Use of site-specific regional seed mixtures for re-vegetation of road embankments in Austria

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Status quo

- Infrastructural interventions: slopes and open areas in intensively used landscapes (arable land)
- Thick humus layer with diaspores of weeds and high nutrient content
- Rules, standards of the structure of slope stabilization of road embankments
- Actual standard in discrepancy to the establishment of site-specific vegetation
Aims

- Offer an alternative to commercial seed mixtures: site-specific regional seed mixture
- Establishment of plant communities of high nature value
- Re-vegetation of the road embankment
- Protection against erosion
Road embankment St. Veit/Glan

- Site description: altitude 470 m, exposition south, inclination 45°
- Slope preparation: without humus layer
- Restoration technique: black green system
  - Hydro-seeding
  - straw layer
  - Bitumen emulsion
- Site specific regional seed mixture: 10 g/m²

Site-specific regional seed mixture

<table>
<thead>
<tr>
<th>Species</th>
<th>Percentage</th>
<th>Species</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phleum phleoides</td>
<td>0.28</td>
<td>Trifolium arvense</td>
<td>2.92</td>
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<tr>
<td>Poa compressa</td>
<td>5</td>
<td>Trifolium campestris</td>
<td>0.8</td>
</tr>
<tr>
<td>Poa bulbosa</td>
<td>3.6</td>
<td>Trifolium dubium</td>
<td>2</td>
</tr>
<tr>
<td>Poa angustifolia</td>
<td>10</td>
<td>Anthyllis vulneraria</td>
<td>2</td>
</tr>
<tr>
<td>Festuca nigrescens</td>
<td>16</td>
<td>legumes (total)</td>
<td>7.72</td>
</tr>
<tr>
<td>Festuca rupicola</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Festuca ovina</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Koeleria macrantha</td>
<td>9</td>
<td>Euphorbia cyparissias</td>
<td>0.8</td>
</tr>
<tr>
<td>Anthoxantum odoratum</td>
<td>9</td>
<td>Thymus pulegioides</td>
<td>0.8</td>
</tr>
<tr>
<td>Koeleria pyramidata</td>
<td>5</td>
<td>Leontodon hispidus</td>
<td>0.8</td>
</tr>
<tr>
<td>grasses (total)</td>
<td>89.88</td>
<td>herbs (total)</td>
<td>2.4</td>
</tr>
<tr>
<td>legumes (total)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>herbs (total)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Hydro-seeding

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Straw layer

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Classification of the species referring to their ecological value

- **Group 1**: site-specific species, growing naturally under given site conditions
- **Group 2**: site-adapted species, not site-specific but sustainable under given site conditions
- **Group 3**: non-site-adapted species, naturally not occurring under the specific climatic and site conditions

Comparison of seed mixtures on road embankment without humus layer

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Conclusions

- Higher cost for set up: technique with mulch layer – handicaps the development of herbs
- Low biomass production, low costs for maintenance
- Slow growing, but long staying, persistent
- High nature value: seeds from regional origin (no flora falsification)
- High biodiversity on diaspore free and low nutrient content soil

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Thank you for your Attention

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