Map Accuracy Assessment - TRAINING Data

Lucas Johnson

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Details

- Model information
- Reference FIA plots = Training/Testing FIA plots
- LiDAR coverage specific maps pooled:
  - NYSGPO_AlleganySteuben2016
  - NYSGPO_CayugaOswego_2018
  - NYSGPO_WarrenWashingtonEssex_2015
  - USGS_3County2014
- Assessment following framework developed by Riemann et al

Plot-Pixel Comparison

- Map values extracted at FIA subplots (weighted mean) and averaged

Aggregate Comparison

- FIA plot values averaged within hexagons
  - Centroid of FIA plot must fall within hexagon
- SI Corrected = Only pixels coincident with FIA plots extracted and averaged
  - Weighted by fraction of cell falling within FIA plots
- Uncorrected = Map values averaged within hexagons
  - Weighted by fraction of cell falling within hexagon

Agreement Statistics (SI corrected)

Table 1: Plot - Pixel Comparison; n = 221

MODEL	MBE	RMSE	MAE	R2	KS	AC	ACs	ACu
RF	-1.20	38.75	27.91	0.74	0.13	0.65	0.69	0.96
GBM	-1.45	39.18	28.44	0.73	0.12	0.64	0.68	0.96
SVM	-1.68	33.65	22.43	0.80	0.12	0.76	0.78	0.98
LINMOD	-1.04	37.21	26.51	0.76	0.10	0.68	0.72	0.97
RMSE	-1.44	36.49	25.74	0.77	0.13	0.70	0.74	0.96

Table 2: 8660 Ha Hex; n = 167; Avg Plots Per Hex: 1.32

MODEL	MBE	RMSE	MAE	R2	KS	AC	ACs	ACu
RF	-0.75	33.90	25.29	0.77	0.12	0.70	0.73	0.97
GBM	-0.98	34.15	25.45	0.77	0.10	0.70	0.73	0.97
SVM	-0.79	28.85	20.02	0.84	0.11	0.80	0.82	0.98
LINMOD	-0.60	32.30	23.77	0.79	0.11	0.74	0.76	0.97
RMSE	-0.84	31.62	23.15	0.80	0.12	0.75	0.78	0.97

Table 3: 21400 Ha Hex; n = 101; Avg Plots Per Hex: 2.19

MODEL	MBE	RMSE	MAE	R2	KS	AC	ACs	ACu
RF	-2.56	28.36	21.92	0.80	0.15	0.74	0.78	0.96
GBM	-3.22	28.49	21.82	0.80	0.15	0.74	0.78	0.96
SVM	-2.66	25.44	18.27	0.84	0.11	0.80	0.83	0.97
LINMOD	-2.60	27.26	20.79	0.81	0.14	0.77	0.80	0.97
RMSE	-2.81	26.84	20.30	0.82	0.13	0.77	0.81	0.96

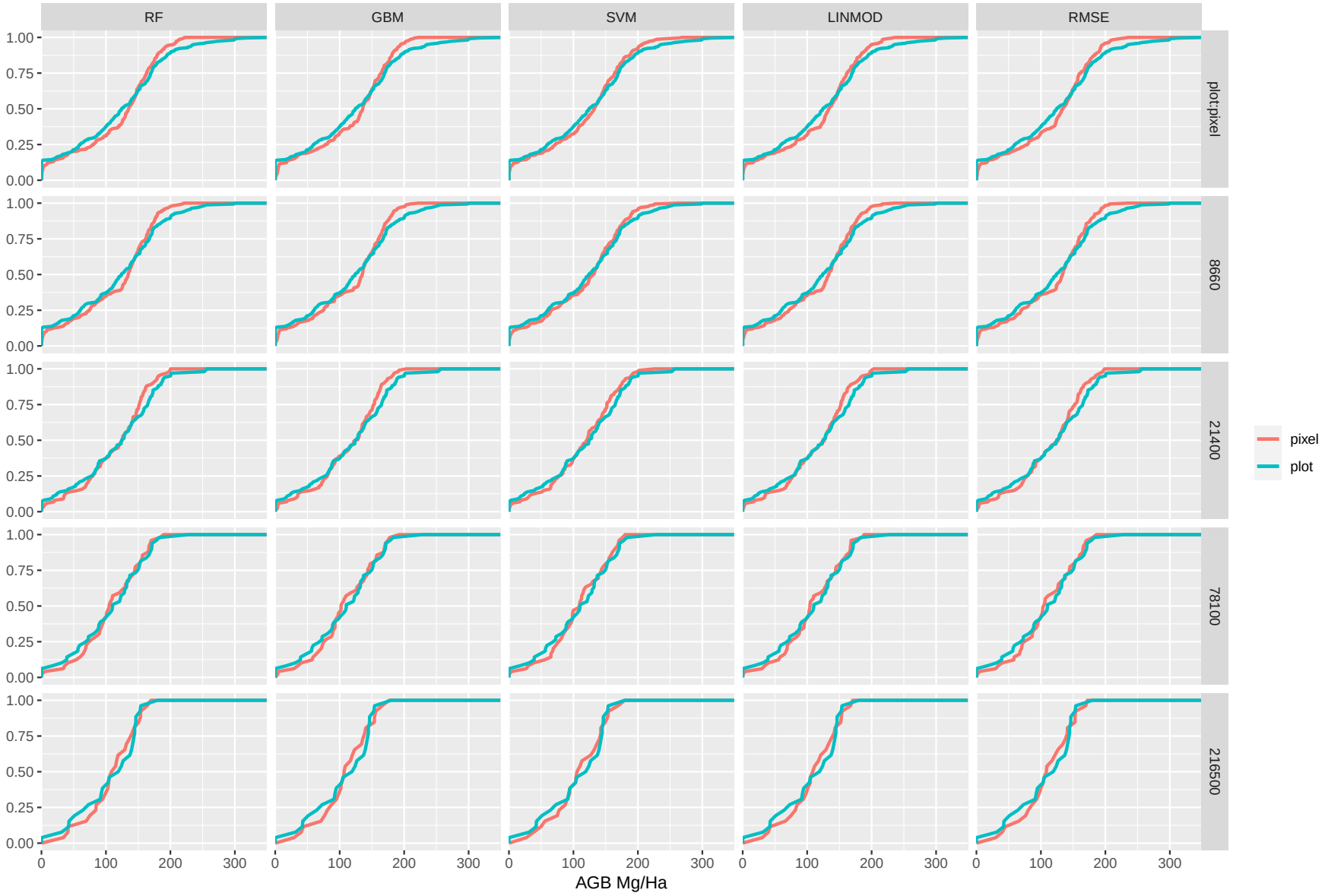
Table 4: 78100 Ha Hex; n = 49; Avg Plots Per Hex: 4.51

MODEL	MBE	RMSE	MAE	R2	KS	AC	ACs	ACu
RF	0.72	22.41	16.93	0.82	0.10	0.78	0.81	0.98
GBM	0.64	22.57	17.23	0.82	0.10	0.78	0.80	0.98
SVM	-0.39	20.74	15.27	0.85	0.12	0.81	0.84	0.97
LINMOD	0.55	21.86	16.43	0.83	0.10	0.79	0.81	0.98
RMSE	0.33	21.54	16.24	0.84	0.10	0.79	0.82	0.97

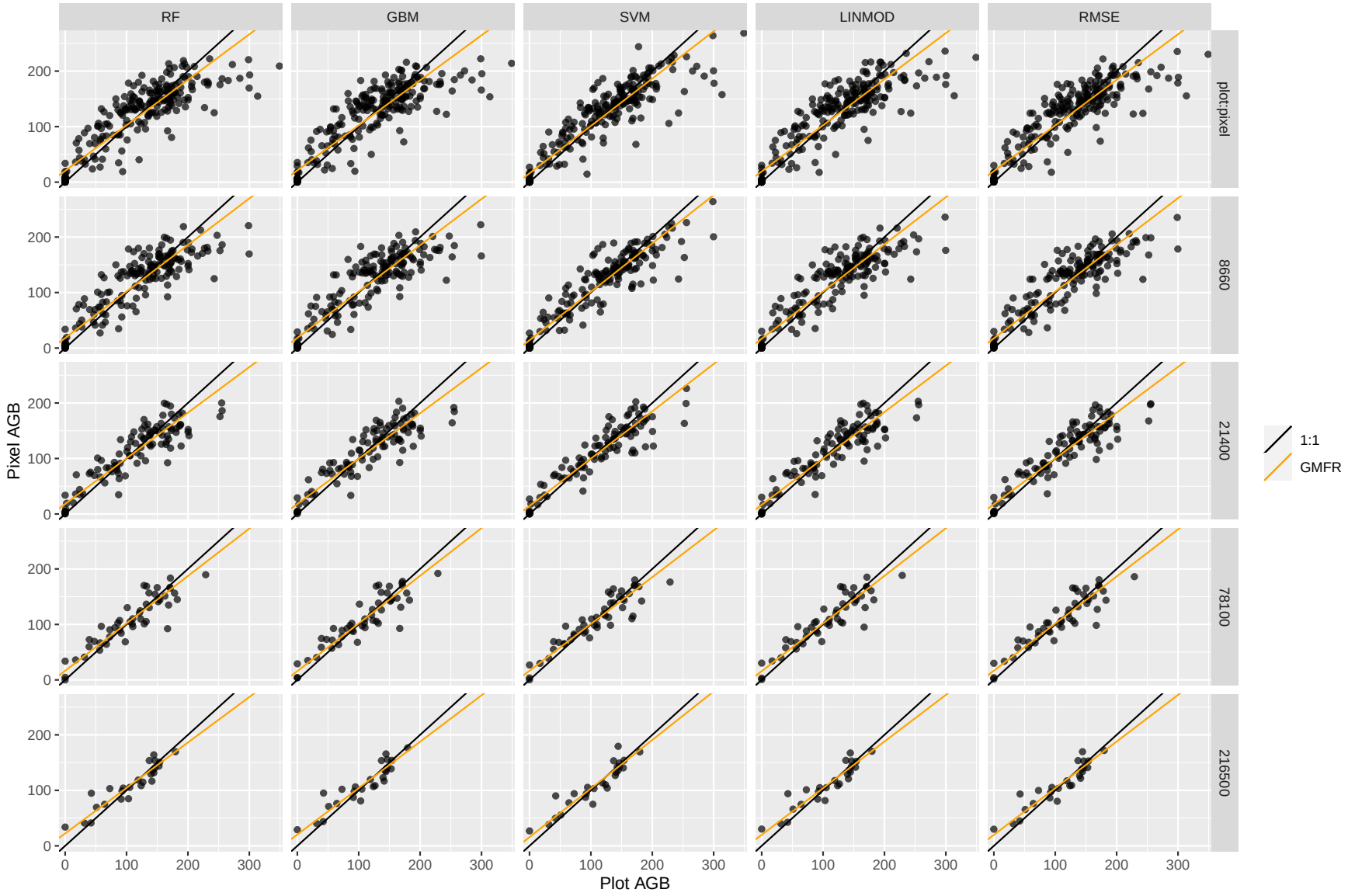
Table 5: 216500 Ha Hex; n = 26; Avg Plots Per Hex: 8.50

MODEL	MBE	RMSE	MAE	R2	KS	AC	ACs	ACu
RF	2.99	17.65	13.51	0.86	0.15	0.82	0.86	0.96
GBM	2.77	18.08	14.03	0.85	0.15	0.82	0.85	0.97
SVM	2.36	16.98	12.64	0.86	0.12	0.84	0.86	0.98
LINMOD	2.77	17.16	13.12	0.87	0.12	0.84	0.87	0.97
RMSE	2.71	17.26	13.36	0.87	0.15	0.83	0.87	0.97

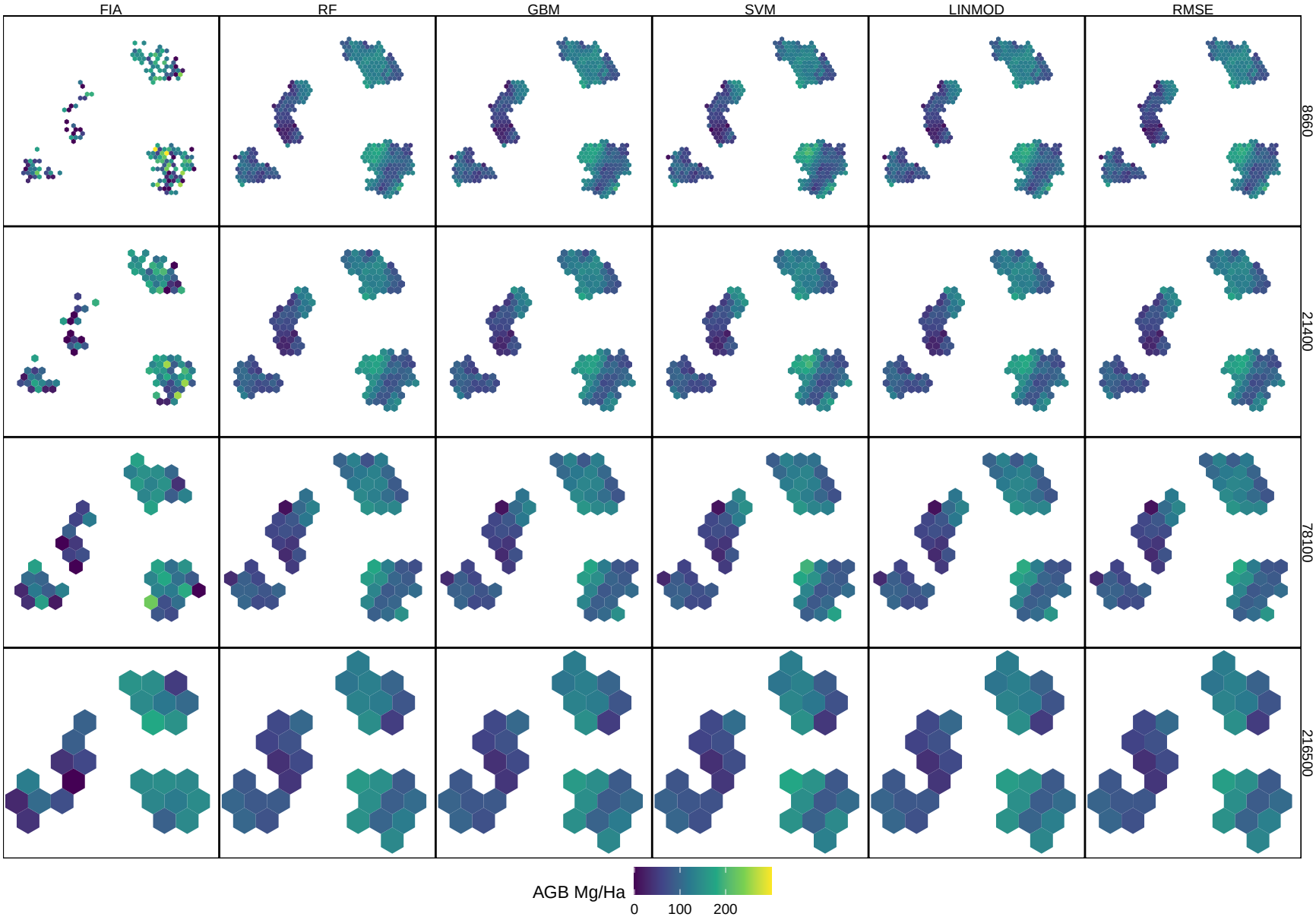
ECDF Comparisons Across Scales - FIA Plots vs Mapped (SI corrected)



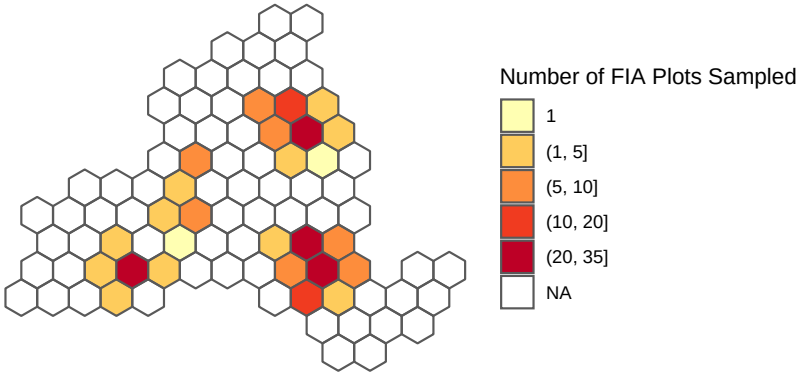
1:1 and GMFR Lines Across Scales - FIA Plots vs Mapped (SI corrected)



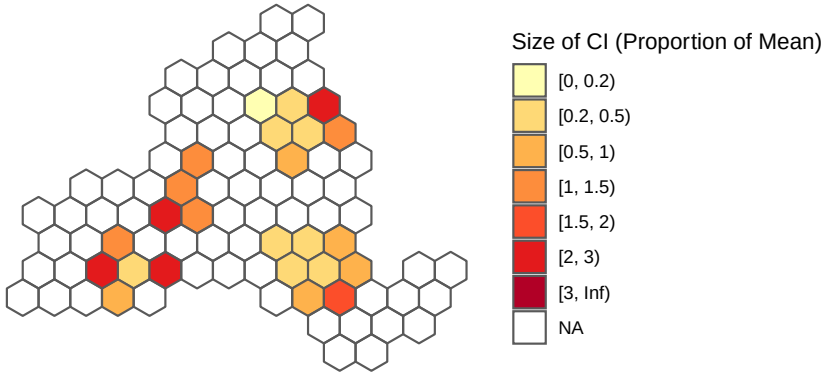
Aggregate AGB Estimates Across Scales (Uncorrected)



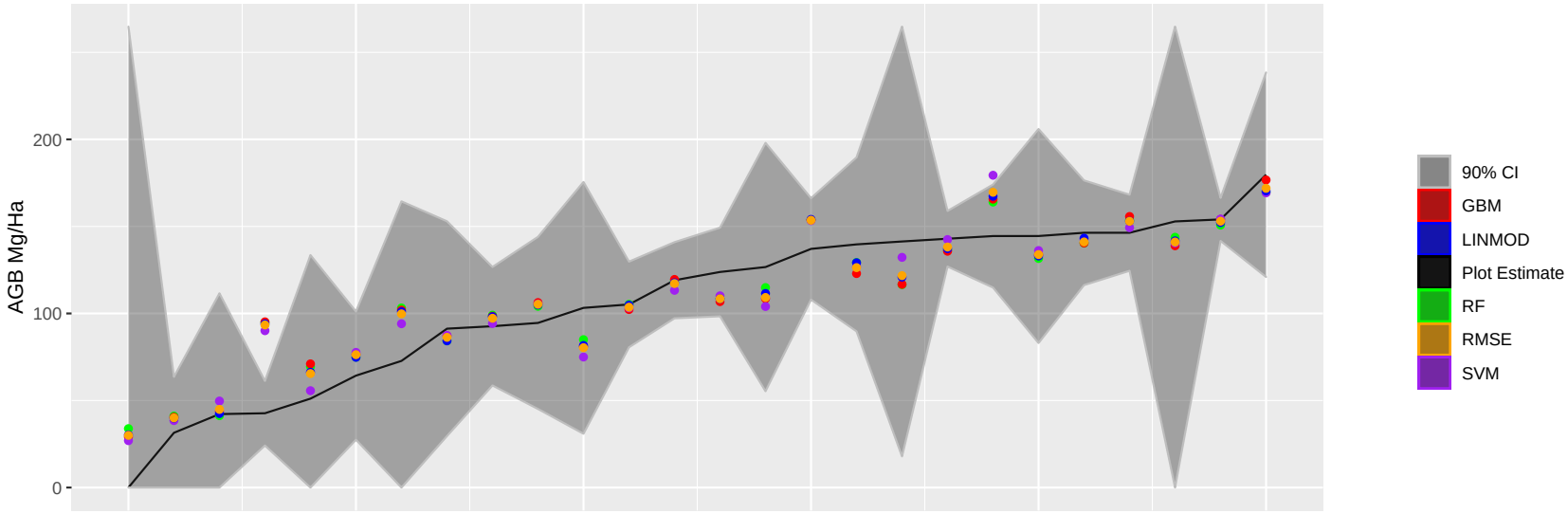
Spatial/Distribution Patterns of Local Differences (SI Corrected)



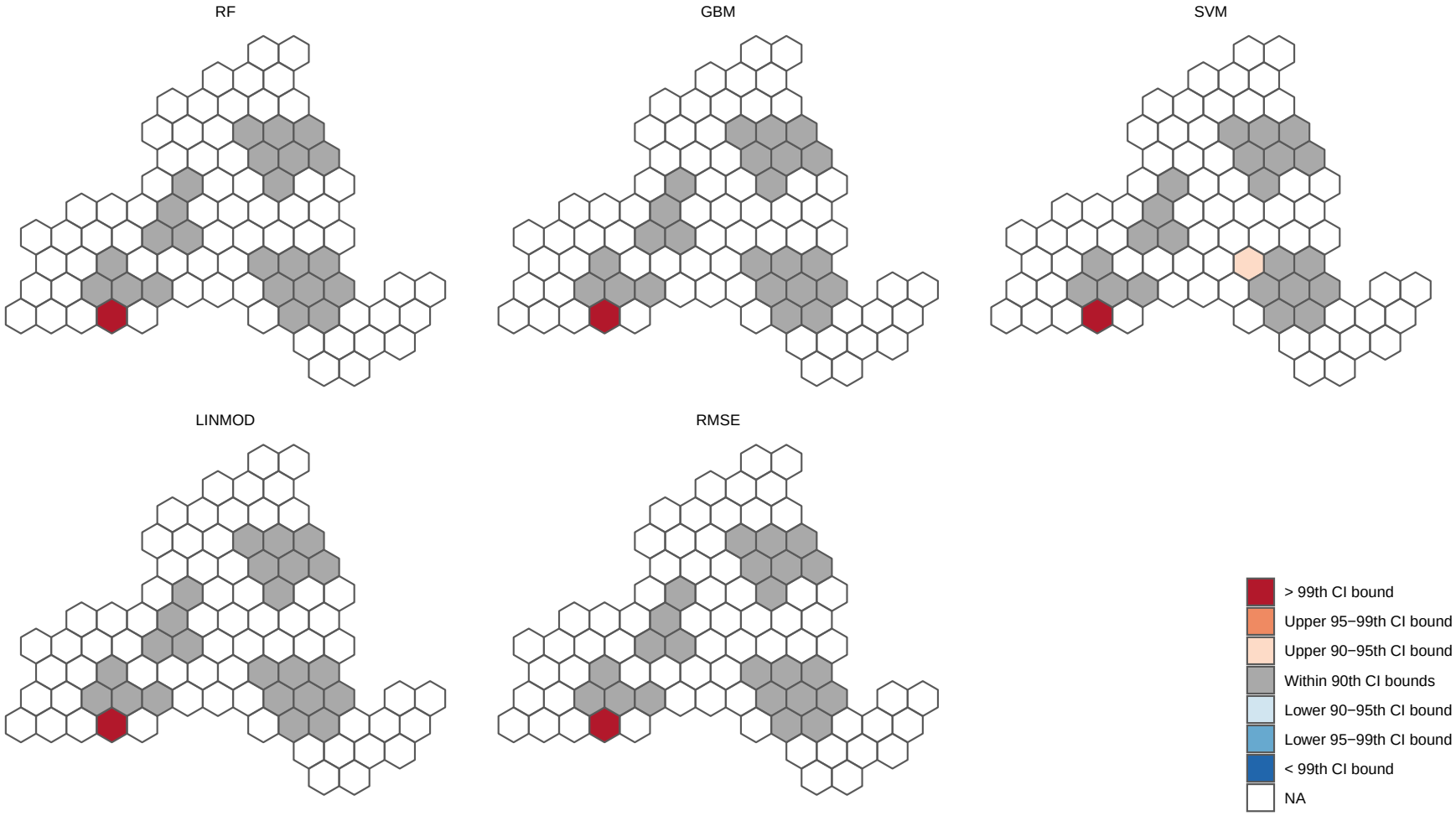
FIA Plots Sampled at 215600 Ha Scale

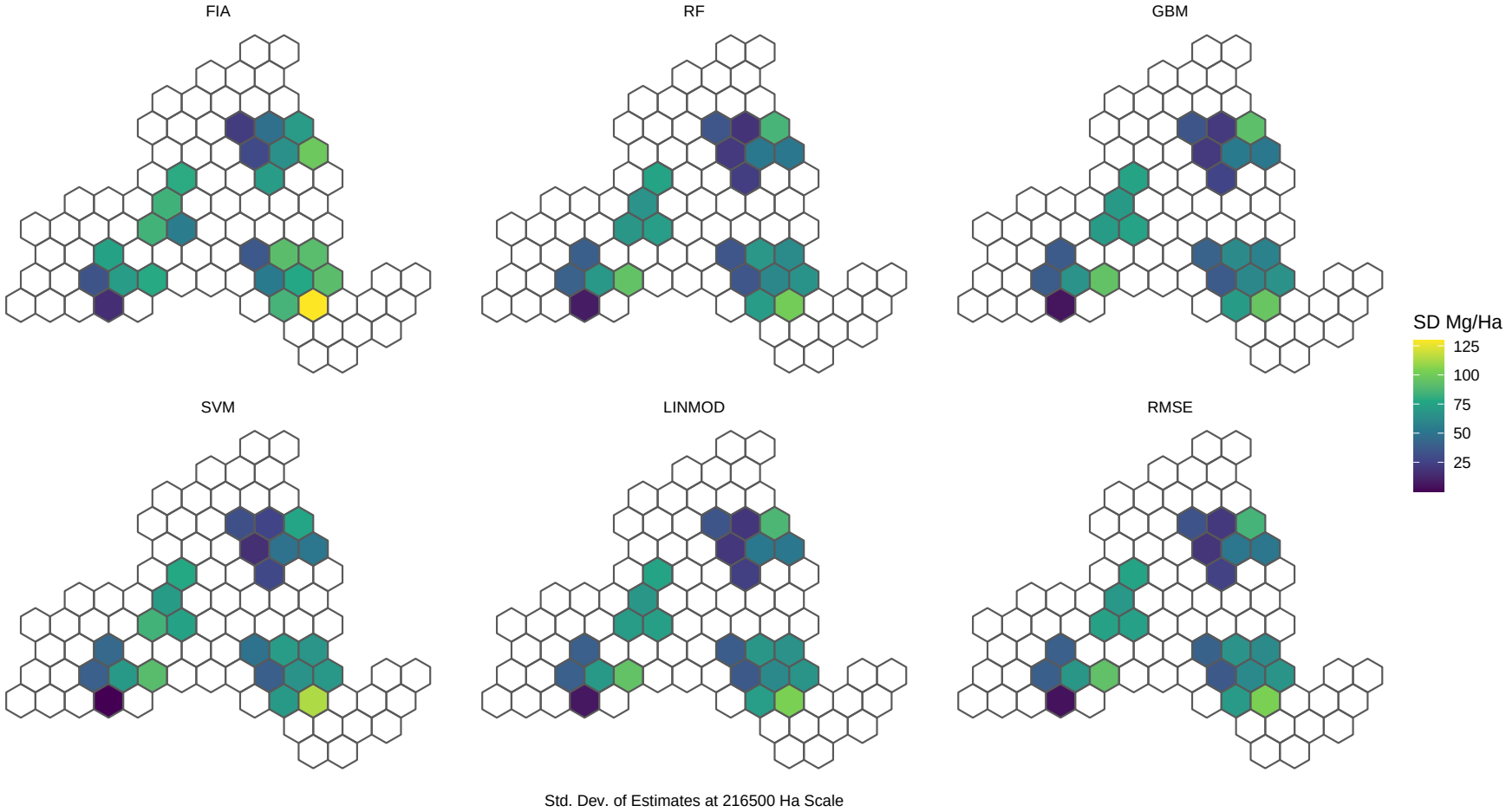


Size of FIA CIs at 215600 Ha Scale



216500 Ha Hexes −− sorted by increasing plot mean



Model Aggregate Results Compared to FIA CIs at 216500 Ha Scale

Patterns of Local Variability (SI Corrected)