

Two subspecies of *Molinia caerulea* (L.) Moench in the British Isles

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ABSTRACT

Two subspecies of *Molinia caerulea* (L.) Moench are recognised in the British Isles, the history of their discovery set out, their characters given and their nomenclature explained. Known localities for subsp. *altissima* (Link) Domin are listed in vice-county order.

INTRODUCTION

Many infraspecific taxa of *Molinia caerulea* (L.) Moench have been described, but in *Flora Europaea* (Tutin 1980) only two subspecies are recognized. Subsp. *caerulea* is found on heaths, moorland and mountain grassland, as well as in depressions on river banks, in peat fens, on stony shores of lochs and on mountain cliff ledges up to 1220 m. The plants are often found in isolation in open situations and not in competition with other vegetation; but in bog conditions, plants of subsp. *caerulea* are often crowded.

Subsp. *altissima* (Link) Domin (subsp. *arundinacea* (Schrank) H. Paul) is a much larger plant in all its parts, and is more specific in its habitat. It is a plant of open fens and fen river valleys and occasionally in fen scrub reversion. The texture of the soil on which it grows is a light peat or coarse sand over peat with a fluctuating water level which is high in winter. Its associated species are tall, strong plants which create dense ground cover and competition and include *Angelica sylvestris*, *Cladium mariscus*, *Eupatorium cannabinum*, *Filipendula ulmaria*, *Galeopsis tetrahit*, *Juncus effusus*, *J. subnodulosus* and *Phragmites australis*. It is sometimes shaded by *Betula* and *Salix*. The tall stem of subsp. *altissima* has the ability to push its way into the above mentioned vegetation and the long, lax panicle is often hidden from the casual observer.

HISTORY

Subsp. *altissima* was first described as *Melica caerulea* var. *major* by Roth in April 1789 and as a species, *M. arundinacea* Schrank, later in the same year. Var. *major* was taken up by Babington (1856) and Syme (1872) and has been used in some County Floras. The earliest reference to it in British Floras which we can trace, however, is as *Monilia caerulea* var. *sylvatica* by S. F. Gray (1 November 1821) which is presumably based on *Enodium sylvaticum* Link (ante 30 June 1821). Conert (1961) has discussed the morphology and taxonomy of the plant at some length.

The current distribution of this subspecies is imperfectly known. A search in herbaria under *M. caerulea* var. *major*, var. *robusta*, var. *arundinacea* and *M. litoralis* has produced 58 sheets of subsp. *altissima* from 47 sites: 42 from England & Wales, three from Scotland and two from Ireland. Of these records, only six refer to finds prior to 1900. From 1900 to 1955, only 31 sites

were found and only ten new sites have been reported between 1955 and 1985. For this record there are two possible reasons. First the general lack of interest in infraspecific taxa may mean that it has been ignored, but secondly, and more likely, its specific habitat (needing a fluctuating water level) has had interference or has been destroyed by drainage and more ruthless maintenance of ditches since the Second World War.

NOMENCLATURE

The first problem concerns the generic name. *Aira caerulea* L. (i.e. *Molinia caerulea*) (1753) was selected as the lectotype of *Aira* L. (1753, 1754) by Britton & Brown (1913) and is accepted by *Index Nominum Genericorum* (1979). This typification is undesirable in that it does not allow *Aira* to be used in the sense in which it is most commonly accepted. It can be rejected on the grounds that it was made on a largely mechanical basis (Art. 8). Hitchcock (1920) selects *Aira caespitosa* L. (= *Deschampsia caespitosa*). This also is contrary to common usage. The author says he selected it arbitrarily, but considering Linnaeus' description of the genus it does appear to be logical. Hitchcock & Green (1929), Philips (1951) and Clayton & Renvoize (1986) all choose *A. praecox* L. as the lectotype of *Aira*. This is clearly the most sensible attitude, but *A. praecox* surely needs conserving as the lectotype to make sure neither *A. caerulea* or *A. caespitosa* can be used. The lectotype of *Molinia* Schrank is *M. varia* Schrank which is a superfluous nomen illegitimum of *M. caerulea* (L.) Moench.

Aira caerulea was described by Linnaeus on page 63 of *Species Plantarum* in 1753. The diagnosis 'Aira foliis planis, panicula coarctata, floribus pedunculatis muticis convoluto subulatis' is taken verbatim from his *Flora Suecica*. It is thus a species he knew in his native Sweden and which he would himself have collected. In the Linnaean herbarium is a sheet (*Savage Cat.* 85/1) labelled "caerulea 3". It fits the original diagnosis and is an excellent specimen of what is regarded as the most common form of *Molinia caerulea*. We designate it as the lectotype of *Aira caerulea* L. This establishes the application of the nominate subspecies.

The second subspecies was first recognized as *Melica caerulea* var. *major* Roth in 1789. Between then and 1829 it received no fewer than six specific names. H. Paul (1937) gave it the rank of subspecies, basing it on *M. litoralis* Host (1827). In the following year he changed his mind and made a new combination based on *M. arundinacea* Schrank (1789). Although Schrank's name was earlier it also was at the rank of species so that *M. caerulea* subsp. *litoralis* (Host) H. Paul was in fact earlier.

Tutin (1980) used the name *M. caerulea* subsp. *arundinacea*. However, there is an even earlier subspecific name, *M. caerulea* subsp. *altissima* (Link) Domin (1935), which was in fact given as a synonym in *Flora Europaea*. The types of these names have not been examined, but from their original descriptions and general usage there seems to be little doubt that they refer to the large variant of *Molinia caerulea*.

MOLINIA Schrank, *Baier. Fl.* 334 (1789) (Lectotype: *M. varia* Schrank nom. illegit. = *Aira caerulea* L., i.e. *Molinia caerulea* (L.) Moench, vide Hitchcock, *U.S. Dept. Agric. Bull.*, 772: 50 (1920)).

Enodium Pers. ex Gaudin, *Agrost. Helv.*, 1: 145 (1811) (Holotype: *E. caeruleum* (L.) Gaudin); superfl. nom. illegit. pro *Molinia* Schrank ab lectotyp.

Monilia S. F. Gray, *Nat. Arrang. Brit. Pl.*, 2: 110 (1821) (Holotype: *M. caerulea* (L.) S. F. Gray); superfl. nom. illegit. pro *Molinia* Schrank ab lectotyp.

M. CAERULEA (L.) Moench, *Meth.* 183 (1794).

a) subsp. *CAERULEA*

Aira caerulea L., *Sp. Pl.* 63 (1753) (Lectotype: *Savage Cat.* 85/1 (LINN), designated here).

Melica caerulea (L.) L., *Mantissa Alt.* 325 (1771).

Molinia varia Schrank, *Baier. Fl.* 334 (1789), superfl. nom. illegit. pro *Aira caerulea* L.

Molinia variabilis Wibel, *Prim. Fl. Werth.* 115 (1799).

Festuca caerulea (L.) DC. in Lam. & DC., *Fl. Fr.*, 3rd ed., 3: 46 (1805).

Enodium caeruleum (L.) Gaudin, *Agrost. Helv.*, 1: 145 (1811).

- Arundo agrostis* sensu Lapey., *Hist. Abr. Pl. Pyr.* 52 (1813).
Hydrochloa caerulea (L.) Hartm., *Genera Gram.* 8 (1819).
Monilia caerulea (L.) S. F. Gray, *Nat. Arrang. Brit. Pl.*, 2: 110 (1821).
Molinia depauperata Lindley, *Syn. Brit. Fl.* 307 (1829) (Holotype: Clova Mountains, Forfar, v.c. 90, D. Munro (CGE)).
Molinia minor Holandre, *Fl. Moselle* 813 (1829).
Molinia obtusa Peterm. in *Flora (Regensb.)*, 27: 235 (1844).

A densely tufted, strong-rooted perennial forming clumps, which consist of a number of single culmed plants. Culms 8–65 cm, erect, strong. Sheaths smooth and ribbed, the basal internode clothed with short sheaths 4–10 cm and scales of 1–2 cm. Leaves 10–50 (–63) cm × (1.5)3–6 (–8) mm, long-pointed, flat, with very short hairs only, or some hairs of 2–3 mm scattered on the upper surface, rough on the margins, deciduous in winter. Ligule 0, but mouth of sheath ciliate, the cilia 0.5–2.0 mm. Panicles 1–30 cm, dense to widely interrupted. Spikelets 3.0–5.5 mm, dark mauve to light green, lanceolate, up to 4-flowered but mainly 1–2. Glumes persistent, unequal to equal, lanceolate to ovate; lower 1.5–3.0 mm, upper 2.2–3.5 mm. Lemma 3–4 mm, lanceolate.

(Hubbard's (1968) description of this taxon is not comparable as his measurements make it clear that those of subsp. *altissima* are included.) The height of plants and the length of panicles are influenced by sheep grazing.

- b) subsp. *ALTISSIMA* (Link) Domin in *Preslia*, 13–15: 39 (1935).
Melica caerulea var. *major* Roth, *Tent. Fl. Germ.*, 2(1): 103 (April 1789).
Molinia arundinacea Schrank, *Baier. Fl.*, 1: 336 (June-Dec. 1789).
Aira atrovirens Thuill., *Fl. Par.*, 2nd ed., 1: 37 (1800).
Enodium sylvaticum Link, *Enum. Pl. Hort. Berol. Alt.*, 1: 80 (ante 30 June 1821).
Monilia caerulea var. *sylvatica* (Link) S. F. Gray, *Nat. Arr. Brit. Pl.*, 2: 110 (1 Nov. 1821).
Enodium atrovirens Dumort., *Obs. Gramin. Belg.* 108 (1824).
Molinia litoralis Host, *Fl. Austriac.* 118 (1827).
Molinia altissima Link, *Hort. Berol.*, 1: 197 (1827).
Molinia sylvatica (Link) Link, *Hort. Berol.*, 1: 197 (1827).
Enodium litorale (Host) Kunth, *Enum. Pl.*, 1: 380 (1833) nom. in syn.
Molinia caerulea var. *arundinacea* (Schrank) Ascherson, *Fl. Brand.* 837 (1864).
Molinia caerulea var. *robusta* Prah, *Krit. Fl. Schl. Holst.*, 2: 257 (1890).
Molinia caerulea b. *arundinacea* (Schrank) Richter, *Pl. Eur.*, 1: 72 (1890).
Molinia caerulea subsp. *litoralis* (Host) H. Paul in *Ber. Bayer. Bot. Ges.*, 22: 18 (1937).
Molinia caerulea subsp. *arundinacea* (Schrank) H. Paul in *Ber. Bayer. Bot. Ges.*, 23: 154 (1938).

A densely tufted and extensive, strong-rooted perennial, building a tussock of 20 cm high. Culms very variable and variation presumably related to moisture supply. Culms (63–) 75–124 (–162) cm, erect. Sheath smooth and ribbed, the basal internode clothed with short sheaths and scales slightly longer than in subsp. *caerulea*. Leaves (28–) 40–62 (–78) cm × 4.0–8.5 mm, long-pointed, flat, tapering from near the base, with short hairs scattered on the upper surface or glabrous, margins smooth, deciduous in winter. Panicle (23–) 35–53 (–65) cm, generally widely interrupted with many unequally long branches 4–15 cm, patent to erecto-patent, dark green to light mauve. Spikelets variable in length, (3–) 4–7.5 mm; glumes unequal to equal, lanceolate, pointed; the lower 1.6–3.2 mm, upper 2.3–4 mm. Lemma (3.2–) 3.5–5.4 (–5.7) mm, lanceolate.

DISTRIBUTION OF SUBSP. *ALTISSIMA*

- v.c. 1, W. Cornwall, Pengerswick Castle, 1873, *J. Cunnack* (K); Trelawney Mill, 1919, *E. Thurston* (K).
v.c. 2, E. Cornwall, Boscastle, 1915, *E. Thurston* (K); Pencarrow Wood, Bodmin, 1957, *C. C. Townsend* (CGE, K).
v.c. 4, N. Devon, Banks of R. Lyn, Watersmeet near Lynmouth, 1902, *S. H. Bickham* (CGE, NMW).

- v.c. 5, S. Somerset, Shapwick, 1936, *F. K. Makins* (K).
- v.c. 6, N. Somerset, Walton in Gordano, 1908, *C. Bucknall* (RNG); Wood at Penselwood, 1916, *W. Herridge* (EXR); Beacon Hills, Shepton Mallet, 1942, *J. P. M. Brenan* (K); S. of Ashcott Railway station, 1944, *J. P. M. Brenan* (K).
- v.c. 9, Dorset, Arne Heath, Wareham, 1899, *L. V. Lester Garland* (K).
- v.c. 10, Wight, St Helen's, 1857, *A. G. More* (CGE).
- v.c. 11, S. Hants., Near Milton, 1913, *J. Comber* (BM, K, NMW).
- v.c. 17, Surrey, Near Woking, 1900, *H. J. Riddelsdell* (BM); Wimbledon Common, 1894, *J. Fraser* (K); Esher Common, 1928, *C. E. Hubbard & V. S. Summerhayes* (K); Richmond Park, 1929, *V. S. Summerhayes & H. M. Montford* (K); Brookwood bank of Basingstoke Canal, 41/952.572, 1985, *P. J. O. Trist* (CGE, Herb. P.J.O.T.).
- v.c. 19, N. Essex, Middlewick, S. of Colchester, 1924, *G. C. Brown* (CGE, K, NMW).
- v.c. 22, Berks., Parson's Moor, near Cothill, 1943, *C. E. Hubbard* (K); Cothill Fen, near Oxford, 1955, *F. White* (EXR).
- v.c. 23, Oxon, North Leigh Heath, 1944, *C. E. Hubbard* (K).
- v.c. 24, Bucks., Wilstone, near Thame, 1913, *G. C. Druce* (NMW); East Burnham Common, 1928, *V. S. Summerhayes & E. Nelmes* (K).
- v.c. 26, W. Suffolk, Palmers Heath, near Brandon, 52/742.847, 1972, *P. J. O. Trist* (Herb. P.J.O.T.); Lt. Eriswell Hall, Lakenheath, 52/721.708, 1976, *P. J. O. Trist* (Herb. P.J.O.T.); Pashford Poors Fen, Lakenheath 52/736.836, 1974, 1976, 1986, *P. J. O. Trist* (CGE, Herb. P.J.O.T.).
- v.c. 28, W. Norfolk, Dersingham Common, 1928, *C. E. Hubbard* (K); Rockland marshes, 1935, *F. Ballard & C. E. Hubbard* (K); Cranberry Fen, Wolferton, 1921, *A. R. Horwood* (NMW); Breckles Heath, Stow Bedon, 1971, *C. E. Hubbard* (K); Little and Middle Fens, South Lopham, 52/042.795 and 52/052.798, 1985, *P. J. O. Trist* (Herb. P.J.O.T., CGE); Gooseberry Lane, Castle Rising, 1975, *E. L. Swann* (K).
- v.c. 29, Cambs., Great Heath Wood, Gamlingay, 1910, *R. S. Adamson* (BM).
- v.c. 33, E. Gloucs., Driffield, 1942, *H. K. Airy Shaw* (K).
- v.c. 35, Mons., South-west of Bassaleg, 1934, *A. E. Wade* (NMW).
- v.c. 36, Herefs., Bucknall's Wood, Madley, 1905, *H. J. Riddelsdell* (NMW).
- v.c. 43, Rads., Llandrindod Wells, 1916, *W. C. Barton* (K).
- v.c. 46, Cards., Esgair Elan, east of Devil's Bridge, 1984, *A. G. de R. Channer* (RNG).
- v.c. 54, N. Lincs., Epworth, 1945, *J. M. Taylor* (K).
- v.c. 55, Leics., Bradgate Park, 1944, *R. M. Payne* (K).
- v.c. 59, S. Lancs., Simonswood Moss, 1897, 1898, *J. A. Wheldon* (NMW); Risley Moss, 1907, *J. A. Wheldon* (NMW).
- v.c. 63, S. W. Yorks., Thorne Waste, near Doncaster, 1942, *S. P. Rowlands* (K).
- v.c. 80, Roxburghs., Newcastleton State Forest, S. of Tweedenhead, 1934, *D. H. S. Davis* (K).
- v.c. 100, Clyde Is., West of Brennan Head, Arran, 1934, *R. Mackechnie* (RNG).
- v.c. 104, N. Ebudes, Loch Ainort, Skye, 1934, *H. M. Montford* (K).
- v.c. H1, S. Kerry, Between O'Sullivan's Cascade and Shehy Mountains, 1935, *S. Ross-Craig, B. L. Burt & J. R. Sealy* (K).
- v.c. H11, Co. Kilkenny, Kilcoron House, Kilkenny, 1937, *N. L. Bor* (K).

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