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# The effects of intraspecific variation on species coexistence

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Approximately 25 % of the trait variation in ecological communities worldwide occurs within species. This is a striking pattern with largely unexplored but likely important consequences for species coexistence. Using theory and experiments here I explore how intraspecific variation influences species coexistence via ecological and evolutionary pathways. Compelling intuitive arguments suggest that the ecological effects of intraspecific variation should promote species coexistence by blurring differences between species. I present new theory demonstrating that this is not the case, and then use experiments to demonstrate how intraspecific variation in competing annual plant species affects coexistence outcomes in the field. Selection acting on individual differences is a second pathway by which intraspecific variation can influence coexistence, but the effects of evolution on species coexistence are exceedingly difficult to quantify. Using a powerful new empirical system based on the world's smallest flowering plants I manipulated the ability of competing species to evolve over 8-12 generations in the field. Linking this experimental data with models of competitive population dynamics I quantify how evolutionary change dynamically modifies the determinants of species coexistence on ecological time scales.

**Thursday, November 9, 2017**

**FCUL (Building C2), 12h00-13h00, room 2.2.14**