Supplementary material for De Vriendt et al. *Moose browsing tends spruce plantations more efficiently than a single mechanical release*

Supplementary material 1

Number of spruces by site/treatment after 8 growing seasons. We planted the same number of spruces at year 0. Initial seedling mortality, natural seedling establishment or treatments effects did change the relative abundance of spruces among sites/treatments (Table S1), but a t-test did not reveal a significant difference across treatments (*t*-test: $p > 0.15$ for all combinations).

Table S1: Total number of spruces by site/treatment after 8 growing seasons. The same number of spruces was planted initially, but seedling mortality, natural seedling establishment or treatments effects resulted in variation in the number of spruces per site/treatment. Due to a human error site, 2 received a mechanical release on its whole browsed surface. Hence, there is no "Browsed/No release" treatment for this site.

	Unbrowsed No release	Unbrowsed Mechanical release	Browsed No release	Browsed Mechanical release
Site 1	38	35	36	34
Site 2	28	17	*Nil*	36
Site 3	35	34	45	44
Site 4	40	39	39	38

We used the Diameter at Breast Height (DBH) to calculate the Basal Area (BA) for spruce. However, some planted spruces had not reached 130 cm in height. Table S2 shows the number of spruces ≥ 130 cm in each site and treatment.

Table S2: Number of spruces taller than 130 cm by site/treatment after 8 growing seasons. The same number of spruces was planted initially, but seedling mortality, natural seedling establishment or treatments effects resulted in variation in the number of spruces per site/treatment. Due to a human error, site 2 received a mechanical release on its whole browsed surface. Hence, there is no "Browsed/No release" treatment for this site.

	Unbrowsed No release	Unbrowsed Mechanical release	Browsed No release	Browsed Mechanical release
Site 1	37	34	36	34
Site 2	26	15	*Nil*	35
Site 3	34	33	44	42
Site 4	34	36	32	34

Supplementary material 2

Analysis of the effect of treatments on the quantity of white spruces taller than 130 cm. Since there was some mortality and some natural spruce establishment, the number of spruces varied slightly across the experimental units (Table S1). Since the basal area, calculated from all spruces ≥ 130 cm, can be affected by the number of trees, we tested whether treatments had an effect on the number of spruces taller than 130 cm to make sure that any effect on the basal area would not be an artefact of the number of spruces. The linear mixed effects model used allowed us to take into account the blocking inherent to our experimental design. We found no effect of treatment on the quantity of spruces ≥ 130 cm. We tested the normality of the residuals along with homoscedasticity using standard graphical procedures.

Table S3: Results of a linear mixed effects model with gaussian distribution analysing the effects of browsing exclusion (Unbrowsed / Browsed) and forest cleaning (No release / Mechanical release) on the quantity of white spruces taller than 130 cm. The model included the forest cleaning treatment nested within the browsing exclusion treatment, nested within the site as a random factor.

Response variable	Fixed effect	F	df	p-value
Quantity of spruces taller than 130 cm	Browsing exclusion	0.85	1	0.42
	Forest cleaning	2.1	1	0.20
	Browsing exclusion * Forest cleaning	0.55	1	0.49

Supplementary material 3

Height response of planted white spruces submitted to browsing exclusion (unbrowsed / browsed) and forest cleaning (no release / mechanical release) treatments. Despite a trend for an interaction between these factors (F = 4.1, df = 1, p = 0.10), we found no significant posthoc comparison among the combinations of browsing exclusion and forest cleaning levels (table 1).
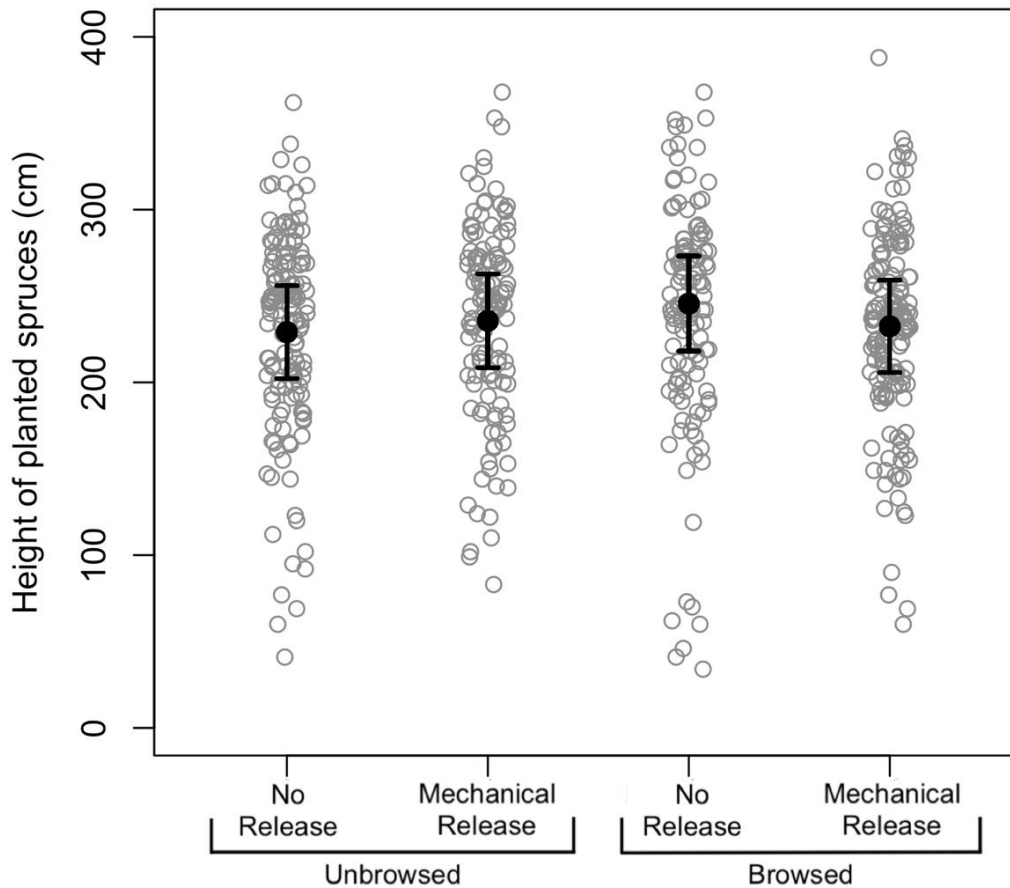

Figure S1: Height of planted white spruces in four plantations receiving combinations of browsing exclusion (unbrowsed / browsed) and forest cleaning (no release / mechanical release) treatments. Predicted values were estimated from a linear mixed effects model with the forest cleaning treatment nested within the browsing exclusion treatment, nested within the site, as a random factor. Error bar are 95% confidence intervals. Raw data (individual spruces) appear in gray. Sites blocking is not shown in the figure.