Supplementary information
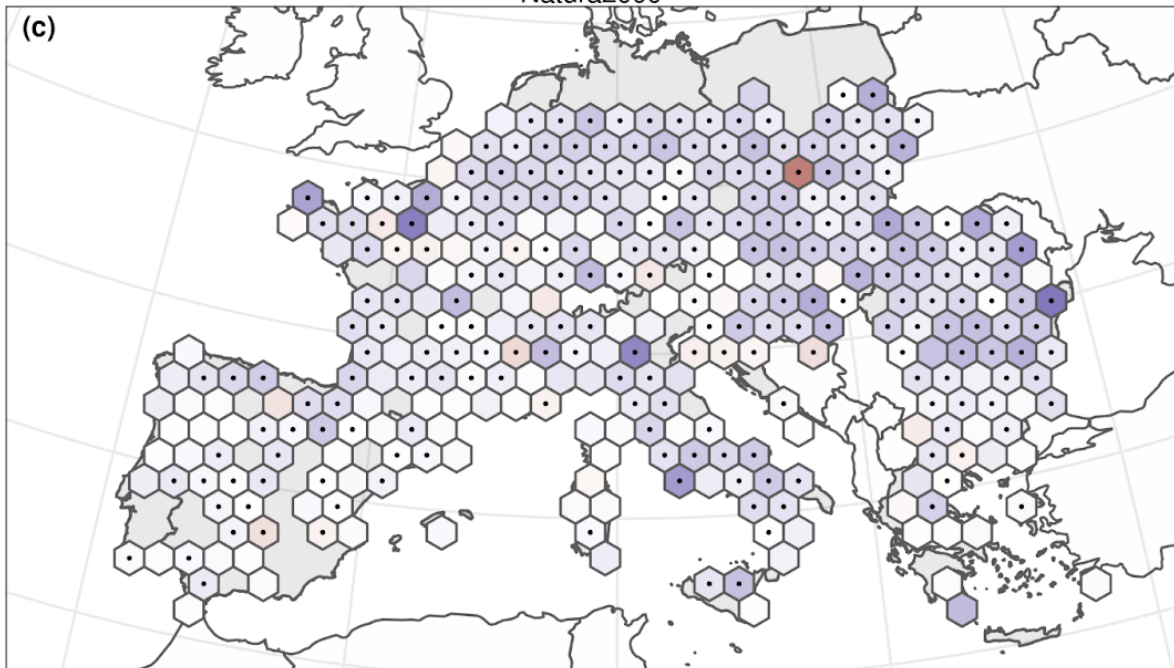
Fig S1

Difference in RH50 between Protected Areas and their Unprotected Surroundings

Natura2000

WDPA strictly PAs

Change in RH50 (Protected Areas minus Unprotected Surroundings) [m]
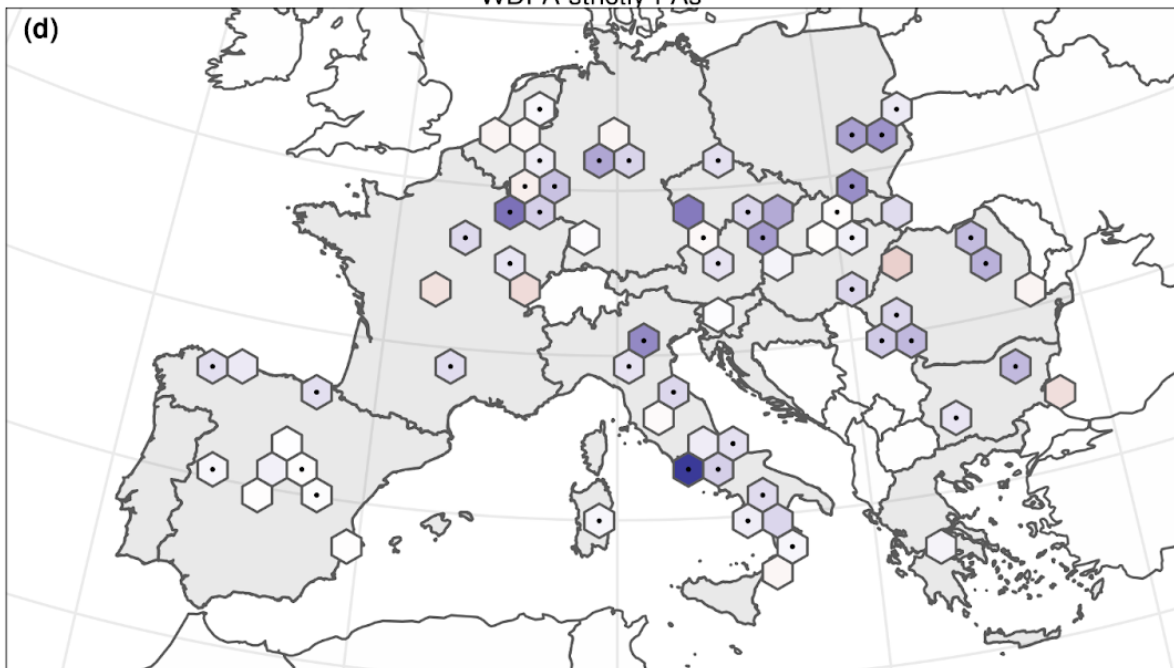
-5   0   5   10
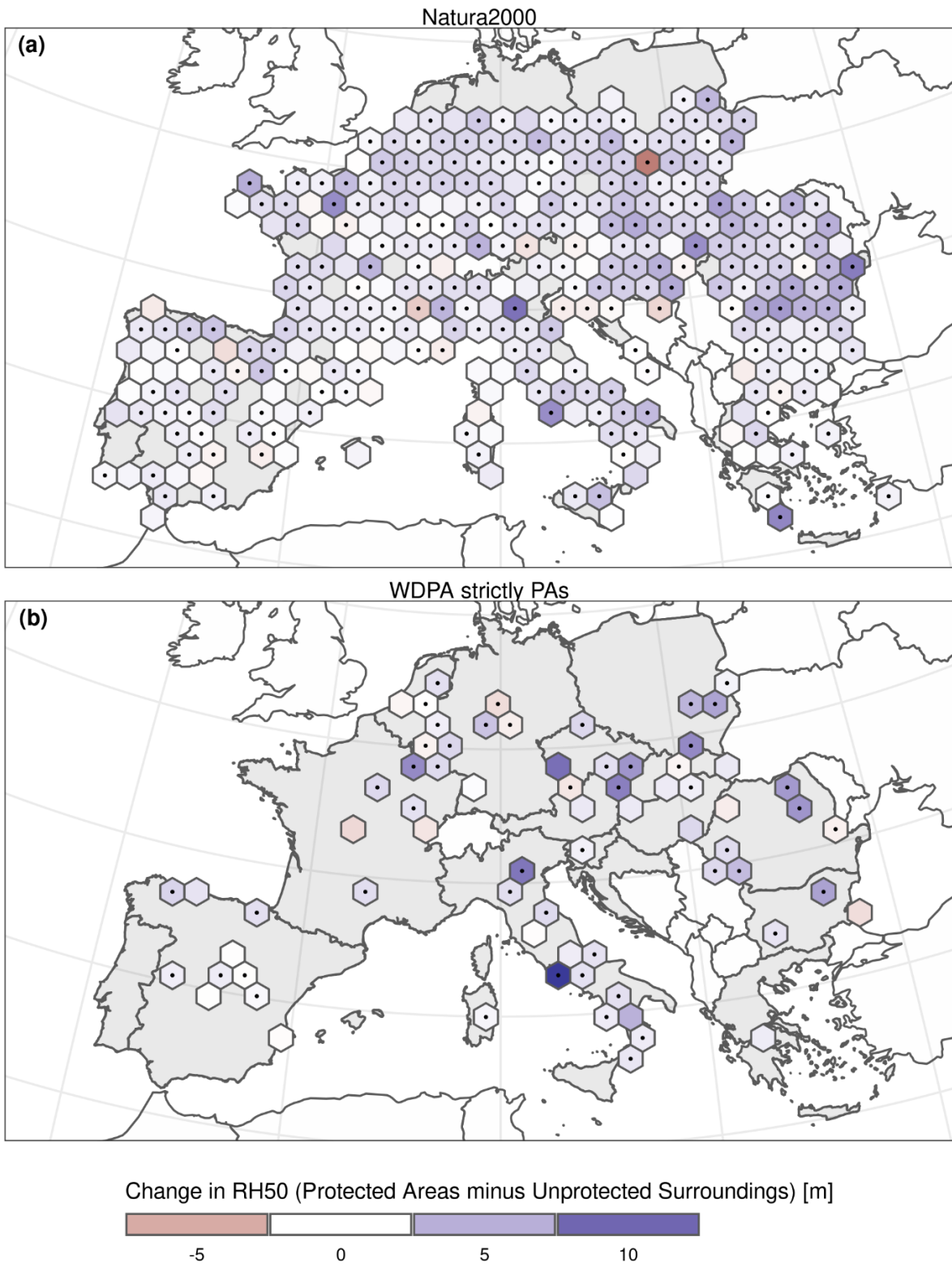
Difference in RH25 between Protected Areas and their Unprotected Surroundings
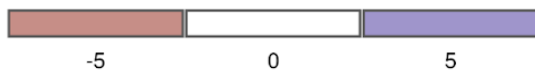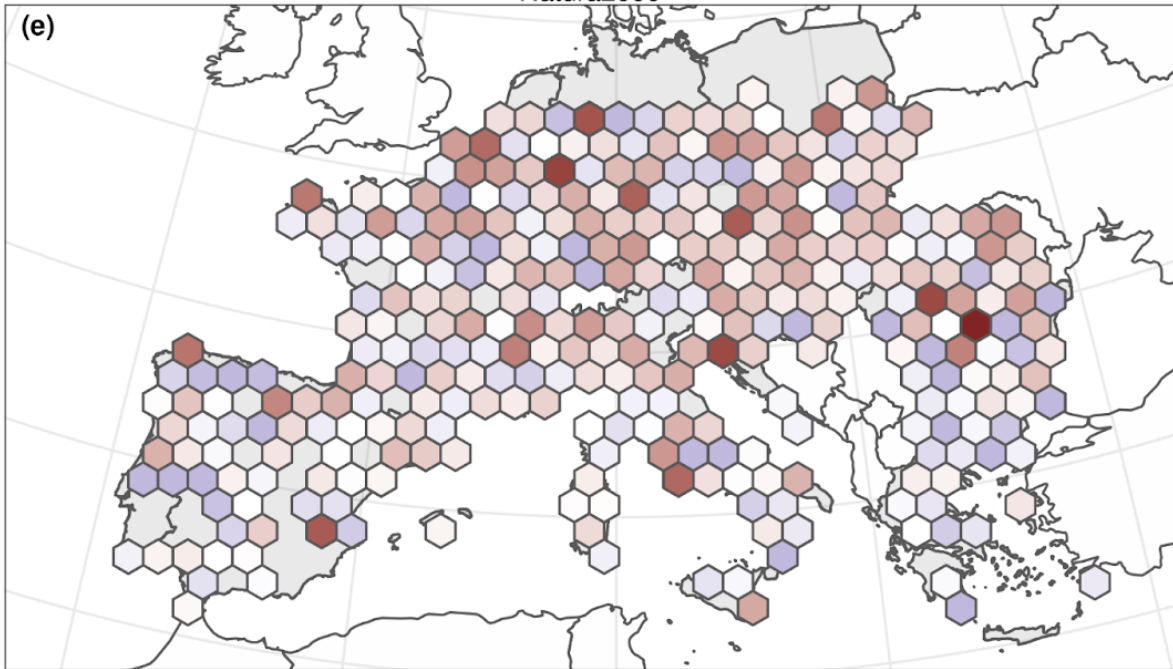
Natura2000

WDPA strictly PAs

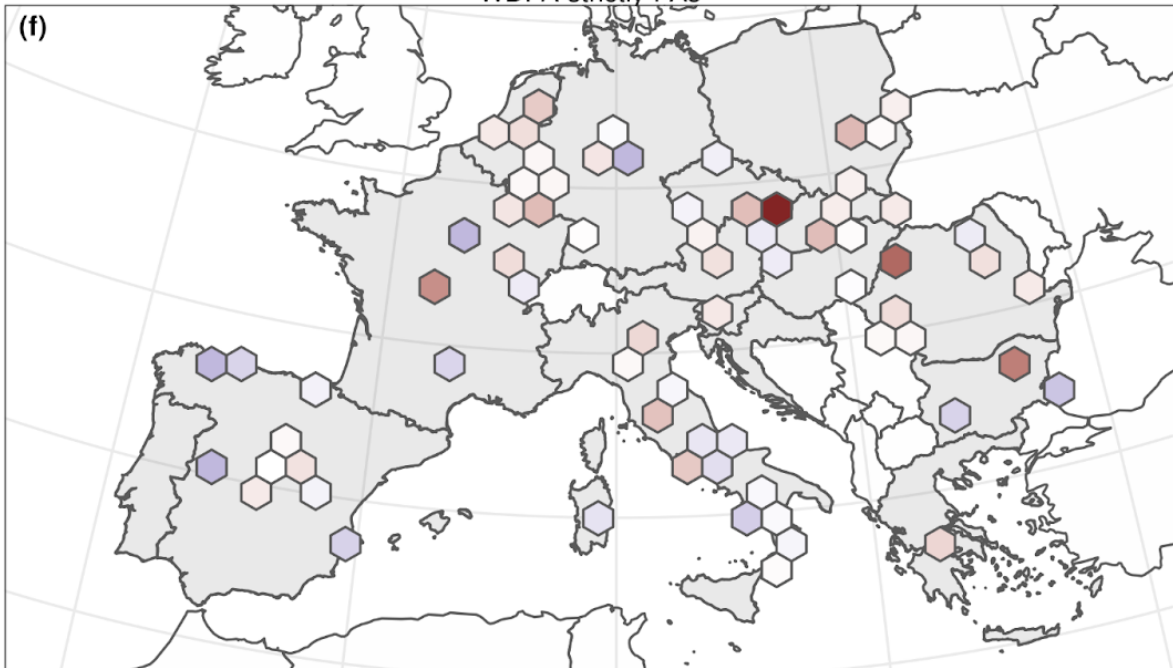Change in RH25 (Protected Areas minus Unprotected Surroundings) [m]

-5   0   5

**Difference in Mean Dissimilarity between
Protected Areas and their Unprotected Surroundings**
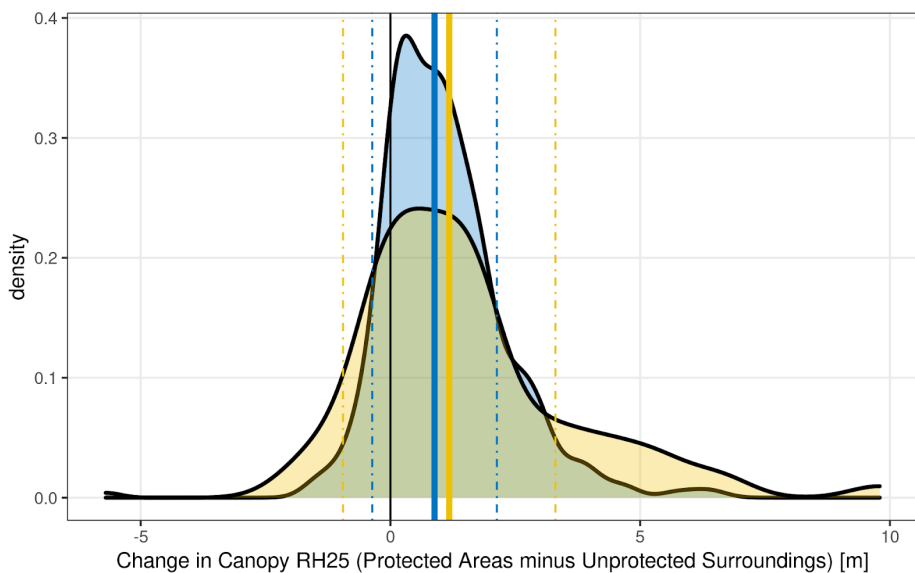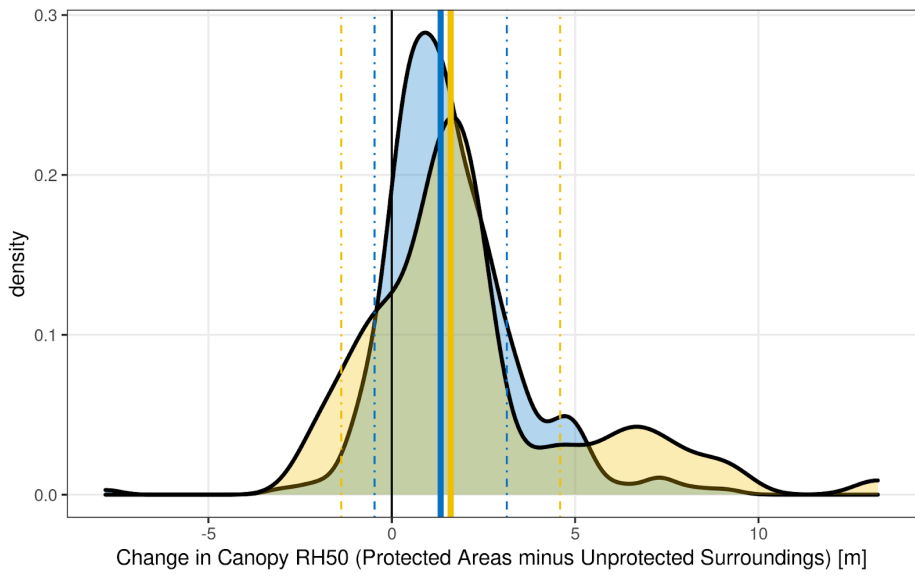

Natura2000

WDPA strictly PAs

Change in Mean Dissimilarity (Protected Areas minus Unprotected Surroundings) [-]

-0.10   -0.05   0.00   0.05

Change in Canopy RH50 (Protected Areas minus Unprotected Surroundings) [m]

Natura2000   WDPA strictly PAs

Change in Canopy RH25 (Protected Areas minus Unprotected Surroundings) [m]
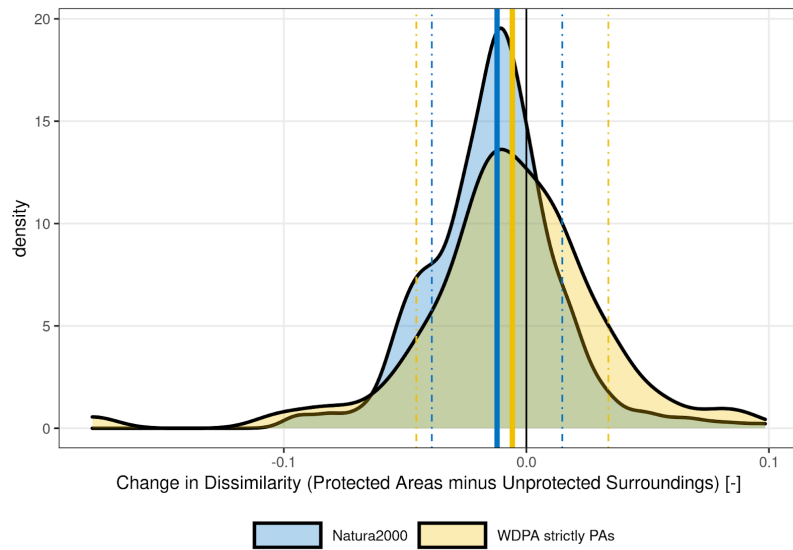
Natura2000   WDPA strictly PAs

Fig S1 Same as Fig. 1. Difference in RH50, RH25 and Dissimilarity Index between Protected Areas and Unprotected Surroundings for Natura 2000 sites and strictly protected sites according to the World Database on Protected Areas (WDPA). T-test was not performed for the mean dissimilarity. Density plots of the differences for (blue fill) Natura 2000 sites and (yellow fill) strictly protected sites according to the World Database on Protected Areas (WDPA).
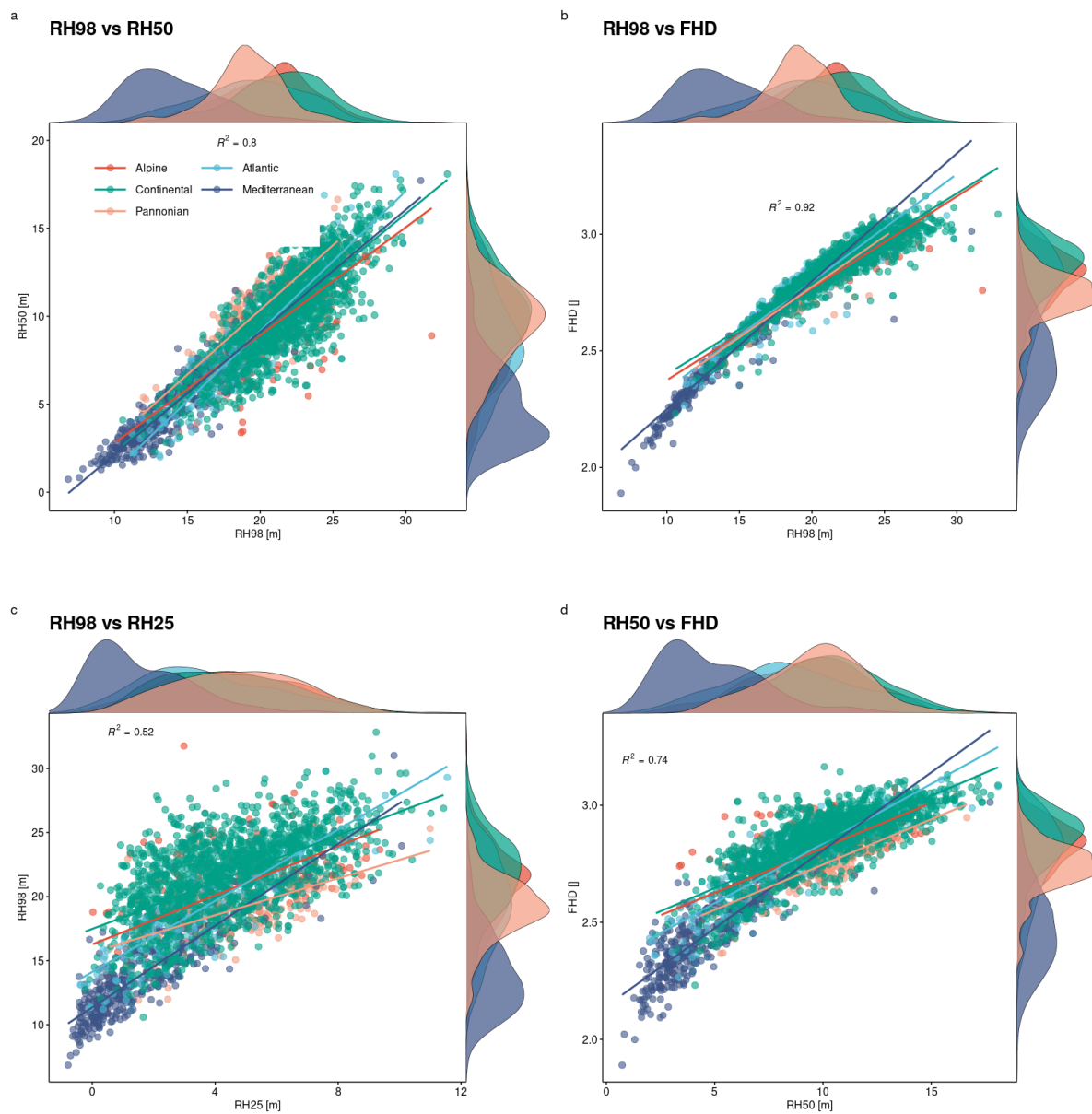
Fig S2

Fig S2 Scatterplots with marginal density plots of RH98 versus RH50 (a), RH98 versus FHD (b), RH98 versus RH25 (c), and RH50 versus FHD (d). Different colours represent different Biogeographical regions of Europe.

Fig S3

Difference in Canopy Top Height between Protected Areas and their Unprotected Surroundings
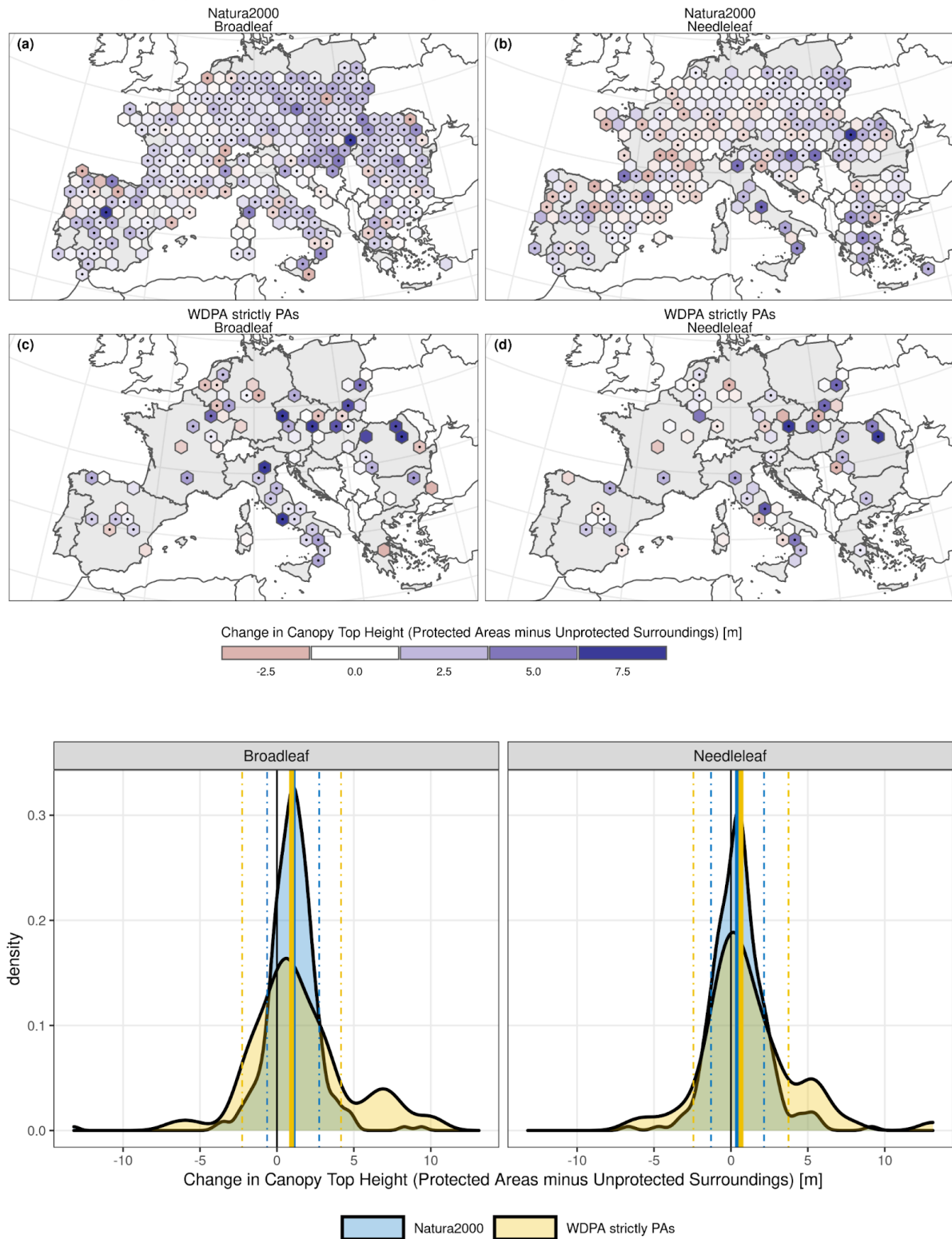

Fig S3 Difference in canopy top height between Protected Areas and Unprotected Surroundings for Natura 2000 sites with Broadleaf Trees and Coniferous Trees. For Natura 2000 the canopy top height difference is equal to 1 ± 0.09 m and 0.49 ± 0.39 m for broadleaf and coniferous forests, respectively. For WDPA strictly protected

areas the canopy top height difference is equal to 1.53 ± 0.39 m and 1.1 ± 0.4 m for broadleaf and coniferous forests, respectively. Density plots of the differences for (blue fill) Natura 2000 sites and (yellow fill) strictly protected sites according to the World Database on Protected Areas (WDPA).

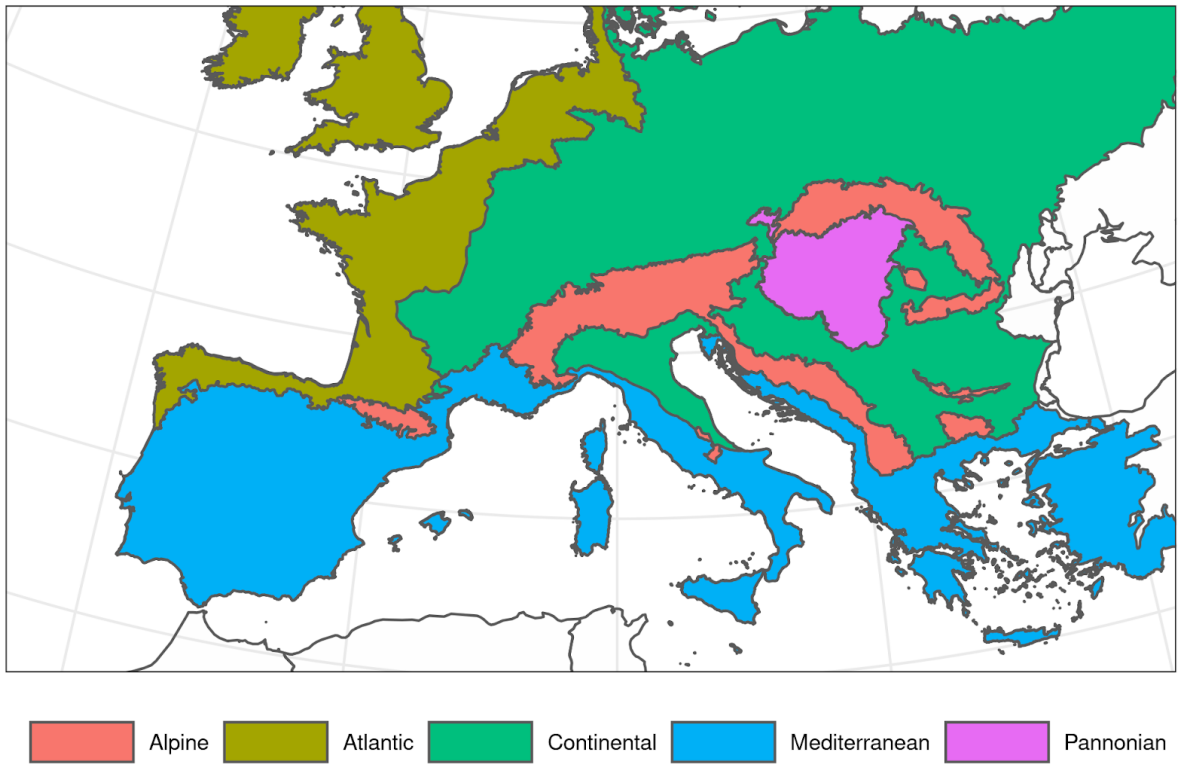**Fig S4**

Biogeographic regions of Europe

	Alpine		Atlantic		Continental		Mediterranean		Pannonian

Fig. S4 Biogeographical regions of Europe.
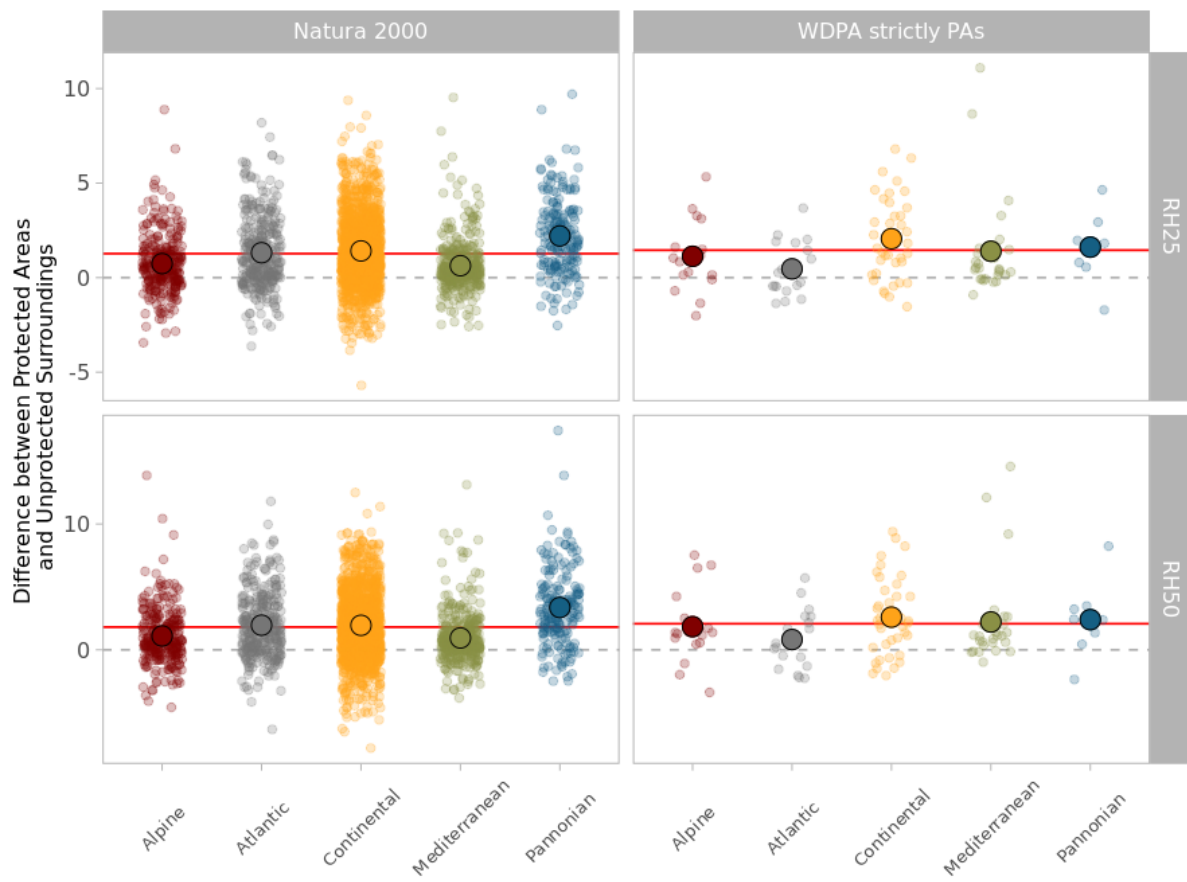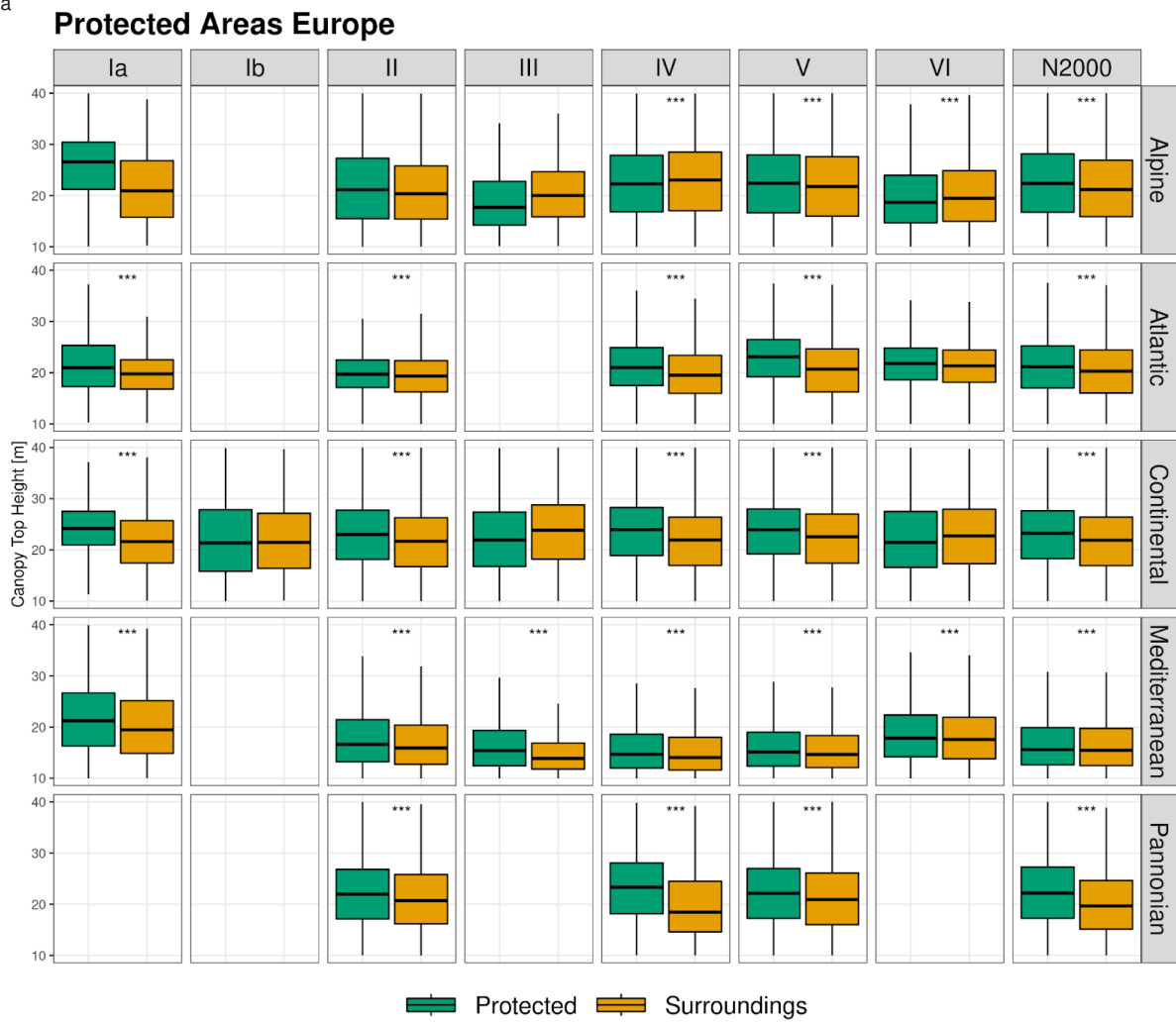
Fig S5

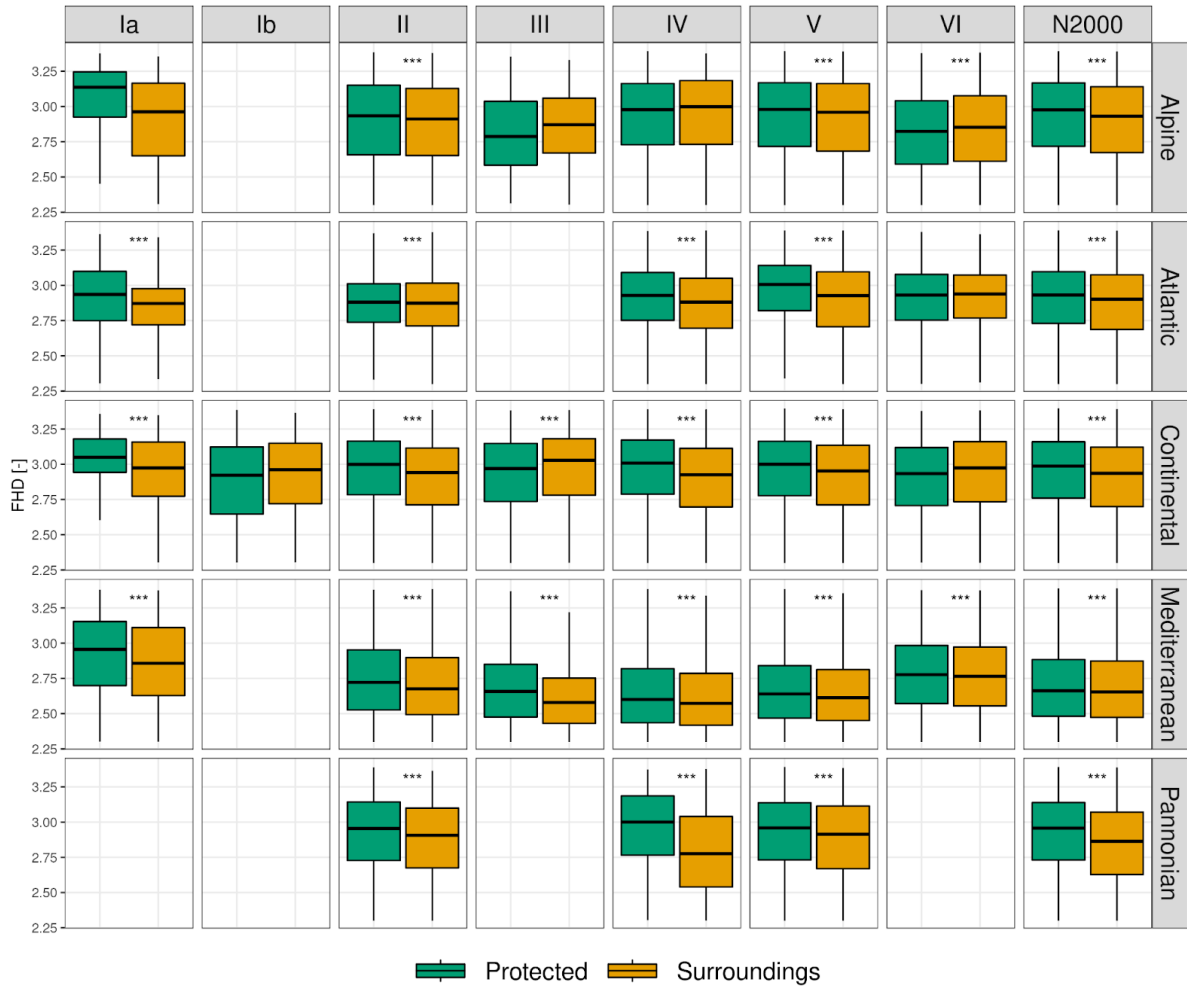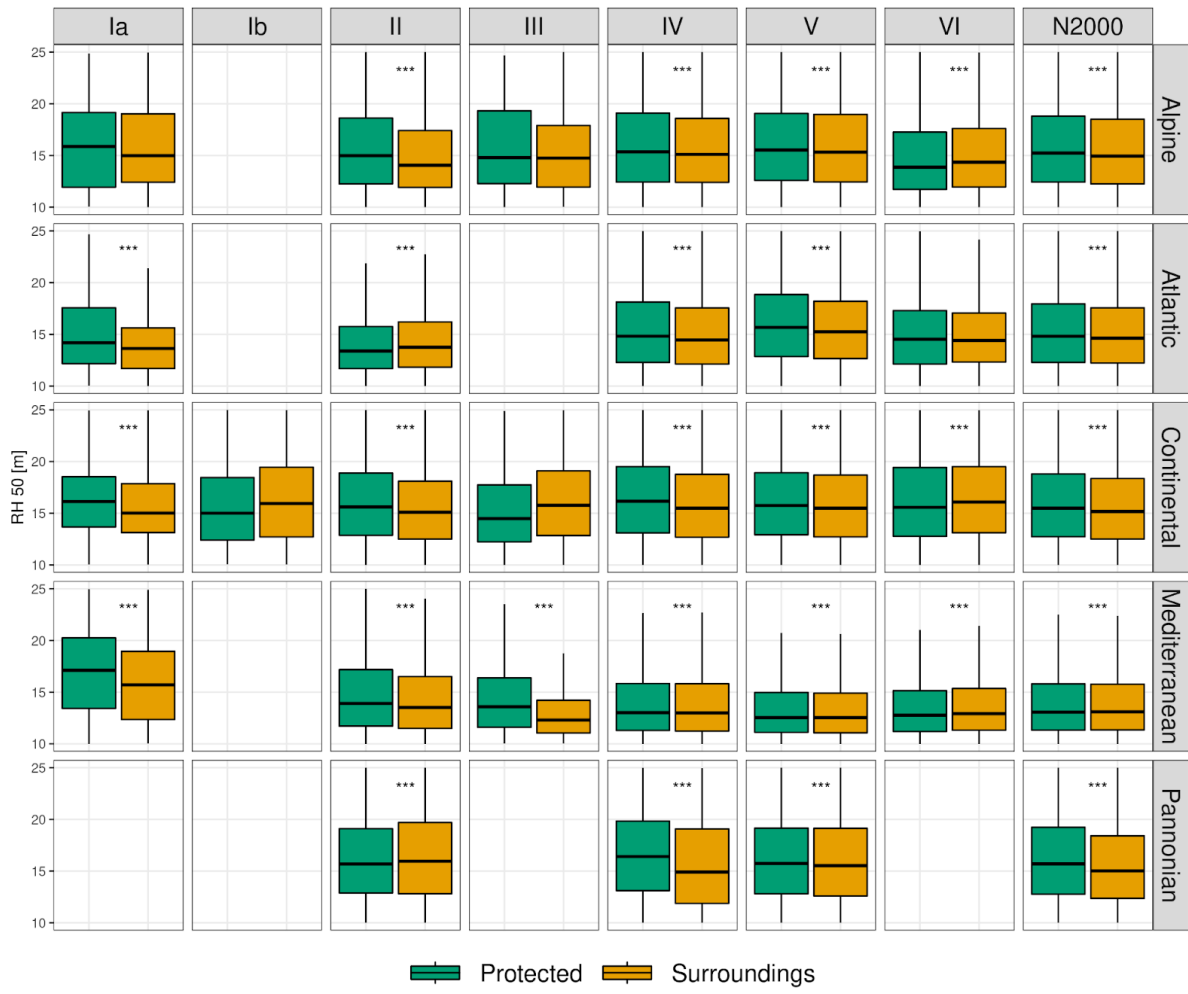**Fig. S5** Same as Fig. 3, for RH25 and RH50.

Fig S6

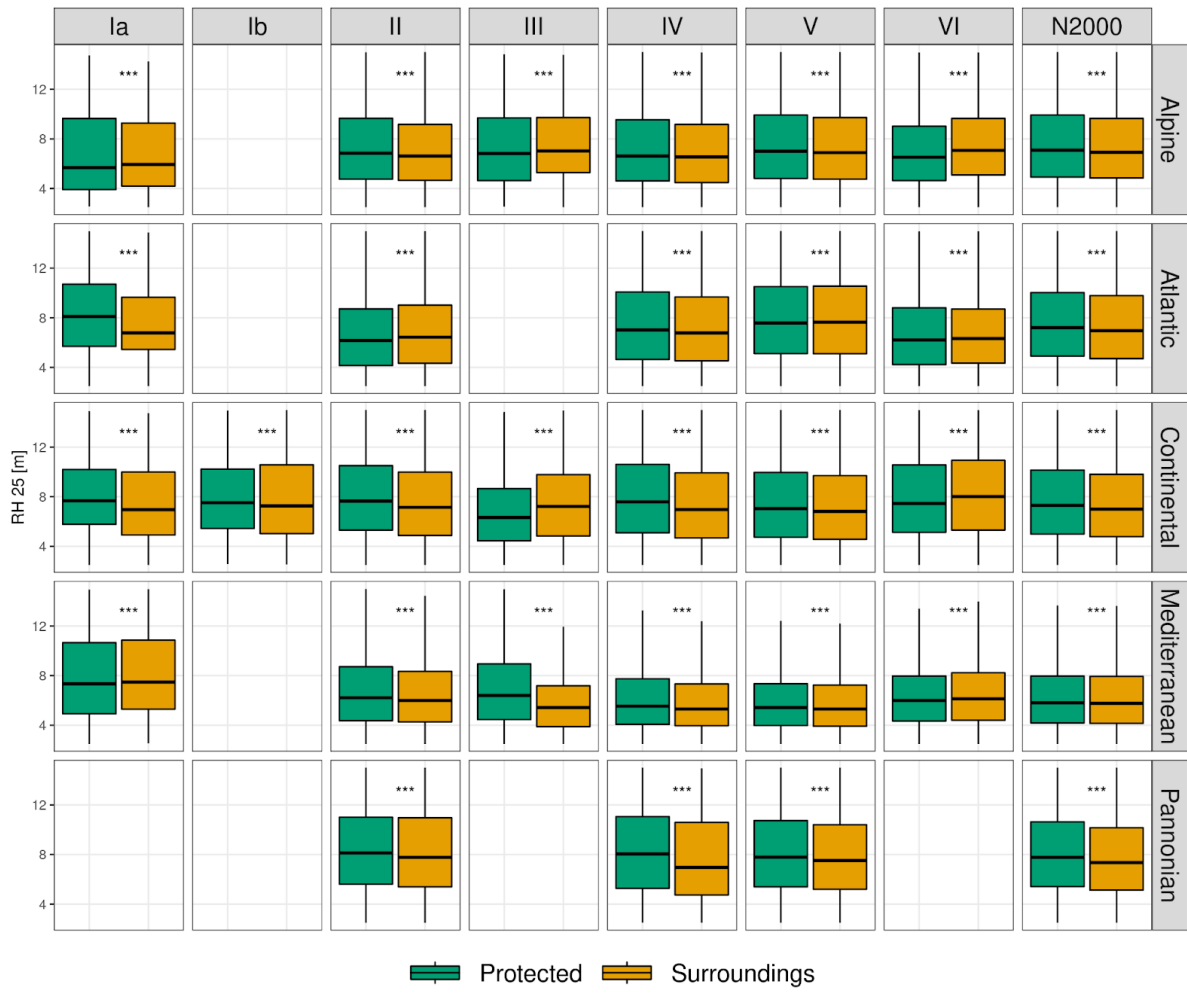Protected Areas Europe

b

Protected Areas Europe

c

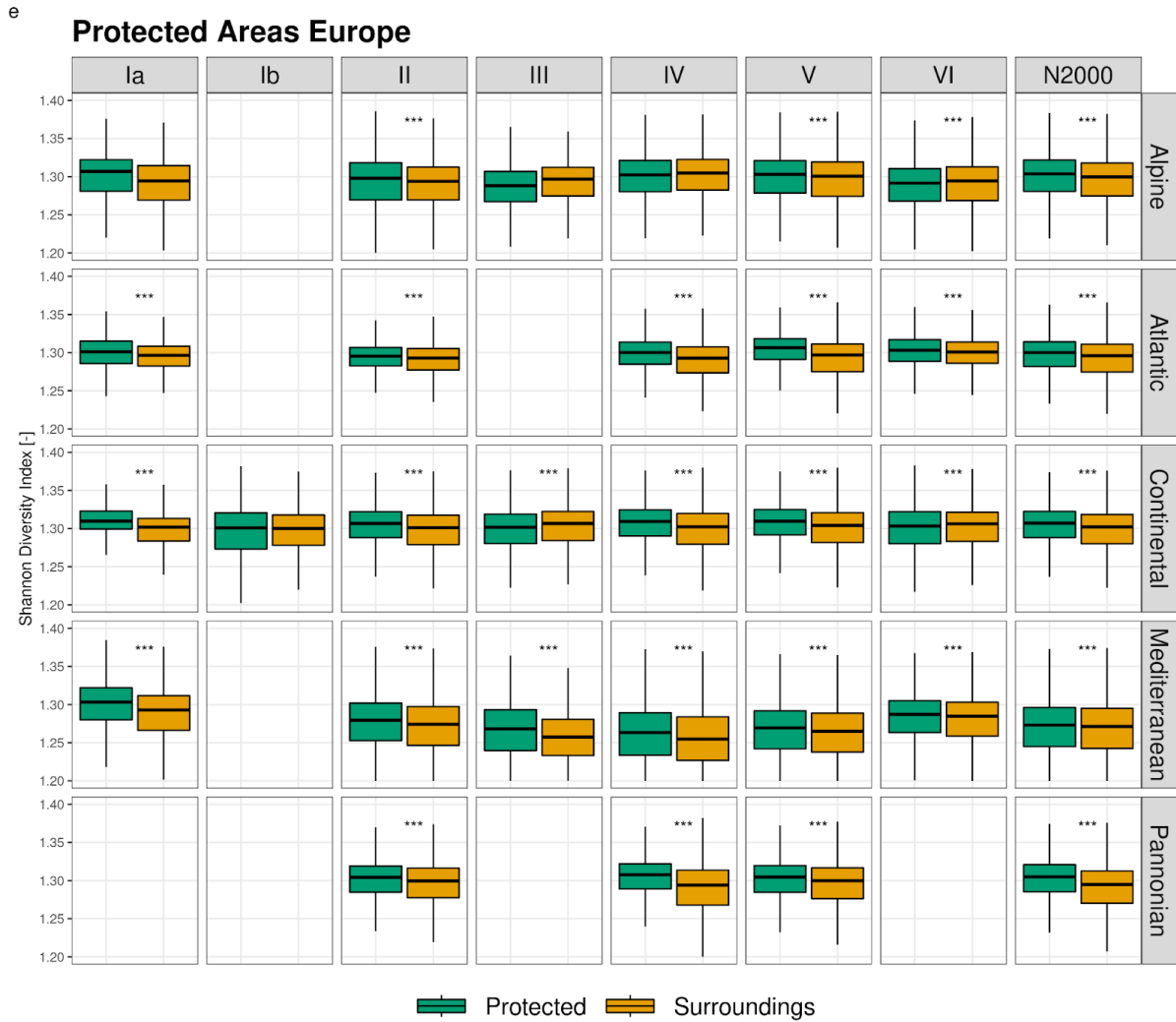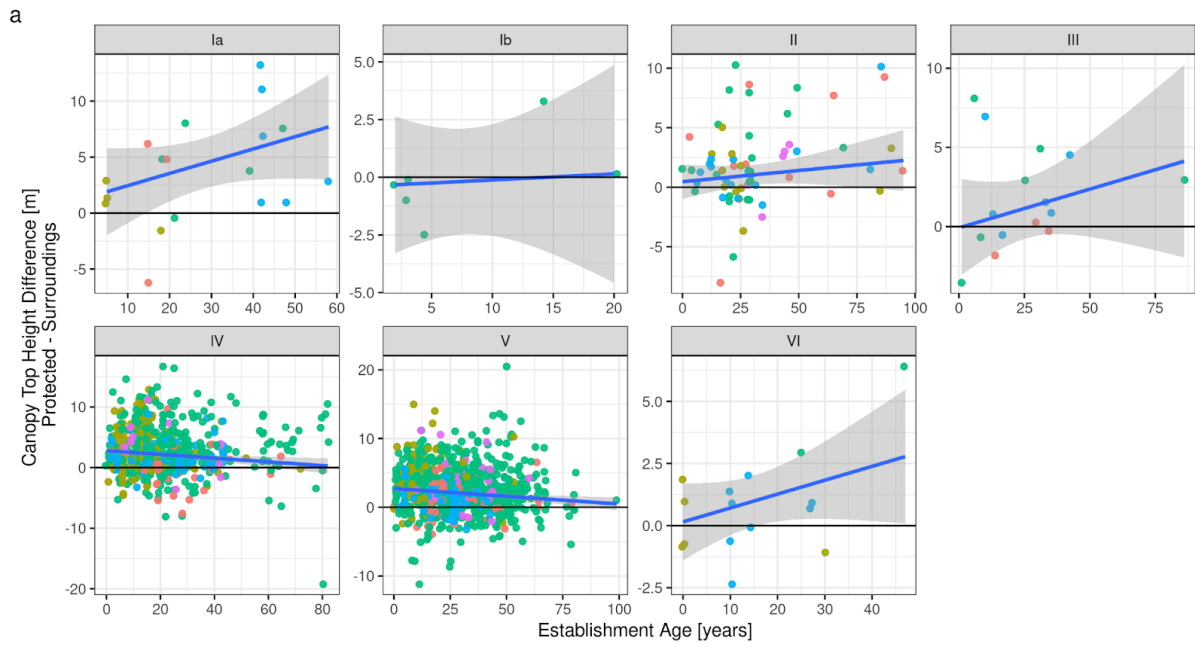**Protected Areas Europe**
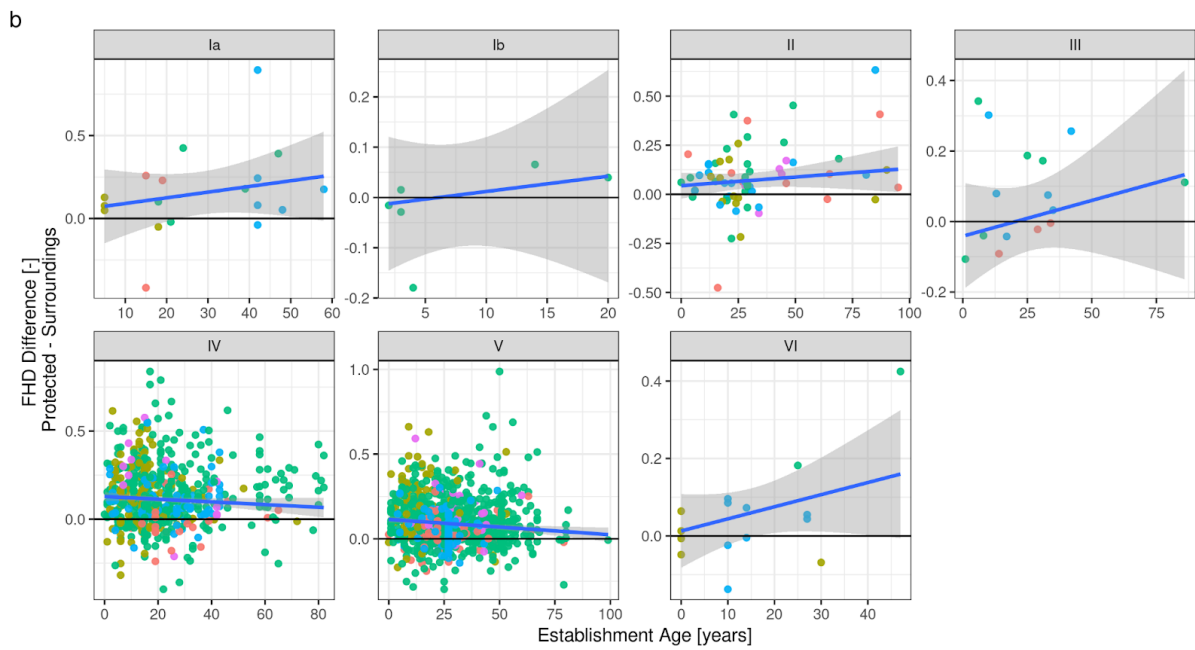
Protected Areas Europe

Fig. S6 Boxplot with significance levels (i.e. t-test with a Bonferroni adjustment) of Canopy Top Height (a), FHD (b), RH50 (c), RH25 (d) and Shannon Diversity Index (e) differences in Protected Areas and Unprotected Surroundings for WDPA - with all the different degrees of protection - and Natura 2000. Different rows refer to different biogeographical regions. Asterisks indicate the level of statistical significance: * p ≤ 0.05, ** p ≤ 0.01, ***p ≤ 0.001.
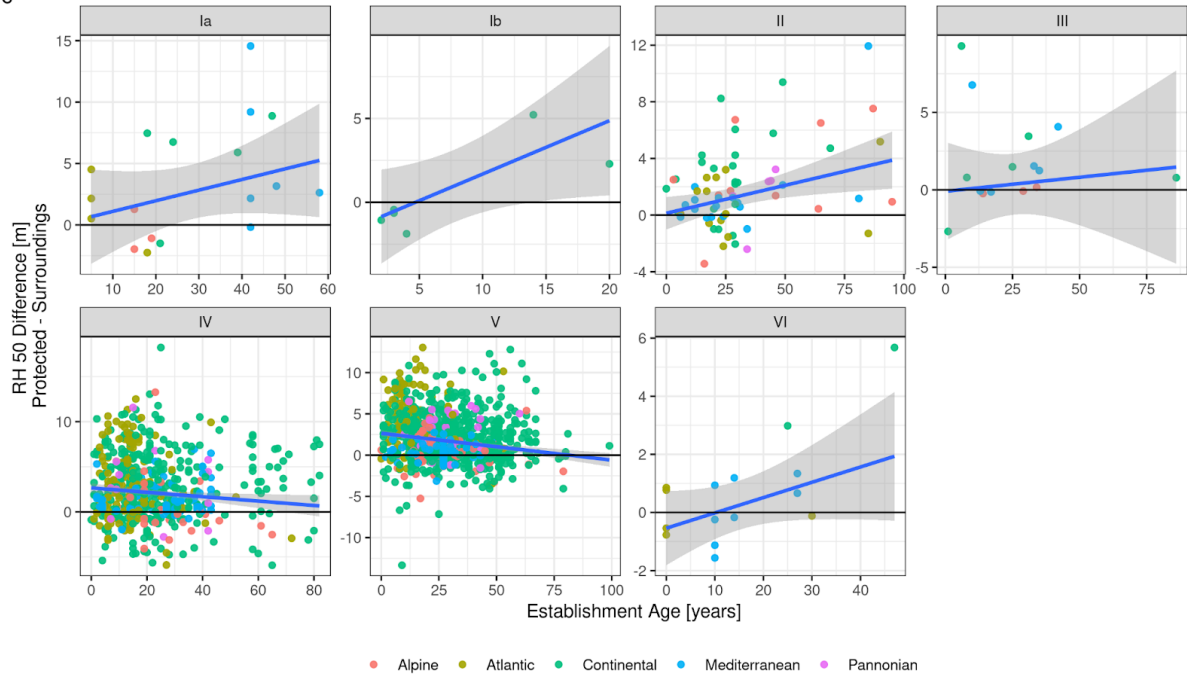
Fig S7
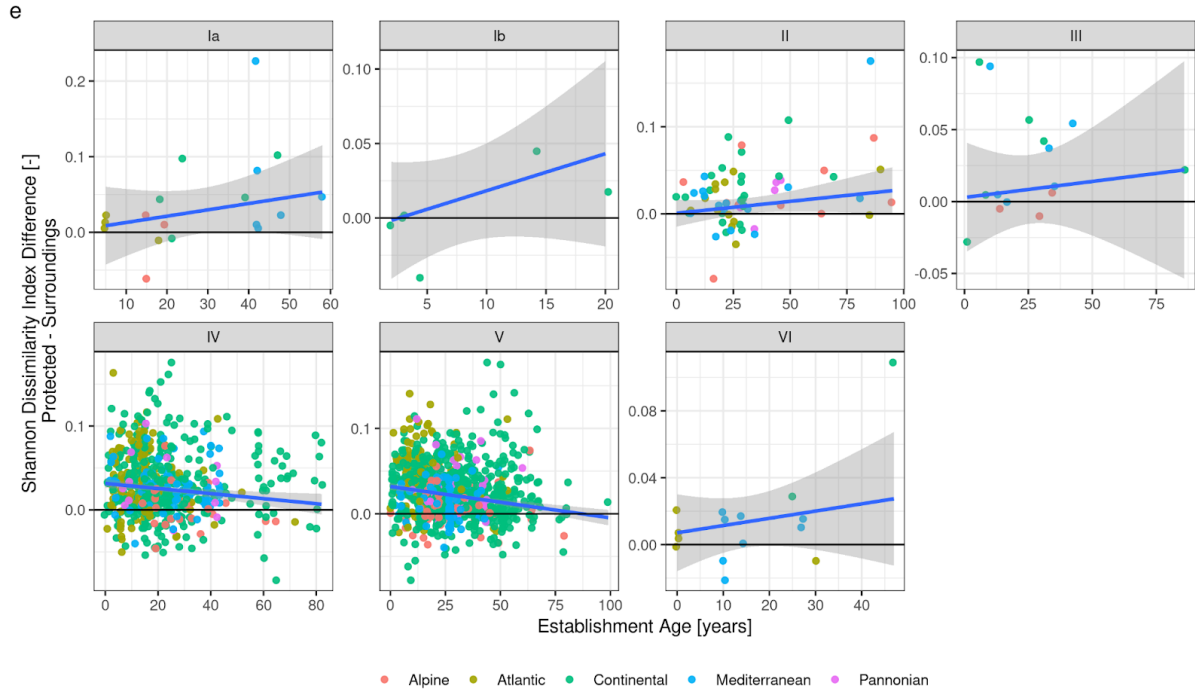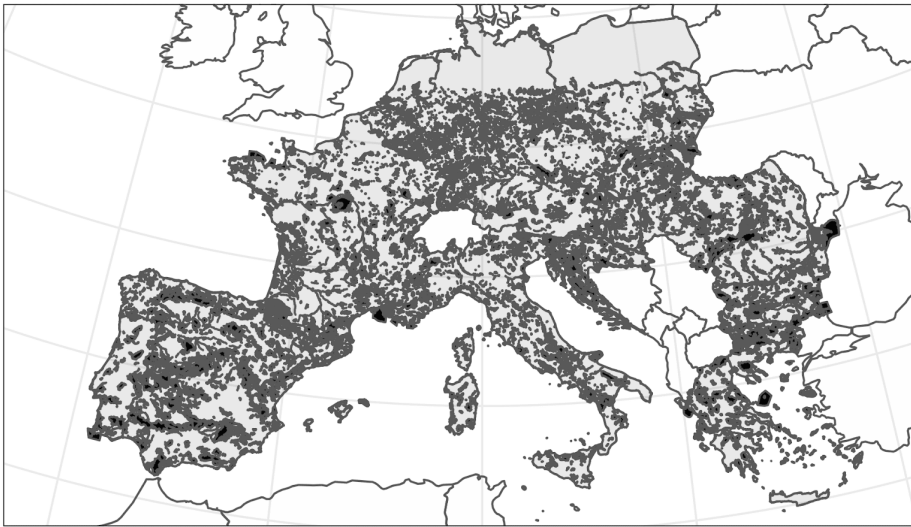
c

d

Fig. S7 Relationship between Establishment Age and difference in canopy top height (a), FHD (b), RH50 (c), RH25 (d) and Shannon Dissimilarity Index (e) between Protected Areas and Unprotected Surroundings based on the protection degree (different facets), biogeographical regions (colours). A Theil-Sen estimator for the regression slope was used.
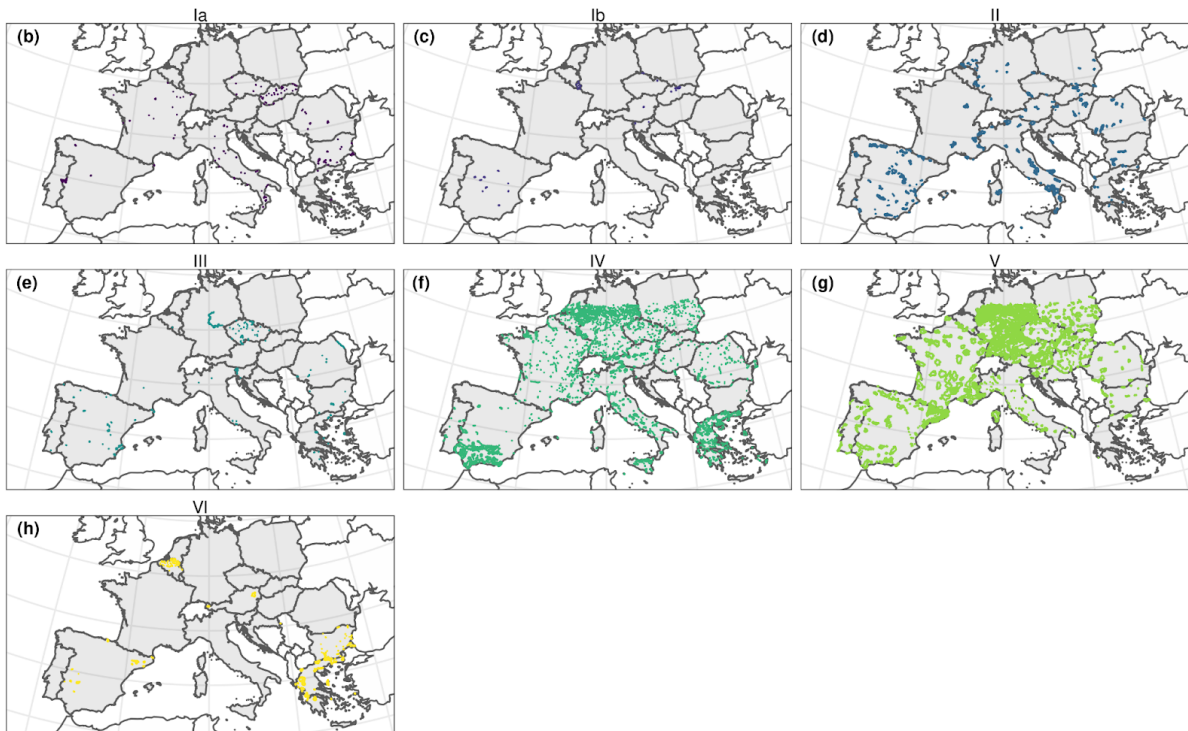
Fig S8

a
Natura 2000

WDPA

Fig. S8 Protected Areas for Natura 2000 (a) and WDPA with all the different Classes of protection (b to h) according to the IUCN categories. In this study, we considered only PAs of 1 km^2 or larger and with forest areas greater than 50%.
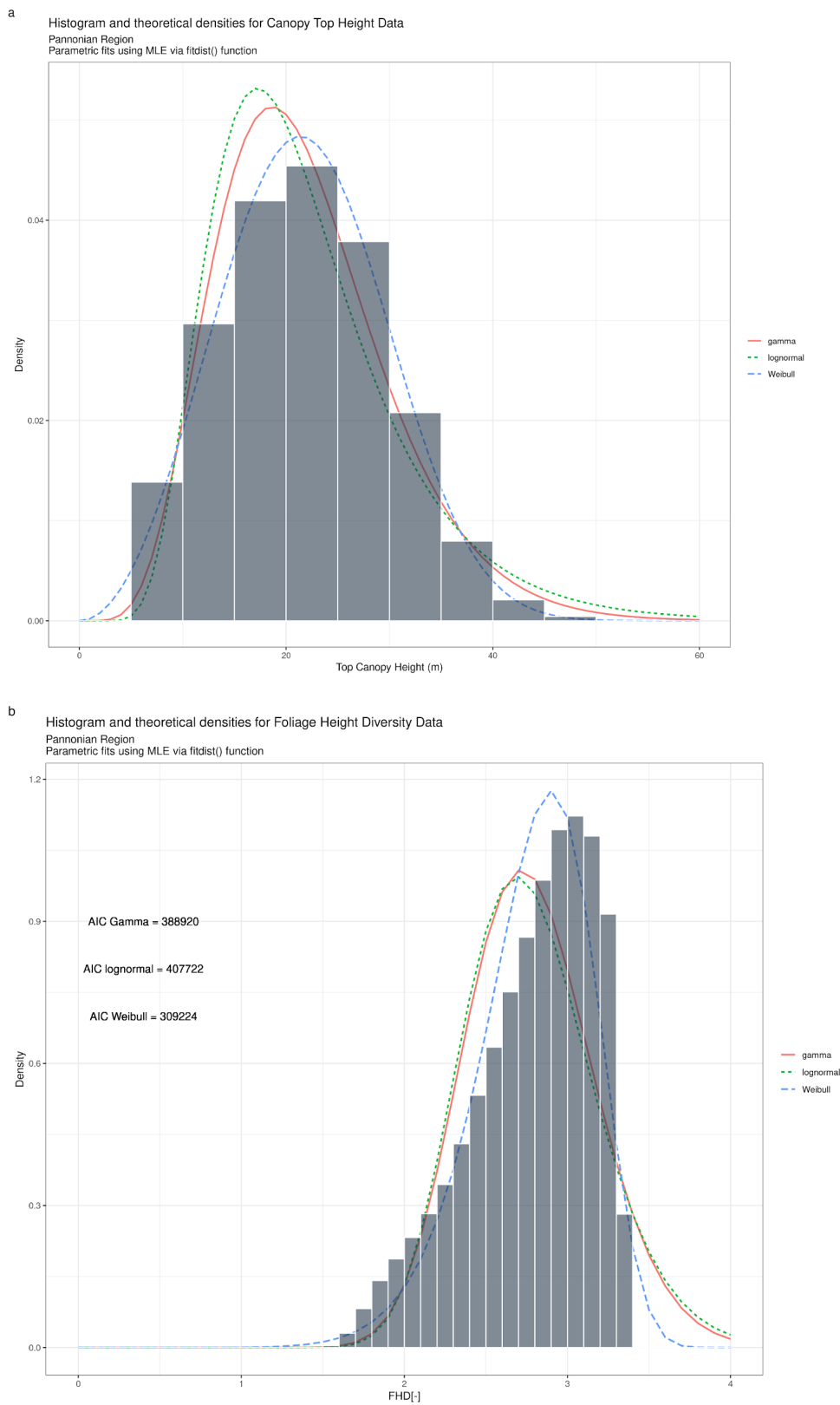
Fig S9

Fig. S9 Histograms versus Gamma, LogNormal and Weibull distributions for Canopy Top Height (a) and FHD (b) over the Pannonia biogeographical region.
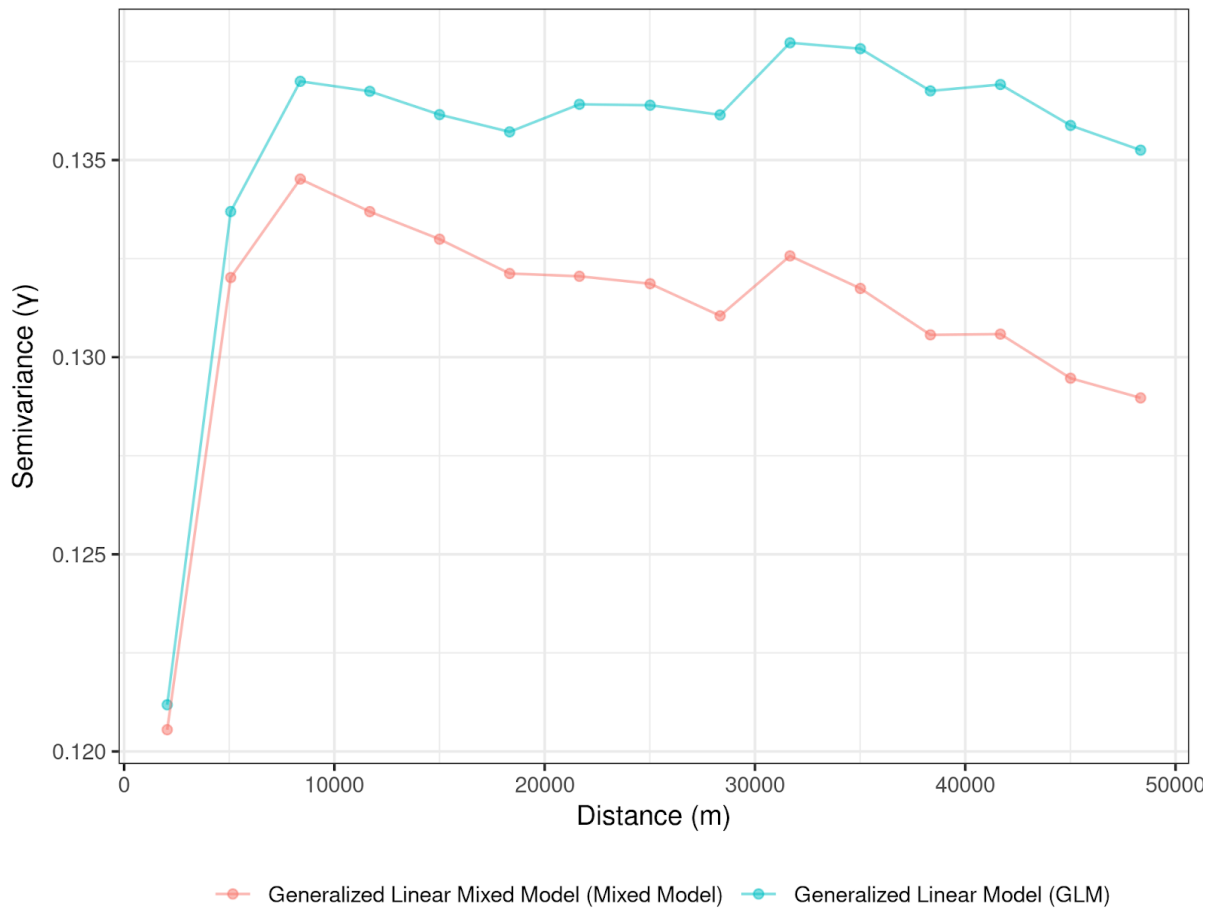
Fig S10

Fig. S10 Autocorrelation Test for residuals of Generalized Linear Model (GLM) versus Generalized Linear Mixed Model (Mixed Model) over the Pannonian biogeographical region.