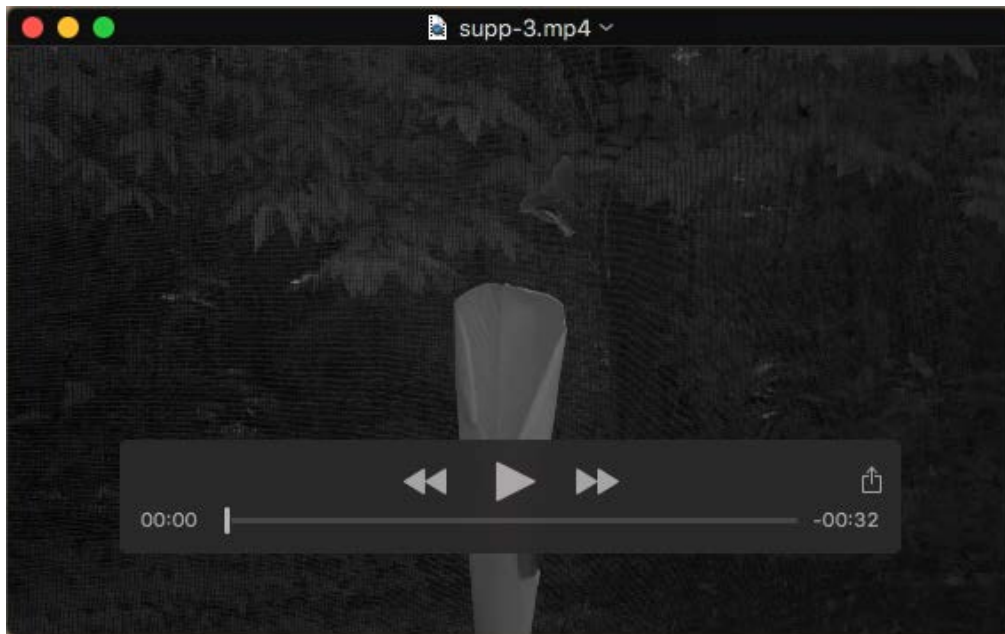




Movie 1: High speed video of an individual *Thyroptera tricolor* landing on the force plate during an experiment.



Movie 2: High speed video of *T. tricolor* landing on a natural leaf, external view.



Movie 3: High speed video of *T. tricolor* landing on a natural leaf, view from below, within the leaf tube.

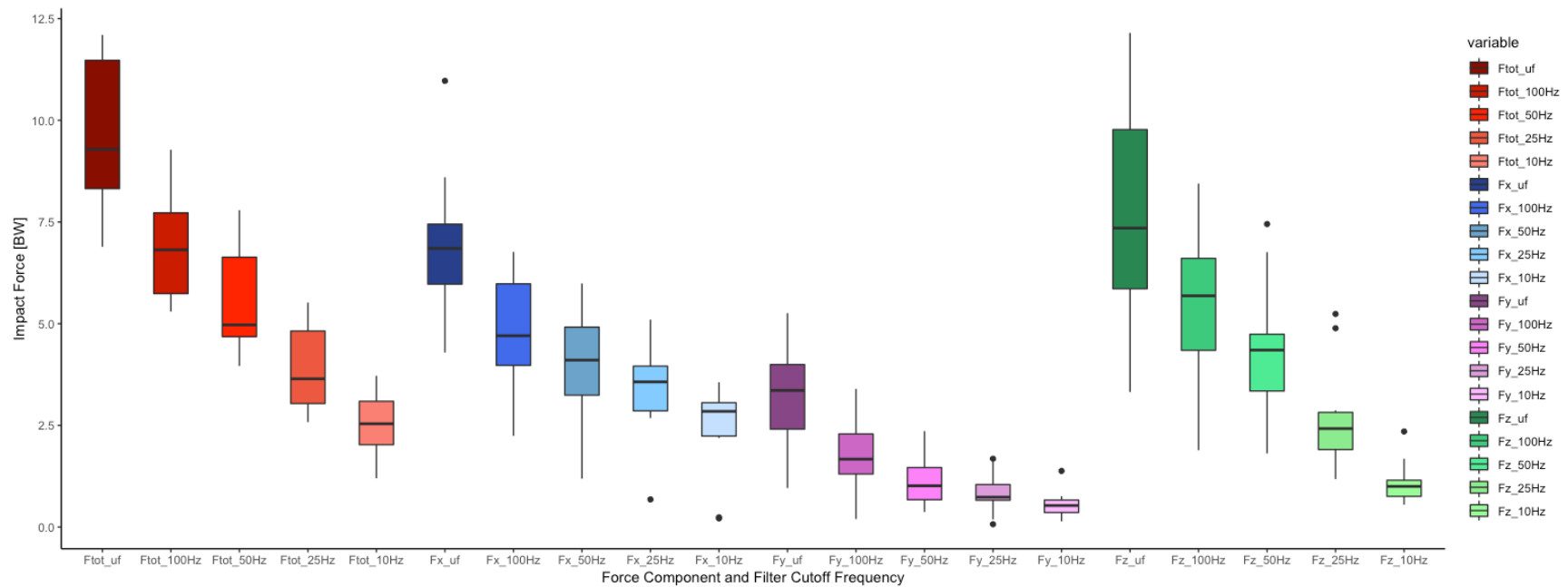


Figure S1: Effects of filter cutoff frequency on measured peak impact forces (n=10 landings). Peak total force (red) and its X (vertical, blue), Y (lateral, purple), and Z (horizontal, green) components. Measurements shown for unfiltered data (darkest hues) and for data that has been filtered with a 2nd order lowpass Butterworth filter at cutoff frequencies of 100 Hz, 50 Hz, 25 Hz, and 10 Hz (decreasing cutoff frequency denoted by lighter hues). Lower cutoff frequencies attenuate impact force compared to higher cutoff frequencies and unfiltered data. In all cases, X (vertical) and Z components (horizontal into the landing plate) contribute most to the total force; however, at cutoff frequencies ≤ 50 Hz the attenuation is more dramatic for the Y and Z components. Boxplots show the median (horizontal line) and interquartile range (upper and lower bounds of the box); outliers indicated by points.

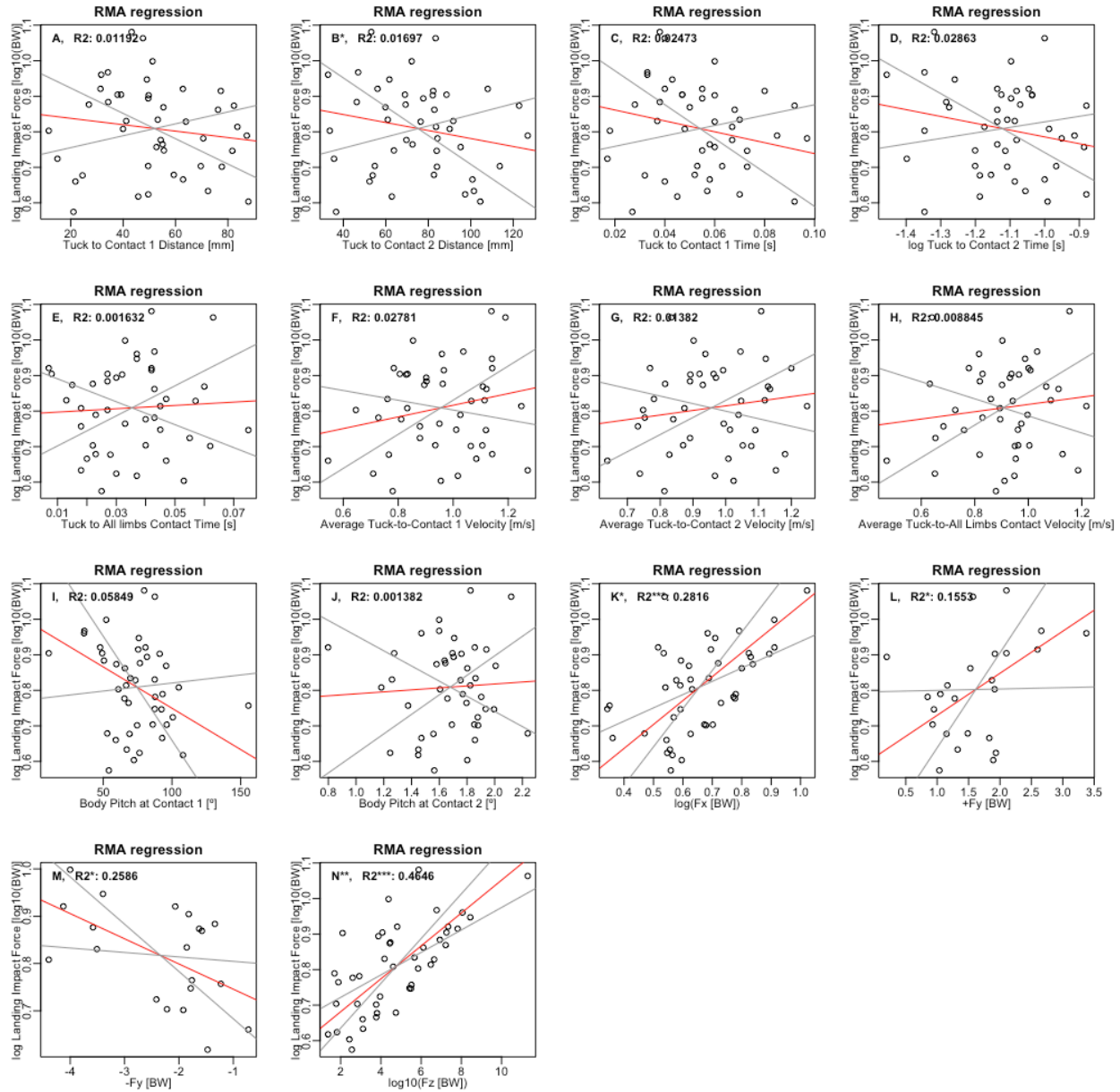


Figure S2: Model II Ranged Major Axis regressions for peak total impact force against various kinematic measurements. Red lines show the regression with 95% CI shown in black lines. R² is given for each regression in each panel (n=14 individuals). Points represent each landing. Slopes that differ significantly from zero are indicated by asterisks next to plot letters; significant R² values are also indicated by asterisks. Kinematic measurements include (A) the distance between the bat's position at tuck onset to its position at the time of first limb contact; (B) the distance between its position at tuck onset and second limb contact; (C) the elapsed time between tuck onset and first limb contact; (D) the elapsed time between tuck onset and second limb contact; (E) the elapsed time between tuck onset and all limbs contact; (F) the average velocity between tuck onset and first limb contact; (G) the average velocity between tuck onset and second limb contact; (H) the average velocity between tuck onset and all limbs contact; (I) body pitch angle at the time of first limb contact; (J) body pitch at the time of second limb contact; (K) F_x; (L) +F_y; (M) -F_y; and (N) F_z. Other than the components of F_{tot}, no measured variables were significantly correlated with peak 3D landing impact force.