



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

Gili Greenbaum

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Wednesday, January 30, 2019, 12:00

Seminar Room, Old Administration Building

Participants are invited to meet the seminar speaker at the MDDE meeting room immediately after the seminar (~ 13:00). Please bring your lunch; snacks will be provided.

Diseases, Ecology, and Evolution in the Interaction Between Neanderthals and Modern Humans

Two of the major events in human evolution were the expansion of modern humans out of Africa and the concurrent disappearance of Neanderthals across Eurasia, and the Middle-to-Upper Paleolithic cultural transition that followed. These events have been extensively studied, but remain largely obscure: Why did the replacement of Neanderthals, a rapid expansion that occurred over just a few millennia, commence tens of thousands of years after Neanderthals and modern humans already established contact in the Levant? And why did the sharp increase in cultural complexity of the Upper Paleolithic occur across Eurasia in a temporally coordinated manner but with different cultural contents? In this work I suggest possible answers to these questions, involving several ecological and evolutionary processes, such as disease transmission between two species that have co-evolved with different pathogens, adaptive introgression of immune-related genes through inter-species matings, behavioral responses to disease burden, and demographic processes. Mathematical models help explore and elucidate the complex feedback between these processes, supporting the proposal that disease transmission and immune-related evolution played an important role in determining the outcomes of the interaction between the two famous hominin species.