

Supplementary Information

Table S1. Means and standard deviations of soil and vegetation characteristics for reference and restoration plots in longleaf pine forests at EAFB, Florida. Means for treatment with the same letter do not differ at $p < 0.05$.

Response variables		Reference	Burn	Control	Herbicide	Mechanical
Soil characteristics	Bulk Density (g cm ⁻³)	0.94 (0.07) ^a	0.86 (0.08) ^b	0.89 (0.16) ^{ab}	0.91 (0.07) ^{ab}	0.87 (0.08) ^{ab}
	Moisture Content (%)	0.16 (0.02) ^a	0.16 (0.05) ^a	0.15 (0.01) ^a	0.15 (0.01) ^a	0.15 (0.02) ^a
	C (%)	0.71 (0.17) ^b	0.84 (0.17) ^{ab}	0.77 (0.25) ^{ab}	0.92 (0.22) ^a	0.88 (0.24) ^a
	N (%)	0.026 (0.005) ^b	0.033 (0.007) ^a	0.032 (0.009) ^a	0.036 (0.008) ^a	0.033 (0.006) ^a
	CN ratio	27.0 (3.5) ^a	25.6 (1.7) ^{ab}	24.2 (2.4) ^b	25.2 (2.5) ^{ab}	26.2 (3.5) ^{ab}
	C pool (g m ⁻²)	1326 (292) ^b	1437 (225) ^{ab}	1342 (400) ^b	1644 (312) ^a	1533 (421) ^{ab}
	N pool (g m ⁻²)	49.3 (10.1) ^b	56.2 (9.4) ^{ab}	55.6 (16.0) ^{ab}	65.4 (11.5) ^a	58.1 (11.3) ^{ab}
	NH ₄ (g N gdw ⁻¹)	0.80 (0.88) ^a	0.80 (0.25) ^a	1.18 (0.64) ^a	0.89 (0.38) ^a	0.97 (0.64) ^a
	NO ₃ (g N gdw ⁻¹)	0.35 (0.19) ^b	0.46 (0.22) ^{ab}	0.58 (0.31) ^a	0.40 (0.24) ^{ab}	0.34 (0.19) ^b
	NH ₄ (g m ⁻²)	0.15 (0.17) ^a	0.13 (0.03) ^a	0.21 (0.13) ^a	0.16 (0.07) ^a	0.17 (0.11) ^a
	NO ₃ (g m ⁻²)	0.066 (0.035) ^b	0.076 (0.036) ^{ab}	0.100 (0.064) ^a	0.073 (0.046) ^{ab}	0.060 (0.035) ^b
	Nitrification (g N gdw ⁻¹ d ⁻¹)	0.0 (0.0072) ^b	0.0 (0.0090) ^b	0.0071 (0.0147) ^a	0.0064 (0.010) ^a	0.0019 (0.0071) ^{ab}
	Mineralization (g N gdw ⁻¹ d ⁻¹)	-0.0005 (0.0187) ^a	0.0115 (0.0158) ^a	0.0096 (0.0178) ^a	0.0092 (0.0164) ^a	0.0091 (0.0181) ^a
	Nitrification (g N m ⁻² d ⁻¹)	0.0001 (0.0013) ^b	0.0 (0.0014) ^{ab}	0.0013 (0.0028) ^a	0.0011 (0.0017) ^{ab}	0.0003 (0.0013) ^{ab}
	Mineralization (g N m ⁻² d ⁻¹)	-0.0001 (0.0036) ^a	0.0019 (0.0027) ^a	0.0020 (0.035) ^a	0.0015 (0.0028) ^a	0.0016 (0.0036) ^a
	Initial C flux rate (μg C gdw ⁻¹ h ⁻¹)	0.053 (0.030) ^a	0.040 (0.022) ^a	0.052 (0.052) ^a	0.043 (0.024) ^a	0.044 (0.029) ^a
	6-week C flux rate (μg C gdw ⁻¹ h ⁻¹)	0.056 (0.031) ^a	0.044 (0.036) ^a	0.064 (0.052) ^a	0.060 (0.031) ^a	0.049 (0.039) ^a
Plant functional groups	Graminoids (%)	11.7 (10.1) ^a	12.2 (7.6) ^a	14.1 (9.7) ^a	10.2 (5.4) ^a	9.5 (9.4) ^a
	Forbs (%)	8.4 (4.5) ^b	19.7 (15.5) ^a	12.9 (10.5) ^{ab}	14.7 (11.5) ^{ab}	15.1 (10.3) ^{ab}
	Woody species (%)	17.2 (14.8) ^a	6.7 (6.7) ^b	13.3 (16.8) ^{ab}	1.9 (3.2) ^c	16.3 (14.5) ^{ab}
	Saw palmetto (%)	1.7 (5.6) ^a	0.8 (2.7) ^b	0.0 (0.0) ^b	5.3 (7.7) ^a	0.0 (0.0) ^b

Table S2. Relationships between soil properties and distance from the trunk. [#] = 0.1, * = 0.05, ** = 0.01, *** = 0.001.

Responses variables		Reference	Burn	Control	Herbicide	Mechanical
Soil characteristics	Bulk Density (g cm ⁻³)	y = 0.92 + 0.011*D	y = 0.84 + 0.009*D	y = 0.75 + 0.071*D	y = 0.81 + 0.050*D	y = 0.85 + 0.012*D**
	Moisture Content (%)	y = 0.17 – 0.005*D	y = 0.17 – 0.002*D	y = 0.16 – 0.002*D	y = 0.15 – 0.000*D	y = 0.16 – 0.004*D
	C (%)	y = 0.83 – 0.056*D	y = 1.04 – 0.098*D*	y = 1.01 – 0.119*D [#]	y = 1.21 – 0.151*D*	y = 1.20 – 0.158*D*
	N (%)	y = 0.03 – 0.002*D	y = 0.04 – 0.004*D [#]	y = 0.04 – 0.003*D	y = 0.05 – 0.005*D*	y = 0.04 – 0.004*D*
	CN ratio	y = 27.5 – 0.270*D	y = 25.7 – 0.037*D	y = 26.9 – 1.378*D*	y = 27.3 – 1.020*D	y = 29.4 – 1.630*D
	C pool (g m ⁻²)	y = 1483 – 83.5*D	y = 1734 – 145.5*D*	y = 1453 – 55.1*D	y = 1989 – 172.8*D [#]	y = 2030 – 248.4*D*
	N pool (g m ⁻²)	y = 54.2 – 2.43*D	y = 67.4 – 5.43*D*	y = 53.9 – 0.83*D	y = 74.1 – 4.30*D	y = 70.3 – 6.11*D*
	NH ₄ (g N gdw ⁻¹)	y = 1.36 – 0.280*D	y = 1.01 – 0.150*D	y = 0.71 + 0.255*D	y = 0.94 – 0.023*D	y = 0.51 + 0.227*D
	NO ₃ (g N gdw ⁻¹)	y = 0.27 + 0.040*D	y = 0.23 + 0.115*D [#]	y = 0.63 – 0.022*D	y = 0.37 + 0.015*D	y = 0.46 – 0.056*D
	NH ₄ (g m ⁻²)	y = 0.16 – 0.053*D	y = 0.16 – 0.016*D [#]	y = 0.08 + 0.067*D [#]	y = 0.15 + 0.004*D	y = 0.08 + 0.041*D
	NO ₃ (g m ⁻²)	y = 0.05 + 0.008*D	y = 0.03 + 0.023*D*	y = 0.09 + 0.007*D	y = 0.06 + 0.006*D	y = 0.08 – 0.008*D
	Nitrification (g N gdw ⁻¹ d ⁻¹)	y = 0.005 – 0.002*D	y = 0.007 – 0.003*D	y = –0.011 + 0.092*D*	y = 0.013 – 0.035*D	y = 0.002 – 0.000*D
	Mineralization (g N gdw ⁻¹ d ⁻¹)	y = –0.005 + 0.002*D	y = 0.012 – 0.001*D	y = –0.001 + 0.005*D	y = 0.026 – 0.008*D	y = 0.016 – 0.003*D
	Nitrification (g N m ⁻² d ⁻¹)	y = 0.001 – 0.000*D	y = 0.001 – 0.001*D	y = –0.002 + 0.002*D*	y = 0.002 – 0.001*D	y = 0.001 – 0.000*D
	Mineralization (g N m ⁻² d ⁻¹)	y = –0.001 + 0.001*D	y = 0.002 + 0.000*D	y = 0.000 + 0.001*D	y = 0.004 – 0.001*D	y = 0.003 – 0.001*D
	Initial C flux rate (µg C gdw ⁻¹ h ⁻¹)	y = 0.045 + 0.001*D	y = 0.041 + 0.000*D	y = 0.010 + 0.005*D	y = 0.050 + 0.000*D	y = 0.052 – 0.001*D
	6-week C flux rate (µg C gdw ⁻¹ h ⁻¹)	y = 0.047 + 0.004*D	y = 0.097 – 0.026*D	y = 0.089 – 0.012*D	y = 0.070 – 0.006*D	y = 0.061 – 0.008*D
Plant functional groups	Graminoids (%)	y = 4.9 + 2.697*D*	y = 12.1 + 0.041*D	y = 13.5 + 0.228*D [#]	y = 9.7 + 0.222*D	y = 5.8 + 1.511*D
	Forbs (%)	y = 7.6 + 0.325*D	y = 14.2 + 2.189*D	y = 7.8 + 2.061*D	y = 4.2 + 4.200*D*	y = 13.8 + 0.501*D
	Woody species (%)	y = 29.4 – 4.901*D*	y = 2.4 + 1.641*D	y = 23.1 – 3.906*D	y = 2.5 – 0.244*D	y = 22.3 + 1.601*D
	Saw palmetto (%)	y = –2.2 + 1.531*D*	y = –0.25 + 0.401*D	-	y = 2.8 + 1.006*D	-