

**Monitoring resistance and resilience using a carbon trajectories: Analysis of
forest management–disturbance interactions**

THOMAS S. DAVIS^{1,6,8}, ARJAN J. H. MEDDENS², CAMILLE S. STEVENS-RUMANN^{1,3}, VINCENT S.
JANSEN⁴, JASON S. SIBOLD^{5,6}, AND MIKE A. BATTAGLIA⁷

Ecological Applications

Appendix S1

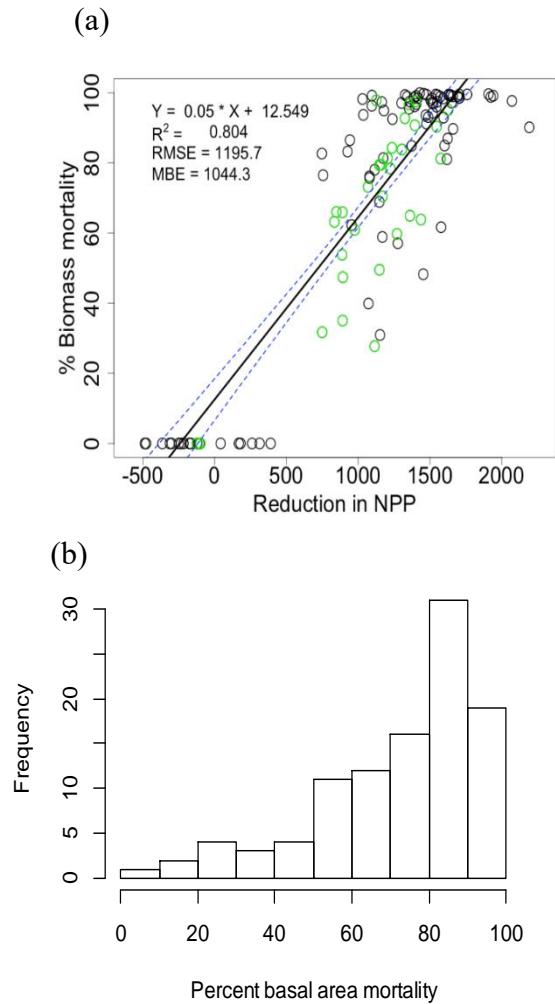


Figure S1. (a) Relationship between field-observed biomass mortality (%) and the maximum reduction in NPP (gC/m^2), illustrating that the Landsat productivity dataset detects changes in forest canopy due to bark beetle-driven overstory tree mortality. Plots include 103 field locations with (b) varying levels of overstory mortality. The green circles indicate plots with >5% aspen and the black circle indicate plots with <5% aspen.

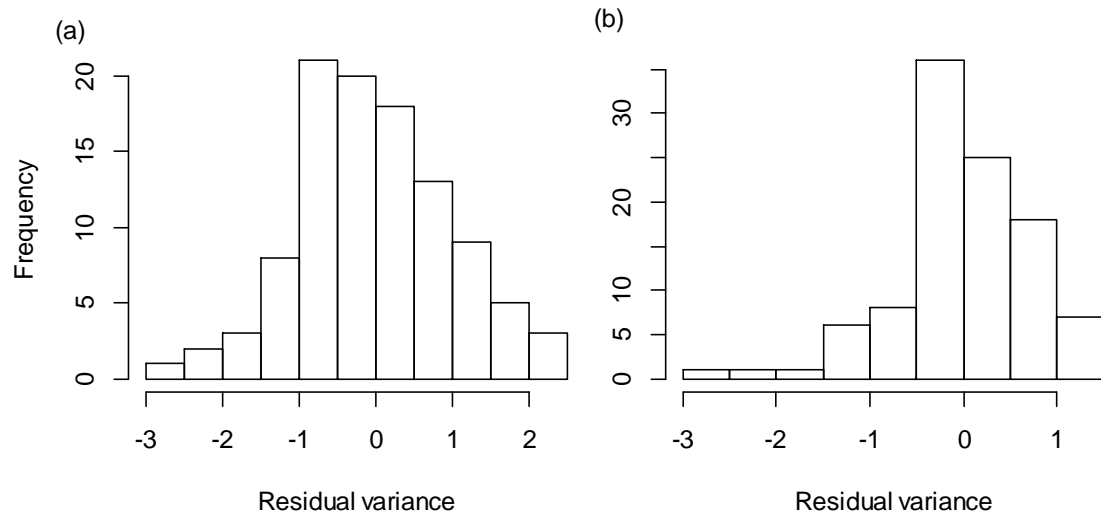


Figure S2. Distribution of residual variance in (a) resistance (dNPP_{max}) and (b) resilience (αNPP) metrics extracted from ANOVA models testing fixed effects of forest treatment.

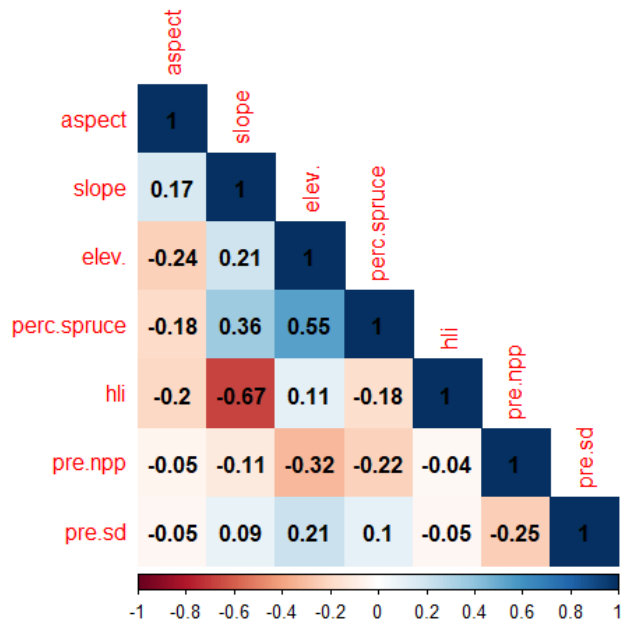


Figure S3. A correlation matrix of environmental predictor variables used in generalized linear model analysis. Stand structural variables were not included because pre- and post-disturbance values were used for modelling resistance and resilience, respectively. Abbreviations are as follows: elev=elevation, perc.spruce=percent of stand basal area comprised of Engelmann spruce, hli=heat load index, pre.npp=pre-outbreak mean net primary productivity, and sd.npp=standard deviation of pre-outbreak net primary productivity.

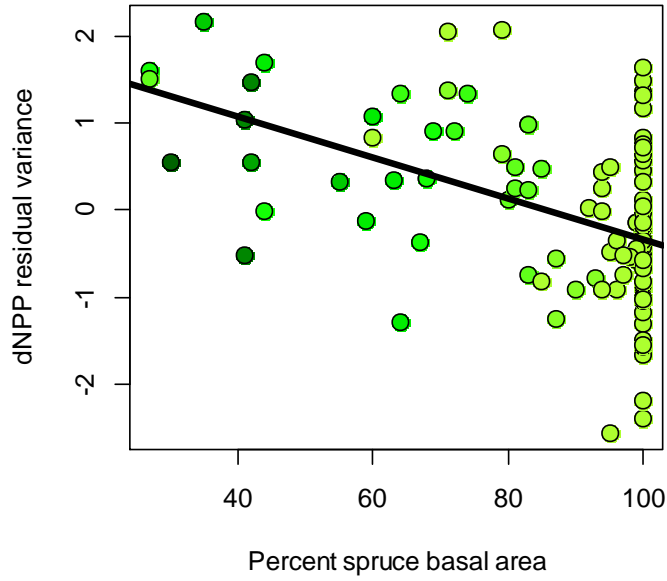


Figure S4. Residual variance in resistance ($dNPP_{max}$) regressed against a percent spruce composition (by basal area) within study stands. Symbols are colored by the proportion (%) of aspen (*P. tremuloides*) basal area in the stand, where darker green hues indicate a higher proportion of aspen basal area.