Invasive harlequin ladybirds are better predators than native ladybirds, study finds – but are they driving declines?

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With the UK's native ladybirds in decline, many people have heaped blame on the harlequin ladybird, but the situation might not be as simple as it seems, according to a new study by the Game & Wildlife Conservation Trust (GWCT).

Scientists found that when the harlequins were observed alongside the native two-spot ladybird, most aggressive interactions were between ladybirds of the same species rather than conflict between the two. These incidents were less likely to occur when more aphids were available. The research undertaken by the GWCT also showed a clear difference in the foraging behaviour of the two species, with two-spot ladybirds finding their aphid prey in a small area at a time, with harlequins searching a wider area and consuming 3-4 times more aphids than their native counterparts.

The study published in *Bulletin of Entomological Research* suggests that, as harlequins are better, bigger predators, it is likely they provide indirect competition with two-spots, rather than an aggressive competitor to native species. This mirrors findings from Japan, where two-spots were introduced as pest control in 1993 and low levels of aggressive interaction have been monitored.

Introduced to Europe from Asia to control aphid numbers, harlequins have received bad press since first been spotted in the UK in 2004, being named 'the UK's fastest invading species' and hailed as the driving force for native declines. Previous research has suggested that two-spot ladybirds and their aphid prey have been in decline for close to 40 years. This means that the arrival and continued presence of harlequin ladybirds could be adding to the pressures two-spot ladybirds already faced, rather than being the main cause.

In the natural environment, there are many factors such as habitat and climate change that can cause the increase or decline of species. Although this study suggests that harlequin ladybirds do not pose a direct threat to two-spot ladybirds, more research is needed in different contexts to better understand their relationship and identify the key drivers of native ladybird decline.

The full paper is available at

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