

Supplementary Material

Tab. S1 - Characteristics of the sampled stands in the silver fir-beech forests from the western Pyrenees.

Stand	Management category	Elevation (m)	Stand coordinates (x,y)	Stand surface area (ha)
Lizardoia	managed	980-1080	0653820, 4763330	49
San Fermin	managed	1000-1230	0655930, 4761810	49
Eskalera	managed	990-1140	0654482, 4760315	30
Pikatua	managed	1110-1300	0661514, 4758615	32
Maze	unmanaged	1320-1520	0677288, 4751014	68
Aztaparreta	unmanaged	1600-1650	0677940, 4753194	93
Gamueta	unmanaged	1340-1530	0679985, 4750580	82
Selva de Oza	unmanaged	1200-1400	0686280, 4744519	32

Appendix 1 - Protocol for the light regime measurement and analysis.

Variables of light conditions were obtained by hemispherical photography following VALERI design (Weiss et al. 2001). Nine photographs per plot were taken on the grid basis of 20 m × 20 m with a digital camera (Canon EOS 10D) and circular fish-eye lens (Sigma 8mm f/3.5 EX DG) mounted on a tripod 1 m above the ground. The camera was levelled and aligned to magnetic north. Due to sampling limitations our photography acquisitions were done in variable conditions, but mostly on cloudy days. The bias due to different time of image acquisition was considered minimal as there was no visible sunlight reflection in any photograph. Notes of slope inclination, altitude and coordinates were taken in each plot for the photography analysis. Before the photography analysis, the camera was calibrated to define the optical centre and the projection function. Automatically exposed photographs were analysed by Hemisfer software version 2.12 (Schleppi et al. 2007). For photography analysis, five rings of 9° width were used, adapted for plot size and tree height. Only the blue band of the photographs was used to minimise the interference of multiple scattering in the canopy (Zhang et al. 2005) and to get the best contrast. Therefore, automatic threshold was applied (Nobis & Hunziker 2005) with $\gamma = 2.2$. Considered variables were: Transmission, an overall canopy openness or total gap fraction within the defined rings which includes small and large gaps; gaps, the proportion of large gaps estimated according to Chen and Cihlar (1995), which corresponds to between-crown gaps.

References:

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Managed and unmanaged silver fir-beech forests show similar structural features in the western Pyrenees

iForest – Biogeosciences and Forestry – doi: [10.3832/ifer2720-01](https://doi.org/10.3832/ifer2720-01)

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