Appendix for *Decline in ecosystem δ13C and mid-successional nitrogen loss in a two-century postglacial chronosequence*

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Supplementary figures

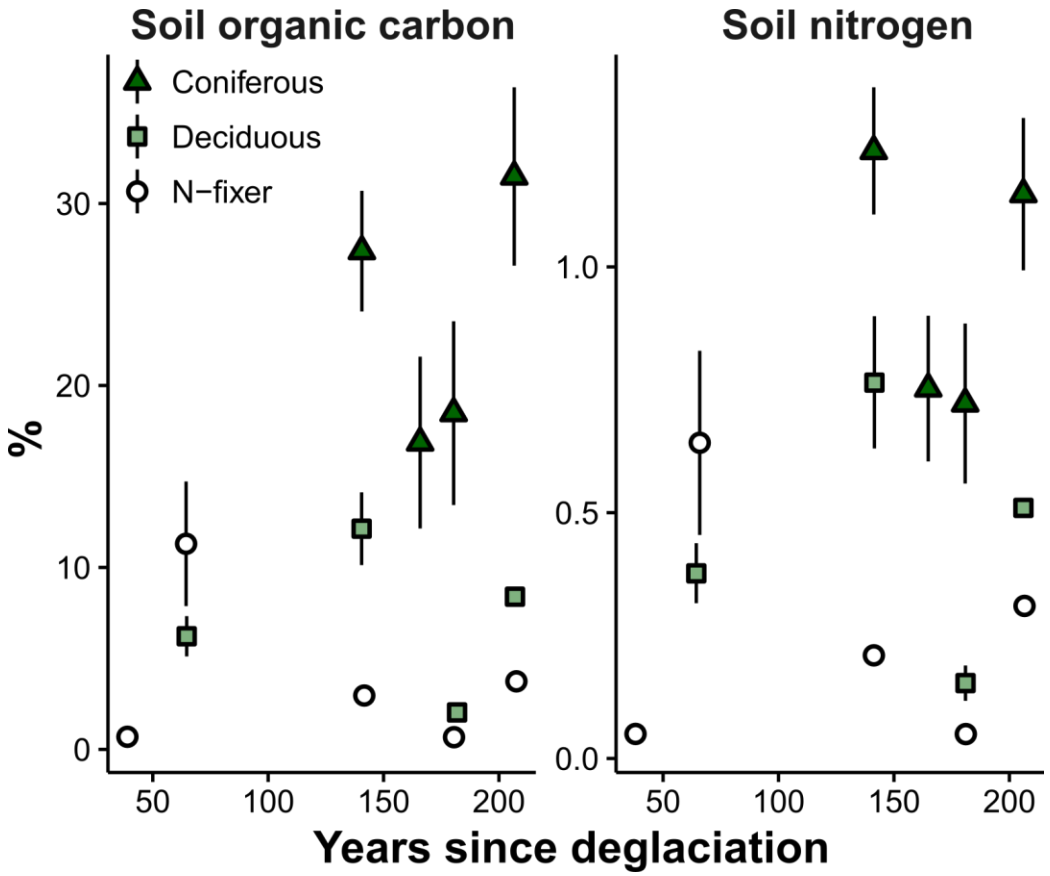

Figure S1. Soil carbon and nitrogen content by vegetation type for the six study sites (mean ± SE; mean n = 7.7).

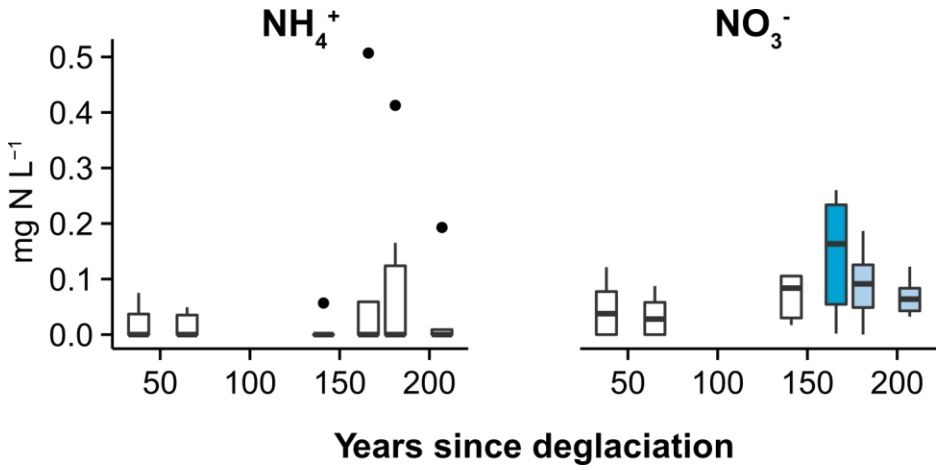

Figure S2. Growing season ammonium and nitrate concentrations in streams draining six catchments along a post-glacial chronosequence. Box plots represent median, quartiles, minimum, and maximum within 1.5 times the interquartile range, and outliers beyond 1.5 times the interquartile range.

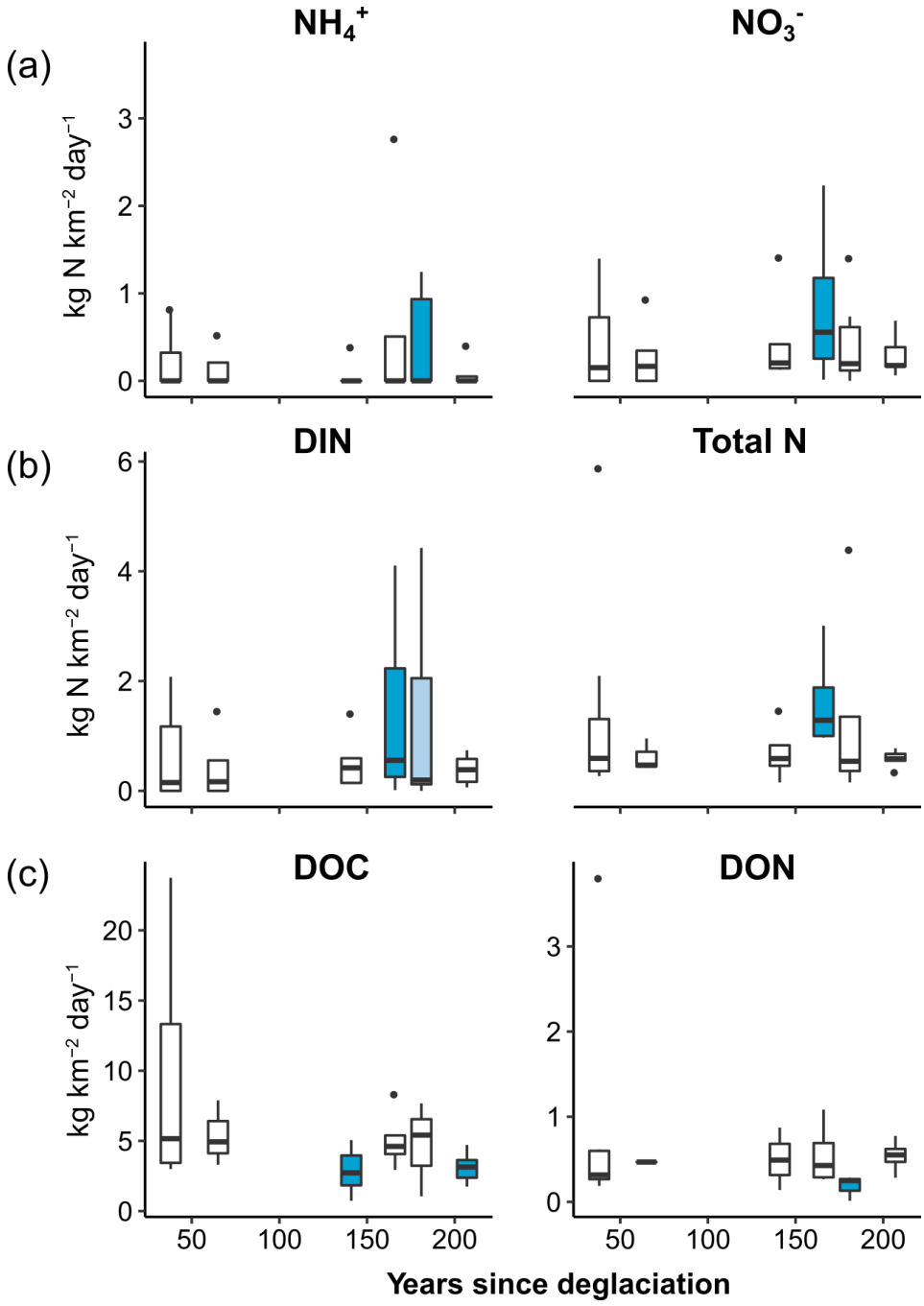

Figure S3. Growing-season stream yields of ammonium, nitrate, dissolved inorganic nitrogen (DIN), total nitrogen, dissolved organic carbon (DOC), and dissolved organic nitrogen (DON) over the chronosequence. Elemental yields were calculated on a daily time step by multiplying concentration by discharge and dividing by catchment size. Color represents statistical grouping ($\alpha = 0.05$) based on mixed model analysis of variance (e.g. dark blue boxes differ from white boxes but light blue boxes do not differ statistically from either group). Box plots represent median, quartiles, 1.5 times the interquartile range, and points beyond 1.5 time the IQR (average *n* per boxplot = 7).

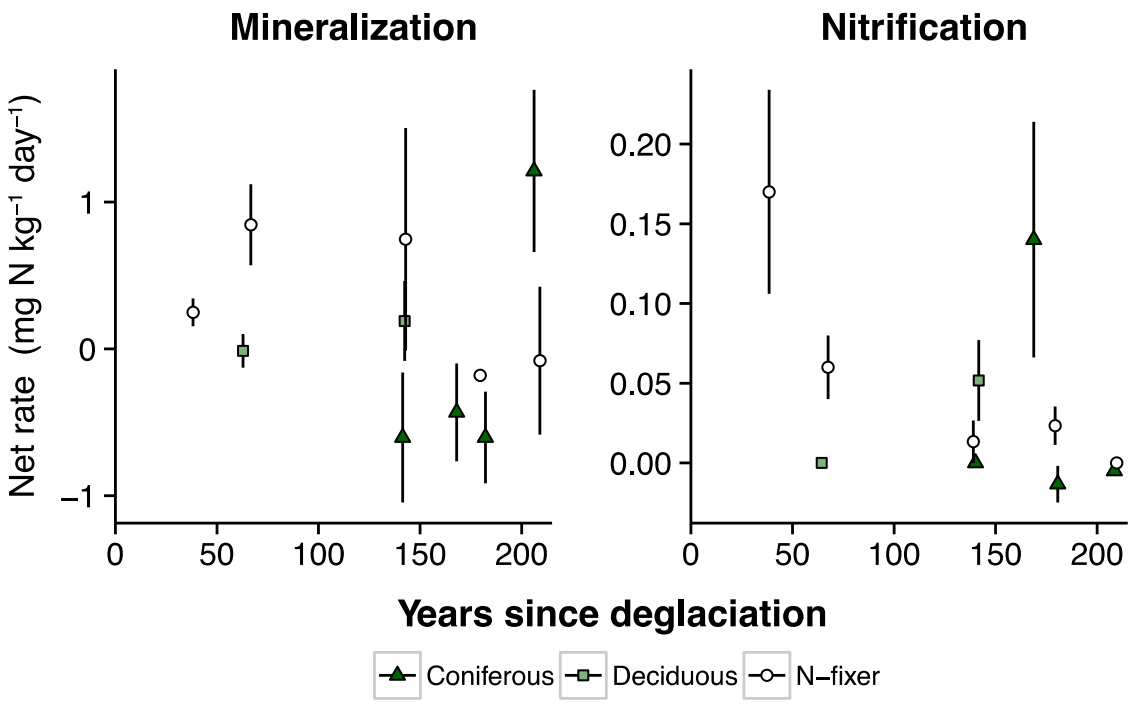

Figure S4. Net nitrogen mineralization and net nitrification (NH_4^+ and NO_3^- accumulation, respectively) in unamended soils measured in a 24-day incubation (mean ± SE; mean *n* = 7.7)

Supplementary tables

Table S1: Number of sampling locations in each catchment for dominant vegetation types.

Site age	Number of samples (n)						
	Sediment	*Dryas drummondii*	*Alnus sinuatta*	*Populus trichocarpa*	*Pinus sitchensis*	Mixed	Mature*
38	9	3	15	-	-	-	-
60	-	-	15	9	-	-	-
136	-	-	3	3	12	9	-
161	-	-	-	-	15	-	-
176	-	-	3	3	9	3	9
201	-	-	3	3	15	-	-

*Mature= mixed *P. sitchensis* and *T. heterophylla* forest; Mixed = mixed *P. trichocarpa* and *P. sitensis* forest

Table S2. Data transformations for summary statistics, multiple linear regression models, and correlations.

Parameter	Transformation
Soil and foliar parameters	
Soil organic matter	Natural log
pH	Natural log
Gravimetric soil moisture	^0.5
C:N of soil organic matter	Natural log
Potential nitrification	^0.5
Potential denitrification	^0.25
Foliar $\delta^{13}C$	None
SOM $\delta^{13}C$	None
Foliar $\delta^{15}N$	None
SOM $\delta^{15}N$	^0.25
C enrichment factor	None
N enrichment factor	None
Elevation	Natural log
Soil organic carbon	^0.25
Soil organic nitrogen	^0.25
Hydrologic parameters	
NO_3^-	None
NH_4^+	^0.5
Dissolved organic carbon	None
Dissolved organic nitrogen	^0.5
Conductivity	None
pH	None
Discharge	Natural log
Temperature	None