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INSECT ROOT FEEDERS INCUR NEGATIVE DENSITY-DEPENDENT DAMAGE ACROSS PLANT SPECIES IN AN ALPINE MEADOW

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Study Description

Insect root feeders (e.g., wireworms, grubs, maggots, and caterpillars) are those living in soil feeding on plant roots in the larval stage, yet their role constructing plant community is not well known. We investigated the diversity and biomass of plants and root herbivores, as well as species traits (e.g., vertical distribution) of roots and root feeders, and we constructed a plant root-feeder quantitative network based on the results of metabarcoding for the dietary preference of each rootfeeder species. Our results show that the root feeders incur a negative density-dependent damage across plant species, which likely has implications for plant community composition.

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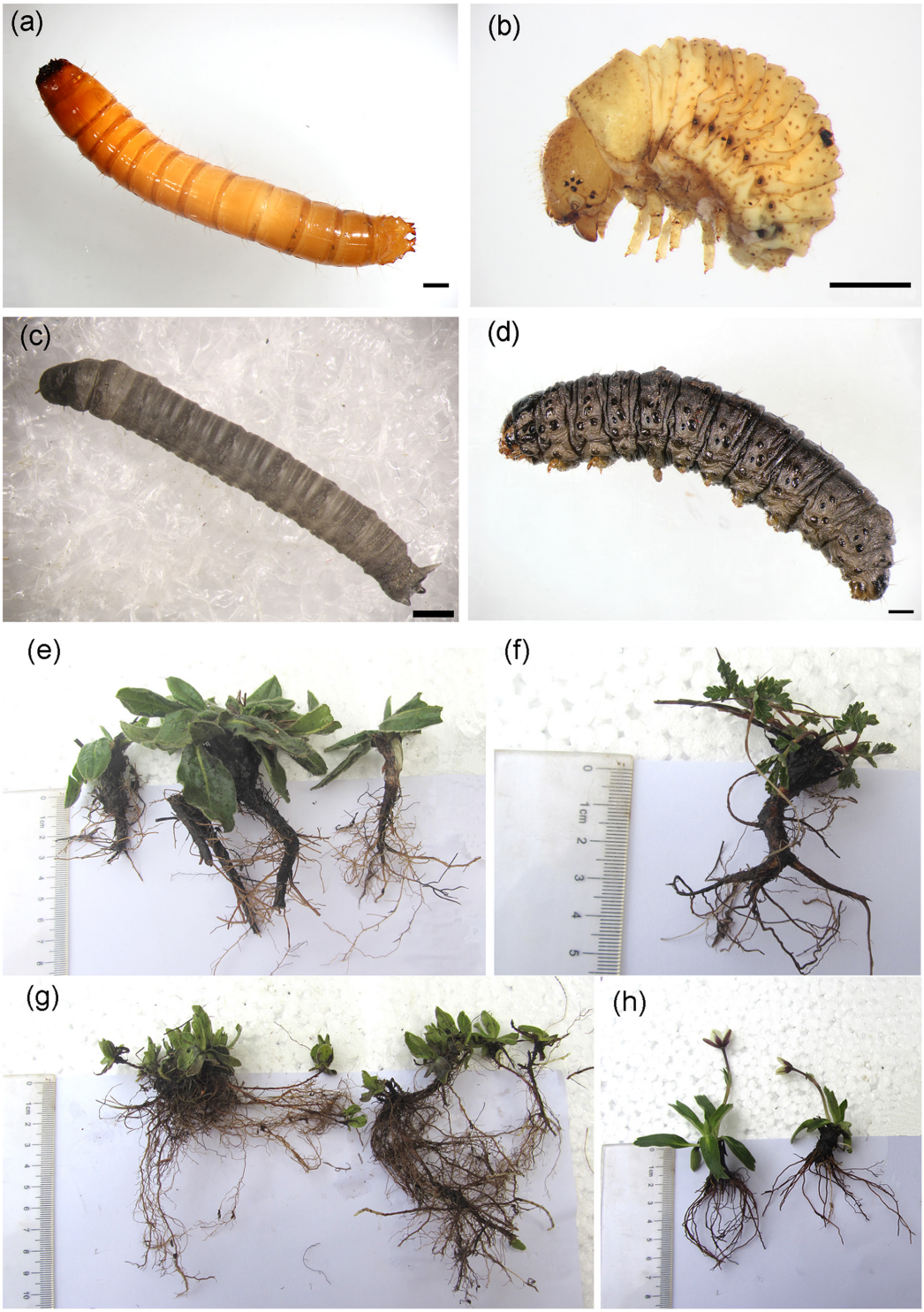


Photo 1. Root feeders (a, *Actenicerus* sp. (Coleoptera: Elateridae); b, *Chrysolina* sp1. (Coleoptera: Chrysomelidae); c, *Nephrotoma sp*. (Diptera: Tipulidae); d, *Euxoa ochrogaster* (Lepidoptera: Noctuidae)) interacting with plant roots (e, *Saussurea nigrescens*; f, *Potentilla discolor*; g, *Anaphalis flavescens*; h, *Anemone trullifolia*) in an alpine meadow on the eastern Tibetan Plateau, derived from metabarcoding for the dietary preference of root feeders. Scale bars: a, b, c, d = 1 mm. Photo credits: Lixuan Kou (a, b, c, d); Xiaoli Hu (e, f, g, h).

These photographs illustrate the article "Insect root feeders incur negative density-dependent damage across plant species in an alpine meadow" by Kou, Lixuan, Nan Yang, Han Yan, Karl J. Niklas, and Shucun Sun published in *Ecology*. https://doi.org/10.1002/ecy.4285.