

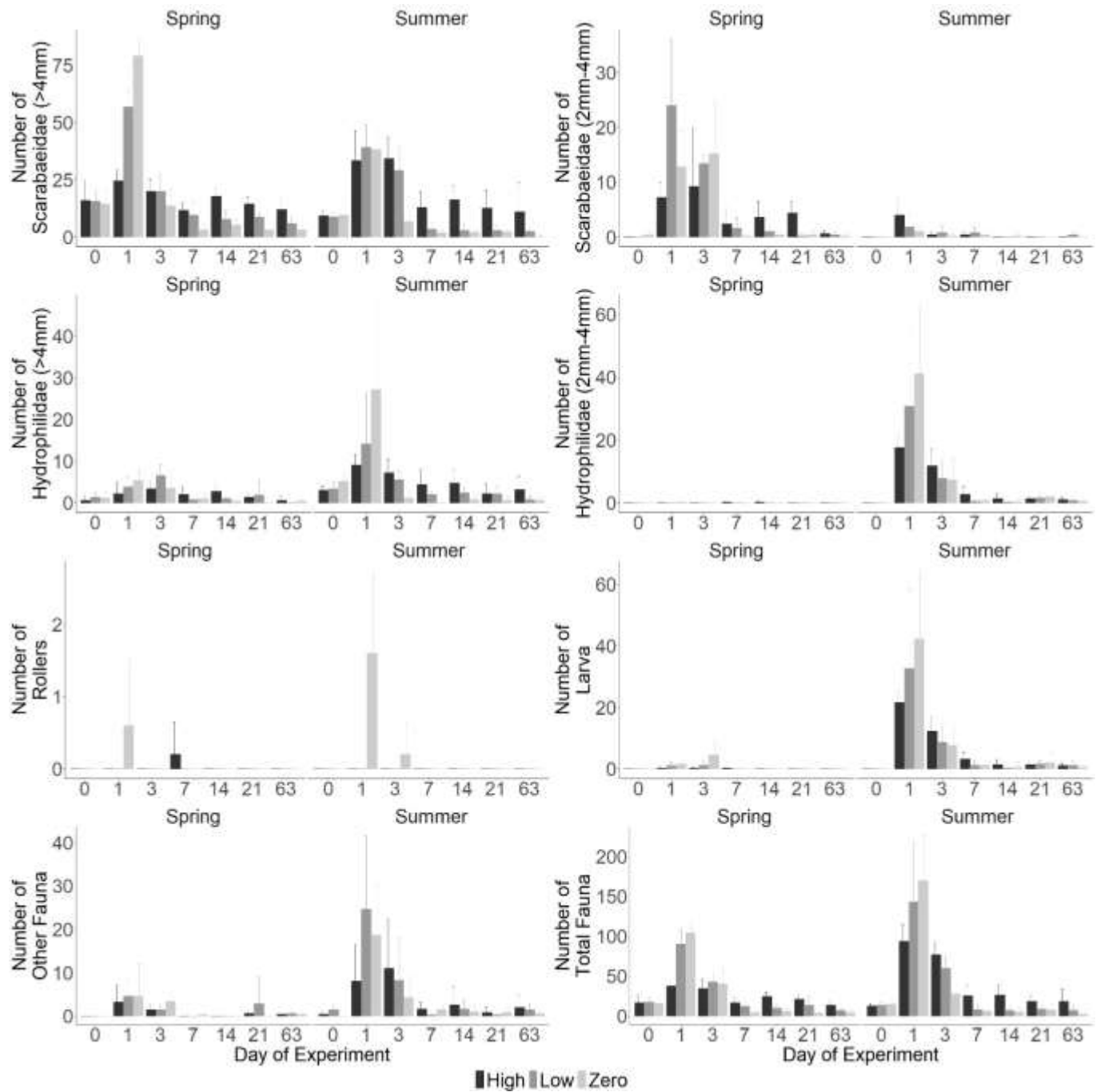
Supplementary Material

Effects of ivermectin on soil nutrient cycling, plant biomass, and dung beetle abundance

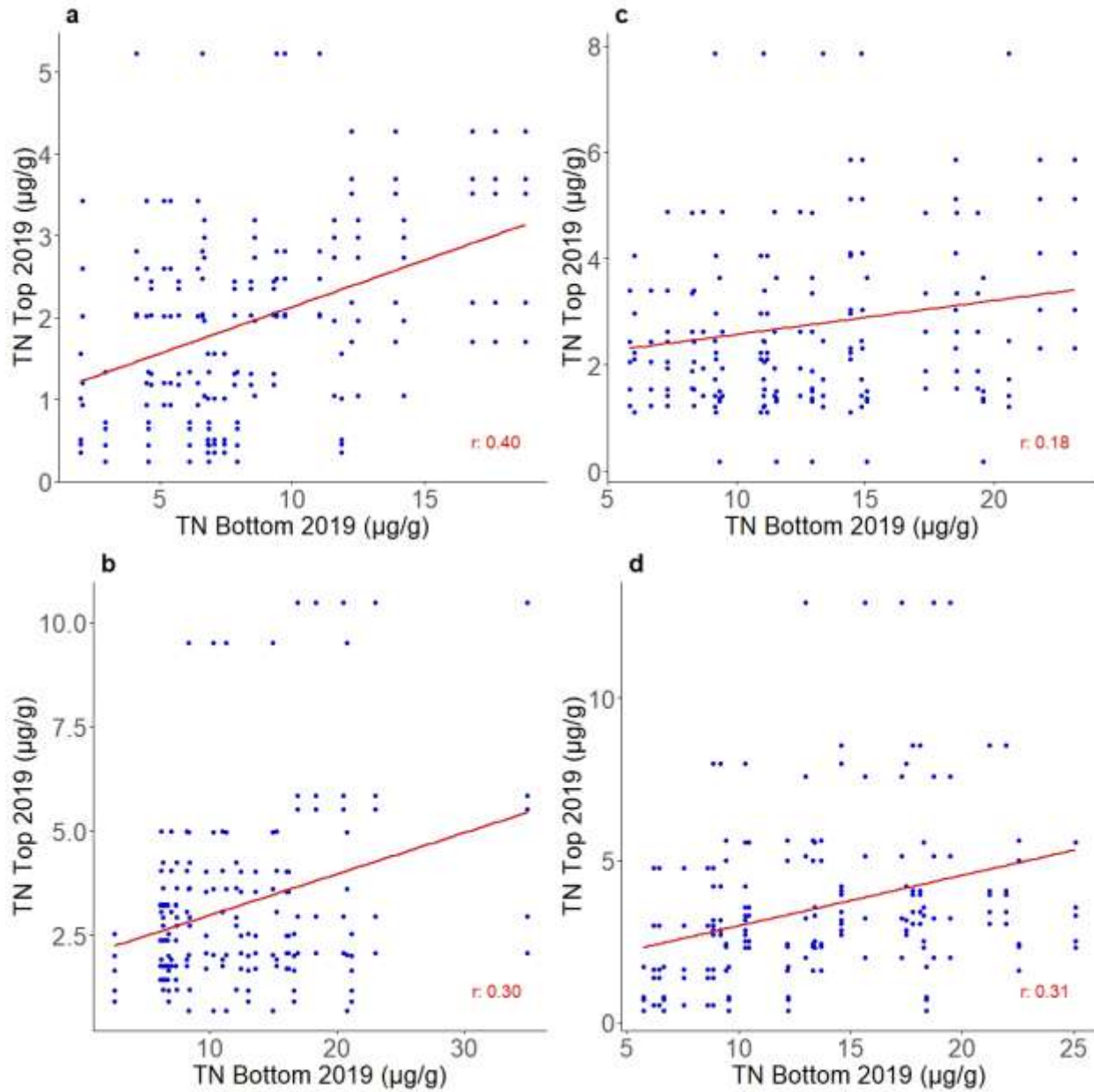
Shiva Torabian^{A,}, A. Joshua Leffler^A and Lora Perkins^A*

^ADepartment of Natural Resource Management, South Dakota State University, Brookings, SD, USA

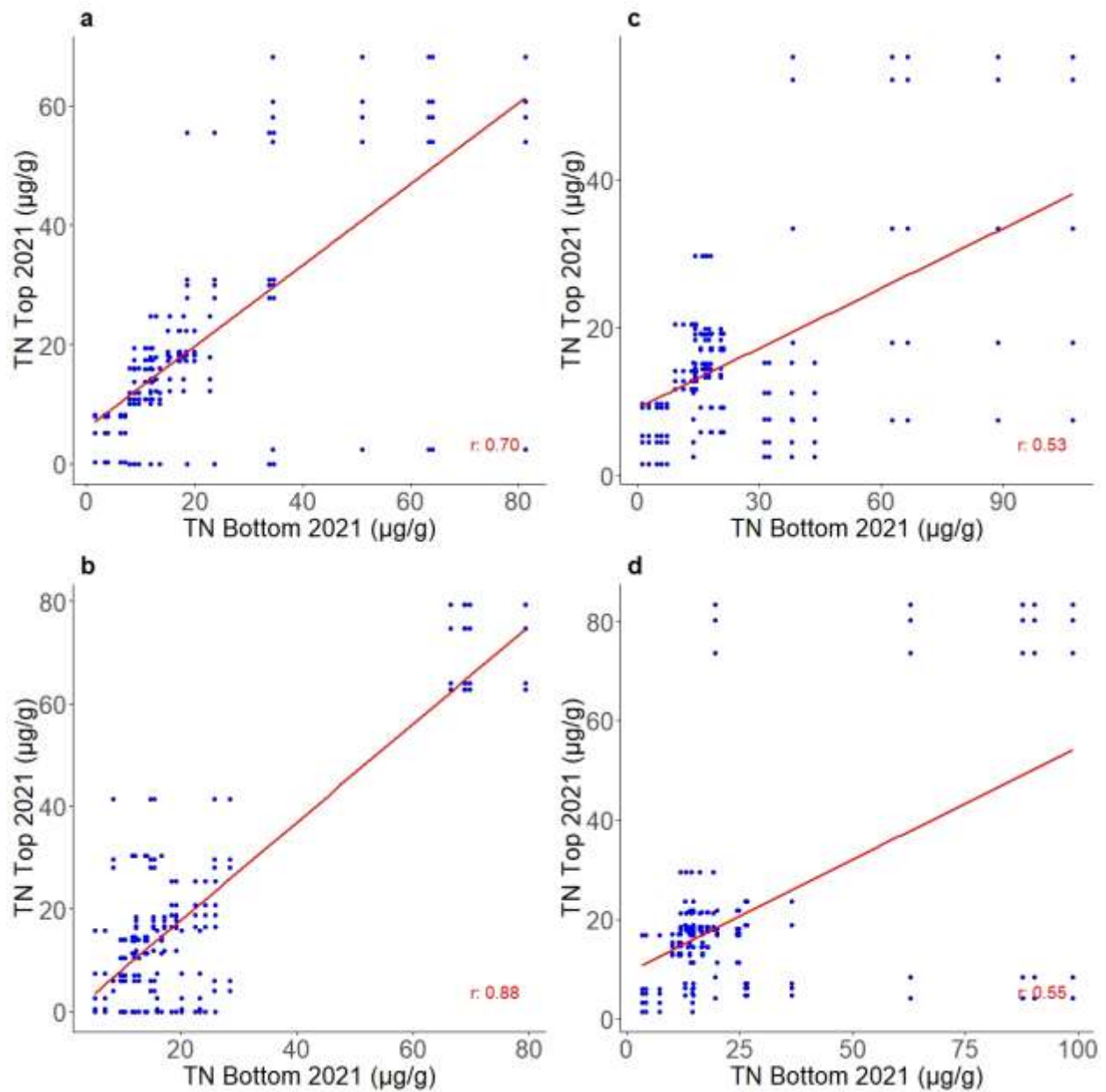
*Correspondence to: Email: shiva_torabian@yahoo.com



Supplementary Fig. S1 - These graphs display the abundance of various dung beetle types, including Scarabaeidae and Hydrophilidae larger than 4 mm and between 2-4 mm, Rollers, Larvae, and Other Fauna, as well as the total fauna count. The data are grouped by different Ivermectin concentrations (high, low, and zero) and plotted across multiple sampling days throughout the spring and summer seasons, illustrating how treatment affects dung beetle populations over time.



Supplementary Fig. S2 - Scatter plots illustrating the correlation between total nitrogen (TN) content in the top and bottom layers of soil sampled in 2019 across four treatment groups: (a) Control, (b) Low Ivermectin concentration, (c) High Ivermectin concentration, and (d) Zero Ivermectin. Each plot shows individual data points and a fitted regression line, with correlation coefficients (r) provided for each treatment indicating the strength of the relationship between TN concentrations in the two soil layers.



Supplementary Fig. S3 - Scatter plots illustrating the correlation between total nitrogen (TN) content in the top and bottom layers of soil sampled in 2021 across four treatment groups: (a) Control, (b) Low Ivermectin concentration, (c) High Ivermectin concentration, and (d) Zero Ivermectin. Each plot shows individual data points and a fitted regression line, with correlation coefficients (r) provided for each treatment indicating the strength of the relationship between TN concentrations in the two soil layers.