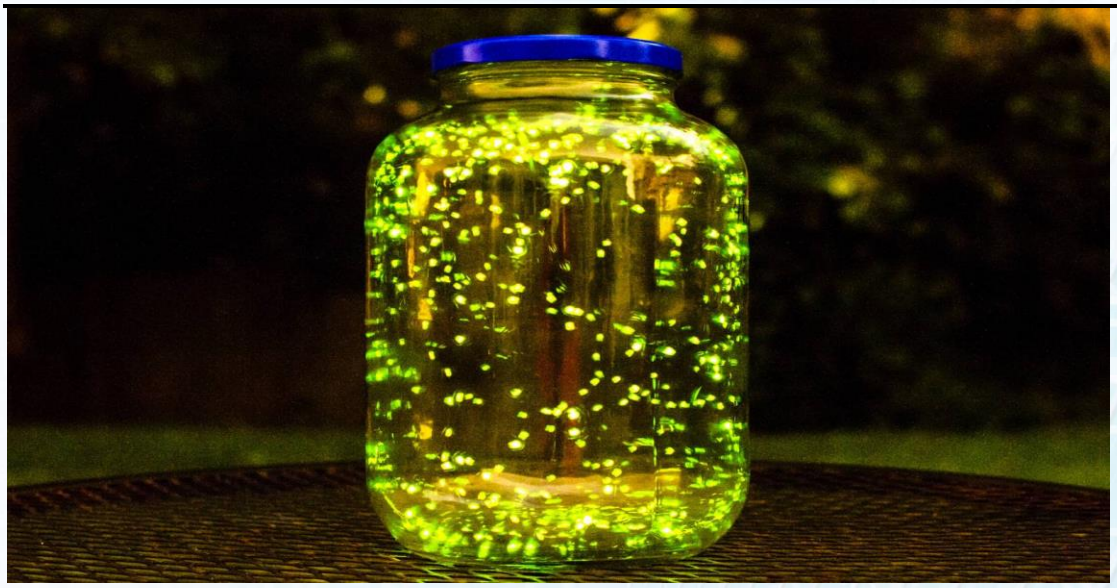

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