**Supplementary Table S1.** 90% confidence set of best-ranked LMM models examining the characteristics of tree regeneration after the canopy opening. k: no. of parameters in the LMM, Ti: time from treatment, SI: site index, CCpre: pre-treatment canopy cover, BApost: post-treatment basal area, Size: size of the opening, PNN: relative abundance of *Pinus nigra* subsp. *nigra* in the adjacent pine stand.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Candidate models | k | AICc1 | ΔAICc1 | wi1 | wbest/wi1 |
| *Quercus ilex* density2 |  |  |  |  |  |
| Ti | 13 | -42.9 | - | 0.49 | - |
| Ti+Size | 14 | -42.0 | 0.9 | 0.31 | 1.6 |
| Ti+BApost | 14 | -39.7 | 3.2 | 0.10 | 4.9 |
| Ti+BApost+Size | 15 | -38.2 | 4.8 | 0.05 | 10.8 |
|  |  |  |  |  |  |
| *Quercus faginea* density2 |  |  |  |  |  |
| Size | 13 | 41.4 | - | 0.21 | - |
| Ti+Size | 14 | 41.5 | 0.1 | 0.19 | 1.1 |
| SI+BApost+Size | 15 | 42.4 | 1.0 | 0.13 | 1.7 |
| Ti+SI+BApost+Size | 16 | 43.3 | 2.0 | 0.08 | 2.7 |
| SI+BApost | 14 | 43.8 | 2.4 | 0.06 | 3.3 |
| Ti | 13 | 44.0 | 2.6 | 0.06 | 3.7 |
| BApost+Size | 14 | 44.1 | 2.8 | 0.05 | 4.0 |
| Null model | 12 | 44.2 | 2.8 | 0.05 | 4.1 |
| Ti+SI+BApost | 15 | 44.3 | 2.9 | 0.05 | 4.3 |
| Ti+BApost+Size | 15 | 44.7 | 3.3 | 0.04 | 5.2 |
|  |  |  |  |  |  |
| *Pinus nigra* density2 |  |  |  |  |  |
| SI+PNN+Size | 15 | 113.0 | - | 0.52 | - |
| SI+PNN | 14 | 116.0 | 3.0 | 0.11 | 4.6 |
| SI+PNN+BApost+Size | 16 | 116.2 | 3.3 | 0.10 | 5.1 |
| PNN+Size | 14 | 116.5 | 3.5 | 0.09 | 5.8 |
| PNN | 13 | 117.0 | 4.0 | 0.07 | 7.4 |
| PNN+BApost+Size | 15 | 119.6 | 6.6 | 0.02 | 27.5 |
|  |  |  |  |  |  |
| *Quercus ilex* height |  |  |  |  |  |
| Ti2+SI+CCpre+BApost | 16 | 200.3 | - | 0.43 | - |
| Ti2+SI+CCpre+BApost+Size | 17 | 200.7 | 0.4 | 0.35 | 1.2 |
| Ti2+SI+CCpre+Size | 16 | 203.6 | 3.4 | 0.08 | 5.3 |
| Ti2+Size | 14 | 205.4 | 5.2 | 0.03 | 13.2 |
| Ti2+BApost+Size | 15 | 205.5 | 5.3 | 0.03 | 13.8 |
|  |  |  |  |  |  |
| Soil cover by *Quercus ilex*2 |  |  |  |  |  |
| Ti2+Size | 14 | -22.4 | - | 0.36 | - |
| Ti2 | 13 | -21.1 | 1.3 | 0.19 | 1.9 |
| Ti2+SI | 14 | -20.7 | 1.7 | 0.15 | 2.4 |
| Ti2+SI+Size | 15 | -19.8 | 2.6 | 0.10 | 3.7 |
| Ti2+BApost+Size | 15 | -19.8 | 2.6 | 0.10 | 3.7 |
| Ti2+BApost | 14 | -19.2 | 3.2 | 0.07 | 4.9 |

1 The models are ranked according to the Akaike’s information criterion corrected for small sample size (AICc) and compared according to Akaike weights (wi), which indicate the likelihood of a model to be the best in the set. The 90% confidence set of models was identified by cumulatively summing wi of the highest-ranked models. The relative strength of the best model versus other models was assessed through evidence ratios (wbest/wi), which provide a measure of how much more likely the best model is than model i.

2 Variable log transformed

**Supplementary Table S2.** 90% confidence set of best-ranked LMM models examining the characteristics of the *Quercus* seedling bank in the control pine stand. k: no. of parameters in the LMM, Ti: time, SI: site index, CC: canopy cover, BA-Qu: basal area of adult *Quercus* (which grow in the lower tree layer), PNN: relative abundance of *Pinus nigra* subsp. *nigra* in the adjacent pine stand.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Candidate models | k | AICc1 | ΔAICc1 | wi1 | wbest/wi1 |
| *Quercus ilex* density2 |  |  |  |  |  |
| Ti + CC | 7 | -18.9 | - | 0.52 | - |
| Ti | 6 | -18.4 | 0.5 | 0.40 | 1.3 |
|  |  |  |  |  |  |
| *Quercus faginea* density2 |  |  |  |  |  |
| Ti | 6 | 45.5 | - | 0.61 | - |
| Ti + BA-Qu | 7 | 48.0 | 2.5 | 0.17 | 3.5 |
| Ti + ATH | 7 | 48.7 | 3.2 | 0.12 | 4.9 |
|  |  |  |  |  |  |
| *Quercus ilex* height |  |  |  |  |  |
| Ti2 + SI + BA-Qu | 8 | 293.0 | - | 0.35 | - |
| Ti2 + SI | 7 | 293.7 | 0.7 | 0.25 | 1.4 |
| Ti2 + BA-Qu | 7 | 294.9 | 1.9 | 0.14 | 2.6 |
| Ti2 | 6 | 295.0 | 2.0 | 0.13 | 2.7 |
| Ti2 + SI + CC + BA-Qu | 9 | 297.6 | 4.6 | 0.03 | 10.2 |
|  |  |  |  |  |  |
| Soil cover by *Quercus ilex*2 |  |  |  |  |  |
| Ti2 | 6 | 80.0 | - | 0.55 | - |
| Ti2 + BA-Qu | 7 | 82.2 | 2.1 | 0.19 | 2.9 |
| Ti2 + SI | 7 | 83.1 | 3.1 | 0.12 | 4.6 |
| Ti2 + SI + BA-Qu | 8 | 84.3 | 4.3 | 0.06 | 8.7 |

1 The models are ranked according to the AICc and compared according to wi, which indicate the likelihood of a model to be the best in the set. The 90% confidence set of models was identified by cumulatively summing the highest wi. The ratios wbest/wi provide a measure of how much more likely the best model is than model i.

2 Variable log transformed