

Appendix

1 Stand characterization

Table 1: Basal area per hectare of dead/alive overstory trees with DBH \geq 30 cm in 2023 by study stands, burn treatments, and genus.

Pair	Disturbance	Genus	Condition	m2ha_sum
1	B	Acer	Alive	4.9
1	B	Betula	Alive	0.7
1	B	F. grandifolia	Alive	0.5
1	B	Others	Alive	6.6
1	B	Others	Dead	0.1
1	B	P. strobus	Alive	6.0
1	B	Q. rubra	Alive	13.3
1	C	Acer	Alive	2.0
1	C	F. grandifolia	Alive	0.4
1	C	Others	Alive	0.3
1	C	P. strobus	Alive	3.9
1	C	Q. rubra	Alive	16.3

2	B	Acer	Alive	3.7
2	B	Acer	Dead	0.7
2	B	Betula	Dead	0.4
2	B	F. grandifolia	Alive	0.5
2	B	F. grandifolia	Dead	1.7
2	B	Q. rubra	Alive	6.8
2	C	Acer	Alive	5.7
2	C	Acer	Dead	0.8
2	C	F. grandifolia	Alive	0.3
2	C	F. grandifolia	Dead	1.1
2	C	Others	Alive	0.4
2	C	Q. rubra	Alive	11.5
2	C	Populus	Alive	0.7
3	B	Acer	Dead	0.3
3	B	Betula	Alive	0.9
3	B	P. strobus	Alive	1.2
3	B	Q. rubra	Alive	24.5
3	B	Q. rubra	Dead	1.7
3	C	Acer	Alive	4.3
3	C	F. grandifolia	Alive	2.8
3	C	Q. rubra	Alive	13.9
4	B	Acer	Alive	1.5
4	B	Acer	Dead	0.5

4	B	Betula	Alive	0.5
4	B	Betula	Dead	0.5
4	B	F. grandifolia	Alive	0.2
4	B	F. grandifolia	Dead	1.7
4	B	Q. rubra	Alive	13.2
4	B	Q. rubra	Dead	1.9
4	C	Acer	Alive	3.5
4	C	Betula	Alive	1.4
4	C	F. grandifolia	Alive	1.3
4	C	Others	Alive	4.4
4	C	Q. rubra	Alive	9.8

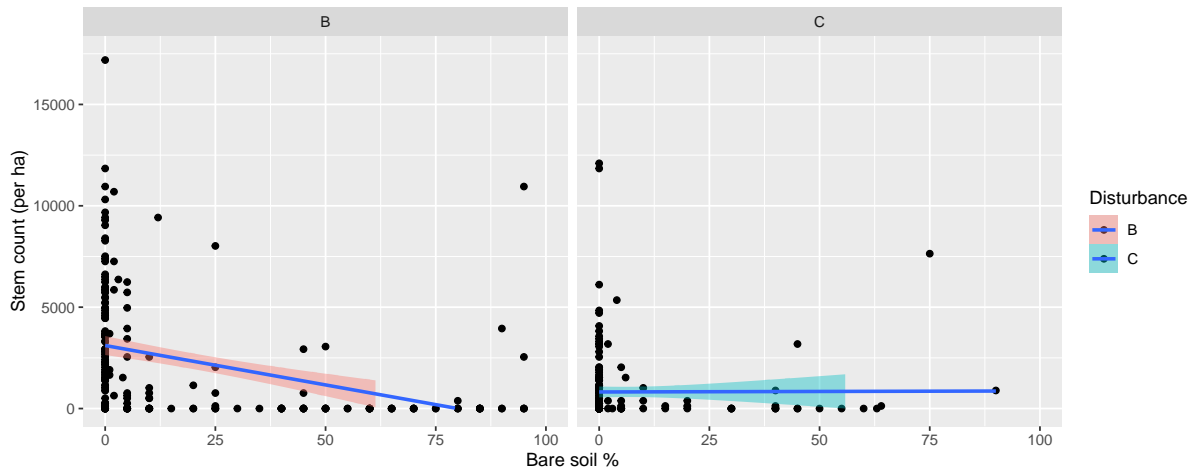


Figure 1: *Q. rubra* density per hectare in 2023 (y-axis) by percent bare soil (x-axis), error bars = ± 1 SE.

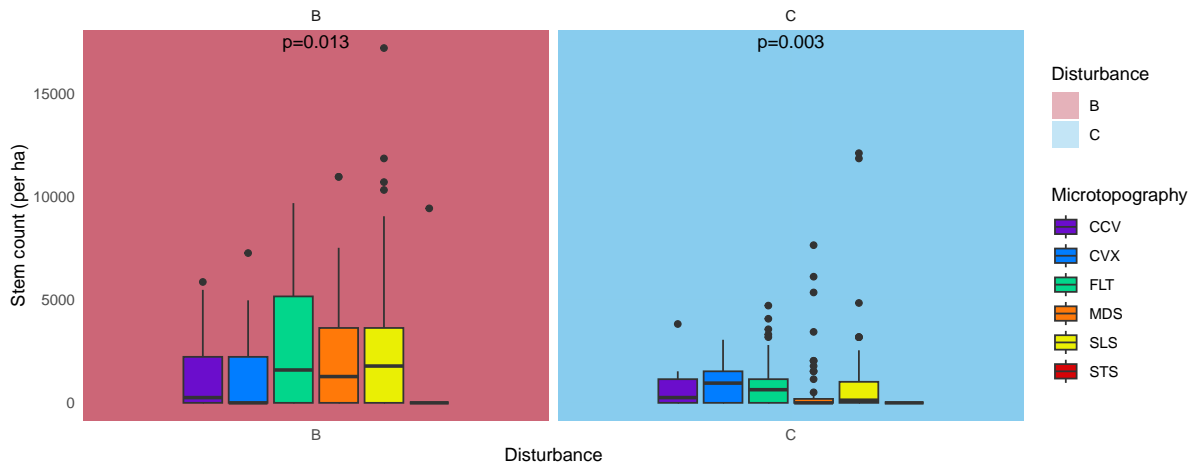


Figure 2: *Q. rubra* density per hectare in 2023 (y-axis) by microtopography (x-axis), error bars = ± 1 SE. Six microtopography categories include concave (CCV), convex (CVX), flat (FLT), midslope (MDS), slight slope (SLS), and steep slope (STS).

2 Soil sampling and analysis

2.1 Methods

Composite soil samples of the top 10 cm representing each study site were collected along study transects in fall 2023 to characterize soil parameters of relevance to seedlings.

Soil samples were air-dried, homogenized, and sieved to 2 mm. They were then sent to the University of New Hampshire Cooperative Extension in December 2023 to be tested for soil pH and concentrations of calcium (Ca), magnesium (Mg), potassium (K), phosphorus (P), lead (Pb), and organic matter (OM). In February 2025, more samples were sent to the Pennsylvania State University College of Agricultural Sciences' Agricultural Analytical Services Laboratory to be tested for nitrate nitrogen (NO_3) and ammonium nitrogen (NH_4).

2.2 Results

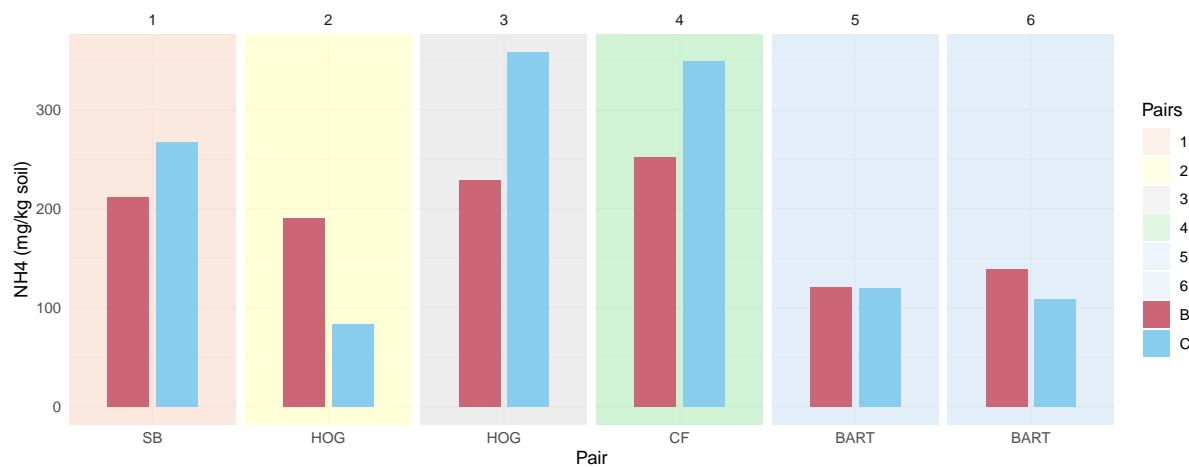


Figure 3: Ammonium concentration in the soil (y-axis) by stand pairs (x-axis).

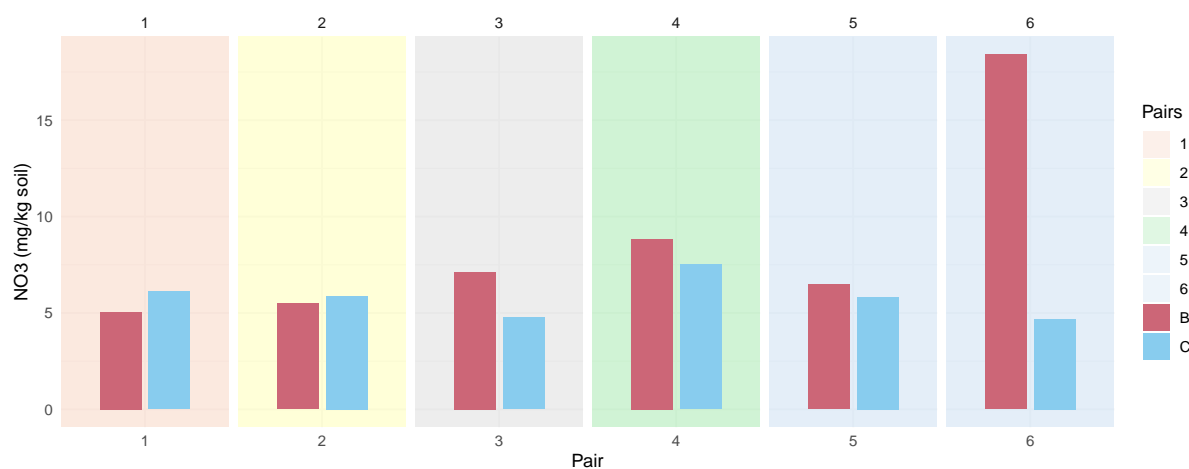


Figure 4: Nitrate concentration in the soil (y-axis) by stand pairs (x-axis).