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Checklist of the
Grasses of
New York State

Stanley Jay Smith
Associate Curator of Botany
New York State Museum and Science Service

BULLETIN NUMBER 403

NEW YORK STATE MUSEUM AND SCIENCE SERVICE

ALBANY, NEW YORK

*The University
of the State
of New York*

*The State
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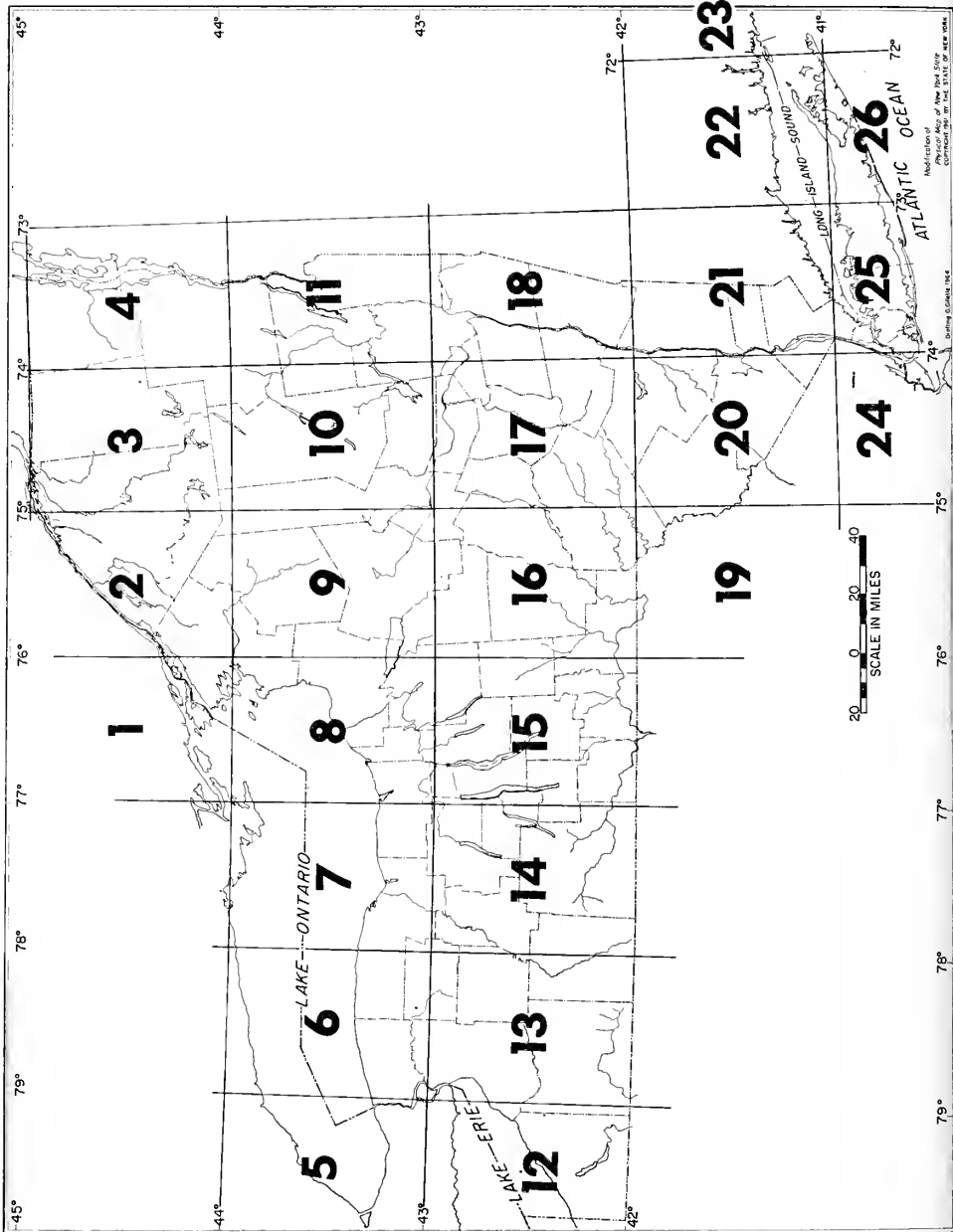
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Map of Long Island Sound
 Prepared by the U.S. Army Corps of Engineers
 Contract No. DA-36-039-MD-0001
 Drawing Scale 1:64,000

Introduction

THIS CHECKLIST SUMMARIZES the author's knowledge of the distribution of grasses within New York State. It is here presented to encourage further exploration by all interested botanists, with the hope that a detailed grass flora can eventually be produced.

The author's interest in the grasses started in 1935, at the New York State College of Agriculture, when Prof. Karl M. Wiegand suggested the family as a problem for undergraduate research. When, on the author's appointment to the State Museum in 1947, the former State Botanist, Dr. Homer D. House, suggested revising the *Annotated List of the Ferns and Flowering Plants of New York State* (NYS Mus. Bul. 254), this group seemed a logical place to start.

In the years since 1935, the author has made collections or observations in every one of the State's 62 counties. An attempt has been made to check all other available specimens. By comparison, in 1947, the files of the Museum showed a number of counties with few recorded grasses (one with only four); no county now has less than 50. Supporting specimens for 12 taxa, previously reported for the State, could not be located. These are listed in the appendix. On the other hand, 100 have been added to those reported in 1924 by Dr. House. Of these, 53 have not been cited for New York State in the current editions of *Hitchcock's Manual*, or the major regional floras.

Attention has been paid both to natives and to introductions. Of the natives, 22 have not been collected in the last 25 years. These may now be extinct in this State, but diligent search should yet relocate some of them at the original or new stations. Conversely, five new natives have been collected in that period. As for the introductions, 62 have not been found since 1940. Over two-thirds of the 62 have but one recorded locality, and three-fifths of the two-thirds were found on woolwaste at Yonkers. A number of others were collected only on Cobb Hill, Rochester. Recent search for these species

at the two stations has proved unfruitful. In contrast, 22 new weeds or escapes have been collected since 1940. Similarly, the majority of these 22 are known from but one station.

The composition of the grass-flora is shifting. Some introductions from the Old World which were relatively rare at the time House compiled his *Annotated List* are now widespread. Two good examples are *Bromus inermis inermis*, currently found in nearly every part of the State, and *Corynephorus canescens*, now locally abundant in much of Long Island. *Setaria faberii*, which first appeared in the State in 1925 and which was collected therein only three times before 1940, is now widespread in disturbed soils south of the Adirondacks, and is known from 82 stations. Native American species (particularly those of open soils), local or unknown from the State in 1924, are increasing upstate. Examples are *Aristida basiramea* and *Eragrostis spectabilis*. Except for the Coastal Plain area, including New York City and adjoining Westchester County, the native flora seems to be holding its own. Of the nine native taxa missing from upstate New York, only one was known from more than four stations. A detailed analysis of these changes is left to the proposed comprehensive floristic account.

This current listing of the grass family of New York State comprises 88 genera, 333 species. Two or more varieties or subspecies are listed for 28 species, so that there are 33 additional infraspecific names, making a total of 366 line-entries.

For purposes of spacing exploration, the State is divided into 26 districts, each a degree-quadrangle or part of one, bounded by meridians and parallels, one degree apart, and numbered as in the frontispiece map. The following symbols indicate the presence of taxa in the districts:

X	x	specimen examined by the author
L	l	authentic literature reports, without available specimens
H	h	specimen identified by Dr. Homer D. House, not seen by the author
O	o	observation by the author, without supporting specimens
V	v	district approximate
?		specimen seen, but locality questioned

Lower-case symbols indicate that the item is not established. Reference should be made to the standard manuals as to whether a species or race is native or an introduction.

A total of 3577 definite district-records is reported here, and is distributed as follows:

Districts	Number of recorded taxa
1 3 5 12 19 23	51-100
2 4 6 10 14 16 17 20	101-150
7 8 9 11 13 15 18 21 22 24 26	151-200
25	251-300

Of the 366 recorded species and major races, 8 introduced and 10 native are recorded for all 26 districts. A number more are recorded for so many districts (and with the "absences" so scattered) that it is obvious they will shortly be listed for all 26. Others have a more or less limited distribution, ranging to those known from a single district or even a single station.

The various taxa are arranged alphabetically. In general, treatment follows that of the second edition of Hitchcock's *Manual of Grasses*, which can be consulted for descriptions. Names differing from those of the *Manual* are designated by an asterisk and may be found listed with the equated name at the end of the checklist proper. Taxa not included in the *Manual* are marked by a double asterisk, and are listed with easily available references for descriptions.

The author prefers a taxonomy which emphasizes similarities at least as much as differences. In general, he feels that too many genera and species of grasses have been segregated, rather than too few. Nevertheless, he has made no new combinations and has combined generally separated taxa only where he feels the evidence warrants it. This, admittedly, leads to some imbalance because of lack of knowledge in certain complexes.

Only major morphological races with incipient isolation are listed for a species. The author prefers to use subspecies for this category but, again, has made no new combinations, generally using variety, if this combination was available, or even species, where no infraspecific trinomial existed. In certain cases, particularly in *Panicum*, subg. *Dichantherium*, he avoided too stringent reduction, because some of the varietal combinations already made have tended to obscure the position of the reduced species as intermediate between two groups. In this same subgenus, and in *Paspalum*, he accepted certain species to avoid inconsistent "speciation" within the genus and subgenus. In addition to the infraspecific races listed, a number of named minor variants have been collected in the State. A list of such variants is added at the end of the checklist, with cross-references to the species or major race to which they have been referred.

Several cases of hybridity have been noted or postulated. A list of recognized or suspected hybrids is appended. Many more are possibly present, particularly in *Panicum* and *Poa*.

As an indication of work yet to be done, attention is called to three of many problems. The author proposes to undertake detailed exploration for, and analysis of, *Calamagrostis*, subsect. *Ancylatherae*. Collections from the Taconics and Catskills here referred to *C. lacustris* are not typical nor do they exactly match each other or anything already described, although they approach *C. porteri perplexa*. Material of *C. lacustris* from woods in Essex County has sheath-collars as hairy as *C. porteri*; the same colony (clone ?) in the open has essentially glabrous collars. Further, the plants in the open show a tendency to "creep" in crevices and on ledges but tend to "tuft" like *C. fernaldii* in hollows. The relationship of our representatives to the midland *C. insperata* and to the *Ancylatheran* types of the West is problematical.

In *Poa*, it is obvious that there should be some subdivision in what the author has called *P. pratensis*, *P. palustris* and *P. compressa*—possibly also in *P. trivialis*. *Poa nemoralis* needs more study, although its limits may be confused by hybridity. The possibility of the relationship of *P. interior* to *P. glauca*, rather than to *P. nemoralis*, should be considered. *Poa languida* and *P. saltuensis* are a difficult pair. Finally, there are apparent hybrid swarms at two of our stations for *P. glauca*.

In *Festuca*, the *F. rubra* complex is particularly baffling, apparently being an euploid series. There may be six races, instead of two, each with its own habitat-preference. The most distinctive is a shade-loving heterophyllous type, but it lacks the bristly tip to the ovary, required for *F. heterophylla* (*F. rubra*, var.). The dune-slack creeper is different from the sand-bar creeper. There are three types of tussock-formers. Poor collecting, particularly of basal parts, and inability to correlate the various European and American treatments forced the author to separate only the creepers and the tufters, as a provisional arrangement. In the *F. ovina* relationship, as here construed, *F. brachyphylla* is almost certainly distinct. If a second break is necessary, it should ally "tenuifolia" with "ovina" proper, and "saximontana" with "longifolia."

Finally, a list of desiderata has been prepared. This includes a number of native species and races, particularly of boreal-montane and Coastal Plain affinities. A number of introductions, established near our borders but not yet known from New York, are represented. To these has been added a considerable series of casuals, known from various parts of the Northeast.

During the 30 years of his scientific interest in the grasses of New York State, the author has received both assistance and advice from several teachers and colleagues. The late Dr. Karl M. Wiegand, as

Professor of Botany and Chairman of the Department of Botany at the New York State College of Agriculture of Cornell University, first suggested serious study of the family and gave constant encouragement and professional guidance until his retirement. Dr. Robert T. Clausen, Professor of Botany at the same college, has pointed out certain problems and helped mold the author's species-concept. Dr. Jason R. Swallen and the late Dr. Agnes Chase, both of the National Herbarium, Smithsonian Institution, Washington, D.C., have discussed many agrostological problems and identified or verified certain problem-specimens. The former kindly read the entire manuscript. Nevertheless, the author accepts full responsibility for errors or omissions.

Mr. Roy Latham, Orient, has presented his extensive herbarium of Long Island materials, including several hundred sheets of grasses, to the New York State Museum. Several species are known for the State only from his explorations and many others were first found by him. Mr. Theodore C. Baim, Schenectady; Mr. Karl Brooks, Brooklyn; Mrs. Mary Domville, Woodstock; Dr. Mildred E. Faust, Professor of Botany, Syracuse University; and Mr. Robert Meyer, Staten Island, have made their grass collections available. Each has contributed important records.

At various herbaria, the staffs have graciously made materials and facilities available to the author. For these courtesies he is most appreciative. Herbaria visited in this connection are: Wiegand Herbarium and Bailey Hortorium, State University College of Agriculture at Cornell University; State University College of Forestry at Syracuse University; New York Botanical Garden; Brooklyn Botanic Garden; College of Arts and Sciences, Syracuse University; Rochester Academy of Science; Buffalo Museum of Science; Staten Island Institute of Arts and Sciences; St. Bonaventure University; Elmira College; National Herbarium, Smithsonian Institution; Gray Herbarium, Harvard University. The late Dr. Homer D. House, former State Botanist, Dr. Eugene C. Ogden, currently in that position, and many other colleagues of the State Museum, have offered constant encouragement.

It can be seen that much remains to be done on the grasses. The wilder and less disturbed areas of our mountains and coastal plain are full of surprises. Nurseries, railroad yards and agricultural areas will surely produce many additions. Adequately labeled specimens (provided with collector's name, date of collection, locality and habitat) will be welcome. They may be mailed or brought to the State Museum for identification and record. Notice of omissions will be appreciated. If any botanists are encouraged to search for and collect grasses, then this checklist will have served its purpose.

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
GRAMINEAE																											
<i>Aegilops</i>																											
<i>crassa</i> Boiss.**																											
<i>cylindrica</i> Host.																											
<i>ovata</i> L.																											
<i>truncialis</i> L.																											
<i>Agropyron</i>																											
<i>bonaepartis</i> (Spreng.) Dur. & Schinz.**																											
<i>cristatum</i> (L.) Gaertn.																											
<i>desertorum</i> (Fisch.) Schult.																											
<i>orientale</i> (L.) R. & S.**																											
<i>pungens</i> (Pers.) R. & S.																											
<i>repens</i> (L.) Beauv.																											
<i>smithii</i> Rydb.																											
<i>trachycalum</i> (Link) Malte, var. <i>glaucum</i>																											
(Pease & Moore) Malte*																											
var. <i>novae-angliae</i> (Scribn.) Fern.*																											
<i>trichophorum</i> (Link) Richt.																											
<i>triticeum</i> Gaertn.																											
<i>Agrostis</i>																											
<i>borealis</i> Hartm.																											
<i>canina</i> L., sp. <i>canina</i>																											
ssp. <i>montana</i> Hartm.*																											
<i>gigantea</i> Roth, var. <i>dispar</i> (Michx.) Philip-son*																											

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Agrostis (continued)</i>																											
<i>gigantea</i> Roth, var. <i>gigantea</i> *				X									X	X								X					X
<i>hyemalis</i> (Walt.) BSP.....					X																	X	X	X			X
<i>perennans</i> (Walt.) Tuckerm., ssp. <i>elata</i> Hitchc.*																						X					X
ssp. <i>perennans</i>				X	X	X	L	X	X	X	X	O	N	N	N	N	N	N	N	N		X	X	X	X		X
<i>scabra</i> Willd.....				X	X	X	L	X	X	X	X	O	X	X	X	X	X	X	X	X		X	X	X	X		X
<i>semiverticillata</i> (Forsk.) C. Christ.....																											v
<i>spica-venti</i> L.*.....																											x
<i>stolonifera</i> L., var. <i>palustris</i> (Huds.) Farw.*				X		X			X		X	X	X	X	X	X	X	X	X	O	X		X	X	X	X	X
var. <i>stolonifera</i> *				O	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
<i>tenuis</i> Sibth.				X	X		X	X	X	X	X	O	X	X	X	X	X	X	X	X		O	X	X	X	X	X
<i>Aira</i>																											
<i>caryophylla</i> L.....																											X
<i>praecox</i> L.....																											X
<i>Alopecurus</i>																											
<i>aequalis</i> Sobol., ssp. <i>aequalis</i>				X	X		X	X	X	L	X	X	X	X	X	X	X	X	X								X
<i>carolinianus</i> Walt.....																											x
<i>geniculatus</i> L.....				X					X						X												X
<i>myosuroides</i> Huds.																											x
<i>pratensis</i> L., ssp. <i>pratensis</i>				X		O	X	X	X	X	X	X	X	X	X								X	L	X	X	X
<i>Ammophila</i>																											
<i>breviligulata</i> Fern.....				X			X	X			X	X															X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Andropogon</i>																											
<i>gerardii</i> Vilm.....	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>ischaemum</i> L.....																											
<i>scoparius</i> Michx., var. <i>littoralis</i> (Nash) Hitch.*																											
var. <i>scoparius</i>																											
<i>virginicus</i> L., var. <i>abbreviatus</i> (Hack.) Fern. & Grise.*																											
var. <i>virginicus</i>																											
<i>Anthoxanthum</i>																											
<i>aristatum</i> Boiss.																											
<i>odoratum</i> L.	X	X	X	X	X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Aristida</i>																											
<i>adscensionis</i> L.....																											
<i>basiramea</i> Engelm.....																											
<i>dichotoma</i> Michx.....																											
<i>longespica</i> Poir.....																											
<i>oligantha</i> Michx.....																											
<i>purpurascens</i> Poir.....																											
<i>tuberculosa</i> Nutt.....																											
<i>Arrhenatherum</i>																											
<i>elatum</i> (L.) Presl, ssp. <i>clatius</i>																											
<i>Arthraxon</i>																											
<i>hispidum</i> (Thumb.) Makino.....																											

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
<i>Avena</i>																										
<i>fatua</i> L., ssp. <i>fatua</i>				X				X					X	X		X	X	X								
ssp. <i>sativa</i> (L.) Thell.*.....				X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	0	X				
<i>Beckmannia</i>																										
<i>cruciformis</i> (L.) Host, ssp. <i>baicalensis</i> (Kusn.) Hultén*							X					X			X											X
<i>Bouteloua</i>																										
<i>curtipendula</i> (Michx.) Torr., var. <i>curtipen-</i> <i>dula</i>							L									X	X			X						X
<i>gracilis</i> (HBK.) Lag.....							x																			
<i>Brachelytrum</i>																										
<i>erectum</i> (Schreb.) Beauv.....				X	X	X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X
<i>Briza</i>																										
<i>maxima</i> L.....									X						X											x
<i>media</i> L.....																X										L
<i>minor</i> L.....																										v
<i>Bromus</i>																										
<i>arvensis</i> L.....													X	x												
<i>briziformis</i> Fisch & Mey.....														x												x
<i>carinatus</i> Hook & Arn.																										
<i>ciliatus</i> L.....				X	X	X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
<i>commutatus</i> Schrad.....				X	X	X	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>diandrus</i> Roth*.....				O																						X
<i>erectus</i> Huds.....																										X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Bromus (continued)</i>																											
<i>inermis</i> Leyss., ssp. <i>inermis</i>																											
<i>japonicus</i> Thunb.....																											
<i>kalmii</i> Gray.....																											
<i>lepidus</i> Holmb.**.....																											
<i>macrostachys</i> Desf.																											
<i>marginatus</i> Nees.																											
<i>mollis</i> L.																											
<i>pubescens</i> Muhl.*.....																											
<i>purgans</i> L.*.....																											
<i>racemosus</i> L.																											
<i>rubens</i> L.																											
<i>scoparius</i> L.																											
<i>secalinus</i> L.....																											
<i>squarrosus</i> L.																											
<i>sterilis</i> L.																											
<i>tectorum</i> L.																											
<i>wildenowii</i> Kunth*.....																											
<i>Calamagrostis</i>																											
<i>canadensis</i> (Michx.) Beauv., ssp. <i>canadensis</i> ...																											
ssp. <i>langsдорffii</i> (Link) Hultén*.....																											
<i>cinnoides</i> (Muhl.) Bart.																											
<i>epigeios</i> (L.) Roth.....																											
<i>inexpansa</i> Gray.....																											
<i>lacustris</i> (Kearney) Nash.....																											

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
<i>Calamagrostis (continued)</i>																										
<i>neglecta</i> (Ehrh.) Gaertn., Mey. & Scherb., ssp. <i>neglecta</i>										X	X															
<i>pickeringii</i> Gray.....		X	X																							
<i>porteri</i> Gray, ssp. <i>perplexa</i> (Scribn.) Clau- sen*														X	X											X
ssp. <i>porteri</i>														X	X											
<i>Calamovilfa</i>																										
<i>longifolia</i> (Hook.) Scribn., var. <i>magna</i> Scribn. & Merr.																										
<i>Catapodium</i>																										
<i>rigidum</i> (L.) C. E. Hubbard*.....						v																				
<i>Cenchrus</i>																										
<i>biflorus</i> Roxb.																										x
<i>longispinus</i> (Hack.) Fern.*.....							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>tribuloides</i> L.							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Chloris</i>																										
<i>argentina</i> (Hack.) Lillo & Parodi.....																										x
<i>ciliata</i> Sw.																										x
<i>verticillata</i> Nutt.																										x
<i>virgata</i> Sw.																										x
<i>Cinna</i>																										
<i>arundinacea</i> L.						H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>latifolia</i> (Trev.) Griseb.			X	X	X		H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Coix																											
lacryma-jobi L.																											x
Corynephorus																											
canescens (L.) Beauv.																											X X
Cynodon																											
dactylon (L.) Pers.								X						X	X											X X X X	
Cynosurus																											
crispatus L.								X	X	X				X	X	X											X
echinatus L.								X	X	X				X	X	X											x
Dactylis																											
glomerata L., ssp. aschersoniana (Graebn.) Theil.**								X	X						X												V
ssp. glomerata								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X X X X
Dactyloctenium																											
aegyptium (L.) Beauv.																											x
Danthonia																											
compressa Aust.									X	X	X																X X
spicata (L.) Beauv.									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X X X X
Deschampsia																											
atropurpurea (Wahl.) Scheele, var. atropur- purea																											
caespitosa (L.) Beauv., var. caespitosa																											X X
var. parviflora (Thuill.) Coss. & Germ. ...																											X X
danthonioides (Trin.) Munro																											x

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Deschampsia (continued)</i>																											
<i>flexuosa</i> (L.) Trin., var. <i>flexuosa</i>	X	X	X	X	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
var. <i>montana</i> (L.) Huds.*.....					X																						
<i>Digitaria</i>																											
<i>adscendens</i> (H.B.K.) Henr.**.....																					X						X
<i>filiformis</i> (L.) Koeler.....																				X							X
<i>ischaemum</i> (Schreb.) Schreb., var. <i>ischaemum</i> X X X X L	X	X	X	X	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
var. <i>mississippiensis</i> (Gatt.) Fern.																											X
<i>sanguinalis</i> (L.) Scop.	O	X			X	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X
<i>Distichlis</i>																											
<i>spicata</i> (L.) Greene, var. <i>spicata</i>																											X
<i>Echinochloa</i>																											X
<i>crusgalli</i> (L.) Beauv., ssp. <i>crusgalli</i>	O	X	O	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X
ssp. <i>edulis</i> Hitchc.*.....										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>muricata</i> (Beauv.) Fern., var. <i>microstachya</i>																											X
Wieg.*	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
var. <i>muricata</i> *	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>walteri</i> (Pursh) Heller.....	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Eleusine</i>																											
<i>indica</i> (L.) Gaertn.					O		O	X	X		X	X	X	X	X	O	O	X	X	X	X	X	X	X	X	X	X
<i>Elymus</i>																											
<i>arenarius</i> L., ssp. <i>arenarius</i> **.....															X												X
<i>canadensis</i> L.	X				X	X	X	X	X		X	X	X	X	X	O	X	O	X	O	X	X	X	X	X	X	X
<i>caput-medusae</i> L.																											X
<i>glaucus</i> Buckl., ssp. <i>glaucus</i>										X																	X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Elymus (continued)</i>																											
<i>riparius</i> Wieg.	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>villosus</i> Muhl.	X	X					L																				
<i>virginicus</i> L., var. <i>glabriflorus</i> (Vasey) Bush var. <i>halophilus</i> (Bickn.) Wieg.	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
var. <i>virginicus</i>	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>wiegandii</i> Fern.*	X	X																									
<i>Eragrostis</i>																											
<i>capillaris</i> (L.) Nees							L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>citianensis</i> (All.) Link.					O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>curvula</i> (Schrad.) Nees						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>frankii</i> C. A. Mey.						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>hypnoides</i> (Lam.) BSP.						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>multicaulis</i> Steud.	O	X				O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>pectinacea</i> (Michx.) Nees					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>pilosa</i> (L.) Beauv.						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>pooides</i> Beauv.	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>spectabilis</i> (Pursh) Steud.	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>trichodes</i> (Nutt.) Wood.	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Erianthus</i>																											
<i>giganteus</i> (Walt.) Muhl.																											?
<i>Eriochloa</i>																											
<i>gracilis</i> (Fourn.) Hitchc.																											
<i>Festuca</i>																											
<i>arundinacea</i> Schreb.	X	X	O	O	O	O	X	X	X	X	O	O	O	X	X	O	X	X	X	X	X	X	X	X	X	X	X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Festuca (continued)</i>																											
<i>brachyphylla</i> Schultes*				X																							
<i>bronoides</i> L.*																											X
<i>elator</i> L.																											X
<i>gigantea</i> (L.) Vill.					O	X	X	X	L																		X
<i>myuros</i> L.																											X
<i>obtusa</i> Biehler.																											X
<i>octoflora</i> Walt., ssp. <i>octoflora</i>					X	X	X	X	L																		X
<i>ovina</i> L., ssp. <i>longifolia</i> (Thuill.) Gaudin* ..					X	X	X	X																			X
ssp. <i>ovina</i>					X	X	X	X																			X
ssp. <i>saximontana</i> (Rydb.) St. Ives*					X	X	X	X																			X
ssp. <i>tenuifolia</i> (Sibth.) Arcang.*					X	X	X	X																			X
<i>rubra</i> L., ssp. <i>commutata</i> Gaudin					X	X	O																				X
ssp. <i>rubra</i>					X																						X
<i>Glyceria</i>																											
<i>acutiflora</i> Torr.																											X
<i>borealis</i> (Nash) Batchelder																											X
<i>canadensis</i> (Michx.) Trin., var. <i>canadensis</i>																											X
var. <i>laxa</i> (Scribn.) Hitchc.																											X
<i>declinata</i> Brebiss.																											X
<i>fluitans</i> (L.) R. Br.																											X
<i>maxima</i> (Hartm.) Holmb., ssp. <i>grandis</i> (Wats.) Hultén*					X	X	X	X																			X
ssp. <i>maxima</i> **																											X
<i>melicaria</i> (Michx.) Hubb.					O	X	X																				X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26				
<i>Glyceria (continued)</i>																														
<i>obtusa</i> (Muhl.) Trin.....																														
<i>septentrionalis</i> Hitchc.....						X	O	X	X		X	X	X	X	X	X														
<i>striata</i> (Lam.) Hitchc., ssp. <i>striata</i>	X	X	X	X	L	X	X	X	X		X	X	X	X	X	X														
<i>Heleocharis</i>																														
<i>schoenoides</i> (L.) Host.....																														
<i>Hierochloa</i>																														
<i>alpina</i> (Sw.) R. & S., var. <i>alpina</i>																														
<i>odorata</i> (L.) Beauv., ssp. <i>odorata</i>																														
<i>Holcus</i>																														
<i>lanatus</i> L., ssp. <i>lanatus</i>																														
<i>mollis</i> L.....																														
<i>Hordeum</i>																														
<i>jubatum</i> L., ssp. <i>breviaristatum</i> Bowden*.....																														
<i>murinum</i> L., ssp. <i>leporinum</i> (Link)																														
Arcang.*																														
<i>pusillum</i> Nutt.....																														
<i>vulgare</i> L.....																														
<i>Hystrix</i>																														
<i>patula</i> Moench.....	X	X		X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
<i>Koeleria</i>																														
<i>phleoides</i> (Vill.) Pers.....																														
<i>pyramidata</i> (Lam.) Domin*.....																														

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Leersia</i>						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>oryzoides</i> (L.) Sw.....	X	X	X	X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>virginica</i> Willd.....	X				L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Leptochloa</i>							X				x																
<i>fascicularis</i> (Lam.) Gray, var. <i>fascicularis</i> ...																											
var. <i>maritima</i> (Bickn.) Gl.*.....								X																			
<i>Leptoloma</i>					X		X	X	X		X		H					X		X							
<i>cognatum</i> (Schult.) Chase.....																											
<i>Lolium</i>											X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>multiflorum</i> Lam.....	X	O	X	X	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>perenne</i> L.....	X	X	X	O							X	X	X	X	X	X	X	X	X	X	O	X	X	X	X	X	
<i>persicum</i> Boiss. & Hohenh.....															x												
<i>temulentum</i> L.....					I		x		I		x	h		x										x	x		
<i>Melica</i>																											
<i>altissima</i> L.....																										x	
<i>Mibora</i>																											
<i>minima</i> (L.) Desv.....							x																				
<i>Milium</i>																											
<i>effusum</i> L.....	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Miscanthus</i>																											
<i>sacchariflorus</i> (Maxim.) Hack.....									X																		
<i>sinensis</i> Anderss.																									X	X	X
<i>Molinia</i>																											
<i>caerulea</i> (L.) Moench, var. <i>caerulea</i>										X																X	

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Muhlenbergia</i>								X																			
<i>asperifolia</i> (Nees & Mey.) Parodi.....																											
<i>capillaris</i> (Lam.) Trin.....					L																						X
<i>frondosa</i> (Poir.) Fern.....		O	X	X	L																						X
<i>glomerata</i> (Willd.) Trin.....			X	X	X																						X
<i>mexicana</i> (L.) Trin.....			X	X	X																						X
<i>schreberi</i> Gmel.....					O																						X
<i>sobolifera</i> (Muhl.) Trin.....																											X
<i>sylvatica</i> Torr.....																											X
<i>tenuiflora</i> (Willd.) BSP.....					L																						X
<i>uniflora</i> (Muhl.) Fern.....			X	X	X			L	X	X																	X
<i>Nardus</i>																											
<i>stricta</i> L.....										X	X																
<i>Oryzopsis</i>																											
<i>asperifolia</i> Michx.....		X	X	X	X	X																					X
<i>canadensis</i> (Poir.) Torr.....					X																						
<i>pungens</i> (Torr.) Hitchc.....			X	X	X			X	X	X																	X
<i>racemosa</i> (Sm.) Ricker.....		X	X	X	X	X		X	X	X																	X
<i>Panicum</i>																											
<i>aculeatum</i> Hitchc. & Chase.....									X																		X
<i>agrostoides</i> Spreng., var. <i>agrostoides</i>		X						X	X	X																	X
<i>amarum</i> Ell.....																											X
<i>anceps</i> Michx., var. <i>anceps</i>																											X
<i>annulum</i> Ashe.....																											X
<i>ashei</i> Pearson.....								X	X																		X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
<i>Panicum (continued)</i>																										
auburne Ashe.....																										
boreale Nash.....	X	X	X																							
boscii Poir.....										X	X															
calliphylum Ashe.....								X																		
capillare L.....	O	X	X	X	O																					
clandestinum L.....	X	X	X	X	L																					
columbianum Scribn.*	X	X	X	X	X																					
communianum Ashe, var. commonstanum*..	X																									
commutatum Schult.....																										
depauperatum Muhl.....	X	X	X	X	L																					
dichotomiflorum Michx., var. dichotomiflorum					O																					
dichotomum L.*					X																					
flexile (Gatt.) Scribn.....	X	X	X																							
gattingeri Nash.....	X	X	X	O	O																					
impicatum Scribn.*	X	X	X	X																						
latifolium L.....	X	X	X	X	H																					
leibergii (Vasey) Scribn.....																										
lindheimeri Nash.....																										
linearifolium Scribn.*	X	X	X	X																						
longifolium Torr., var. longifolium.....																										
lucidum Ashe.....																										
malacoides Nash.....																										
mattamuskeetense Ashe*																										
meridionale Ashe.....																										
microcarpon Muhl.....																										

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Panicum (continued)</i>																											
miliaceum L.....				X	X	X					X	X	X								X						
oligosanthes Schult., var. seriberianum (Nash) Fern.*							X	X	X							X	X										
philadelphicum Bernh., var. philadelphicum... var. tuckermanni (Fern.) Stey. & Schmolll*					X						X	X	X			X	O	X	X	X							
polyanthes Schult.....											X	X	X			X	O	X	X	X							
recognitum Fern.....																											
scoparium Lam.....																											
sphaerocarpon Ell.....						X	X	X	X		X	X	X														
spretum Schult.....					X																						
stipitatum Nash.....																											
subvilosum Ashe.....									X																		
verrucosum Muhl.....																											
villosissimum Nash.*							X	X	X			H	X	X													
virgatum L., ssp. cubense (Griseb.) Hitchc... var. spissum Linder.....																											
ssp. virgatum.....							X	X	X																		
wrightianum Scribn.....																											
xanthophysum Gray.....					X						X		L	X													
<i>Pappophorum</i>																											
bicolor Fourn.																											
mucronulatum Nees.....																											
<i>Paspalum</i>																											
ciliatifolium Michx.*.....											X																
circulare Nash.....					X						X	X	X														

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Paspalum (continued)</i>																											
<i>debile</i> Michx.....																					X						
<i>dilatatum</i> Poir.....																											
<i>laeve</i> Michx.*.....																										X	
<i>psammophilum</i> Nash.....																										X	
<i>setaceum</i> Michx.....																										X	
<i>stramineum</i> Nash.....																										X	
<i>Pennisetum</i>																											
<i>alopecuroides</i> (L.) Spreng.....																										x	
<i>ciliare</i> (L.) Link.....																										x	
<i>Phalaris</i>																											
<i>arundinacea</i> L.....			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	X	X	
<i>canariensis</i> L.....							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Phileum</i>																											
<i>arenarium</i> L.....																										x	
<i>paniculatum</i> Huds.....																										x	
<i>pratense</i> L., <i>ssp. pratense</i>			O	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	
<i>Phragmites</i>																											
<i>communis</i> Trin., <i>ssp. berlandieri</i> (Fourn.) Löve & Löve*.....			X	X	X	O	L	X	X	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	X	X	
<i>Poa</i>																											
<i>alsodes</i> Gray.....			X	X	X	L																				X	
<i>annua</i> L.....			O	X	X	L																				X	
<i>bulbosa</i> L.....																										X	
<i>compressa</i> L.....			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
<i>Poa (continued)</i>																										
<i>cuspidata</i> Nutt.....																									X	X
<i>glauca</i> Vahl.....				X																						
interior Rydb.....			X	X																						
<i>languida</i> Hitchc.....			O	X	X	X	X	X	X				X	X	X	O	X				X					
<i>laxa</i> Haenke, sp. fernaldiana (Nauuf.) Hy- lander*				X																						
<i>nenoralis</i> L.....			O	X	X	X	O						X	X	X	O	X	X	O	X		X	X		L	X
<i>paludigena</i> Fern. & Wieg.....							X	X	X				X	X	X										X	
<i>palustris</i> L.....			X	X	X	X	X	X	X				X	X	X										X	X
<i>pratensis</i> L.....			O	X	X	X	L						X	X	X										X	X
<i>saltuensis</i> Fern. & Wieg.....			X	X	X	X	X	X	X				X	X	X										X	X
<i>sylvestris</i> Gray.....							X						X	L	X										X	X
<i>trivialis</i> L.....			X	X	O		X	X	X	X			X	X	X										X	X
<i>Polygonon</i>																										
<i>interruptus</i> HBK.....																									x	
<i>monspeliensis</i> (L.) Desf.....									x																	x
<i>Puccinellia</i>																										
<i>distans</i> (L.) Parl.....							X	X	X									X							X	X
<i>fasciculata</i> (Torr.) Bickn.....																									X	X
<i>pallida</i> (Torr.) Clausen*.....			X	X	X	L																			X	X
<i>rupestris</i> (With.) Fern. & Weath.....																									X	x
<i>Schizachne</i>																										
<i>purpurascens</i> (Torr.) Swallen.....			X	X	X	L	X	L	X	X	X		X	O	X											L

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
<i>Sclerochloa</i>																										
<i>dura</i> (L.) Beauv.....																										
<i>Secale</i>																										
<i>cereale</i> L.....						x	x	x	x	o	x	o	x	x	o	x	x	x	x	x	x	x	x	x	x	x
<i>Setaria</i>																										
<i>faberii</i> Herrm.....							X				X	O	X	X												
<i>geniculata</i> (Lam.) Beauv.....							L																			
<i>italica</i> (L.) Beauv.....						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>lutescens</i> Hubbard.....						O	X	X	X	O	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>verticillata</i> (L.) Beauv.....						O	X	X	O		X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>viridis</i> (L.) Beauv.....						O	X	X	O		X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Sorghum</i>																										
<i>bicolor</i> (L.) Moench*.....						x	x	x			x	x	x													
<i>halapense</i> (L.) Pers.																										
<i>nutans</i> (L.) Gray*.....						O	X	X	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X
<i>Spartina</i>																										
<i>alterniflora</i> Loisel.....																										
<i>cynosuroides</i> (L.) Roth.....																										
<i>patens</i> (Ait.) Muhl.....							X				X	X	H	X												
<i>pectinata</i> Link.....						O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Sphenopholis</i>																										
<i>intermedia</i> (Rydb.) Rydb.....						X	X	X	X	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>nitida</i> (Biehler) Scribn.....						X	X				X	X	X	X	X	L	X	X	X	X	X	X	X	X	X	X
<i>obtusata</i> (Michx.) Scribn.....						L	X	V			L	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X
<i>pensilvanica</i> (L.) Hitchc.*.....						X			L		X											L	X	X	X	X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Sporobolus																											
<i>airoides</i> (Torr.) Torr.....							X	X			X										X	X					X
<i>asper</i> (Michx.) Kunth, var. <i>asper</i>																											X
<i>clandestinus</i> (Biehler) Hitchc.....																											X
<i>contractus</i> Hitchc.....																											X
<i>cryptandrus</i> (Torr.) Gray, ssp. <i>cryptandrus</i> ..							x																				X
ssp. <i>fuscicola</i> (Hook.) Jones & Fassett*.....							X	X			X	X															X
<i>heterolepis</i> (Gray) Gray.....							X	X	X		X	X	X														X
<i>neglectus</i> Nash.....							X	X	X		X	X	X														X
<i>poiretii</i> (R. & S.) Hitchc.....							X	X	X		X	X	X														X
<i>pyramidalus</i> (Lam.) Hitchc.....							X	X	X		X	X	X														X
<i>vaginiflorus</i> (Torr.) Wood.....							X	X	X	X	X	O	X	X													X
Stipa																											X
<i>avenacea</i> L.....																											X
<i>comata</i> Trin. & Rupr.....							x																				X
<i>viridula</i> Trin.....							x																				X
Tragus																											X
<i>berteronianus</i> Schult.....																											X
<i>racemosus</i> (L.) All.....																											X
Trichloris																											X
<i>crinita</i> (Lag.) Parodi.....																											X
Tridens																											X
<i>flavus</i> (L.) Hitchc.....							X	X	X		X	X	X														X

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
<i>Triplasis purpurea</i> (Walt.) Chapm.....											X	X				X					X	X	V	X	X	X
<i>Tripsacum dactyloides</i> (L.) L.....																						X	X	X	X	X
<i>Trisetum flavescens</i> (L.) Beauv.....					X										X											X
<i>spicatum</i> (L.) Richter, ssp. <i>molle</i> (Kunth)																										
<i>Piper</i>				X	X		X	X	X		X															
ssp. <i>pilosiglume</i> (Fern.) Hultén*.....				X	X			?																		
<i>Triticum aestivum</i> L.....						0	X	X	X		X	X	X	X	X	0	X	X	X	X		0	X			X
<i>Uniola laxa</i> (L.) BSP.....																										X
<i>Zea mays</i> L.....						X	X	X																		X
<i>Zizania aquatica</i> L., var. <i>angustifolia</i> Hitchc.....				X	X	X	X		X		X	X	X	X	X											X
var. <i>aquatica</i>				X	X	X	X	X		X	X	X	X	X	X											L
var. <i>interior</i> Fassett.....										X																X

REJICIENDAE

Reports of the following species and races for New York State could not be substantiated:

- Agropyron trachycaulum, var. unilaterale (Cassidy) Malte*
- Echinochloa colonum (L.) Link
- Eleusine tristachya (Lam.) Lam.
- Elymus arenarius, ssp. mollis (Trin.) Piper*
- Glyceria striata, ssp. stricta (Scribn.) Hultén
- Muhlenbergia torreyana (Schult.) Hitchc.
- Panicum amarulum Hitchc. & Chase
- P. roanokense Ashe
- Poa chapmaniana Scribn.
- Puccinellia nuttalliana (Schult.) Hitchc.*
- P. pumila (Vasey) Hitchc.
- Trisetum melicoides (Michx.) Scribn.

HYBRIDS

The following postulated hybrids have been collected in New York State:

- Agrostis borealis x A. scabra (*A. x geminata* Trin.*)
- A. canina x A. tenuis (*A. x canino-vulgaris* Mercier)
- A. gigantea x A. stolonifera
- A. gigantea x A. tenuis
- Danthonia compressa x D. spicata (*D. x allenii* Aust.)
- Elymus riparius x E. villosus
- Festuca arundinacea x F. elatior (*F. x aschersoniana* Dörfl.)
- F. elatior x Lolium perenne (*x Festulolium loliaceum* (Huds.)
Fourn.)
- Glyceria borealis x G. septentrionalis
- G. canadensis x G. striata (*G. x ottawensis* Bowden)
- G. melicaria x G. striata (*G. x gatineauensis* Bowden)
- Panicum columbianum x P. depauperatum
- P. columbianum x P. implicatum (*P. x albemarlense* Ashe)
- P. columbianum x P. microcarpon
- P. depauperatum x P. dichotomum (*P. x bicknellii* Nash)
- P. implicatum x P. linearifolium
- P. implicatum x P. microcarpon
- P. implicatum x P. oligosanthos (*P. x scoparioides* Ashe)
- Poa glauca x P. laxa (*P. x scopulorum* Butters & Abbe)

P. nemoralis x *P. palustris*
Spartina patens x *S. pectinata* (*S. x caespitosa* A. A. Eaton)
Sphenopholis intermedia x *S. nitida*

MINOR VARIANTS

Each of the following minor variants, known to be in New York State, is included under the species concerned, or its nominate race. For descriptions of such not included in Hitchcock's second edition, the standard floras by Fernald and Gleason should be consulted. In instances where these three works do not describe the variant, a reference is cited in parentheses after the name.

- Agropyron repens*, f. *aristatum* (Schum.) Holmb.
var. *pilosum* Scribn.
var. *subulatum* (Schreb.) Reich.
var. *vaillantianum* (Wulf. & Schreb.) Reich.
f. *setiferum* Fern.
f. *trichorrhachis* Rohlena
Agrostis borealis, var. *americana* (Scribn.) Fern.
A. perennans, f. *chaetophora* Fern.
var. *aestivalis* Vasey
A. scabra, f. *tuckermanii* Fern.
A. tenuis, var. *aristata* (Parnell) Druce
Andropogon scoparius, f. *calvescens* Fern.
var. *frequens* F. T. Hubbard
var. *glaucescens* House (House)
var. *polyclados* Scribn. & Ball
var. *septentrionalis* Fern. & Grisc.
var. *villosissimus* Kearney
A. virginicus, var. *tetrastachyus* (Ell.) Hack.
Anthoxanthum odoratum, f. *giganteum* P. Junge
Aristida longespica, var. *geniculata* (Raf.) Fern.
Arrhenatherum elatius, var. *biartistatum* (Peterm.) Peterm.
var. *flavescens* Nielsen
var. *piliferum* Beck (Hegi)
Arthraxon hispidus, var. *cryptatherus* (Hack.) Honda
Brachyelytrum erectum, var. *septentrionale* Babel
Bromus ciliatus, var. *intonsus* Fern.
B. commutatus, var. *apricorum* Simonkai
B. erectus, var. *villosus* (M. & K.) A. & G. (Hegi)

- B. inermis*, var. *aristatus* Schur
 var. *villosus* (M. & K.) M. & K.
 f. *bulbiferus* Moore (Fernald, 1950b — as f. *proliferus*)
 var. *divaricatus* Rohlena
B. japonicus, var. *porrectus* Hack.
B. lepidus, f. *lasiolepis* Holmb. (Hylander)
B. macrostachys, f. *lanuginosus* (Poir.) Boiss. (Hylander)
B. mollis, var. *leiostachys* Hartm.
B. purgans, var. *incanus* Shear
B. secalinus, var. *submuticus* Reichb. (Hylander)
 var. *velutinus* (Schrad.) Koch
B. squarrosus, var. *villosus* Koch (Hylander)
B. tectorum, var. *glabratus* Spenner
Calamagrostis canadensis, var. *macouniana* (Vasey) Stebbins
C. epegeios, var. *georgica* (C. Koch) Ledeb.
Dactylis glomerata, var. *ciliata* Petern.
Danthonia spicata, var. *villosa* Peck (Fernald, 1943)
 var. *longipila*, Scribn. & Merr.
Deschampsia caespitosa, var. *glauca*, *sensu* Fern.
Digitaria sanguinalis, var. *ciliaris* (Retz.) Parl.
Echinochloa crusgalli, var. *aristata* S. F. Gray (Fernald, 1950b
 —as f. *longisetata*)
 f. *vittata* Hubbard (House)
E. walteri, f. *laevigata* Wieg.
Elymus canadensis, var. *glaucifolius* (Muhl.) Torr.
E. villosus, f. *arkansanus* (Scribn. & Ball) Fern.
E. virginicus, var. *intermedius* (Vasey) Bush
 var. *jejunus* (Ramaley) Bush
E. wiegandii, f. *calvescens* Fern.
Eragrostis spectabilis, var. *sparsihirsuta* Farw.
Erianthus giganteus, var. *compactus* (Nash) Fern.
Eriochloa gracilis, var. *minor* (Vasey) Hitchc.
Festuca elatior, f. *aristata* Holmb.
F. octoflora, var. *tenella* (Willd.) Fern.
F. ovina, var. *hispidula* Hack.
F. rubra, var. *subvillosa* M. & K.
Hierochloa odorata, var. *fragrans* (Willd.) Richt. (Fernald,
 1917)
 f. *eamesii* Fern.
Hordeum vulgare. var. *trifurcatum* (Schlecht.) Alef.
Hystrix patula, var. *bigeloviana* (Fern.) Deam
Leersia oryzoides, f. *inclusa* (Wiesb.) Dörfl.
 f. *glabra* A. A. Eaton

- L. virginica*, var. *ovata* (Poir.) Fern.
Lolium multiflorum, var. *muticum* DC. (Hylander)
 var. *ramosum* Guss.
L. perenne, var. *cristatum* Pers.
 var. *orgyiale* Döll. (Wiegand & Eames)
L. temulentum, var. *leptochaeton* A. Br.
Milium effusum, var. *cisatlanticum* Fern. (Fernald, 1950a)
Miscanthus sinensis, var. *zebrinus* Beal
Muhlenbergia frondosa, f. *commutata* (Scribn.) Fern.
M. glomerata, var. *cinnoides* (Link) F. J. Hermann
M. mexicana, f. *ambigua* (Torr.) Fern.
 f. *setiglumis* (S. Wats.) Fern.
M. sylvatica, f. *attenuata* (Scribn.) Palmer & Steyerm.
 var. *robusta* Fern.
Panicum boscii, var. *molle* (Vasey) Hitchc.
P. capillare, var. *occidentale* Rydb.
P. columbianum, var. *oricola* (Hitchc. & Chase) Fern.
 var. *thinium* (Hitchc. & Chase) Hitchc. & Chase
P. commonsianum, var. *addisonii* (Nash) Pohl
P. depauperatum, f. *cryptostachys* Fern.
 var. *psilophyllum* Fern.
P. dichotomiflorum, var. *geniculatum* (Wood) Fern.
P. dichotomiflorum, var. *puritanorum* Svenson
P. dichotomum, var. *barbulatum* (Mx.) Wood
P. linearifolium, var. *weneri* (Scribn.) Fern.
P. mattamuskeetense, var. *clutei* (Nash) Fern.
P. villosissimum, var. *pseudopubescens* (Nash) Fern., *p.p.*
Paspalum laeve, var. *pilosum* Scribn.
Phalaris arundinacea, var. *picta* L.
Phleum pratense, f. *viviparum* (S. F. Gray) Louis-Marie
Poa annua, var. *reptans* Hausskn.
P. bulbosa, var. *vivipara* Koel. (Hylander)
P. compressa, var. *silvestris* Torr. (Wiegand & Eames)
P. pratensis, ssp. *angustifolia* (L.) Gaudin (Fernald, 1950b —
 as *P. angustifolia*)
P. saltuensis, var. *microlepis* Fern. & Wieg.
P. trivialis, subvar. *semineutra* Richt. (Hegi)
Puccinellia distans, var. *angustifolia* (Blytt) Holmb.
Schizachne purpurascens, f. *albican* (Fern.) Fern.
Setaria verticillata, var. *ambigua* (Guss.) Parl.
S. viridis, var. *brevisetata* (Döll.) Hitchc.
 var. *major* (Gaudin) Posp. (Hylander)
 f. *ramuliflora*, D. N. Christiansen

- Spartina alterniflora*, var. *glabra* (Muhl.) Fern.
 var. *pilosa* (Merr.) Fern.
S. cynosuroides, var. *polystachya* (Mx.) Beal
S. patens, var. *monogyna* (M. A. Curt.) Fern.
S. pectinata, var. *suttiei* (Farw.) Fern.
Sphenopholis nitida, var. *glabra* (Nash) Scribn.
S. obtusata, var. *lobata* (Trin.) Scribn.
 var. *pubescens* (Scribn. & Merr.) Scribn.
Sporobolus vaginiflorus, var. *inaequalis* Fern.

Certain cultivated cereals (*Hordeum vulgare*, *Setaria italica*, *Sorghum bicolor*, *Triticum aestivum* and *Zea mays*, are represented by several subdivisions. These variations are not independently designated.

The following variants are referred as indicated:

- | | |
|---|---|
| <i>Agropyron cristatiforme</i> (Sarkar) | <i>Agropyron cristatum</i> |
| <i>A. trachycaulum</i> , var. <i>trichocoleum</i>
(Piper) Malte (Fernald, 1933) | <i>A. trachycaulum novae-angliae</i> |
| <i>Agrostis alba</i> , f. <i>aristigera</i> (Fern.)
Fern. | <i>Agrostis gigantea dispar</i> |
| <i>A. peckii</i> House (House) | <i>A. scabra</i> |
| <i>Andropogon praematurus</i> Fern. | <i>Andropogon scoparius</i>
<i>scoparius</i> |
| <i>Brachyelytrum aristosum</i> , var. <i>glabratum</i>
Vasey (Babel) | <i>Brachyelytrum erectum</i> |
| <i>Bromus dudleyi</i> Fern. | <i>Bromus ciliatus</i> |
| <i>B. purgans</i> , f. <i>glabriflorus</i> , Wieg. | <i>B. pubescens</i> |
| <i>B. purgans</i> , f. <i>laevivaginatus</i> , Wieg. | <i>B. pubescens</i> |
| <i>Calamagrostis canadensis</i> , var. <i>robusta</i>
Vasey | transitional from <i>Calamagrostis canadensis</i>
<i>canadensis</i> to <i>C. canadensis langsdorffii</i> |
| <i>Elymus virginicus</i> , var. <i>australis</i>
(Scribn. & Ball) Hitchc. | <i>Elymus virginicus glabriflorus</i> |
| <i>Eremopyrum bonaepartis</i> , f. <i>hirsutum</i>
(Spreng.) Bowden (Bowden, 1962) | <i>Agropyron bonaepartis</i> |
| <i>Festuca ovina</i> , var. <i>villosa</i> Schrad.
(Hegi) | <i>Festuca ovina longifolia</i> |

Glyceria nervata, var. parviflora Vasey (Wiegand & Eames)	Glyceria striata striata
G. pallida, var. fernaldii Hitchc.	Puccinellia pallida
Hierochloe nashii (Bickn.) Kaczmarek	Hierochloe odorata odorata
Panicum languidum Hitchc. & Chase	Panicum implicatum
P. lanuginosum, var. huachucae (Ashe) Hitchc. (Hitchcock — as <i>P. huachucae</i>)	
P. lanuginosum, var. fasciculatum (Torr.) Fern. (Hitchcock — as <i>P. huachucae</i> , var. <i>fasciculatum</i>)	P. implicatum
P. lanuginosum, var. septentrionale (Fern.) Fern. (Gleason)	P. implicatum
P. lanuginosum, var. tennesseense (Ashe) Gl. (Gleason)	P. implicatum
Paspalum pubescens, var. muhlenbergii (Nash) House (Gleason — cf. <i>P. muhlenbergii</i>)	P. ciliatifolium
Triodia flava, f. cuprea (Jacq.) Fosb. (Fernald, 1950b)	Tridens flava

DISTRICTS (See Map)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
DESIDERATA																										
Agropyron intermedium (Host) Beauv.....																										
A. trachycaulum, var. majus (Vasey) Fern.*..																										
var. unilaterale (Cassidy) Malte*.....																										
Agrostis eliottiana Schult.....																										
Aira elegans Willd.....																										
Alopecurus creticus Trin.....																										
A. rendlei Eig																										
Amphicarpum purshii Kunth.....																										
Andropogon eliottii Chapm.....																										
A. ternarius Michx.....																										
Aristida lanosa Muhl.....																										
A. virgata Trin.....																										
Arundinaria tecta (Walt.) Muhl.....																										
Avena barbata Brot.....																										
A. sterilis L.....																										
Bouteloua radicata (Fourn.) Griffiths.....																										
B. rigidiseta (Steud.) Hitchc.....																										
Brachiaria plantaginea (Link) Hitchc.....																										
Brachypodium distachyon (L.) Beauv.....																										
Bromus arenarius Labill.....																										
B. inermis, ssp. pumpellianus (Scribn.) Wagnon*																										
B. madritensis L.....																										
B. rigidus Roth.....																										

DISTRICTS (See Map)

DESIDERATA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Calamovilfa brevipilis (Torr.) Scribn., var. brevipilis																										
Chloris gayana Kunth.....																										
Danthonia intermedia Vasey.....																										
D. sericea Nutt.....																										
Digitaria serotina (Walt.) Michx.....																										
D. violascens Link.....																										
Echinochloa colonum (L.) Link.....																										
Eleusine tristachya (Lam.) Lam.																										
Elymus arenarius L., ssp. mollis (Trin.) Piper*																										
Eragrostis ciliaris (L.) R. Br.....																										
E. hirsuta (Michx.) Nees.....																										
E. intermedia Hitchc.....																										
Erianthus alopecuroides (L.) Ell.....																										
Festuca megalura Nutt.....																										
F. paradoxa Desv.....																										
F. rubra L., ssp. cryophila (Krecz. & Bobr.) Huitén*.....																										
F. sciurea Nutt.....																										
Gastridium ventricosum (Gouan) Schinz & Thell.																										
Glyceria striata (Lam.) Hitchc., ssp. stricta (Scribn.) Huitén																										
Gymnopogon ambiguus (Michx.) BSP.....																										
G. brevifolius Trin.....																										

DISTRICTS (See Map)

DESIDERATA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Helochloa alopecuroides</i> (Pill. & Mitterp.) Host <i>Helictotrichon pubescens</i> (Huds.) Pilger..... <i>Hordeum marinum</i> Huds., sp. gussoncanum (Pari.) Thell.* <i>H. marinum</i> Huds., sp. marinum..... <i>Lagurus ovatus</i> L..... <i>Leptochloa filiformis</i> (Lam.) Beauv..... <i>L. unimervia</i> (Presl) Hitchc..... <i>Manisuris rugosa</i> (Nutt.) Kuntze..... <i>Microstegium vimineum</i> (Trin.) A. Camus.... <i>Muhlenbergia curtisetosa</i> (Scribn.) Bush..... <i>M. racemosa</i> (Michx.) BSP..... <i>M. richardsonis</i> (Trin.) Rydb..... <i>M. torreyana</i> (Schult.) Hitchc..... <i>Oryzopsis miliacea</i> (L.) Benth. & Hook.....																											
<i>Panicum aciculare</i> Desv..... <i>P. adpersum</i> Trin..... <i>P. agrostoides</i> Spreng., var. <i>condensum</i> (Nash) Fern.* <i>P. amarulum</i> Hitchc. & Chase..... <i>P. angustifolium</i> Ell. <i>P. benneri</i> Fern..... <i>P. caeruleum</i> Hack.....																											

DESIDERATA	DISTRICTS (Sec Map)																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
<i>Panicum communianum</i> , var. <i>euchlamydeum</i> (Shiners) Pohl*																											
<i>P. ensifolium</i> Baldw.																											
<i>P. hemitomum</i> Schult.																											
<i>P. hirsitii</i> Swallen**																											
<i>P. lanuginosum</i> Ell.																											
<i>P. leucothrix</i> Nash																											
<i>P. longiligulatum</i> Nash																											
<i>P. nitidum</i> Lam.																											
<i>P. roanokense</i> Ashe																											
<i>P. scabriusculum</i> Ell.																											
<i>P. trifolium</i> Nash																											
<i>P. yadkinense</i> Ashe																											
<i>Parapholis incurva</i> (L.) C. E. Hubbard																											
<i>Paspalum boscianum</i> Flügge																											
<i>P. difforme</i> LeConte																											
<i>P. dissectum</i> (L.) L.																											
<i>P. floridanum</i> Michx.																											
<i>P. notatum</i> Flügge																											
<i>P. scrobiculatum</i> L.																											
<i>Phalaris minor</i> Retz																											
<i>P. paradoxa</i> L.																											
<i>Phleum alpinum</i> L., ssp. <i>commutatum</i> Gaudin*																											
<i>P. pratense</i> L., ssp. <i>nodosum</i> (L.) Trab.**																											

DISTRICTS (See Map)

DESIDERATA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
<i>Phleum subulatum</i> (Savi) A. & G.																										
<i>Poa alpigena</i> (Fr.) Lindm.**																										
<i>P. alpina</i> L.																										
<i>P. arctica</i> R. Br.																										
<i>P. autumnalis</i> Muhl.																										
<i>P. canbyi</i> (Scribn.) Piper																										
<i>P. chapmaniana</i> Scribn.																										
<i>P. glaucantha</i> Gaudin.																										
<i>Puccinellia americana</i> Sørensen*																										
<i>P. nuttalliana</i> (Schult.) Hitchc.*																										
<i>P. pumila</i> (Vasey) Hitchc.																										
<i>Sacciolepis striata</i> (L.) Nash.																										
<i>Setaria magna</i> Griseb.																										
<i>S. setosa</i> (Swartz) Beauv.																										
<i>Trisetum aureum</i> (Ten.) Ten.																										
<i>T. melicoides</i> (Michx.) Scribn.																										
<i>Uniola latifolia</i> Michx.																										

ADDITIONS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	

Synonymy

No equation is indicated here, when the change is merely one of rank below the level of species, without any change in infraspecific epithet.

CHECKLIST NAME	MANUAL NAME
<i>Agropyron trachycaulum</i> , <i>p. p.</i>	<i>Agropyron subsecundum</i>
<i>Agrostis</i> x <i>geminata</i>	<i>Agrostis scabra</i> , var. <i>geminata</i>
<i>A. gigantea</i> , var. <i>dispar</i>	<i>A. alba</i>
<i>A. gigantea</i> , var. <i>gigantea</i>	<i>A. nigra</i>
<i>A. perennans</i> , ssp. <i>elata</i>	<i>A. altissima</i>
<i>A. spica-venti</i>	<i>Apera spica-venti</i>
<i>A. stolonifera</i> , var. <i>palustris</i>	<i>Agrostis stolonifera</i>
<i>A. stolonifera</i> , var. <i>stolonifera</i>	<i>A. palustris</i>
<i>Andropogon scoparius</i> , var. <i>littoralis</i>	<i>Andropogon littoralis</i>
<i>A. virginicus</i> var. <i>abbreviatus</i>	<i>A. glomeratus</i> , <i>p. p.</i>
<i>Avena fatua</i> , ssp. <i>sativa</i>	<i>Avena sativa</i>
<i>Beckmannia eruciformis</i> , ssp. <i>baicalensis</i>	<i>Beckmannia syzigachne</i>
<i>Bromus diandrus</i>	<i>Bromus rigidus</i> , var. <i>gussonei</i>
<i>B. inermis</i> , ssp. <i>pumpellianus</i>	<i>B. pumpellianus</i>
<i>B. pubescens</i>	<i>B. purgans</i>
<i>B. purgans</i>	<i>B. latiglumis</i>
<i>B. willdenowii</i>	<i>B. catharticus</i>
<i>Calamagrostis canadensis</i> , ssp. <i>langsдорffii</i>	<i>Calamagrostis canadensis</i> , var. <i>scabra</i>
<i>C. porteri</i> , ssp. <i>perplexa</i>	<i>C. perplexa</i>
<i>Catapodium rigidum</i>	<i>Scleropoa rigida</i>

CHECKLIST NAME

MANUAL NAME

Cenchrus longispinus	Cenchrus pauciflorus
Digitaria adscendens	Digitaria sanguinalis, <i>p. p.</i>
Echinochloa crusgalli, ssp. edulis	Echinochloa crusgalli, var. frumentacea
<i>E. muricata</i>	<i>E. crusgalli, p. p.</i>
Elymus arenarius, ssp. mollis	Elymus mollis
<i>E. wiegandii</i>	<i>E. canadensis, p. p.</i>
Festuca brachyphylla	Festuca ovina, var. brachyphylla, <i>p. p.</i>
<i>F. bromoides</i>	<i>F. dertonensis</i>
<i>F. ovina, ssp. longifolia</i>	<i>F. ovina, var. duriuscula</i>
<i>F. ovina, ssp. saximontana</i>	<i>F. ovina, p. p., incl. var. brachyphylla, p. p.</i>
<i>F. ovina, ssp. tenuifolia</i>	<i>F. capillata</i>
<i>F. rubra, ssp. cryophila</i>	<i>F. rubra, p. p., incl. var. prolifera</i>
Glyceria maxima, ssp. grandis	Glyceria grandis
Hordeum jubatum, ssp. breviaristatum	Hordeum brachyantherum
<i>H. marinum, ssp. gussoneanum</i>	<i>H. hystrix</i>
<i>H. murinum, ssp. leporinum</i>	<i>H. leporinum</i>
Koeleria pyramidata	Koeleria cristata
Panicum agrostoides, var. condensum	Panicum condensum
<i>P. columbianum, p. p.</i>	<i>P. oricola</i>
<i>P. columbianum, p. p.</i>	<i>P. tsugetorum</i>
<i>P. commonsianum, var. commonsianum, p. p.</i>	<i>P. addisonii</i>
<i>P. commonsianum, var. euchlamydeum</i>	<i>P. pseudopubescens, p. p.</i>
<i>P. dichotomum, p. p.</i>	<i>P. barbulatum</i>
<i>P. implicatum, p. p.</i>	<i>P. huachucae</i>
<i>P. implicatum, p. p.</i>	<i>P. languidum</i>
<i>P. implicatum, p. p.</i>	<i>P. temesseense</i>
<i>P. linearifolium, p. p.</i>	<i>P. werneri</i>
<i>P. mattamuskeetense, p. p.</i>	<i>P. clutei</i>
<i>P. oligosanthos, var. scribnerianum</i>	<i>P. scribnerianum</i>
<i>P. philadelphicum, var. tuckermanii</i>	<i>P. tuckermanii</i>
<i>P. villosissimum, p. p.</i>	<i>P. pseudopubescens, p. p.</i>
Paspalum ciliatifolium, <i>p. p.</i>	Paspalum pubescens

CHECKLIST NAME

MANUAL NAME

<i>P. laeve</i> , <i>p. p.</i>	<i>P. longipilum</i>
<i>Phleum alpinum</i> , ssp. <i>commuta-</i> <i>tum</i>	<i>Phleum alpinum</i>
<i>Phragmites communis</i> , ssp. <i>ber-</i> <i>landieri</i>	<i>Phragmites communis</i>
<i>Poa laxa</i> , ssp. <i>fernaldiana</i>	<i>Poa fernaldiana</i>
<i>Puccinellia americana</i>	<i>Puccinellia maritima</i>
<i>P. nuttalliana</i>	<i>P. airoides</i>
<i>P. pallida</i> , <i>p. p.</i>	<i>Glyceria fernaldii</i>
<i>P. pallida</i> , <i>p. p.</i>	<i>G. pallida</i>
<i>Sorghum bicolor</i> , <i>p. p.</i>	<i>Sorghum sudanense</i>
<i>S. bicolor</i> , <i>p. p.</i>	<i>S. vulgare</i>
<i>S. nutans</i>	<i>Sorghastrum nutans</i>
<i>Sphenopholis pensilvanica</i>	<i>Trisetum pennsylvanicum</i>

References for Descriptions

The following species and subspecies are not included in Hitchcock's *Manual*, ed. 2. References for descriptions are indicated in parentheses after the name.

- Aegilops crassa (Gleason)
- Agropyron bonaepartis (Gleason — as *A. squarrosus*)
- A. orientale (Gleason)
- Bromus lepidus (Hubbard)
- Dactylis glomerata, ssp. aschersoniana (Hubbard — as *D. polygama*)
- Elymus arenarius, ssp. arenarius (Bowden, 1957)
- Glyceria maxima, ssp. maxima (Fernald, 1950b — as *G. spectabilis*)
- Panicum hirstii (Swallen)
- Poa alpigena (Fernald, 1950b)

For species and races subdivided differently from the treatment in the *Manual of Grasses*, the following references are given:

- Agropyron trachycaulum (Fernald, 1950b)
- Agrostis canina (Hubbard)
- A. gigantea (Philipson)
- A. stolonifera (Philipson)
- Andropogon virginicus & A. glomeratus (Fernald, 1950b)
- Deschampsia flexuosa (Fernald, 1950b)
- Digitaria sanguinalis & D. adscendens (Ebinger)
- Echinochloa crusgalli & E. muricata (Wiegand & Eames)
- Elymus canadensis & E. wiegandii (Fernald, 1950b)
- Festuca ovina & F. brachyphylla (Gleason, as *F. ovina*, vars.)
- F. rubra (Fernald, 1950b — as *F. rubra* & *F. prolifera*)
- Glyceria striata (Fernald, 1950b)
- Leptochloa fascicularis (Gleason)
- Panicum commonsianum (Pohl)
- P. lanuginosum (Gleason)
- Phleum pratense (Fernald, 1950b)
- Sporobolus cryptandrus (Jones & Fassett)
- Trisetum spicatum (Hultén)

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