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CARABUS AURATUS BEETLE'S MORPHOLOGY AND DISTRIBUTION

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Abstract: The article provides information about the morphology, anatomy, and ecology of Carabus auratus. Carabus auratus is adapted to live near the soil surface. It can skillfully move underground while searching for prey or for defense. The structure of the beetle's legs, along with its strong claws, allows it to move easily on the ground and successfully navigate through thorny plants. These characteristics not only show its role as a predator but also highlight its importance as a crucial part of the ecological system.

Keywords: Buprestidae, xylem, vegetation, continental, entomophagous, parasite, segment, herbivorous, Rumex syriacus, insecticide.

The morphology and anatomy of *Carabus auratus* are very unique and hold an important place in the insect world. The body structure of this beetle demonstrates its perfect adaptation to a predatory lifestyle and its habitat.

The body of *Carabus auratus* is elongated and has a smooth shape, with a length typically ranging from 20 to 30 mm. The beetle's body is metallic in color, either gold or green, which results from the interaction of pigmentation and microscopic layers. These attractive colors distinguish it from other species and often spark interest for decorative purposes. The head is relatively small, with sharp eyes that have a complex structure and provide a wide field of vision. This is especially important for hunting and tracking moving prey. The beetle's jaws are very strong and sharp, used for grabbing and crushing its prey. Its antennae are long and segmented, enabling *Carabus auratus* to sense touch and smell.

The main part of the body is divided into three sections: the head, thorax, and abdomen. The thorax contains the body's movable parts, including the strong legs. These legs are adapted for fast running, further enhancing the beetle's characteristics as an active predator. Special structures located at the ends of the legs help it dig into the soil and capture its prey.

Carabus auratus

The beetle's hard wings, known as elytra, tightly cover its posterior and protect the inner wings. These wings serve not only as mechanical protection but also help the beetle survive in aquatic environments or other challenging habitats. The surface of the elytra is smooth and glossy, with small lines and ridges present on it.

The defense mechanisms play a crucial role in the survival of the beetle. *Carabus auratus* releases chemical substances from its body surface when threatened, scaring off predators. This defense method is also found in other species of the Carabidae family, demonstrating their contribution to ecological stability.

Carabus auratus stands out not only with its appearance but also with its biological and ecological characteristics. This beetle is known as an exceptionally successful predator due to its prey-searching ability, adaptation to its habitat, and unique defense mechanisms.

The golden *Carabus* is primarily found in the European region, particularly in forested and grassy areas. It is distinguished by its activity both day and night, though it primarily hunts at night. This behavior allows it to hunt more safely during the nighttime. Typically, *Carabus auratus* feeds on various insects, their larvae, and eggs. Unlike other predatory insects, this beetle can successfully open and consume insects with hard exoskeletons. This is due to its strong jaws and sharp mandibles.

Carabus auratus is adapted to live near the soil surface. It can skillfully move underground while searching for prey or for defense. The structure of the beetle's legs, along with its strong claws, allows it to move easily on the ground and successfully navigate through thorny plants. These characteristics not only highlight its role as a predator but also show its importance as a crucial part of the ecological system.The defense mechanisms of *Carabus auratus* are one of its distinctive features. When threatened, the beetle releases special chemical substances from its body surface. These substances have an unpleasant odor that scares off predators. In some cases, the substance also acts as an irritant, making it difficult for the predator to approach the beetle. This defense method has increased its chances of survival through natural selection.The reproduction process of *Carabus auratus* is also unique. Female beetles lay their eggs in the soil or among plant debris. These eggs are well-protected from pests. The larvae that hatch from the eggs grow by molting several times and eventually transition into adult form. The larvae are also predatory, feeding on smaller prey.

The golden *Carabus* plays an important role in maintaining ecological balance. By consuming pest insects, including plant eggs and smaller beetles, it helps control their populations. For this reason, *Carabus auratus* is considered a beneficial insect in agriculture. Its presence is crucial for maintaining ecosystem health and supporting biodiversity.

Due to its biological characteristics and ecological significance, interest in this species is not only prevalent among the scientific community but also among insect enthusiasts. This beetle is a vivid example of natural beauty and beneficial predation. Protecting its habitat and monitoring its population is important for ensuring future ecological stability.

More information about the characteristics and significance of *Carabus auratus* (Golden Carabus) includes the following:

This beetle is of great importance as a biological pest control agent in agriculture and forest environments. In particular, plant-damaging insects, such as caterpillars and fly larvae, are its main prey. For this reason, *Carabus auratus* is considered a natural alternative to the use of harmful chemical insecticides in ecological farming. This not only ensures the healthy growth of plants but also protects soil and water sources from pollution.

The habitat of *Carabus auratus* is highly diverse. It is adapted to live in grasslands, forests, fields, and gardens. The beetle typically moves on the soil surface, but when necessary, it can burrow underground to hide. It prefers damp and cool environments, which is why it is often found during the rainy season or at night. The quality and stability of the soil are crucial for this species, as the soil serves not only as its habitat but also as a suitable place for egg-laying.


Feeding of Carabus auratus

Carabus auratus has distinct stages in its life cycle. The larvae that hatch from the eggs molt several times during their development and grow larger. These larvae also actively search for and consume prey. The transition from the larval stage to the adult stage takes several months, and the duration of this process depends on the temperature of the habitat and the availability of food sources.

The population of *Carabus auratus* is usually well-balanced in nature, but human activities can have a negative impact on their numbers. Deforestation, intensive farming practices, and the excessive use of pesticides reduce their habitats. Therefore, it is crucial to conserve this species and maintain the stability of their habitats.

Within the framework of biodiversity conservation strategies, several measures can be taken to support the population of *Carabus auratus*. These measures include protecting natural habitats, using biological methods for pest control, and reducing pesticide application. These actions not only help preserve this beetle species but also contribute to maintaining the overall stability of ecosystems.

The genetic diversity of the golden *Carabus* is also of significant importance in scientific research. Through genetic studies, we can explore how this species interacts with other insects and plants, as well as gain a better understanding of its role in the ecological system. These studies will greatly benefit the protection of natural environments and the development of sustainable agriculture.In conclusion, *Carabus auratus* is not only a vibrant representative of biological diversity but also plays a crucial role in ensuring ecological stability. Its beauty, beneficial predatory abilities, and significant role in ecosystems are of great value to humanity. Therefore, special attention must be given to protecting this species and its habitat.

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