Seed burial by wind is most difficult on a substrate consisting mainly of medium-sized particles, researchers say

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A soil seed bank provides diaspores for plant population recruitment and is vital for species diversity maintenance and plant community assembly.

The formation of a soil seed bank involves three key processes: seed dispersal, seed settlement and seed burial.

During wind dispersal, seeds need to be buried first before they can settle and survive. However, how ground surface configuration, features of substratum (the layer of sand, rock or soil beneath the surface of the ground), wind speed and diaspore traits interact to determine seed burial is not well known.

In view of this, Prof. Liu Zhimin and his doctoral student Zong Lu from the Institute of Applied Ecology of the Chinese Academy of Sciences conducted a wind tunnel experiment and examined the impacts of wind speed, type of substratum (four pure substrates with particle sizes ranging from 89 μm to 25,000 μm and seven mixtures of them) and diaspore traits on seed burial.

The researchers found that substrate played the most important role in seed burial compared with wind speed and diaspore traits, and that seed burial was most difficult on a substrate consisting mainly of medium-sized particles (200-600 μm).

In addition, wind speed could promote or inhibit seed burial depending on the particle size of substratum, while diaspore traits affected burial only at certain conditions of wind speed and substratum.

These results, published in *Plant and Soil*, are of great significance for the conservation of rare species and the practice of vegetation restoration, as well as for the simulation and prediction of soil seed banks.

More information: Lu Zong et al, Diaspore burial during wind dispersal depends on particle size of the underlying substrate, *Plant and Soil* (2022). DOI: 10.1007/s11104-022-05679-9