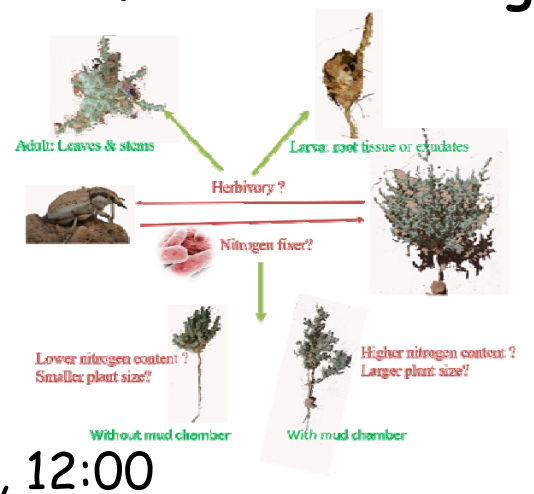
Ben-Gurion University of the Negev
Jacob Blaustein Institutes for Desert Research
The Swiss Institute for Dryland Environmental and Energy Research
Mitrani Department of Desert Ecology

Seminar

Fengqun Meng

MDDE



Tuesday, December 4, 2018, 12:00

Seminar Room, Old Administration Building

The Unique Interaction Between the Summer Annual Desert Plant *Salsola inermis* and Weevil Beetles Residing on Its Roots: Mutualism or Parasitism?

The outcome of an interaction between plants and insects is set by the balance of the costs and benefits to each partner and can range from antagonism to mutualism. We describe a relationship between a C4 summer annual desert plant *Salsola* and weevils that develop inside a mud chamber affixed to its roots, in the Negev Desert of Israel. This interaction was previously considered to be mutualistic, due to evidence for nitrogen fixation inside the weevil—potentially contributing to the plant. However, direct tests of this hypothesis were lacking. (1) We examined the distribution, abundance and significance of this unique interaction throughout the Negev Desert, (2) we used pyrosequencing analyses to characterize spatial and temporal variations of the bacterial composition, and the occurrence of potential nitrogen fixing groups in the guts of weevils, and finally (3) we quantified the effect of a weevil larvae and adults on the plant experimentally. The results suggest a complex interaction with negative effects of the weevil on plant growth and biomass, combined with positive effects on plant nitrogen content.