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

Special seminar

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Biological Sciences,
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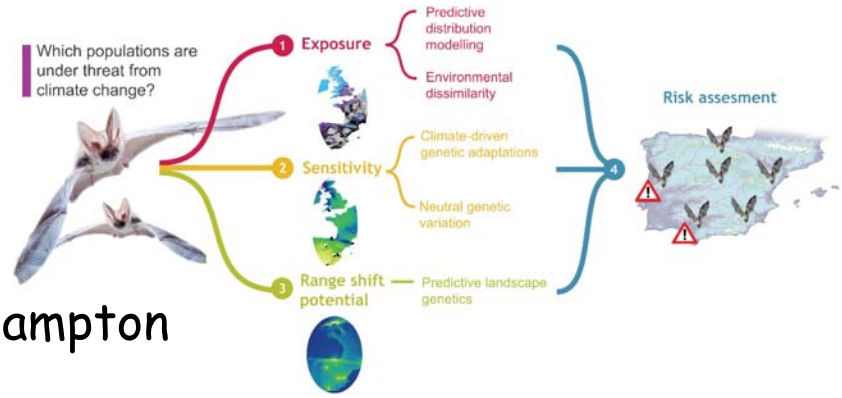

Tuesday, April 17, 2018, **14:00**
Room # 136, Biology Building

Integrating Genomic and Ecological Approaches to Identify Populations under Threat from Global Environmental Changes

Understanding how biodiversity responds to global environmental change can help us predict and prepare for the effects of future conservation threats. Climate change will produce a range of new selection pressures due to rising temperatures and increased frequency of droughts and extreme events, forcing many species to move in search of suitable conditions or adapt. Whether organisms can respond to these threats depends on their sensitivity to change, their ability to adapt or adjust to new environmental conditions, their ability to move away, and the rate and magnitude of change. My research combines genomic tools with ecological research, geographic data and modelling approaches to determine and predict how climate and land use changes affect biodiversity. I focus on bats as important ecosystem components, providers of ecosystem services and potential indicators of the state of the environment and other biodiversity. Bats may be particularly vulnerable to the effects of climate change due to low reproductive output, ecological specialisation, high trophic position and high rates of evaporative water loss.

I address the effects of global environmental changes from four perspectives. First, I use phylogeography to look at the past, and how bats responded to climatic changes during and after the last glacial period. Second, I use the landscape genetics approach to determine how the landscape affects current patterns of movement and future range shift potential. Third, using genomic data, I identify adaptations to current climatic conditions and their effects on future survival prospects. Finally, I will show how these different approaches can be combined together to identify populations under threat from future climate change based on exposure, sensitivity, range shift potential and adaptive potential.