

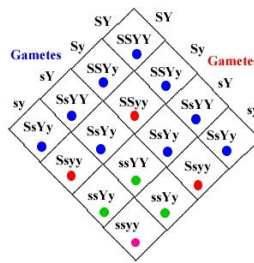
Secret Student Seminar

Experimental Algebra & Geometry Lab

Agent-based model for quantifying maternal effects on genotype proportions

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Abstract

Some species alter the characteristics of their offspring depending on environmental or social factors as well as their parental investment. Female mallard ducks (*Anas Platyrhynchos*) increase the egg size of their offspring when paired with preferred males. This maternal investment significantly increases the survivability of the ducklings. An agent based model for a mallard population was developed to determine the effects of maternal investment on the genotypic composition of a population when the male trait preferred by cryptic female choice is inheritable. The perceived trait was modeled in a two allele system with different cases of dominance. In every case, the trait favored by maternal investment eventually overcame the rest of the population. Results indicate that the phenotypic composition of a population is shaped not only by parental genotypic fitness but also by factors such as mating choice in species in which sexual selection exists. This modeling approach has applications in the study of propagation of characteristics within species that could be of benefit to breeders interested in controlling a similar trait.

Date: Friday, September 30, 2011

Time: 2:00pm–3:00pm

Place: MAGC 1.302

For further information or for special accommodations, please contact Dr. Sean Lawton via email at lawtonsd@utpa.edu.