

Airborne spiders can sail on seas

Water is no barrier to flying arachnids' dispersal.

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Alex Hyde

A tetragnathid spider using silk as an anchor on water.

Spiders that travel on the wind are also adept sailors when they land on water, researchers have discovered.

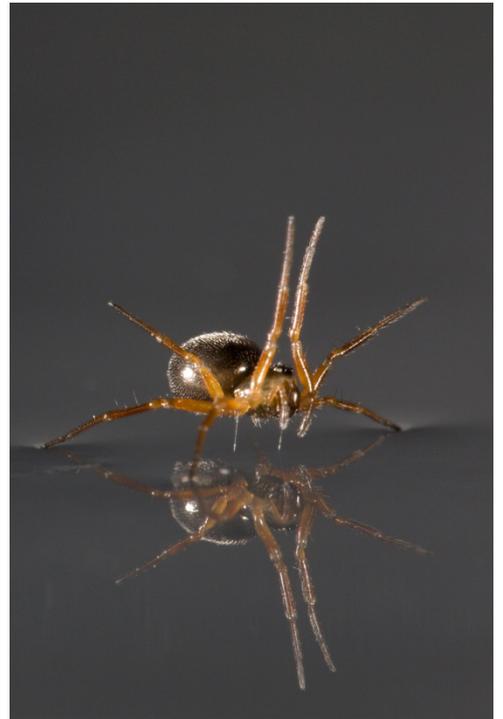
Morito Hayashi, a spider researcher at the Natural History Museum in London, says that it had been assumed that a wet landing would be deadly for what are known as ballooning spiders — those that drift to new habitats on wind-blown silken threads that they spin to lift themselves aloft.

But laboratory experiments by Hayashi and his colleagues, conducted at the University of Nottingham, UK, have shown that spiders can survive afloat, and can also harness the wind to 'sail' on the surface of water bodies. "Because 70% of our planet is covered by water, if they're ballooning, they have to face landing on water," says Hayashi. "If they could sail — which is an energy-efficient movement — they could reach the land easier than we thought."

Hayashi and his colleagues report in *BMC Evolutionary Biology* that spiders of various species were quite able to cope with being on water. Their water-repellent legs kept them alive on both fresh and salt water in laboratory tests and allowed them to deal with waves up to 0.5 millimetres in height. When wind was simulated, a number of the spiders would raise their legs or abdomens to use as sails, propelling themselves across the water's surface¹.

The spiders also dropped silk to anchor themselves in place while afloat. The animals did not show these behaviours on solid surfaces, suggesting that they are deliberate adaptations to water.

Hayashi is now studying just how rough water has to get before the animals perish. He notes that spiders' bodies are well sealed to prevent water loss and they can tolerate periods of starvation, so they could survive reasonable periods on water. "We have to change our idea of risk concerning ballooning," he says.



Alex Hyde

A Linyphiid spider sails using its legs.

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Clarifications

Clarified: This article has been updated to clarify that the experiments were conducted at the University of Nottingham.

References

1. Hayashi, M., Bakkali, M., Hyde, A. & Goodacre, S. L. *BMC Evol. Biol.* **15**, 118 (2015).