Table 1. *Forest inventory and soil information of the two sites; H denotes height (m) and BA is basal area (m^2 /ha). Age is expressed as the number of years.*

Site	Species	Bloc	Treatment (Plot)	*Number of stems*	$H_m \pm sd$	$DBH_{cm} \pm sd$	*Age* ± *sd* (*years*)	*BA* (m^2/ha)	*Density* (*stems/ha*)	*Geological materials; Humus type*	*Soil Texture and soil type*
Darney	Beech	*1*	*Control*	*160*	*18.8 ± 4.2*	*10.2 ± 6*	*32.8 ± 6.6*	*18.8*	*1777*	Lower Muschelkalk Sandstone; Mesomull/ oligomull	Sandy clay loam texture; Dystric Cambisols
			RHRL	*177*	*17.8 ± 5.3*	*10.2 ± 6*	*32.5 ± 9.2*	*21.7*	*1966*		
		2	*Control*	*176*	*18.3 ± 4.2*	*10 ± 6*	*29.5 ± 8.5*	*21.1*	*1955*		
			RHRL	*162*	*18.9 ± 5.1*	*12.7 ± 6*	*35 ± 7.2*	*28.6*	*1799*		
		3	*Control*	*245*	*16.5 ± 3.8*	*7.8 ± 4*	*26.6 ± 6.2*	*17.1*	*2721*		
			RHRL	*253*	*16.8 ± 3*	*8.6 ± 4*	*28.9 ± 5.6*	*20.4*	*2810*		
		Overall	*Control*	*581*	*17.8 ± 4.1*	*9.3 ± 5.3*	*29.7 ± 7.7*	*57.0*	*2152*		
			RHRL	*592*	*18.0 ± 4.9*	*10.2 ± 5.7*	*32.3 ± 7.9*	*70.1*	*2192*		
Champenoux	Oak	*1*	*Control*	*49*	*16.9 ± 2.8*	*15.5 ± 5*	*37.2 ± 7*	*12.3*	*555*	Pliensbachian marl; type of humas is Eumull/ mesomull	Clay-loam texture; Dystric Cambisols
			RHRL	*83*	*15.9 ± 3.8*	*13.5 ± 4*	*43.4 ± 7*	*14.5*	*922*		
		2	*Control*	*29*	*15.7 ± 3.1*	*14.5±4.5*	*32 ± 4.8*	*5.8*	*322*		
			RHRL	*73*	*16.8 ± 3.5*	*15.5 ± 5*	*44± 7.02*	*16.7*	*811*		
		3	*Control*	*68*	*14.4 ± 5*	*12.8 ± 5*	*35.4 ± 4*	*11.3*	*755*		
			RHRL	*70*	*14.7 ± 2.6*	*13.2 ± 3*	*30 ± 3.53*	*11.2*	*777*		
		Overall	*Control*	*146*	*16.3 ± 3.5*	*14.3 ± 5.4*	*34.9 ± 5.9*	*29.9*	*541*		
			RHRL	*226*	*16.6 ± 3.5*	*14.0 ± 4.3*	*39.2 ± 8.7*	*42.4*	*837*		

Table 2. *Best-fit GLM (generalized linier model) functions for the observation of the variable effects including treatment (i.e., control-classical silviculture and RHRL-removing harvest residues and litter) on wood density and ring width (in the table, 'WD' denotes the oven-dried wood density (kg/m^3), 'RW' is the ring width (mm), and 'diameter' is the diameter of the tree at breast height (cm), tree status is a binary variable – dominant or suppressed. The model coefficient values and the significance of the associated variables are provided. Signif. levels of the p values: 0, '***'=0.001, '**'=0.01, '*'=0.05, and '·'=0.1. Only the best models, according to the AIC values, are shown here. Model prediction statistics (R^2 and RMSE value) for each best fit model are also included.*

		Prediction statistics		***Intercept***	***Coefficients values***					
				β_1	β_2	β_3	β_4	β_5	β_6
Radial zone	***Best fit GLM models***	***R^2 value***	***RMSE value***	β_o	***Ring width (mm)***	***Treatment (RHRL)***	***Age (years)***	***diameter (cm)***	***Tree status (suppressed)***	***Bloc effect (bloc 2)***
	Beech									
Near bark	*$RW = \beta_o + \beta_2$ treatment + β_3 age + β_4 diameter + β_5 trees status + β_6 bloc*	*0.65*	*0.39*	*2.88****	*---*	*(-)0.18·*	*(-)0.06****	*0.07***	*(-)0.62****	*.22**
	$WD = \beta_o + \beta_1$ ringwidth+ β_3 age + β_2 treatment β_6 bloc*	*0.19*	*37*	*793****	*---*	*(-)44.87**	*-1·02·*	*---*	*---*	*Footnote (1)*
Near pith	*$RW = \beta_o + \beta_3$ age +β_4 diameter+β_6 bloc*	*0.46*	*0.67*	*3.21****		*---*	*-0.11****	*0.15****	*---*	*---*
	$WD = \beta_o + \beta_1$ ringwidth +β_6 bloc	*0.04*	*46*	*724****	*9.83·*	*---*	*---*	*---*	*---*	*---*
	Oak									
Near bark	*$RW = \beta_o + \beta_3$ age+ β_4 diameter+β_6 bloc*	*0.76*	*0.27*	*0.87****		*---*	*(-)0.02****	*0.09****	*---*	*---*
	$WD = \beta_o + \beta_1$ ringwidth + β_6 bloc	*0.16*	*44*	*710****	*33.9***	*---*	*---*	*---*	*---*	*Footnote (2)*
Near pith	*$RW = \beta_o + \beta_3$ age + β_4 diameter + β_6 bloc*	*0.53*	*0.94*	*3.81****		*---*	*(-)0.10****	*0.17****	*---*	*---*
	$WD = \beta_o + \beta_1$ ringwidth + β_4 diameter + β_6 bloc	*0.13*	*53*	*733****	*---*	*---*	*---*	*3.72***	*---*	*---*

*Footnote (1): In the model, the coefficient values for 'treatment*bloc interaction' were 44.87* and 44.29* in the RHRL 'bloc 2' and 'bloc 3' respectively, This indicates that the effect in bloc 2 and bloc 3 from RHRL treatment increase by approximately 44.87 and 44.29 units compared to the effect from control treatment of the respective blocs.*

*Footnote (2): the coefficient values for 'ringwidth*bloc interaction' were -58*. This indicates in the respective bloc, the effect of ringwidth on wood density is lower by 58 unit in response to the RHRL treatment compared to control.*

Table 3.1. *The best GLM models fitted for each of the nutrients observed in our study, in the near bark and near pith area of beech and oak trees. The full models are enlisted here with the indication of intercept (β_o) and other variable coefficients (β_1, β_2, β_3 … etc.). The value of the intercept and coefficients for each model are provided in Table 3.2. Prediction statistics (R^2 and RMSE value) for each best fit model are included in Appendix A.1.*

Radial zone	***Nutrient group***	***Fitted GLM model***
Beech		
Near bark	*K, S, Fe*	$Nutrient = \beta_o + \beta_1\ treatment + \beta_6\ bloc$
	Ca, Al, Mn	$Nutrient = \beta_o + \beta_1\ treatment + \beta_2\ tree\ status + \beta_6\ bloc$
	Mg, Na	$Nutrient = \beta_o + \beta_1\ treatment + \beta_2\ tree\ status + \beta_3\ treatment*tree\ status + \beta_6\ bloc$
Near pith	*K, Ca, Na, Al, Mn, Fe*	$Nutrient = \beta_o + \beta_1\ treatment + \beta_6\ bloc$
	Mg	$Nutrient = \beta_o + \beta_1\ treatment + \beta_2\ tree\ status + \beta_6\ bloc$
	S	$Nutrient = \beta_o + \beta_1\ treatment + \beta_2\ tree\ status + \beta_3\ treatment*tree\ status + \beta_4\ diameter + \beta_6\ bloc$
Oak		
Near bark	*K, Na*	$Nutrient = \beta_o + \beta_1\ treatment + \beta_4\ diameter + \beta_6\ bloc$
	Mg, Ca, Mn	$Nutrient = \beta_o + \beta_1\ treatment + \beta_2\ tree\ status + \beta_4\ diameter + \beta_6\ bloc$
	S, Al	$Nutrient = \beta_o + \beta_1\ treatment + \beta_2\ tree\ status + \beta_3\ treatment*tree\ status + \beta_4\ diameter + \beta_6\ bloc$
Near pith	*Ca, Na, Mn*	$Nutrient = \beta_o + \beta_1\ treatment + \beta_6\ bloc$
	Mg, Al	$Nutrient = \beta_o + \beta_1\ treatment + \beta_2\ tree\ status + \beta_6\ bloc$
	K	$Nutrient = \beta_o + \beta_1\ treatment + \beta_4\ diameter + \beta_6\ bloc$
	S	$Nutrient = \beta_o + \beta_1\ treatment + \beta_2\ tree\ status + \beta_3\ treatment*tree\ status + \beta_4\ diameter + \beta_6\ bloc$

Table 3.2. *Intercept and coefficient values from the best fit GLM models to determine the effects of treatment (i.e., control-classical silviculture and RHRL-removing harvest residues and litter) and other variables on the nutrient concentrations (g/kg) in the stem near bark and stem near pith regions in the beech and oak trees. 'RW' is the ring width (mm), 'diameter' is diameter of the tree at breast height (cm), 'tree status' is a binary variable – dominant or suppressed. For the 'treatment' and 'tree status' variables, the values are presented in response to RHRL and suppressed trees respectively. For block effect, the values inside the first bracket indicates corresponding number of the bloc, where the effect was found (e.g., bloc 2 is presented as "(2)"). Signif. levels of the p values: 0, '***'=0.001, '**'=0.01, '*'=0.05, and '.'=0.1. Prediction statistics (R^2 and RMSE value) for each best fit model are included in Appendix A.1.*

	Variable	K	Mg	Ca	Na	S	Al	Mn	Fe
Beech									
Near bark	***intercept (β_o)***	*0.94****	*.16****	*0.58****	*0.1****	*.24****	*0.03****	*0.25****	*0.08****
	treatment (β_1)	*---*	*-.09***	*---*	*-.05**	*-.13****	*.02**	*.08**	*.02**
	tree status (β_2)	*---*	*.12***	*.26**	*.08***	*---*	*.01 ·*	*.1***	*---*
	treatment* tree status (β_3)	*---*	*-.14**	*---*	*-.08**	*---*	*---*	*---*	*---*
	diameter (β_4)	*---*	*---*	*---*	*---*	*---*	*---*	*---*	*---*
	bloc (β_6)	*.20* (2); .25* (3)*	*---*	*---*	*-.06** (2)*	*---*	*---*		*-.03* (3)*
Near pith	***Intercept (β_o)***	*2.22****	*0.35****	*0.43****	*0.02****	*---*	*0,02****	*0.26****	*---*
	treatment (β_1)	*-.95****	*-.16****	*---*	*-.02 ·*	*-.12****	*-.02***	*---*	*.08****
	tree status (β_2)	*---*	*-.08 **	*---*	*---*	*---*	*---*	*---*	*---*
	treatment* tree status (β_3)	*---*	*---*	*---*	*---*	*.13**	*---*	*---*	*---*
	diameter (β_4)	*---*	*---*	*---*	*---*	*---*	*---*	*---*	*---*
	bloc (β_6)	*-.33· (3)*	*.2** (2); 1· (3)*	*.55***(2) ; .24* (1)*	*.04**	*.28*** (2); .22*** (3)*	*---*	*.08** (2); .07* (3)*	*.06** (2); .05* (3)*
near pith – near bark	***treatment (β_1)***	*.83****	*---*	*---*	*-.06**	*---*	*0.04****	*---*	*-.06**
Oak									
Near bark	***Intercept (β_o)***	*.53****	*---*	*---*	*.05**	*---*	*---*	*---*	*---*
	Treatment (β_1)	*-.21***	*-.08**	*-.22 ·*	*-.04**	*-.1****	*---*	*---*	*-.02·*
	tree status (β_2)	*---*	*0. 1 ·*	*---*	*---*	*-.07 ·*	*---*	*.03**	*.03·*
	treatment* tree status (β_3)	*---*	*---*	*---*	*---*	*.12**	*.03**	*---*	*---*
	diameter (β_4)	*.04****	*.01**	*---*	*.002 ·*	*.01**	*---*	*.002**	*.004***
	bloc (β_6)	*.2* (3)*	*---*	*---*	*---*	*---*	*---*	*---*	*---*
Near pith	***Intercept (β_o)***	*.69****	*.09****	*.62****	*.11****	*---*	*.-.02****	*.03****	*0.1****
	Treatment (β_1)	*-.09 ·*	*---*	*-.32***	*-.05**	*---*	*---*	*---*	*-.03***
	tree status (β_2)	*---*	*-.03 NS*	*---*	*---*	*.2***	*.001·*	*---*	*---*
	treatment* tree status (β_3)	*---*	*---*	*---*	*---*	*-.16***	*---*	*---*	*---*

	diameter (β_4)	---	---	---	---	---	---	---	---
near pith – near bark	***treatment (β_1)***	---	---	---	---	---	---	---	---

Table 4. *Comparison of the nutrient concentrations (mg/kg) in the stem sapwood / near bark and stem heartwood/ near pith zones of the oak trees (Quercus spp.) sampled in our study with those from the reference studies. The data were assembled along with information on the soil nutrient gradients found in the reference studies. Detailed information on the authors, associated stands and site quality for each reference study used is provided in table format in Appendix A.2.*

Compartment	Author code	Soil nutrient gradient	K	Ca	Mg	Mn	Na	S	Al	P	Fe
Sapwood/ Near bark	*Conventionally managed/high forest*										
	This study		**1145**	**869**	**194**	**51**	**92**	**133**	**28**		
	(1a)	Rich	1794	1392	336			196		521	
	(2)	Moderate	1750	525	150				23	275	
	(3)	Moderate	1208	544	120					101	
	(5)	Moderate	970	458	150	110			5	145	
	(4)	Poor	1000	412	134						
Sapwood / Near bark	*Intensive plots: RHRL/coppice with standards*										
	This study		**906**	**650**	**113**	**44**	**47**	**78**	**27**		**101**
	(6)	Poor	1454	620	125					198	
	(1b)	Moderate	2071	1040	248			203		298	
Heartwood / Near pith	*Conventionally managed/high forest*										
	This study		**602**	**627**	**76**	**36**	**112**	**230**	**27**		**91**
	(1a)	Rich	895	623	47			99		33	
	(2)	Moderate	650	380	44				17	55	
	(3)	Moderate	503	286	20	75		103		13	
	(5)	Moderate	460	205	11	18			1.9	23	
	(4)	Poor	435	190	12						
Heartwood / Near pith	*Intensive plots: RHRL/coppice with standards*										
	This study		**514**	**311**	**59**	**37**	**61**	**153**	**20**		**65**
	(6)	Poor	494	354	18			85		12	
	(1b)	Moderate	1063	455	33			103		18	

Table 5. *Comparison of the nutrient concentrations (mg/kg) in the stem sapwood/ near bark and heartwood/ near pith zones in the beech trees (Fagus sylvatica) sampled in our study with those from reference studies. The data were assembled along with information on the soil nutrient gradients found in the reference studies. Detailed information on the authors, associated stands and site quality for each reference study used is provided in table format in the Appendix A.2.*

Compartment	Author code	Soil nutrient gradient	K	Ca	Mg	Mn	Na	S	Al	P	Fe
Sapwood/ Near bark	*Conventionally managed/high forest*										
	This study		**1095**	**666**	**202**	**284**	**105**	**244**	**30**		**64**
	(5)	Moderate	768	502	165	110			2.7	66	
	(7a)	Rich	590	900	180	12				58	
	(8)	---		512	270	20			35		20
	(4)	Poor	710	508	144						
	(7b)	Poor	490	580	100	26				39	
Sapwood/ Near bark	*Intensive plots: RHRL*										
	This study		**983**	**629**	**112**	**360**	**24**	**110**	**50**	**47**	**88**
Heartwood / Near pith	*Conventionally managed/high forest*										
	This study		**2022**	**701**	**328**	**311**	**42**	**190**	**28**	**8**	**58**
	(5)	Moderate	1240	738	214	300			2.5	57	
	(8)	---		830	290	62			9		4
	(4)	Poor	1288	740	145						
Heartwood / Near pith	*Intensive plots: RHRL*										
	This study		**1075**	**644**	**172**	**325**	**21**	**107**	**12**	**22**	**137**