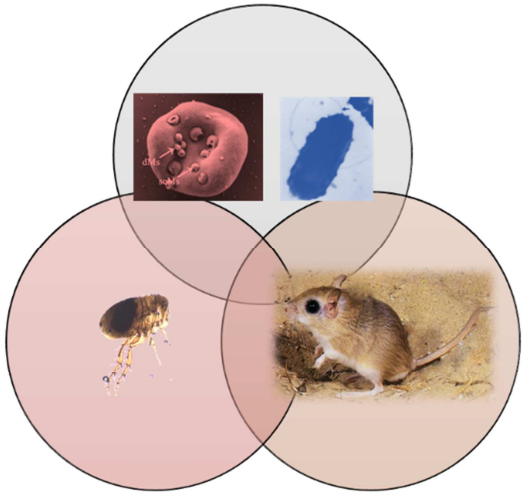
Ben-Gurion University of the Negev
Jacob Blaustein Institutes for Desert Research
The Swiss Institute for Dryland Environmental and Energy Research
Mitrani Department of Desert Ecology

Seminar

Carmit Cohen

MDDE



Tuesday, June 13, 2017, 12:00

Seminar Room, Old Administration Building

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

From patterns to mechanisms in a natural host-parasite system

The growing interest in the ecology of host-parasite interactions has generated a vast body of knowledge in the past few decades. Mainly, researchers have investigated the complexity of interactions either via field observations or by laboratory experiments on lab-selected model organisms. However, for a better understanding of host-parasite dynamics over time and space in natural communities a link between patterns of wild hosts and their parasites in the field and the mechanisms underlying these patterns, is desirable. The link between field patterns to well-designed experiments is especially important in studying complex host-parasite systems, like those that involve more than one guild of parasites. In my studies, I have focused on this link in a system composed of wild gerbils and two guilds of blood parasites. Two species of blood-associated bacteria and their flea vector. Specifically, I addressed the following questions: I. Do coexisting bacteria show similar distribution patterns in hosts and in their vectors? II. Would host's infection by these bacteria change similarly with time? and III. what is the nature of interactions between these bacteria?

By a combination of field surveys and laboratory manipulations, I demonstrated that even though the bacteria share the same resource in wild gerbils, they: I. diverge in their distribution in rodents and fleas due to differential transmission routs, II. They have different infection dynamics due to different interactions with the host, and III. they affect each other but in an asymmetric way. The high correspondence between the field observations and experimental results illustrates the importance of such a combined approach for our understanding of host-parasite interactions in nature.