

HOW THE LUQUILLO FOREST RESPONDED TO ARTIFICIAL HURRICANES

A hurricane dramatically changes the ecosystem, allowing certain plants and animals to flourish while sending others packing. But what is it about the storm or its aftermath that determines who survives or stays, and who dies or goes?

To find out, researchers in at the Luquillo Experimental Forest in Puerto Rico created their own hurricane, exposing some plots to both a wide-open canopy (by downing branches) and forest-floor debris, other plots to only one or the other treatment, and some to neither. Then they analyzed the post-hurricane forest to reveal a cascade of effects, with changes to microclimates affecting myriad organisms and biochemical processes. Overall, the opening of the canopy had the larger influence on the forest.

Opening the canopy led to:

- 1 More pioneer plants
- 2 Drier leaf litter, but wetter soils
- 3 Fewer coqui frogs
- 4 Fewer types of invertebrates in litter overall, but greater numbers of mites and springtails
- 5 More diverse soil microbes

Scattering debris led to:

- 6 More diverse gastropods

BEFORE

AFTER