

Supplement S1. Comparison of pioneer vegetation, dry, rocky, and mesic grassland communities recorded in Muránska planina Mts. Constancies $\geq 20\%$ are in bold.

Beilage S1. Gekürzte Stetigkeitstabelle der Pioniervegetation, (Fels-)Trockenrasen und Frischwiesen im Untersuchungsgebiet (Muránska planina). Stetigkeiten $\geq 20\%$ sind fett gedruckt.

1. *Pulsatilla slavicae*-*Caricetum humilis* (*Astero alpini*-*Seslerion calcariae*, *Elyno*-*Seslerietea*)
2. *Seslerio calcariae*-*Festucetum tatrae* (*Astero alpini*-*Seslerion calcariae*, *Elyno*-*Seslerietea*)
3. *Minuartio langii*-*Festucetum pallentis* (*Astero alpini*-*Seslerion calcariae*, *Elyno*-*Seslerietea*)
4. *Jovibarbo-Sedetum albi* (*Alyso abyssoidis*-*Sedum albi*, *Sedo*-*Scleranthea*)
5. *Convallario majalis*-*Calamagrostietum variae* (*Calamagrostion variae*, *Mulgedio*-*Aconitetea*)
6. *Digitali ambiguae*-*Calamagrostietum arundinaceae* (*Calamagrostion arundinaceae*, *Mulgedio*-*Aconitetea*)
7. *Parietation officinalis* (*Thlaspietea rotundifolia*)
8. *Orphantho luteae*-*Caricetum humilis*, *Campanulo divergentiformis*-*Festucetum pallentis* (*Bromo pannonic*-*Festucion*, *Festuco*-*Brometea*)
9. *Salvio verticillatae*-*Festucetum rupicolae* (*Bromion erecti*, *Festuco*-*Brometea*)
10. *Arrhenatherion elatioris* (*Molinio*-*Arrhenatheretea*)

| Group No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------|----|----|----|----|---|---|---|----|----|----|
| No. of relevés | 48 | 10 | 10 | 45 | 6 | 6 | 5 | 65 | 30 | 40 |

Elyno-Seslerietea, Seslerietalia coeruleae

| | | | | | | | | | | |
|---|-----------|------------|-----------|----|----|-----------|---|-----------|----|---|
| <i>Pulsatilla subslavica</i> | 79 | 50 | 10 | . | . | . | . | 37 | . | . |
| <i>Phyteuma orbiculare</i> | 75 | 80 | 10 | . | . | 50 | . | 5 | . | 3 |
| <i>Polygala amara</i> ssp. <i>brachyptera</i> | 67 | 100 | 40 | 7 | 17 | 33 | . | 40 | 10 | . |
| <i>Thymus pulcherrimus</i> | 60 | 60 | 20 | 7 | 17 | . | . | 31 | . | . |
| <i>Saxifraga paniculata</i> | 54 | 80 | 70 | . | . | . | . | 18 | . | . |
| <i>Thesium alpinum</i> | 31 | 20 | . | 2 | . | . | . | 5 | . | . |
| <i>Gentiana clusii</i> | 21 | . | . | . | . | . | . | . | . | . |
| <i>Euphrasia salzburgensis</i> | 15 | 30 | 20 | 2 | . | . | . | 5 | . | . |
| <i>Ranunculus breyninus</i> | 10 | 30 | . | . | . | . | . | . | . | . |
| <i>Scabiosa lucida</i> | 4 | 20 | 20 | 11 | 17 | 33 | . | 8 | 13 | . |
| <i>Carduus glaucinus</i> | 2 | . | 40 | 4 | . | . | . | 11 | . | . |

Astero alpini-Seslerion calcariae

| | | | | | | | | | | |
|--|------------|-----------|-----------|----|-----------|-----------|---|-----------|---|---|
| <i>Sesleria albicans</i> | 100 | 70 | 60 | . | . | 33 | . | 43 | . | . |
| <i>Kernera saxatilis</i> | 46 | . | . | . | . | . | . | 8 | . | . |
| <i>Primula auricula</i> | 63 | 30 | 20 | . | . | . | . | 6 | . | . |
| <i>Minuartia langii</i> | 29 | 10 | 10 | 4 | . | . | . | 37 | . | . |
| <i>Dianthus praecox</i> | 25 | 60 | . | . | . | . | . | . | . | . |
| <i>Allium senescens</i> ssp. <i>montanum</i> | 8 | . | . | 11 | 33 | . | . | 18 | . | . |

Pulsatilla slavicae-Caricetum humilis

| | | | | | | | | | | |
|----------------------------|------------|-----------|-----------|---|-----------|-----------|---|-----------|---|---|
| <i>Daphne arbuscula</i> | 100 | 30 | . | . | . | . | . | 8 | . | . |
| <i>Campanula xylocarpa</i> | 38 | 10 | 60 | 7 | 50 | 50 | . | 37 | . | . |
| <i>Allium ochroleucum</i> | 19 | . | 10 | 7 | 17 | . | . | 22 | . | . |
| <i>Pulsatilla slavica</i> | 15 | . | . | . | . | . | . | 14 | . | . |
| <i>Rhodax rupifragus</i> | 15 | . | . | . | . | . | . | . | . | . |

Seslerio calcariae-Festucetum tatrae

| | | | | | | | | | | |
|----------------------------------|----|------------|-----------|---|---|----|---|---|----|---|
| <i>Festuca tatrae</i> | 19 | 100 | 20 | . | . | 17 | . | . | . | . |
| <i>Carex ornithopoda</i> | 15 | 30 | . | . | . | . | . | . | 10 | . |
| <i>Asplenium viride</i> | 8 | 20 | . | 2 | . | 17 | . | 2 | . | . |
| <i>Campanula cochleariifolia</i> | 10 | 20 | . | . | . | . | . | . | . | . |

Minuartio langii-Festucetum pallentis

| | | | | | | | | | | |
|-------------------------------|-----------|-----------|-----------|-----------|---|---|---|-----------|---|---|
| <i>Seseli osseum</i> | 63 | 30 | 40 | 31 | . | . | . | 65 | . | . |
| <i>Acinos alpinus</i> | 4 | . | 30 | 11 | . | . | . | 28 | 7 | . |
| <i>Campanula carpatica</i> | 6 | . | 20 | 11 | . | . | . | 3 | . | . |
| <i>Hieracium bupleuroides</i> | 19 | 10 | 30 | 2 | . | . | . | 8 | . | . |
| <i>Libanotis pyrenaica</i> | . | . | 20 | 9 | . | . | . | . | . | . |

Sedo-Scleranthea, Jovibarbo-Sedetum albi

| | | | | | | | | | | |
|------------------------------------|-----------|-----------|-----------|-----------|---|-----------|-----------|-----------|-----------|---|
| <i>Sedum album</i> | . | . | . | 87 | . | . | . | 20 | 26 | 7 |
| <i>Jovibarba globifera</i> | 56 | 40 | 60 | 56 | . | . | . | 49 | . | . |
| <i>Sedum acre</i> | . | . | . | 40 | . | . | . | 20 | 3 | . |
| <i>Asplenium ruta-muraria</i> | 67 | 40 | 90 | 40 | . | . | . | 51 | . | . |
| <i>Hylotelephium maximum</i> agg. | . | 20 | . | 36 | . | 50 | 40 | 3 | . | . |
| <i>Arenaria serpyllifolia</i> agg. | . | 10 | . | 22 | . | . | . | 5 | 20 | 3 |
| <i>Mulgedio-Aconitetea</i> , | . | . | . | . | . | . | . | . | . | . |

Convallario majalis-Calamagrostietum variae

| | | | | | | | | | | |
|--------------------------------|-----------|-----------|----|-----------|------------|----|---|-----------|----|---|
| <i>Calamagrostis varia</i> | 13 | 20 | . | 22 | 100 | . | . | 29 | 3 | . |
| <i>Convallaria majalis</i> | 4 | 10 | 10 | 4 | 67 | 17 | . | 3 | 10 | . |
| <i>Polygonatum odoratum</i> | 21 | 10 | . | 7 | 67 | . | . | 28 | 7 | . |
| <i>Melampyrum nemorosum</i> | 4 | . | . | . | 33 | . | . | 3 | . | . |
| <i>Pimpinella major</i> | . | . | . | 2 | 33 | . | . | 3 | 10 | . |
| <i>Chamaecytisus hirsutus</i> | 17 | . | . | 2 | 33 | . | . | 17 | . | . |
| <i>Melittis melissophyllum</i> | . | . | . | . | 33 | . | . | 2 | . | . |
| <i>Aquilegia vulgaris</i> | . | . | . | . | 33 | 17 | . | 10 | . | . |
| <i>Astrantia major</i> | . | . | . | 2 | 33 | . | . | . | . | . |
| <i>Cuscuta epithymum</i> | . | . | . | . | 33 | . | . | 2 | . | . |
| <i>Aster amelloides</i> | . | . | . | 11 | 33 | . | . | 5 | . | . |

Digitali ambiguae-Calamagrostietum arundinaceae

| | | | | | | | | | | |
|----------------------------------|---|----|----|----|------------|------------|---|---|----|---|
| <i>Calamagrostis arundinacea</i> | . | . | 10 | . | . | 100 | . | . | . | . |
| <i>Gentiana asclepiadea</i> | . | . | . | 17 | 100 | . | . | . | . | . |
| <i>Valeriana tripteris</i> | 6 | . | . | 17 | 100 | . | . | . | . | . |
| <i>Dryopteris filix-mas</i> | . | . | . | . | 83 | . | . | . | . | . |
| <i>Geranium sylvaticum</i> | . | . | . | . | 83 | . | . | 3 | . | . |
| <i>Polygonatum verticillatum</i> | . | . | . | 17 | 83 | . | . | 3 | . | . |
| <i>Mercurialis perennis</i> | . | 10 | . | . | 67 | . | . | . | . | . |
| <i>Luzula luzuloides</i> | . | . | . | . | 67 | . | . | . | . | . |
| <i>Ranunculus platantifolius</i> | . | . | . | . | 67 | . | . | . | . | . |
| <i>Epilobium montanum</i> | . | . | . | . | 50 | . | . | . | . | . |
| <i>Rubus saxatilis</i> | 2 | 10 | . | 17 | 50 | . | . | . | . | . |
| <i>Knautia maxima</i> | . | . | . | 17 | 50 | . | . | 3 | 3 | . |
| <i>Viola biflora</i> | . | . | . | . | 50 | . | . | . | . | . |
| <i>Rosa pendulina</i> | 2 | . | 2 | . | 50 | . | . | . | . | . |
| <i>Pulmonaria obscura</i> | . | . | . | 17 | 50 | . | . | . | . | . |
| <i>Rubus idaeus</i> | . | . | 10 | 2 | 50 | . | . | . | . | . |
| <i>Sorbus aucuparia</i> | 6 | 10 | . | . | 50 | . | . | . | . | . |
| <i>Senecio fuchsii</i> | . | . | . | . | 33 | . | . | . | . | . |
| <i>Silene dioica</i> | . | . | . | . | 33 | . | . | . | . | . |
| <i>Solidago virgaurea</i> | 2 | . | 2 | 17 | 33 | . | . | 3 | . | . |
| <i>Aconitum variegatum</i> | . | . | 10 | 17 | 33 | . | . | . | . | . |
| <i>Vaccinium myrtillus</i> | 2 | . | . | . | 33 | . | . | . | . | . |
| <i>Milium effusum</i> | . | . | . | . | 33 | . | . | . | . | . |
| <i>Cardaminopsis halleri</i> | . | . | . | . | 33 | . | . | 5 | . | . |
| <i>Phyteuma spicatum</i> | . | . | . | . | 33 | . | . | 3 | . | . |
| <i>Urtica dioica</i> | . | . | . | . | 33 | . | . | 3 | . | . |
| <i>Gymnocarpium dryopteris</i> | . | . | . | . | 33 | . | . | . | . | . |
| <i>Daphne mezereum</i> | . | . | . | 17 | 33 | . | . | . | . | . |
| <i>Lilium martagon</i> | 2 | . | . | 17 | 33 | . | . | 3 | . | . |
| <i>Viola tricolor</i> agg. | 2 | 10 | . | 2 | 33 | . | . | . | 10 | . |

Thlaspietea rotundifolia, Parietation officinalis

| | | | | | | | | | | |
|---|---|----|----|----|-----------|-----------|---|------------|----|---|
| <i>Geranium robertianum</i> | . | 10 | 10 | 20 | . | . | . | 100 | . | . |
| <i>Parietaria officinalis</i> | . | . | . | . | . | . | . | 20 | . | . |
| <i>Arabis turrata</i> | . | . | . | 9 | 60 | 2 | . | . | . | . |
| <i>Campanula trachelium</i> | . | . | 10 | 7 | 40 | . | . | . | . | . |
| <i>Alliaria petiolata</i> | . | . | . | . | 40 | . | . | . | . | . |
| <i>Mycelis muralis</i> | . | . | 10 | 4 | 40 | . | . | . | . | . |
| <i>Lamium maculatum</i> | . | . | . | 2 | 40 | . | . | . | . | . |
| <i>Carduus collinus</i> | . | . | . | 13 | 20 | . | . | . | . | . |
| <i>Valeriana stolonifera</i> ssp. <i>angustifolia</i> | . | . | . | 2 | 20 | . | . | . | . | . |
| <i>Fallopia convolvulus</i> | . | . | . | 4 | 20 | 2 | . | . | . | . |
| <i>Acer pseudoplatanus</i> | 8 | 10 | 10 | 4 | 17 | 20 | 3 | 17 | 10 | . |
| <i>Lathyrus vernus</i> | . | 10 | . | 17 | 20 | . | . | . | . | . |
| <i>Hedera helix</i> | . | . | . | . | 20 | . | . | . | . | . |
| <i>Cortusa matthioli</i> | . | . | . | . | 20 | . | . | . | . | . |
| <i>Lapsana communis</i> | . | . | . | 2 | 20 | . | . | . | . | . |
| <i>Prunus mahaleb</i> | 4 | . | . | 7 | 20 | 5 | . | . | . | . |
| <i>Lunaria rediviva</i> | . | . | . | . | 20 | . | . | . | . | . |
| <i>Cornus sanguinea</i> | . | . | . | 4 | 17 | 20 | 2 | . | . | . |

Festuco-Brometea

| | | | | | | | | | | |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|---|---|-----------|-----------|-----------|
| <i>Teucrium chamaedrys</i> | 10 | . | 10 | 31 | 67 | . | . | 82 | 33 | . |
| <i>Tithymalus cyparissias</i> | 33 | 20 | 20 | 13 | 17 | . | . | 80 | 20 | 3 |
| <i>Asperula cynanchica</i> | 56 | 30 | 10 | 18 | 50 | . | . | 63 | 7 | . |
| <i>Securigera varia</i> | 6 | 30 | 30 | 27 | 67 | . | . | 20 | 29 | 83 |
| <i>Dianthus carthusianorum</i> agg. | 6 | 10 | 20 | 38 | 33 | . | . | 37 | 50 | 3 |
| <i>Anthyllis vulneraria</i> | 19 | 40 | . | 7 | . | . | . | 31 | 60 | 8 |
| <i>Sanguisorba minor</i> | . | . | 20 | 18 | 17 | . | . | 25 | 63 | 10 |
| <i>Plantago media</i> | . | . | . | 2 | . | . | . | 6 | 73 | 45 |
| <i>Salvia pratensis</i> | . | . | . | 2 | . | . | . | 3 | 90 | 20 |
| <i>Carex caryophylla</i> | . | . | . | . | . | . | . | 3 | 70 | 15 |
| <i>Fragaria viridis</i> | . | . | 10 | . | 17 | . | . | 6 | 53 | 8 |
| <i>Galium verum</i> | . | . | . | . | . | . | . | 47 | 28 | . |
| <i>Scabiosa ochroleuca</i> | . | . | . | 2 | . | . | . | 17 | 33 | . |
| <i>Medicago falcata</i> | . | . | . | . | . | . | . | 3 | 43 | 10 |

Stipo pulcherrimae-Festucetalia pallentis

| | | | | | | | | | | |
|--|-----------|---|-----------|-----------|-----------|----|---|-----------|-----------|---|
| <i>Carex humilis</i> | 56 | . | 10 | 4 | 17 | . | . | 89 | . | . |
| <i>Helianthemum grandiflorum</i> ssp. <i>obscuro</i> | 31 | . | . | 20 | 33 | 17 | . | 78 | 20 | 5 |
| <i>Anthericum ramosum</i> | 29 | . | . | 16 | 67 | . | . | 85 | 17 | . |
| <i>Leontodon incanus</i> | 31 | . | 10 | 11 | . | . | . | 72 | 3 | . |
| <i>Teucrium montanum</i> | 23 | . | 10 | 9 | . | . | . | 68 | . | . |
| <i>Inula ensifolia</i> | 21 | . | . | 4 | 17 | . | . | 43 | 3 | . |
| <i>Bupleurum falcatum</i> | 17 | . | 30 | 29 | 67 | . | . | 18 | . | . |

Bromo pannonic-Festucion pallentis

| | | | | | | | | | | |
|---------------------------|-----------|-----------|------------|-----------|-----------|---|---|-----------|---|---|
| <i>Festuca pallens</i> | 60 | 40 | 100 | 29 | 33 | . | . | 63 | . | . |
| <i>Campanula sibirica</i> | 2 | . | . | 20 | 17 | . | . | 40 | . | . |
| <i>Allium flavum</i> | 8 | . | . | 9 | . | . | . | 17 | . | . |
| <i>Melica ciliata</i> | . | . | . | 18 | 17 | . | . | 14 | . | . |
| <i>Linum tenuifolium</i> | . | . | . | . | . | . | . | . | . | . |

Orphantho luteae-Caricetum humilis and Campanulo divergentiformis-Festucetum pallentis

| | | | | | | | | | | |
|--------------------------------|----|----|----|----|-----------|---|---|-----------|-----------|----|
| <i>Colymbada scabiosa</i> | . | . | 10 | 7 | 33 | . | . | 54 | 37 | 15 |
| <i>Hippocrepis comosa</i> | 4 | . | . | 2 | . | . | . | 51 | 20 | . |
| <i>Cyanus triumfettii</i> | 19 | . | 10 | 2 | 17 | . | . | 38 | . | . |
| <i>Galium glaucum</i> | 15 | . | . | 2 | . | . | . | 29 | . | . |
| <i>Epipactis atrorubens</i> | 6 | 10 | . | 2 | 17 | . | . | 25 | . | . |
| <i>Tithymalus epithymoides</i> | 4 | . | . | 11 | 17 | . | . | 22 | . | . |
| <i>Knautia kitaibelii</i> | . | . | . | . | . | . | . | 17 | | |