Record-breaking Frigid Temperatures Don’t Necessarily Mean Fewer Insects

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We have seen the devastating impacts the uncommon cold whether have these days. Experts have predicted potential agriculture losses of farms (crops, fruits, trees) and domestic animals.

The forecast predicts that Alabama will have a 4 and 3 degree below average this February and March (information source: http://www.almanac.com/weather/longrange).

Our clients have called in asking whether the freezing temperatures could kill off pest bugs. Most of our clients think that the cold snaps this winter may be the worst ever, so that they optimistically expect that there will be fewer pest insects this spring and summer, as some newspaper headlines have suggested.

To gain a better understanding of the overwintering insect population dynamics, we have conducted periodical field surveys on several insects. The results collected show that the bugs have coped with and survived well up to the date.

Here are a few facts:

- Fire ants need two weeks of temps below 10 degrees F to see reduction in the number of colonies.

- Termites remain active year around, but they have been wired to avoid freeze mortality with both behavioral and physiological game-plans. Behaviorally, they move downward to deep soil and stay in warm areas of constant temperature. Physiologically, they enhance cold tolerance levels.

- Kudzu bugs go into dormancy after a cold snap when the food becomes short. In doing so, they feed non-selectively on a vast of plants/crops during later fall to gain enough energy reserve for the long winter. Dormancy means they temporarily suspend development, and resume activity temperatures warm up. Up to the date, we have not seen significant difference between last winter and this winter in winter mortality collected from Auburn urban settings. Last winter, some Kudzu bugs fled out in warms days and used up reserved energy before host plants became available in spring, and dies of starvation. This winter, those hide in less-protective areas (habitats) died of freezing.
How do insects develop the various abilities? Think of it, insects have been around for ages and have survived through a lot of different weather conditions. They have evolved good strategies for surviving even for the coldest temperatures Alabama does have worse winter weathers before.

Yes, most of the insects do have a breaking point at which they can be killed. And the breaking point varies with different insects.

We are pretty sure that this winter’s cold temperatures will give some insects, like yellow jackets, a temporary setback in the coming spring and summer. But for others, the freezing days are not long enough to make a dent in in most of the state’s pest populations, such as those aforementioned, cockroaches, fleas, and mosquitos,

Additionally, nature enemies are generally more susceptible to stressor like cold and pesticides. Therefore, the freezing temperatures might harm predatory and parasitic insects more than pest insects. So if the cold kills a pest, it will surely kill the associated parasitoids or predators. Furthermore, there are lots of other factors affect insect populations besides cold temperatures. For example, Alaska and Minnesota are famous for their brutally cold winters, and yet they are also known to have extremely active mosquito populations during the summer. Mosquitoes are more affected by the amount of rain during the spring, since they need water to lay their eggs.