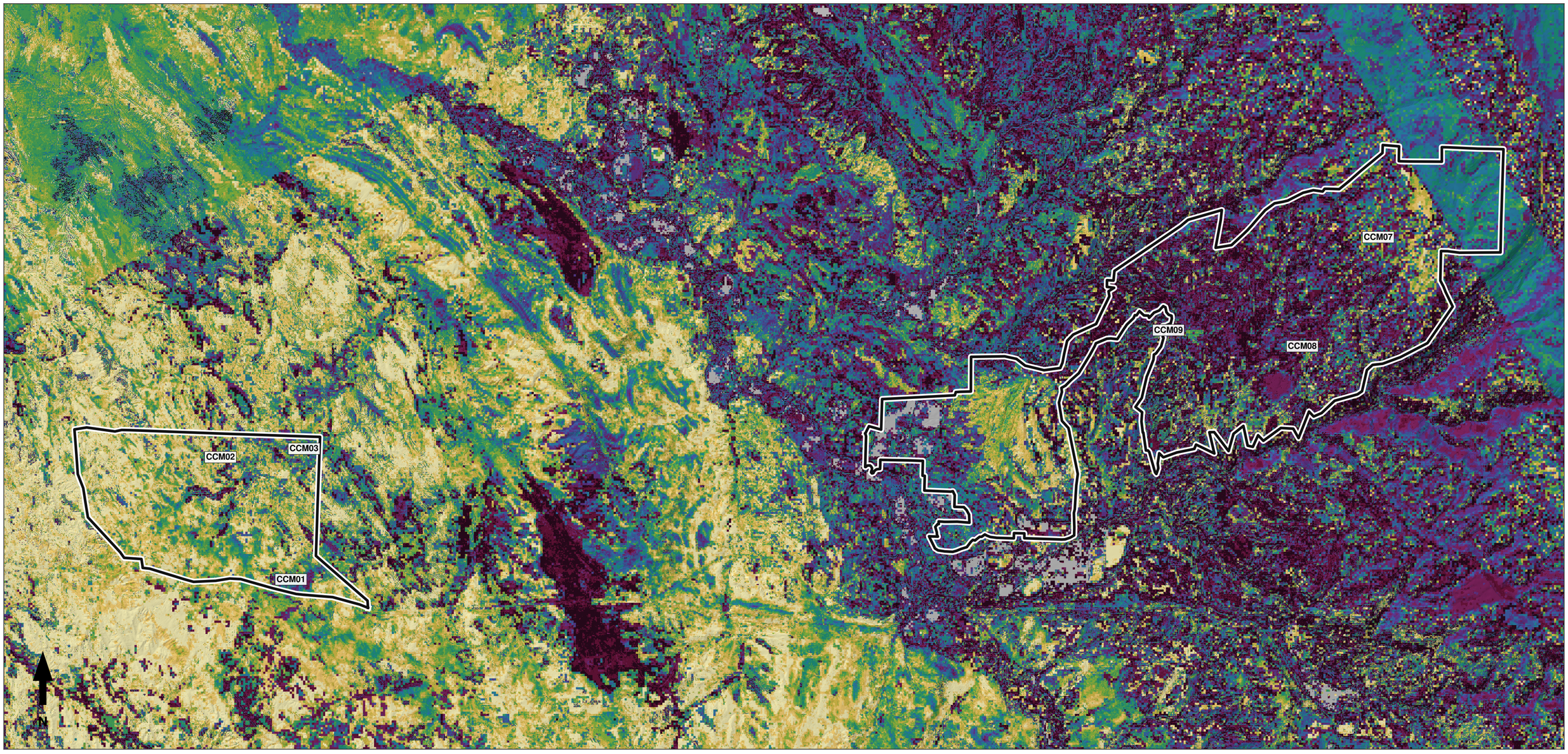
Uncertainty Propagation | Total Sigma of the Species Composition Map

10 m EMIT and EnMAP imaging spectroscopy, GEDI/CHM canopy structure and HLS multispectral reflectance · Carter Country Meats Ranch, Ten Sleep, Wyoming · Summer 2026: 5 admitted scenes (2026-06-01, 2026-06-05, 2026-06-16, 2026-07-13, 2026-08-01)



0.00 0.05 0.07 0.10 0.14 0.22 0.51

Total propagated sigma (cover-fraction units), twelve equal-area color bands; darker = less certain

0 2 4 6 8 10 km

Per class: sigma = sqrt[(0.5·RMSE/0.10)² + (0.5·shade)² + (0.5·scene spread)² + (0.5·|1 – sum|)²] · sqrt[f(1 – f)] — spectral fit, shade, Between-scene disagreement and closure, scaled by the fraction. Total = root-sum-square over the classes. Each color band covers one Twelfth of the rangeland; band edges are the sigma values at those quantiles. Median 0.100, 90th percentile 0.268. Dotted outline: seam Between the June 2026 swaths, filled from the 2026 annual composite (9 scenes). Gray: not rangeland. White: no data. Basemap: hillshade Derived from the USGS 3D Elevation Program (3DEP) 1/3 arc-second DEM (U.S. Geological Survey, https://www.usgs.gov/3d-elevation-program).

Bradley A. Gay, PhD · NASA GSFC Code 618 / UMD ESSIC · EPSG:32613 (UTM 13N) · CCM Module 13 v3.4, MESMA v7_2 pool v10 with per-row EnMAP gates · 2026-09-17