

## Colorado Insect of Interest

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# Burying Beetles

**Scientific Name:** *Nicrophorus* spp.

**Order:** Coleoptera (Beetles)

**Family:** Silphidae (Carrion Beetles)

**Identification and Descriptive Features:** The burying beetles are moderate-large sized (25-35 mm), brightly colored beetles marked with orange-red and black. Their antennae are pronouncedly club-like.



**Figure 1.** A burying beetle, *Nicrophorus investigator*, feeding on a piece of meat. Photograph courtesy of Joseph Berger/IPM Images

**Distribution in Colorado:** Ten species of burying beetles are known from Colorado (Table 1) and one or more representatives can be found throughout the state.



**Figure 2.** Burying beetle, *Nicrophorus marginatus*. Photograph courtesy of *Insects in Kansas*.

**Life History and Habits:** Burying beetles have unusual life histories that involve extraordinary involvement of adults of both sexes in larval rearing. Although variations may occur among the different *Nicrophorus* species, the general outline follows.

Rearing of larvae begins upon location of a recently dead rodent, bird or other small carrion item. The adults are acutely sensitive to odors associated with early decay and the first beetle arriving at the carcass - either male or female - will guard it and await a mate. When a member of the opposite sex arrives the pair will then enter the

carcass, a process that can usually be completed in a few hours.

Once the food item has been successfully covered it is further prepared by stripping all skin, fur and/or feathers and gathering the flesh into a pear-shaped ball. The flesh is chewed and covered with salivary and anal secretions that help to preserve it from decay.

A rearing chamber is then dug out where eggs are laid. After eggs hatch and the one of the parents (usually the female) produces a stridulation “call” that attracts the young to a depression made on the top of the food ball. Upon arrival they are fed regurgitated liquids one or more of the parents provides to them. Parental feeding continues during the early larval development, but later they can feed directly on the food ball. Both parents may be involved in this activity but

typically females tend primarily to larval feeding and males guard the entrance of the nest from other insects.

The larvae develop quite rapidly on this highly nutritious diet and become full-grown in about 6-8 days. They then scatter about the nest area and dig chambers within which they pupate. Pupation lasts over two weeks and the new adults subsequently emerge.

After larvae have finished feeding and initiated pupation the adult parents leave the nest area and disperse to locate new carrion. They may feed on large items for sustenance and egg maturation, but will only use relatively small animal pieces for larval rearing. During the warm months while they are active additional broods may be produced in new nests, the number depending largely on availability of suitable carrion.

**Associated Species:** Burying beetles are almost always found with associated mites, which the beetles carry with them. Most often the mites are in the genus *Poecilochirus* and develop on fly eggs and larvae that may also compete for the carrion. In this habit they can provide substantial benefit to the burying beetles and their association is generally considered to be mutualistic.

**Related Species:** The burying beetles are the most colorful of the carrion beetles (Silphidae) all of which are associated with fresh carrion (Table 1). However, other members of this family do not have the involved rearing habits associated with the burying beetles. Instead, larvae are free-living and scavenge on their own without parental assistance. These other species lack the bright coloration of burying beetles and tend to be dull gray or black.



**Figure 3.** Mites, *Poecilochirus* sp., on back of a burying beetle. These mites are very common associates of burying beetles and help protect their food ball from scavengers such as flies.

**Table 1.** A partial checklist of the carrion beetles (Coleoptera: Silphidae) of Colorado

*Heterosilpha ramosa* (Say)

*Oiceoptoma noveboracense* (Forster)

*Thanatophilus coloradensis* (Wickham)

*Thanatophilus lapponicus* (Herbst)

*Thanatophilus sagax* (Mannerheim)

*Thanatophilus truncatus* (Say)

*Achlypea bituberosa* (LeConte)

*Necrodes surinamensis* (Fabricius)

*Nicrophorus carolinus* (Linnaeus)  
*Nicrophorus defodiens* Mannerheim  
*Nicrophorus guttula* Motschulsky  
*Nicrophorus hybridus* Hatch & Angell  
*Nicrophorus investigator* Zetterstedt  
*Nicrophorus marginatus* Fabricius  
*Nicrophorus mexicanus* Matthews  
*Nicrophorus orbicollis* Say  
*Nicrophorus obscurus* Kirby  
*Nicrophorus tomentosus* Weber



**Figure 4.** A carrion beetle, *Oiceoptoma noveboracense*.