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# Ground Beetles

<i>Order:</i>	Coleoptera (beetles)
<i>Family:</i>	Carabidae, Silphidae, and Staphylinidae (fiery searcher, carrion beetles, and rove beetles)
<i>Metamorphosis:</i>	Complete (egg-larva-pupa-adult)
<i>Mouthparts:</i>	Chewing in larvae and adults



A **GROUND BEETLE** adult, see color print, Fig. 29, on publication B-1013.

Ground beetles are widely distributed throughout the world. Most are predaceous on a variety of insects. Some feed on decaying organic matter and seeds. The many species are variable in form, size, and coloration. They are typically found crawling on the soil surface or within plant or animal debris.

## Body Form

*Eggs:* Ground beetle eggs are found in the cracks and crevices of soil and plant debris. The size, shape, and color of the many species are extremely variable.

*Larvae:* Larvae are generally very active with three pairs of strongly developed legs. They may be white, yellow, brown, or cream. Most ground beetle larvae have dark brown or black head capsules. Their shapes and sizes are extremely variable.

*Pupae:* The sizes, markings, and coloration of ground beetle pupae are extremely variable among species.

*Adults:* The coloration and markings of adult ground beetles are variable. Their sizes may range from  $\frac{3}{4}$  inch to  $1\frac{1}{2}$  inches in length.

## Life History

Adult ground beetles are most active during spring and summer months. Females lay eggs in the soil (fiery searcher), decaying animal matter (carrion beetles), or in freshly decaying plant matter (rove beetles). The larvae are active predators of insects and scavengers of dead animal or plant matter. They search for food in plant debris, on the surface of the soil, or in the soil. They may pupate above or below the soil surface. Upon pupation, the adults emerge and actively search for food. All stages of a ground beetle's life cycle may overwinter depending on the species.

## **Plant Benefit**

Some ground beetles are predaceous on a wide variety of mites and pestiferous insects such as caterpillars, mealy bugs, and aphids. Others help break down dead animal and plant material. They do not feed on living plant material.

## **Management**

Some ground beetles are naturally occurring biological control agents. Others are nutrient recyclers. They have not been successfully manipulated, but their presence should be encouraged by the judicious use of insecticides.

*Sources of further information:* Guides on crop production and pest management will often include information on beneficial insects like ground beetles.

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