How rising temperatures could alter species interactions, ecosystems

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A new paper by SFI External Professor Van Savage and collaborators at UCLA provides new details about how rising temperatures will alter the ways species interact – changes that biologists fear could destabilize entire ecosystems.

Savage's research team has developed a "biotraits database" that standardizes and organizes species data and has used it to examine how various biological traits of organisms respond to changes in environment. In particular, using new species interaction models based on their database, they have shown how changes in metabolism due to warmer temperatures affect the rates at which organisms eat, move, and sleep and have made predictions about how changes in those activities would affect the broader ecology.

In one example, the researchers examined how changes in species body velocity due to warming influence predator-prey interactions for both warm- and cold-blooded species and any expected asymmetries that

might arise between species.

"Models that assume all species respond to temperature in the same way will both miss the large diversity in ecological systems and therefore miss the most important consequences that arise from differential and asymmetric responses to temperature among species," Savage says. The UCLA model allows for different species to respond differently, he says.

Read the paper in the *Journal of Animal Ecology* (May 21, 2013)

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