MG7
Lolium perenne leys and related grasslands
Lolio-Plantaginion Sissingh 1969 *p.p.*

The widespread use of cultivars of *Lolium perenne* and other grasses and the development of a range of distinctive styles of intensive grassland treatment have produced a wide variety of specialised grass-dominated and species-poor swards throughout lowland Britain. Some of these are highly productive short-term agricultural grasslands used for grazing or mowing in rotation with arable farming; others are permanent amenity and recreational swards developed for their resistance to heavy use. Many stands of these grasslands have been specially sown on prepared soils but others have arisen by seeding in to meadows and pastures. Where they pass into permanent agricultural use, they generally come to resemble the *Lolio-Cynosuretum*; if subject to very heavy trampling, they frequently degenerate to the more open, weedy communities of the same Alliance, the Lolio-Plantiginion.

Lolium perenne-Trifolium repens leys

L. perenne is the only constant in the very species-poor swards included here and it is generally dominant, although where the vigorous *L. multiflorum* or *L.* × *hybridum* (= *L. perenne* × *multiflorum*) or cultivars of *Phleum pratense* ssp. *pratense* have been included in the seed mixtures, these may attain local prominence. *Trifolium repens* is frequent and sometimes abundant and there is often a little *Dactylis glomerata*. *Taraxacum officinale* agg., *Ranunculus repens* and *Trifolium pratense* occur occasionally at low cover. On patches of bare soil, annual weeds such as *Poa annua*, *Capsella bursa-pastoris*, *Stellaria media* and *Chamomilla suaveolens* may gain a hold. Bryophytes are generally absent.

Grasslands of this type are generally sown as part of an arable/ley rotation and are especially valuable for hay or silage with their predominance of tall grasses and for grazing with their rapid growth of aftermath. Provided heavy applications of artificial fertilisers are maintained, the vegetation is highly productive, although, in older swards, coarser grasses such as *D. glomerata* and *Holcus lanatus* tend to expand and *Cynosurus cristatus* may invade. Perennial weeds such as *Sonchus arvensis* and *Cirsium arvense* may become tenacious in neglected stands but judicious treatment can convert the vegetation into productive *Lolio-Cynosuretum*.

Lolium perenne-Poa trivialis leys

The grasslands of this type are somewhat more species-rich than the *Lolium-Trifolium* leys. *L. perenne* and *P. trivialis* are usually co-dominant but *D. glomerata*, *P. pratense* ssp. *pratense* and *T. repens* are also constant and may be abundant. In older stands, *Festuca rubra*, *Agrostis capillaris* and *H. lanatus* become more frequent. Dicotyledons are relatively few but *Cerastium fontanum* and *T. officinale* agg. occur commonly and *Ranunculus repens*, *Rumex obtusifolius* and *R. crispus* can become persistent weeds. Bryophytes usually become established on areas of bare soil and *Brachythecium rutabulum* and *Eurhynchium praelongum* are both frequent.

Poa trivialis and *Phleum pratense* ssp. *pratense* have both been widely included in seed mixtures for grasslands on moister soils, although the vigorous mat-like growth of the former may hinder the development of more valuable species in the sward. This type of ley seems to be commoner in the north and is perhaps a more permanent community than the *Lolium-Trifolium* ley. Apart from the absence of *Cynosurus cristatus*, it bears a general resemblance to the Typical *Lolio-Cynosuretum*, to which it can be converted under a permanent pasture regime.

Lolium perenne-Alopecurus pratensis-Festuca pratensis grassland

Water meadows Fream 1888*a*, Duffey *et al.* 1974, Ratcliffe 1977, all *p.p.*; *Alopecuro-Festucetum pratensis* Page 1980

The tall species-poor swards of this community are generally dominated by mixtures of *A. pratensis*, *F.*

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pratensis and *L. perenne*. *A. pratensis* tends to be especially conspicuous early in the growing season, forming almost pure clumps of vigorous, dark green herbage. *F. pratensis* expands later and may assume dominance by mid-summer. *L. perenne* tends to be more prominent where stands are grazed and, where *F. pratensis* and *L. perenne* occur in close proximity, the intergeneric hybrid × *Festulolium loliaceum* may occur as vigorous clumps. Other frequent grasses are *P. trivialis* and *D. glomerata* and, in some older swards, there is abundant *H. lanatus* and *Agrostis stolonifera*. *Alopecurus geniculatus* and *Glyceria fluitans* may be prominent on permanently wet and puddled ground. The dicotyledonous component of the sward is generally not well developed, although it is somewhat more varied than in the *Lolium-Trifolium* and *Lolium-Poa* leys. *T. repens*, *C. fontanum* and *Ranunculus acris* are frequent at low cover and *T. pratense*, *Plantago lanceolata*, *Rumex acetosa* and *Lathyrus pratensis* occur occasionally. *Cirsium arvense* and *Ranunculus repens* are sometimes prominent.

This distinctive grassland is typically found on seasonally-flooded stretches of lowland river valleys in central and southern England and south Wales. It is particularly frequent along the Hampshire Avon, the Sussex Ouse and around the mid-reaches of the Severn in Gloucestershire, Warwickshire and Hereford and Worcester. Here it often forms extensive uniform stands on alluvial soils and drained fen peats. The vegetation is often under water for a considerable part of the winter and soils may remain wet for most of the year, although they are often light-textured and can be readily drained. Most stands are used for grazing by cattle (the ground being often too wet for sheep) but the sward is highly susceptible to poaching if used in winter. The regular deposition of silt helps maintain fertility but in many cases ploughing and re-seeding with *A. pratensis* and *F. pratensis* (both valuable grasses on moister soils) have been used to increase productivity. The community also occurs more widely as small stands in wet depressions within meadows, when it forms part of an annual hay crop, and on damp road verges. It often grades to the *Holcus-Deschampsia* community on heavy gleyed soils and to the *Festuca-Agrostis-Potentilla* inundation grassland on less well-managed and brackish sites.

It seems likely that some of the river-valley stands of this community have been derived from the vegetation of traditionally managed water-meadows. These have been either neglected during the present century, running to scrub and woodland, or converted by intensive drainage and management to the *Lolio-Cynosuretum*. However, the grass component of the working water-meadow (Fream 1888*a*, Duffey *et al.* 1974) was very similar to that here and it is possible that where annual inundation by standing water has replaced regular controlled inundation by running water, this community represents a modified relic of a now defunct style of grassland management. On West Sedgemoor on the Somerset Levels, the community occurs upslope from the *Cynosurus cristatus-Caltha palustris* flood-pasture, the vegetation which perhaps represents the natural precursor of the traditional flood-meadow community (see also O'Sullivan 1968*b*).

***Lolium perenne-Alopecurus pratensis* grassland**

Lolium perenne-Alopecurus pratensis Nodum Page 1980

Apart from the absence of *Festuca pratensis*, the floristics of this grassland resemble those of the *Lolium-Alopecurus-Festuca* flood-pasture. *L. perenne* and *A. pratensis* are generally co-dominant as a tall sward with smaller amounts of *D. glomerata*. *H. lanatus*, *Agrostis capillaris*, *A. stolonifera* and *Anthoxanthum odoratum* are occasional. The most frequent dicotyledons are *Taraxacum officinale* agg., *Ranunculus repens*, *Cerastium fontanum*, *Rumex acetosa* and *Trifolium pratense*. Bryophytes are sparse.

This community is commonly treated as hay-meadow, although it is occasionally encountered in damp pastures and on road verges. It is most characteristic of moist and fertile alluvial soils in lowland river valleys where there is less frequent inundation and/or better drainage than is characteristic of the *Lolium-Alopecurus-Festuca* flood-pasture. It is one stage nearer the *Lolio-Cynosuretum* than that community and a sequence of the three vegetation types in relation to soil moisture can be seen at West Sedgemoor on the Somerset Levels.

***Lolium perenne-Plantago lanceolata* grassland**

Lolio-Plantaginetum (Link 1921) Beger 1930 *emend.* Sissingh 1969

The composition of the somewhat varied swards included here depends largely on age. Young stands are generally dominated by *L. perenne* with some *T. repens*, the two species most commonly included in seed mixtures. With age, the cover of *L. perenne* tends to decline as it is partially replaced by *H. lanatus* and *D. glomerata* and, to a lesser extent, by *F. rubra*, *A. capillaris* and *P. trivialis*. In these older stands, *Plantago lanceolata* becomes constant and it may be abundant, especially where the sward is kept short. *P. major* and *Taraxacum officinale* agg. are also very frequent, the latter being especially conspicuous in spring on verge edges when it is flowering. *Cerastium fontanum*, *Bellis perennis*, *Rumex acetosa*, *Trifolium pratense*, *T. dubium* and *Vicia sativa* ssp. *nigra* are occasional. *Brachythecium rutabulum* and *Eurhynchium praelongum* occur scattered through the

sward and the former sometimes attains abundance on damp patches of bare soil.

The community occurs widely on re-seeded verges and lawns which are regularly mown and which receive only moderate trampling. Restriction of mowing to an annual cut and an absence of trampling may permit the invasion of *Arrhenatherum elatius* and the development of an *Arrhenatheretum*. Heavy trampling on verge edges and around gateways opens up the sward and leads to the development of the more weedy communities of the Lolio-Plantaginion. If stands are grazed and fertilised, they can be readily converted to the *Lolio-Cynosuretum*.

***Lolium perenne-Poa pratensis* grassland**

Poo-Lolietum perennis De Vries & Westhoff *apud* Bakker 1965

In general, this vegetation resembles the *Lolio-Plantaginetum* but here the most prominent species are grasses with conduplicate leaves (*L. perenne*, *P. pratensis* and *D. glomerata* usually co-dominate), rosette dicotyledons resistant to heavy trampling (e.g. *Plantago major* and *Bellis perennis*) and ephemerals of open ground (e.g. *Poa annua*, *Capsella bursa-pastoris* and, especially where dogs urinate, *Hordeum murinum*). Bryophytes are frequent with *Brachythecium rutabulum* and *Eurhynchium praelongum* the most common species.

P. pratensis is not a widely-used agricultural grass but it is commonly included in seed mixtures for banks, verges and coarse recreational swards where there is substantial trampling pressure. The vegetation can survive fairly heavy use but in wet weather the sward may be broken up with severe poaching. It is also somewhat sensitive to drought, when foliage destroyed by trampling cannot quickly be replaced. *Poa annua* is readily able to exploit bare patches which originate in these ways and, without remedial action, weedy Lolio-Plantaginion vegetation may develop. The community is also commonly found as a transitional zone between such vegetation in gateways and intact pasture of the *Lolio-Cynosuretum* beyond.

Floristic table MG7

	a	b	c	d	e	f
Lolium perenne	V (1–9)	V (2–9)	IV (2–7)	V (4–8)	V (2–8)	V (3–9)
Phleum pratense pratense	II (1–5)	IV (1–6)	I (3–5)	I (3)	I (3–4)	I (2–7)
Poa trivialis	I (3–4)	V (3–8)	III (2–6)	II (3–6)	II (2–5)	I (3)
Lolium multiflorum	II (2–6)					
Alopecurus pratensis		I (3)	V (2–8)	V (2–7)	I (1)	
Festuca pratensis	I (2)	I (3–5)	V (1–8)			I (2–5)
Ranunculus acris	I (2–4)	I (2–3)	III (2–5)	II (3–5)	I (3)	I (1–3)
Rumex acetosa		I (1)	III (1–4)	III (1–4)	II (2)	I (1–4)
Agrostis stolonifera		I (4–5)	II (2–8)	II (2–5)	I (3–4)	I (1–2)
Anthoxanthum odoratum	I (8)		II (3–6)	II (4–5)		
Lathyrus pratensis			II (2–3)	I (4)		
Plantago lanceolata	I (3)	I (3)	II (1–4)	II (2–4)	V (2–5)	III (2–4)
Poa pratensis		I (1–2)	I (3)	II (2–4)	I (2)	V (3–9)
Plantago major	I (5)	I (1–5)			III (1–4)	II (1–4)
Bellis perennis	I (3)	I (2–4)	I (3)	I (3)	II (2–6)	II (1–5)
Poa annua	I (3–5)	I (3–5)	I (1–2)	I (2–4)	II (2–4)	II (2–4)
Achillea millefolium	I (4)		I (3)	I (3–4)	II (2–5)	II (1–9)
Vicia sativa nigra	I (5)	I (3)	I (3)		II (1–3)	II (1–4)
Trifolium dubium			I (3)		II (1–4)	II (2–8)
Dactylis glomerata	III (1–7)	IV (1–8)	III (1–5)	V (1–5)	V (1–8)	IV (2–6)
Trifolium repens	III (2–7)	V (2–8)	III (2–8)	II (2–4)	III (2–5)	III (1–6)
Taraxacum officinale agg.	II (1–3)	II (3–4)	III (1–5)	IV (2–4)	V (1–5)	III (1–4)
Holcus lanatus	I (4–6)	III (2–5)	III (1–6)	III (2–5)	IV (3–8)	III (1–5)
Festuca rubra	I (3)	I (2–6)	II (2–5)	II (2–6)	III (1–8)	II (2–7)
Cerastium fontanum	I (2–4)	III (1–4)	III (1–4)	II (2–3)	II (2–3)	III (2–3)
Agrostis capillaris	I (3)	III (2–7)	III (3–5)	III (3–5)	III (4–6)	II (3–7)
Ranunculus repens	II (3–4)	II (1–8)	II (1–7)	II (3–8)	II (1–4)	II (2–6)
Trifolium pratense	II (3–7)	I (2–3)	II (1–4)	II (2–3)	II (4–5)	II (3–5)
Cirsium arvense	I (3–6)	II (1–5)	II (1–5)	I (2–3)	I (1–4)	I (1)
Bromus hordeaceus hordeaceus	I (1)	II (3–8)	I (3–7)	I (3–6)	I (8)	I (3–7)

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Floristic table MG7 (*cont.*)

	a	b
Stellaria media	I (2–3)	I (1–2)
Rumex crispus	I (2)	I (2)
Brachythecium rutabulum		II (1–6)
Eurhynchium praelongum		II (1–5)
Rumex obtusifolius		II (1)
Cerastium glomeratum		I (1)
Ranunculus bulbosus		
Elymus repens		
Cardamine pratensis	I (3)	
Capsella bursa-pastoris	I (3)	
Rumex conglomeratus	I (4)	
Cirsium vulgare		I (1)
Hypochoeris radicata		
Juncus inflexus		I (2)
Leontodon autumnalis		
Vicia cracca		
Arrhenatherum elatius		
Number of samples	19	19
Number of species/sample	5 (2–8)	8 (4–14)

a *Lolium perenne-Trifolium repens* leys
b *Lolium perenne-Poa trivialis* leys
c *Lolium perenne-Alopecurus pratensis-Festuca pratensis* grassland
d *Lolium perenne-Alopecurus pratensis* grassland
e *Lolio-Plantaginetum*
f *Poo-Lolietum perennis*

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c	d	e	f
I (1–3)	I (3)		I (2)
I (4)	I (3)		I (1–3)
II (2–3)	I (1–3)	II (3–8)	II (2–6)
II (2–4)	I (2)	I (1–4)	II (1–7)
I (2–4)	I (5)	I (6)	I (1–3)
I (1)		I (4)	I (2–4)
I (3)	I (2–6)	I (1)	II (3–5)
I (1–2)	I (5–7)	I (4)	I (5)
I (2)			I (1)
	I (4)		I (2–4)
		I (1)	I (2–4)
	I (4)		I (1)
I (6)		I (3–5)	I (1–3)
I (1–5)			
I (2)			I (3)
I (4)		I (2)	
I (2–3)		I (2)	
19	14	14	26
11 (4–19)	9 (3–14)	10 (5–15)	10 (4–17)

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