# TOADD

## Intro

Models of assortative mating typically assume that individuals mate with similar individuals with no difference in mating success. However, in natural populations where individuals mate assortatively, rare phenotypes undergo a mating disadvantage which can generate stabilising sexual selection (Kirkpatrick and Nuismer 2004).

## Methods

## Results

## Discussion

1. Assortment and how it varies along clines
2. Same for SS with comments about sexual dimorphism
3. Lack of ecotype effects
4. Ancestral nature of mating pattern  
   The absence of a clear and different mating pattern between Crab and Wave populations suggests that assortment by size was not simply a by-product of local adaptation but rather it existed before the formation of ecotypes. Imagine a population of snails where females tend to be overall larger than males. The common mating pattern would be for a female to pair more likely with a smaller male. This ancestral mating bias due to sexual size dimorphism can generate stabilising sexual selection for smaller than average male size. If both environmental conditions and size variation allow for local adaptation, two distinct populations would form due to divergent natural selection on size and the combination of the ancestral mating bias and the recent size divergence would reduce mating probability between the two ecotypes while maintaining the same mating pattern. Conversely, we would have expected an obvious difference between Crab and Wave mating pattern if assortment originated as a by-product of ecological speciation.  
   Mating constraints (Crespi (1989)).
5. Barrier effects from Marina’s simulations
6. Some speculation about impact on the origin of ecotypes
7. Broader comparison (i.e. beyond Littorina) on multiple-effect traits and on barrier effects of assortment in HZs (compare to Irwin and to Jiggins & Mallet, maybe Wolf, maybe Gay et al.).

# References

Crespi, B. J. 1989. Causes of assortative mating in arthropods. Animal Behaviour 38:980–1000.

Kirkpatrick, M., and S. L. Nuismer. 2004. Sexual selection can constrain sympatric speciation. Proceedings of the Royal Society of London. Series B: Biological Sciences 271:687–693.