

Spiders suffer from human impact

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This is a tarantula (*Lycosa tarantula*) in Doñana. Credit: Samuel Prieto-Benítez

Researchers from the King Juan Carlos University (URJC) have carried out a research study published in *Biological Conservation*, which looked at whether spiders were more tolerant of human impact than other animals. The answer was no: arachnids suffer the consequences of changes to their landscape just like any other animal.

"The abundance and number of [spider species](#) is negatively affected by the impact of many human land uses, such as habitat fragmentation, fire and [pesticides](#)", Samuel Prieto-Benítez and Marcos Méndez, researchers at the URJC Biodiversity and Conservation Department, tell SINC.

Given the "scarcity" of threatened spiders on the Red Lists, which are very in vogue at the moment, the researchers tried to find out whether

spiders are exempt from the risks caused by human action, by means of a meta-study of a total of 173 scientific papers published since 1980, which provide more generalizable data.

"The technique used meant we could rigorously combine the results of a lot of studies. This is regularly used in medicine in order to arrive at general conclusions about the effects of drugs, based on numerous trials with more limited coverage", say Prieto-Benítez and Méndez, who studied the human impact in three ecosystems: farmland, pasture and woodland.

Until now, fewer than 20% of studies had indicated any negative effects of [human impact](#) on [arachnids](#). The study, which has been published in [Biological Conservation](#), demonstrates "evident" damaging effects on spider numbers due to the use of soil in farming and pasture systems. "In woodlands this was not so clear", the study explains.

Growing threats

In farming and pasture ecosystems all over world, fires, sheep-grazing and conventional crops have a harmful effect on arachnid fauna because they cause extreme changes to the vegetation structure. Spider abundance is affected in woodland by habitat fragmentation.

Insecticides also have a negative effect on spider diversity in agricultural and pasture ecosystems. The researchers show in the study that organic farming is more beneficial to arachnid abundance than conventional agriculture, but that these effects depend on the complexity of the [landscape](#).

The study proposes some solutions for spider conservation. A reduction in mechanical alterations to the land, such as harvesting, ploughing and grazing would increase spider diversity in agricultural and pastoral

ecosystems. In addition, the use of insecticides should be more controlled, as in organic farming, and [habitat fragmentation](#) should be avoided.

According to the authors, although "they do not enjoy an excessive level of public sympathy", [spiders](#) are an important animal group for humans, since they free us of a large number of pest insects and are "very important" predators in the functioning of natural systems.

More information: Prieto-Benítez, Samuel; Méndez, Marcos. "Effects of land management on the abundance and richness of spiders (Araneae): A meta-analysis" *Biological Conservation* 144(2): 683-691, February 2011. [DOI:10.1016/j.biocon.2010.11.024](https://doi.org/10.1016/j.biocon.2010.11.024)

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