Supplementary Materials: Trends in Woody and Herbaceous Vegetation in the Savannas of West Africa

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Google Earth Engine code used to retrieve and prepare NDVI and rainfall data for trend analysis:

*i*NDVI: https://code.earthengine.google.com/5ad235ae90ef916d7b2e0cdf446dc348

*i*Rain: https://code.earthengine.google.com/42398cc10e53835e7a03b8364f82bea0

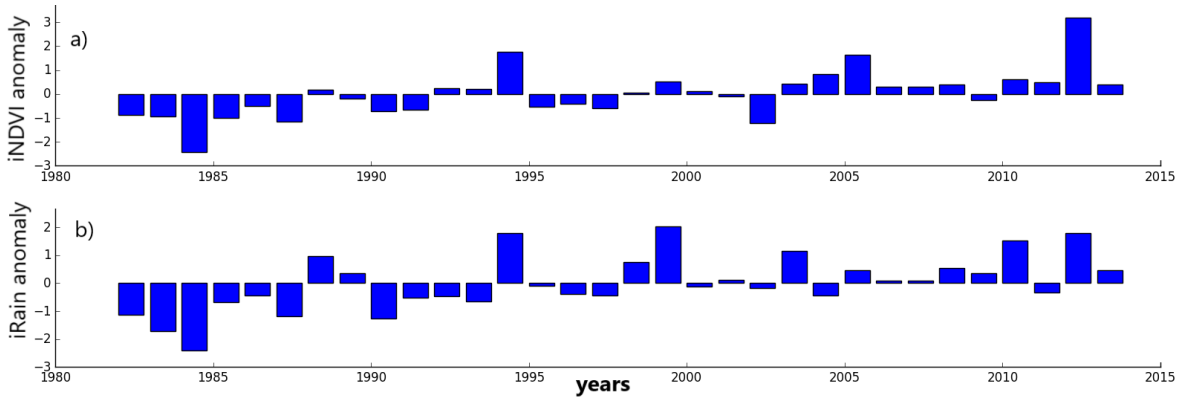

Figure 1. Yearly anomalies (in units of standard deviation) of a) *i*NDVI and b) *i*Rain, averaged for the study area.

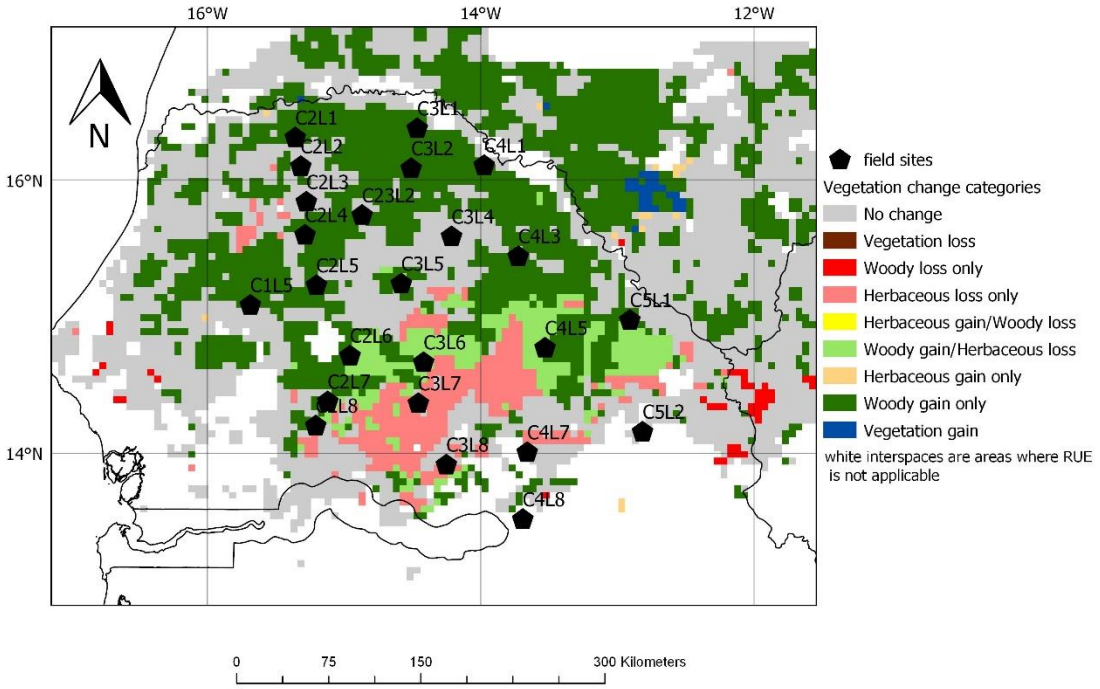

Figure 2. Map of Senegal showing locations of 24 sites with long-term in situ biomass data used to validate/support pixel-based trends.

Table 1. Summary of in situ data used to support pixel-based vegetation trend.

Pixel trend inferred from RUE change	Site name	Number of years of available data	Woody leaf biomass trend (kg ha^{-1} year^{-1})	herbaceous biomass trend (kg ha^{-1} year^{-1})
RUE concept not applicable (2 sites)	C4L7	26	NA	NA
	C4L8	23	NA	NA
no change (8 sites)	C23L2	21	(✓) 24.93	(✓) 21.04
	C2L2	27	(X) 19.22*	(✓) 16.29
	C2L3	25	(X) 28.13*	(✓) -2.39
	C2L4	25	(X) 7.87*	(✓) -3.10
	C2L7	24	(✓) 9.48	(✓) -8.48
	C3L4	25	(X) 47.49*	(✓) 7.54
	C3L8	27	(X) 96.57*	(✓) -13.70
	C5L2	16	(X) 84.53*	(✓) -19.35
herbaceous loss no woody change (1 site)	C3L7	17	(X) 48.61*	(X) -30.11
woody gain herbaceous loss (3 sites)	C3L5	30	(✓) 50.32*	(✓) -15.85*
	C3L6	20	(✓) 38.85*	(X) -28.68
	C4L5	24	(✓) 28.77*	(X) 13.91
woody gain no herbaceous change (10 sites)	C1L5	24	(X) -.90	(✓) 17.93
	C2L1	26	(✓) 14.40*	(✓) 7.17
	C2L5	26	(✓) 28.78*	(✓) -14.55
	C2L6	28	(✓) 50.88*	(X) -43.94*
	C2L8	26	(✓) 67.45*	(✓) -13.30
	C3L1	25	(X) 7.74	(✓) 1.60
	C3L2	29	(X) 14.82	(✓) 12.62
	C4L1	25	(X) 14.98	(✓) 7.06
	C4L3	20	(✓) 38.03*	(✓) -12.82
	C5L1	26	(✓) 34.74*	(X) 29.54*
			✓ = 50%	✓ = 77%
			X = 50%	X = 23%

*significant trend (p-value of slope of biomass vs time <0.05), RUE = rain use efficiency

◎= in situ data agrees with pixel trend

X = in situ data does not agree with pixel trend

Agreement determined using sign, +/-, and statistical significance of trend at each site

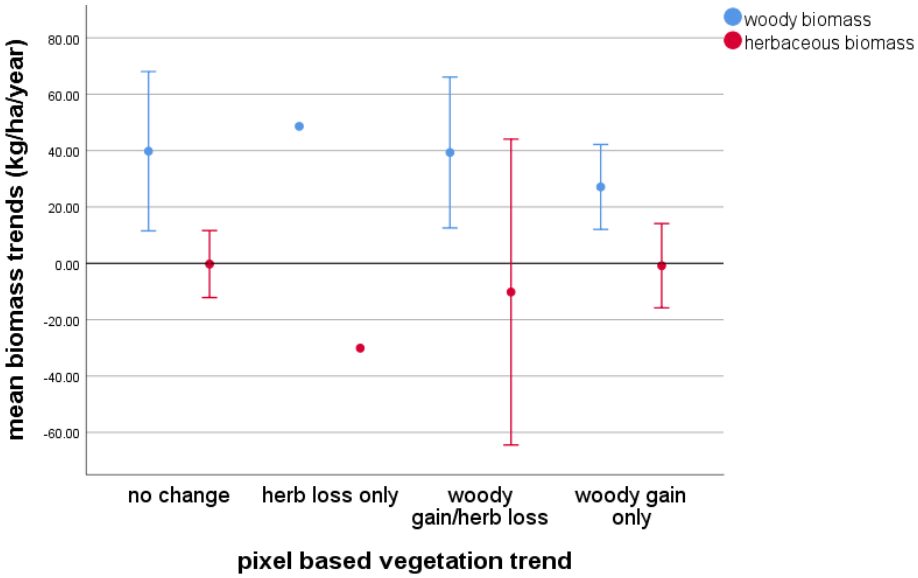

Figure 3. Comparison of mean in situ biomass trends (kg ha^{-1} $year^{-1}$) across vegetation change categories inferred from RUE change analysis (See Figures 9 and S2 for categories). Error whiskers indicate a 95% confidence interval.