

NATURE DETECTIVES

Summer 2018

Water Striders On Patrol

Water striders are insects at home on a pond, and they skitter easily across the surface of the water. When you watch them skating around, they seem to be having fun. It is hard to view a water strider as a predator seriously on the hunt – until a small insect crashes onto the water and abruptly becomes the hunted.



As a crashed bug struggles not to drown, tiny waves ripple outward in concentric circles. Sensitive hairs on a water strider's legs feel those watery vibrations. With its two middle legs paddling hard, the six-legged hunter rushes toward the center of the ripples.

Before its wriggling prey can escape, the water strider's two front legs grab hold. With its sharp mouth, the water strider pierces its captive's exoskeleton and spits in paralyzing saliva. The saliva also starts dissolving the immobile prey's insides.



The water strider sucks down its soupy, juicy meal then skitters into hiding when a red-winged blackbird lands on a branch over the water. The hunter is now the hunted, and the pond drama continues.

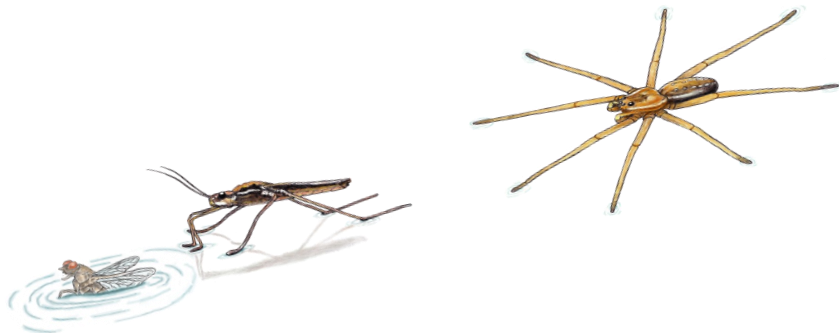
Predators, prey, plants and water each play a vital role in a lively and healthy pond habitat.

Water Strider Bragging

Don't you wish
You could be
A water strider
Just like me?

I stride left
Then go right.
Life on the water...
Sheer delight!

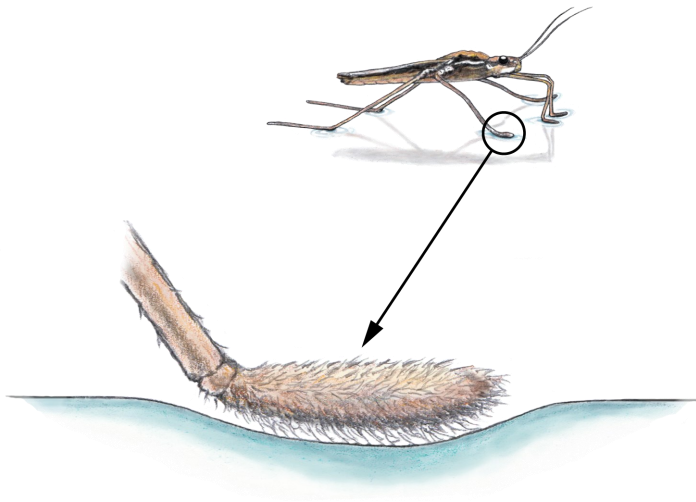
With each step
I hunt prey.
Slurping insect parts
Every day.



Uh-oh, here comes a spider. Excuse me...must go. Aaaa!

How Do Water Striders Walk on Water?

The water strider's body is perfectly adapted to home atop a pond, river, stream, lake or marsh. Its narrow body is lightweight, plus the insect's jointed legs spread its weight over a large area of water. Their long back legs are used to steer, stop and balance. The middle two legs work like paddles and can propel them forwards or backwards rapidly. The shorter front legs are the grabbers and grippers, but they also provide some balance.

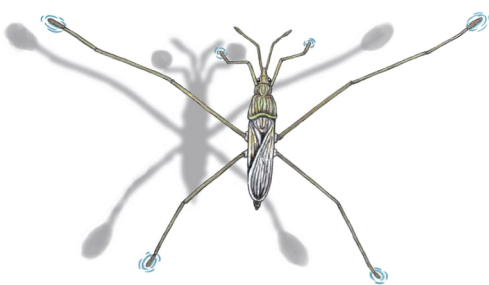


A water-soaked bug would get heavy and sink so water striders have an oily film on their legs and body to repel water. Oily hairs on their feet have grooves that hold air bubbles. A water strider that gets dunked below the water will bob back to the top thanks to those trapped air bubbles.

Because of the teeny hairs and trapped bubbles, the water strider's six feet can support 15 times the weight of the bug without it sinking. That's a good thing; otherwise, water striders might sink in a heavy rainstorm.

Magnified photos show that the water strider's feet dimple the surface of the water much like your feet press big dimples on a bed if you stand on it. It looks like there is a film or skin on top of the water, but there isn't. It is just water. Water holds together, especially on the surface. But the water bond isn't strong so the hold is broken easily by weight and easily pierced with pointed objects.

The claws of many insects are on the tips of their feet. Can you guess why the water strider's claws are not on the very ends of its feet?



Surviving Life on the Pond

When you are hunting for water striders in a shallow pond, it is sometimes easiest to look first for their shadows moving around on the pond floor. The dark gray or brown/black camouflage coloring of the bugs allows them to hide among the leaves and bits floating on the surface.

Water striders feast on recently dead insects or live insects caught on or near the top of the water. Insects living in the water can become dinner also. Water striders seize mosquito larvae by grabbing a larva's breathing tube at the water surface. Sometimes striders can even grab an insect out of the air just above the water. If prey is scarce, water striders will eat each other.

Some kinds of water strider adults have wings and can fly to new homes if their old home dries up. Water striders are more resistant to water pollution than many other critters because water striders live on top of the water rather than in it.

You'll not often find water striders on land. Their long legs work best on water.

Water Striders in Winter

Adult water striders can live for many months. You won't see them in winter when there is not enough food or warmth. When cold weather comes they survive under leaves, logs and rocks until spring. They may winter inside plant stems.

Simple Life Cycle

Male water striders are unshakable suitors once they find a mate. They will ride around on the female's back until she is ready to lay her eggs. She sticks her eggs to vegetation or rocks just under the surface of the water. In about twelve days the eggs hatch into nymphs that look like a tiny copy of adult water striders.

Like other young insects, the nymph's outer exoskeleton doesn't grow and soon becomes tight. To grow bigger the baby water striders must molt. During a molt, their old exoskeleton splits off and the layer that was underneath hardens into a new and bigger exoskeleton. The nymphs molt several times as they grow. It takes about a month for the babies to become adult water striders.

Bug Sense



Water striders are good at seeing movement with their insect eyes, and they also have bug antennae for sensing the world around them. Perhaps most important is their ability to feel vibrations on the water surface.

Vibrations mean food when they come from the little waves made by a struggling insect. Big vibrations can mean danger, a time for water striders to hide or flee! Some vibrations are made by male water striders drumming up little waves with their feet.

Drumming is Communicating

Male water striders make waves with their feet to communicate with other water striders. The water is their drum. Neighboring striders sharing a male bug's habitat pick up his vibrations and understand the meaning. He taps different size waves with different timing between the taps to communicate specific messages. He sends one message to attract a female and another message to tell other males to stay away from his territory.

Sherlock Fox says:

Water striders are fun to watch.
They are terrific to have around because they eat mosquitoes.
And they don't bite people!



Ancient Insects

Water striders have been around a lot longer than humans. Fossils have been found of water striders from 50 million years ago! Look at the drawings of water striders below – count the legs (remember that two of their legs are very short!).

Water striders belong to the huge [Insect Class](#).

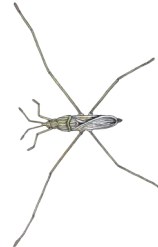
All insects have six legs and three body parts (head, thorax, and abdomen).

Name Game

People in different places have lots of different names for water striders: water skaters (Canada), water boatmen, water oarsmen, pond skaters, pond skippers, water skippers, water skimmers.

Maybe we should add water rowers or water dancers to the names!

What would you name water striders?



Explore How Water Holds Together at the Surface

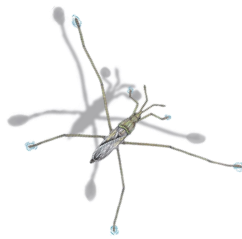
The surface of water holds together a bit so it sometimes seems to have a skin or film on top. This effect of water is called [surface tension](#).

- Slowly fill a bowl or glass with water and see if you can “overfill it” by adding water really slowly. Stop when the water is slightly above the rim of the bowl or glass.
- If you touch the water, the weight of your finger will break the hold and water will spill out of the bowl. Or touch the top lightly with the pointed tip of a pencil or pen.

What happens? Why does adding more water break the hold?

Staying Afloat

Water striders have oily film on their legs and body and grooves that hold air bubbles. See how this helps them walk on water:

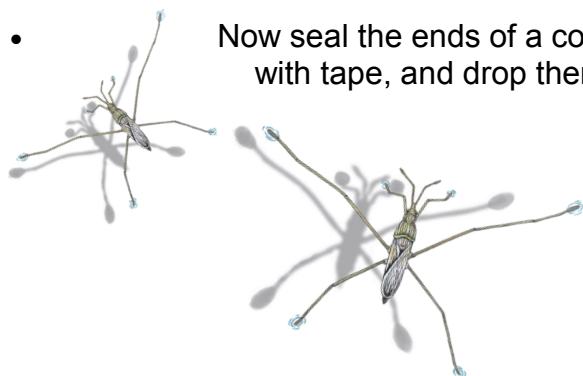


- Get a small bowl of water. Use a dropper or small spoon to drop a little bit of oil on top of the water. *What happens?*
- Cut a plastic drinking straw into several small pieces. Drop one or two small straw pieces in the water. *What happens if water gets inside the straw?*



- Now seal the ends of a couple more pieces with tape, and drop them in the water.

How does trapped air help the straw pieces float?



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