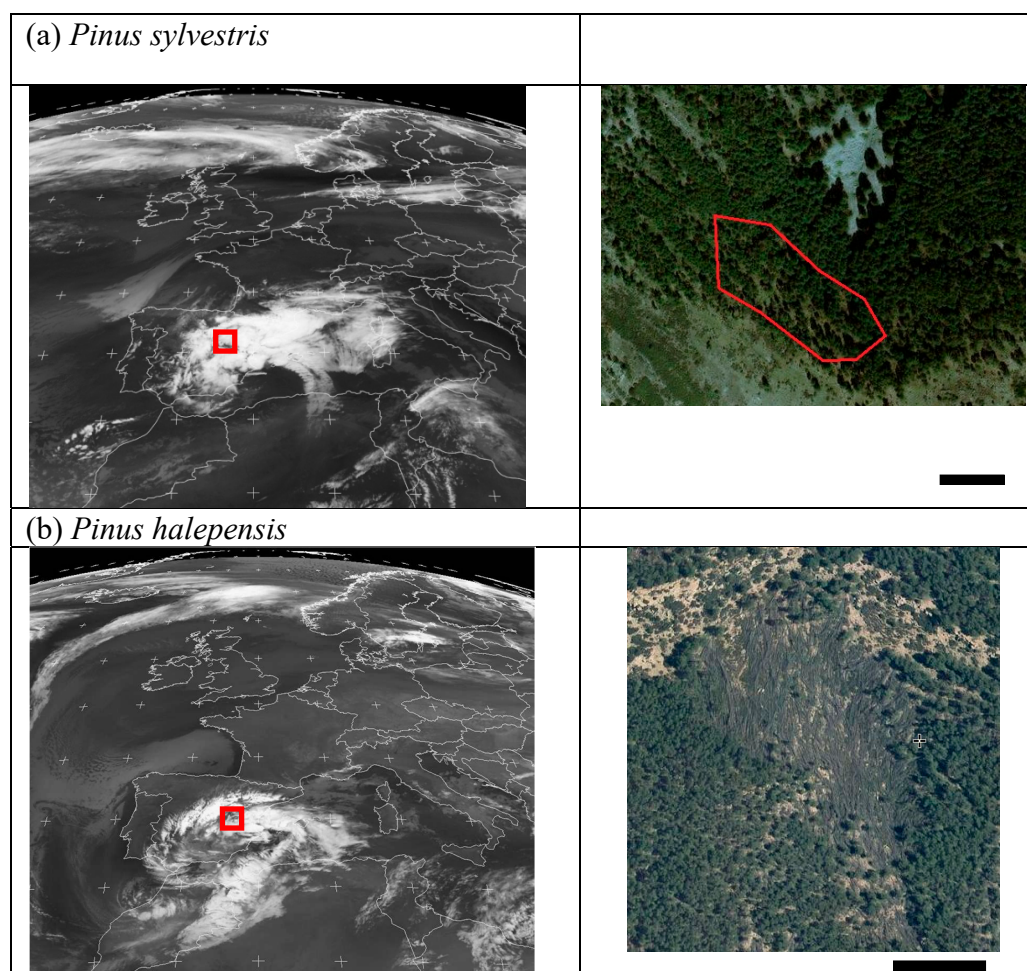
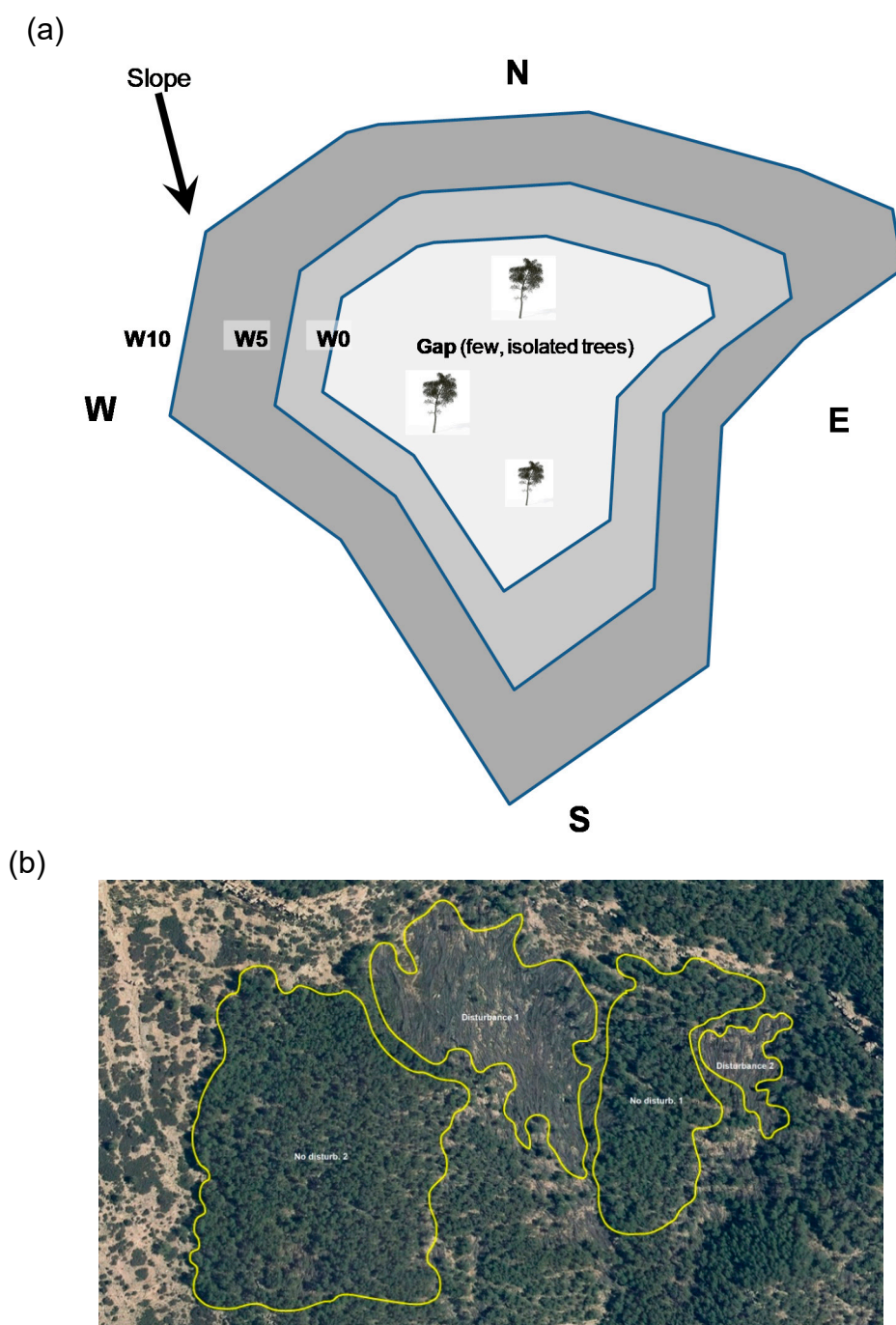


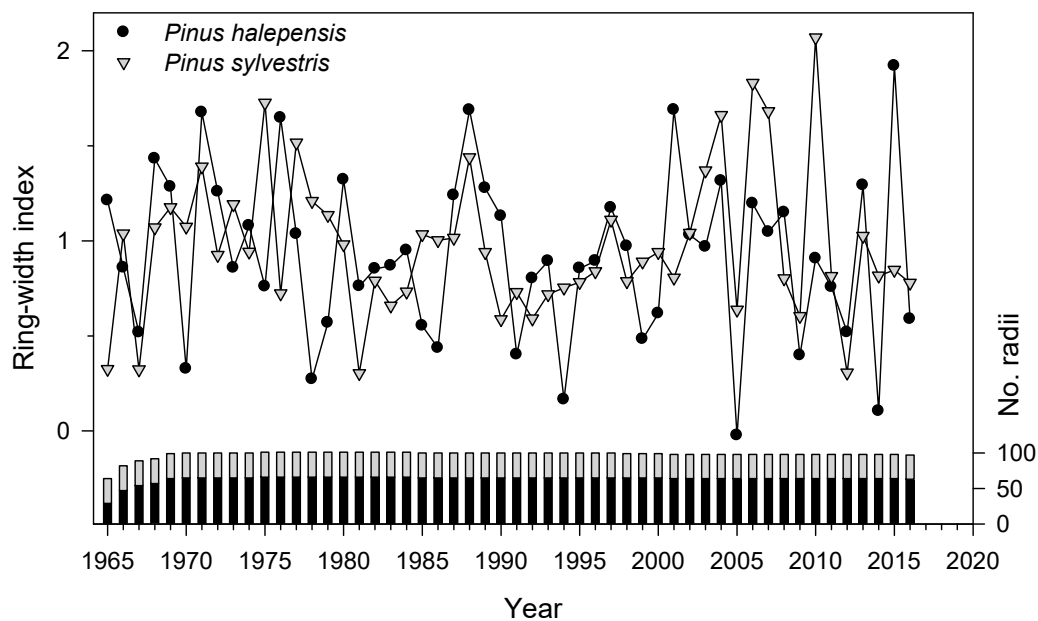
## Supplementary Materials



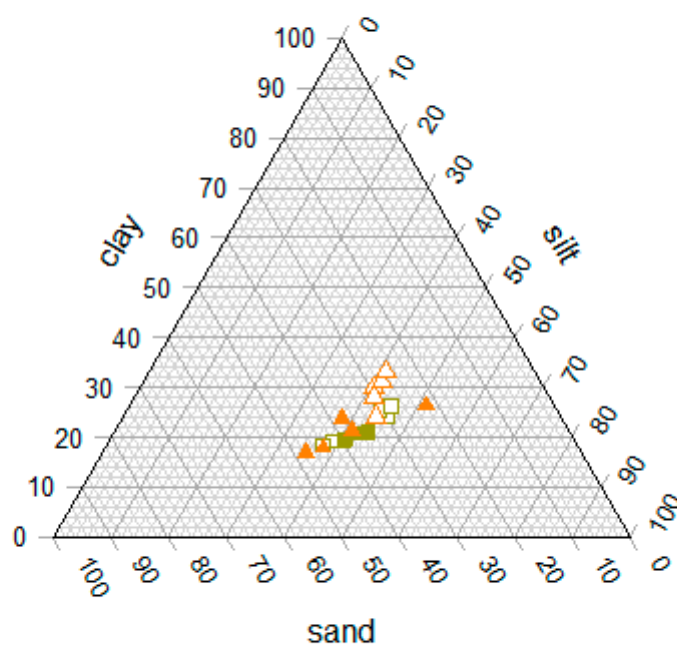
**Figure S1.** Satellite (Meteosat) and aerial images showing the climatic conditions over the Iberian Peninsula and the resulting damaged area of the study (a) *Pinus sylvestris* and (b) *Pinus halepensis* plantations. The satellite images correspond to 21 January 2020 (Gloria storm) and 19 January 2017 (David storm), respectively. The red boxes indicate the location of the study sites. The affected *P. sylvestris* and *P. halepensis* patches occupy ca. 2 and 1 ha, respectively. The maps bars measure 50 m.



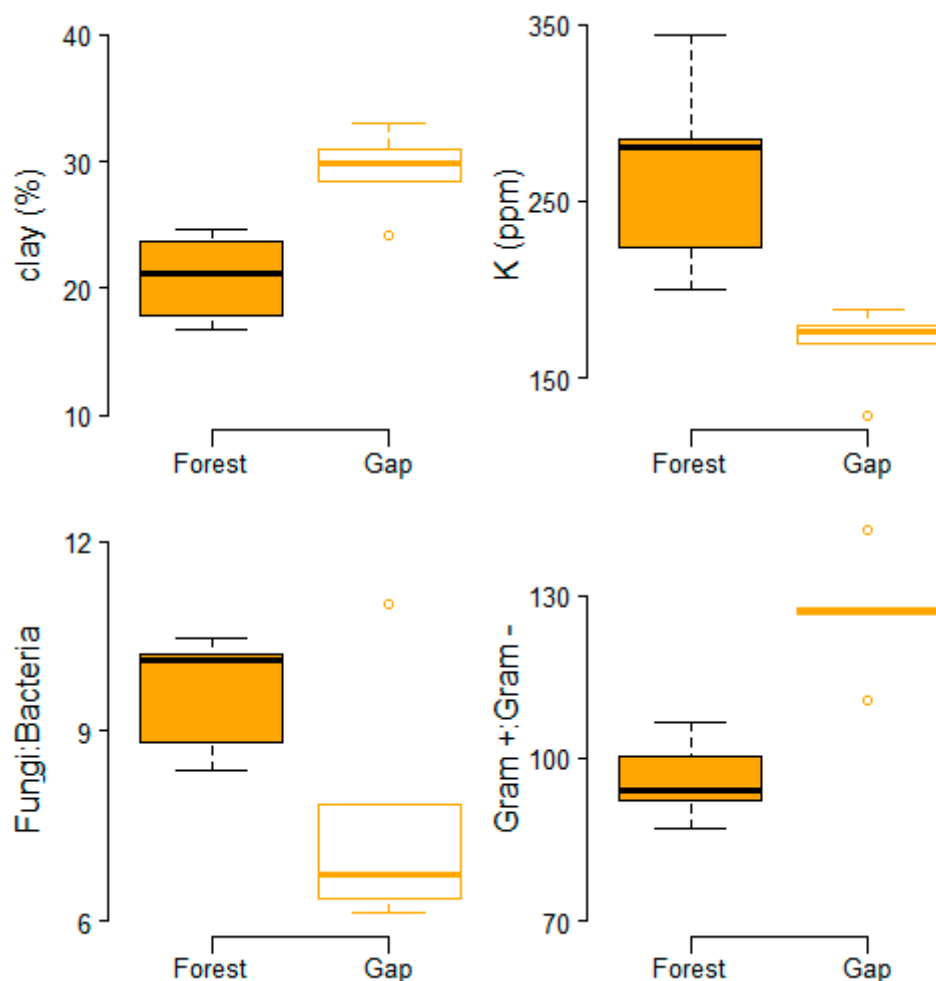
**Figure S2.** Sampling strategy illustrated for the affected *Pinus halepensis* stands. (a) In the field we sampled trees located at the N, E, S and W sides of the gap created by the storm damage. Trees were sampled in the gap and at 0, 5 and 10 m from the gap edge (here indicated in the W-side of the gap). The different grey intensities indicate different tree density values. (b) The NDVI was measured for stands severely disturbed by the storm (labeled “Disturbance 1” and “Disturbance 2”) and compared with undisturbed, nearby patches (labeled “No disturbance 1” and “No disturbance 2”).



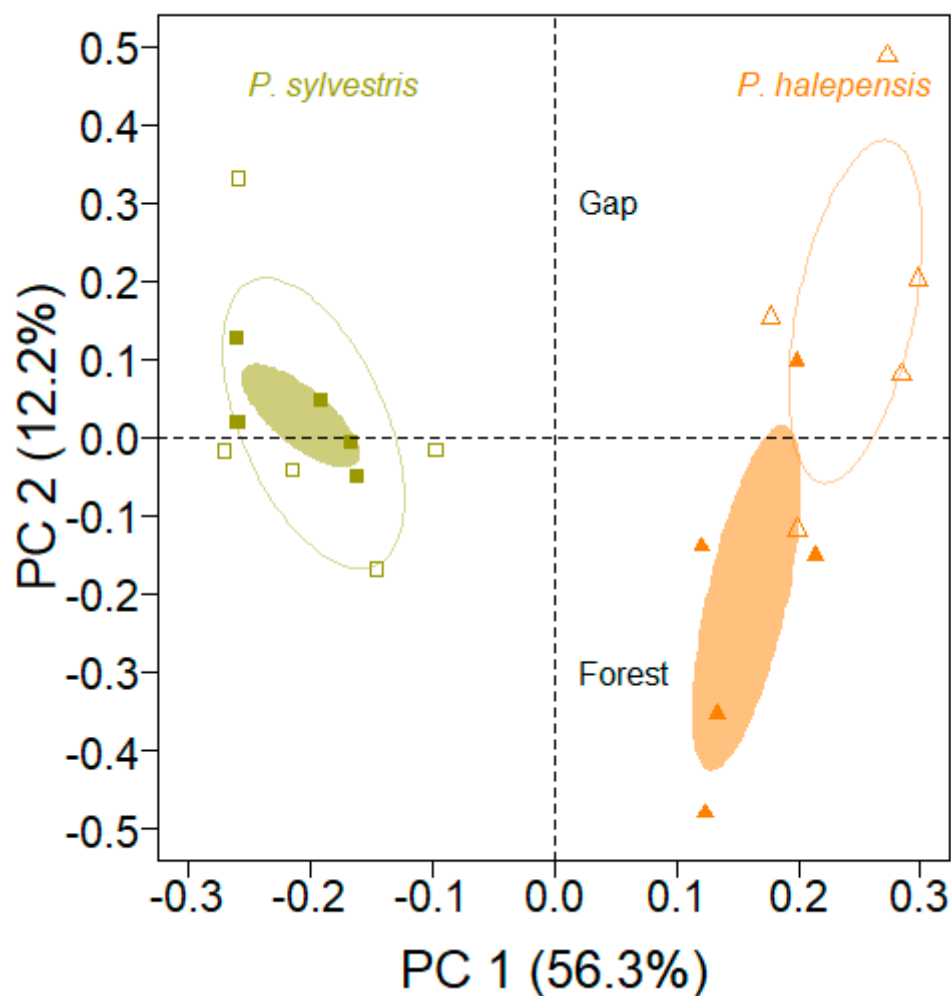
**Figure S3.** Residual, pre-whitened mean series of ring-width indices (chronologies) of *P. halepensis* and *P. sylvestris* used to calculate climate-growth relationships for the common period 1965–2016. The bars show the sample depth (number of radii, right y axis).



**Figure S4.** Ternary diagram showing the difference in soil texture between sampled soils. Empty and filled symbols correspond to gap and forest samples, respectively, from the *P. sylvestris* (dark green symbols) and *P. halepensis* (orange symbols) stands.



**Figure S5.** Differences in soil texture (clay percentage), soil nutrient concentration (K), and soil microbial community composition between gaps and closed-canopy patches in the *P. halepensis* site. These differences were considered significant ( $p < 0.05$ ), excepting the Fungi : bacteria ratio, according to the Kruskal Wallis test (see Table 3).



**Figure S6.** Ordination diagram based on soil samples and including the two studied sites indicating gap and forest patches of the *P. sylvestris* (dark green symbols and areas) and *P. halepensis* (orange symbols and areas) stands. Empty and filled symbols correspond to gap and forest samples, respectively.