

Supplementary list of wool-alien grasses recorded from Blackmoor, North Hants., 1959–1976

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ABSTRACT

A list of grasses found as wool-aliens over the period 1959–1976 on a fruit farm at Blackmoor, N. Hants, v.c. 12, is given. This list is supplementary to an interim list published in 1974, making a final total of over 360 species. Some taxonomic notes and comments on the species are included.

INTRODUCTION

An enormous variety of wool-alien plants were collected from the fruit farm at Blackmoor, N. Hants., v.c. 12, and neighbouring railway sidings at Bordon (closed before 1971), from at least 1959 up to 1976, by which time the use of wool-shoddy had been discontinued.

This paper provides a supplementary list of these grass species, in the same format as a previously published interim list from Blackmoor (Ryves 1974). As a result, 128 new species have been added to the previous total of 234 grasses in the interim list, making a grand total of over 360 species, representing some 4% of the world's grasses. These all occurred in an area of about two and a half square kilometres, and yet almost none of them persisted for more than one or two years. Many, but by no means all, have occurred as wool-aliens in other localities in Britain and abroad, and apparently form a component of a quasi-constant wool-alien flora. It should be noted that a few of the grasses listed are common native species or casuals, so might not have originated from wool-shoddy.

Most specimens were expertly determined by the late Dr C. E. Hubbard (CEH) of the Royal Botanic Gardens, Kew. Taxonomic comments and notes on some of the species listed are given.

THE EARLY YEARS (1959–1970)

The three principal botanical collectors at Blackmoor during these years were:

- (i) J. E. Lousley (JEL), whose herbarium is now at Reading University (RNG), with duplicates at K, BM, etc.
- (ii) Miss M. McCallum Webster (MMcCW), whose collections are mainly at E, with some material at K, BM, etc.
- (iii) Lady Anne Brewis (ABMB), who sent specimens to CGE.

It has been possible to examine only the collections of grasses at K and RNG, but fortunately comprehensive lists of grass specimens were obtained from all these three botanists (pers. comm. to myself or to E. J. Clement). In general the botanical names in use at the time of identification are quoted in this final list. Some of the identifications in the early years are doubtful (as noted in the present list) and the whereabouts of some specimens is unknown. A few records from Bordon railway sidings made during these years have also been included.

THE YEARS 1973–1976

The summer of 1973 was exceptionally hot and dry, and the wool-alien grasses were unusually well developed and mature for this country. For instance, *Pennisetum clandestinum* (Kikuyu Grass) actually flowered in the field, and one individual of *Digitaria ternata* formed a clump 1 m across. The preceding mild winter had enabled several species to survive from the previous year, including *Amphibromus neesii*, *Cynodon incompletus*, *Paspalum dilatatum* and *Stipa neesiana*, and the

abundance and widespread distribution of *Eragrostis cilianensis* later on in the season suggested that some plants from the previous year had set viable seed. This grass is a common weed in Hungary, for example, where there are very long, hot summers and short, bitterly cold winters, and there seems to be no reason why it should not persist in southern England.

Many of the grasses which occurred in the years 1969–1972 also appeared in 1973, but no attempt is made to list them all separately. Some noteworthy records included *Aristida congesta*, *Eragrostis atrovirens*, *E. glandulosipedata*, *E. lacunaria*, *E. obtusa*, *E. procumbens*, *E. virescens*, *Digitaria diffusa*, *D. divaricatissima*, *D. tenuissima*, *D. ternata*, *Leptoloma cognatum*, *Panicum buncei*, *P. mitchelii*, *P. queenslandicum*, *P. subxerophyllum* and *Thyridolepis xerophila*, which were previously seen on very few occasions.

After 1974 the use of wool-shoddy was discontinued at Blackmoor, and there was consequently a dramatic decrease in the number of alien grasses recorded. In that year, however, single plants of *Gastridium phleoides* and *Eragrostis macilentia* were seen. Several more rarities were noted in 1975 and 1976, but since then no new grasses have been found at Blackmoor.

Many specimens dating from the later years are to be found in private herbarium collections, notably **herb. E. J. Clement** and **herb. T. B. Ryves** and the herbaria of some of the botanists acknowledged in the interim list (Ryves 1974).

SYSTEMATIC LIST

The format, signs and abbreviations of the interim list (Ryves 1974) apply, viz:

Initials refer to botanists named in the Introduction.

! Specimen in **herb. T. B. Ryves**

* Listed by Lousley (1961)

? Identification doubtful, often due to immature material or suspect locality

[] Author's comments

Genera that were not included in the interim list are described in *Flora Europaea* (Tutin 1980); non-European genera are given a short description.

Several unnamed specimens may well represent species new to science (e.g. in *Stipa*, *Diplachne* and *Leptochloa*). A number of other specimens (e.g. in *Danthonia*, *Eragrostis*, *Panicum*, *Aristida*, *Stipa* and *Cynodon*) are widely scattered in various collections (e.g. **K**, **RNG**, **herb. T. B. Ryves**, etc.) and remain undetermined due to the inadequate material.

TRIBE BROMEAE

BROMUS L.

* *B. alopecurus* Poiret: Mediterranean. 1962 MMcCW (**K**, **E**, **RNG**).

* *B. arenarius* Labill.¹: Australia, introduced U.S.A. 1960, 1961, 1965 MMcCW, ABMB (**K**, **RNG**), det. CEH [? *B. pectinatus* Thunb. from S. Africa].

B. arvensis L.: S. Europe, widespread. 1961 MMcCW, JEL (**K**, **E**, **RNG**), det. CEH.

B. commutatus Schrad.: Europe, N. Africa and W. Asia, widespread. 1973!

* *B. rigidus* Roth: Mediterranean, widespread. 1972 TBR, det. CEH.

* *B. scoparius* L.: Mediterranean. 1960 MMcCW (**K**), det. A. Melderis.

* *B. sterilis* L.: Europe and S.W. Asia, widespread. 1973!

* *B. tectorum* L.: Europe, widely introduced elsewhere (e.g. U.S.A.) 1961. ABMB.

TRIBE TRITICEAE (HORDEAE)

AEGILOPS L.

A. triuncialis L.: Mediterranean and Asia, introduced U.S.A. 1970 TBR (**K**), det. CEH.

¹*Bromus japonicus* should probably be deleted from the interim list (Ryves 1974), as most of the specimens are referable to *B. arenarius* (or *B. pectinatus*), which may however be identical with *B. japonicus* var. *velutinus* Aschers. & Graebn. and *B. patulus* Mert. & Koch var. *pectinatus* (Thunb.) Stapf, described by Chippindall (1955) from S. Africa. "The whole complex requires study by a monographer" (C. E. Hubbard in litt. to E. J. Clement).

AGROPYRON Gaertn. (*ELYMUS* L.)

A. smithii Rydb.: N. America. 1973 G. Hanson!

ELYMUS L.

E. canadensis L.: N. America. JEL (RNG) [incorrectly determined as *Taeniatherum caput-medusae* (L.) Nevski], 1972!, det. CEH [Listed as *Elymus* sp. in Ryves (1974)].

HORDEUM L.

H. brachyantherum Nevski: N. America. 1966 MMcCW.

* *H. compressum* Griseb.: S. America. 1966 MMcCW.

* *H. distichon* L. (Two-rowed Barley): Europe, cultivated. Frequent, MMcCW.

* *H. marinum* Huds.: Coasts of W. Europe and Mediterranean, widespread. 1973!

* *H. murinum* L. (Wall Barley): Europe and S.W. Asia. 1966 MMcCW, 1973!

* *H. muticum* Presl.: S. America. 1964 MMcCW (E, RNG), det. JEL, A. Melderis.

H. procerum Nevski: S. America. 1970, 1971! (K, E), det. CEH.

H. pusillum Nutt. America (Ryves 1974) [? *H. euclaston* Steud. from S. America].

H. stenostachys Godr.: S. America. 1966 ABMB.

* *H. violaceum* Boiss.: W. Asia. c. 1959 MMcCW, det. CEH.

TRITICUM L.

T. aestivum L. (Wheat): Europe, cultivated cereal. 1961 MMcCW.

TRIBE FESTUCEAE

APERA Adanson.

* *A. intermedia* Hack.: Asia Minor. 1961 J. Hodgson (RNG), det. CEH.

BRIZA L.

B. humilis Bieb.: S.E. Europe and Asia Minor. 1961 MMcCW, JEL (K, E, RNG), det. CEH.

B. minor L.: Europe and Asia, widely naturalized in warm countries. 1961 MMcCW (E), det. CEH.

LOLIUM L.

* *L. loliaceum* (Bory & Chaub.) Hand.-Mazz.: Mediterranean, widely introduced. 1961 MMcCW 1970!, det. CEH.

L. multiflorum Lam. × *L. rigidum* Gaud.: 1960 ABMB (RNG), det. E. E. Terrell.

L. temulentum L. × *L. subulatum* Vis.: 1960 MMcCW, det. CEH.

POA L.

P. costiniana Vickery: Australia. 1975! (K), det. CEH.

P. labillardieri Steud.: Australia. 1961 JEL, 1971 TBR (RNG), det. CEH.

P. ?ligularis Nees: S. America. 1971!

P. nemoralis L.: N. temperate zone. 1973!, det. CEH.

P. poiformis (Labill.) Druce: Australia. 1964 MMcCW (K, E, BM).

VULPIA C. C. Gmel.

* *V. geniculata* (L.) Lenk.: W. Mediterranean. 1962 MMcCW.

V. ?membranacea (L.) Dum.²: Mediterranean and W. Europe, introduced Australia, 1970!, det. CEH [variant of *V. myuros* (L.) Gmel., det. C. A. Stace].

V. ?octoflora (Wilt.) Rydb.: U.S.A. and S. America. 1970!, det. CEH. [Determination doubtful according to C. A. Stace].

V. broteri Boiss. & Reut.: S.E. Europe. JEL (RNG), det. C. A. Stace.

TRIBE MELICEAE

MELICA L.

M. violacea Cav.: S. America. 1966 JEL (K, RNG).

TRIBE GLYCERIEAE

GLYCERIA R. Br.

G. declinata Breb.: Europe, introduced elsewhere. 1974!, det. CEH.

G. fluitans (L.) R.Br.: Europe and N.E. America. 1973! ABMB, det. CEH.

²*Vulpia ambigua* (Le Gall) More (Ryves 1974) and *V. membranacea* were determined on the basis of the relative lengths of the glumes and lemmas. C. A. Stace (in litt.), who is currently revising the genus, considers that the specimens are extreme variants of *V. myuros*.

TRIBE AVENEAE

AIRA L.

- * *A. caryophylla* L.: Europe. 1969 MMcCW (E).
- * *A. elegans* Willd.: S. Europe. 1966 ABMB (RNG).

AVENA L.

- A. ludoviciana* Dur.: S. Europe. 1961, 1962 MMcCW (K, E), det. CEH and N.L. Bor.
- * *A. sterilis* L. (Animated Oat): Mediterranean to Afghanistan. 1970!, det. CEH.

KOELERIA Pers.

- * *K. phleoides* (Vill.) Pers. (*Lophochloa phleoides* (Vill.) Rchb.): 1961 MMcCW (K, E), det. CEH.

TRisetum Pers.

- T. ?spicatum* (L.) Richt.: north temperate zone and mountains. 1964 MMcCW, det. J. K. O'Byrne [specimen in K is from Galashiels].

TRIBE PHALARIDEAE

PHALARIS L.

- P. canariensis* L. (Canary Grass): S. Europe, cultivated and widely introduced elsewhere. 1961 MMcCW.

TRIBE AGROSTIDEAE

AGROSTIS L.

- * *A. aemula* R. Br.: Australia. 1970!, det. CEH.
- A. castellana* Boiss. & Reuter: Mediterranean, widespread. 1973!, det. CEH.
- A. preissii* (Nees) Vickery: Australia. 1966 J. L. Mason (K).
- A. scabra* Willd.: N. America and N.E. Asia, widespread. 1967–1975 MMcCW, JEL! (E, RNG). [Established on railway at Bordon].
- * *A. semiverticillata* (Forskål) C. Christ.: Mediterranean and N.E. Africa, widespread. 1973 MMcCW, ABMB! (E).
- A. stolonifera* L. × *A. tenuis* Sibth.: 1972 TBR, det. CEH.

GASTRIDIDIUM Beauv.

- * *G. phleoides* (Nees & Mey.) C. E. Hubbard: Mediterranean, introduced into warm temperate regions. 1960, 1964 MMcCW, 1974! (K, E, RNG), det. CEH. [*G. ventricosum* (Gouan) Schinz & Thell. was recorded in error].

PHLEUM L.

- P. bertolonii* DC.: Europe. 1964, 1966 MMcCW.
- * *P. pratense* L.: Europe and Asia, widely introduced. Frequent!

TRIBE STIPEAE

ECHINOPOGON Beauv. 7 species, Australia and New Zealand. Spikelets 1-flowered in a dense, bristly, spike-like panicle; lemmas 2-lobed, long awned, bearded at the base.

E. ovatus (Forst. f.) Beauv.: Australia and New Zealand. 1966 MMcCW (K, E, RNG), det. JEL.

ORYZOPSIS Michx. 50 species, N. temperate and sub-tropical zones. Spikelets 1-flowered; lemmas becoming hard and terete, with a short, deciduous awn.

- * *O. miliacea* (L.) Aschers. & Schweinf.: S. Europe, widespread. 1964 MMcCW, 1966 JEL (E, BM, RNG).

STIPA L.

- S. aristiglumis* F.v.M.: Australia. 1971–1974! (K, E, RNG), det. CEH.
- S. blackii* C. E. Hubbard: Australia. 1972 TBR (K), det. CEH.
- S. brachychaetoides* Speg.: S. America. 1970–1975! MMcCW (K, E, RNG) [incorrectly determined as *S. brachychaeta* Godron in RNG], det. CEH.
- S. capensis* Thunb.: Mediterranean, widely introduced. 1965 JEL (RNG).
- * *S. hyalina* Nees.: S. America. 1964, 1972 JEL! (K, RNG), det. CEH.
- S. juergensii* Hack.: S. America. 1973! (K) det. CEH.
- S. nitida* Summerh. & C. E. Hubbard: Australia. 1973! (K), det. CEH.
- S. ?richardsonii* Link.: N. America. 1964 JEL (RNG).
- S. ?scabra* Lindl.: Australia. JEL [specimen not found at RNG].
- S. tenuis* Phil.: S. America. TBR 1972 (K), det. CEH.

TRIBE DANTHONIEAE

DANTHONIA Lam. & DC.

- D. ?caespitosa* Gaud.: Australia. 1972 JEL (RNG).
D. montevidensis Hack. & Arach.: S. America. 1973!, det. CEH.
 * *D. penicillata* (Labill.) Beauv.: Australia. 1964 JEL, MMcCW (E, RNG), det. CEH [very close to *D. racemosa* R. Br.].
D. ?pilosa R. Br.: Australia. 1960 MMcCW (K).
 * *D. racemosa* R. Br. var. *obtusata* F.v.M.: Australia. Frequent! (K), det. CEH.
D. thomsonii Buchanan: Australia. 1965 MMcCW (K, E), det. CEH.

TRIBE ARISTIDEAE

ARISTIDA L.

- A. benthamii* Henr.: Australia. JEL (RNG).
A. congesta Roem. & Schultes: S. Africa. 1964, 1972, 1973! JEL, MMcCW (K, RNG), det. CEH. [previously recorded as *A. elytoporoides* Chiov., det. N.L. Bor].
A. contorta F.v.M.: Australia. 1964 MMcCW, JEL (E, RNG), det. CEH [previously recorded as *A. arenaria* Gaud., det. N.L. Bor].
A. ramosa R. Br.: Australia. 1972! (K, E), det. CEH.

TRIBE PAPPOPHOREAE

ENNEAPOGON Desv. ex Beauv.

- E. avenaceus* (Lindl.) C. E. Hubbard: Australia. 1964 JEL (RNG).
E. brachystachyus (Jaub. & Spach) Stapf: Africa. 1972, 1973! JEL, MMcCW (K, E, RNG), det. CEH [*E. desvauxii* Beauv. from America].
 SCHMIDTIA Steud. 2 species, Africa. Leaves broad, usually glandular-hairy; panicle contracted, greyish; lemmas hairy, 6-lobed and 5-awned.
 * *S. kalahariensis* Stent.: Africa. 1973! MMcCW (K, E, RNG), det. CEH.

TRIBE ERAGROSTIDEAE

DIPLACHNE Beauv.

Diplachne sp.: S. Africa. c. 1973 TBR. [Stoloniferous; perhaps a new species according to CEH].

ELEUSINE Gaertn.

E. tristachya (Lam.) Lam.: S. America, widely introduced. [Ryves (1974) gave Tropical Africa as its area of origin].

ERAGROSTIS N. M. Wolf.

- E. atherstonei* Stapf: E. & S. Africa. 1964 JEL (RNG), det. CEH.
 * *E. barrelieri* Daveau: Mediterranean, W. Asia and N. Sudan, widespread. 1973! MMcCW (K, E, RNG), det. CEH.
E. bicolor Nees: S. Africa. 1964 MMcCW (E), det. J. K. O'Byrne.
E. caesia Stapf: S. Africa. 1964 MMcCW (E), det. CEH, S. T. Blake.
E. elongata (Willd.) Jacq.: Australia. 1964 JEL (RNG).
E. heteromera Stapf: S. Africa and southern Tropical Africa. 1973, 1976!, det. CEH.
E. kennedyae F. Turner: Australia. 1973! MMcCW (K), det. CEH.
E. leptocarpa Benth.: Australia. 1970! (K), det. CEH.
E. microcarpa Vickery: Australia. 1964 MMcCW (E), det. S. T. Blake.
E. pergracilis S. T. Blake: Australia. 1964 MMcCW (K), det. M. Lazarides [near *E. dielsii* Pilg.].
E. pleniculmis Nees: S. Africa. 1971! (K), det. CEH.
E. rotifer Rendle: S. & S.W. Africa. 1973 TBR (K), det. CEH.
E. schweinfurthii Chiov.: Africa. [*E. articulata* (Schrank) Nees. from S. America 1964 JEL (RNG), and *E. racemosa* (Thunb.) Steud. from Africa (Ryves 1974) should probably be included in this species].
E. subulata Nees (*E. curvula* (Schrud.) Nees var. *conferta* Stapf): S. Africa. 1973 ABMB, TBR (K), det. CEH.

LEPTOCHLOA Beauv.

- * *L. peacockii* (Maiden & Betch.) Domin: Australia. 1959, 1964, 1971! MMcCW (K, E), det. CEH.

* *L. squarrosa* Pilg.: E. Africa. 1959, 1964 JEL (RNG).

L. sp.: 1964 MMcCW 9372 (E).

TRIDENS Roem. & Schultes

T. brasiliensis Nees ex Steud.: S. America. 1973! MMcCW (K, E), det. CEH.

TRIBE SPOROBOLAE

SPOROBOLUS R. Br.

S. asper (Michx.) Kunth: N. America. 1973! (K), det. CEH.

S. creber de Nardi: Australia. 1974! (K), det. CEH. [? *S. elongatus* R. Br.].

S. cryptandrus (Torr.) A. Gray: N. America. 1972, 1973, 1975! (K), det. CEH [? *S. subinclusus* from S. America].

S. indicus (L.) R. Br.: N. & S. America. 1971, 1972! (K), det. CEH.

S. ?engleri Pilg.: S.W. Africa. 1964 JEL (RNG).

TRIBE CHLORIDEAE

CHLORIS Sw.

* *C. pycnothrix* Trin.: Africa. 1959, 1971! MMcCW (K, RNG), det. CEH.

CYNODON L.

C. aethiopica Clayton & Harlen: Africa. 1971! (K), det. CEH.

* *C. hirsutus* Stent.: S. Africa. 1965, 1966 H. J. M. Bowen (RNG) [perhaps a variant of *C. incompletus* Nees].

C. transvaaliensis Burt-Davy: S. Africa. 1975!, det. CEH.

MUNROA Torr. 3 species, N. & S. America. Procumbent, much-branched annuals; spikelets 2-3 in reduced spikes, enclosed in broad sheaths of short leaves.

M. squarrosa (Nutt.) Torr. (False Buffalo-grass): America. 1973! (K, E), det. CEH.

TRIBE PANICEAE

BRACHIARIA Griseb.

B. gilesii (Benth.) Chase: Australia. 1973! (K, E), det. CEH.

DIGITARIA Heist. ex Fabr.

D. hubbardii Henr.: Queensland. 1973! (K, E, RNG), det. CEH.

D. parviflora (R. Br.) Hughes: Australia. 1973 (K, RNG), det. CEH [? *D. tenuissima*].

D. ?zeyheri (Nees) Henr.: S. Africa. 1966 MMcCW (E, BM), det. CEH. [Probably the Australian *D. ammophila* (F.v.M.) Hughes].

ERIOCHLOA Kunth.

E. fatmensis (Hochst. & Steud.) Clayton (*E. nubica* (Steud.) Hack. & Stapf ex Thell.): Tropical and South Africa. 1975 TBR, JEL (K, RNG), det. CEH. [The RNG specimen has been wrongly determined as *E. pseudoacrotricha* (Stapf) C. E. Hubbard].

* *E. gracilis* (Fourn.) Hitchc.: N. America. 1972 TBR, det. CEH.

PANICUM L.

* *P. capillare* L.: N. America, widely naturalized. 1965.

P. coloratum L.: S. & S.W. Africa. 1972, 1975! (K, E), det. CEH.

P. dichotomiflorum Michx.: N. America. 1973 TBR (K), det. CEH.

P. gilvum Launert: S.W. Africa. 1973-1976! JEL, MMcCW (K, E, RNG), det. CEH.

* *P. laevifolium* Hack.: S. Africa. 1960, 1964, 1973, 1974! MMcCW (K, RNG), det. CEH.

P. milioides Nees: S. America. 1973 TBR (K), det. CEH.

P. prolatum F.v.M. (Coolah Grass): 1973! (K), det. CEH.

PASPALUM L.

P. distichon L.: Tropics. 1966 ABMB.

PENNISETUM (L.) Rich.

P. alopecuroides (L.) Spreng.: Asia and Australia, widely cultivated for ornament. 1973! (K), det. CEH.

P. sphacelatum (Nees) Durand & Schinz: Africa. 1972, 1973! JEL, MMcCW (K, E), det. CEH. [Replaces *P. glabrum* Steud., listed in Ryves (1974) on the basis of a specimen lacking a rootstock].

SETARIA Beauv.

S. adherens (Forsk.) Chiov. (*S. verticillata* (L.) Beauv. subsp. *adherens* Forsk.): Africa, warm regions. Probably frequent (K), det. CEH.

S. italica (L.) Beauv.: S. Europe, cultivated. 1960 MMcCW. (Bordon railway sidings).

TRICHOLAENA Schrad. 2 species, S. Africa. Tufted perennials, with large, open panicles; spikelets 2-flowered, without awns.

T. monachne (Trin.) Stapf. & C. E. Hubbard: S. Africa. 1964 JEL (RNG).

TRIBE ANDROPOGONEAE

BOTHRIOCHLOA Kuntze

* *B. ?insculpta* (Hochst.) A. Camus: Africa. 1959 JEL, MMcCW (RNG). [Probably an Australian *Bothriochloa*.]

DICANTHIUM Willem

* *D. sericeum* (R. Br.) A. Camus: Australia. 1959, 1964 JEL, MMcCW (E, RNG), det. CEH.

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