As we leaned over the Colchester Bog boardwalk, a student asked, “What’s that black stuff on the water?” I suggested gently poking it with a twig. This elicited the expected response: as though ejected from James Bond’s Aston Martin, tiny black flecks scattered, landing inches away and on my student’s hand.

Springtails, the Tiggers of the invertebrate world, are often seen bouncing out of footprints and depressions in snow; hence another moniker: “snowfleas.” Although they have six legs and hop, they’re not actually fleas. They’re not even insects. Taxonomic revisions have alternately kicked them out of and accepted them back into the insect club for decades. Springtails, who, as far as we know, don’t much care how they are classified, are now in a class of their own: *Collembola*.

The word “Collembola” relates to an intriguing structure called the collophore, and is derived from ancient Greek words kólla, meaning “glue,” and émbolon, for “wedge.” The collophore, is a telescoping tube behind the rear legs that springtails can extend to reach any and all parts of their tiny bodies. The collophore allows a springtail to aim the direction of its leap, and also serves as a grooming mechanism.

At the end of the springtail’s abdomen is what gives it its spring: the forcula, which as the name implies is a forked structure, folds under the springtail’s body like a jackknife and is held in place by a catch called a tenaculum. When faced with a predator (or poking twig) the hydraulically pressurized forcula is released, propelling the springtail up to 300 body lengths away. Operating at our scale, they’d comfortably clear anything on the Manhattan skyline.

Another common trait among springtails is a cuticle, or hard outer layer, that repels water. This is useful in melting snow, and it’s also helpful for aquatic species like *Podura aquatica*, the springtails my student and I encountered at the Colchester Bog. This springtail’s cuticle allows it to forage on still waters without drowning.

*Podura aquatica* lives on temperate water bodies throughout North America, Europe, and Asia and grazes on diatoms, plankton, unicellular algae, and rotting vegetation trapped in the surface film. These aquatic springtails have larger and flatter forculas than those of their dry land cousins, facilitating leaps from bogs and ponds without breaking the surface tension. When I watch them bounce from Colchester Bog, I don’t even perceive the slightest ripple.
It goes to show there is always something new to discover, some new science to invent, frontiers that remain unexplored. The pond you explore in your neighborhood likely contains life forms unknown to science, and maybe some of them are springtails.

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