4/20/93

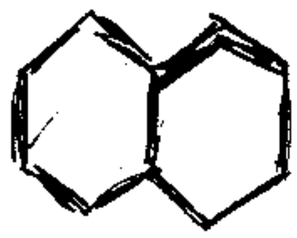
Magnus Nordborg - Self-Incompatibility

Gynodioecy - hermaphroditic flowers & female flowers on diff. plants
- normally thought that in female flowers the male part has been "lost"

Male Sterility - not a mendelian character
Lewis 1941 - male sterility mutations are very common
but usually as nuclear mutations
- gynodioecious species appear to be biased towards cytoplasmic mutations
① model - $x = \frac{(f-2)}{2(f-2)}$ x = equil freq of genetic females
$\therefore f >> 2$*
- if a gene is nuclearly inherited
- and its only effect is to cause ♂ → ♀
- then it will be halved in ♀ every generation
- ∴ must be some advantage to being ♀

- but most are cytoplasmic
- for this gene to be maintained it only needs an advantage, not a 2x
- problem - NO EQUILIBRIUM

① acids - pollen may transmit organelles with quite high frequency



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Solution:

① cytoplasmic male sterility - nuclear restorer genes

- each male sterile loci appear to have its own restorer locus

- must include a cost in maintaining restorer loci without male sterile loci in order to get equilibrium

Mutation - my notes

- are certain types of mutations common here
- for loci involved in parasite-host like evolution one might expect high mutation rates ...
- what about somatic mutation ... in these plants maybe you have cyt in plant changes.

In groups w/ large levels of this

① maybe some selection to maintain IRs in alt DNA

② this leads to high mt mutation rate

③ then get