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Theresa Marie Dalmut* (dalmuttm@dukes.jmu.edu) and **Emily Cate**
(cateeb@dukes.jmu.edu). *Modeling Fitness of Onthophagus taurus: The Effects of Density on Mating Success.*

Male *Onthophagus taurus* dung beetles have a characteristic dimorphism that leads to differing reproductive strategies. Horned major males exhibit a guarding strategy while unhorned minor males exhibit a sneaking strategy. The success of these strategies depends on the number of other males with which an individual competes. We developed random models using Matlab and NetLogo to explore the density dependence of reproductive success. Our models showed that the sneaking strategy for minors was advantageous under lower density conditions, suggesting that the guarding strategy for majors requires high densities. (Received September 25, 2012)