



**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

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MDDE



Tuesday, November 27, 2018, 12:00

Seminar Room, Old Administration Building

**A Two-Way Street: Examining Fitness Effects Within  
Host-Parasite Interactions Using a Rodent-Flea System**

Hosts and parasites are partners in a unique and intimately-linked interspecies interaction; however, examination of both partners in this interaction is infrequent. Instead, host-parasite relationships should be considered with hosts and parasites as equal partners in this interspecies interaction. To that end I use a rodent-flea experimental system to examine how: 1) parasite pressure impacts investment in host defenses, which, in turn, affects parasite mortality and reproductive output, 2) host quality influences parasite developmental instability, which, in turn, affects a parasite's ability to colonize new host species, 3) hosts alter parental investment in response to risk of parasitism, and 4) parasitism can affect host fitness over several generations. We found that from a flea's perspective successfully evading host behavioral defenses is an important first step toward colonizing a new host. However, successful host-switching events in host specific parasites could be constrained by the relatedness between a novel and a principal host species because not every potential host can act as a good-quality resource. On the other hand, from a rodent's perspective, current flea infestation provides cues about the relative risk of infestation for offspring and strategies for offspring investment may change depending on this risk. Therefore, parasites could be a mediator of environmentally-induced maternal effects, including possibly adaptive offspring provisioning against infestation, which could affect host reproductive fitness across multiple generations.