

# **Online Material**

**Table A.1.** Location of the sampled plots: municipality and Universal Transverse Mercator coordinates ( $Y$  and  $X$ ), ages of plots, percent canopy cover, species richness ( $R$ ) and Shannon diversity index ( $H'$ ).

| Plot no. | Municipality | $X$ (UTM) | $Y$ (UTM) | Type of forest | Age (years) | Canopy cover % | $R$ | $H'$ |
|----------|--------------|-----------|-----------|----------------|-------------|----------------|-----|------|
| 1        | Bilbao       | 509 000   | 4 790 000 | Oak            | > 120       | 70             | 27  | 2.8  |
| 2        | Lemoa        | 520 005   | 4 785 009 | Oak            | 41–60       | 70             | 26  | 3.2  |
| 3        | Zornotza     | 525 012   | 4 782 010 | Oak            | 21–40       | 70             | 21  | 3.2  |
| 4        | Arantzazu    | 517 993   | 4 776 958 | Oak            | 21–40       | 90             | 24  | 3.3  |
| 5        | Abadiño      | 531 984   | 4 775 994 | Oak            | > 120       | 90             | 21  | 3.5  |
| 6        | Berriz       | 535 009   | 4 778 020 | Oak            | < 20        | 70             | 26  | 2.9  |
| 7        | Larrabetzu   | 520 002   | 4 792 001 | Oak            | 41–60       | 80             | 25  | 1.6  |
| 8        | Durango      | 525 047   | 4 777 076 | Beech          | 41–60       | 80             | 34  | 2.5  |
| 9        | Zeanuri      | 523000    | 4771000   | Beech          | 21–40       | 90             | 16  | 0.8  |
| 10       | Mañaria      | 527 998   | 4 772 976 | Beech          | < 20        | 70             | 15  | 1.1  |
| 11       | Aramaio      | 534 009   | 4 770 003 | Beech          | 21–40       | 70             | 26  | 3.4  |
| 12       | Dima         | 526 000   | 4 774 000 | Beech          | > 100       | 90             | 21  | 2.0  |
| 13       | Abadiño      | 530 026   | 4 772 000 | Beech          | 41–60       | 70             | 30  | 2.3  |
| 14       | Berriz       | 534 975   | 4 781 030 | Beech          | 21–40       | 60             | 28  | 3.4  |
| 15       | Bedia        | 515 993   | 4 784 980 | Pine           | 21–40       | 80             | 17  | 3.1  |
| 16       | Iurreta      | 528 006   | 4 785 010 | Pine           | < 20        | 60             | 21  | 3.0  |
| 17       | Lemoa        | 517 995   | 4 782 005 | Pine           | 21–40       | 90             | 18  | 3.1  |
| 18       | Iurreta      | 530 998   | 4 781 030 | Pine           | < 20        | 90             | 35  | 3.3  |
| 19       | Mañaria      | 527 993   | 4 776 000 | Pine           | 21–40       | 70             | 35  | 2.9  |
| 20       | Areatza      | 516 010   | 4 772 971 | Pine           | 21–40       | 90             | 20  | 3.1  |
| 21       | Zeanuri      | 519 000   | 4 772 974 | Pine           | < 20        | 60             | 27  | 2.8  |

**Table A.2.** Spearman correlations between species diversity indices and plot area, fractal dimension ( $FD$ ), distance to the nearest patch (DNP), proximity index ( $Pi$ ), age of plot and percent canopy cover over plot.

|                  |     | Area (Ha) | $FD$   | DNP   | $Pi$ 500 | Age    | Canopy  |
|------------------|-----|-----------|--------|-------|----------|--------|---------|
| Mixed oak forest |     |           |        |       |          |        |         |
| Richness         | $r$ | 0.34      | 0.43   | −0.32 | −0.18    | 0.10   | −0.94** |
|                  | $p$ | 0.42      | 0.29   | 0.44  | 0.66     | 0.83   | 0.001   |
| Diversity- $H'$  | $r$ | 0.30      | 0.51   | 0.18  | −0.04    | 0.05   | 0.54    |
|                  | $p$ | 0.47      | 0.19   | 0.67  | 0.92     | 0.90   | 0.21    |
| Diversity- $D$   | $r$ | 0.29      | 0.61   | 0.18  | −0.08    | −0.02  | 0.69    |
|                  | $p$ | 0.48      | 0.11   | 0.66  | 0.84     | 0.97   | 0.08    |
| Beech forest     |     |           |        |       |          |        |         |
| Richness         | $r$ | −0.52     | 0.00   | 0.66  | −0.39    | −0.56  | 0.20    |
|                  | $p$ | 0.23      | 1.00   | 0.11  | 0.38     | 0.90   | 0.67    |
| Diversity- $H'$  | $r$ | −0.01     | −0.44  | 0.35  | −0.40    | 0.32   | 0.35    |
|                  | $p$ | 0.98      | 0.33   | 0.44  | 0.38     | 0.49   | 0.45    |
| Diversity- $D$   | $r$ | −0.07     | −0.48  | 0.45  | −0.29    | 0.49   | 0.40    |
|                  | $p$ | 0.88      | 0.28   | 0.31  | 0.53     | 0.27   | 0.37    |
| Pine plantations |     |           |        |       |          |        |         |
| Richness         | $r$ | −0.44     | −0.34  | 0.14  | 0.22     | 0.87*  | 0.32    |
|                  | $p$ | 0.32      | 0.45   | 0.76  | 0.63     | 0.01   | 0.48    |
| Diversity- $H'$  | $r$ | −0.68     | −0.85* | 0.63  | 0.11     | 0      | −0.28   |
|                  | $p$ | 0.09      | 0.02   | 0.13  | 0.81     | 1      | 0.54    |
| Diversity- $D$   | $r$ | −0.55     | −0.60  | 0.51  | −0.20    | −0.87* | −0.45   |
|                  | $p$ | 0.20      | 0.16   | 0.24  | 0.67     | 0.01   | 0.31    |

\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

**Table A.3.** Where species were found: 1 = mixed oak forest; 2 = beech forest; 3 = pine plantation.

|  |   |
|--|---|
| <i>Acer campestre</i> * 1 3                      | <i>Glecoma hederacea</i> * 1                  |
| <i>Ajuga reptans</i> * 1                         | <i>Leontodon hispidus</i> 1                   |
| <i>Alnus glutinosa</i> * 1 2 3                   | <i>Ligustrum vulgare</i> * 1                  |
| <i>Anemone nemorosa</i> * 2                      | <i>Lithodora prostrata</i> 1 3                |
| <i>Angelica sylvestris</i> 3                     | <i>Lonicera japonica</i> 1                    |
| <i>Apiaceae</i> sp. 2                            | <i>Lonicera periclymenum</i> * 1 2 3          |
| <i>Arbutus unedo</i> * 1 3                       | <i>Lotus corniculatus</i> 3                   |
| <i>Arum italicum</i> * 1 2                       | <i>Malus sylvestris</i> 3                     |
| <i>Asplenium scolopendrium</i> * 1               | <i>Merendera montana</i> 2                    |
| <i>r Asplenium trichomanes</i> 2                 | <i>Oxalis acetosella</i> * 2 3                |
| <i>Astracia major</i> 3                          | <i>Pinus radiata</i> 1 2 3                    |
| <i>Athyrium filix-femina</i> * 1 2 3             | <i>Plantago lanceolata</i> 2                  |
| <i>Betula celtiberica</i> 1 2                    | <i>Polystichum setipherum</i> * 1 2 3         |
| <i>Blechnum spicant</i> * 1 2 3                  | <i>Populus nigra</i> * 2 3                    |
| <i>Calluna vulgaris</i> * 1 2 3                  | <i>Potentilla erecta</i> 1 2 3                |
| <i>Cardamine hirsuta</i> 2                       | <i>Potentilla sterilis</i> 1 3                |
| <i>Carduus argemone</i> 3                        | <i>Primula veris</i> subsp. <i>columnae</i> 3 |
| <i>Carduus carpetanus</i> 1                      | <i>Prunus spinosa</i> * 1 2                   |
| <i>Castanea sativa</i> * 1 2 3                   | <i>Pteridium aquilinum</i> 1 2 3              |
| <i>Centaurea debeauxii</i> 3                     | <i>Pulicaria disenterica</i> 2                |
| <i>Chamaecyparis lawsoniana</i> 3                | <i>Quercus ilex ilex</i> * 1 3                |
| <i>Cirsium filipendulum</i> * 1                  | <i>Quercus pyrenaica</i> * 1                  |
| <i>Clematis vitalva</i> * 1 2                    | <i>Quercus pyrenaica/ffaginea</i> * 1         |
| <i>Conopodium pireaenaeum</i> * 1                | <i>Quercus robur</i> * 1 2 3                  |
| <i>Cornus sanguinea</i> * 1 2 3                  | <i>Quercus rubra</i> 1 2 3                    |
| <i>Corylus avellana</i> * 1 2 3                  | <i>Ranunculus bulbosus</i> 1 3                |
| <i>Crataegus monogyna</i> * 1 2 3                | <i>Ranunculus tuberosus</i> 1 3               |
| <i>Crocsmia aurea</i> 1                          | <i>Rhamnus alaternus</i> * 1                  |
| <i>Cruciata glabra</i> * 2 <i>Rosa</i> sp. 1 2 3 | <i>Robinia pseudoacacia</i> 1 3               |
| <i>Cytisus commutatus</i> 1                      | <i>Rubia peregrina</i> * 1 2 3                |
| <i>Daboecia cantabrica</i> 1 2 3                 | <i>Rubus</i> sp. 1 2 3                        |
| <i>Dactylis glomerata</i> 1                      | <i>Ruscus aculeatus</i> * 1 2                 |
| <i>Daucus carota</i> 2                           | <i>Salix atrocinerea</i> * 1 2 3              |
| <i>Dryopteris affinis affinis</i> * 1 2 3        | <i>Sanicula europaea</i> * 1                  |
| <i>Erica arborea</i> * 1                         | <i>Saxifraga hirsute</i> * 2                  |
| <i>Erica cinerea</i> 1 2 3                       | <i>Sibthorpia europaea</i> 2                  |
| <i>Erica vagans</i> 1 2 3                        | <i>Smilax aspera</i> * 1 2 3                  |
| <i>Euonymus europaeus</i> * 1 3                  | <i>Solidago virgaurea</i> 1 2 3               |
| <i>Eupatorium cannabinum</i> 1 3                 | <i>Sorbus aria</i> * 2                        |
| <i>Euphorbia amygdaloides</i> * 1 2 3            | <i>Sorbus aucuparia</i> * 2                   |
| <i>Euphorbia dulcis</i> * 1 2                    | <i>Stachis officinalis</i> 1 2 3              |
| <i>Fagus sylvatica</i> * 2 3                     | <i>Stellaria alsine</i> 2                     |
| <i>Frangula alnus</i> * 1 2 3                    | <i>Tamus communis</i> * 1 3                   |
| <i>Fraxinus excelsior</i> * 1 2 3                | <i>Taraxacum praestans</i> 2                  |
| <i>Geranium robertianum</i> 2                    | <i>Trifolium patens</i> 2                     |
| <i>Geum urbanum</i> * 1                          | <i>Trifolium repens</i> 1 2                   |
| <i>Hedera helix</i> * 1 2 3                      | <i>Ulex europaeus</i> 2                       |
| <i>Helleborus viridis</i> * 2                    | <i>Ulex galii</i> 1 2 3                       |
| <i>Hepatica nobilis</i> * 2                      | <i>Ulmus minor</i> 1                          |
| <i>Humulus lupulus</i> 1                         | <i>Vaccinium myrtillus</i> * 2 3              |
| <i>Hypericum androsaemum</i> * 1 2 3             | <i>Valeriana</i> sp. 2                        |
| <i>Hypericum pulchrum</i> * 2 3                  | <i>Veronica arvensis</i> * 2                  |
| <i>Hypericum hircinum</i> 2                      | <i>Veronica chamaedris</i> * 1 2              |
| <i>Ilex aquifolium</i> * 1 2 3                   | <i>Verónica montana</i> * 1                   |
| <i>Lamiaeum gabdeolon</i> * 1 2                  | <i>Veronica officinalis</i> * 1 2             |
| <i>Lathyrus linifolius</i> 2 3                   | <i>Vicia lathyroides</i> 1                    |
| <i>Laurus nobilis</i> * 1                        | <i>Viola riviniana</i> 1 2 3                  |

\* Species characteristic of deciduous forests (Aizpuru et al., 2007).