

Having trouble viewing this email? [Click here](#)



## Quick Links

[NYSTA web site](#)  
[Calendar of Events](#)  
[Join NYSTA](#)  
[Contact Us](#)

## Winter Woes and Insect Foes

By Daniel C. Peck, Ph.D., Lead Scientist, Grass Systems Entomology, 500 Technology Farm Dr., Geneva, NY 14456 (email: [dcepek@grass-systems-entomology.com](mailto:dcepek@grass-systems-entomology.com))

It is impossible to take this winter in stride. Hunkering down and leaving town are two popular human strategies that parallel those deployed by other animals. How might the challenges of the season affect the status of our golf course insect pests come spring? Insect life cycles are partially structured around the need to overcome the unfavorable conditions posed by drought and temperature extremes, among other abiotic factors. Winter weather is certainly a key driver of insect seasonality. Reproduction, development and survival are affected. Cold weather forces cold-blooded insects to slow down, rendering reproduction and development nearly impossible. That elevates survivability under winter conditions as a key factor. If the 2013-2014 winter can be characterized as extremely cold and snowy, how will it influence the turf-infesting insects and their challenge as pests? It turns out that snow cover, more so than cold temperature, may define success in overwintering for most insects.

Immigration of the annual bluegrass weevil is an early spring event that poses challenges to golf course superintendents throughout the greater Northeast U.S. Adults overwinter under duff, leaf litter and in the top layer of the soil, largely away from their summertime developmental habitat on short-mown playing surfaces dominated by *Poa annua*. In autumn, adults transition to overwintering sites where they settle in for protection against winter weather. Cold weather and exposed substrate are undoubtedly unfavorable for survival, causing significant mortality in the local population. Snow cover, however, offers an insulating layer that is undoubtedly favorable for survival, buffering the impacts of cold temperatures. Albeit extreme to us, we should not anticipate the winter's weather to inordinately affect annual bluegrass weevil populations, the snow offering a relative protection from exposure and cold temperatures. In March and April, survivors will be poised to disperse back to susceptible turf. At that point the timing and synchrony of their reappearance will be related to warming and thawing trends.

White grubs overwinter as late stage larvae right in the same habitat where they develop. Third instars are powerful enough to burrow down through the

soil profile to overwinter below the frost line. The European chafer, for instance, will descend more than a foot if need be. Or it will remain fairly shallow if protected under thick sod or a deep snow pack. Grubs in heavier clay soils, or those with shallow hard pans, will have trouble escaping a deep frost, but again, the snow pack would increase their chances of survival. Like annual bluegrass weevil adults, these insects are probably refractory to the cold air temperatures when the soil surface is protected under a snow pack. Absent snow cover, however, they might have been challenged by the deepening frost line.

Leatherjackets, or the larvae of invasive European crane flies, do not descend more than 2-3 inches into the soil profile when they overwinter as late stage larvae. Unlike white grubs, they grin and bear it at or near the soil surface where they are poised to continue feeding if a warm spell breaks up the season. For these insects, snow cover not only affords a protective barrier against exposure and cold temperatures, but also against winter active vertebrate predators. Absent a snow pack and on warmer days, birds and skunks can come out to forage on leatherjackets active on the soil surface.

The sod webworm will also profit from the snow pack and its insulation against cold and exposure. These insects overwinter largely as late stage larvae (caterpillars) in silken hibernacula in the thatch or up to several inches deep in the soil. Two other caterpillar pests will be utterly unaffected by local winter weather. The black cutworm is unable to overwinter in the northern states no matter how relatively mild. It reinvades each spring as storm fronts drive northward to deposit reproductive moths back into our territory from points in the southernmost states where the insect persists all year long. The same holds for the true armyworm, the species that inundated parts of western New York in 2012. The mild winter experienced on the East Coast that year allowed the insect to persist much farther north than normally feasible. Storm fronts aligned to deposit the moths en masse back into our region.

Another caterpillar merits mention just because of its name, the winter cutworm. These larvae of the yellow underwing moth can cause feeding damage in late winter when they are active beneath the snow pack. Thawing conditions will also bring them up and out onto the snow surface where they become easy prey for birds. While infestations posed by this invasive insect are few and far between, snow cover will favor their overwintering survival as well as provide an unusual canvas for their curious dispersal habits.

Reinvade from points south, dive into the soil, or even fill their tissues with antifreeze-like cryoprotectants, insect strategies are more varied than ours for surviving winter. While record cold temperatures are detrimental to the survival of any overwintering insects, record colds with record snows not so much. The snow pack is a natural shield that insulates the ground from exposure to the elements. Insect are thereby favored under conditions of warm, snowy winters, and disfavored under cold and bare winters. Our cold and snowy winter falls somewhere in between, but definitely something our insects pests will take in stride better than we have.

Daniel C. Peck is Lead Scientist at Grass Systems Entomology LLC, an independent consulting firm that helps clients get a grip on their turf-infesting, grass-feeding and soil-dwelling insect challenges. To learn more

about their services, and more about new and emerging insect pests, please visit [www.grass-systems-entomology.com](http://www.grass-systems-entomology.com) or email [dcpeck@grass-systems-entomology.com](mailto:dcpeck@grass-systems-entomology.com).

[Forward this email](#)



This email was sent to info@nysta.org by [info@nysta.org](mailto:info@nysta.org) | [Update Profile/Email Address](#) | Instant removal with [SafeUnsubscribe™](#) | [Privacy Policy](#).

NYSTA | PO Box 612, 4 Youngs Place | Phone: 518-783-1229 | Fax: 518-783-1258 | Latham | NY | 12110