

Long-term effects of woodland planting in drylands on soil fertility and native vegetation productivity



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AIM

To evaluate the long-term effects of *Acacia* plantings on **soil fertility** and **herbaceous vegetation** in the Negev drylands



A. Victoriae trees were planted in 1993



Photos: A. Mussery

METHODS

Samples of soil **nutrient** concentrations (mineral-P, N and K), organic matter (**SOM**) and **biomass** were taken from *planted* and *control* fields.

MODIS-derived NDVI was used to expand the period of the analysis



NDVI (MOD13Q1)



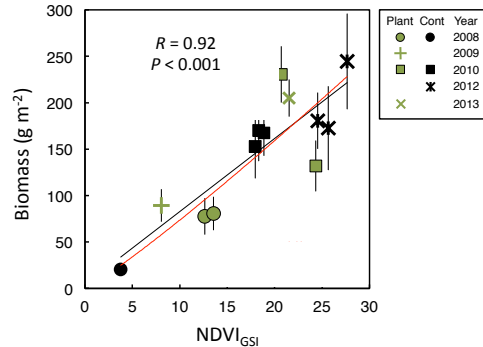
Biomass



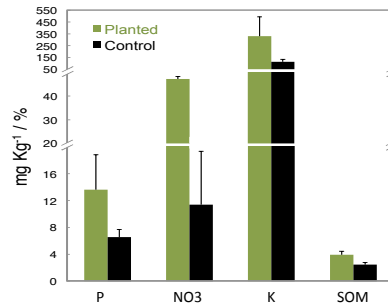
Soil samples

RESULTS

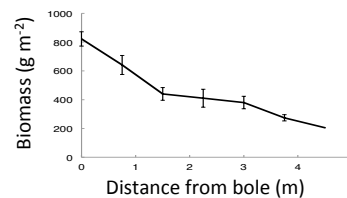
1. NDVI correlates with herbaceous biomass



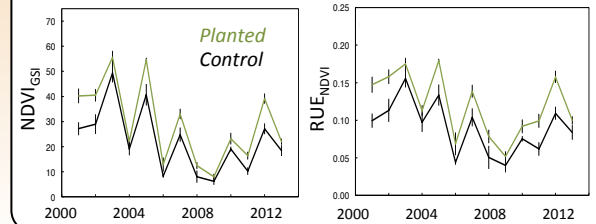
2. Improved nutrient concentrations and SOM in the planted area



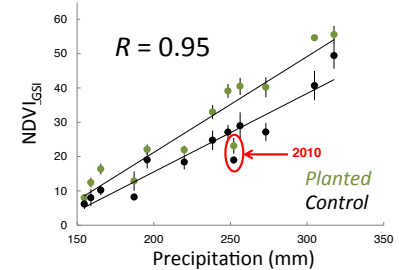
3. Facilitative effect in the subcanopy zone



4. Decline in biomass (NDVI) and RUE during 2000-2009 in planted and control sites



5. Biomass production highly dependent on annual precipitation amount



6. Total biomass gained in planted area ~60 g m⁻² yr⁻¹ (i.e. 12 t ha⁻¹) for the last 20 years

