

Table S1. Summary of results of infestation and mortality rates in the study area (182 plots).

Species	Total assessed trees	Non- infested	Infested	Infested/Total infested	Infestation rate	Infested & Dead	Mortality
<i>Eucalyptus spp.</i>	724	674	50	6.11%	6.91%	28	56.00%
<i>Pinus spp.</i>	732	690	42	5.13%	5.74%	13	30.95%
<i>Quercus ilex</i>	2,798	2,180	618	75.55%	22.09%	82	13.27%
<i>Quercus suber</i>	529	445	84	10.27%	15.88%	14	16.67%
Other	221	197	24	2.93%	10.86%	3	12.50%
Total	5,004	4,186	818	100%	16.35%	140	17.11%



Figure S1. *Dehesa* ecosystems (up, obtained Rafael M Navarro-Cerrillo) and *Cerambyx cerdo* (down, obtained Sistema de Información de la Naturaleza de Euskadi, <https://www.ingurumena.ejgv.euskadi.eus/ac84aBuscadorWar/especies/10004>).

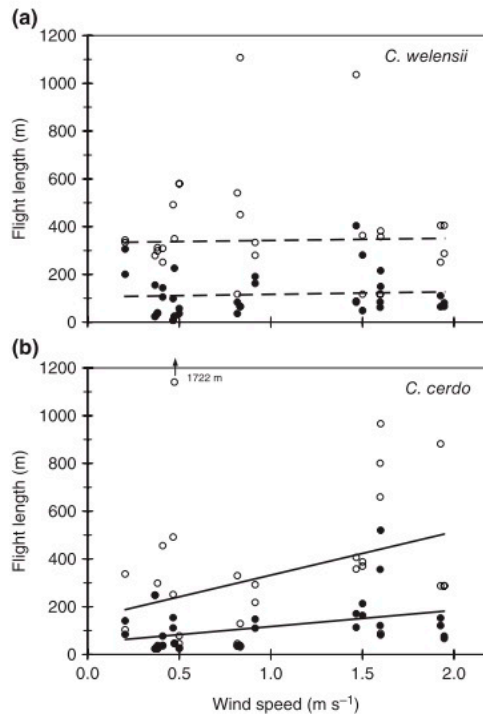


Fig. 8. The effect of wind speed on mean (full circles) and maximum (open circles) flight lengths in *Cerambyx welensii* (Cw, a) and *Cerambyx cerdo* (Cc, b). Regression equations and statistics were as follows: Cw (maximum flight), $y = 9.32x + 332.77$, $r^2 < 0.01$, $F_{1,30} = 0.02$, $P = 0.90$; Cw (mean flight), $y = 10.81x + 105.61$, $r^2 < 0.01$, $F_{1,30} = 0.15$, $P = 0.70$; Cc (maximum flight), $y = 223.5x + 80.24$, $r^2 = 0.28$, $F_{1,29} = 11.53$, $P < 0.01$; Cc (mean flight), $y = 67.81x + 49.32$, $r^2 = 0.15$, $F_{1,29} = 4.96$, $P < 0.05$. A Cc female flying 1722 m (see b) was scored as an outlier and excluded from the regression analyses.

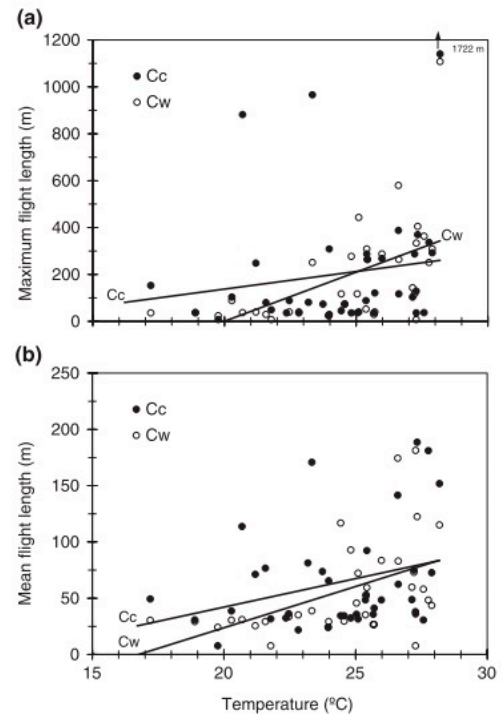


Fig. 9. The effect of mean daily temperature on maximum (a) and mean (b) flight lengths of *Cerambyx welensii* (Cw) and *Cerambyx cerdo* (Cc). Regression equations and statistics were as follows: Cw (maximum flight), $y = 41.93x - 838.11$, $r^2 = 0.34$, $F_{1,33} = 16.69$, $P < 0.001$; Cc (maximum flight), $y = 22.89x - 339.62$, $r^2 = 0.08$, $F_{1,36} = 3.67$, $P = 0.06 \sim 0.05$; Cw (mean flight), $y = 7.33x - 122.95$, $r^2 = 0.24$, $F_{1,33} = 9.92$, $P < 0.01$; Cc (mean flight), $y = 5.06x - 59.17$, $r^2 = 0.11$, $F_{1,36} = 4.54$, $P < 0.05$.

Figure S2. Flight length and maximum flight length of *Cerambyx welensii* and *C. cerdo* against wind speed and temperatures (obtained from Torres-Vila et al. 2017a).

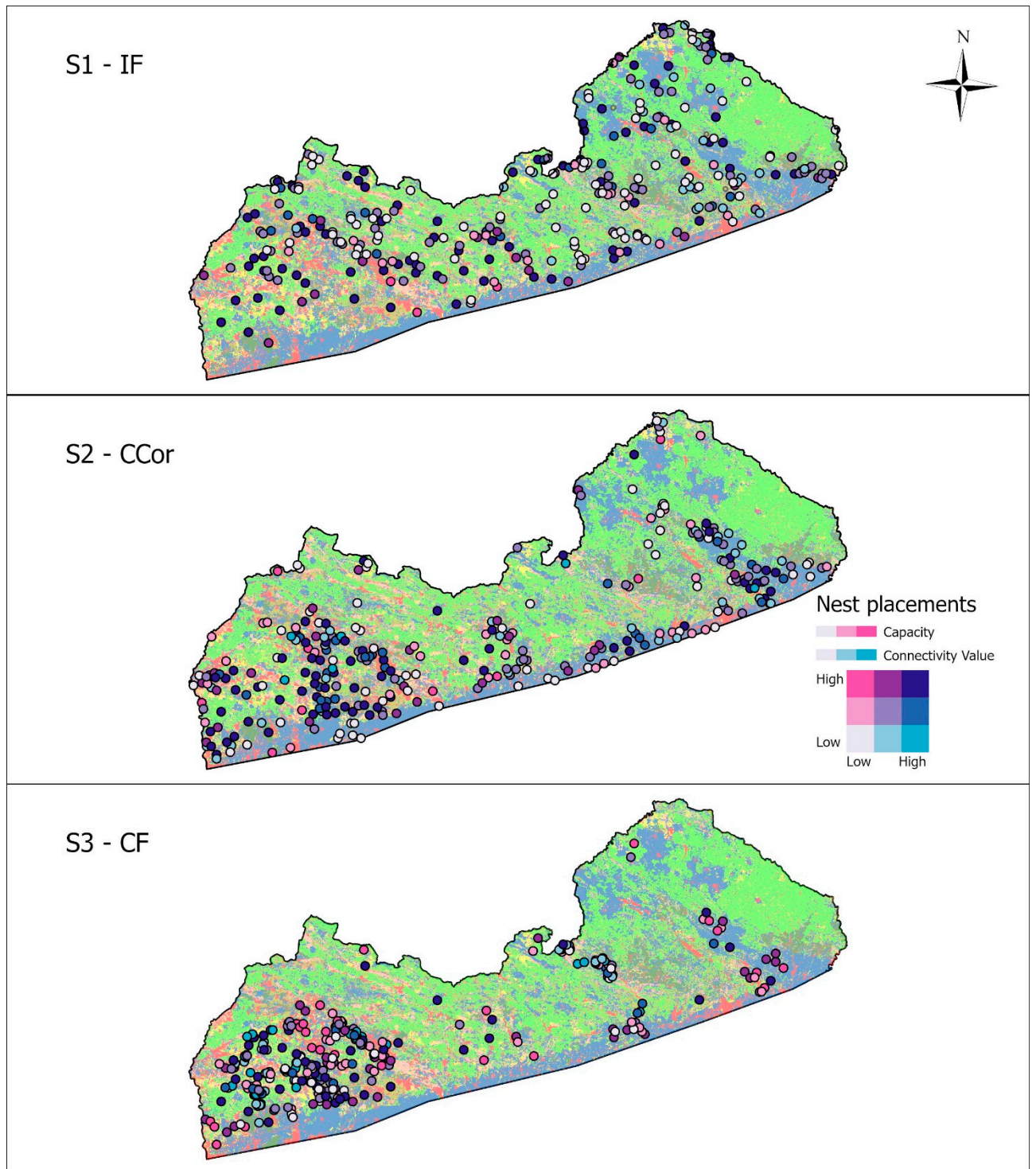


Figure S3. Spatial representation of nests in each scenario. Dots in each map represents the spatial location of the most connected patches for each scenario.