

## BELOW-GROUND PREDATOR

### THE *SCARITES* BEETLES

Many insects live underground, rarely see daylight, and rarely climb, fly, or hop more than a few inches off the ground. Ground beetles (order Coleoptera, family Carabidae) are a large group of mostly black or brown insects that have beady antennae (Photo 3-1) and hunt other insects in the dark. (One colorful exception is the [tiger beetle](#), which is bright green.)

This lesson will profile the ground beetle genus *Scarites*.

#### MEET *SCARITES*

Large, predatory beetles with massive mandibles lurking underground sounds like the stuff of nightmares—or the villains in a straight-to-streaming movie. But Michiganders should really count ground beetles in the genus *Scarites* among their heroes because at all life stages, they eat a variety of insects.

At 0.5 inch to 1 inch long as adults, these are among the longest ground beetles in Michigan. You can identify *Scarites* by their narrow waists between the thorax and abdomen and their narrow antennae (Photo 3-2). These beetles are large enough that researchers have attached transmitters to their abdomens to study their behavior in agricultural fields.



Photo 3-1. An adult ground beetle. (Photo by Ken Chamberlain, The Ohio State University, Bugwood.org)



Photo 3-2. A *Scarites* beetle on the ground. (Photo by David Cappaert, Bugwood.org)

*Scarites* prefer to burrow in sandy soils and they're excellent actors. If you approach a *Scarites* too closely, it will lie on its back and play dead for several seconds or several minutes.

When they aren't playing dead, *Scarites* use their large mandibles (jaws) to devour caterpillars, flies, and other small- to medium-sized insects—some pests and some beneficials. Adults spend their day resting at or just below the soil surface and hunt in the evening and at night.

They spend the winter as larvae or adults. Their larvae are slender and could be mistaken for fast-moving millipedes with big jaws. Adult and larval *Scarites* play an important role in the biological (natural) control of pests in soybean, corn, and vegetable fields.

## FINDING SCARITES & OTHER GROUND BEETLES

One way to find out whether *Scarites* are living in your garden is to set up a pitfall trap (Photo 3-3). To do this, place a 12 oz to 16 oz plastic cup in a hole with the rim



Photo 3-3. This simple pitfall trap is designed to capture ground beetles. The trap is made from a disposable cup set into the ground so its rim is flush with the soil surface. (Photo by Stephen F. Austin State University, Stephen F. Austin State University, Bugwood.org)

flush with the surface. Then wait 24 to 48 hours for insects to fall into the cup. (If rain is in the forecast, suspend a small lid or plate an inch or two over the cup so the rain doesn't wash away any beetles trapped in it. You can support the cover with sticks, chopsticks, or shish kebab skewers.)

An even simpler method for finding *Scarites* is to look under stones, logs, and paving blocks in your yard or garden.

## CONSERVING SCARITES & OTHER BENEFICIAL BEETLES

To attract soil-dwelling predators like *Scarites* to your yard or garden, you'll need to tolerate some untidiness there. (Think of it as "a more natural look.") Leaving an undisturbed or unmown refuge area will give a variety of insects places to hide. Limit pesticide applications in your lawn and garden to avoid harming ground beetles and other beneficial insects.

Having beneficial insects (such as *Scarites* and other ground beetles) and spiders around may lead to better natural pest control and less insect pest damage in your garden. A study by MSU Extension researchers (Ingrao et al., 2017) found greater insect predation from ground beetles like *Scarites* in asparagus fields bordered by unmanaged areas than in fields with managed borders.

Residential gardens with flowers, ornamental grasses, and hidden spaces will encourage beneficial ground-dwelling predators like *Scarites* to stick around for an insect pest dinner.

## WHAT'S NEXT?

Next week we'll head above the ground to learn about damsel bugs and other predatory insects that eat other insects.

## FIND OUT MORE: REFERENCES & RESOURCES

Ingrao, A. J., Schmidt, J., Jubenville, J., Grode, A., Komondy, L., VanderZee, D., & Szendrei, Z. (2017). Biocontrol on the edge: Field margin habitats in asparagus fields influence natural enemy-pest interactions. *Agriculture, Ecosystems and Environment*, 243, 47–54. <https://doi.org/10.1016/j.agee.2017.04.011>

Walton, N. (2021). *Michigan insects in the garden—Season 2 week 3: Cicindelinae* [MSU Extension News Article]. <https://www.canr.msu.edu/news/michigan-insects-in-the-garden-season-2-week-3-cicindelinae>

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