

G17 Field observations of *Ataenius spretulus* and *Aphodius* sp.

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In recent years the black turfgrass ataenius beetle, (BTA), has become a growing problem on turfgrass in southern Michigan. By sampling populations of this beetle pest, we hope to learn more about its biology and how intense golf course management effects the pest and its associated predators and pathogens.

Golf courses are regularly irrigated and fertilized. Fungicides can be applied every two or three weeks beginning in the spring, and insecticides and herbicides are also applied when needed. Each of these management activities have an effect on the ecology of turfgrass. Experiments conducted on several golf courses in the Detroit area (Birmingham Country Club, Franklin Hills Country Club, Oakland Hills Country Club, and Orchard Lake Country Club) and the Hancock Turfgrass Research Center on the Michigan State campus will aid in determining what habitat and hosts are preferred by the BTA and how predator abundance is effected by insecticide and fungicide. Also, throughout the sampling season, "sick" larvae will be collected and the pathogens infecting the larvae will be identified.

Answers to the questions we are asking may lead to the development of alternative control methods for BTA. Doing so could reduce the high cost of turfgrass management while eleviating some of the pressure chemicals place on the turf ecosystem.

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One of the primary goals of this Black Turfgrass *Ataenius* project is to begin establishing two degree day models for the *Ataenius*' life cycle. The degree day models will be based on air temperatures and another based on soil temperatures. During this project we hope to confirm the seasonal habits of the Black Turfgrass *Ataenius* (*Ataenius spretulus*) in Michigan. Phenological indicator plants will also be identified (tree and shrub growth activity).

This insect spends a majority of its life in the soil environment. This project intends to compare the two degree day models (air and soil) to determine; 1) if there is a difference between soil and air temperature correlations, and 2) if one model is more accurate for predicting *ataenius* development and activity than the other. The use of soil temperatures in managing turfgrass pests has not previously been explored or applied in a structured manner.

Four sites equipped with weather monitoring devices, including soil temperature probes (Envirocaster, Neogen Corp.), are monitored and sampled on a weekly basis.