

Supplementary Information for:

**Voluntary national conservation payments retain biodiversity-relevant
forest structure**

August 25, 2026

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Supplementary Figures

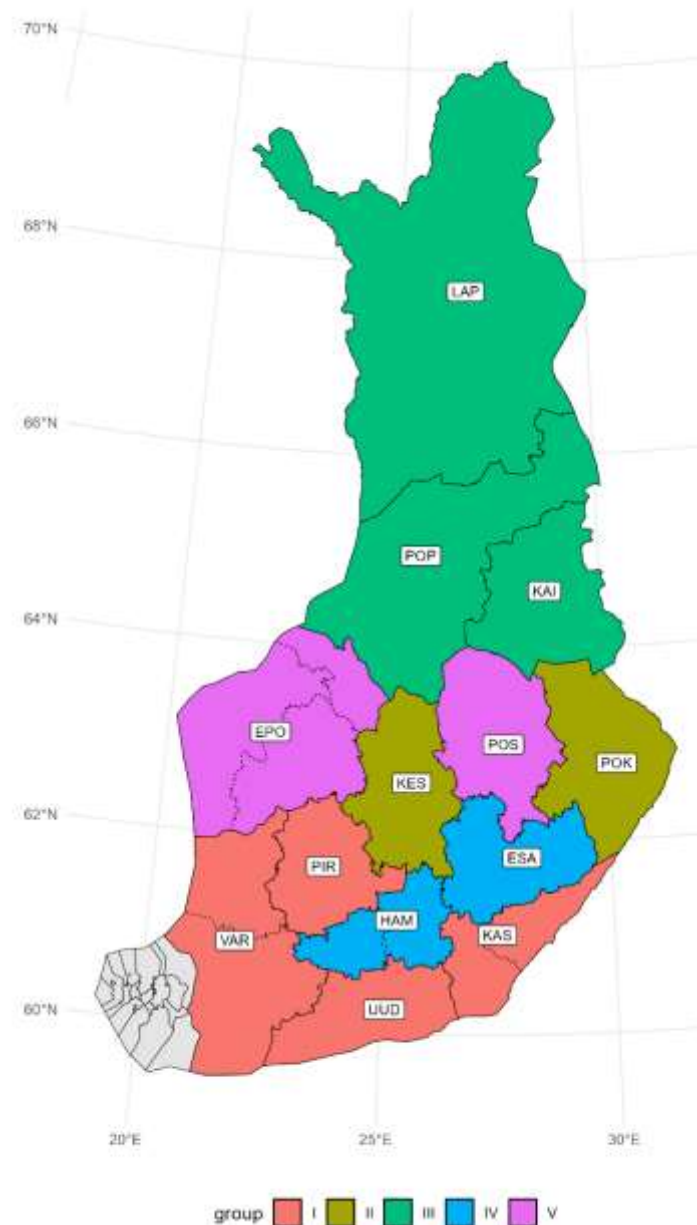


Figure S1: Regional subdivision

Note: ELY center abbreviations: UUD = Uusimaa, VAR = Varsinais-Suomi, HAM = Häme, PIR =Pirkanmaa, KAS = Kaakkois-Suomi, ESA= Etelä-Savo, POS = Pohjois-Savo, POK = Pohjois-Karjala, EPO = Etelä-Pohjanmaa, KES = Keski-Suomi, POP = Pohjois-Pohjanmaa, KAI = Kainuu, LAP = Lappi. Some ELY-center regions contain several administrative regions (maakunta), as indicated by dashed lines. We grouped ELY-regions into five groups according to land use pressure, bioclimate, and METSO conservation targets. A description of each regional grouping is provided in the main text.

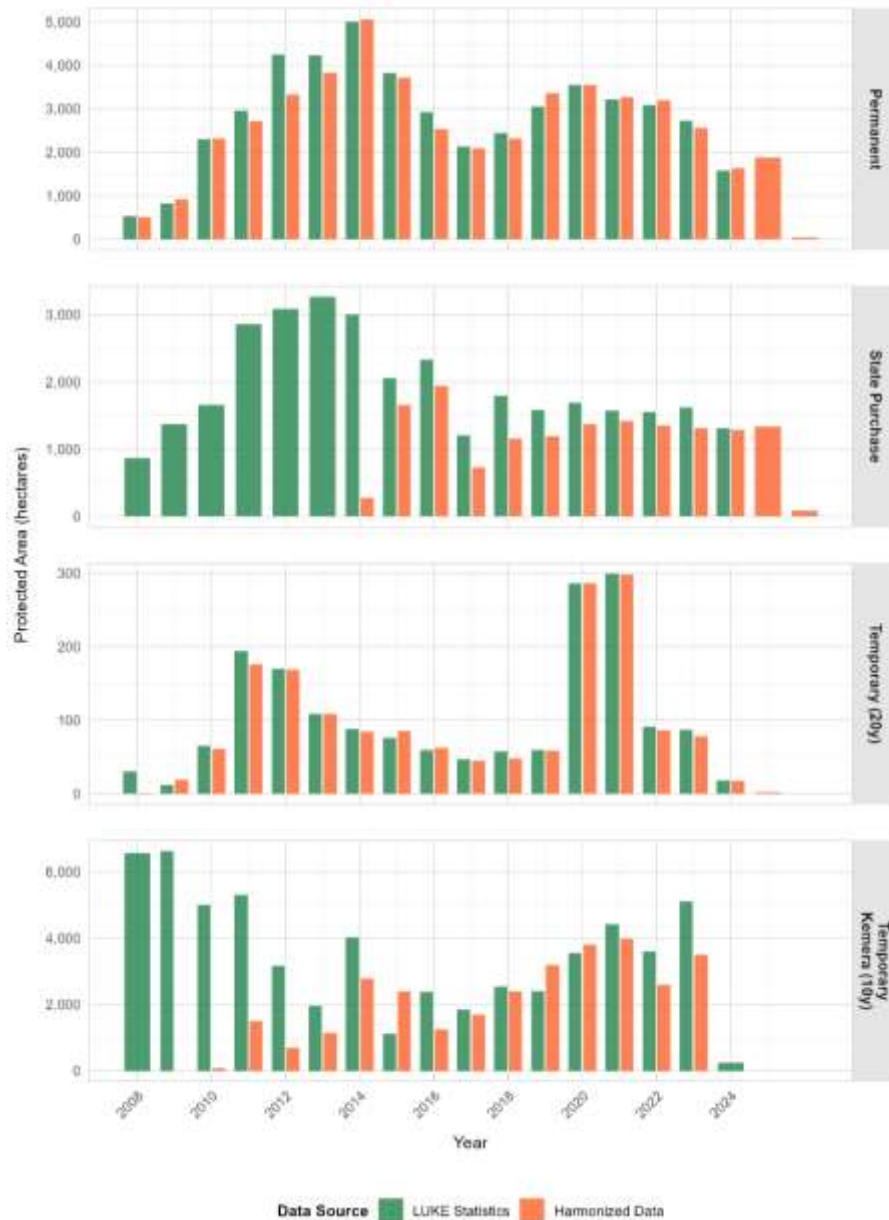


Figure S2: METSO Date Validation

Note: We compared our harmonized shapefile of METSO areas used in this analysis (orange bars) with official statistics from Natural Resources Institute (LUKE) between 2008 and 2025 (green bars). Kemera data from Finnish Forest Centre were only available after 2010, and state purchases before 2014 lack exact information on starting date, so we had to exclude them. Major state purchases in 2009 and 2014 are not shown here because LUKE did not publish these figures separately. Overall, our analysis misses data for approximately 50% of both state purchases and 10-year temporary contracts.

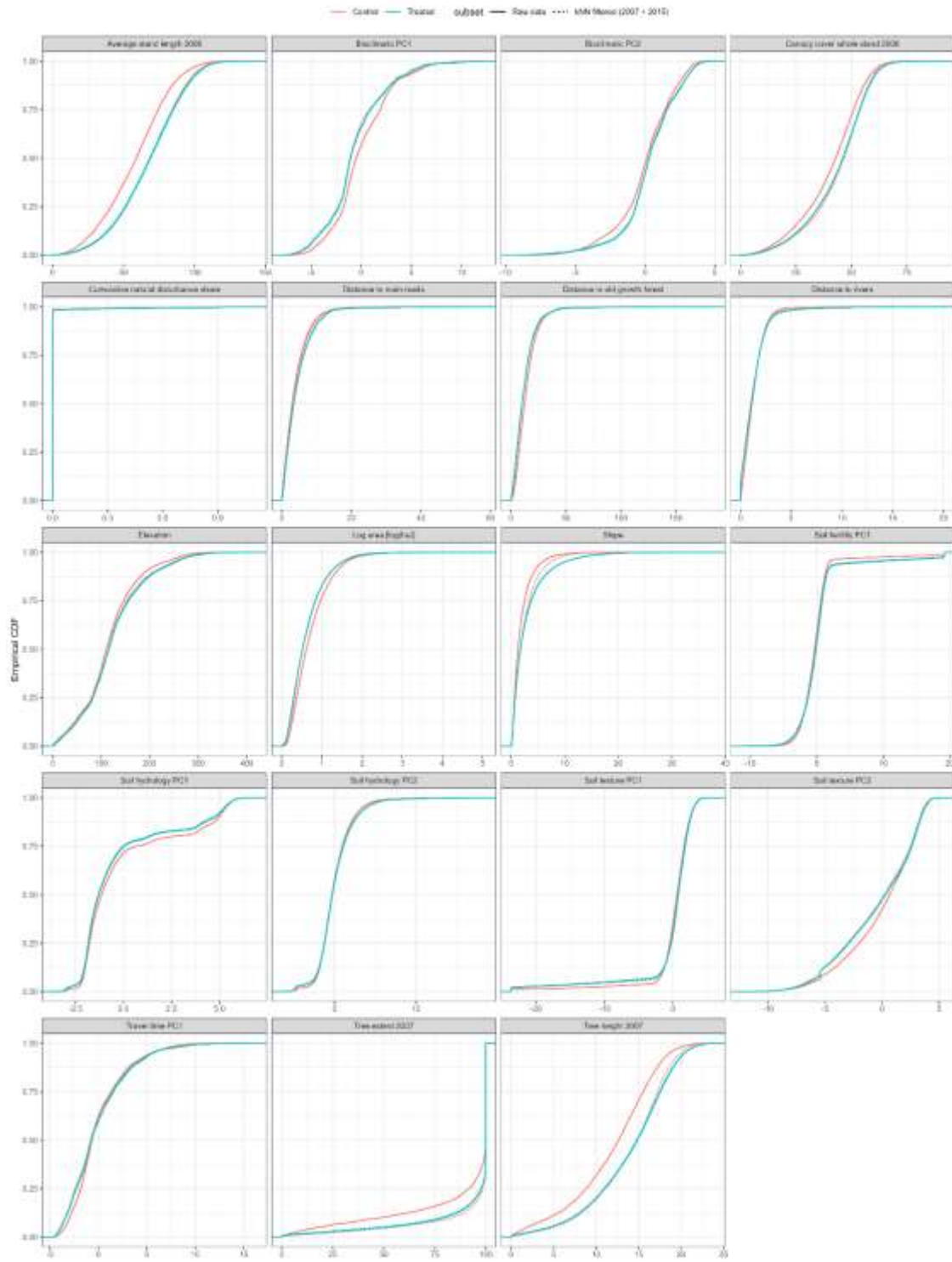


Figure S3: Empirical cumulative distribution functions for baseline variables

Plots compare treated and control stands across matching covariates. Solid lines show the raw samples, while dotted lines show the k-nearest-neighbor matched samples before outcome trajectory matching. The close overlap after kNN-matching indicates generally good distributional balance, although some residual differences remain for stand length and height.

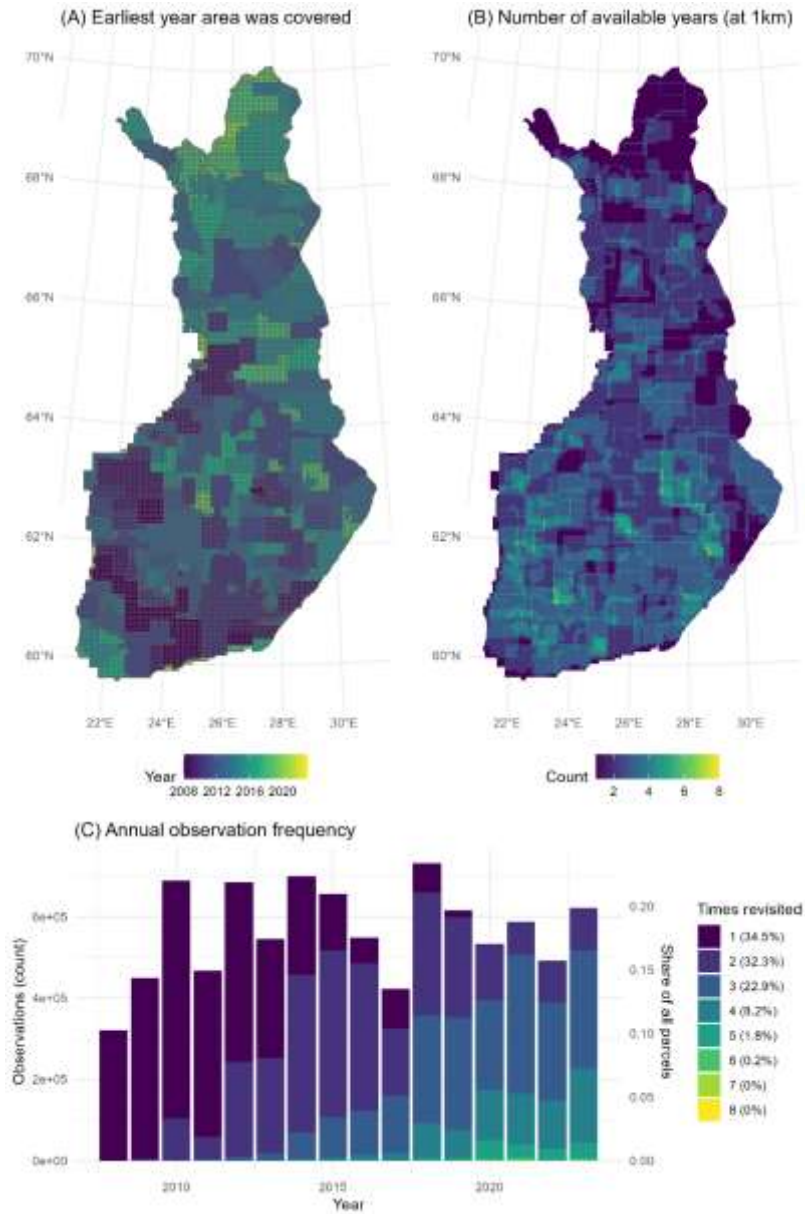


Figure S4: Availability of high-resolution canopy model data

Note: Panel A shows the earliest year a given region was covered, Panel B shows the number of available annual observations. The dark tones indicate earlier (fewer), darker tones later (more frequently) available data, respectively. The earliest year ranges from 2008 to 2020, the number of available raster images ranged between 1 and 8. Both varied across Finland, with the Center and South (our study region) being generally covered earlier and more frequently. Panel C shows the distribution of available observations for all forest plots.

Supplementary Tables

Table S1: Overview of data sources

Name	Variables	Resolution	Reference	URL
Forest parcels	area, coordinates	shape	Finnish Forest Centre (1)	https://kartta.paikkatietoikkuna.fi
Administrative units	ELY region, municipality	shape	National Land Survey of Finland (2)	https://kartta.paikkatietoikkuna.fi
Cadastral property index	Ownership ID	point	National Land Survey of Finland (3)	http://www.maanmittauslaitos.fi/
METSO	YSA units (METSO)	shape	Metsähallitus, personal communication (2025)	--
Other protected areas	Wilderness areas, National parks, Nature 2000 areas, public protected land, nationally important landscapes, Private protected areas before 2008. Also used to calculate distances from each forest plot to the next closest protected area.	shape	European Commission (4), European Environment Agency (5)	https://www.syke.fi/fi-FI/Avoin_tieto/Paikkatietoaineistot/Ladattavat_paikkatietoaineistot
Travel time	To cities and ports of different sizes	~1km	Nelson et al. (6)	http://doi.org/10.1038/s41597-019-0265-5
Soil	Bulk density, CEC, Coarse fragments, Clay, Sand, Silt, Nitrogen, pH, Organic carbon. All at depth 0-5cm, 5-15cm, 15-30cm, 30-60cm, 60-100cm, 100-200cm.	250m	Poggio et al. (7)	http://doi.org/10.5194/soil-7-217-2021
Thickness of soil	Average soil and sedimentary deposit thickness (m)	~1km	(8)	http://doi.org/10.3334/ORNLDAAAC/1304
Hydraulic properties	Saturated water content, water content at field capacity and wilting point, saturated hydraulic conductivity	~1km	Tóth et al. (9)	https://doi.org/10.1002/hyp.11203
Topography	Slope, Elevation, Aspect	30m	Hawker et al. (10)	http://doi.org/10.1088/1748-9326/ac4d4f

Name	Variables	Resolution	Reference	URL
Bioclimatic variables	Annual Mean Temperature, Mean Diurnal Range (Mean of monthly (max temp - min temp)), Isothermality (BIO2/BIO7) ($\times 100$), Temperature Seasonality (standard deviation $\times 100$), Max Temperature of Warmest Month, Min Temperature of Coldest Month, Temperature Annual Range (BIO5-BIO6), Mean Temperature of Wettest Quarter, Mean Temperature of Driest Quarter, Mean Temperature of Warmest Quarter, Mean Temperature of Coldest Quarter, Annual Precipitation, Precipitation of Wettest Month, Precipitation of Driest Month, Precipitation Seasonality (Coefficient of Variation), Precipitation of Wettest Quarter, Precipitation of Driest Quarter, Precipitation of Warmest Quarter, Precipitation of Coldest Quarter	0.5°	Noce et al. (11)	http://doi.org/10.1038/s41597-020-00726-5
Global Forest Loss	Canopy cover loss	30m, annual 2001-2025	Hansen et al. 2013 (12)	https://storage.googleapis.com/earthenginepartners-hansen/GFC-2025-v1.13/download.html
Tree extent, removal, and height	Tree extent (pixel classified as forest), tree removal (change from tree to non-tree), and tree height (m)	30m, annual 2001-2021	Turubanova et al. (13)	http://doi.org/10.1016/j.rse.2023.113797
Multi-source national forest inventory (MS-NFI)	Average stand length, diameter, age, basal area, total wood volume, derived threshold-based binary indicators	16-20m, biannual since 2009	Tomppo et al. (14, 15), Mäkisara et al. (16–18)	https://paituli.csc.fi/download
LATVUS canopy model	Canopy height, standard deviation of canopy height	1m, annual 2008-2024 with varying spatial coverage	Finnish Forest Centre (19)	https://www.paikkatietohakemisto.fi/
Biodiversity conservation value	Deadwood potential and connectivity to protected area network	96m, 2015	Mikkonen et al. (20)	https://kartta.paikkatietoikkuna.fi/

Table S2: Post-matching baseline summary statistics (time-invariant)

Characteristic	Raw Data			CEM + kNN Filtered			Post-matching		
	Control	Treated	Adj.	Control	Treated	Adj.	Control	Treated	Adj.
CEM Variables									
Soil texture PC1	0.00 (3.72)	-0.29 (4.80)	0.50	-0.1 (4.5)	-0.2 (4.7)	0.15	-0.2 (4.7)	-0.2 (4.7)	0.02
Soil fertility PC1	0.00 (3.29)	0.39 (4.17)	-0.34	0.28 (3.90)	0.36 (4.12)	-0.08	0.4 (4.1)	0.4 (4.1)	0.00
Soil hydrology PC1	0.00 (2.56)	-0.24 (2.46)	0.02	-0.21 (2.49)	-0.21 (2.48)	0.00	-0.21 (2.50)	-0.21 (2.48)	0.01
Bioclimatic PC1	0.0 (2.9)	-0.6 (3.0)	0.09	-0.6 (3.1)	-0.6 (3.0)	0.04	-0.6 (3.0)	-0.6 (3.0)	0.03
Travel time PC1	0.00 (2.74)	-0.06 (3.00)	-0.27	-0.18 (2.96)	-0.05 (3.05)	-0.10	-0.11 (2.95)	-0.05 (3.05)	-0.07
Distance to protected areas	11 (9)	9 (9)	1.6	9 (9)	9 (9)	0.59	9 (9)	9 (9)	0.35
Area [log(ha)]	0.72 (0.47)	0.63 (0.45)	0.09	0.65 (0.44)	0.63 (0.45)	0.02	0.64 (0.44)	0.63 (0.45)	0.01
Elevation	117 (60)	123 (66)	-9.3	120 (63)	123 (66)	-2.6	121 (64)	123 (66)	-1.8
Slope	1.91 (1.99)	2.93 (3.48)	-0.86	2.49 (2.43)	2.96 (3.50)	-0.48	2.47 (2.46)	2.96 (3.50)	-0.49
Tree extent 2007	88 (25)	93 (19)	-5.5	94 (18)	93 (18)	0.53	94 (18)	93 (18)	0.55
Tree height 2007	11.8 (5.0)	13.9 (4.8)	-1.6	13.9 (4.6)	14.0 (4.8)	-0.15	13.8 (4.7)	14.0 (4.8)	-0.19
Cumulative harvest share	0.31 (0.42)	0.17 (0.31)	0.14	0.18 (0.33)	0.17 (0.31)	0.02	0.18 (0.33)	0.17 (0.31)	0.01
kNN Variables									
Soil texture PC2	0.00 (3.14)	-0.38 (3.37)	-0.12	-0.5 (3.4)	-0.4 (3.4)	-0.07	-0.4 (3.4)	-0.4 (3.4)	-0.06
Soil hydrology PC2	0.00 (2.00)	0.06 (2.25)	-0.06	0.00 (2.16)	0.06 (2.25)	-0.07	0.01 (2.18)	0.07 (2.25)	-0.05
Bioclimatic PC2	0.00 (2.09)	0.28 (2.03)	-0.16	0.27 (1.96)	0.30 (2.01)	-0.03	0.27 (2.02)	0.30 (2.01)	-0.03
Distance to old growth forest	14 (10)	12 (11)	1.4	12 (10)	12 (11)	0.37	12 (10)	12 (11)	0.18
Distance to Natura 2000 site	5.0 (3.6)	3.8 (3.4)	1.0	4.3 (3.3)	3.9 (3.4)	0.49	4.2 (3.3)	3.9 (3.4)	0.36
Total natural disturbance	0 (0)	0 (0)	0.00	0 (0)	0 (0)	0.00	0 (0)	0 (0)	0.00
Cum. natural disturbance [%]	0.0078 (0.0733)	0.0081	0.00	0.0062	0.0080	0.00	0.0064	0.0080	0.00
Distance to main roads	3.9 (3.6)	4.6 (4.3)	-0.73	4.1 (3.8)	4.5 (4.3)	-0.45	4.2 (3.9)	4.5 (4.3)	-0.35
Distance to sawmill	44 (27)	45 (28)	-2.5	44 (27)	45 (28)	-0.74	45 (27)	45 (28)	-0.50
Distance to lakes	1.50 (1.61)	1.19 (1.43)	0.22	1.28 (1.46)	1.20 (1.43)	0.08	1.26 (1.46)	1.20 (1.43)	0.06
Distance to rivers	1.31 (1.08)	1.31 (1.41)	0.01	1.35 (1.26)	1.29 (1.37)	0.05	1.36 (1.35)	1.29 (1.36)	0.07
Canopy cover broadleaves 2006	10 (9)	9 (9)	1.1	9 (8)	9 (9)	0.06	9 (9)	9 (9)	0.28
Canopy cover whole stand 2006	41 (14)	44 (14)	-1.9	44 (13)	44 (14)	0.37	44 (14)	44 (14)	0.07
Average stand height 2006	58 (23)	67 (24)	-7.3	67 (23)	68 (24)	-0.75	66 (23)	68 (24)	-1.5
Tree extent 2001-2007 slope	0.00 (0.04)	0.00 (0.02)	0.00	0.002 (0.023)	0.000 (0.020)	0.00	0.002 (0.021)	0.000 (0.020)	0.00
Tree height mean 2001-2007 slope	-0.05 (0.61)	-0.02 (0.36)	-0.04	0.00 (0.35)	-0.02 (0.35)	0.02	0.01 (0.32)	-0.02 (0.35)	0.03
Zonation Variables									

Characteristic	Raw Data			CEM + kNN Filtered			Post-matching		
	Control	Treated	Adj.	Control	Treated	Adj.	Control	Treated	Adj.
Biodiversity potential index (VI)	0.54 (0.24)	0.80 (0.21)	-0.23	0.65 (0.24)	0.79 (0.21)	-0.15	0.71 (0.23)	0.79 (0.21)	-0.09

¹ Mean (SD)

² ANCOVA

Note: summary statistics across treatment and control group based on raw data (columns 1-3), filtered data using nearest neighbors within coarsened exact matching bins (columns 4-6), and final dataset after matching on pre-treatment outcome trends (columns 7-9). With the large sample size, differences in means are mostly statistically significant, so instead of p-values we report ANCOVA-adjusted differences (controlling ELY-center and tree species). The overall imbalance was reduced substantially compared to the unmatched sample, while we were able to retain 94.5% of treated units by identifying suitable control stands.

Table S3: Outcome summary statistics (time-varying)

Characteristic	Pre-treatment		Post-treatment		Overall
	Control	Treated	Control	Treated	All obs.
Canopy cover loss (Hansen)	0.0022 (0.0312)	0.0029 (0.0352)	0.0156 (0.0998)	0.0026 (0.0331)	0.0056 (0.0563)
Canopy extent	0.94 (0.18)	0.93 (0.18)	0.89 (0.25)	0.91 (0.21)	0.92 (0.20)
Unknown	1.9%	1.9%	43%	43%	21%
Canopy removal	0.0023 (0.0333)	0.0031 (0.0369)	0.0135 (0.0943)	0.0028 (0.0336)	0.0045 (0.0501)
Unknown	1.9%	1.9%	43%	43%	21%
Canopy height mean	13.9 (4.6)	14.0 (4.8)	12.8 (5.2)	13.4 (5.1)	13.7 (4.9)
Unknown	1.9%	1.9%	43%	43%	21%
Canopy height max	17.1 (4.1)	17.4 (4.3)	16.6 (4.3)	17.0 (4.5)	17.1 (4.3)
Unknown	1.9%	1.9%	43%	43%	21%
Canopy height stdev	1.98 (1.34)	2.14 (1.49)	2.16 (1.54)	2.16 (1.48)	2.10 (1.45)
Unknown	1.9%	1.9%	43%	43%	21%
Share with any use declaration	0.029 (0.149)	0.026 (0.140)	0.08 (0.26)	0.01 (0.10)	0.04 (0.17)
Share with clearcutting use declaration	0.0039 (0.0524)	0.0073 (0.0719)	0.0257 (0.1462)	0.0055 (0.0664)	0.0102 (0.0903)
Average stand diameter	17.5 (5.3)	17.8 (5.4)	17.2 (5.9)	18.2 (5.6)	17.7 (5.6)
Unknown	62%	63%	58%	58%	60%
Average stand length	147 (45)	150 (46)	144 (51)	152 (49)	148 (48)
Unknown	62%	63%	58%	58%	60%
Canopy cover broadleaves	12 (11)	12 (11)	12 (11)	12 (12)	12 (11)
Unknown	63%	63%	58%	58%	61%
Canopy cover whole stand	56 (14)	56 (14)	57 (17)	59 (15)	57 (15)
Unknown	63%	63%	58%	58%	61%
Stand age	62 (20)	65 (22)	61 (21)	66 (21)	63 (21)
Unknown	62%	63%	58%	58%	60%
Stand basal area	18.6 (6.0)	18.8 (6.1)	18 (7)	19 (7)	19 (6)
Unknown	62%	63%	58%	58%	60%
Total wood volume	150 (68)	153 (70)	144 (77)	156 (78)	151 (74)
Unknown	62%	63%	58%	58%	60%
Tree specific age threshold	99,231 (39%)	120,036 (45%)	97,654 (38%)	124,673 (46%)	441,594 (42%)
Unknown	65%	66%	61%	61%	64%
Spruce volume above 150 m3 ha-1	22,622 (8.3%)	27,420 (9.4%)	27,181 (9.9%)	36,345 (12%)	113,568 (10%)
Unknown	62%	63%	58%	58%	60%

¹Mean (SD); n (%)

Note: Table shows group-wise summary statistics of dependent variables over the entire period (2000-2024). First column indicates available observations, where it becomes evident that depending on the product the spatiotemporal coverage varied substantially. This largely explains the different sized confidence bands in our results.

Table S4: Extended estimated effects of METSO forest conservation

Dependent variable	Main sample: cohorts 2010–2018		Restricted sample: cohorts 2014–2018		
	TATT [95% CI]	TATT p	TATT [95% CI]	Joint p (pre)	Trend p (pre)
(A) Any use declaration [%]	-0.092 [-0.100, -0.083]	<0.001	-0.092 [-0.103, -0.082]	<0.001	<0.001
(B) Harvest disturbance share [%]	-0.012 [-0.014, -0.010]	<0.001	-0.013 [-0.015, -0.010]	0.064	0.198
(C) Tree height (mean) [m]	0.639 [0.530, 0.747]	<0.001	0.635 [0.522, 0.747]	<0.001	<0.001
(D) Tree height (St.Dev.) [m]	-0.188 [-0.216, -0.160]	<0.001	-0.178 [-0.208, -0.149]	<0.001	<0.001
(E) LATVUS canopy height (mean) [m]	0.522 [0.380, 0.664]	<0.001	0.588 [0.456, 0.719]	0.017	0.145
(F) LATVUS canopy height (St.Dev.) [m]	-0.064 [-0.110, -0.018]	0.006	-0.076 [-0.121, -0.031]	0.401	0.365
(G) Average stand diameter [cm]	0.762 [0.622, 0.901]	<0.001	0.750 [0.610, 0.890]	0.734	0.597
(H) Average stand length [dm]	6.797 [5.500, 8.094]	<0.001	6.634 [5.383, 7.884]	0.706	0.463
(I) Stand basal area [m ² /ha]	1.038 [0.836, 1.241]	<0.001	1.030 [0.824, 1.236]	0.544	0.276
(J) Stand age [years]	1.801 [1.530, 2.072]	<0.001	1.708 [1.448, 1.968]	0.199	0.488
(K) Average stand diameter > 15 cm (bin)	0.000 [-0.003, 0.003]	0.964	0.001 [-0.002, 0.004]	0.488	0.710
(L) Average stand diameter > 20 cm (bin)	0.003 [-0.005, 0.011]	0.488	0.007 [-0.004, 0.018]	0.589	0.358
(M) Canopy cover broadleaves [%]	0.695 [0.416, 0.974]	<0.001	0.640 [0.389, 0.891]	0.640	0.378
(N) Canopy cover whole stand [%]	2.518 [1.976, 3.060]	<0.001	2.515 [2.041, 2.990]	0.599	0.333
(O) Volume pine (mean)	0.375 [-0.203, 0.952]	0.203	0.710 [-0.263, 1.683]	0.549	0.312
(P) Volume spruce (mean)	7.445 [6.244, 8.647]	<0.001	7.232 [5.727, 8.737]	0.976	0.914

Notes: TATT denotes the trimmed average treatment effect on the treated. Joint p reports the p-value from a Wald test that all available pre-treatment coefficients are jointly zero. Trend p reports the p-value from a test of a linear pre-treatment trend. The main sample includes cohorts 2010–2018; the restricted sample includes cohorts 2014–2018 and provides longer pre-treatment support.

Tables S5.1 – S5.36: Cohort-wise baseline summaries
Cohort 2008: Baseline covariates (treated = 335; control = 329)

Variable	Control	Treated	SMD
Soil texture PC1	0.142 (5.681)	0.284 (5.025)	0.026
Soil texture PC2	-1.516 (3.110)	-1.536 (3.071)	-0.006
Soil fertility PC1	1.069 (4.683)	0.902 (4.037)	-0.038
Soil hydrology PC1	-0.972 (1.799)	-0.970 (1.730)	0.001
Soil hydrology PC2	-0.267 (2.234)	-0.301 (1.761)	-0.017
Bioclimatic PC1	-1.763 (1.566)	-1.699 (1.448)	0.042
Bioclimatic PC2	0.279 (1.949)	0.316 (2.051)	0.019
Travel time PC1	-0.921 (2.107)	-1.043 (2.037)	-0.059
Log area [log(ha)]	0.708 (0.439)	0.717 (0.488)	0.019
Elevation	103.903 (43.367)	105.633 (43.898)	0.040
Slope	2.770 (2.207)	3.344 (3.276)	0.205
Distance to other protected areas	9.187 (9.421)	8.108 (8.905)	-0.118
Distance to old growth forest	12.682 (8.558)	12.665 (9.034)	-0.002
Distance to Natura 2000 site (SAC/SPA)	4.400 (3.469)	3.408 (3.542)	-0.283
Tree extent 2007	98.025 (7.405)	97.187 (10.194)	-0.094
Tree height 2007	16.618 (3.321)	16.740 (3.598)	0.035
Total natural disturbance	0.021 (0.143)	0.021 (0.143)	0.000
Cumulative natural disturbance share	0.007 (0.067)	0.004 (0.041)	-0.060
Cumulative harvest disturbance share	0.125 (0.282)	0.112 (0.231)	-0.053
Distance to main roads	3.721 (3.116)	3.081 (2.412)	-0.230
Distance to sawmill	37.616 (19.135)	38.491 (19.745)	0.045
Distance to lakes	0.981 (1.205)	0.931 (1.179)	-0.042
Distance to rivers	1.419 (1.168)	1.440 (1.270)	0.017
Canopy cover broadleaves 2006	9.531 (8.384)	10.407 (10.788)	0.091
Canopy cover whole stand 2006	50.631 (8.931)	51.282 (10.062)	0.068
Average stand length 2006	77.672 (19.902)	79.869 (19.744)	0.111
Tree extent 2001-2007 slope	0.003 (0.019)	0.002 (0.022)	-0.036
Tree height mean 2001-2007 slope	0.036 (0.202)	-0.001 (0.305)	-0.145
Biodiversity index (VI)	0.730 (0.209)	0.887 (0.111)	0.939

Cohort 2008: Pre-intervention outcomes (treated = 335; control = 329)

Variable	Control	Treated	SMD
Share with any use declaration	0.017 (0.071)	0.026 (0.079)	0.111
Share with clearcutting use declaration	0.002 (0.013)	0.006 (0.042)	0.147
Tree extent	0.974 (0.088)	0.968 (0.103)	-0.060
Tree height mean	16.543 (3.494)	16.762 (3.628)	0.061
Tree loss (Hansen)	0.001 (0.007)	0.004 (0.016)	0.222
Total wood volume	NA	NA	NA

Cohort 2009: Baseline covariates (treated = 5891; control = 5128)

Variable	Control	Treated	SMD
Soil texture PC1	-0.450 (4.724)	-0.456 (4.551)	-0.001
Soil texture PC2	0.584 (2.958)	0.915 (2.709)	0.117
Soil fertility PC1	0.839 (4.007)	0.770 (4.011)	-0.017
Soil hydrology PC1	0.154 (2.714)	-0.011 (2.551)	-0.063
Soil hydrology PC2	-0.009 (2.146)	0.234 (2.307)	0.109
Bioclimatic PC1	-0.850 (1.971)	-0.813 (2.039)	0.018
Bioclimatic PC2	0.958 (1.872)	0.887 (1.770)	-0.039
Travel time PC1	0.460 (2.378)	0.655 (2.462)	0.080
Log area [log(ha)]	0.661 (0.484)	0.666 (0.524)	0.009
Elevation	138.661 (52.078)	143.409 (56.289)	0.088
Slope	2.106 (2.310)	2.377 (2.943)	0.102
Distance to other protected areas	4.112 (4.606)	2.888 (4.832)	-0.259
Distance to old growth forest	8.360 (7.025)	7.092 (7.593)	-0.173
Distance to Natura 2000 site (SAC/SPA)	3.058 (2.480)	1.809 (2.516)	-0.500
Tree extent 2007	88.844 (24.191)	87.707 (25.468)	-0.046
Tree height 2007	12.481 (5.089)	12.399 (5.199)	-0.016
Total natural disturbance	0.015 (0.120)	0.053 (0.225)	0.215
Cumulative natural disturbance share	0.006 (0.065)	0.028 (0.146)	0.197
Cumulative harvest disturbance share	0.246 (0.404)	0.253 (0.416)	0.016
Distance to main roads	5.161 (3.814)	5.983 (4.227)	0.204
Distance to sawmill	54.021 (24.340)	55.920 (24.698)	0.077
Distance to lakes	1.099 (1.245)	0.833 (1.125)	-0.224
Distance to rivers	1.410 (1.067)	1.303 (0.985)	-0.105
Canopy cover broadleaves 2006	7.394 (7.344)	6.436 (6.856)	-0.135
Canopy cover whole stand 2006	39.441 (14.664)	39.149 (14.697)	-0.020
Average stand length 2006	61.443 (23.988)	62.331 (24.221)	0.037
Tree extent 2001-2007 slope	0.002 (0.023)	0.000 (0.027)	-0.059
Tree height mean 2001-2007 slope	0.022 (0.318)	-0.016 (0.389)	-0.108
Biodiversity index (VI)	0.672 (0.219)	0.833 (0.162)	0.831

Cohort 2009: Pre-intervention outcomes (treated = 5891; control = 5128)

Variable	Control	Treated	SMD
Share with any use declaration	0.009 (0.053)	0.013 (0.059)	0.069
Share with clearcutting use declaration	0.003 (0.031)	0.003 (0.030)	0.011
Tree extent	0.886 (0.239)	0.878 (0.247)	-0.036
Tree height mean	12.463 (5.057)	12.438 (5.117)	-0.005
Tree loss (Hansen)	0.002 (0.013)	0.004 (0.019)	0.100
Total wood volume	NA	NA	NA

Cohort 2010: Baseline covariates (treated = 1516; control = 1452)

Variable	Control	Treated	SMD
Soil texture PC1	-0.696 (5.718)	-0.937 (6.290)	-0.040
Soil texture PC2	-1.095 (3.639)	-1.128 (3.535)	-0.009
Soil fertility PC1	0.757 (5.014)	0.907 (5.381)	0.029
Soil hydrology PC1	-0.348 (2.404)	-0.332 (2.463)	0.007
Soil hydrology PC2	-0.060 (2.486)	-0.128 (2.507)	-0.027
Bioclimatic PC1	-1.100 (2.741)	-1.173 (2.650)	-0.027
Bioclimatic PC2	0.288 (2.048)	0.325 (2.012)	0.018
Travel time PC1	-0.325 (2.744)	-0.351 (2.720)	-0.010
Log area [log(ha)]	0.688 (0.459)	0.687 (0.479)	-0.002
Elevation	108.733 (54.119)	109.505 (52.236)	0.015
Slope	2.837 (2.546)	3.624 (4.143)	0.229
Distance to other protected areas	8.719 (8.597)	8.719 (9.119)	0.000
Distance to old growth forest	13.030 (9.858)	13.549 (10.300)	0.051
Distance to Natura 2000 site (SAC/SPA)	4.559 (3.472)	4.388 (3.442)	-0.049
Tree extent 2007	94.100 (18.366)	93.060 (19.004)	-0.056
Tree height 2007	14.809 (4.570)	14.818 (4.670)	0.002
Total natural disturbance	0.014 (0.117)	0.028 (0.166)	0.101
Cumulative natural disturbance share	0.005 (0.058)	0.009 (0.074)	0.067
Cumulative harvest disturbance share	0.146 (0.307)	0.134 (0.282)	-0.041
Distance to main roads	4.050 (3.621)	4.279 (3.966)	0.060
Distance to sawmill	43.095 (21.648)	42.520 (21.834)	-0.026
Distance to lakes	1.338 (1.605)	1.237 (1.515)	-0.065
Distance to rivers	1.452 (1.715)	1.379 (1.643)	-0.043
Canopy cover broadleaves 2006	8.900 (8.625)	8.699 (8.987)	-0.023
Canopy cover whole stand 2006	46.406 (12.556)	46.698 (12.921)	0.023
Average stand length 2006	72.217 (22.576)	74.268 (23.512)	0.089
Tree extent 2001-2007 slope	0.001 (0.017)	-0.000 (0.018)	-0.083
Tree height mean 2001-2007 slope	0.011 (0.268)	-0.022 (0.345)	-0.108
Biodiversity index (VI)	0.680 (0.250)	0.785 (0.226)	0.441

Cohort 2010: Pre-intervention outcomes (treated = 1516; control = 1452)

Variable	Control	Treated	SMD
Share with any use declaration	0.014 (0.067)	0.022 (0.086)	0.111
Share with clearcutting use declaration	0.003 (0.029)	0.008 (0.049)	0.117
Tree extent	0.940 (0.179)	0.932 (0.182)	-0.044
Tree height mean	14.806 (4.517)	14.863 (4.577)	0.012
Tree loss (Hansen)	0.002 (0.012)	0.003 (0.015)	0.120
Total wood volume	146.895 (60.433)	150.501 (62.712)	0.059

Cohort 2011: Baseline covariates (treated = 3204; control = 3091)

Variable	Control	Treated	SMD
Soil texture PC1	-0.003 (3.818)	-0.045 (3.915)	-0.011
Soil texture PC2	0.149 (2.949)	0.155 (2.866)	0.002
Soil fertility PC1	0.001 (3.395)	0.063 (3.564)	0.018
Soil hydrology PC1	-0.024 (2.620)	0.013 (2.641)	0.014
Soil hydrology PC2	0.089 (2.014)	0.171 (2.010)	0.040
Bioclimatic PC1	-0.105 (2.975)	-0.250 (2.790)	-0.050
Bioclimatic PC2	0.454 (2.050)	0.462 (2.097)	0.004
Travel time PC1	0.304 (2.775)	0.196 (2.555)	-0.041
Log area [log(ha)]	0.677 (0.483)	0.666 (0.495)	-0.022
Elevation	123.100 (66.556)	123.105 (65.847)	0.000
Slope	2.237 (2.414)	2.638 (3.446)	0.135
Distance to other protected areas	9.851 (8.618)	9.721 (8.391)	-0.015
Distance to old growth forest	13.859 (10.881)	13.292 (10.563)	-0.053
Distance to Natura 2000 site (SAC/SPA)	4.862 (3.658)	4.853 (3.602)	-0.003
Tree extent 2007	88.739 (25.839)	88.104 (26.015)	-0.024
Tree height 2007	12.970 (5.699)	13.067 (5.811)	0.017
Total natural disturbance	0.017 (0.129)	0.015 (0.120)	-0.018
Cumulative natural disturbance share	0.004 (0.049)	0.005 (0.053)	0.003
Cumulative harvest disturbance share	0.187 (0.346)	0.168 (0.314)	-0.057
Distance to main roads	4.331 (3.832)	4.271 (3.692)	-0.016
Distance to sawmill	43.507 (23.932)	42.931 (22.311)	-0.025
Distance to lakes	1.237 (1.446)	1.183 (1.418)	-0.038
Distance to rivers	1.289 (1.055)	1.294 (1.044)	0.004
Canopy cover broadleaves 2006	7.763 (8.189)	7.820 (8.409)	0.007
Canopy cover whole stand 2006	40.914 (15.751)	40.716 (16.080)	-0.012
Average stand length 2006	62.723 (26.257)	63.308 (26.876)	0.022
Tree extent 2001-2007 slope	0.002 (0.019)	0.000 (0.018)	-0.083
Tree height mean 2001-2007 slope	0.017 (0.241)	-0.008 (0.286)	-0.095
Biodiversity index (VI)	0.634 (0.250)	0.755 (0.238)	0.495

Cohort 2011: Pre-intervention outcomes (treated = 3204; control = 3091)

Variable	Control	Treated	SMD
Share with any use declaration	0.015 (0.068)	0.022 (0.084)	0.090
Share with clearcutting use declaration	0.002 (0.024)	0.007 (0.049)	0.118
Tree extent	0.888 (0.256)	0.882 (0.257)	-0.027
Tree height mean	12.994 (5.674)	13.078 (5.776)	0.015
Tree loss (Hansen)	0.001 (0.008)	0.003 (0.014)	0.145
Total wood volume	123.420 (69.398)	124.786 (70.461)	0.020

Cohort 2012: Baseline covariates (treated = 2943; control = 2846)

Variable	Control	Treated	SMD
Soil texture PC1	-0.427 (5.121)	-0.417 (5.035)	0.002
Soil texture PC2	-0.484 (3.240)	-0.402 (3.228)	0.025
Soil fertility PC1	0.645 (4.391)	0.599 (4.281)	-0.011
Soil hydrology PC1	-0.367 (2.435)	-0.324 (2.513)	0.017
Soil hydrology PC2	-0.153 (2.181)	-0.132 (2.272)	0.009
Bioclimatic PC1	-0.726 (2.795)	-0.804 (2.672)	-0.029
Bioclimatic PC2	0.326 (1.663)	0.345 (1.673)	0.012
Travel time PC1	-0.350 (2.612)	-0.392 (2.485)	-0.016
Log area [log(ha)]	0.663 (0.457)	0.662 (0.487)	-0.003
Elevation	113.520 (55.334)	114.211 (53.902)	0.013
Slope	2.534 (2.405)	3.017 (3.365)	0.165
Distance to other protected areas	11.241 (9.849)	11.288 (10.345)	0.005
Distance to old growth forest	13.431 (9.090)	13.249 (8.335)	-0.021
Distance to Natura 2000 site (SAC/SPA)	4.526 (3.465)	4.390 (3.557)	-0.039
Tree extent 2007	93.635 (18.693)	92.808 (19.325)	-0.044
Tree height 2007	14.220 (4.743)	14.311 (4.848)	0.019
Total natural disturbance	0.018 (0.133)	0.023 (0.151)	0.033
Cumulative natural disturbance share	0.006 (0.066)	0.008 (0.068)	0.018
Cumulative harvest disturbance share	0.159 (0.306)	0.157 (0.309)	-0.005
Distance to main roads	4.109 (3.852)	4.312 (3.434)	0.056
Distance to sawmill	43.001 (24.633)	42.618 (23.697)	-0.016
Distance to lakes	1.145 (1.376)	1.002 (1.354)	-0.105
Distance to rivers	1.293 (1.025)	1.287 (1.177)	-0.006
Canopy cover broadleaves 2006	8.664 (8.035)	8.479 (8.559)	-0.022
Canopy cover whole stand 2006	44.534 (13.449)	44.103 (13.707)	-0.032
Average stand length 2006	68.234 (23.539)	69.519 (23.972)	0.054
Tree extent 2001-2007 slope	0.002 (0.019)	0.001 (0.019)	-0.039
Tree height mean 2001-2007 slope	0.018 (0.282)	-0.008 (0.310)	-0.088
Biodiversity index (VI)	0.672 (0.241)	0.795 (0.222)	0.532

Cohort 2012: Pre-intervention outcomes (treated = 2943; control = 2846)

Variable	Control	Treated	SMD
Share with any use declaration	0.017 (0.069)	0.026 (0.090)	0.124
Share with clearcutting use declaration	0.004 (0.033)	0.011 (0.058)	0.147
Tree extent	0.937 (0.183)	0.928 (0.189)	-0.048
Tree height mean	14.256 (4.680)	14.300 (4.792)	0.009
Tree loss (Hansen)	0.002 (0.011)	0.003 (0.017)	0.134
Total wood volume	142.836 (62.851)	143.608 (64.786)	0.012

Cohort 2013: Baseline covariates (treated = 3126; control = 3016)

Variable	Control	Treated	SMD
Soil texture PC1	-0.500 (4.805)	-0.711 (5.242)	-0.042
Soil texture PC2	-0.143 (3.065)	-0.301 (3.135)	-0.051
Soil fertility PC1	0.548 (4.146)	0.793 (4.639)	0.056
Soil hydrology PC1	-0.376 (2.423)	-0.375 (2.435)	0.000
Soil hydrology PC2	-0.128 (1.999)	-0.180 (2.060)	-0.026
Bioclimatic PC1	-0.360 (2.616)	-0.483 (2.459)	-0.048
Bioclimatic PC2	0.459 (1.787)	0.578 (1.770)	0.067
Travel time PC1	-0.201 (2.517)	-0.286 (2.380)	-0.035
Log area [log(ha)]	0.689 (0.487)	0.679 (0.491)	-0.020
Elevation	118.358 (53.892)	119.283 (54.073)	0.017
Slope	2.336 (2.386)	2.808 (3.381)	0.161
Distance to other protected areas	9.881 (8.717)	9.554 (8.045)	-0.039
Distance to old growth forest	12.342 (8.848)	12.331 (8.591)	-0.001
Distance to Natura 2000 site (SAC/SPA)	4.366 (3.245)	4.149 (3.420)	-0.065
Tree extent 2007	92.561 (20.022)	91.967 (20.405)	-0.029
Tree height 2007	13.782 (4.950)	13.884 (5.087)	0.020
Total natural disturbance	0.014 (0.122)	0.018 (0.136)	0.035
Cumulative natural disturbance share	0.006 (0.075)	0.005 (0.057)	-0.016
Cumulative harvest disturbance share	0.166 (0.309)	0.155 (0.293)	-0.037
Distance to main roads	4.033 (3.557)	3.905 (3.451)	-0.036
Distance to sawmill	47.550 (26.714)	48.853 (26.198)	0.049
Distance to lakes	1.340 (1.517)	1.162 (1.404)	-0.121
Distance to rivers	1.283 (1.044)	1.146 (0.983)	-0.136
Canopy cover broadleaves 2006	9.096 (8.422)	9.193 (9.326)	0.011
Canopy cover whole stand 2006	43.960 (13.907)	43.776 (14.457)	-0.013
Average stand length 2006	65.866 (24.250)	66.585 (25.386)	0.029
Tree extent 2001-2007 slope	0.001 (0.020)	0.001 (0.019)	0.020
Tree height mean 2001-2007 slope	-0.006 (0.333)	-0.013 (0.331)	-0.022
Biodiversity index (VI)	0.647 (0.247)	0.761 (0.230)	0.477

Cohort 2013: Pre-intervention outcomes (treated = 3126; control = 3016)

Variable	Control	Treated	SMD
Share with any use declaration	0.020 (0.081)	0.034 (0.107)	0.147
Share with clearcutting use declaration	0.004 (0.033)	0.009 (0.053)	0.133
Tree extent	0.927 (0.196)	0.919 (0.202)	-0.045
Tree height mean	13.847 (4.896)	13.871 (5.056)	0.005
Tree loss (Hansen)	0.001 (0.009)	0.003 (0.015)	0.146
Total wood volume	137.054 (64.951)	137.485 (66.499)	0.007

Cohort 2014: Baseline covariates (treated = 8599; control = 7998)

Variable	Control	Treated	SMD
Soil texture PC1	-0.257 (4.056)	-0.301 (4.331)	-0.010
Soil texture PC2	0.431 (3.117)	0.438 (3.180)	0.002
Soil fertility PC1	0.232 (3.630)	0.327 (3.830)	0.026
Soil hydrology PC1	0.294 (2.835)	0.302 (2.820)	0.003
Soil hydrology PC2	-0.041 (2.077)	-0.071 (1.947)	-0.015
Bioclimatic PC1	-0.270 (2.699)	-0.273 (2.701)	-0.001
Bioclimatic PC2	0.880 (1.880)	0.963 (1.820)	0.045
Travel time PC1	0.440 (2.623)	0.527 (2.666)	0.033
Log area [log(ha)]	0.655 (0.461)	0.658 (0.499)	0.005
Elevation	133.333 (63.441)	135.749 (64.287)	0.038
Slope	2.303 (2.357)	2.750 (3.306)	0.156
Distance to other protected areas	8.039 (8.448)	7.624 (9.043)	-0.047
Distance to old growth forest	11.563 (8.832)	11.158 (9.234)	-0.045
Distance to Natura 2000 site (SAC/SPA)	4.025 (3.234)	3.308 (3.352)	-0.218
Tree extent 2007	91.858 (20.654)	91.174 (21.324)	-0.033
Tree height 2007	12.736 (4.923)	12.774 (5.067)	0.008
Total natural disturbance	0.014 (0.119)	0.014 (0.121)	0.001
Cumulative natural disturbance share	0.005 (0.058)	0.005 (0.056)	-0.009
Cumulative harvest disturbance share	0.204 (0.349)	0.197 (0.330)	-0.021
Distance to main roads	4.260 (3.647)	4.667 (3.780)	0.110
Distance to sawmill	49.242 (24.195)	50.663 (23.977)	0.059
Distance to lakes	1.335 (1.539)	1.373 (1.571)	0.025
Distance to rivers	1.419 (1.441)	1.349 (1.551)	-0.047
Canopy cover broadleaves 2006	7.984 (7.867)	7.534 (8.069)	-0.056
Canopy cover whole stand 2006	40.292 (14.352)	39.743 (14.813)	-0.038
Average stand length 2006	61.475 (23.682)	62.406 (24.633)	0.039
Tree extent 2001-2007 slope	0.002 (0.023)	0.001 (0.022)	-0.062
Tree height mean 2001-2007 slope	0.013 (0.334)	-0.013 (0.347)	-0.077
Biodiversity index (VI)	0.656 (0.243)	0.787 (0.208)	0.580

Cohort 2014: Pre-intervention outcomes (treated = 8599; control = 7998)

Variable	Control	Treated	SMD
Share with any use declaration	0.024 (0.091)	0.038 (0.115)	0.131
Share with clearcutting use declaration	0.003 (0.028)	0.011 (0.058)	0.174
Tree extent	0.925 (0.197)	0.914 (0.207)	-0.056
Tree height mean	12.865 (4.835)	12.810 (5.000)	-0.011
Tree loss (Hansen)	0.001 (0.009)	0.003 (0.015)	0.131
Total wood volume	125.512 (62.294)	126.087 (64.299)	0.009

Cohort 2015: Baseline covariates (treated = 5906; control = 5630)

Variable	Control	Treated	SMD
Soil texture PC1	-0.292 (4.507)	-0.289 (4.524)	0.001
Soil texture PC2	-0.145 (3.386)	-0.132 (3.487)	0.004
Soil fertility PC1	0.264 (3.942)	0.260 (3.932)	-0.001
Soil hydrology PC1	0.049 (2.653)	-0.008 (2.617)	-0.022
Soil hydrology PC2	-0.058 (2.022)	-0.054 (1.987)	0.002
Bioclimatic PC1	0.192 (3.728)	0.258 (3.906)	0.017
Bioclimatic PC2	0.517 (1.781)	0.544 (1.715)	0.015
Travel time PC1	0.522 (3.460)	0.641 (3.661)	0.033
Log area [log(ha)]	0.605 (0.431)	0.592 (0.448)	-0.029
Elevation	133.902 (75.777)	136.514 (80.657)	0.033
Slope	2.342 (2.405)	2.684 (3.209)	0.121
Distance to other protected areas	9.525 (8.900)	9.173 (8.659)	-0.040
Distance to old growth forest	13.868 (11.882)	14.334 (11.456)	0.040
Distance to Natura 2000 site (SAC/SPA)	4.227 (3.292)	3.941 (3.437)	-0.085
Tree extent 2007	91.865 (20.412)	91.437 (20.575)	-0.021
Tree height 2007	13.045 (5.017)	13.162 (5.105)	0.023
Total natural disturbance	0.016 (0.126)	0.023 (0.148)	0.047
Cumulative natural disturbance share	0.006 (0.062)	0.010 (0.081)	0.053
Cumulative harvest disturbance share	0.172 (0.320)	0.160 (0.303)	-0.037
Distance to main roads	4.340 (4.047)	4.641 (4.091)	0.074
Distance to sawmill	50.147 (33.152)	51.009 (33.104)	0.026
Distance to lakes	1.361 (1.551)	1.379 (1.710)	0.011
Distance to rivers	1.240 (1.008)	1.116 (0.995)	-0.124
Canopy cover broadleaves 2006	8.352 (8.042)	8.432 (8.548)	0.010
Canopy cover whole stand 2006	41.585 (14.510)	41.644 (14.431)	0.004
Average stand length 2006	63.305 (23.726)	64.981 (24.057)	0.070
Tree extent 2001-2007 slope	0.001 (0.020)	-0.000 (0.018)	-0.078
Tree height mean 2001-2007 slope	0.005 (0.301)	-0.032 (0.355)	-0.113
Biodiversity index (VI)	0.662 (0.247)	0.780 (0.225)	0.503

Cohort 2015: Pre-intervention outcomes (treated = 5906; control = 5630)

Variable	Control	Treated	SMD
Share with any use declaration	0.022 (0.084)	0.030 (0.103)	0.088
Share with clearcutting use declaration	0.003 (0.030)	0.009 (0.051)	0.132
Tree extent	0.922 (0.198)	0.916 (0.201)	-0.029
Tree height mean	13.142 (4.967)	13.200 (5.061)	0.011
Tree loss (Hansen)	0.001 (0.011)	0.002 (0.012)	0.058
Total wood volume	129.893 (64.963)	132.405 (67.696)	0.038

Cohort 2016: Baseline covariates (treated = 3866; control = 3692)

Variable	Control	Treated	SMD
Soil texture PC1	-0.387 (4.433)	-0.339 (4.358)	0.011
Soil texture PC2	0.163 (3.223)	0.368 (3.152)	0.064
Soil fertility PC1	0.276 (3.914)	0.256 (3.805)	-0.005
Soil hydrology PC1	0.225 (2.797)	0.220 (2.775)	-0.002
Soil hydrology PC2	-0.093 (2.047)	-0.037 (2.145)	0.026
Bioclimatic PC1	0.128 (3.307)	0.100 (3.244)	-0.008
Bioclimatic PC2	0.482 (1.872)	0.454 (1.935)	-0.015
Travel time PC1	0.493 (3.257)	0.515 (3.417)	0.007
Log area [log(ha)]	0.646 (0.463)	0.637 (0.460)	-0.019
Elevation	131.269 (65.582)	131.059 (63.858)	-0.003
Slope	2.339 (2.488)	2.654 (3.270)	0.108
Distance to other protected areas	8.702 (8.326)	8.656 (8.770)	-0.005
Distance to old growth forest	13.637 (15.581)	14.578 (19.927)	0.053
Distance to Natura 2000 site (SAC/SPA)	4.102 (3.234)	4.022 (3.184)	-0.025
Tree extent 2007	92.254 (19.861)	91.759 (19.986)	-0.025
Tree height 2007	12.988 (4.943)	13.148 (5.119)	0.032
Total natural disturbance	0.012 (0.111)	0.014 (0.117)	0.014
Cumulative natural disturbance share	0.005 (0.053)	0.007 (0.068)	0.025
Cumulative harvest disturbance share	0.194 (0.333)	0.183 (0.310)	-0.035
Distance to main roads	4.380 (4.209)	4.583 (4.569)	0.046
Distance to sawmill	47.584 (36.490)	49.397 (43.654)	0.045
Distance to lakes	1.305 (1.469)	1.236 (1.369)	-0.048
Distance to rivers	1.232 (1.072)	1.228 (1.112)	-0.003
Canopy cover broadleaves 2006	9.094 (8.875)	8.558 (8.735)	-0.061
Canopy cover whole stand 2006	41.960 (14.334)	42.045 (14.333)	0.006
Average stand length 2006	62.445 (23.541)	63.903 (24.148)	0.061
Tree extent 2001-2007 slope	0.002 (0.022)	-0.001 (0.021)	-0.139
Tree height mean 2001-2007 slope	0.008 (0.321)	-0.051 (0.386)	-0.164
Biodiversity index (VI)	0.700 (0.247)	0.753 (0.241)	0.217

Cohort 2016: Pre-intervention outcomes (treated = 3866; control = 3692)

Variable	Control	Treated	SMD
Share with any use declaration	0.020 (0.078)	0.027 (0.090)	0.080
Share with clearcutting use declaration	0.003 (0.030)	0.007 (0.042)	0.091
Tree extent	0.931 (0.187)	0.924 (0.190)	-0.033
Tree height mean	13.155 (4.846)	13.207 (5.011)	0.011
Tree loss (Hansen)	0.001 (0.010)	0.002 (0.010)	0.053
Total wood volume	135.551 (67.011)	135.832 (68.081)	0.004

Cohort 2017: Baseline covariates (treated = 3578; control = 3408)

Variable	Control	Treated	SMD
Soil texture PC1	-0.161 (4.285)	-0.052 (3.999)	0.026
Soil texture PC2	-0.149 (3.261)	-0.051 (3.358)	0.030
Soil fertility PC1	0.262 (3.765)	0.150 (3.532)	-0.031
Soil hydrology PC1	-0.166 (2.471)	-0.182 (2.445)	-0.007
Soil hydrology PC2	0.010 (1.981)	0.055 (1.942)	0.023
Bioclimatic PC1	-0.159 (3.207)	-0.196 (3.194)	-0.012
Bioclimatic PC2	0.291 (2.144)	0.422 (2.183)	0.061
Travel time PC1	0.219 (3.371)	0.388 (3.732)	0.047
Log area [log(ha)]	0.606 (0.421)	0.597 (0.436)	-0.020
Elevation	130.542 (73.600)	132.064 (74.694)	0.021
Slope	2.387 (2.467)	2.879 (3.611)	0.159
Distance to other protected areas	9.973 (8.487)	9.713 (8.143)	-0.031
Distance to old growth forest	11.936 (11.019)	11.673 (11.080)	-0.024
Distance to Natura 2000 site (SAC/SPA)	4.202 (3.123)	4.216 (3.266)	0.004
Tree extent 2007	93.971 (17.578)	93.326 (17.736)	-0.036
Tree height 2007	13.635 (4.747)	13.862 (4.930)	0.047
Total natural disturbance	0.020 (0.138)	0.016 (0.127)	-0.023
Cumulative natural disturbance share	0.008 (0.071)	0.004 (0.045)	-0.068
Cumulative harvest disturbance share	0.177 (0.322)	0.161 (0.291)	-0.052
Distance to main roads	4.470 (5.050)	5.151 (6.831)	0.113
Distance to sawmill	44.282 (30.091)	46.691 (31.719)	0.078
Distance to lakes	1.210 (1.394)	1.251 (1.510)	0.028
Distance to rivers	1.226 (0.991)	1.161 (1.014)	-0.065
Canopy cover broadleaves 2006	9.240 (8.905)	8.804 (8.844)	-0.049
Canopy cover whole stand 2006	43.566 (14.223)	43.516 (13.988)	-0.004
Average stand length 2006	66.055 (23.182)	67.939 (22.888)	0.082
Tree extent 2001-2007 slope	0.002 (0.020)	0.000 (0.019)	-0.072
Tree height mean 2001-2007 slope	0.014 (0.300)	-0.024 (0.324)	-0.121
Biodiversity index (VI)	0.749 (0.213)	0.808 (0.197)	0.288

Cohort 2017: Pre-intervention outcomes (treated = 3578; control = 3408)

Variable	Control	Treated	SMD
Share with any use declaration	0.024 (0.090)	0.027 (0.093)	0.037
Share with clearcutting use declaration	0.004 (0.036)	0.008 (0.043)	0.098
Tree extent	0.944 (0.170)	0.936 (0.169)	-0.045
Tree height mean	13.776 (4.671)	13.852 (4.823)	0.016
Tree loss (Hansen)	0.001 (0.008)	0.002 (0.012)	0.097
Total wood volume	143.720 (66.011)	144.296 (66.257)	0.009

Cohort 2018: Baseline covariates (treated = 4664; control = 4426)

Variable	Control	Treated	SMD
Soil texture PC1	0.005 (4.172)	-0.055 (4.415)	-0.014
Soil texture PC2	-0.210 (3.319)	-0.252 (3.401)	-0.012
Soil fertility PC1	0.245 (3.626)	0.305 (3.702)	0.016
Soil hydrology PC1	-0.304 (2.422)	-0.344 (2.397)	-0.016
Soil hydrology PC2	-0.115 (1.909)	-0.133 (1.865)	-0.010
Bioclimatic PC1	-0.263 (2.969)	-0.255 (2.926)	0.003
Bioclimatic PC2	0.295 (2.059)	0.321 (2.055)	0.012
Travel time PC1	0.070 (3.097)	0.218 (3.426)	0.045
Log area [log(ha)]	0.594 (0.410)	0.580 (0.417)	-0.034
Elevation	129.148 (69.746)	131.946 (74.029)	0.039
Slope	2.459 (2.440)	2.909 (3.392)	0.152
Distance to other protected areas	9.860 (8.819)	9.896 (9.059)	0.004
Distance to old growth forest	11.808 (8.502)	11.843 (8.716)	0.004
Distance to Natura 2000 site (SAC/SPA)	4.230 (3.332)	3.961 (3.582)	-0.078
Tree extent 2007	94.699 (15.962)	94.292 (16.116)	-0.025
Tree height 2007	13.943 (4.518)	14.149 (4.672)	0.045
Total natural disturbance	0.015 (0.122)	0.025 (0.156)	0.069
Cumulative natural disturbance share	0.006 (0.063)	0.013 (0.100)	0.080
Cumulative harvest disturbance share	0.162 (0.311)	0.155 (0.301)	-0.022
Distance to main roads	4.350 (4.416)	5.018 (5.850)	0.129
Distance to sawmill	41.215 (23.659)	40.565 (23.341)	-0.028
Distance to lakes	1.186 (1.374)	1.163 (1.330)	-0.018
Distance to rivers	1.394 (1.459)	1.360 (1.393)	-0.023
Canopy cover broadleaves 2006	9.769 (9.149)	9.764 (9.725)	-0.001
Canopy cover whole stand 2006	44.684 (13.390)	44.983 (13.481)	0.022
Average stand length 2006	66.471 (21.994)	68.195 (22.337)	0.078
Tree extent 2001-2007 slope	0.002 (0.021)	0.000 (0.018)	-0.075
Tree height mean 2001-2007 slope	0.009 (0.317)	-0.029 (0.359)	-0.111
Biodiversity index (VI)	0.754 (0.210)	0.806 (0.196)	0.256

Cohort 2018: Pre-intervention outcomes (treated = 4664; control = 4426)

Variable	Control	Treated	SMD
Share with any use declaration	0.027 (0.095)	0.035 (0.108)	0.083
Share with clearcutting use declaration	0.004 (0.036)	0.010 (0.054)	0.126
Tree extent	0.949 (0.153)	0.943 (0.154)	-0.043
Tree height mean	14.036 (4.449)	14.107 (4.598)	0.016
Tree loss (Hansen)	0.002 (0.011)	0.003 (0.015)	0.115
Total wood volume	153.322 (66.856)	154.986 (67.317)	0.025

Cohort 2019: Baseline covariates (treated = 6130; control = 5815)

Variable	Control	Treated	SMD
Soil texture PC1	-0.177 (4.726)	-0.191 (4.781)	-0.003
Soil texture PC2	-0.452 (3.343)	-0.409 (3.389)	0.013
Soil fertility PC1	0.479 (4.103)	0.502 (4.075)	0.005
Soil hydrology PC1	-0.387 (2.399)	-0.347 (2.466)	0.016
Soil hydrology PC2	-0.048 (2.160)	-0.075 (2.054)	-0.013
Bioclimatic PC1	-0.716 (2.715)	-0.733 (2.631)	-0.006
Bioclimatic PC2	0.226 (2.127)	0.292 (2.156)	0.031
Travel time PC1	-0.273 (2.736)	-0.233 (2.767)	0.015
Log area [log(ha)]	0.610 (0.415)	0.594 (0.408)	-0.038
Elevation	116.064 (58.028)	117.841 (61.102)	0.030
Slope	2.459 (2.483)	3.069 (3.739)	0.192
Distance to other protected areas	9.565 (9.419)	9.273 (9.194)	-0.031
Distance to old growth forest	12.326 (9.168)	11.853 (8.506)	-0.054
Distance to Natura 2000 site (SAC/SPA)	4.418 (3.472)	4.336 (3.590)	-0.023
Tree extent 2007	95.518 (14.498)	94.878 (15.207)	-0.043
Tree height 2007	14.330 (4.214)	14.480 (4.363)	0.035
Total natural disturbance	0.020 (0.141)	0.018 (0.133)	-0.014
Cumulative natural disturbance share	0.008 (0.072)	0.006 (0.058)	-0.031
Cumulative harvest disturbance share	0.178 (0.324)	0.167 (0.305)	-0.035
Distance to main roads	4.096 (3.665)	4.193 (3.961)	0.025
Distance to sawmill	41.755 (24.397)	40.706 (22.996)	-0.044
Distance to lakes	1.146 (1.324)	1.086 (1.236)	-0.046
Distance to rivers	1.299 (1.142)	1.177 (1.152)	-0.106
Canopy cover broadleaves 2006	9.892 (9.089)	9.519 (9.190)	-0.041
Canopy cover whole stand 2006	45.519 (12.513)	45.199 (12.726)	-0.025
Average stand length 2006	68.081 (21.797)	69.650 (22.748)	0.070
Tree extent 2001-2007 slope	0.002 (0.021)	0.001 (0.019)	-0.086
Tree height mean 2001-2007 slope	0.017 (0.311)	-0.020 (0.350)	-0.113
Biodiversity index (VI)	0.748 (0.211)	0.798 (0.201)	0.241

Cohort 2019: Pre-intervention outcomes (treated = 6130; control = 5815)

Variable	Control	Treated	SMD
Share with any use declaration	0.024 (0.086)	0.028 (0.090)	0.053
Share with clearcutting use declaration	0.004 (0.035)	0.009 (0.048)	0.105
Tree extent	0.957 (0.141)	0.949 (0.148)	-0.055
Tree height mean	14.440 (4.106)	14.463 (4.281)	0.005
Tree loss (Hansen)	0.002 (0.014)	0.003 (0.015)	0.063
Total wood volume	157.119 (63.662)	158.536 (65.756)	0.022

Cohort 2020: Baseline covariates (treated = 7170; control = 6699)

Variable	Control	Treated	SMD
Soil texture PC1	0.118 (4.606)	0.127 (4.568)	0.002
Soil texture PC2	-0.939 (3.485)	-0.928 (3.487)	0.003
Soil fertility PC1	0.119 (3.969)	0.134 (4.049)	0.004
Soil hydrology PC1	-0.520 (2.149)	-0.590 (2.042)	-0.033
Soil hydrology PC2	0.214 (2.380)	0.321 (2.651)	0.042
Bioclimatic PC1	-0.768 (3.134)	-0.781 (3.066)	-0.004
Bioclimatic PC2	-0.124 (2.151)	-0.113 (2.124)	0.005
Travel time PC1	-0.463 (2.975)	-0.433 (2.936)	0.010
Log area [log(ha)]	0.623 (0.423)	0.603 (0.416)	-0.049
Elevation	112.888 (65.727)	113.915 (68.031)	0.015
Slope	2.699 (2.600)	3.239 (3.610)	0.172
Distance to other protected areas	9.757 (8.881)	9.623 (8.662)	-0.015
Distance to old growth forest	12.382 (9.577)	12.518 (9.763)	0.014
Distance to Natura 2000 site (SAC/SPA)	4.286 (3.342)	4.214 (3.306)	-0.022
Tree extent 2007	95.979 (13.594)	95.410 (13.647)	-0.042
Tree height 2007	14.491 (4.159)	14.758 (4.290)	0.063
Total natural disturbance	0.017 (0.133)	0.022 (0.155)	0.037
Cumulative natural disturbance share	0.006 (0.067)	0.008 (0.070)	0.021
Cumulative harvest disturbance share	0.161 (0.304)	0.153 (0.280)	-0.030
Distance to main roads	3.987 (3.760)	4.181 (3.513)	0.053
Distance to sawmill	40.183 (24.652)	39.381 (23.851)	-0.033
Distance to lakes	1.302 (1.499)	1.189 (1.376)	-0.078
Distance to rivers	1.388 (1.491)	1.295 (1.397)	-0.064
Canopy cover broadleaves 2006	9.574 (9.001)	9.131 (9.032)	-0.049
Canopy cover whole stand 2006	45.862 (12.226)	45.577 (12.140)	-0.023
Average stand length 2006	69.093 (21.573)	70.312 (22.127)	0.056
Tree extent 2001-2007 slope	0.002 (0.020)	0.001 (0.020)	-0.046
Tree height mean 2001-2007 slope	0.009 (0.303)	-0.019 (0.336)	-0.086
Biodiversity index (VI)	0.758 (0.208)	0.802 (0.203)	0.217

Cohort 2020: Pre-intervention outcomes (treated = 7170; control = 6699)

Variable	Control	Treated	SMD
Share with any use declaration	0.025 (0.090)	0.026 (0.089)	0.008
Share with clearcutting use declaration	0.005 (0.037)	0.008 (0.046)	0.077
Tree extent	0.965 (0.121)	0.959 (0.121)	-0.050
Tree height mean	14.664 (3.977)	14.823 (4.122)	0.039
Tree loss (Hansen)	0.002 (0.013)	0.003 (0.013)	0.049
Total wood volume	165.081 (66.452)	168.925 (68.432)	0.057

Cohort 2021: Baseline covariates (treated = 7281; control = 6833)

Variable	Control	Treated	SMD
Soil texture PC1	-0.150 (4.661)	-0.168 (4.751)	-0.004
Soil texture PC2	-0.985 (3.508)	-0.959 (3.476)	0.007
Soil fertility PC1	0.064 (4.111)	0.067 (4.100)	0.001
Soil hydrology PC1	-0.328 (2.307)	-0.361 (2.288)	-0.014
Soil hydrology PC2	0.245 (2.318)	0.232 (2.435)	-0.005
Bioclimatic PC1	-0.910 (3.442)	-0.949 (3.437)	-0.011
Bioclimatic PC2	-0.136 (2.051)	-0.110 (2.046)	0.013
Travel time PC1	-0.479 (3.186)	-0.434 (3.159)	0.014
Log area [log(ha)]	0.604 (0.415)	0.582 (0.400)	-0.054
Elevation	112.539 (66.104)	113.002 (66.735)	0.007
Slope	2.729 (2.611)	3.348 (3.839)	0.188
Distance to other protected areas	8.878 (8.224)	8.884 (8.220)	0.001
Distance to old growth forest	12.495 (9.957)	12.364 (10.164)	-0.013
Distance to Natura 2000 site (SAC/SPA)	4.242 (3.337)	4.045 (3.103)	-0.061
Tree extent 2007	95.964 (13.671)	95.724 (13.335)	-0.018
Tree height 2007	14.384 (4.167)	14.656 (4.252)	0.065
Total natural disturbance	0.017 (0.131)	0.014 (0.119)	-0.022
Cumulative natural disturbance share	0.006 (0.065)	0.005 (0.055)	-0.025
Cumulative harvest disturbance share	0.156 (0.303)	0.147 (0.281)	-0.030
Distance to main roads	3.976 (3.803)	4.148 (3.657)	0.046
Distance to sawmill	42.852 (28.250)	42.597 (29.022)	-0.009
Distance to lakes	1.271 (1.459)	1.193 (1.443)	-0.054
Distance to rivers	1.369 (1.482)	1.244 (1.422)	-0.086
Canopy cover broadleaves 2006	9.526 (8.960)	9.287 (9.256)	-0.026
Canopy cover whole stand 2006	45.567 (12.187)	45.724 (12.091)	0.013
Average stand length 2006	68.881 (21.348)	70.613 (21.660)	0.081
Tree extent 2001-2007 slope	0.002 (0.019)	0.001 (0.019)	-0.050
Tree height mean 2001-2007 slope	0.012 (0.292)	-0.016 (0.338)	-0.090
Biodiversity index (VI)	0.756 (0.209)	0.804 (0.198)	0.235

Cohort 2021: Pre-intervention outcomes (treated = 7281; control = 6833)

Variable	Control	Treated	SMD
Share with any use declaration	0.024 (0.089)	0.026 (0.087)	0.021
Share with clearcutting use declaration	0.004 (0.035)	0.009 (0.049)	0.107
Tree extent	0.962 (0.128)	0.956 (0.130)	-0.047
Tree height mean	14.519 (4.040)	14.655 (4.145)	0.033
Tree loss (Hansen)	0.002 (0.013)	0.003 (0.015)	0.069
Total wood volume	162.733 (66.822)	167.717 (67.347)	0.074

Cohort 2022: Baseline covariates (treated = 5518; control = 5151)

Variable	Control	Treated	SMD
Soil texture PC1	-0.021 (4.495)	-0.090 (4.664)	-0.015
Soil texture PC2	-0.988 (3.512)	-0.972 (3.574)	0.005
Soil fertility PC1	0.111 (3.948)	0.183 (4.058)	0.018
Soil hydrology PC1	-0.193 (2.454)	-0.221 (2.438)	-0.011
Soil hydrology PC2	0.123 (2.273)	0.172 (2.349)	0.021
Bioclimatic PC1	-0.967 (3.338)	-1.011 (3.271)	-0.013
Bioclimatic PC2	-0.252 (2.079)	-0.184 (2.068)	0.033
Travel time PC1	-0.544 (3.054)	-0.450 (3.304)	0.029
Log area [log(ha)]	0.629 (0.416)	0.614 (0.410)	-0.036
Elevation	112.396 (63.530)	113.727 (65.844)	0.021
Slope	2.665 (2.609)	3.092 (3.497)	0.138
Distance to other protected areas	9.344 (8.413)	9.313 (8.590)	-0.004
Distance to old growth forest	12.304 (10.030)	12.204 (10.182)	-0.010
Distance to Natura 2000 site (SAC/SPA)	4.253 (3.472)	3.977 (3.866)	-0.075
Tree extent 2007	95.869 (14.092)	95.482 (14.290)	-0.027
Tree height 2007	14.404 (4.176)	14.642 (4.358)	0.056
Total natural disturbance	0.016 (0.128)	0.013 (0.120)	-0.028
Cumulative natural disturbance share	0.006 (0.065)	0.004 (0.050)	-0.039
Cumulative harvest disturbance share	0.156 (0.289)	0.150 (0.282)	-0.021
Distance to main roads	4.037 (3.980)	4.642 (5.491)	0.126
Distance to sawmill	43.945 (28.271)	43.778 (28.931)	-0.006
Distance to lakes	1.408 (1.610)	1.342 (1.532)	-0.042
Distance to rivers	1.566 (1.837)	1.535 (1.944)	-0.016
Canopy cover broadleaves 2006	9.151 (8.405)	9.145 (8.976)	-0.001
Canopy cover whole stand 2006	45.394 (12.101)	45.503 (12.752)	0.009
Average stand length 2006	69.015 (21.213)	69.920 (22.245)	0.042
Tree extent 2001-2007 slope	0.001 (0.021)	0.001 (0.019)	-0.025
Tree height mean 2001-2007 slope	0.007 (0.342)	-0.013 (0.357)	-0.059
Biodiversity index (VI)	0.745 (0.206)	0.795 (0.194)	0.250

Cohort 2022: Pre-intervention outcomes (treated = 5518; control = 5151)

Variable	Control	Treated	SMD
Share with any use declaration	0.026 (0.093)	0.029 (0.099)	0.024
Share with clearcutting use declaration	0.004 (0.037)	0.008 (0.050)	0.086
Tree extent	0.963 (0.129)	0.958 (0.130)	-0.035
Tree height mean	14.566 (3.984)	14.741 (4.140)	0.043
Tree loss (Hansen)	0.002 (0.013)	0.003 (0.016)	0.063
Total wood volume	167.246 (67.791)	172.131 (69.846)	0.071

Cohort 2023: Baseline covariates (treated = 5590; control = 5296)

Variable	Control	Treated	SMD
Soil texture PC1	-0.215 (5.044)	-0.300 (5.296)	-0.016
Soil texture PC2	-1.112 (3.548)	-1.104 (3.569)	0.002
Soil fertility PC1	0.357 (4.331)	0.470 (4.595)	0.025
Soil hydrology PC1	-0.437 (2.288)	-0.463 (2.254)	-0.012
Soil hydrology PC2	0.033 (2.277)	0.025 (2.274)	-0.004
Bioclimatic PC1	-0.861 (3.313)	-0.894 (3.347)	-0.010
Bioclimatic PC2	-0.101 (1.894)	-0.076 (1.923)	0.013
Travel time PC1	-0.572 (3.110)	-0.480 (3.270)	0.029
Log area [log(ha)]	0.628 (0.412)	0.614 (0.410)	-0.033
Elevation	114.051 (61.812)	114.382 (62.486)	0.005
Slope	2.721 (2.591)	3.333 (3.873)	0.186
Distance to other protected areas	9.732 (8.220)	9.708 (8.291)	-0.003
Distance to old growth forest	12.654 (12.435)	12.969 (13.412)	0.024
Distance to Natura 2000 site (SAC/SPA)	4.297 (3.307)	4.090 (3.241)	-0.063
Tree extent 2007	96.034 (13.317)	95.731 (13.347)	-0.023
Tree height 2007	14.560 (4.117)	14.829 (4.265)	0.064
Total natural disturbance	0.017 (0.130)	0.017 (0.130)	0.000
Cumulative natural disturbance share	0.006 (0.066)	0.007 (0.071)	0.007
Cumulative harvest disturbance share	0.166 (0.306)	0.158 (0.291)	-0.028
Distance to main roads	4.170 (4.025)	4.579 (4.487)	0.096
Distance to sawmill	42.042 (31.896)	42.631 (33.791)	0.018
Distance to lakes	1.213 (1.406)	1.221 (1.408)	0.006
Distance to rivers	1.362 (1.451)	1.311 (1.454)	-0.035
Canopy cover broadleaves 2006	9.562 (8.917)	9.578 (9.388)	0.002
Canopy cover whole stand 2006	46.041 (12.013)	45.986 (12.104)	-0.005
Average stand length 2006	69.546 (20.970)	70.802 (21.618)	0.059
Tree extent 2001-2007 slope	0.001 (0.020)	0.000 (0.019)	-0.054
Tree height mean 2001-2007 slope	0.002 (0.352)	-0.025 (0.373)	-0.075
Biodiversity index (VI)	0.745 (0.210)	0.786 (0.201)	0.200

Cohort 2023: Pre-intervention outcomes (treated = 5590; control = 5296)

Variable	Control	Treated	SMD
Share with any use declaration	0.027 (0.095)	0.025 (0.085)	-0.020
Share with clearcutting use declaration	0.005 (0.038)	0.008 (0.048)	0.080
Tree extent	0.963 (0.122)	0.957 (0.122)	-0.047
Tree height mean	14.715 (3.951)	14.880 (4.090)	0.041
Tree loss (Hansen)	0.003 (0.016)	0.004 (0.018)	0.075
Total wood volume	168.376 (67.473)	173.350 (68.588)	0.073

Cohort 2024: Baseline covariates (treated = 1716; control = 1618)

Variable	Control	Treated	SMD
Soil texture PC1	-0.049 (5.754)	-0.138 (5.987)	-0.015
Soil texture PC2	-1.949 (3.155)	-1.792 (3.030)	0.051
Soil fertility PC1	0.760 (4.856)	0.809 (5.024)	0.010
Soil hydrology PC1	-0.757 (2.022)	-0.671 (2.243)	0.040
Soil hydrology PC2	0.135 (2.866)	0.086 (2.806)	-0.017
Bioclimatic PC1	-2.101 (1.919)	-2.131 (1.875)	-0.016
Bioclimatic PC2	-0.096 (1.918)	-0.064 (1.819)	0.017
Travel time PC1	-1.522 (2.156)	-1.524 (2.083)	-0.001
Log area [log(ha)]	0.692 (0.433)	0.708 (0.460)	0.036
Elevation	101.748 (50.558)	101.823 (47.311)	0.002
Slope	2.811 (2.537)	3.236 (3.305)	0.145
Distance to other protected areas	8.678 (7.702)	8.613 (7.425)	-0.009
Distance to old growth forest	11.397 (7.666)	11.067 (7.765)	-0.043
Distance to Natura 2000 site (SAC/SPA)	4.190 (3.260)	4.091 (3.585)	-0.029
Tree extent 2007	95.131 (15.495)	94.800 (16.483)	-0.021
Tree height 2007	15.543 (4.112)	15.813 (4.233)	0.065
Total natural disturbance	0.026 (0.160)	0.011 (0.105)	-0.112
Cumulative natural disturbance share	0.011 (0.089)	0.002 (0.034)	-0.130
Cumulative harvest disturbance share	0.168 (0.325)	0.152 (0.299)	-0.052
Distance to main roads	3.948 (3.436)	3.868 (3.201)	-0.024
Distance to sawmill	35.153 (19.999)	35.882 (20.891)	0.036
Distance to lakes	1.207 (1.469)	1.077 (1.318)	-0.093
Distance to rivers	1.568 (1.881)	1.542 (1.906)	-0.014
Canopy cover broadleaves 2006	9.850 (8.983)	9.753 (9.251)	-0.011
Canopy cover whole stand 2006	48.705 (12.523)	48.889 (12.342)	0.015
Average stand length 2006	74.043 (21.955)	75.629 (22.369)	0.072
Tree extent 2001-2007 slope	0.001 (0.022)	0.000 (0.023)	-0.041
Tree height mean 2001-2007 slope	-0.003 (0.374)	-0.016 (0.367)	-0.034
Biodiversity index (VI)	0.789 (0.176)	0.828 (0.157)	0.237

Cohort 2024: Pre-intervention outcomes (treated = 1716; control = 1618)

Variable	Control	Treated	SMD
Share with any use declaration	0.029 (0.098)	0.040 (0.120)	0.099
Share with clearcutting use declaration	0.004 (0.033)	0.012 (0.065)	0.156
Tree extent	0.962 (0.130)	0.959 (0.130)	-0.021
Tree height mean	15.768 (3.755)	16.007 (3.836)	0.063
Tree loss (Hansen)	0.003 (0.015)	0.004 (0.017)	0.045
Total wood volume	188.703 (67.722)	192.103 (71.435)	0.049

Cohort 2025: Baseline covariates (treated = 1957; control = 1840)

Variable	Control	Treated	SMD
Soil texture PC1	-0.274 (5.357)	-0.335 (5.655)	-0.011
Soil texture PC2	-1.552 (3.490)	-1.652 (3.473)	-0.029
Soil fertility PC1	0.349 (4.805)	0.379 (4.970)	0.006
Soil hydrology PC1	-0.455 (2.168)	-0.530 (2.012)	-0.036
Soil hydrology PC2	0.458 (2.675)	0.671 (3.008)	0.075
Bioclimatic PC1	-1.683 (2.517)	-1.749 (2.439)	-0.026
Bioclimatic PC2	-0.410 (2.167)	-0.476 (2.138)	-0.031
Travel time PC1	-1.351 (2.199)	-1.395 (2.101)	-0.021
Log area [log(ha)]	0.709 (0.443)	0.708 (0.458)	-0.000
Elevation	103.034 (57.945)	101.949 (56.800)	-0.019
Slope	2.484 (2.266)	2.935 (3.151)	0.164
Distance to other protected areas	9.460 (8.800)	9.239 (8.572)	-0.025
Distance to old growth forest	11.484 (9.241)	11.248 (9.647)	-0.025
Distance to Natura 2000 site (SAC/SPA)	3.809 (2.918)	3.220 (2.867)	-0.203
Tree extent 2007	95.157 (15.620)	94.624 (15.994)	-0.034
Tree height 2007	14.850 (4.188)	15.006 (4.352)	0.037
Total natural disturbance	0.014 (0.117)	0.016 (0.125)	0.017
Cumulative natural disturbance share	0.005 (0.057)	0.005 (0.055)	0.011
Cumulative harvest disturbance share	0.161 (0.301)	0.161 (0.309)	0.001
Distance to main roads	3.632 (3.280)	3.661 (2.996)	0.009
Distance to sawmill	37.645 (21.556)	37.377 (22.199)	-0.012
Distance to lakes	1.258 (1.404)	1.243 (1.451)	-0.011
Distance to rivers	1.561 (1.699)	1.551 (1.642)	-0.006
Canopy cover broadleaves 2006	9.585 (8.908)	8.872 (8.750)	-0.081
Canopy cover whole stand 2006	46.355 (12.297)	46.089 (12.771)	-0.021
Average stand length 2006	70.761 (21.575)	72.310 (22.999)	0.069
Tree extent 2001-2007 slope	0.002 (0.020)	-0.000 (0.019)	-0.094
Tree height mean 2001-2007 slope	0.008 (0.326)	-0.029 (0.388)	-0.103
Biodiversity index (VI)	0.773 (0.188)	0.818 (0.168)	0.251

Cohort 2025: Pre-intervention outcomes (treated = 1957; control = 1840)

Variable	Control	Treated	SMD
Share with any use declaration	0.027 (0.098)	0.026 (0.099)	-0.011
Share with clearcutting use declaration	0.004 (0.034)	0.006 (0.047)	0.040
Tree extent	0.959 (0.139)	0.953 (0.147)	-0.039
Tree height mean	15.084 (3.940)	15.244 (4.118)	0.040
Tree loss (Hansen)	0.002 (0.012)	0.002 (0.011)	-0.030
Total wood volume	175.680 (67.974)	178.166 (71.103)	0.036

Table S6: Baseline characteristics for included, excluded, and wider landscape stands

Characteristic	(1) METSO - included N = 78,990 ¹	(2) METSO - excluded N = 23,191 ¹	(3) Other protected areas N = 580,022 ¹	(4) Unprotected N = 10,991,643 ¹
Regional group				
I	24,017 (30%)	5,855 (25%)	163,620 (28%)	2,431,545 (22%)
II	13,224 (17%)	4,248 (18%)	78,165 (13%)	1,759,468 (16%)
III	18,212 (23%)	5,796 (25%)	189,544 (33%)	3,171,244 (29%)
IV	11,154 (14%)	3,318 (14%)	63,058 (11%)	1,311,517 (12%)
V	12,383 (16%)	3,974 (17%)	85,635 (15%)	2,317,868 (21%)
Tree species				
Hardwood	4,857 (6.1%)	1,919 (8.3%)	66,803 (12%)	1,063,819 (9.7%)
Other	5,969 (7.6%)	3,145 (14%)	24,848 (4.3%)	337,951 (3.1%)
Pine	31,072 (39%)	9,782 (42%)	313,567 (54%)	5,923,716 (54%)
Spruce	37,092 (47%)	8,345 (36%)	174,804 (30%)	3,666,157 (33%)
METSO intervention arm				
Non-METSO	0 (0%)	1,600 (6.9%)	580,022 (100%)	10,991,643 (100%)
State transfer 2009	5,174 (6.6%)	516 (2.2%)	0 (0%)	0 (0%)
State transfer 2014	2,900 (3.7%)	115 (0.5%)	0 (0%)	0 (0%)
Ministry estate	0 (0%)	503 (2.2%)	0 (0%)	0 (0%)
Permanent Conservation	29,917 (38%)	2,796 (12%)	0 (0%)	0 (0%)
Recurring state purchase	8,868 (11%)	12,813 (55%)	0 (0%)	0 (0%)
Temporary conservation (20y)	1,073 (1.4%)	100 (0.4%)	0 (0%)	0 (0%)
Temporary conservation (10y)	31,058 (39%)	4,748 (20%)	0 (0%)	0 (0%)
Distance to rivers	1.29 (1.36)	1.44 (1.50)	1.38 (1.47)	1.31 (1.08)
Distance to lakes	1.20 (1.43)	1.26 (1.47)	1.36 (1.54)	1.48 (1.60)
Distance to main roads	4.5 (4.3)	4.8 (3.8)	4.5 (4.1)	4.0 (3.7)
Distance to sawmill	45 (28)	45 (26)	47 (32)	44 (27)
Soil texture PC1	-0.21 (4.69)	-0.52 (4.93)	-0.44 (5.04)	0.03 (3.66)

Characteristic	(1) METSO - included N = 78,990 ¹	(2) METSO - excluded N = 23,191 ¹	(3) Other protected areas N = 580,022 ¹	(4) Unprotected N = 10,991,643 ¹
Soil texture PC2	-0.40 (3.35)	-0.26 (3.12)	-0.87 (3.62)	0.05 (3.10)
Soil fertility PC1	0.34 (4.06)	0.35 (4.28)	0.03 (4.45)	0.00 (3.23)
Soil hydrology PC1	-0.27 (2.45)	-0.19 (2.50)	0.16 (2.61)	-0.01 (2.57)
Soil hydrology PC2	0.06 (2.23)	0.22 (2.44)	0.14 (2.40)	-0.01 (1.98)
Bioclimatic PC1	-0.6 (3.0)	-0.6 (2.8)	-0.1 (3.3)	0.0 (2.9)
Bioclimatic PC2	0.26 (2.00)	-0.12 (2.22)	-0.09 (2.28)	0.00 (2.09)
Travel time PC1	-0.12 (3.03)	-0.21 (2.50)	0.16 (3.15)	-0.01 (2.72)
Log area [log(ha)]	0.63 (0.45)	0.67 (0.51)	0.66 (0.51)	0.73 (0.48)
Elevation	123 (66)	115 (63)	112 (70)	118 (60)
Slope	2.96 (3.50)	2.44 (3.02)	2.27 (2.70)	1.89 (1.98)
Distance to other protected areas	9 (9)	8 (9)	9 (11)	10 (9)
Distance to old growth forest	12 (11)	13 (11)	15 (17)	14 (10)
Distance to Natura 2000 site (SAC/SPA)	3.9 (3.4)	3.3 (3.3)	2.2 (3.1)	4.9 (3.6)
Tree extent 2007	93 (18)	89 (25)	84 (28)	88 (25)
Tree height 2007	14.0 (4.8)	13.0 (5.2)	11.2 (5.3)	11.8 (5.0)
Total natural disturbance				
0	77,397 (98%)	22,619 (98%)	569,951 (98%)	10,767,674 (98%)
1	1,575 (2.0%)	572 (2.5%)	9,797 (1.7%)	221,675 (2.0%)
2	18 (<0.1%)	0 (0%)	274 (<0.1%)	2,289 (<0.1%)
3	0 (0%)	0 (0%)	0 (0%)	5 (<0.1%)
Cumulative natural disturbance share	0.0080 (0.0743)	0.0103 (0.0846)	0.0068 (0.0686)	0.0079 (0.0739)
Cumulative harvest disturbance share	0.17 (0.31)	0.19 (0.35)	0.22 (0.38)	0.31 (0.42)
¹ n (%); Mean (SD)				

Table S7: Baseline characteristics by METSO intervention arm

Characteristic	Permanent conservation N = 29,917 ¹	Recurring state purchase N = 8,870 ¹	State transfer 2009/2014 N = 8,074 ¹	Temporary conservation (10 years) N = 31,058 ¹	Temporary conservation (20 years) N = 1,073 ¹
Regional group					
I	12,763 (43%)	2,961 (33%)	1,569 (19%)	6,173 (20%)	553 (52%)
II	4,142 (14%)	1,656 (19%)	3,405 (42%)	3,863 (12%)	158 (15%)
III	4,163 (14%)	1,023 (12%)	634 (7.9%)	12,167 (39%)	225 (21%)
IV	4,992 (17%)	905 (10%)	1,135 (14%)	3,990 (13%)	132 (12%)
V	3,857 (13%)	2,325 (26%)	1,331 (16%)	4,865 (16%)	5 (0.5%)
Tree species					
Hardwood	1,887 (6.3%)	638 (7.2%)	365 (4.5%)	1,859 (6.0%)	108 (10%)
Other	1,452 (4.9%)	317 (3.6%)	84 (1.0%)	4,067 (13%)	49 (4.6%)
Pine	11,651 (39%)	4,135 (47%)	5,286 (65%)	9,586 (31%)	416 (39%)
Spruce	14,927 (50%)	3,780 (43%)	2,339 (29%)	15,546 (50%)	500 (47%)
Distance to rivers	1.39 (1.48)	1.52 (1.59)	1.39 (1.35)	1.11 (1.15)	1.35 (1.28)
Distance to lakes	1.20 (1.52)	1.38 (1.52)	0.98 (1.19)	1.20 (1.37)	1.10 (1.51)
Distance to main roads	3.8 (3.2)	4.3 (3.2)	5.9 (4.2)	5.0 (5.4)	3.2 (2.6)
Distance to sawmill	41 (24)	40 (23)	57 (23)	48 (33)	34 (19)
Soil texture PC1	-0.3 (5.3)	-0.1 (4.6)	-0.6 (4.7)	-0.1 (4.1)	-0.2 (5.1)
Soil texture PC2	-1.4 (3.3)	-0.7 (3.4)	1.0 (2.8)	0.4 (3.3)	-1.7 (3.2)
Soil fertility PC1	0.5 (4.6)	0.1 (4.1)	0.8 (4.1)	0.2 (3.6)	-0.2 (4.5)
Soil hydrology PC1	-0.49 (2.23)	-0.41 (2.22)	0.30 (2.75)	0.01 (2.67)	-0.95 (1.51)
Soil hydrology PC2	0.16 (2.51)	0.47 (2.37)	0.12 (2.19)	-0.16 (1.92)	0.49 (2.27)
Bioclimatic PC1	-1.6 (2.5)	-1.2 (2.4)	-0.9 (2.1)	0.6 (3.4)	-1.6 (2.9)
Bioclimatic PC2	0.04 (1.79)	-0.53 (2.44)	1.02 (1.74)	0.63 (2.02)	-0.35 (1.52)
Travel time PC1	-1.09 (2.25)	-0.99 (1.87)	0.62 (2.45)	1.11 (3.64)	-1.63 (2.12)
Log area [log(ha)]	0.70 (0.48)	0.73 (0.48)	0.66 (0.54)	0.51 (0.36)	0.70 (0.46)

Characteristic	Permanent conservation N = 29,917 ¹	Recurring state purchase N = 8,870 ¹	State transfer 2009/2014 N = 8,074 ¹	Temporary conservation (10 years) N = 31,058 ¹	Temporary conservation (20 years) N = 1,073 ¹
Elevation	104 (51)	101 (54)	146 (57)	143 (76)	82 (43)
Slope	3.28 (3.63)	2.44 (3.06)	2.30 (2.67)	2.96 (3.62)	3.50 (3.78)
Distance to other protected areas	9 (9)	9 (9)	3 (5)	10 (9)	8 (8)
Distance to old growth forest	12 (9)	13 (10)	8 (8)	13 (13)	15 (11)
Distance to Natura 2000 site (SAC/SPA)	4.0 (3.2)	3.3 (3.1)	1.6 (2.2)	4.5 (3.7)	4.2 (2.9)
Tree extent 2007	95 (16)	93 (19)	88 (25)	93 (18)	95 (15)
Tree height 2007	15.2 (4.5)	14.2 (4.6)	12.0 (5.1)	13.2 (4.8)	15.2 (4.6)
Total natural disturbance					
0	29,341 (98%)	8,619 (97%)	7,718 (96%)	30,655 (99%)	1,066 (99%)
1	569 (1.9%)	241 (2.7%)	355 (4.4%)	403 (1.3%)	7 (0.7%)
2	7 (<0.1%)	10 (0.1%)	1 (<0.1%)	0 (0%)	0 (0%)
Cumulative natural disturbance share	0.0069 (0.0677)	0.0110 (0.0842)	0.0220 (0.1289)	0.0047 (0.0563)	0.0015 (0.0274)
Cumulative harvest disturbance share	0.16 (0.30)	0.18 (0.33)	0.26 (0.41)	0.15 (0.28)	0.14 (0.27)
¹ n (%); Mean (SD)					

Supplementary References

1. Finnish Forest Centre, Forest mask. Deposited 27 September 2021.
2. National Land Survey of Finland, Division into administrative areas (vector). National Land Survey of Finland. Deposited 2024.
3. National Land Survey of Finland, Cadastral index map (vector). National Land Survey of Finland. Deposited 2024.
4. European Commission, Natura 2000 data - the European network of protected sites. Deposited 2024.
5. European Environment Agency, Nationally designated areas for public access (vector data) - May 2024. European Environment Agency. <https://doi.org/10.2909/616EF48F-7196-4E30-B201-6C97808FA68A>. Deposited 2024.
6. A. Nelson, *et al.*, A suite of global accessibility indicators. *Sci. Data* **6**, 266 (2019).
7. L. Poggio, *et al.*, SoilGrids 2.0: producing soil information for the globe with quantified spatial uncertainty. *SOIL* **7**, 217–240 (2021).
8. J. D. Pelletier, *et al.*, Global 1-km Gridded Thickness of Soil, Regolith, and Sedimentary Deposit Layers. 1032.940581 MB (2016). <https://doi.org/10.3334/ORNLDAAAC/1304>.
9. B. Tóth, M. Weynants, L. Pásztor, T. Hengl, 3D soil hydraulic database of Europe at 250 m resolution. *Hydrol. Process.* **31**, 2662–2666 (2017).
10. L. Hawker, *et al.*, A 30 m global map of elevation with forests and buildings removed. *Environ. Res. Lett.* **17**, 024016 (2022).
11. S. Noce, L. Caporaso, M. Santini, A new global dataset of bioclimatic indicators. *Sci. Data* **7**, 398 (2020).
12. M. C. Hansen, *et al.*, High-Resolution Global Maps of 21st-Century Forest Cover Change. *Science* **342**, 850–853 (2013).
13. S. Turubanova, *et al.*, Tree canopy extent and height change in Europe, 2001–2021, quantified using Landsat data archive. *Remote Sens. Environ.* **298**, 113797 (2023).
14. E. Tomppo, M. Katila, K. Mäkisara, J. Peräsaari, *The Multi-source National Forest Inventory of Finland - methods and results 2009* (Finnish Forest Research Institute, 2013).
15. E. Tomppo, M. Katila, K. Mäkisara, J. Peräsaari, *The Multi-source National Forest Inventory of Finland - methods and results 2011* (Finnish Forest Research Institute, 2014).

16. K. Mäkisara, M. Katila, J. Peräsaari, E. Tomppo, *The Multi-source National Forest Inventory of Finland - methods and results 2013* (Natural Resources Institute Finland (Luke), 2016).
17. K. Mäkisara, M. Katila, J. Peräsaari, *The Multi-source National Forest Inventory of Finland - methods and results 2015* (Natural Resources Institute Finland (Luke), 2019).
18. K. Mäkisara, M. Katila, J. Peräsaari, *The Multi-Source National Forest Inventory of Finland - methods and results 2017 and 2019* (Natural Resources Institute Finland, 2022).
19. Finnish Forest Centre, Canopy model. Deposited 28 May 2020.
20. N. Mikkonen, N. Leikola, J. Lehtomäki, P. Halme, A. Moilanen, National high-resolution conservation prioritisation of boreal forests. *For. Ecol. Manag.* **541**, 121079 (2023).