



**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

**Guy Rotem**

Department of Life Sciences,  
Ben-Gurion University



Tuesday, April 30, 2019, 12:00

Seminar Room, Old Administration Building

This week there will be no lunch in the meeting room. If you're interested in joining lunch with the speaker (in the Midrasha center/student club).

please contact Michal (msegoli@bgu.ac.il).

**Agroecology: From Island Biogeography  
to Network Ecology - Southern Judea  
Lowlands as a Case Study**

It is an accepted fact that we are in the middle of a massive worldwide extinction. Damage, fragmentation, and destruction of natural habitats are considered to be the most significant factors in species extinction. Notably, one of the leading factors towards the latter is their transformation into agricultural areas. The continuous growth of the human population leads to an increasing need for food, and in order to meet food demand, many natural areas are being transformed into agricultural areas, thus significantly increase the negative impact of agriculture on biodiversity. Agroecology is a scientific approach that attempts to bridge the global need for food with the need to preserve biodiversity. One of the agroecology tools is to protect natural patches within agricultural areas. Since reptiles are in the middle of the food web and are in high association with a specific habitat, they are considered adequate bioindicators for the state of the entire ecosystem. In a series of studies, I have examined (with colleagues) the reptiles' diversity within agricultural patches in Southern Judean lowland. Firstly, and in light of the scale-dependent approach, I measured reptiles' abundance, species richness, and diversity. Secondly, I examined the ability of reptiles to disperse between adjacent patches through the agricultural matrix. We found that wheat fields from an ecological trap for reptiles, but reptile can disperse through legumes fields. In other words, the ability of reptiles to disperse between natural patches depends on the crop cycle. In light of this understanding, we have begun to develop a network-based model to offer a crop cycle that will suit the farmer's needs on the one hand and enable maximum connectivity for extended periods on the other.