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How Ant-plant Mutualism Disruption Affects Predator-prey Dynamics in the African Savanna

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Over the past two decades, invasion of the big-headed ant (*Pheidole megacephala*) in Laikipia, Kenya, has disrupted a foundational mutualism between the monodominant whistling-thorn tree and their symbiotic bodyguards, ants in the genus *Crematogaster*. In exchange for food and shelter, *Crematogaster* ants protect trees from lethal herbivory by elephants. Big-headed ants kill and displace these native mutualists, rendering trees defenseless against elephants, which transform bushland savannas into open grasslands by breaking and killing adult trees. Using a combination of GPS telemetry, large-scale exclusion experiments, and Generalized Linear Models, I tested the hypotheses that open grasslands created by big-headed ant invasion would (1) be selected by plains zebra (*Equus quagga*) relative to uninvaded areas; and (2) confer increased safety from predation by lions (*Panthera leo*).

About the Presenter

Douglas Kamaru's interests span a range of topics in the ecology and conservation of African savannas, with emphasis on human-wildlife interactions and the integration of wildlife conservation into livestock production systems. For his Master's work at the University of Nairobi, Douglas combined GPS telemetry and field experiments to understand how the invasive big-headed ant reshapes dynamics between lions and their primary prey, plains zebra. His work has been generously supported by the ASM's African Research Fellowship, the Rufford Foundation, the Biodiversity Institute, and the U.S. National Science Foundation.

