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## Dispersal polymorphism and species' invasions

The speed at which species range expansions occur has important consequences for the conservation management of species experiencing climate change and for the invasion of exotic organisms. Dispersal and population growth rate are known to affect the speed of invasion, however, little is known about what the effect of having a community of dispersal phenotypes is on the rate of range expansion. We use reaction-diffusion equations to model the invasion of a species with two dispersal phenotypes into a previously unoccupied landscape. These phenotypes differ in both their dispersal rate and population growth rate. We find that the presence of both phenotypes can result in faster range expansions than if only a single phenotype is present in the landscape. We show that typically the invasion can occur up to twice as fast as a result of this polymorphism. This has implications for predicting the speed of invasion of species, suggesting that speeds cannot just be predicted from looking at a single phenotype and that the presence of a community of phenotypes needs to be taken into consideration.