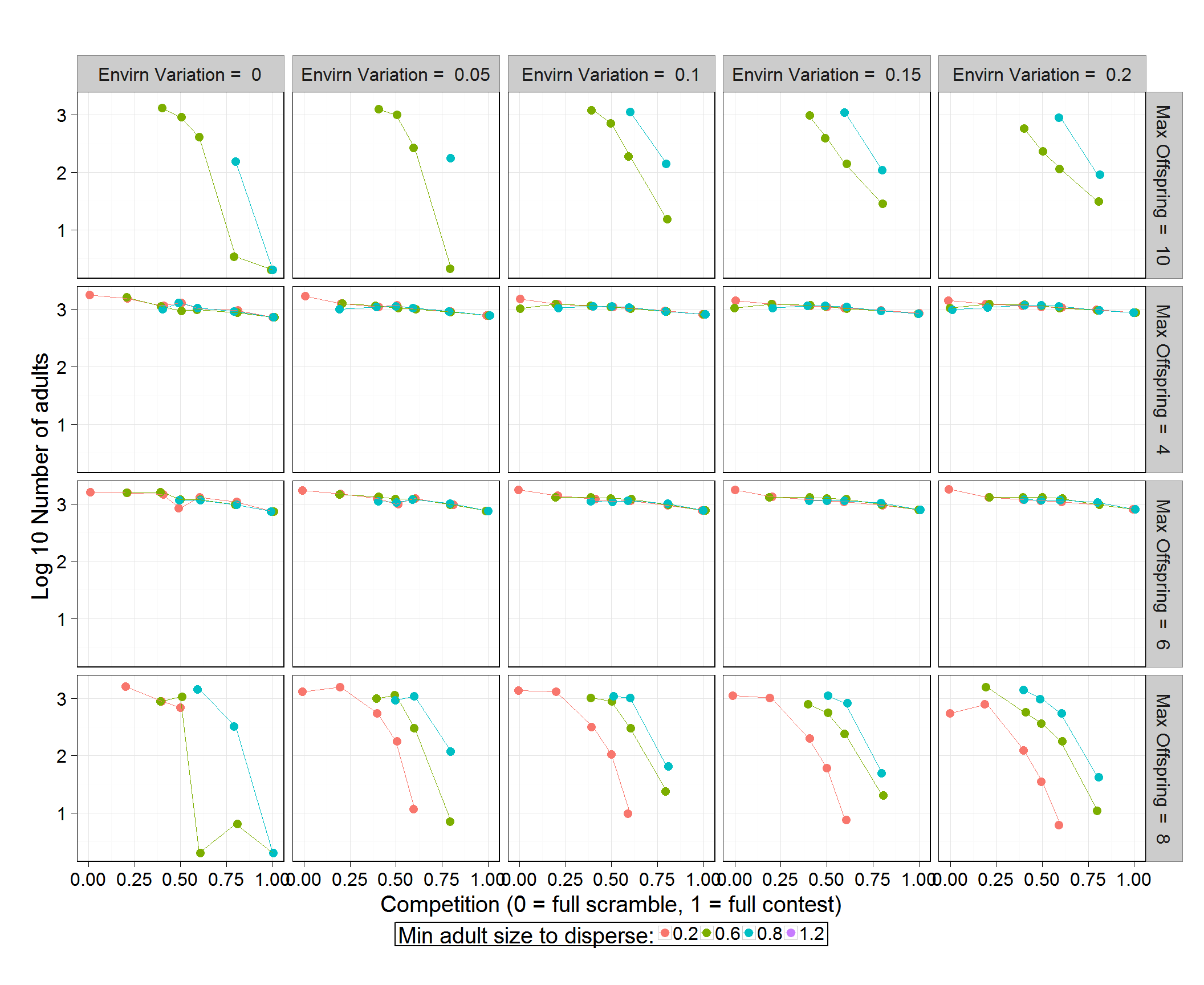
Dispersal Simulation Results

Ruth Sharpe

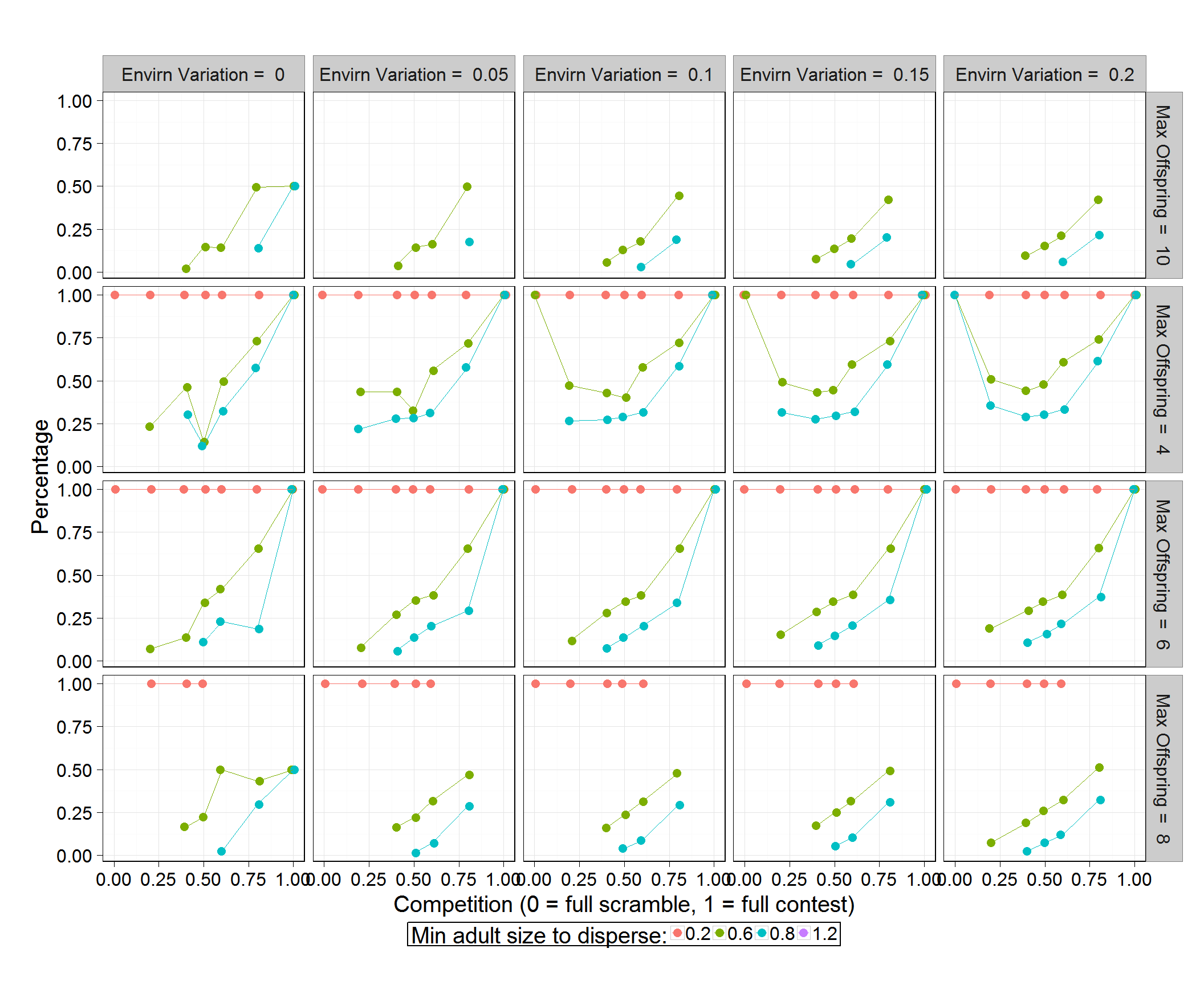
19 August, 2016

# Individual Behaviour

## Size of populations when a dispersal takes place i.e when do individuals disperse?

 *Figure 2: Size of populations when at least one individual disperses*  
The size of population when a dispersal takes place decreases as competition becomes more contest-like and less scramble-like.

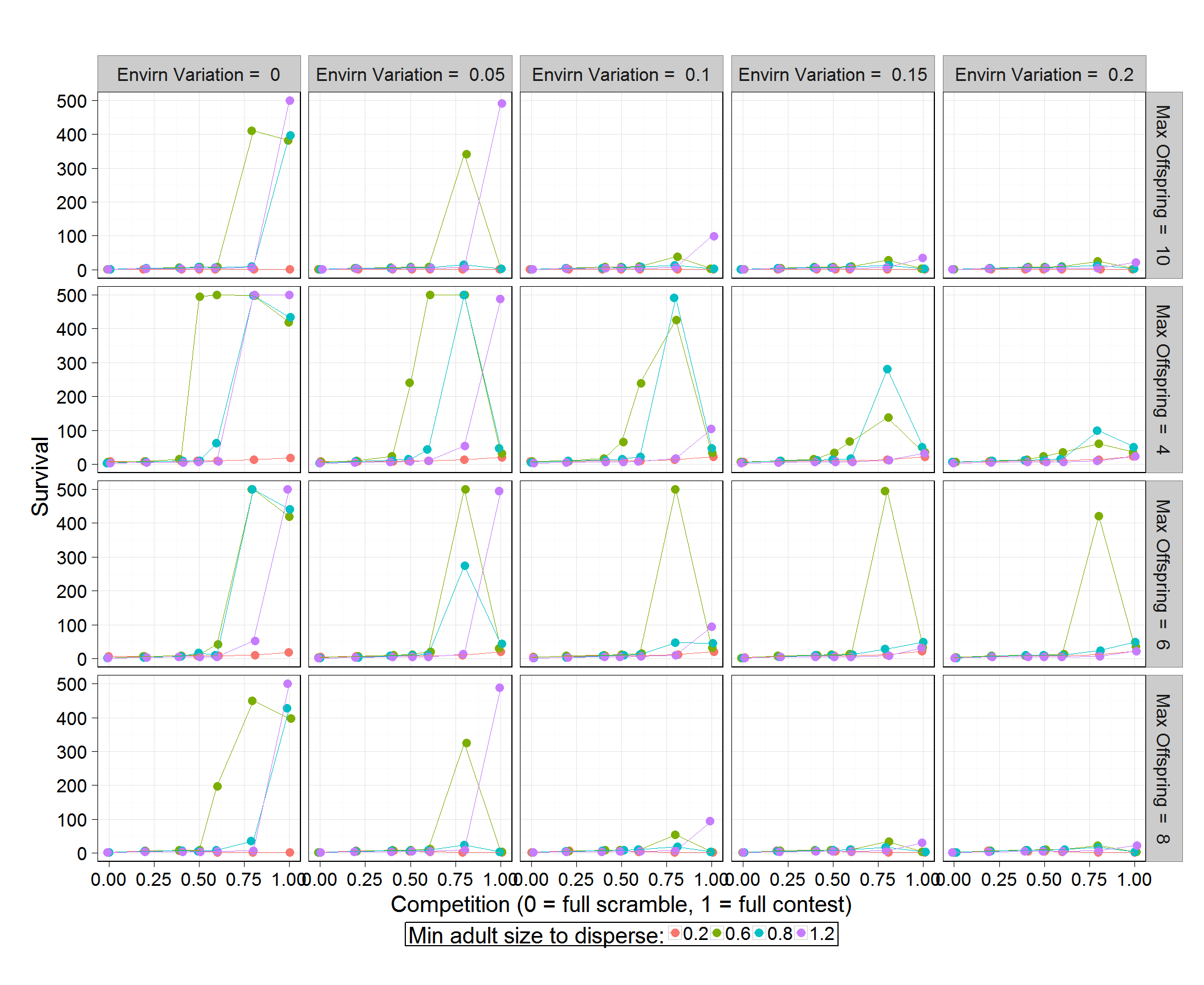
## Percentage of adults dispersing i.e. who disperses?

 *Figure 3: Percentage of adults that disperse from a colony when a disperal event takes place*

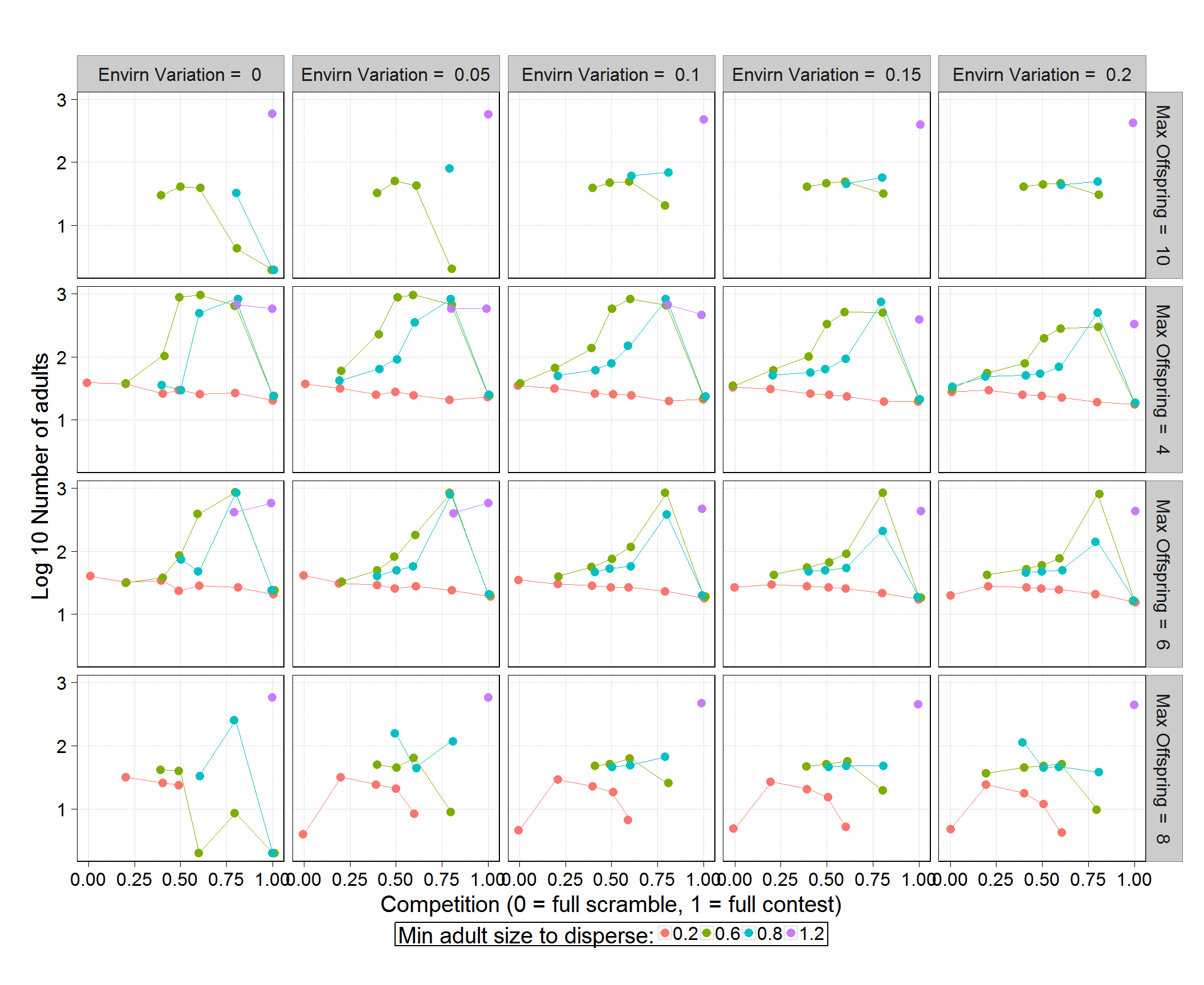
Obviously the percentage of a population that disperses increases as the size that an individiual has to be decreases. Counterintuitively the percentage of a colony dispersing increases as as the competition coefficent increases.

# Population behaviour

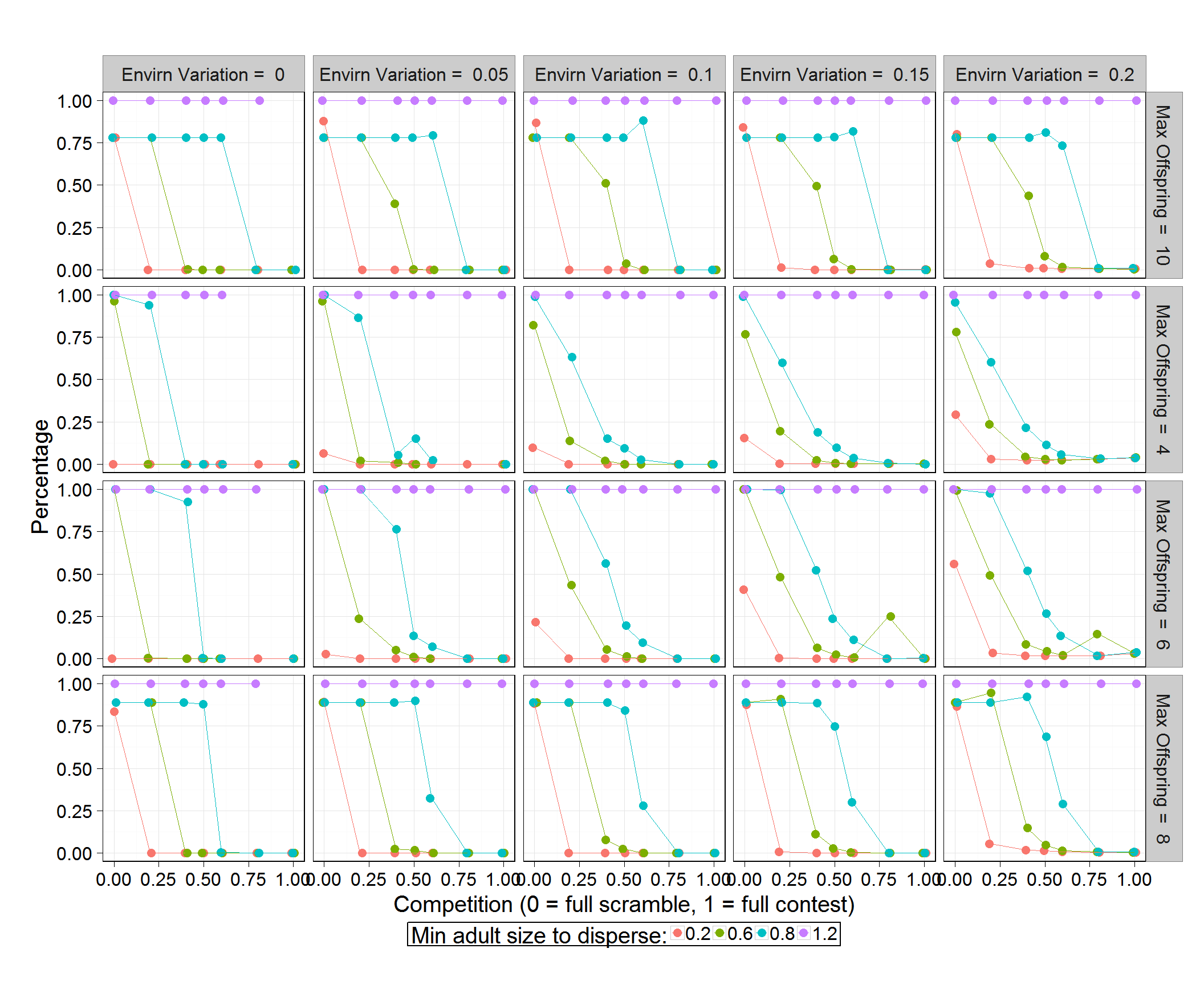
## Average population survival

 *Figure 4: Average population survival. All genearations included*  
Appears to be a step function. Mid-range adult disperal size have the highest survival. If the dispersal limit is high, this causes too few individuals disperse so colonies die as they get too large. If the limit is low then all individuals disperse from the nest so the original nest goes extinct.

## Average population size

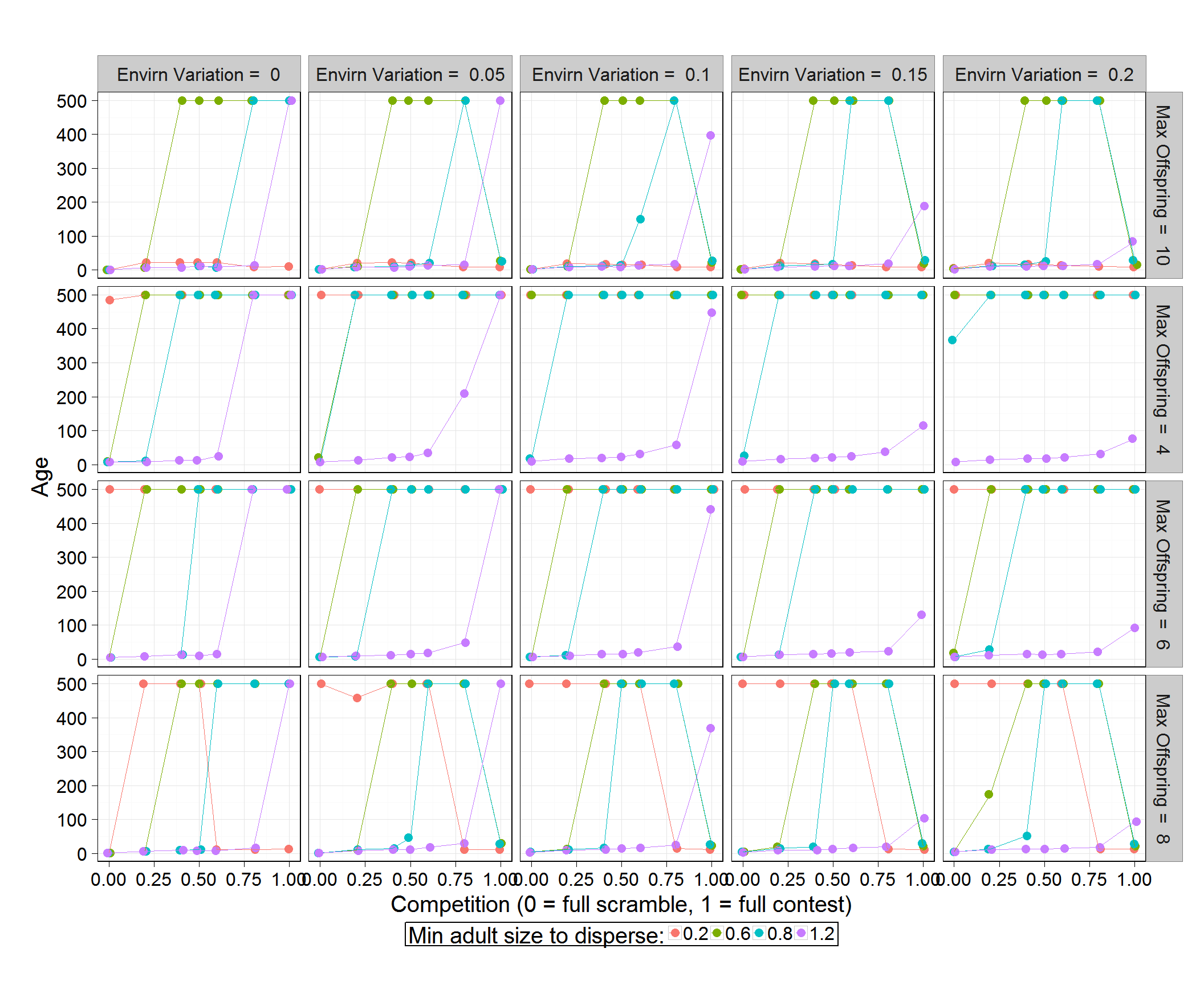
 *Figure 5: Overall average size of the populations*

## Percentage of populations that go extinct without dispersing

 *Figure 6: Percentage of populations that go extinct without dispersing - all generations included*  
Obviously when adult dispersal size is above 1 this means that no adults can disperse. Therefore all colonies go extinct without dispersing. There is an interaction between adult dispersal size, competition measure and environmental variation that determines how often colonies go extinct without producing dispersers.

# Metapulation behaviour

## Metapopulation age

 *Figure 7: Average maximium age of metapopulation age. The simulation ran for 500 generations*  
This appears to be a step function. Either a metapopulation survives to 500 generations or it goes extinct quite early.