

Invasion of the slugs—halted by worms...

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The gardener's best friend, the earthworm, is great at protecting leaves from being chomped by slugs, suggests research in BioMed Central's open access journal *BMC Ecology*. Although they lurk in the soil, they seem to protect the plants above ground. Increasing plant diversity also decreases the amount of damage slugs do to individual plants.

Spanish slugs (*Arion vulgaris*) are among the top 100 worst alien species in Europe and are considered a pest almost everywhere. A team of scientists from the University of Natural Resources and Life Sciences Vienna investigated what effect the presence of [earthworms](#) and [plant diversity](#) would have on the amount of damage these slugs caused.

Using large incubators to simulate grassland environments the researchers could regulate the diversity of plant species and time the introduction of earthworms and slugs. They found that the presence of worms increased [nitrogen content](#) of plants and reduced the number of leaves damaged due to slugs by 60%. Yet when they compared leaf area damaged the researchers found slugs also ate 40% less at high plant diversity than at low.

Explaining their results Dr Johann Zaller, who led the study, said, "Our results suggest that two processes might be going on. Firstly, earthworms improved the plant's ability to protect itself against slugs perhaps through the build-up of nitrogen-containing [toxic compounds](#). Secondly, even though these slugs are generalists they prefer widely available food and in high diverse ecosystems slugs eat less in total because they have to switch their diets more often since plants of the same species are less

available. Therefore gardeners are to help protect earthworms by increasing plant diversity in the garden in order to keep slug damage low. In order to elucidate the mechanisms behind these complex interactions, all parts of an ecosystem need to be investigated."

More information: Herbivory of an invasive slug is affected by earthworms and the composition of plant communities Johann G Zaller, Myriam Parth, Ilona Szunyogh, Ines Semmelrock, Susanne Sochurek, Marcia Pinheiro, Thomas Frank and Thomas Drapela, *BMC Ecology* (in press)

Provided by BioMed Central

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