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[Darwin's Beetles Still Producing Surprises](#)

As part of National Science Foundation-funded research on the evolution of male dimorphism in insects, biology professors J. Mark Rowland, UNM, and Douglas J. Emlen, UM, were surprised to find that many species of beetles are capable of producing not only two, but three different types of males.

The sex lives of animals is known to be complicated business. Where competition in mating is particularly intense, many kinds of animals produce enlarged weapons that function in male combat and utilize alternative tactics in deploying them. Such exaggerated structures include horns in dinosaurs and deer, and tusks in elephants and walrus.

Elaborate male weapons are also known to occur in many types of insects. Now it appears, as the research of Rowland and Emlen illustrates, that male weaponry and alternative mating tactics can be much more complex in the lives of beetles than previously imagined.

“We discovered a novel mating system in which the individual males of various species of beetles have the capacity to express one of three alternative morphologies,” said Rowland. “In many dung beetles, smaller males are unlikely to prevail in direct contests with alpha males. These beta males develop disproportionately smaller horns and employ alternative, less aggressive, reproductive tactics.

“The trimorphic species reported here have alpha, beta and gamma (completely hornless) male - three qualitatively distinct forms. A mating strategy with three such tactics implies considerable complexity, but may actually involve operational rules reminiscent of the old rock, paper, scissors game.”