OV26
Epilobium hirsutum community

Synonymy
Epilobium hirsutum-Filipendula ulmaria community Wheeler 1980 *p.p.*

Constant species
Epilobium hirsutum, *Urtica dioica*.

Physiognomy
The *Epilobium hirsutum* community comprises often species-poor tall-herb vegetation in which *E. hirsutum* is a constant and generally very abundant feature. It is usually accompanied by *Urtica dioica*, overall a subordinate element in the cover but locally abundant in a patchy canopy of the two species that is often over 1 m tall. No other plants are frequent throughout but *Filipendula ulmaria*, *Arrhenatherum elatius* and *Cirsium arvense* are common in various of the sub-communities and occasional are *Carex acutiformis*, *Phalaris arundinacea*, *Deschampsia cespitosa*, *Galium aparine* and *Rumex crispus*. Patches of *Calliergon cuspidatum* and *Brachythecium rutabulum* are sometimes to be seen over the soil and stools.

Sub-communities

***Juncus effusus-Ranunculus repens* sub-community.** *E. hirsutum* is overwhelmingly dominant here with only occasional and usually not very abundant *U. dioica*. *Ranunculus repens* is frequent, creeping among the willow-herb stools, and tussocks of *Juncus effusus* can be prominent. Occasionally, there is some *Cardamine flexuosa*, *Angelica sylvestris*, *Mentha aquatica*, *Holcus lanatus*, *Poa trivialis* and *Deschampsia cespitosa*.

***Phragmites australis-Iris pseudacorus* sub-community.** *E. hirsutum* remains dominant in this sub-community but it is typically accompanied by patches of *U. dioica* and *Phragmites*, with scattered individuals of *Iris pseudacorus*, *Filipendula ulmaria*, *Eupatorium cannabinum*, *Lythrum salicaria*, *Lycopus europaeus*, *Lysimachia vulgaris* and sprawling *Solanum dulcamara*, *Calystegia sepium* and *Galium palustre*. More locally, *Glyceria maxima*, *Carex riparia* or *C. paniculata* can occur with some abundance.

***Filipendula ulmaria-Angelica sylvestris* sub-community.** *F. ulmaria* becomes constant here, along with *Urtica* and *E. hirsutum* and it often almost rivals the latter in cover, forming a patchy canopy among which there are commonly scattered individuals of *Angelica sylvestris*, *Cirsium palustre*, *Scrophularia auriculata*, *Mentha aquatica*, *Equisetum palustre*, *Arrhenatherum elatius* and *Holcus lanatus* with sprawling and climbing *Galium aparine*, *Lathyrus pratensis*, *Lotus uliginosus* and *Vicia cracca*. More occasionally can be seen *Caltha palustris*, *Cardamine pratensis*, *Ranunculus acris*, *Rumex sanguinens*, *R. acetosa*, *Lychnis flos-cuculi* and *Hypericum tetrapterum*.

***Arrhenatherum elatius-Heracleum sphondylium* sub-community.** *A. elatius* is more common and abundant here, among the *E. hirsutum* and *Urtica*, but the fen herbs of the two previous sub-communities are all occasional at most. Coarse herbs like *Cirsium arvense*, *Rumex crispus* and *R. obtusifolius* are conspicuous, along with *Heracleum sphondylium*, *Elymus repens*, *Dactylis glomerata* and *Lolium perenne*. *Rubus fruticosus* agg. can be locally abundant.

***Urtica dioica-Cirsium arvense* sub-community.** In this generally most species-poor kind of *Epilobium hirsutum* vegetation, *Urtica* and *C. arvense* are very frequent with often just occasional *Rumex crispus* and *Elymus repens*.

Habitat
The *Epilobium hirsutum* community is characteristic of moist but well-aerated, mesotrophic to eutrophic mineral soils and fen peats in open-water transition mires, around ponds, in silting ditches, and along streamsides throughout the lowlands.

E. hirsutum is a shade-sensitive tall herb that favours moist soils but which is one of the fen plants that is most

intolerant of ferrous iron, the various toxic effects of which may be very influential in influencing the distribution of the species in such habitats (Snowden & Wheeler 1993). Following observations on the striking contrast in distributions of *E. hirsutum* and *Juncus subnodulosus* in relation to waterlogging around a spring fen (Wheeler *et al.* 1985), Snowden & Wheeler (1993) went on to screen a range of fen plants and showed that those, like *E. hirsutum*, more sensitive to ferrous iron tended to occur in sites with lower iron availability, where sediments were relatively base-rich, fertile and sometimes summer-dry. These species were also less likely to form ochreous precipitates on their roots (Cook 1990), one defence against penetration of the reduced iron. *Filipendula ulmaria*, the most common associate of *E. hirsutum* throughout this community, was also among the most sensitive species in this study. *Urtica dioica*, the other constant here, was not included in the study but is well known to favour aerated sediments and soils.

These kinds of responses probably play some considerable part in the distribution of this community on more nutrient-rich sediments kept moist by ground water but not waterlogged, at least not in summer. Favoured sites therefore include the upper parts of fen sequences around open waters, the edges of pools, ditch and canal sides and places where dredgings have been deposited and become oxidised, releasing nutrients. It can also spread in places where fens are becoming drier and more eutrophicated because of a fall in groundwater level. The other controlling factor in limiting its distribution is grazing: *E. hirsutum* can increase markedly where grazing is reduced around open waters.

The various sub-communities reflect the range of different contexts in which this vegetation can develop. The margins of wetter fens and ditches usually have the *Phragmites-Eupatorium* sub-community; fen-meadows, silted ditches and damp road verges, the *Filipendula-Angelica* type; wet rush-pastures and washlands, the *Juncus-Ranunculus* sub-community; drier pond margins, verges and waste ground, the *Arrhenatherum-Heracleum* sub-community. The *Urtica-Cirsium* type comprises drier stands from a variety of settings.

Zonation and succession

The *Epilobium hirsutum* community occurs in swamps, fens, woodlands and mesotrophic grasslands in zonations and mosaics that are determined by the position of the ground water table and the occurrence of grazing or mowing.

A common sequence around open waters is for the community to occur behind some kind of tall-herb fen, like the *Phragmites-Eupatorium* fen or, in more generally eutrophic systems, the *Phragmites-Urtica* fen. With the latter, it can be difficult to draw the bounds between each community because patchy dominance of *E. hirsutum* and *Urtica*, along with *Phragmites*, is typical of the fen, and reed may run on with local prominence into the *Epilobium* vegetation.

More abrupt sequences, where there is a sudden shift to wetter ground, as on steep ditch sides, can see the *Epilobium* community giving way directly to the *Phragmitetum*, *Glycerietum*, *Caricetum paniculatae*, *Caricetum ripariae*, or *Typhetum latifoliae* swamps. Along streams where stock or people have access or on canal margins, such patterns may be very fragmentary because of trampling or bank erosion.

Towards drier ground in these systems, the *Epilobium* community can give way to the *Arrhenatheretum* and these two vegetation types can also occur together on verges, the *Filpendula-Angelica* sub-community of the *Epilobium* vegetation being in common in ditches along roadsides.

This sub-community is also widespread on river terraces and in wet meadows where it often occurs with the *Filipendula-Angelica* mire, *E. hirsutum* persisting some distance into the fen as dominance shifts to the meadowsweet. Where such systems are grazed and especially where the soils are not so free-draining, the *Juncus-Cirsium* community or *Holco-Juncetum* tends to replace the *Filipendula-Angelica* fen and, where the *Epilobium* vegetation persists, it is usually of the *Juncus-Ranunculus* type.

Woodlands of various kinds can be found as part of these sequences, particularly the *Salix-Betula-Phragmites* woodland and *Alnus-Carex* woodland in more intact fens and streamsides, the *Alnus-Urtica* woodland in eutrophicated fens and in mature river valleys with alluvial terraces. However, the shade sensitivity of *E. hirsutum* means transitions to the *Epilobium* community are typically very abrupt.

The community is probably expanding its cover in fens with increased eutrophication of ground waters and sediments and, once established, it is probably fairly stable: it is not really an element in active hydroseres. With continued drying, however, it might be expected to progress eventually to some kind of *Alnus-Urtica* woodland.

Distribution

The *Epilobium* community is widespread and common throughout the British lowlands.

Affinities

This broadly-defined type of *Epilobium* community takes in more species-rich vegetation, like that included in the *Epilobio hirsuti-Filipenduletum* Sougnez 1957 (Mucina *et al.* 1993) and simpler assemblages like the Sociatie van *Epilobium hirsutum* of Westhoff & den Held 1969. Such syntaxa have sometimes been placed in the Galio-Urticetea, sometimes in the Molinio-Arrhenatheretea.

Floristic table OV26

	a	b	c	d	e	26
Epilobium hirsutum	V (5–10)	V (5–9)	V (5–9)	V (5–10)	V (5–10)	V (5–10)
Urtica dioica	II (1–4)	V (3–5)	IV (3–5)	IV (3–7)	IV (1–7)	IV (1–7)
Ranunculus repens	III (1–5)	I (3)	I (3)	I (3)	I (1–3)	I (1–5)
Juncus effusus	III (1–7)	I (2–3)	II (3–7)	I (1–4)		I (1–7)
Cardamine flexuosa	II (1–3)				I (3–5)	I (1–5)
Phragmites australis		IV (3–5)	I (7)	I (1–4)	I (7)	II (1–7)
Iris pseudacorus	I (2–6)	III (1–8)	I (3)	I (2–6)		I (1–8)
Solanum dulcamara	I (1–4)	III (2–4)	I (3)	I (3–5)	I (3)	I (1–5)
Eupatorium cannabinum		III (3–5)	I (3–5)	I (2–6)		I (2–6)
Calystegia sepium	I (2)	III (2–5)	I (5)	I (2–4)	I (1)	I (1–5)
Lythrum salicaria		II (2–3)		I (3–5)	I (3)	I (2–5)
Glyceria maxima	I (3)	II (3–5)	I (3–4)	I (5)	I (7)	I (3–7)
Lycopus europaeus	I (3)	II (3–5)	I (3)	I (3)	I (2–4)	I (2–5)
Carex riparia	I (7)	II (3–5)	I (5)	I (3)		I (3–7)
Galium palustre	I (2–4)	II (2–3)	I (3–4)		I (1)	I (1–4)
Carex paniculata	I (3–4)	II (3–5)	I (3–5)			I (3–5)
Scutellaria galericulata	I (3)	II (3)				I (3)
Lysimachia vulgaris		I (3–5)				I (3–5)
Menyanthes trifoliata		I (3)				I (3)
Thelypteris palustris		I (3–5)				I (3–5)
Filipendula ulmaria	I (6–7)	IV (2–7)	V (3–7)	II (2–7)		III (2–7)
Angelica sylvestris	II (1–5)	II (1–4)	IV (3–5)	I (2–4)		II (1–5)
Cirsium palustre	I (1–3)	II (3)	IV (3–5)			II (1–5)
Galium aparine	II (1–2)	II (3)	III (3–5)	II (2–4)	I (1–4)	II (1–5)
Mentha aquatica	II (1–5)	II (3–6)	III (3–4)	I (4–5)		II (1–6)
Equisetum palustre	I (1)	II (1–4)	III (3–6)	I (4–7)		I (1–7)
Lathyrus pratensis	I (2)	I (3)	III (3)	I (2–4)	I (3)	I (2–4)
Lotus uliginosus	I (2–4)	I (3)	III (3–4)	I (3–4)		I (2–4)
Vicia cracca		I (3–4)	III (3–6)	I (2–4)		I (2–6)
Holcus lanatus	II (1–5)	I (3–4)	III (3–5)	I (3–6)	I (4)	I (1–6)
Galium uliginosum		I (3)	III (3)			I (3)
Poa trivialis	II (1–5)	I (1–3)	III (3–5)	I (2–4)	I (3)	I (1–5)

Scrophularia auriculata	I (3)	I (3)	II (3–5)	I (2–4)		I (2–5)
Juncus inflexus	I (6–9)		II (3–8)	I (3–4)		I (3–9)
Caltha palustris	I (3–6)	I (3)	II (3–4)			I (3–6)
Cardamine pratensis	I (1–3)	I (3)	II (1–3)			I (1–3)
Equisetum fluviatile	I (3–5)	I (3)	II (1–3)		I (2)	I (1–5)
Ranunculus acris	I (5)	I (2)	II (3)	I (3)		I (2–5)
Rumex sanguineus		I (3)	II (3–4)	I (2)	I (3)	I (2–4)
Rumex acetosa	I (1–4)	I (3)	II (2–3)	I (3)		I (1–4)
Hypericum tetrapterum	I (1)	I (3)	II (3)			I (1–3)
Lychnis flos-cuculi		I (3–4)	II (3)			I (3–4)
Agrostis stolonifera	I (1–4)	I (3)	II (3)	I (2–6)		I (1–6)
Cerastium fontanum			I (3)			I (3)
Carex disticha			I (3–7)			I (3–7)
Arrhenatherum elatius	I (3)	I (3–5)	III (3–7)	IV (4–7)	I (2)	II (2–7)
Cirsium arvense	I (2)	I (3)	I (3–6)	III (1–5)	III (2–4)	II (1–6)
Heracleum sphondylium	I (1–3)	I (3)	I (3)	III (2–5)	I (4)	I (1–5)
Rumex crispus	I (2)	I (2–3)		II (2–4)	II (1–3)	I (1–4)
Elymus repens	I (5)		I (2)	II (2–6)	II (1–6)	I (1–6)
Dactylis glomerata	I (1–5)	I (2–4)	I (3)	II (2–7)		I (1–7)
Rumex obtusifolius	I (2–4)	I (2)		II (2–4)		I (2–4)
Rubus fruticosus agg.	I (4)	I (2)	I (3)	II (3)	I (3)	I (2–4)
Lolium perenne	I (5)			II (3–5)		I (3–5)
Convolvulus arvensis		I (4)		II (4–6)		I (4–6)
Anthriscus sylvestris	I (1)			II (3–5)		I (1–5)
Alliaria petiolata				I (3)		I (3)
Achillea millefolium				I (3–4)		I (3–4)
Polygonum lapathifolium				I (4–6)		I (4–6)
Calliergon cuspidatum	II (1–4)	II (3)	I (3–4)	I (2)		I (1–4)
Carex acutiformis		II (3–6)	II (3–8)	I (3–5)		I (3–8)
Brachythecium rutabulum	II (1–5)	I (3)	II (3)	I (3)	I (3)	I (1–5)
Deschampsia cespitosa	II (1–5)		II (3–5)	I (3–4)		I (1–5)
Phalaris arundinacea	I (4)	II (3–7)	I (3)	II (2–5)		I (2–7)
Sparganium erectum	I (1–6)	I (4–7)	I (3)	I (4)	I (2–7)	I (1–7)
Rumex conglomeratus	I (1–3)	I (3)	I (2–3)	I (2–6)	I (2)	I (1–6)
Stachys palustris	I (1)	I (2)	I (3)	I (1–4)	I (8)	I (1–8)
Myosotis laxa cespitosa	I (2)	I (3)	I (3–4)		I (3–4)	I (2–4)

Floristic table OV26 (*cont.*)

	a	b	c	d	e	26
Plagiomnium undulatum	I (1–4)	I (3)	I (3)	I (1)		I (1–4)
Plantago lanceolata	I (3)	I (4)	I (3)	I (4)		I (3–4)
Stachys sylvatica	I (3)	I (3)	I (3)	I (1–3)		I (1–3)
Potentilla anserina	I (1)	I (3)	I (3)	I (3–5)		I (1–5)
Lemna minor	I (5)	I (3)	I (3)			I (3–5)
Valeriana officinalis	I (6)	I (3–5)	I (3)			I (3–6)
Lophocolea bidentata	I (1–2)	I (3)	I (3)			I (1–3)
Ajuga reptans	I (1)	I (3)	I (3)			I (1–3)
Festuca arundinacea	I (1)		I (3)	I (2)		I (1–3)
Veronica beccabunga	I (2–3)		I (1–3)		I (3)	I (1–3)
Eurhynchium praelongum	I (3–5)	I (3)			I (4)	I (3–5)
Typha latifolia	I (2–3)	I (3–5)		I (2–7)	I (2–4)	I (2–7)
Symphytum officinale		I (3)	I (3)	I (4–7)		I (3–7)
Berula erecta		I (4)	I (3)			I (3–4)
Humulus lupulus		I (3–5)	I (3)			I (3–5)
Salix cinerea sapling		I (3–5)	I (3)			I (3–5)
Epilobium parviflorum		I (1–3)	I (3)			I (1–3)
Juncus subnodulosus		I (3–7)	I (3–8)			I (3–8)
Carex hirta	I (4)		I (3)			I (3–4)
Dactylorhiza fuchsii	I (1)		I (3)			I (1–3)
Juncus articulatus		I (3)	I (3)			I (3)
Phleum pratense			I (3–5)	I (1–3)		I (1–5)
Rumex hydrolapathum		I (3)		I (3)		I (3)
Typha angustifolia		I (3–5)			I (5)	I (3–5)
Nasturtium officinale agg.	I (4–5)			I (3–5)	I (4)	I (3–5)
Number of samples	20	15	30	32	19	116
Number of species/sample	16 (6–31)	16 (5–37)	21 (9–42)	13 (5–35)	7 (2–17)	15 (2–42)

a *Juncus effusus-Ranunculus repens* sub-community
b *Phragmites australis-Iris pseudacorus* sub-community
c *Filipendula ulmaria-Angelica sylvestris* sub-community
d *Arrhenatherum elatius-Heracleum sphondylium* sub-community
e *Urtica dioica-Cirsium arvense* sub-community
26 *Epilobium hirsutum* community (total)