Stabilizing factors in spatially structured food webs

Sara Gudmundson
Final Master's Thesis in Ecology and the Environment 2009, Supervisor: Uno Wennergren

Background

What enables food webs to endure variable environments?

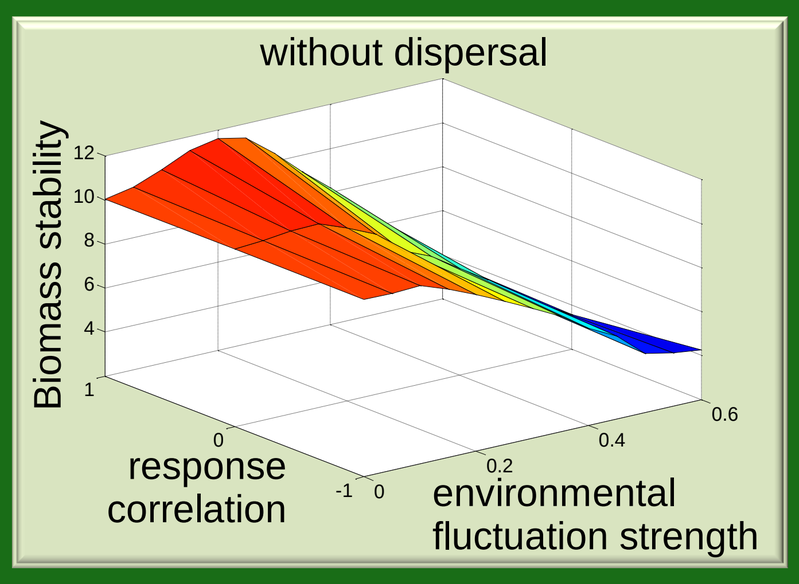
What happens in an increasingly variable environment?

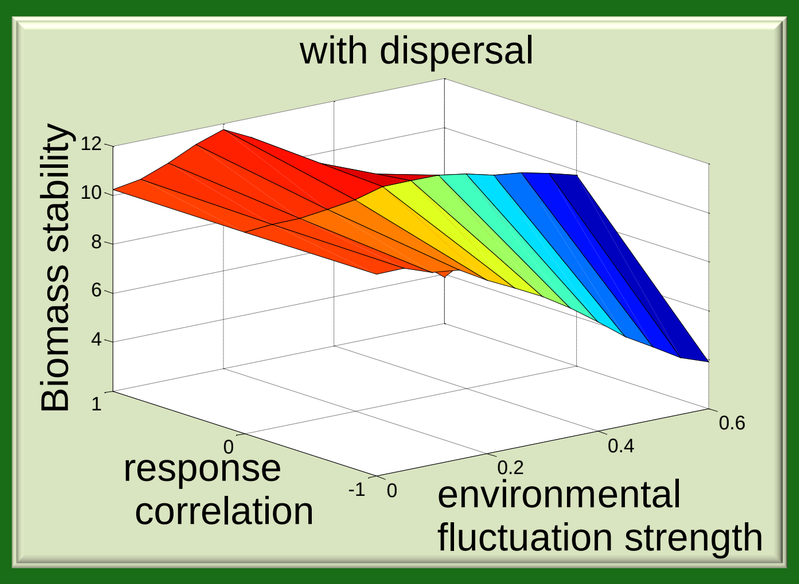
The model

- asynchronous consumers
- coloured environmental variation on consumers
- mass-action mixing

Results

	Env fluctuation strength 0 to 0.6	Env redness 0 to 0.6	dispersal
Mean biomass	↗	-	+
Variance	↗	+	-
Stability	↗	-	+
Extinction risk	↗	+	-





Conclusions

Dispersal stabilizes food webs

Environmental variation caused
- increase of rare species
- decrease of common species

Large population today may not be an insurance against future climate!

Sara Gudmundson

IFM, Linköping University
581 83 Linköping, Sweden
sara.gudmundson@gmail.com