S28
Phalaris arundinacea tall-herb fen
Phalaridetum arundinaceae Libbert 1931

Synonymy
Reed-swamp Pallis 1911 *p.p.*; *Phalaris arundinacea* consocies Pearsall 1918; *Phalaris arundinacea* fen Tansley 1939; *Phalaris arundinacea* society and *Phalaris-Filipendula* sociation Spence 1964; Sociatie van *Phalaris arundinacea* Westhoff & den Held 1969; Tall grass washlands Ratcliffe 1977 *p.p.*; *Phalaris* nodum Daniels 1978; *Angelico-Phragmitetum typicum sensu* Ratcliffe & Hattey 1982 *p.p.*

Constant species
Phalaris arundinacea.

Physiognomy
The *Phalaridetum arundinaceae* comprises vegetation in which *Phalaris arundinacea* is dominant, forming an often dense canopy, usually 1–1.5 m tall. The vegetation is almost always species-poor and, although certain species attain prominence in some sub-communities, no associate is frequent throughout.

Sub-communities

***Phalaris arundinacea* sub-community.** Here are included very species-poor stands overwhelmingly dominated by *P. arundinacea*. Some are pure; others have scattered associates as a very sparse understorey, sometimes small herbs or helophytes of water margins, in other cases, tall herbs and sprawlers of fens or salt-marsh plants.

***Epilobium hirsutum-Urtica dioica* sub-community.** *P. arundinacea* generally remains dominant here but the canopy is more varied with mixtures of *Epilobium hirsutum* and *Urtica dioica* and, more rarely, *Glyceria maxima*. There is sometimes a little *Galium aparine* and very occasionally some *Eurhynchium praelongum*.

***Elymus repens-Holcus lanatus* sub-community.** An often shorter but usually still closed canopy of *P. arundinacea* here has beneath it a grassy understorey with one or more of *Elymus repens*, *Holcus lanatus*, *Poa trivialis* and *Deschampsia cespitosa*. There are sometimes scattered plants of *Ranunculus repens* and *Cirsium arvense* but other species are rare.

Habitat
The *Phalaridetum* is typical of the margins of fluctuating, circumneutral and mesotrophic to eutrophic waters, both standing and running. Although it can be found on organic soils, it is more characteristic of mineral substrates, from fine clays to coarse gravels. It is common in open-water transitions around ponds and lakes of all sizes and also occurs around reservoirs, flooded clay and gravel pits, in some flood-plain and basin mires and, rarely, on salt-marshes. It is widespread, too, along periodically flooded dykes and by rivers, even swift and spatey hill streams, and may occur patchily on river shoals. The vegetation may be grazed by stock or wildfowl.

Although *P. arundinacea* can be found growing in 40 cm or more of water, it will not tolerate permanent flooding and stands of the community have a summer water-table that is below the surface for most of the season (Spence 1964, Haslam 1978). Often, however, there is some unseasonal fluctuation in water-level and the community seems to thrive on strongly gleyed soils. *P. arundinacea* has a firmly anchored, creeping rhizome (Hubbard 1984) and is resistant to erosion and to the turbulence of flood-waters (Haslam 1978). The community can thus maintain itself even where inundation is sudden and substantial. In general, the grassier vegetation of the *Elymus-Holcus* sub-community is more characteristic of drier situations which may have little flooding, even in winter.

The community is often found in sites of alluvial deposition (e.g. Pearsall 1918) but *P. arundinacea* does not seem to need especially high nutrient levels. Indeed, in more eutrophic situations, its dominance may be challenged by more nutrient-demanding tall herbs, as in the *Epilobium-Urtica* sub-community, which is the most

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frequent form of the vegetation around pools and along streams enriched by agricultural, industrial or domestic effluents.

P. arundinacea is a palatable grass which can yield a large and continuing amount of succulent herbage throughout the growing season (Hubbard 1984). Stands alongside lowland streams may be accessible to stock and, in washlands, the community may form part of the patchwork of vegetation that is summer-grazed by cattle, sheep and horses. Here, too, it may provide some grazing for the large populations of overwintering herbivorous wildfowl (Ratcliffe 1977, Ogilvie 1978, Fuller 1982) and a valuable nesting habitat for birds such as snipe and redshank.

Zonation and succession

The community is often found as the terminating vegetation type around open-water transitions, marking the normal upper limit of water-level fluctuation. On the margins of lakes and pools it may pass, towards open water, directly to swamps such as the *Phragmitetum australis*, the *Glycerietum maximae*, the *Typhetum latifoliae* or the *Sparganietum erecti*, or there may be an intervening zone of the *Phragmites-Eupatorium* fen. Around enriched waters or in disturbed mires, the *Epilobium-Urtica* sub-community frequently forms an upper fringe to a patchwork of the *Phragmites-Urtica* fen. On the draw-down zones around reservoirs with silty shores, the community often passes sharply to a sequence of inundation communities. In its rare occurrences on salt-marches, the *Phalaridetum* normally forms a discontinuous and narrow fringe at the extreme upper limit, although in some estuaries it may occur further down-marsh above pioneer *Scirpetum maritimi* (e.g. Gilham 1957*a*).

Similar zonations to those found around open standing waters, though often much condensed, are also characteristic of the margins of lowland water-courses with silty or clayey banks. On the more stony banks typical of faster-flowing streams over resistant rocks, the *Phalaridetum* is sometimes the only tall herbaceous fen vegetation, passing more or less directly to the moving open waters. On periodically inundated river shoals, clumps of the community may occur in mosaics with the *Festuca arundinacea-Agrostis stolonifera* community.

Stands of the community may grade, at their upper edge, to *Alnus glutinosa-Urtica dioica* woodland or, by streams in upland margins, to *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum* woodland, and occasionally clumps of *P. arundinacea* can occur in the field layers of these woodlands. Often, however, the upper margins of the *Phalaridetum* are sharply marked off from neighbouring pasture land. On drier soils where there is no grazing, there may be a more gradual transition through the *Elymus-Holcus* sub-community to some kind of *Arrhenatheretum* or to the *Deschampsia cespitosa-Holcus lanatus* grassland. On winter-flooded washlands, the *Phalaridetum* can pass, away from the less heavily grazed margins of dykes, to a mosaic of the *Glycerietum fluitantis* and the *Agrostis stolonifera-Alopecurus geniculatus* inundation grassland.

Shrub and tree seedlings and saplings are rare in the *Phalaridetum* and no observational data is available as to succession but it seems most likely that the community progresses normally to the *Alnus-Urtica* woodland, or on the upland margins of the north and west, to the *Alnus-Fraxinus-Lysimachia* woodland.

Distribution

The *Phalaridetum* is a widespread and common community throughout the British lowlands and on the upland margins.

Affinities

The community is most closely related to the tall-herb fen vegetation of more eutrophic open-water transitions and mires and it has traditionally been placed in the Magnocaricion.

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Floristic table S28

	a	b	c	28
Phalaris arundinacea	V (5–10)	V (5–10)	V (9–10)	V (5–10)
Juncus effusus	I (1–5)	I (2)		I (1–5)
Galium palustre	I (2–4)			I (2–4)
Callitriche stagnalis	I (2–3)			I (2–3)
Myosotis scorpioides	I (3–4)			I (3–4)
Eleocharis palustris	I (3–4)			I (3–4)
Typha angustifolia	I (3)			I (3)
Puccinellia maritima	I (4)			I (4)
Epilobium hirsutum	I (2)	III (1–8)	I (3)	II (1–8)
Urtica dioica		III (1–5)		II (1–5)
Galium aparine	I (1)	II (1–4)		I (1–4)
Glyceria maxima		I (4–6)		I (4–6)
Eurhynchium praelongum		I (3–4)		I (3–4)
Elymus repens		I (1–3)	III (1–3)	I (1–3)
Holcus lanatus			III (2–4)	I (2–4)
Cirsium arvense	I (2)	I (2–3)	II (1–3)	I (1–3)
Ranunculus repens	I (1)	I (4)	II (1–4)	I (1–4)
Poa trivialis	I (2–3)	I (1)	II (1–4)	I (1–4)
Deschampsia cespitosa			II (3–4)	I (3–4)
Cirsium palustre			I (2–3)	I (2–3)
Solanum dulcamara	I (1–3)	I (1–4)	I (3)	I (1–4)
Agrostis stolonifera	I (1–2)	I (3–4)	I (4)	I (1–4)
Filipendula ulmaria	I (1–4)	I (1–3)		I (1–4)
Angelica sylvestris	I (1–2)	I (1)		I (1–2)
Mentha aquatica	I (1–2)	I (3)		I (1–3)
Calystegia sepium	I (2)	I (1–4)		I (1–4)
Oenanthe crocata	I (1–4)	I (1)		I (1–4)
Nasturtium officinale	I (4–5)	I (3–4)		I (3–5)
Equisetum fluviatile	I (4–5)	I (1–3)		I (1–5)
Atriplex prostrata	I (3)	I (3)		I (3)
Rubus fruticosus agg.	I (2–3)		I (4)	I (2–4)
Number of samples	31	20	10	61
Number of species/sample	4 (1–10)	6 (3–16)	7 (3–11)	5 (1–16)
Vegetation height (cm)	124 (25–200)	114 (40–200)	100 (30–170)	106 (25–200)
Vegetation cover (%)	94 (50–100)	98 (90–100)	100	95 (50–100)

a *Phalaris arundinacea* sub-community
b *Epilobium hirsutum-Urtica dioica* sub-community
c *Elymus repens-Holcus lanatus* sub-community
28 *Phalaridetum arundinaceae* (total)

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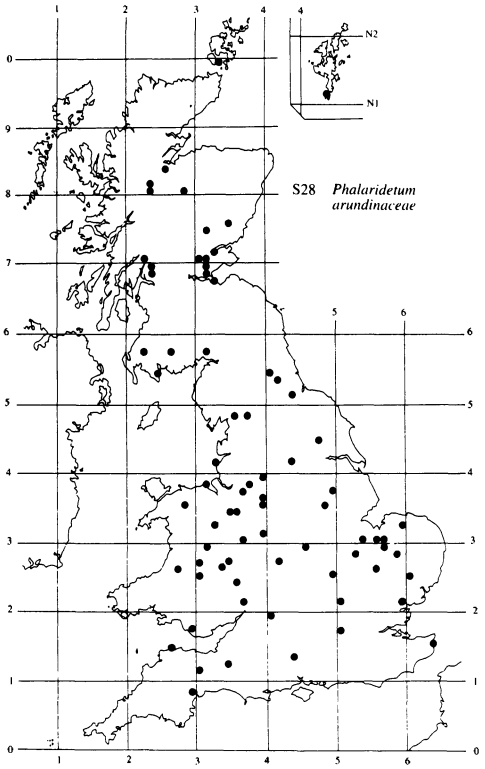

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