



Ben-Gurion University of the Negev
Jacob Blaustein Institutes for Desert Research
The Swiss Institute for Dryland Environmental and Energy Research
Mitrani Department of Desert Ecology

Seminar

Austin K. Dixon

MDDE



Tuesday, November 22, 2016, 12:00

Seminar Room, Old Administration Building



This is Austin's Ph.D. summary seminar and refreshments will be served at 11:40.



Tradeoffs of food and safety in contrasting environments: From the deserts of the Mojave and the Negev to the coral reefs of Eilat

Ecological studies of the 1960's and 1970's often ended in the conclusion that each community is unique and there are no known governing laws or mechanisms that function to produce their unique structure. Since then, progress has been made in areas of mechanisms of coexistence, tradeoffs of food and safety, and foraging games, which may allow us to better assess what makes otherwise similar communities so different. Using three common garden vivarium experiments, we simulate a natural desert rodent community of two gerbil species (*Gerbillus andersoni allenbyi* and *G. pyramidum*), an experimental intercontinental community of small rodents (*Chaetodipus penicillatus* and *G. andersoni allenbyi*), and an experimental intercontinental community of large rodents (*Dipodomys merriami* and *G. pyramidum*) in the presence of barn owls, Saharan horned vipers, and sidewinder rattlesnakes. These studies build on previous single species experiments to examine effects of interspecific competition and potentially constraint-breaking adaptations (i.e. sensory pits, external cheek pouches, bipedal locomotion) on community attributes. Results suggest sensory pits may break community constraints while external cheek pouches and bipedal locomotion do not. Small differences in body size also seemed to be able to generate partitioning through interference competition, especially within the lunar cycle. These results help begin to formalize community level laws in ecology.