Indicator plants of the High Nature Value dry grasslands of Transylvania

John Akeroyd and Sabin Bădărău
Indicator plants of the High Nature Value dry grasslands of Transylvania

Introduction

The meadows and pastures of southern Transylvania represent some of Europe’s most intact traditional farm grasslands. Large areas of low-intensive management practices, with mixed farming, little or no fertilizer input and generally low stocking densities, have allowed a huge diversity of wild flowers and wildlife to survive in what is one of the largest tracts left in Europe of High Nature Value (HNV) grassland. Not only do many species of plants and animals that have disappeared throughout of Europe persist in this special habitat, together with local rarities, but also the grasslands are a beautiful sight in summer. The dry grasslands, mostly found on slopes and well-drained soils, are particularly flower-rich. They are as much a part of the cultural identity of southern Transylvania as the fortified Saxon churches, and like them are increasingly attracting visitors from other parts of Europe. The area is not, however, a museum but a living landscape that yields income to farming communities and will contribute substantially to economic development in the region.

The rich mix of grasses and wildflowers includes many plants valuable for animal nutrition, especially clovers, sainfoin and other legumes (members of the pea and bean family). The plant life sustains insects and other invertebrates, birds and mammals, all part of the essential ecological structure of the landscape. Many of these animals help to control agricultural pests. This biodiversity is a precious resource to be conserved, which is why such farm grasslands are a priority for EU agriculture. The Transylvanian grasslands demonstrate how once-widespread land-use and farming systems associated with rich biodiversity, including fodder crops and other species required for plant breeding, may yet be a model for the agricultural and conservation policies needed to restore farmland habitat diversity across Europe.

The future of the Transylvanian grasslands needs careful strategic planning to counter economic threats and highlight their importance
to European conservation. Although traditional farmers have not consciously managed grasslands for wild flowers or even to protect biodiversity, ecologists have long recognized that grasslands managed by well-established methods are the richest in this biodiversity. HNV grasslands are sensitive to nutrient enrichment and not only does nitrogen fertilizer remove ecologically sensitive and important plant species, but also grasslands that receive heavy fertiliser treatments release nitrates and other pollutants into water-courses.

**Management of grasslands for the environment**

Elsewhere in Europe, intensive farming, with increased use of chemical fertilizers and higher livestock densities, has degraded or destroyed grassland biodiversity. This sort of management both increases costs and often requires specially bred livestock and higher veterinary bills. There is too a high environmental cost — as carefully and traditionally managed grasslands play so many vital roles, in addition to their store of biodiversity, in maintaining the ‘public goods and services’ that arise from a healthy and stable environment. Grasslands reduce or prevent soil erosion, especially in such a geologically unstable area as the Saxon Villages, and they catch and purify rain to release clean water into rivers. Permanent grasslands store carbon that might otherwise be present as high levels of the atmospheric ‘greenhouse’ gases regarded as driving climate change. Wildflower-rich grasslands generate income from tourism, offering tourists an ideal place for horse riding, walking, painting and natural history. High quality traditional food products with a distinctive regional identity, originating from this healthy environment, are valued by consumers and demand premium prices.

**Agri-environment payments for wildflower-rich grassland**

Since 2008, farmers have received payments for maintaining their HNV grasslands if they manage them traditionally to encourage wild flowers and wildlife. Under the EU’s agri-environment schemes for grassland management, grazing or the cutting of hay is allowed — but only farmyard manure or minimal amounts of chemical fertiliser may be applied to the land. General requirements for such grassland
management are:

- No use of chemical fertilizer or application at very low levels, or the use of organic manures only.
- Low stocking rates, perhaps one or fewer animals per hectare.
- Cutting by machinery and starting to cut at a later date to protect ground-nesting birds, or cutting by scythe or small machine.

The following section lists and briefly describes a selection of wild flower species that indicate HNV dry grassland.

These 30 plants of dry grassland are easily identified and widespread, although some are locally scarce. Most of them flower in June-July but a few flower in spring or persist well into autumn.
Yellow Pheasant’s-eye
*Adonis vernalis*

Forming upright clumps of feathery leaves and yellow flowers, usually on south-facing slopes, often in large numbers; protected but widely collected as a medicinal plant.

**Height** 10-45 cm  
**Flower size** 20-40 mm across  
**Flowering season** April–early May

---

Hairy Violet
*Viola hirta*

Only conspicuous in early spring, a low-growing, tufted plant with long-stalked, heart-shaped hairy leaves and unscented, pale or dark violet flowers.

**Height** 10-30 cm  
**Flower size** 15-25 mm long  
**Flowering season** April–early May

---

Military Orchid
*Orchis militaris*

A robust, upright orchid, with conical or cylindrical purplish-pink flower-spikes from late spring; the broad, pale green leaves are oval and always unspotted.

**Height** 30-50 cm  
**Flower size** c.1.5 mm long, in a dense spike  
**Flowering season** May–June
Three-toothed Orchid
*Orchis tridentata*

A small orchid, with unspotted spear-shaped leaves and a slightly untidy, short cylindrical spike of pink flowers dotted and lined darker purplish-pink.

**Height** 10-30 cm  
**Flower size** 3-5 mm long  
**Flowering season** May-June

Buzdugan
*Jurinea*

*Jurinea mollis*

A tall elegant thistle with cobweb-like hairs, upright stems that are leafless in the upper part, and large solitary reddish-purple flower-heads in early summer.

**Height** 30-100 cm  
**Flower size** 20-50 mm across  
**Flowering season** late May-June

Frăsinel
*Burning Bush*

*Dictamnus albus*

An upright, shrub-like plant, especially on steep slopes with scrub, with leaves in 3-6 irregular pairs and conspicuous, dark-veined pink flowers in long clusters.

**Height** 30-80 cm  
**Flower size** 40-50 mm across  
**Flowering season** late May-June
**Nodding Sage**

*Salvia nutans*

Steep, south-facing, often in large numbers, flowering in early summer; the distinctive nodding violet flower-heads become upright as the seeds grow.

- **Height**: 40-150 cm
- **Flower size**: 12-16 mm long, in dense heads
- **Flowering season**: late May-June

**Large Speedwell**

*Veronica austriaca*

A rather slender, erect plant with flower-spikes in pairs, mostly growing in pastures, flowering in early summer; the similar but smaller *Veronica prostrata* flowers in spring.

- **Height**: 20-80 cm
- **Flower size**: 10-12 mm across
- **Flowering season**: May-June

**Greater Milkwort**

*Polygala major*

Superficially orchid-like, with crimson flowers in long, loose clusters, a showy plant forming patches in meadows and pastures, sometimes flowering well into autumn.

- **Height**: 15-50 cm
- **Flower size**: 10-15 mm long
- **Flowering season**: May-September
Purple Viper’s-grass

*Scorzonera purpurea subsp. purpurea*

A slender, branched plant with grass-like leaves and solitary, upright, branched flowering stems, each with several pale lilac flowers.

**Height** 20-60 cm  
**Flower size** flower-heads 20-30 mm across  
**Flowering season** late May-July

Red Viper’s-bugloss

*Echium maculatum*

An upright, unbranched bristly plant, especially on hillocks and slopes, often with a single stem and with numerous narrow leaves and long spikes of dark red flowers.

**Height** 25-60 cm  
**Flower size** 9-12 mm long  
**Flowering season** May-June

Yellow Flax

*Linum flavum*

A conspicuous, upright hairless plant, often on steeper slopes; other species of wild flax, with blue, pink or white flowers, also indicate HNV grassland.

**Height** 20-40 cm  
**Flower size** 20-25 mm across  
**Flowering season** May-July
In mare

**Hairy Flax**

*Campanula sibirica*

An upright, branched, hairy plant, with oval or narrowly oval leaves and clusters of numerous, rather pale blue flowers.

**Height** 20-50 cm  
**Flower size** 15-25 mm long  
**Flowering season** June to August

---

**Siberian Bellflower**

*Campanula sibirica*

A hairy plant, the tough upright stems solitary or in a group, with spear-shaped, bluntly toothed leaves and a loose cluster of nodding bell-shaped blue flowers.

**Height** 20-50 cm  
**Flower size** 15-25 mm long  
**Flowering season** June-August

---

**White Dwarf-broom**

*Chamaecytisus albus*

A hairy, more or less upright leafy plant, the leaves with 3 leaflets, the pea-like flowers 5-8 in flattish heads, white or cream.

**Height** 20-60 cm  
**Flower size** 15-20 mm long  
**Flowering season** June-August
**Kidney Vetch**  
*Anthyllis vulneraria*

An upright or spreading plant with slender leafy stems, leaves with paired leaflets and one larger end-leaflet, and domed clusters 2-3 cm across of yellow or orange flowers.

- **Height**: 20-50 cm  
- **Flower size**: 15-18 mm long  
- **Flowering season**: late May to July

---

**Charterhouse Pink**  
*Dianthus carthusianorum*

An upright tufted plant, with pairs of narrow, pointed, spear-shaped leaves along the stems and bright pink flowers in dense clusters surrounded by brown scales.

- **Height**: 30-65 cm  
- **Flower size**: 10-20 mm across  
- **Flowering season**: May-August

---

**Mountain Clover**  
*Trifolium montanum*

A short-hairy, upright plant with long-stalked, round flower-heads, white fading to brown, often growing with rarer species; other clovers, with pink, purplish or yellow flowers, also occur.

- **Height**: 30-60 cm  
- **Flower size**: 7-9 mm long, in dense heads  
- **Flowering season**: June-September
Sainfoin

*Onobrychis viciifolia*

A short-hairy, sprawling plant of flower-rich meadows and slopes, the leaves with 6-14 pairs of leaflets, the pea-like dark-veined pink flowers in stalked clusters 3-8 cm.

**Height** 30-75 cm  
**Flower size** 8-14 mm long  
**Flowering season** June-September

Squinancywort

*Asperula cynanchica*

A sprawling, rather untidy plant with slender stems, short needle-like leaves in 2s or 4s, and numerous small flowers.

**Height** 10-35 cm  
**Flower size** c.5 mm long  
**Flowering season** June-September

Lady’s Bedstraw

*Galium verum*

An upright short-hairy plant, with small fragrant flowers in branched clusters, and needle-like leaves in whorls of 8-12, especially in hay-meadows; St John’s day ritual herb.

**Height** 20-120 cm  
**Flower size** 2-3.5 mm across, in dense masses  
**Flowering season** June-August
**Coronistea**  
**Crown Vetch**  
*Coronilla varia*

A robust sprawling plant with branched zigzag stems, leaves with numerous leaflets and dense stalked heads of pink pea-like flowers.

**Height** 30-120 cm long  
**Flower size** 10-15 mm long, in heads 3-5 cm across  
**Flowering season** June-August

**Busuiocel roz**  
**Wall Germander**  
*Teucrium chamaedrys*

A low-growing woody plant of slopes and banks, forming dense leafy patches, with long heads of dark purplish-pink flowers.

**Height** 10-40 cm  
**Flower size** c.10 mm long  
**Flowering season** June to September

**Sulîţica**  
**Dorycnium**  
*Dorycnium pentaphyllum subsp. herbaceum*

A short-hairy, more or less upright or sprawling plant, the leaves with 5 leaflets, the compact stalked heads with 12-25 pea-like white flowers.

**Height** 20-60 cm  
**Flower size** 3-5 mm long  
**Flowering season** June-September
Sipica albă

**Yellow Scabious**  
*Scabiosa ochroleuca*

A slender, upright branched plant that flowers through the summer, with a few of the pale yellow or cream flowers persisting well into autumn.  
**Height** 30-80 cm  
**Flower size** flower-heads 20-30 mm across  
**Flowering season** June-September

---

Busuioc de câmp

**Greater Self-heal**  
*Prunella grandiflora*

A hairy plant with oval leaves and purple-blue flowers in dense heads. Another species, *Prunella laciniata*, with toothed leaves and pale yellow flowers, also occurs in dry pastures.  
**Height** 20-40 cm  
**Flower size** 25-30 mm long, in compact heads  
**Flowering season** June-September

---

Ochiul galben

**Sword-leaved Fleabane**  
*Inula ensifolia*

An upright, almost hairless daisy, sometimes forming large patches on dry slopes, with numerous narrow, pointed leaves and usually solitary golden-yellow flowers.  
**Height** 10-40 cm  
**Flower size** 30-50 mm across  
**Flowering season** July-August
**Fringed Gentian**

*Gentianopsis ciliata*

A small upright plant with spear-shaped leaves and showy blue flowers, solitary or in clusters, the petals edged with whitish hairs, flowering in autumn.

- **Height**: 10-30 cm
- **Flower size**: 20-30 mm across
- **Flowering season**: September-October

---

**Deptford Pink**

*Dianthus armeria*

A branched upright plant of pastures, with pairs of narrow, pointed, spear-shaped leaves along the stems and spotted, dark pink flowers in small leafy clusters.

- **Height**: 20-50 cm
- **Flower size**: 10-15 mm across
- **Flowering season**: late June-August

---

**Wild Thyme**

*Thymus glabrescens*

A low-growing, rather woody plant, especially in the shorter grass of pastures and on ant-hills, with purplish-pink flowers in dense heads; the leaves smell when bruised.

- **Height**: 5-15 cm
- **Flower size**: 6-8 mm long
- **Flowering season**: June-September

---

**Trămbița ciobanului**

*Garofița*

*Deptford Pink*

*Dianthus armeria*

A branched upright plant of pastures, with pairs of narrow, pointed, spear-shaped leaves along the stems and spotted, dark pink flowers in small leafy clusters.

- **Height**: 20-50 cm
- **Flower size**: 10-15 mm across
- **Flowering season**: late June-August

---

**Trămbița ciobanului**

*Fringed Gentian*

*Gentianopsis ciliata*

A small upright plant with spear-shaped leaves and showy blue flowers, solitary or in clusters, the petals edged with whitish hairs, flowering in autumn.

- **Height**: 10-30 cm
- **Flower size**: 20-30 mm across
- **Flowering season**: September-October
The aim of the STIPA project is to improve the conservation of two dry grassland habitats in the Sighisoara-Tarnava Mare Natura 2000 site which are of European priority importance under the EU Habitats Directive:

- **6210** Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) with important orchid sites
- **6240** Sub-Pannonic steppic grasslands

The wild flowers in this book are an important indication of the presence of rare dry grasslands, whose conservation is of European importance.

We hope that this booklet will encourage local people, including the farmers who manage these grasslands, schoolchildren, students and others, to take an active part in the STIPA project.

We can all help to preserve this natural heritage by working together.

**Author:** John Akeroyd, Fundația ADEPT Transilvania.

**Publisher:** Fundația ADEPT Transilvania, February 2012.

**Scientific advisors:** Sabin Bădarău and Laura Sutcliffe.

**Photos:** Bob Gibbons, except Amanda Patton (*Orchis tridentata*, *Scorzonera purpurea*), Cassie Bradley, Fauna and Flora International (cover photo) and Laura Sutcliffe (*Dianthus armeria*, *Scabiosa ochroleuca*).

**Series Editor:** John Akeroyd and Nat Page.

Produced by Fundația ADEPT Transilvania as part of EU LIFE+ project LIFE09 NAT/RO/000618

**STIPA**

Târnava Mare SCI: Saving Transylvania’s Important Pastoral Ecosystems

Project supported by EU LIFE+ and Orange Romania