

Remarkable squirting mussels captured on film

March 13 2023



The endangered freshwater mussel, *Unio crassus*, squirts out regular water jets that land in the river water up to a meter away. Credit: University of Cambridge

Cambridge researchers have observed a highly unusual behavior in the endangered freshwater mussel, *Unio crassus*. In spring, female mussels were seen moving to the water's edge and anchoring into the riverbed, with their back ends raised above the waterline.

Then they squirted out regular water [jets](#), which landed in the water up

to a meter away. Squirting cycles lasted 3–6 hours. This behavior has never been seen in any other mussel species. The jets disturb the river surface and attract fish. Mussel larvae in the jets can then attach to the gills of the fish and complete their metamorphosis into adults.

"Who'd have thought that a mussel, that doesn't even have a head or a brain, knows to move to the river margin and squirt jets of water back into the river during springtime? It's amazing!" said Professor David Aldridge in the University of Cambridge's Department of Zoology, lead author of the report published today in the journal *Ecology*.

Unlike other mussel species, *Unio crassus* has a limited range of suitable host fishes—including minnows and chub. These species were attracted to the falling water jets. The researchers think the mussels squirt water jets to increase the chances of their larvae attaching to the right host fishes. By being squirted into the air and not the water, the larvae are propelled greater distances from the parent mussel.

The study was carried out during [spring](#) in the Biała Tarnowska River, Poland. Six squirts were collected from each mussel for analysis—which confirmed that they contained viable mussel larvae. Before now, there was only anecdotal evidence of this behavior. Some scientists thought the [water jets](#) might be a way for the mussels to expel feces.



This aerial view shows the endangered freshwater mussel, *Unio crassus*, before (left) and during (right) a water jet squirt. Credit: University of Cambridge

This behavior could explain why *Unio crassus* is an [endangered species](#). Climbing out of the water to squirt makes it vulnerable to floods, destruction of river margins, and predators like mink. And its need for specific host fishes links its survival to theirs. Understanding how this species completes its [life cycle](#) is important for its conservation under changing [environmental conditions](#).

More information: David C. Aldridge et al, Fishing for hosts: Larval spurting by the endangered thick-shelled river mussel, *Unio crassus*,

Ecology (2023). [DOI: 10.1002/ecy.4026](https://doi.org/10.1002/ecy.4026)

Provided by University of Cambridge

Citation: Remarkable squirting mussels captured on film (2023, March 13) retrieved 25 April 2024 from <https://phys.org/news/2023-03-remarkable-squirting-mussels-captured.html>

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