**Supplementary Material to the paper Tüfekcioğlu, İ., Tavşanoğlu, Ç. Diversity and regeneration strategies in woody plant communities of the Mediterranean Basin: Vegetation type matters. Plant Biosystems.**

# Supplementary Table 1. Vegetation type classes used in the study and their corresponding classes in forest management plans. Vegetation type classes were described according to the General Directorate of Forestry (2017).

|  |
| --- |
| **Vegetation type classes** |
| **In the study** | **In forest management plans** | **Description**  |
| Semi-closed forest | Turkish red pine forest | Mainly consists of mature Turkish red pine individuals with total coverage between 11% and 40%. |
| Open forest | Open Turkish red pine forest | Mainly consists of mature Turkish red pine individuals with total coverage < 10%. |
| Closed shrubland | Maquis | Mainly consists of large shrubs with total coverage between 11% and 100%. |
| Open shrubland | Open maquis | Mainly consists of large shrubs with total coverage < 10%. |
| Scrubland | Forest soil without any tree | Mainly consists of species that do not exceed 1 m height. |

**References**

The General Directorate of Forestry. 2017. Notification for ecosystem based functional forest management plans. No: 299, Ankara. (in Turkish).

# Supplementary Table 2. The species recorded in the study and their taxonomic and some ecological properties. Regeneration strategy of a species (*sensu* Pausas 1999 and Pausas et al., 2004) includes information on both resprouting ability after the fire (resprouters: R+ or non-resprouters: R-), post-fire persistence ability via any propagule (propagule-persister: P+ or propagule-non-persister: P-), and the seed bank locality in propagule-persisters (canopy seed bank: c or soil seed bank: s). Growth form, resprouting ability, post-fire persistence via propagules, and seed bank locality information are based on the BROT database (Tavşanoğlu & Pausas, 2018) and field observations. Nomenclature follows Davis (1965-1985), but taxon and family names were updated according to The Plant List (2013).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species**  | **Family**  | **Growth form** | **Resprouting ability** | **Regeneration strategy** |
| *Arbutus andrachne* L. | Ericaceae | large shrub | yes | R+P- |
| *Arbutus unedo* L. | Ericaceae | large shrub | yes | R+P- |
| *Asparagus aphyllu*s L. | Asparagaceae | liana | yes | R+P- |
| *Asperula brevifolia* Vent. | Rubiaceae | subshrub | no | unknown |
| *Calicotome villosa* (Poir.) Link | Leguminosae | shrub | yes | R+P+ |
| *Celtis australis* L. | Cannabaceae | tree | yes | R+P- |
| *Ceratonia siliqua* L. | Leguminosae | tree | yes | R+P- |
| *Cistus creticus* L. | Cistaceae | shrub | no | R-P+s |
| *Cistus parviflorus* Lam. | Cistaceae | shrub | no | R-P+s |
| *Cistus salviifolius* L. | Cistaceae | shrub | no | R-P+s |
| [*Cotinus coggygria* Scop.](https://en.wikipedia.org/wiki/Giovanni_Antonio_Scopoli) | [Anacardiaceae](https://en.wikipedia.org/wiki/Anacardiaceae) | large shrub | yes | R+P- |
| *Crataegus monogyna* Jacq.  | Rosaceae | large shrub | yes | R+P- |
| *Cupressus sempervirens* L. | Cupressaceae | tree | no | R-P+c |
| *Cytisopsis pseudocytisus* (Boiss.) Fertig | [Leguminosae](http://www.theplantlist.org/1.1/browse/A/Leguminosae/) | subshrub | no | R-P+s |
| *Daphne gnidioides* Jaub. & Spach | Thymelaeaceae | shrub | unknown | unknown |
| *Daphne sericea* Vahl | Thymelaeaceae | shrub | variable | unknown |
| *Dittrichia viscosa* (L.) Greuter | Compositae | subshrub | yes | R+P+ |
| *Erica manipuliflora* Salisb. | Ericaceae | shrub | yes | R+P+ |
| *Euphorbia acanthothamnos* Heldr. & Sart. ex Boiss. | Euphorbiaceae | subshrub | yes | R+P+ |
| *Genista acanthoclada* DC. | Leguminosae | shrub | yes | R+P+ |
| *Hypericum empetrifolium* Willd. | Hypericaceae | subshrub | unknown | R+P+ |
| *Juniperus oxycedrus* L. | Cupressaceae | large shrub | yes | R+P- |
| *Laurus nobilis* L. | Lauraceae | large shrub | yes | R+P- |
| *Lavandula stoechas* L. | Lamiaceae | subshrub | no | R-P+s |
| *Myrtus communis* L. | Myrtaceae | large shrub | yes | R+P- |
| *Olea europaea* L. | Oleaceae | tree | yes | R+P- |
| *Origanum onites* L. | Lamiaceae | subshrub | yes | R+P- |
| *Osyris alba* L. | Santalaceae | large shrub | yes | R+P- |
| *Paliurus spina-christi* Mill. | Rhamnaceae | large shrub | yes | R+P- |
| *Phillyrea latifolia* L. | Oleaceae | large shrub | yes | R+P- |
| *Phlomis grandiflora* H. S. Thomps. | Lamiaceae | shrub | unknown | unknown |
| *Phlomis lycia* D. Don | Lamiaceae | shrub | yes | unknown |
| *Pinus brutia* Ten. | Pinaceae | tree | no | R-P+c |
| *Pistacia lentiscus* L. | [Anacardiaceae](https://tr.wikipedia.org/wiki/Sak%C4%B1z_a%C4%9Fac%C4%B1giller) | large shrub | yes | R+P- |
| *Pistacia terebinthus* L. | [Anacardiaceae](https://tr.wikipedia.org/wiki/Sak%C4%B1z_a%C4%9Fac%C4%B1giller) | large shrub | yes | R+P- |
| *Populus nigra* L. | Salicaceae | tree | yes | R+P- |
| *Ptilostemon chamaepeuce* (L.) Less. | Compositae | shrub | yes | unknown |
| *Pyrus elaeagnifolia* Pall. | Rosaceae | tree | unknown | unknown |
| *Quercus aucheri* Jaub. & Spach | Fagaceae | large shrub | yes | R+P- |
| *Quercus coccifera* L. | Fagaceae | large shrub | yes | R+P- |
| *Quercus infectoria* subsp. *veneris* (A.Kern.) Meikle | Fagaceae | large shrub | yes | R+P- |
| *Quercus ithaburensis* Decne. | Fagaceae | tree | yes | R+P- |
| *Rhamnus punctata* Boiss. | Rhamnaceae | large shrub | unknown | unknown |
| *Rhamnus pyrella* O. Schwarz | Rhamnaceae | shrub | yes | R+P- |
| *Rubia tenuifolia* d´Urv. | Rubiaceae | liana | yes | R+P- |
| *Ruscus aculeatus* L. | Asparagaceae | subshrub | yes | R+P- |
| *Sarcopoterium spinosum* (L.) Spach | Rosaceae | subshrub | yes | R+P+ |
| *Satureja thymbra* L. | Lamiaceae | subshrub | variable | unknown |
| *Smilax aspera* L. | Smilacaceae | liana | yes | R+P- |
| *Spartium junceum* L. | Leguminosae | large shrub | yes | R+P+ |
| *Styrax officinalis* L. | Styracaceae | large shrub | yes | R+P- |
| *Teucrium chamaedrys* subsp. *syspirense* (C. Koch) Rech. f. | Lamiaceae | subshrub | yes | R+P- |
| *Teucrium divaricatum* Sieber ex Heldr. | Lamiaceae | subshrub | yes | R+P+ |
| *Teucrium polium* L. | Lamiaceae | subshrub | yes | R+P+ |
| *Teucrium sandrasicum* O. Schwarz | Lamiaceae | subshrub | unknown | unknown |
| *Thymbra capitata* (L.) Cav. | Lamiaceae | subshrub | variable | unknown |

**References**

Davis, P.H. (ed.) 1965–1985. Flora of Turkey and the East Aegean Islands, Volumes 1–9, Edinburgh: Edinburg University Press.

Pausas, J.G. 1999. Response of plant functional types to changes in the fire regime in Mediterranean ecosystems: a simulation approach. Journal of Vegetation Science 10: 717–722.

Pausas, J.G., Bradstock, R.A., Keith, D.A., Keeley, J.E., Fire Network GCTE. 2004 Plant functional traits in relation to fire in crown-fire ecosystems. Ecology 85: 1085–1100.

Tavşanoğlu, Ç., Pausas, J.G. 2018. A functional trait database for Mediterranean Basin plants. Scientific Data 5: 180135.

The Plant List 2013. The Plant List, version 1.1. http://www.theplantlist.org/ [accessed on 08.12.2020].

# Supplementary Table 3. Mean species richness and Shannon diversity values for each vegetation type estimated from the transect data. Model results for differences in species richness (Poisson GLM) and Shannon diversity (linear model) among different vegetation types. The same letters next to the values indicate no significant difference (P > 0.05) across vegetation types.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Semi-closed forest** | **Open forest** | **Closed shrubland** | **Open shrubland** | **Scrubland** | **Poisson GLM** |
| **Dev.** | **P** |
| **Species richness** |  |  |  |  |  |  |  |
|  Mature individuals | 9.6a | 9.4a | 15.3b | 13.5b | 7.3a | 53.6 | < 0.0001 |
|  Saplings | 9.2a | 9.5a | 11.4a | 10.0a | 5.0b | 34.9 | < 0.0001 |
|  |  |  |  |  |  |  |  |
| **Shannon diversity** |  |  |  |  |  | **Linear model** |
| **F** | **P** |
|  Mature individuals | 1.7ab | 1.6b | 2.3c | 1.9ac | 1.2d | 23.1 | < 0.0001 |
|  Saplings | 1.7a | 1.7a | 1.9a | 1.9a | 1.4b | 6.5 | 0.0001 |

# Supplementary Table 4. The frequency of occurrence of each species in the belt transects in each vegetation type. Values are the percentage of transects in which mature individuals of the species were recorded.

|  |  |
| --- | --- |
| **Species** | **Vegetation type** |
| **Semi-closed forest** | **Open forest** | **Closed shrubland** | **Open shrubland** | **Scrubland** |
| *Arbutus andrachne* | 11.11 | 83.33 | 4.17 | 17.65 | 0 |
| *Arbutus unedo* | 11.11 | 41.67 | 0 | 0 | 0 |
| *Asparagus aphyllus* | 50.00 | 83.33 | 66.67 | 70.59 | 25.00 |
| *Asperula brevifolia* | 0 | 8.33 | 0 | 23.53 | 0 |
| *Calicotome villosa* | 5.56 | 33.33 | 20.83 | 35.29 | 33.33 |
| *Celtis australis* | 0 | 0 | 4.17 | 0 | 0 |
| *Ceratonia siliqua* | 5.56 | 8.33 | 4.17 | 11.76 | 0 |
| *Cistus creticus* | 72.22 | 91.67 | 54.17 | 70.59 | 50.00 |
| *Cistus parviflorus* | 0 | 0 | 4.17 | 35.29 | 0 |
| *Cistus salviifolius* | 72.22 | 75.00 | 54.17 | 52.94 | 50.00 |
| *Cotinus coggygria* | 11.11 | 0 | 4.17 | 0 | 0 |
| *Crataegus monogyna* | 5.56 | 0 | 0 | 35.29 | 25.00 |
| *Cupressus sempervirens* | 0 | 8.33 | 0 | 0 | 0 |
| *Cytisopsis pseudocytisus* | 16.67 | 0 | 16.67 | 0 | 0 |
| *Daphne gnidioides* | 22.22 | 0 | 16.67 | 52.94 | 25.00 |
| *Daphne sericea* | 5.56 | 8.33 | 0 | 0 | 0 |
| *Dittrichia viscosa* | 0 | 0 | 0 | 5.88 | 0 |
| *Erica manipuliflora* | 27.78 | 0 | 58.33 | 17.65 | 0 |
| *Euphorbia acanthothamnos* | 0 | 41.67 | 0 | 29.41 | 8.33 |
| *Genista acanthoclada* | 44.44 | 75.00 | 79.17 | 70.59 | 58.33 |
| *Hypericum empetrifolium* | 5.56 | 100.00 | 12.50 | 29.41 | 0 |
| *Juniperus oxycedrus* | 0 | 0 | 4.17 | 0 | 0 |
| *Laurus nobilis* | 11.11 | 8.33 | 0 | 5.88 | 0 |
| *Lavandula stoechas* | 38.89 | 0 | 54.17 | 41.18 | 50.00 |
| *Myrtus communis* | 5.56 | 0 | 12.50 | 5.88 | 0 |
| *Olea europaea* | 38.89 | 91.67 | 25.00 | 70.59 | 33.33 |
| *Origanum onites* | 0 | 8.33 | 4.17 | 29.41 | 16.67 |
| *Osyris alba* | 0 | 41.67 | 4.17 | 41.18 | 0 |
| *Paliurus spina-christi* | 5.56 | 0 | 12.50 | 0 | 0 |
| *Phillyrea latifolia* | 61.11 | 100.00 | 70.83 | 52.94 | 25.00 |
| *Phlomis grandiflora* | 0 | 25.00 | 0 | 35.29 | 0 |
| *Phlomis lycia* | 22.22 | 25.00 | 4.17 | 52.94 | 33.33 |
| *Pinus brutia* | 100.00 | 50.00 | 95.83 | 11.76 | 0 |
| *Pistacia lentiscus* | 27.78 | 100.00 | 25.00 | 76.47 | 33.33 |
| *Pistacia terebinthus* | 16.67 | 41.67 | 12.50 | 5.88 | 0 |
| *Populus nigra* | 5.56 | 0 | 0 | 0 | 0 |
| *Ptilostemon chamaepeuce* | 0 | 33.33 | 12.50 | 5.88 | 16.67 |
| *Pyrus elaeagnifolia* | 11.11 | 0 | 0 | 29.41 | 33.33 |
| *Quercus aucheri* | 16.67 | 66.67 | 0 | 47.06 | 25.00 |
| *Quercus coccifera* | 61.11 | 91.67 | 29.17 | 82.35 | 33.33 |
| *Quercus infectoria* subsp. *veneris* | 44.44 | 8.33 | 16.67 | 11.76 | 0 |
| *Quercus ithaburensis* | 0 | 0 | 0 | 0 | 8.33 |
| *Rhamnus punctata* | 0 | 0 | 20.83 | 0 | 25.00 |
| *Rubia tenuifolia* | 0 | 16.67 | 0 | 0 | 0 |
| *Ruscus aculeatus* | 16.67 | 83.33 | 16.67 | 0 | 0 |
| *Sarcopoterium spinosum* | 50.00 | 16.67 | 33.33 | 70.59 | 100.00 |
| *Satureja thymbra* | 0 | 0 | 16.67 | 11.76 | 0 |
| *Smilax aspera* | 22.22 | 41.67 | 41.67 | 11.76 | 0 |
| *Spartium junceum* | 0 | 8.33 | 0 | 0 | 0 |
| *Styrax officinalis* | 27.78 | 0 | 4.17 | 17.65 | 0 |
| *Teucrium chamaedrys* subsp. *syspirense* | 0 | 0 | 0 | 5.88 | 0 |
| *Teucrium polium* | 0 | 0 | 4.17 | 17.65 | 0 |
| *Teucrium sandrasicum* | 0 | 0 | 4.17 | 0 | 0 |
| *Thymbra capitata* | 5.56 | 8.33 | 12.50 | 52.94 | 16.67 |

# Supplementary Table 5. The density of each species in each vegetation type. Values are the mean (±SD) number of mature individuals per transect in each vegetation type. The results of generalized linear models (GLM) based on (1) the number of individuals of each species without zero data in each transect (GLM assuming Poisson distribution) and (2) the presence and absence of species in each transect (GLM assuming binomial distribution) are given. *Dev.* is the deviance value obtained from GLM analyses, and deviancevalues lower than 0.05 were stated as 0.0.

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | **Vegetation type** | **Poisson GLM** | **Binomial GLM** |
| **Semi-closed forest** | **Open forest** | **Closed shrubland** | **Open shrubland** | **Scrubland** | **Dev.** | **P** | **Dev.** | **P** |
| *Arbutus andrachne* | 0.17±0.5 | 0.08±0.4 | 9.42±8.9 | 2.24±6.7 | 0 | 35.6 | < 0.0001 | 33.8 | < 0.0001 |
| *Arbutus unedo* | 0.11±0.3 | 0 | 1.42±2.6 | 0 | 0 | 3.7 | 0.0556 | 19.2 | 0.0007 |
| *Asparagus aphyllus* | 3.28±5.4 | 5.25±7.9 | 12.33±11.3 | 3.82±5.8 | 2.25±6.3 | 58.8 | < 0.0001 | 11.1 | 0.0250 |
| *Asperula brevifolia* | 0 | 0 | 0.33±1.2 | 0.88±1.7 | 0 | 0.0 | 0.9093 | 12.4 | 0.0149 |
| *Calicotome villosa* | 0.06±0.2 | 1.58±4.8 | 2.42±4.6 | 2.06±5.2 | 0.42±0.7 | 30.5 | < 0.0001 | 6.7 | 0.1498 |
| *Celtis australis* | 0 | 0.21±1.0 | 0 | 0 | 0 | - | - | 2.5 | 0.6425 |
| *Ceratonia siliqua* | 0.11±0.5 | 0.13±0.6 | 0.33±1.2 | 0.24±0.7 | 0 | 1.2 | 0.7635 | 2.5 | 0.6358 |
| *Cistus creticus* | 22.17±32.2 | 22.67±36.9 | 29.25±21.5 | 12.35±18.5 | 29.25±55.5 | 231.6 | < 0.0001 | 7.6 | 0.1063 |
| *Cistus parviflorus* | 0 | 0.54±2.7 | 0 | 14.59±30.5 | 0 | 23.7 | < 0.0001 | 17.6 | 0.0015 |
| *Cistus salviifolius* | 51.72±55.5 | 34.33±58.9 | 39.42±60.0 | 61.65±92.2 | 3.75±6.7 | 822.1 | < 0.0001 | 3.5 | 0.4716 |
| *Cotinus coggygria* | 1.44±4.7 | 0.04±0.2 | 0 | 0 | 0 | 14.7 | 0.0001 | 4.9 | 0.2935 |
| *Crataegus monogyna* | 0.06±0.2 | 0 | 0 | 0.53±1.0 | 0.33±0.7 | 0.2 | 0.9146 | 17.8 | 0.0014 |
| *Cupressus sempervirens* | 0 | 0 | 0.50±1.7 | 0 | 0 | - | - | 3.9 | 0.4140 |
| *Cytisopsis pseudocytisus* | 0.94±2.6 | 1.54±4.9 | 0 | 0 | 0 | 2.9 | 0.0861 | 10.2 | 0.0377 |
| *Daphne gnidioides* | 0.33±0.7 | 0.50±1.7 | 0 | 6.53±10.1 | 1.00±2.1 | 71.5 | < 0.0001 | 14.0 | 0.0074 |
| *Daphne sericea* | 0.06±0.2 | 0 | 0.33±1.2 | 0 | 0 | 1.9 | 0.1650 | 4.2 | 0.3737 |
| *Dittrichia viscosa* | 0 | 0 | 0 | 0.06±0.2 | 0 | - | - | 3.2 | 0.5218 |
| *Erica manipuliflora* | 20.50±38.2 | 37.25±55.8 | 0 | 4.94±12.9 | 0 | 81.6 | < 0.0001 | 26.3 | < 0.0001 |
| *Euphorbia acanthothamnos* | 0 | 0 | 0.83±1.2 | 2.24±4.4 | 0.08±0.3 | 21.6 | < 0.0001 | 21.2 | 0.0003 |
| *Genista acanthoclada* | 11.50±19.5 | 36.17±46.5 | 12.83±11.1 | 39.82±42.2 | 37.75±57.4 | 361.1 | < 0.0001 | 6.4 | 0.1693 |
| *Hypericum empetrifolium* | 0.11±0.5 | 4.13±15.3 | 41.42±30.1 | 14.24±29.3 | 0 | 76.8 | < 0.0001 | 47.5 | < 0.0001 |
| *Juniperus oxycedrus* | 0 | 0.04±0.2 | 0 | 0 | 0 | - | - | 2.5 | 0.6425 |
| *Laurus nobilis* | 0.17±0.5 | 0 | 0.08±0.3 | 0.06±0.2 | 0 | 0.2 | 0.9042 | 5.0 | 0.2857 |
| *Lavandula stoechas* | 9.72±18.8 | 5.21±6.9 | 0 | 1.53±2.2 | 2.42±3.9 | 165.4 | < 0.0001 | 14.7 | 0.0053 |
| *Myrtus communis* | 0.72±3.1 | 0.17±0.5 | 0 | 0.29±1.2 | 0 | 19.9 | < 0.0001 | 4.4 | 0.3581 |
| *Olea europaea* | 1.11±2.2 | 0.54±1.2 | 9.42±7.6 | 4.18±5.4 | 1.58±3.1 | 62.4 | < 0.0001 | 21.1 | 0.0003 |
| *Origanum onites* | 0 | 0.21±1.0 | 0.08±0.3 | 3.00±7.1 | 3.17±7.9 | 29.0 | < 0.0001 | 10.4 | 0.0347 |
| *Osyris alba* | 0 | 0.79±3.9 | 2.58±3.6 | 4.65±11.1 | 0 | 15.9 | 0.0004 | 24.4 | < 0.0001 |
| *Paliurus spina-christi* | 0.22±0.9 | 1.13±3.2 | 0 | 0 | 0 | 2.8 | 0.0952 | 6.3 | 0.1809 |
| *Phillyrea latifolia* | 10.00±15.9 | 10.17±10.2 | 33.17±13.5 | 3.82±4.9 | 1.58±3.5 | 242.3 | < 0.0001 | 19.7 | 0.0006 |
| *Phlomis grandiflora* | 0 | 0 | 1.17±2.5 | 3.71±9.3 | 0 | 8.8 | 0.0030 | 21.4 | 0.0003 |
| *Phlomis lycia* | 2.94±7.0 | 0.46±2.2 | 0.33±0.7 | 13.00±22.6 | 4.92±10.8 | 107.2 | < 0.0001 | 14.2 | 0.0066 |
| *Pinus brutia* | 12.17±4.7 | 8.92±7.2 | 2.08±2.8 | 0.12±0.3 | 0 | 60.2 | < 0.0001 | 75.1 | < 0.0001 |
| *Pistacia lentiscus* | 2.22±4.1 | 1.17±2.8 | 7.58±6 | 5.06±5.4 | 0.50±0.8 | 29.2 | < 0.0001 | 32.9 | < 0.0001 |
| *Pistacia terebinthus* | 0.61±1.8 | 0.50±1.5 | 0.58±0.8 | 0.06±0.2 | 0 | 7.7 | 0.0521 | 10.4 | 0.0345 |
| *Populus nigra* | 0.06±0.2 | 0 | 0 | 0 | 0 | - | - | 3.1 | 0.5410 |
| *Ptilostemon chamaepeuce* | 0 | 0.25±0.7 | 1.25±3.4 | 0.06±0.2 | 0.75±1.8 | 4.9 | 0.1795 | 9.3 | 0.0543 |
| *Pyrus elaeagnifolia* | 0.50±1.5 | 0 | 0 | 0.82±1.6 | 2.58±4.9 | 11.0 | 0.0040 | 16.5 | 0.0024 |
| *Quercus aucheri* | 1.11±3.6 | 0 | 1.83±1.9 | 4.24±7.1 | 0.67±1.3 | 34.6 | < 0.0001 | 27.5 | < 0.0001 |
| *Quercus coccifera* | 5.39±6.5 | 4.17±10.4 | 12.42±14.6 | 13.35±14.4 | 2.08±4.1 | 45.2 | < 0.0001 | 22.6 | 0.0002 |
| *Quercus infectoria* subsp. *veneris* | 2.39±4.3 | 1.71±4.2 | 1.08±3.8 | 0.18±0.5 | 0 | 25.2 | < 0.0001 | 12.9 | 0.0119 |
| *Quercus ithaburensis* | 0 | 0 | 0 | 0 | 0.08±0.3 | - | - | 3.9 | 0.4140 |
| *Rhamnus punctata* | 0 | 0.29±0.7 | 0 | 0 | 0.58±1.1 | 0.9 | 0.3418 | 14.6 | 0.0057 |
| *Rubia tenuifolia* | 0 | 0 | 0.25±0.6 | 0 | 0 | - | - | 8.0 | 0.0901 |
| *Ruscus aculeatus* | 0.28±0.7 | 0.46±1.6 | 4.08±5.1 | 0 | 0 | 8.8 | 0.0126 | 35.5 | < 0.0001 |
| *Sarcopoterium spinosum* | 7.50±12.6 | 3.75±10.3 | 2.08±4.9 | 52.18±90.6 | 146.25±97.5 | 2083.0 | < 0.0001 | 28.0 | < 0.0001 |
| *Satureja thymbra* | 0 | 2.33±9.6 | 0 | 0.35±1.2 | 0 | 19.2 | < 0.0001 | 9.1 | 0.0577 |
| *Smilax aspera* | 1.06±2.1 | 1.29±2.8 | 8.50±11.3 | 0.12±0.3 | 0 | 130.9 | < 0.0001 | 13.6 | 0.0087 |
| *Spartium junceum* | 0 | 0 | 0.08±0.3 | 0 | 0 | - | - | 3.9 | 0.4140 |
| *Styrax officinalis* | 3.94±9.6 | 0.08±0.4 | 0 | 0.65±1.8 | 0 | 32.9 | < 0.0001 | 11.5 | 0.0211 |
| *Teucrium chamaedrys* subsp. *syspirense* | 0 | 0 | 0 | 0.06±0.2 | 0 | - | - | 3.2 | 0.5218 |
| *Teucrium polium* | 0 | 0.46±2.2 | 0 | 0.35±0.8 | 0 | 11.9 | 0.0006 | 7.9 | 0.0951 |
| *Teucrium sandrasicum* | 0 | 0.08±0.4 | 0 | 0 | 0 | - | - | 2.5 | 0.6425 |
| *Thymbra capitata* | 0.11±0.5 | 6.38±17.7 | 0.08±0.3 | 39.59±46.2 | 11.50±35.9 | 249.4 | < 0.0001 | 14.4 | 0.0062 |

# Supplementary Table 6. The coverage of each species in each vegetation type. Values are the mean (±SD) cover of mature individuals per transect in each vegetation type. The results of linear models testing the difference of cover values among vegetation types are given for each species. In some cases, statistical analysis could not be performed due to the lack of a species in several vegetation types. Cover values lower than 0.005 were stated as “0.00”, while the “0” value means that the species did not present in the corresponding vegetation type.

|  |  |  |
| --- | --- | --- |
| **Species** | **Vegetation type** | **Linear model** |
| **Semi-closed forest** | **Open forest** | **Closed shrubland** | **Open shrubland** | **Scrubland** | **F** | **P** |
| *Arbutus andrachne* | 0.04±0.1 | 0.02±0.1 | 15.41±15.9 | 3.96±12.0 | 0 | 1.1 | 0.3831 |
| *Arbutus unedo* | 0.20±0.8 | 0 | 3.01±7.0 | 0 | 0 | 0.5 | 0.4938 |
| *Asparagus aphyllus* | 0.15±0.3 | 0.31±0.5 | 0.66±0.6 | 0.22±0.4 | 0.04±0.1 | 2.0 | 0.1123 |
| *Asperula brevifolia* | 0 | 0 | 0.05±0.2 | 0.09±0.2 | 0 | 0.7 | 0.4602 |
| *Calicotome villosa* | 0.00±0.0 | 1.30±4.4 | 0.88±1.5 | 0.81±2.4 | 0.14±0.3 | 1.0 | 0.4612 |
| *Celtis australis* | 0 | 0.01±0.1 | 0 | 0 | 0 | - | - |
| *Ceratonia siliqua* | 0.17±0.7 | 0.10±0.5 | 0.60±2.1 | 0.38±1.1 | 0 | 3.7 | 0.3613 |
| *Cistus creticus* | 3.19±6.0 | 6.59±15.0 | 7.83±7.0 | 1.71±2.9 | 4.55±8.7 | 1.5 | 0.2073 |
| *Cistus parviflorus* | 0 | 0.03±0.1 | 0 | 2.00±4.5 | 0 | 0.6 | 0.4856 |
| *Cistus salviifolius* | 14.91±18.9 | 4.82±9.4 | 7.25±11.4 | 11.00±15.6 | 0.50±0.8 | 3.0 | 0.0293 |
| *Cotinus coggygria* | 0.81±2.4 | 0.03±0.2 | 0 | 0 | 0 | 19.6 | 0.1413 |
| *Crataegus monogyna* | 0.01±0.0 | 0 | 0 | 1.01±3.7 | 0.39±1.0 | 0.1 | 0.8688 |
| *Cupressus sempervirens* | 0 | 0 | 0.66±2.3 | 0 | 0 | - | - |
| *Cytisopsis pseudocytisus* | 0.07±0.2 | 0.22±0.8 | 0 | 0 | 0 | 0.8 | 0.4153 |
| *Daphne gnidioides* | 0.08±0.2 | 0.05±0.2 | 0 | 1.09±1.9 | 0.26±0.7 | 1.4 | 0.2779 |
| *Daphne sericea* | 0.01±0.0 | 0 | 0.57±2.0 | 0 | 0 | - | - |
| *Dittrichia viscosa* | 0 | 0 | 0 | 0.00±0.0 | 0 | - | - |
| *Erica manipuliflora* | 11.41±20.3 | 24.12±38.6 | 0 | 3.55±8.5 | 0 | 0.4 | 0.6542 |
| *Euphorbia acanthothamnos* | 0 | 0 | 0.14±0.2 | 0.16±0.3 | 0.00±0.0 | 1.3 | 0.3217 |
| *Genista acanthoclada* | 2.94±5.1 | 9.36±13.1 | 2.84±2.6 | 9.72±9.9 | 10.58±17.8 | 1.9 | 0.1252 |
| *Hypericum empetrifolium* | 0.00±0.0 | 0.32±1.0 | 3.63±2.9 | 0.87±1.8 | 0 | 0.6 | 0.6112 |
| *Juniperus oxycedrus* | 0 | 0.00±0.0 | 0 | 0 | 0 | - | - |
| *Laurus nobilis* | 0.17±0.7 | 0 | 0.01±0.0 | 0.05±0.2 | 0 | 0.2 | 0.8579 |
| *Lavandula stoechas* | 0.79±1.5 | 0.38±0.6 | 0 | 0.11±0.2 | 0.26±0.3 | 4.5 | 0.0106 |
| *Myrtus communis* | 0.66±2.8 | 0.37±1.2 | 0 | 0.50±2.0 | 0 | 7.2 | 0.1213 |
| *Olea europaea* | 0.68±1.5 | 0.52±1.7 | 18.34±21.0 | 2.94±4.3 | 1.36±2.4 | 4.2 | 0.0071 |
| *Origanum onites* | 0 | 0.02±0.1 | 0.01±0.0 | 0.28±0.7 | 0.52±1.2 | 3.3 | 0.1153 |
| *Osyris alba* | 0 | 0.02±0.1 | 0.23±0.4 | 0.10±0.2 | 0 | 1.4 | 0.2899 |
| *Paliurus spina-christi* | 0.51±2.2 | 1.52±4.3 | 0 | 0 | 0 | 0.4 | 0.5919 |
| *Phillyrea latifolia* | 12.22±21.3 | 7.13±7.3 | 29.65±16.0 | 4.80±7.4 | 0.69±1.6 | 4.6 | 0.0032 |
| *Phlomis grandiflora* | 0 | 0 | 0.24±0.5 | 0.33±1.0 | 0 | 0.0 | 0.9634 |
| *Phlomis lycia* | 0.34±0.8 | 0.06±0.3 | 0.17±0.5 | 1.44±2.3 | 1.06±2.3 | 0.7 | 0.6048 |
| *Pinus brutia* | 96.09±30.4 | 61.61±42.7 | 18.1±23.0 | 0.26±1.0 | 0 | 7.8 | 0.0003 |
| *Pistacia lentiscus* | 5.63±10.3 | 2.42±6.1 | 8.90±11.4 | 8.64±8.9 | 3.22±5.7 | 1.4 | 0.2637 |
| *Pistacia terebinthus* | 0.34±0.9 | 0.52±1.5 | 0.43±0.6 | 0.07±0.3 | 0 | 5.3 | 0.0260 |
| *Populus nigra* | 0.12±0.5 | 0 | 0 | 0 | 0 | - | - |
| *Ptilostemon chamaepeuce* | 0 | 0.02±0.1 | 0.28±0.8 | 0.02±0.1 | 0.18±0.4 | 0.5 | 0.6951 |
| *Pyrus elaeagnifolia* | 0.34±1.1 | 0 | 0 | 1.91±4.6 | 1.37±2.5 | 0.4 | 0.6865 |
| *Quercus aucheri* | 4.01±15.3 | 0 | 4.82±5.7 | 2.53±5.0 | 0.23±0.4 | 1.9 | 0.1603 |
| *Quercus coccifera* | 11.34±18.6 | 2.83±6.7 | 13.56±16.2 | 13.53±12.6 | 2.01±4.0 | 0.7 | 0.5647 |
| *Quercus infectoria* subsp. *veneris* | 2.83±4.2 | 1.67±4.5 | 0.21±0.7 | 0.82±2.3 | 0 | 0.9 | 0.4659 |
| *Quercus ithaburensis* | 0 | 0 | 0 | 0 | 0.1±0.4 | - | - |
| *Rhamnus punctata* | 0 | 0.07±0.2 | 0 | 0 | 0.29±0.6 | 6.4 | 0.0452 |
| *Rubia tenuifolia* | 0 | 0 | 0.02±0.0 | 0 | 0 | - | - |
| *Sarcopoterium spinosum* | 1.25±2.6 | 0.38±0.8 | 0.22±0.6 | 6.84±12.7 | 40.28±24.6 | 12.0 | < 0.0001 |
| *Satureja thymbra* | 0 | 0.37±1.7 | 0 | 0.05±0.2 | 0 | 0.4 | 0.5687 |
| *Spartium junceum* | 0 | 0 | 0.02±0.1 | 0 | 0 | - | - |
| *Styrax officinalis* | 4.06±10.8 | 0.07±0.4 | 0 | 0.50±1.5 | 0 | 0.8 | 0.4957 |
| *Teucrium chamaedrys* subsp. *syspirense* | 0 | 0 | 0 | 0.00±0.0 | 0 | - | - |
| *Teucrium polium* | 0 | 0.01±0.1 | 0 | 0.03±0.1 | 0 | 0.4 | 0.5887 |
| *Teucrium sandrasicum* | 0 | 0.01±0.1 | 0 | 0 | 0 | - | - |
| *Thymbra capitata* | 0.01±0.0 | 0.99±2.8 | 0.01±0.0 | 6.80±8.5 | 1.45±4.3 | 1.4 | 0.2921 |

# Supplementary Table 7. The density (ind./transect) and cover (%) of different growth forms for each vegetation type. Values are the mean (±SD) of transects.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Density of mature individuals** | **Semi-closed forest** | **Open forest** | **Closed shrubland** | **Open shrubland** | **Scrubland** |
| subshrub | 17.0±26.8 | 27.0±28.9 | 48.9±33.7 | 114.5±96.3 | 163.4±123.7 |
| shrub | 108.9±66.1 | 137.6±91.4 | 87.0±55.1 | 158.7±93.0 | 77.8±71.8 |
| lar. shrub | 27.6±22.8 | 20.1±15.7 | 70.2±31.6 | 35.1±19.8 | 5.8±9.2 |
| tree | 13.1±5.1 | 10.0±7.4 | 12.3±8.5 | 5.4±5.0 | 4.2±5.5 |
| liana | 3.9±6.4 | 7.3±9.6 | 21.1±18.5 | 3.9±5.9 | 2.2±6.3 |
| **Density of saplings**  |  |  |  |  |  |
| subshrub | 30.9±48.3 | 56.0±79.3 | 29.1±18.2 | 57.5±50.4 | 38.8±26.8 |
| shrub | 83.5±58.4 | 141.7±114.1 | 45.3±35.0 | 129.4±149.5 | 40.6±44.3 |
| lar. shrub | 85.9±78.2 | 49.5±62.5 | 105.6±83.7 | 49.0±40.4 | 3.5±6.7 |
| tree | 10.9±13.3 | 15.6±24.0 | 2.4±3.8 | 0.8±1.3 | 1.6±1.4 |
| liana | 74.6±150.7 | 35.4±115.3 | 21.4±18.1 | 4.3±6.4 | 0.8±2.3 |
| **Cover of mature individuals** |  |  |  |  |  |
| subshrub | 2.0±3.5 | 3.0±3.6 | 5.2±3.9 | 15.2±13.6 | 42.5±26.1 |
| shrub | 34.0±22.7 | 47.2±34.1 | 20.1±10.2 | 31.7±20.6 | 17.3±19.1 |
| lar. shrub | 39.4±39.6 | 16.4±13.1 | 76.3±34.7 | 36.5±23.6 | 6.8±6.8 |
| tree | 91.5±31.3 | 63.1±45.4 | 37.7±33.8 | 5.5±5.3 | 2.8±3.1 |

# Supplementary Table 8. The density (ind./transect) and cover (%) of different regeneration strategies for each vegetation type. Values are the mean (±SD) of transects.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Density of mature individuals** | **Semi-closed forest** | **Open forest** | **Closed shrubland** | **Open shrubland** | **Scrubland** |
| R-P+c | 11.6±4.8 | 9.1±7.6 | 2.6±3.0 | 0.1±0.3 | 0 |
| R-P+s | 78.3±69.5 | 67.7±79.6 | 68.7±48.3 | 90.1±91.1 | 35.4±60.3 |
| R+P- | 32.8±25.6 | 33.7±32.9 | 146.6±36.9 | 60.8±37.7 | 12.6±14.6 |
| R+P+ | 44.3±41.2 | 80.1±72.3 | 18.3±14.0 | 101.7±89.0 | 184.5±69.0 |
| **Density of saplings**  |  |  |  |  |  |
| R-P+c | 10.1±12.9 | 15.0±23.7 | 1.7±2.7 | 0 | 0.2±0.4 |
| R-P+s | 77.3±63.9 | 97.5±101.9 | 36.3±36.0 | 93.4±140.7 | 29.3±47.1 |
| R+P- | 161.2±218.0 | 88.9±148.9 | 156.3±93.3 | 65.6±59.0 | 4.6±6.4 |
| R+P+ | 30.5±32.8 | 67.1±78.5 | 3.9±3.9 | 42.4±32.2 | 45.5±21.1 |
| **Cover of mature individuals** |  |  |  |  |  |
| R-P+c | 90.4±31.4 | 62.4±45.7 | 18.8±22.6 | 0.2±1.0 | 0 |
| R-P+s | 17.3±19.1 | 12.7±17.9 | 15.1±8.8 | 14.8±15.3 | 5.3±9.4 |
| R+P- | 40.3±39.6 | 17.8±13.3 | 100.7±31.1 | 41.2±25.1 | 8.6±7.2 |
| R+P+ | 18.2±19.9 | 35.4±38.0 | 4.1±2.5 | 21.1±15.0 | 51.0±11.0 |

# Supplementary Table 9. The mean density (ind./transect) and cover (%) of different resprouting ability groups (yes: resprouter, no: non-resprouter) for each vegetation type. Generalized linear models assuming Poisson distribution and general linear models assuming Gaussian distribution were used to analyze the density (i.e., the number of saplings and mature individuals) and cover, respectively. *Dev.* is deviance. The same letters next to the values indicate no significant difference (P > 0.05) across vegetation types.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Resprouting ability** | **Semi-closed forest** | **Open forest** |  |  | **Scrubland** | **Poisson GLM** |
| **Closed shrubland** | **Open shrubland** | **Dev.** | **P** |
| **Density of mature individuals** |
| Yes | 79.6a | 114.6b | 166.4c | 175.5c | 202.4d | 1241.0 | <0.0001 |
| No | 89.9a | 76.7b | 71.6b | 91.1a | 35.4c | 426.3 | <0.0001 |
|  |  |  |  |  |  |  |  |
| **Density of saplings** |
| Yes | 194.7a | 161.8b | 160.5b | 115.6c | 52.2d | 1435.7 | <0.0001 |
| No | 87.5a | 112.6b | 37.9c | 93.6a | 29.5d | 1135.2 | <0.0001 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | **Linear Model** |
|  |  |  |  |  | **F** | **P** |
| **Cover of mature individuals** |
| Yes | 58.8a | 53.3a | 105.2b | 63.8a | 60.8a | 7.0 | <0.0001 |
| No | 107.7a | 75.0b | 33.9c | 15.2c | 5.3c | 31.7 | <0.0001 |

# Supplementary Table 10. The results of pairwise PERMANOVA analyses comparing vegetation types. Statistical significance was considered as P < 0.01 due to several pairwise comparisons.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vegetation types** | **Number data** |  | **Cover data** |  | **Presence data** |
| **R²** | **P** |  | **R²** | **P** |  | **R²** | **P** |
| Semi-closed forest vs. Closed shrubland | 0.188 | 0.001 |  | 0.383 | 0.001 |  | 0.289 | 0.001 |
| Semi-closed forest vs. Open forest | 0.052 | 0.041 |  | 0.097 | 0.004 |  | 0.200 | 0.001 |
| Semi-closed forest vs. Open shrubland | 0.139 | 0.001 |  | 0.374 | 0.001 |  | 0.319 | 0.001 |
| Semi-closed forest vs. Scrubland | 0.268 | 0.001 |  | 0.528 | 0.001 |  | 0.397 | 0.001 |
| Closed shrubland vs. Open forest | 0.169 | 0.001 |  | 0.263 | 0.001 |  | 0.360 | 0.001 |
| Closed shrubland vs. Open shrubland | 0.210 | 0.001 |  | 0.207 | 0.001 |  | 0.333 | 0.001 |
| Closed shrubland vs. Scrubland | 0.416 | 0.001 |  | 0.437 | 0.001 |  | 0.594 | 0.001 |
| Open forest vs. Open shrubland | 0.118 | 0.001 |  | 0.263 | 0.001 |  | 0.272 | 0.001 |
| Open forest vs. Scrubland | 0.220 | 0.001 |  | 0.374 | 0.001 |  | 0.321 | 0.001 |
| Open shrubland vs. Scrubland | 0.157 | 0.002 |  | 0.209 | 0.001 |  | 0.197 | 0.001 |

# Supplementary Figure 1. Rarefaction curves for Shannon diversity of mature individuals (A) and saplings (B) in the sampled transects.

****

**A**

****

**B**

# Supplementary Figure 2. Relative total number of mature individuals (A) and saplings (B), and relative total cover mature individuals (C) for two resprouting ability classes (yes: resprouter, no: non-resprouter) in each vegetation type.

**A **

**B **

**C **

# Supplementary Figure 3. Shepard plot for NMDS analyses of the number (a), cover (b), and presence (c) of mature individuals.



**a**



**b**



**c**