Supplementary Figures

Figure S1. Overall spatial distribution of anthrax mortalities by species from **a**) 1996 – 2014 in Etosha National Park, Namibia and **b**) 1990 – 2015 in Kruger National Park, South Africa. Anthrax mortality data used for this figure included only cases with coordinates.

Figure S2. Spatial distribution of anthrax mortalities by year and species from **a**) 1996 – 2014 in Etosha National Park, Namibia and **b**) 1990 – 2015 in Kruger National Park, South Africa. Anthrax mortality data used for this figure included only cases with coordinates and years with at least 10 cases.

Figure S3. First reading for each tracked individual from the telemetry data analyzed in this study. The study species included **a**) springbok, kudu, wildebeest, zebra and elephant in Etosha National Park, Namibia and **b**) impala, kudu, wildebeest, zebra, buffalo and elephant in Kruger National Park, South Africa. Some tracked individuals in Kruger sometimes went outside the park, but they still remained in the Greater Limpopo Transfrontier Park.

Figure S4. Net squared displacement (NSD) starting at the first location of the data for **a**) kudu in Etosha National Park, Namibia, **b**) kudu in Kruger National Park, South Africa, **c**) wildebeest in Etosha, **d**) wildebeest in Kruger, **e**) zebra in Etosha, **f**) zebra in Kruger, **g**) elephant in Etosha, **h**) elephant in Kruger, **i**) springbok in Etosha, **j**) impala in Kruger and **k**) buffalo in Kruger. NSD shown with y-axes is log-transformed post plus one.

Figure S5. Average NDVI (Normalized Difference Vegetation Index; a remote-sensing index of vegetation greenness or biomass) based on 95% herbivore individual ranges in Etosha National Park, Namibia and Kruger National Park, South Africa. Species are ordered along the x-axis based on increasing body mass, and sex of individuals is color-coded.

Figure S6. Effects of NDVI (Normalized Difference Vegetation Index; a remote-sensing index of vegetation greenness or biomass) on range size by herbivore species, estimated with a gamma generalized linear mixed model (Additional file 1: Supplementary Methods), shown with **a**) coefficients by species and **b**) predicted effects. The circles of plot a are means of the coefficients; the ranges are 95% confidence intervals. The lines of plot **b** are means of the effects; the shaded areas are 95% confidence intervals for prediction. Y-axis of plot **b** is log-transformed.

Figure S7. Relationships between estimated ranges by species, and **a**) herbivore body mass and **b**) feeding habits. Feeding habits are represented with C4 percentage as an index which reflects proportion of grass in a diet. Estimated ranges were predicted with a gamma generalized linear mixed model, using medians of NDVI (Normalized Difference Vegetation Index; a remote-sensing index of vegetation greenness or biomass) values from Etosha National Park, Namibia and Kruger National Park, South Africa (Additional file 1: Supplementary Methods). The circles and triangles are average predicted range size; the ranges are their 95% confidence intervals. The

lines of plot a are best fitting lines between body mass and range size, excluding springbok. Y-axes of both plots and x-axis of plot **a** are log-transformed. Information of C4 percentages in diets and body mass was retrieved from literature and summarized in Additional file 2: Table S5.

Figure S8. Relationships between effects of NDVI (Normalized Difference Vegetation Index; a remote-sensing index of vegetation greenness or biomass) on range sizes by species estimated with a gamma generalized linear mixed model (Additional file 1: Supplementary Methods), and **a**) herbivore body mass and **b**) feeding habits. Feeding habits are represented with C4 percentage as an index which reflects proportion of grass in a diet. The circles are means of the coefficients; the ranges are their 95% confidence intervals. X-axis of plot **a** is log-transformed. Information of C4 percentages in diets and body mass was retrieved from literature and summarized in Additional file 2: Table S5.

Figure S9. Average proportion of overlap of 95% range from one month to the next by season for individual herbivores in Etosha National Park, Namibia and Kruger National Park, South Africa. An individual-season was removed from range overlap estimation if there were fewer than three pairs of consecutive months. Species are ordered along the x-axis based on increasing body mass, and sex of individuals is color-coded.

Figure S10. Simulated residuals generated with R package DHARMa by Etosha and Kruger National Parks from the gamma generalized linear mixed model (Additional file 1:

Supplementary Methods). The values of DHARMa residuals represent the proportion of

simulated residuals lower than the residuals from the model.

Figure S1

species: springbok, impala, kudu, wildebeest, zebra, buffalo, elephant, other species
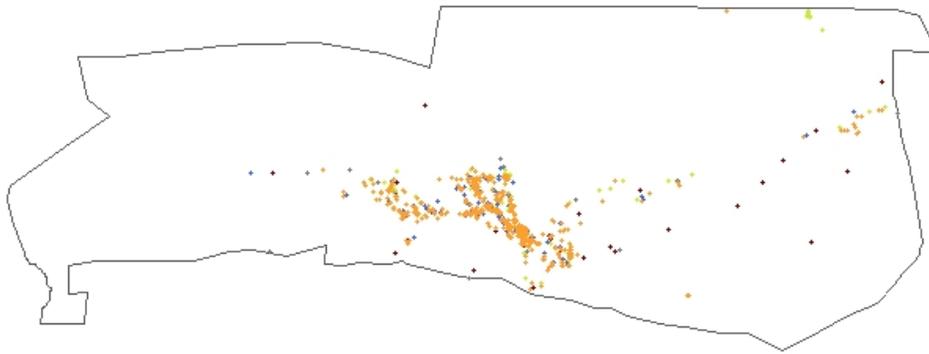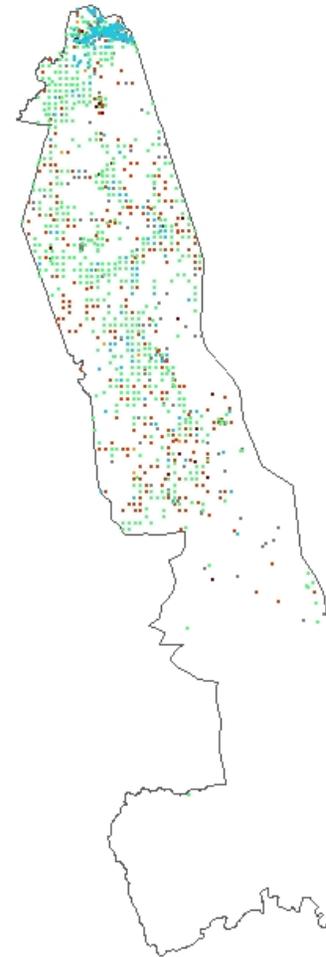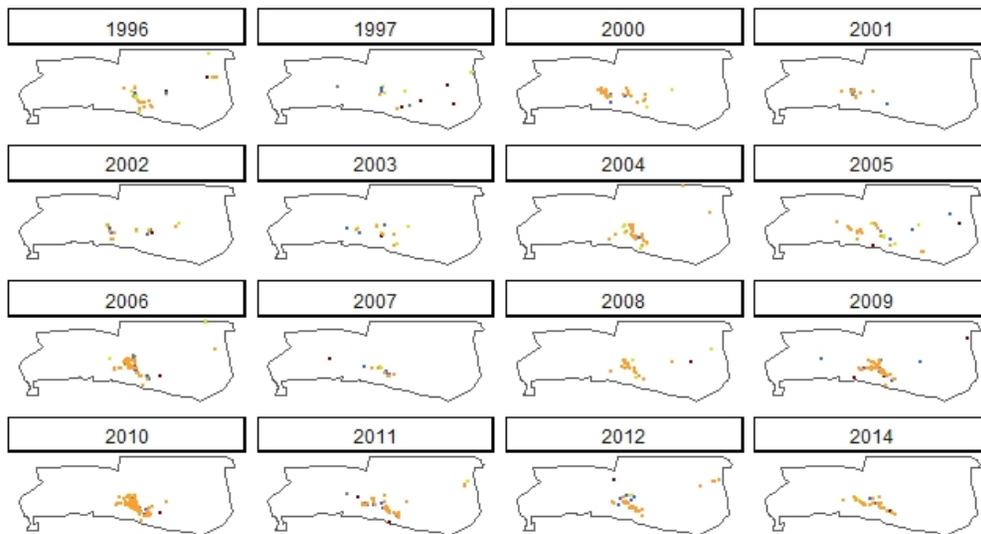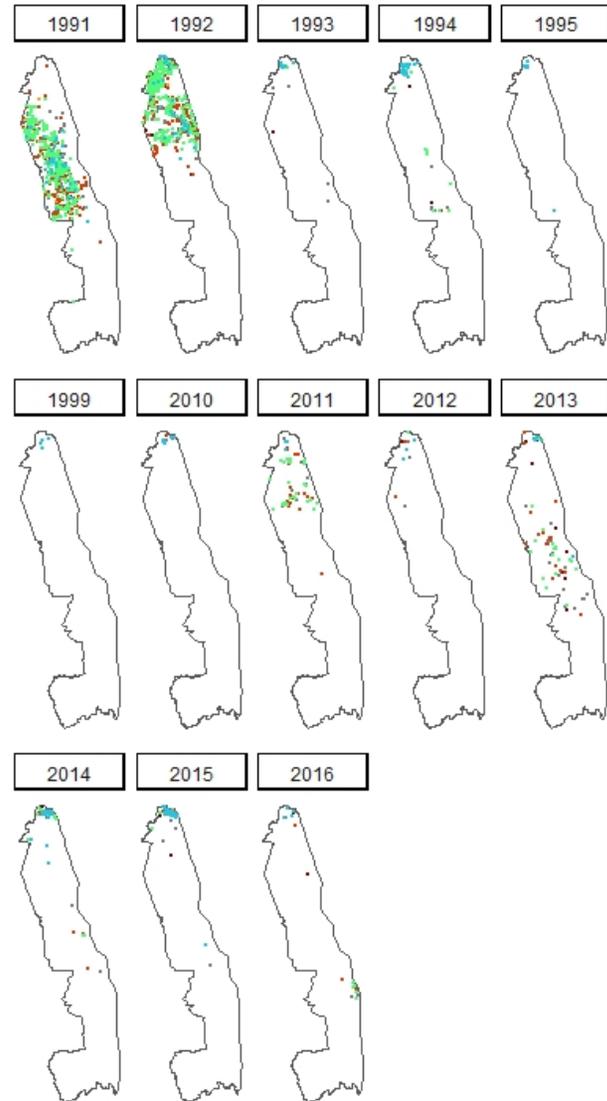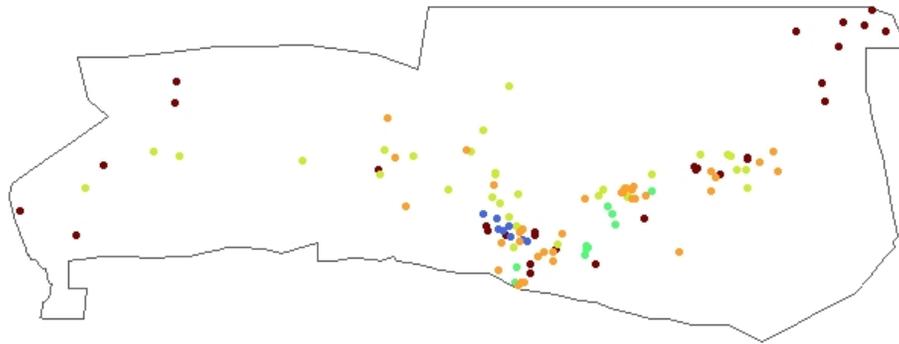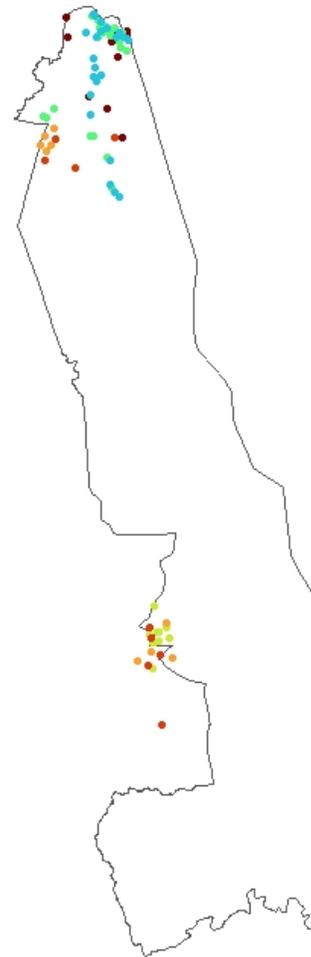
Figure S2
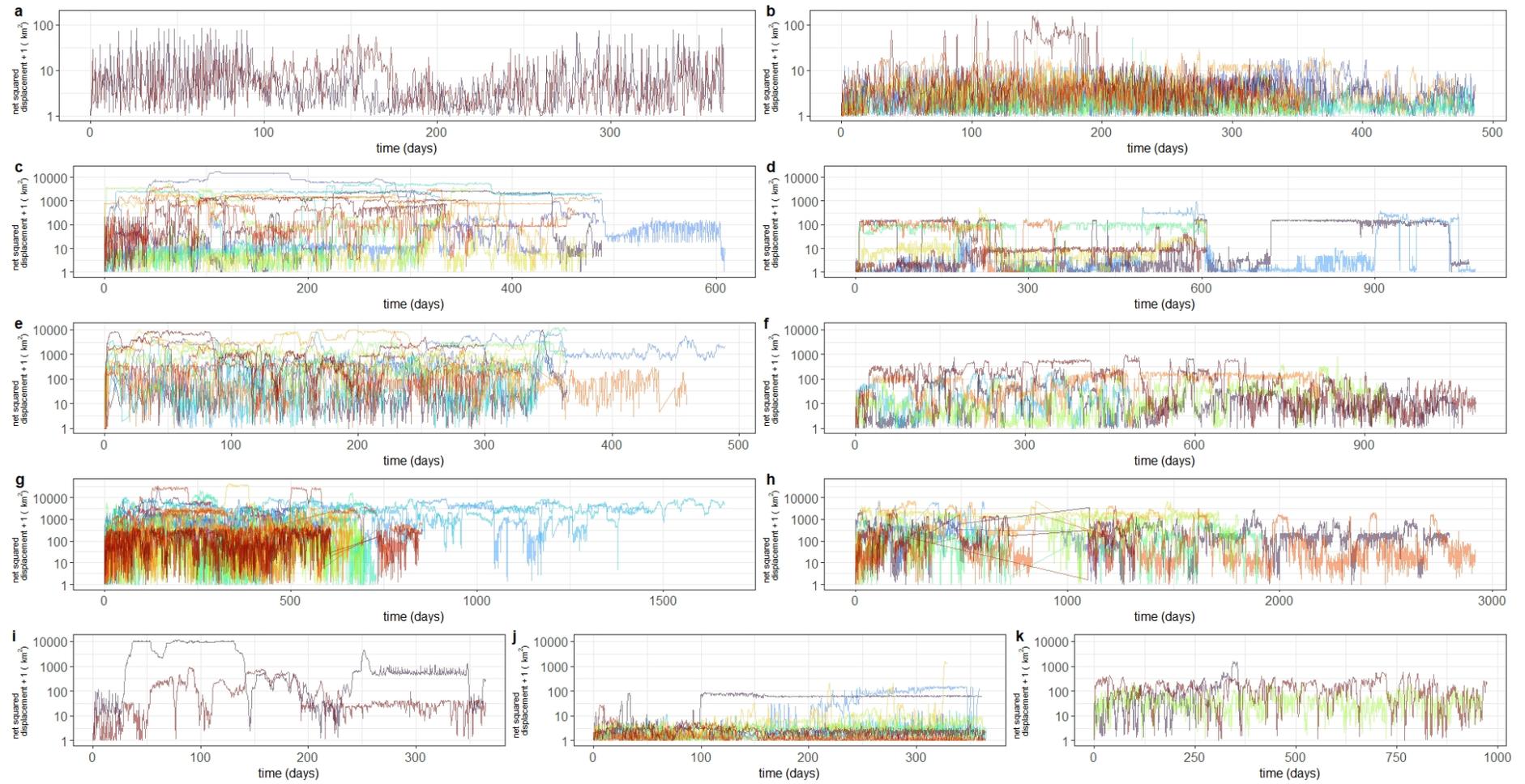
Figure S3
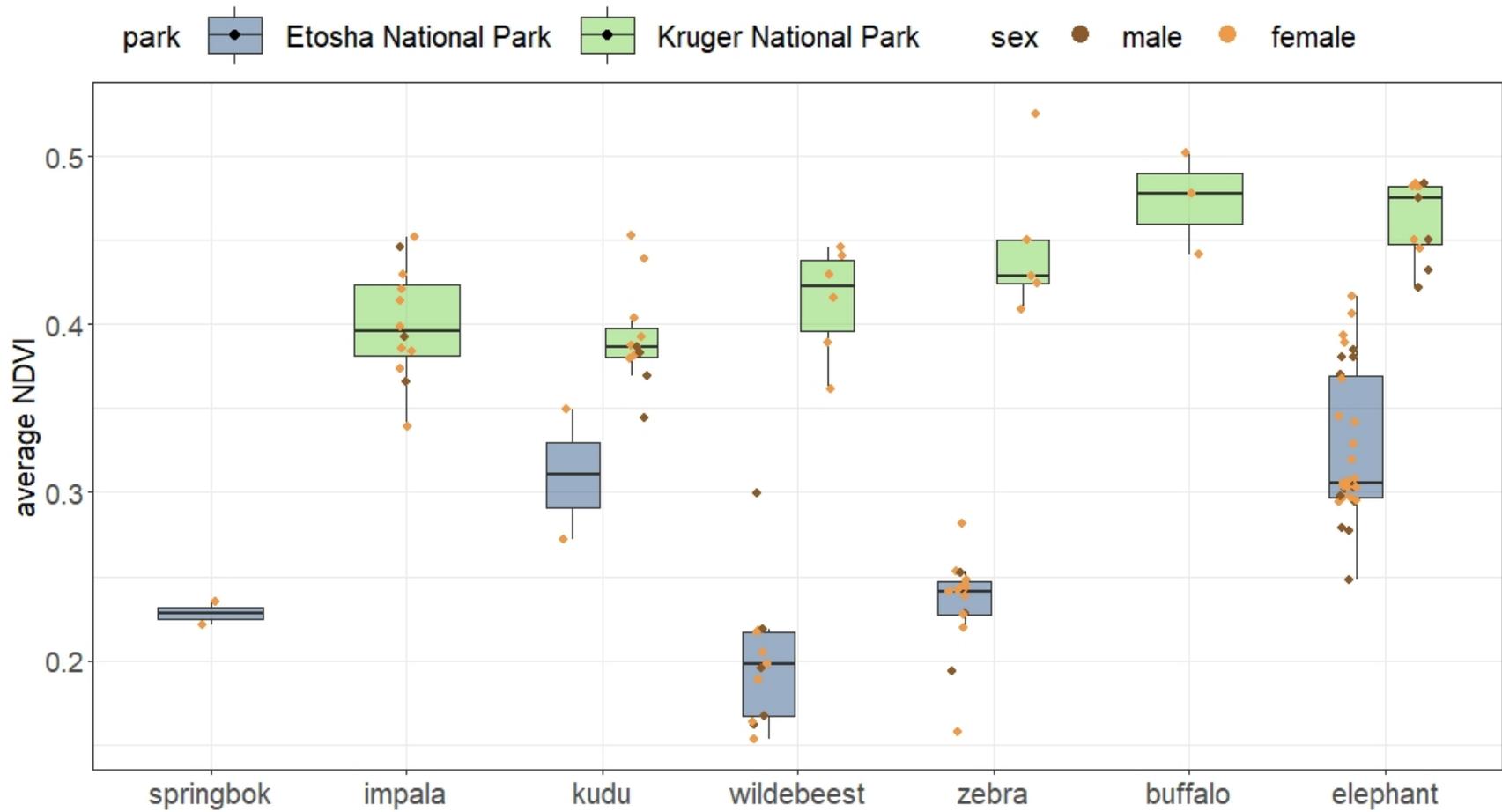
Figure S4

Figure S5

Figure S6
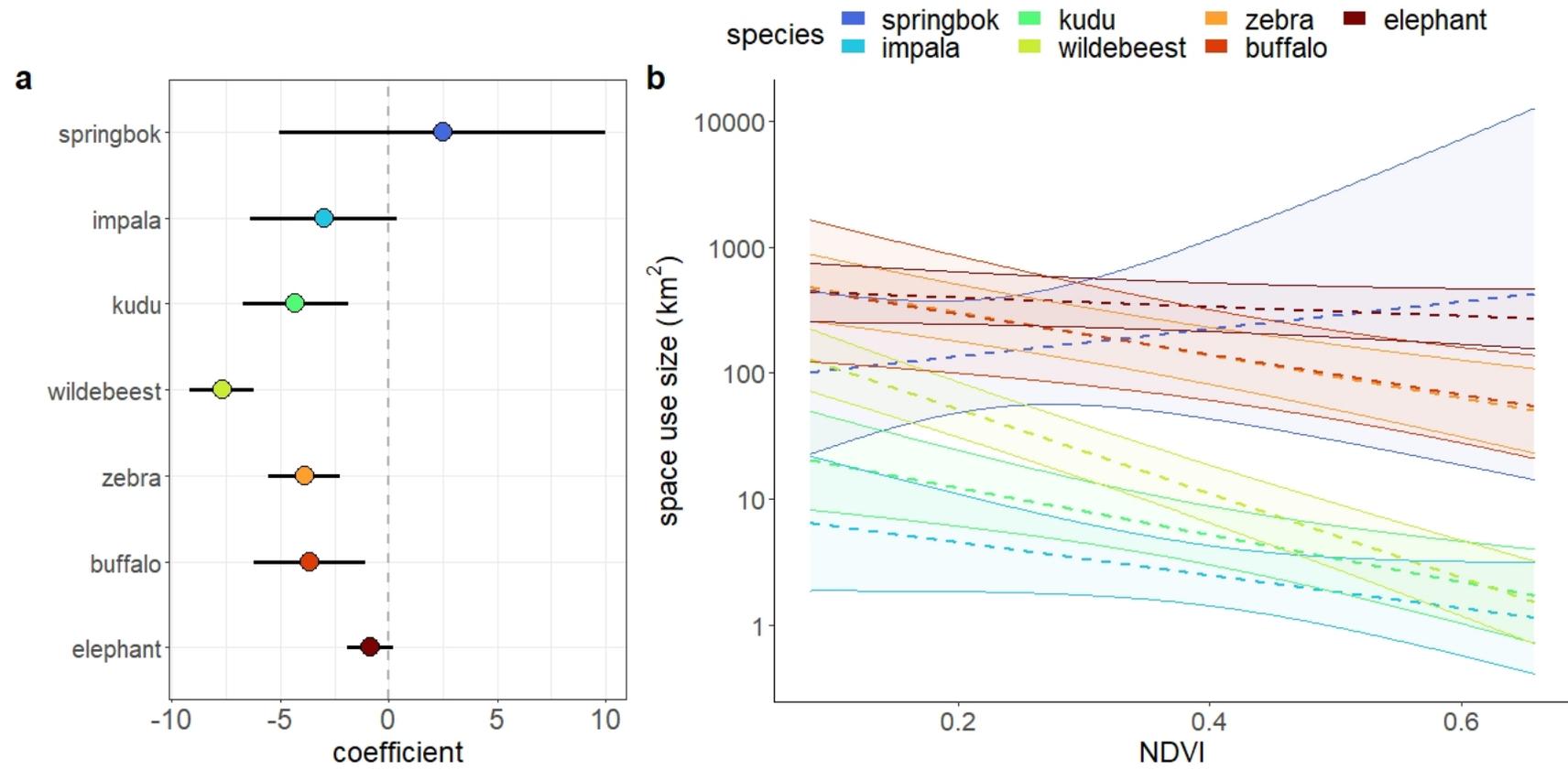
Figure S7
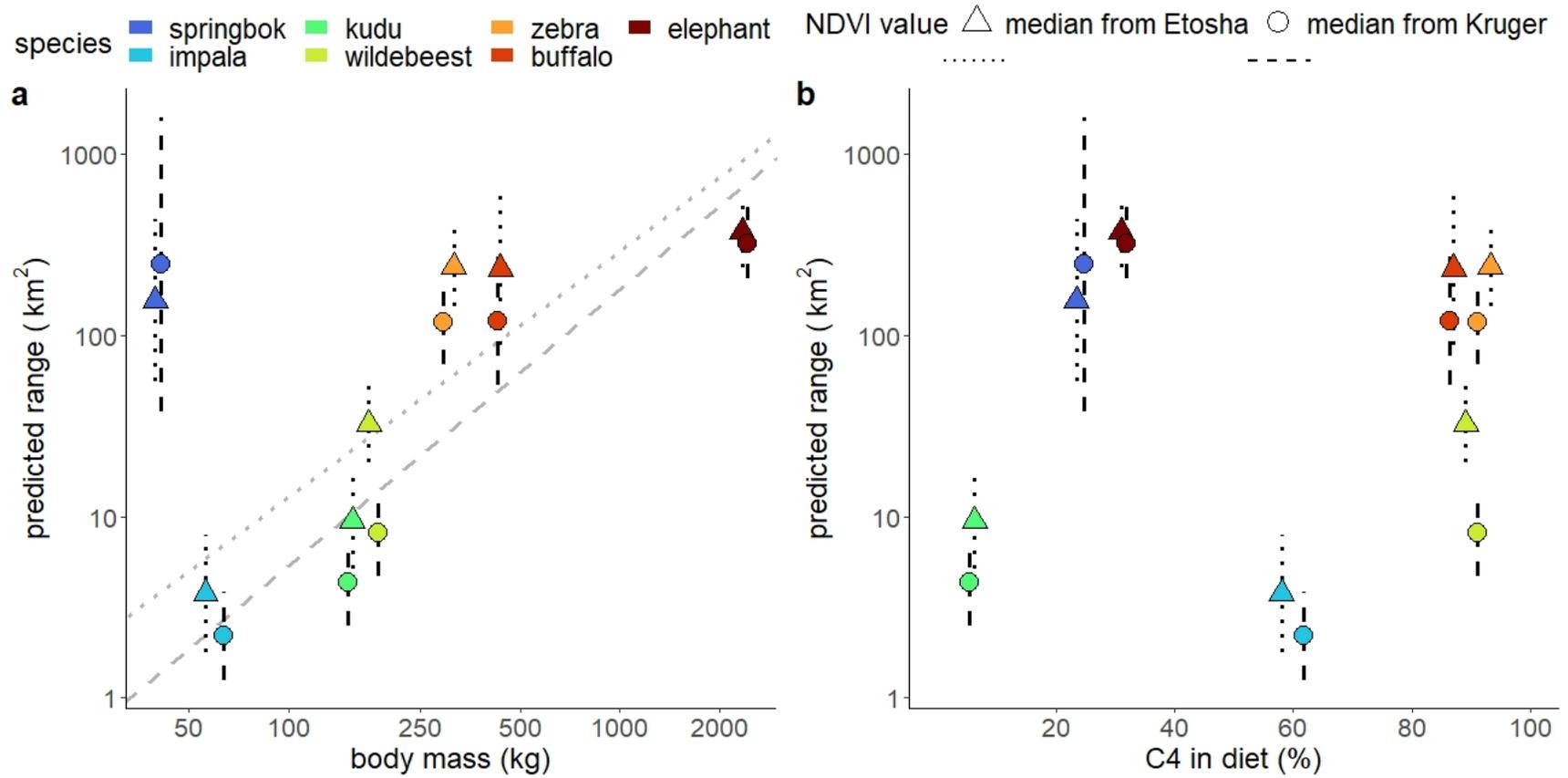
Figure S8

Figure S9

Figure S10