

Biology and Environmental Studies Colloquium

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The Evolution of Extreme Weapons (Lessons from a Rhinoceros Beetle)

Abstract

What limits the size of nature's most extreme structures? For weapons like tusks, antlers, or beetle horns, one possibility is a tradeoff associated with mechanical levers: as the output arm of the lever system gets longer—the antler or the beetle horn—it should also get weaker. Emlen and his colleagues test for this tradeoff in the giant Asian rhinoceros beetle *Trypoxylus dichotomus*, a species where males wield a “pitchfork” shaped head horn that can comprise up to 30% of the weight of the male. Emlen also discusses results from field studies of multiple natural populations of beetles exploring how changes to the mating system contribute to population-differences in the strength of selection acting on male horns, potentially explaining population differences in the length of the horns. The talk ends with a surprise: even after battling to hold a territory, male beetles must perform stridulatory “songs” and trembling “dances” on the backs of the females! Experiments underway are exploring the functional significance of these putative courtship signals, revealing just how much we don't understand about this amazing animal system.



Thursday, October 17th at 12:00 pm
Mara Auditorium

Lunch will be available at 11:45am so the talk can begin promptly