

DISTURBING SIGNS

Theory predicts that recovery rates drop when disturbing an ecosystem that is approaching the critical threshold of extinction. However, this theory remains largely unchallenged in real natural systems. So, the question is ...

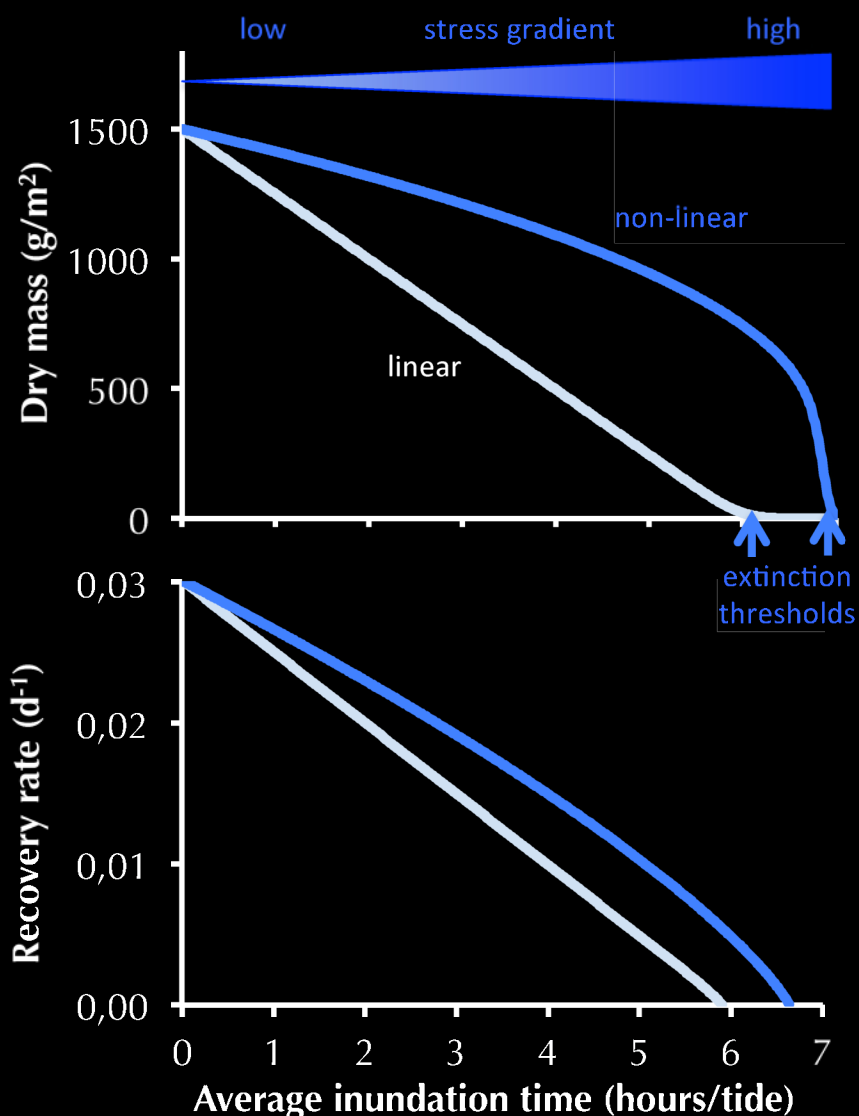
Do real ecosystems slow down towards the verge of collapse?



THE VIRTUAL WORLD

So, how does Critical Slowing Down work?

In general it can be expected that ecosystems approach an extinction threshold, if the level of stress is increased. Dependent on the system dynamics this threshold can be approached in a linear or non-linear way.

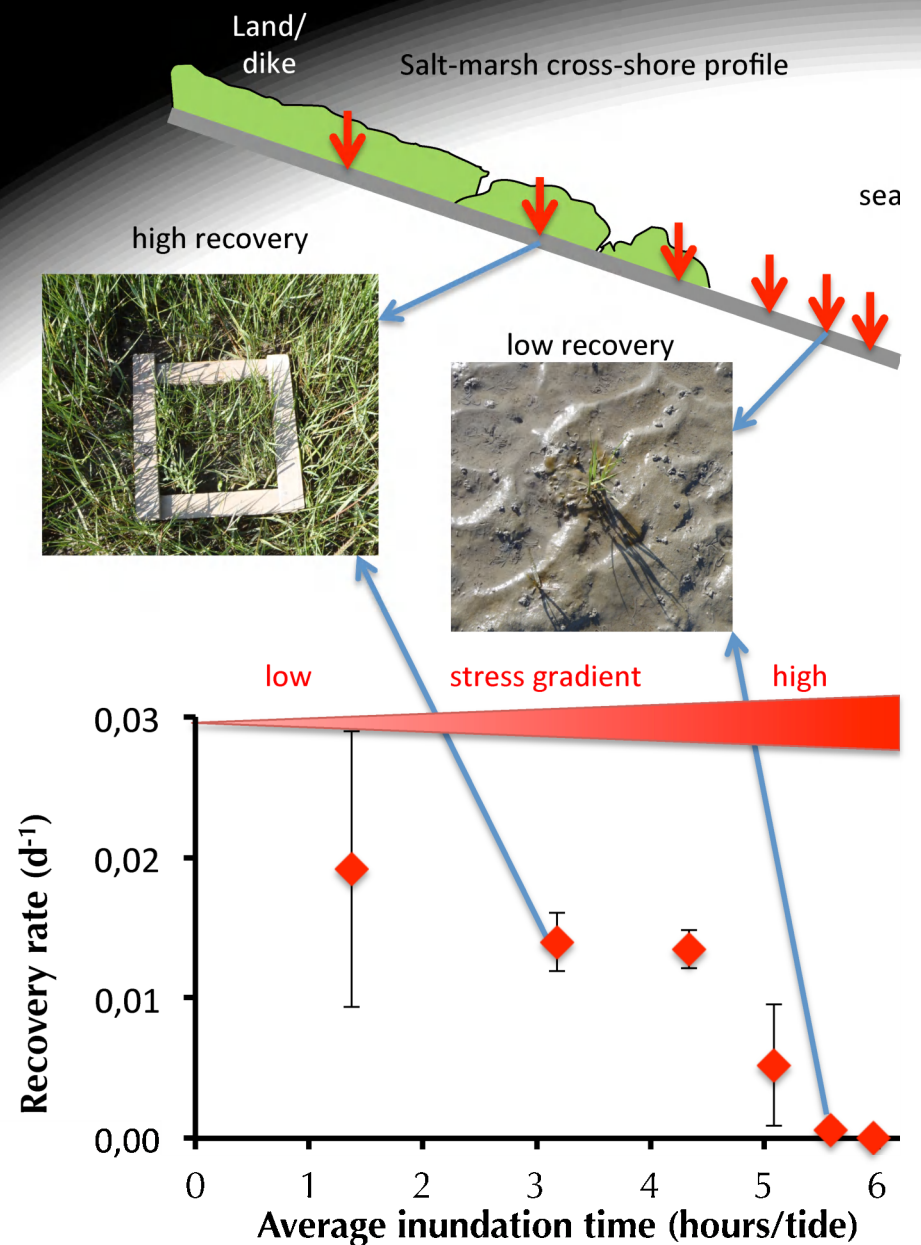


However, mathematical models show that Critical Slowing Down (or the drop in recovery rate) is generic and can be expected for both linear as non-linear behaving systems



THE REAL WORLD

We tested if recovery rates drop along an intertidal stress gradient of a salt-marsh by applying mowing disturbances ↓ at different stress levels



Real world results are consistent with this theory:
Recovery slows down towards the critical threshold.

Therefore, evaluating recovery rates from disturbance can be a robust way to probe ecosystem fragility.