Aboveground biomass variability across intact and degraded forests in the Brazilian Amazon

- Largest study of biomass variability in the Brazilian Amazon: High-density airborne lidar data (18,000 ha) and 359 coincident inventory plots from 52 intact and degraded forest sites.
- Large and persistent differences in aboveground carbon density (ACD) from reduced impact (11%) and conventional logging (38%) and fire (1x: 37%, 2-3x: 57%), with a 93% reduction in forests burned 5x.
- Airborne lidar captured heterogeneity in degraded forest carbon stocks not identified by inventory plots or first-generation satellite biomass products (Saatchi et al., 2011, Baccini et al., 2012).
- Study provides critical inputs for REDD+: 1) first regional estimates of emissions factors for degraded Amazon forests, 2) evidence that satellite products have limited sensitivity to ACD variability in frontier forests, and 3) methods for uncertainty propagation.