

# Chicago winters don't bug these insects, thanks to that natural antifreeze

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A bonus of the sometimes brutal Midwest winters is the absence of creepy crawlies that take a bite out of us during the summer months.

But in forest preserves that ring the city and suburbs and along the banks of outlying creeks and ponds, a small group of bugs not only survive the deep freeze, they thrive. Mother Nature has given them a vital secret weapon to deal with the harsh Midwest cold: a unique protein or fluid that chemically acts just like antifreeze, preventing them from freezing to death, experts say. Finding mates is a breeze and food is plentiful; once they gobble up the dead leaves and plant matter they enjoy, the digested matter enriches the soil around them, local entomologists say.

"They really help to break down a lot of the plant matter that gets (into) the stream in the fall," R. Edward DeWalt, an aquatic entomologist with the Illinois Natural History Survey explained. "(If) you didn't have insects and some invertebrates doing that, you'd just have rivers jammed full of leaves and sticks all the time. Because you have large numbers of insects in the stream, you can take these mass of leaves and they're pretty much gone by March or April."

This winter, temperatures have been average—save for this month, when temperatures have been about 8 degrees cooler in the Chicago area, according to the National Weather Service. Snowfall this winter had been below average until the recent snow totals put the Chicago area above average, said Ben Deubelbeiss, a weather service meteorologist.

But DeWalt warned that climate change could alter everything from the times when they emerge to their migration patterns. Changing weather patterns in the southern U.S. had already led to fewer winter stoneflies—an aquatic insect also abundant in the Chicago area—hatching there, with them emerging from November to January instead of March, he said.

"This is what we have to look forward to, perhaps by the end of the century," DeWalt said. "Illinois winter temps have already increased. So far, no range changes noted, but my prediction is that some (stonefly) species will migrate further northward while others will be removed from the southern part of the state."

Illinois is home to at least 50 different species of insects, arachnids and organisms that emerge during the winter months to either feed or lay eggs before the spring thaw.

One of the most abundant of the local winter insects are the winter stoneflies, aquatic insects that emerge as adults from oxygen-rich freshwater typically outside of the Chicago area beginning in November. In fact, 20 species of the state's 65 native stoneflies emerge during November through March, according to the Prairie Research Institute. Stoneflies can be found in wooded areas from the Kankakee down to the Vermillion rivers, climbing trees to eat algae and fungus to nourish their eggs and help them mature. They mate and lay eggs back into the stream. The eggs hatch quickly and the stonefly nymphs will stay in the water through the summer until they emerge as adults in November to restart the life cycle.

Many of these insects require very specific conditions to survive, experts say. The winter stonefly, for example, prefers life beyond the city, said Crystal Maier, the collection manager of insects at the Field Museum.

"They are restricted to very clean water," she said. "They need water that's fast-flowing, it has to be super clean, free from pollutants, and they will only survive in those clean streams. It's not that Lake Michigan isn't clean—can't comment on that—it's that it's the wrong type of habitat."

Maier has a particular fascination with the winter stonefly, which spends most of its life underwater until emerging from streams and rivers in the dead of winter.

"They will spend a year, two years underwater and that's where their life is," said Maier, who studies [aquatic insects](#). "They only have a couple of weeks maybe to find a mate and lay their eggs and die. And these guys only come out in the wintertime."

Also out and about in the cold weather: snow flies, a large insect that resembles a large wingless mosquito that emerges during the winter and can be seen walking over snow before it lays its eggs.

While no longer classified an insect, there is the minuscule Springtail, also called the snow flea, a six-legged organism at the bottom of the food chain that cluster in the thousands on melting snow amid fallen logs and leaves to feast on dead [plant matter](#).

A variety of spiders also come outside just to feed on the winter insects, making it one of the few active winter predators.

Many winter insects remain a mystery to the scientific community, with far more attention focused on their warmer weather counterparts.

"The ones that are out on the snow are the ones that are actually kind of fascinating because most insects—and I guess most creatures in general—they're dormant in the wintertime," the Field Museum's Maier said.

Snow fleas, snow flies, and winter stoneflies can be found throughout the state, though catching a glimpse of them may be tough, even if you're on their turf—say, a forest preserve or state park.

Some, like the Springtail, are barely perceptible to the naked eye unless you spot tens of thousands of them gathering on melting snow in wooded areas. Others, like the winter stonefly, can be spotted climbing trees near fast-moving creeks and streams throughout central and southern Illinois.

Maier had some advice for people eager to see the [winter](#) bugs in action: "If you go out to the forest preserves, keep your eyes open. I try to, but I try to hibernate when it's cold out," she joked.

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