

FINAL REPORT

COASTAL ENERGY IMPACT PROGRAM

Contract Number 80-63

A Continuation of the Biological Inventory of the Coastal Zone in Lucas, Wood, Ottawa, Sandusky, Erie, Lake, and Ashtabula Counties to Determine Locations of Significant Plant Species, Plant Communities and Natural Areas which are Threatened Due to New or Expanding Energy Facilities or Activities

Submitted to:

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COASTAL ZONE
INFORMATION CENTER

By:

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February 13, 1981

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ACKNOWLEDGMENTS

The Ohio Department of Natural Resources, Division of Natural Areas and Preserves, wishes to thank the staff of the Ohio Department of Energy for the assistance they provided in the implementation of this project. In addition, this project would not have been possible without the support and cooperation of the Ohio Coastal Zone Management Section. Special thanks are due to the many landowners who granted permission for Division staff to survey their property.

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INTRODUCTION

The Coastal Energy Impact Program (CEIP), created by a 1976 amendment to Section 308 of the U.S. Coastal Zone Management Act of 1972, is a federally funded program designed to assist coastal states and units of local government in mitigation of on-shore effects of new or expanding coastal energy activity. The Ohio Department of Energy has responsibility for development, implementation, and administration of Section 308 CEIP within the State of Ohio.

On July 1, 1979, the Ohio CEIP provided a Planning Grant of \$22,294 in federal funds to the Division of Natural Areas and Preserves (DNAP). Planning grants are awarded on an 80% federal/20% non-federal funding basis. These grants may be used to defray costs of study and planning for economic, environmental, or social impacts occurring or likely to occur in the coastal zone as a result of the siting, construction, expansion, or operation of new (since July 26, 1976) or expanded energy facilities.

On June 12, 1980, the Ohio CEIP provided written authorization to proceed with a second CEIP Planning Grant, Number 80-63, "A Continuation of the Biological Inventory of the Coastal Zone in Lucas, Wood, Ottawa, Sandusky, Erie, Lake and Ashtabula Counties to Determine Locations of Significant Plant Species, Plant Communities and Natural Areas which are Threatened Due to New or Expanding Energy Facilities or Activities." This grant of \$12,910 was intended to be the spring and early summer equivalent of the 1979 grant, which covered the field season beginning on August 6, 1979. As originally proposed, the field survey portion of the 1980 project would have been initiated in mid-April. Due to difficulties encountered in acquiring formal federal approval, the Division was not authorized to initiate the project until June 12, 1980. Field surveys were conducted until mid-September.

Reviewers of this report should refer to the final report for CEIP Contract Number 79-16, dated December 28, 1979, for additional information relating to the overall coastal zone study.

This final report is intended to supplement the 1979 project report and to provide information which was unavailable for the 1979 report. This report does provide a listing of state official endangered and threatened plant species known to occur in the Ohio coastal zone. However, this report does not provide details about rare plant occurrences, relative quality or location of the most significant plant communities or natural areas, or Division strategy for future preservation efforts of specific sites. Accurate, detailed information can be provided to legitimate data users through the Natural Heritage Program data services system. This system will provide the data user with the most current information available.

DATA COLLECTION SYSTEM

Data on endangered species and significant natural plant communities in the Lake Erie coastal zone were obtained from all major available sources to the level of detail allowed by funding and time limitations of the 1979 contract. Data sources included herbarium specimens, literature records, knowledgeable individuals, and original field work. These data were organized by the data processing systems of the Natural Heritage Program within the Ohio Department of Natural Resources, Division of Natural Areas and Preserves.

Most of the preexisting endangered species data pertaining to the Lake Erie coastal zone had been obtained by the Natural Heritage Program prior to work on the 1979 CEIP contract. These data were refined, updated and reorganized to assist field survey efforts on the project and to make the data more useful to the Division. Attempts then were made to validate these records in the field during 1979 and 1980.

Most of the new or improved data obtained by the Division of Natural Areas and Preserves was a result of the efforts of the field botanists. Mr. David Brandenburg worked part-time on the western basin (Lucas to Erie counties) from May 12 (prior to the approved starting date of the project) until August 24. Dr. Barbara K. Andreas worked part-time on the eastern basin from May 12 (prior to the approved starting date of the project) until September 19. These people were assisted by Mr. Allison Cusick, staff botanist for the Natural Heritage Program. The pre-contract field work was conducted at the expense of the Division and that data also is included in this report.

Confronted with the formidable task of surveying as much of the coastal zone as possible, the field botanists concentrated on areas where previous records, literature and personal leads, probable habitats, and intuition directed them. Their primary goal was the location of endangered plant species, with possibly significant plant community stands being recorded when

encountered. Specimens of state endangered, threatened, and potentially threatened species were obtained when populations were large enough to warrant collection. Specimens were deposited primarily at the herbarium of The Ohio State University, with duplicates, when collected, usually being deposited at Kent State University and/or Miami University. Sight records (versus collection records) were made for very small populations and for populations of species already represented by adequate collections in given areas.

All endangered species occurrence data were organized into the Natural Heritage Program data processing system. Each record was checked for completeness and accuracy of information, and then mapped and entered into computer storage. Such storage allows easy access to, alteration of, and addition to the data contained on the Lake Erie coastal zone. This data system made it possible to generate the species lists attached as appendices to this report.

SURVEY RESULTS

The Lake Erie coastal zone contains numerous locations of state endangered and threatened plants, as well as many significant plant communities and natural areas. Previous data collection efforts in the coastal zone have been extensive when compared to efforts in other parts of Ohio, yet there were a number of areas which required additional surveys. This project provided an opportunity for the Division of Natural Areas and Preserves to verify older data and to improve upon vague or inaccurate information about the early summer flora of the coastal zone.

Many previously known locations of rare plants were surveyed and verified as a result of this project. Older records were updated, improved and reconfirmed. New locations for rare plants were discovered and better population data was obtained on known sites. It is not possible to give exact statistics on the number of new rare plant occurrences identified as a result of the 1980 CEIP project because it is not always possible to determine whether an old, vague record is being updated and improved, or whether a previously unreported occurrence has been discovered.

Research efforts in the coastal zone as a result of the 1979 CEIP contract resulted in 161 new and/or improved records of rare plant occurrences being added to the Natural Heritage Program data base. The 1980 CEIP contract research, as well as data collected by Division staff from early May until June 12, 1980, provided approximately 50 records of rare plant occurrences being added to the Natural Heritage Program data base. Of particular significance was the discovery of one and possibly two presumed extirpated plant species in the coastal zone during 1980.

A list of the rare plants of Ohio is attached as Appendix B of this report. Of the 565 Ohio species considered endangered, threatened, or potentially threatened, 116 are documented as occurring in the Lake Erie

coastal zone. Species known to occur in the coastal zone are indicated in the species list (Appendix B). Appendix C provides a list of rare plant species occurring in the coastal zone by county. This data should be especially beneficial for environmental impact assessment purposes and may be considered accurate as of January 1, 1981.

It is anticipated that the state's official lists of endangered and threatened plants will be amended in November, 1981. In addition, field surveys will be conducted throughout the state in 1981, and it is likely that additional rare plant occurrences, and perhaps additional species, will be found in the Lake Erie coastal zone in 1981.

Of the 116 species currently documented as occurring in the coastal zone, 19 are classified as endangered, 53 as threatened, and 43 as potentially threatened. One plant is currently classified as presumed extirpated on the state's official list. Its status will be changed when the rules implementing O.R.C. Chapter 1518 are revised. Table I provides a breakdown of the species totals by county.

Table I: Rare Plants of the Coastal Zone: Species Totals by County
Species Status in Ohio

County	Total # Species	Endangered	Threatened	Potentially Threatened	(Previously) Presumed Extirpated
Ashtabula	26	2	11	13	0
Cuyahoga	14	1	4	9	0
Erie	48	1	25	22	0
Lake	15	1	4	10	0
Lorain	3	0	0	3	0
Lucas	25	3	8	13	1
Ottawa	84	14	38	31	1
Sandusky	2	1	0	1	0
Wood	0	0	0	0	0
Coastal Zone Total	116	19	53	43	1

In the 1979 CEIP project, five specific sites were surveyed at the request of the Coastal Energy Impact Program Administrator. Three of these areas were either adequately surveyed in 1979 or held an extremely low possibility of additional rare plant occurrences being found. The other two areas were revisited in 1980, but no significant new data was obtained.

It is important to note that the data presented in this report represents the total data base on the coastal zone and not just data collected as a result of the 1980 CEIP project.

FEDERALLY LISTED SPECIES

The U.S. Fish and Wildlife Service currently lists (Federal Register, Vol. 45, No. 242, December 15, 1980) one Ohio plant as threatened and fifteen as under consideration for listing as endangered or threatened. According to the Fish and Wildlife Service, consideration should be given to all sixteen of these plants in environmental planning. The list is attached as Appendix D.

Of these sixteen plants, eleven are currently known to occur in Ohio, and five are presumed extirpated from the state. Four, and perhaps five, of these plants historically occurred in the coastal zone, and two are currently known to occur there. One additional plant, the Beach Sumac (Rhus trilobata var. arenaria), may have been rediscovered as the result of the 1980 CEIP project, but the specimens were found too late in the year for accurate identification. These plants will be checked in May, 1981, and proper identification will be made. The sumac is currently listed as presumed extirpated from Ohio.

The Lakeside Daisy (Hymenoxys acaulis var. glabra) and the Prairie White-fringed Orchid (Platanthera leucophaea) are currently known to exist in the coastal zone. The orchid was presumed extirpated from Ohio until 1980, when it was rediscovered in the western basin of the coastal zone. Hill's Pondweed (Potamogeton hillii) historically occurred in the coastal zone in Ashtabula County, but the site has been thoroughly altered and it is extremely unlikely that this plant will be rediscovered. The Heart-leaved Plantain (Plantago cordata) once occurred in Erie, Lorain, and Lucas counties, but existing locational information is not adequate to determine whether it was actually in the coastal zone.

MANAGEMENT CONSIDERATIONS

All of the endangered, threatened and potentially threatened plant species occurring in the coastal zone are significant elements of Ohio's natural heritage and should be protected whenever possible. If priorities must be set, the greatest protection efforts should be extended to those species whose population levels are critically low or in greatest danger of destruction.

It is impossible in this stage of the art to list sophisticated management techniques appropriate for each endangered or threatened species found in the coastal zone. Such will require detailed observations and experimental studies of each species' needs and limitations for soil types, water quality and quantities, microclimate conditions and extremes, effects of associated species, pollinators, critical population sizes for outcrossing, and other important factors. Nevertheless, much, if not most, protection may be afforded by simply using common sense.

One generality which usually applies is that a species will be protected best by maintaining those habitat conditions in which it currently thrives, or at least survives. This, of course, assumes that the species is also protected from destructive humans. The habitat conditions in which a species thrives, however, are not always apparent. Hence, we have no good alternative but to attempt to maintain those conditions in which we think a population is thriving, until we know otherwise.

It will be many years before significant action is taken on most of the identified endangered and threatened plant locations, but it is likely that action will be taken on the several species in greatest need of protection. In general, the Division of Natural Areas and Preserves will concentrate its efforts on the highest quality natural areas in the coastal zone which require additional protection.

PROTECTION STRATEGY

Although research efforts concentrated on rare plant species in 1980 as it did in 1979, significant plant communities and natural areas also were studied as part of this project. One previously unknown area of statewide significance was discovered as a result of this study, and information was collected which has aided the Division of Natural Areas and Preserves in the continuing evaluation of coastal zone plant communities and natural areas. There has been no significant change in the level of protection afforded these areas since the 1979 report was developed. Significant areas are protected by several divisions of the Ohio Department of Natural Resources, by the U.S. Fish and Wildlife Service, by local government, and by private organizations such as the hunting clubs of the Sandusky Bay area. There remain several areas in the coastal zone which require additional or increased protection. The Division will continue to concentrate preservation efforts on the most significant areas in greatest need of additional protection.

The Division of Natural Areas and Preserves has provided some protection to endangered and threatened plant species in the coastal zone and statewide by implementing Ohio Revised Code Chapter 1518 (endangered plant law) on July 1, 1980, and by making information available through the heritage program data services system. This system provides information to developers, consultants, local governments and others at a level of detail which previously was unavailable. In addition, the DNAP has contacted some of the owners and/or managers of significant areas to inform them of the value of the natural features on their property. Where possible, the DNAP will assist these landowners in the development of management plans designed to protect the natural features on their property. The DNAP will work with the owners of the most significant areas in an attempt to provide the greatest level of protection possible to these areas.

The attitude and interests of the landowner are of paramount importance in determining the actions taken by the Division. The DNAP believes it is essential that the landowner be the first to hear of the Division's concern for the natural features on their property. Protection efforts generally are more successful if the landowner is provided an accurate description of the Division's interest from the Division rather than from a third party.

Natural area protection can take several forms, all of which have different costs and benefits for both the landowner and the Division. Usually some protection is provided by merely notifying the landowner of the natural value of their property and encouraging its preservation. This, at least, prevents the unintentional destruction of valuable natural lands. The Division can work with landowners to develop management plans which are both compatible with natural feature preservation and limited use by the landowner. Conservation easements can provide some protection while allowing the landowner to maintain certain rights and privileges of ownership. There are also substantial tax advantages to the landowner who agrees to protect the natural value of the property on a long term basis. Dedication as a state nature preserve under the Ohio Natural Areas Law provides the best possible protection for a natural area in Ohio.

The preservation technique selected by the landowner should be determined on a case-by-case basis after exploring all alternatives. Additional information and technical assistance can be obtained from the Division.

SUMMARY AND CONCLUSIONS

The Ohio Department of Natural Resources, Division of Natural Areas and Preserves, by means of a planning grant from the Ohio Department of Energy, Coastal Energy Impact Program, conducted an early summer survey of endangered, threatened, and potentially threatened plant species; significant plant communities; and natural areas in the Lake Erie coastal zone in 1980. Data were obtained primarily from staff field surveys.

Numerous additional records of rare plant species were identified as a result of these field surveys. Some additional information was collected on the relative quality of plant communities and natural areas in the coastal zone. Surveys were conducted on several areas previously identified as requiring greater protection than is currently afforded. Specific sites of concern to the Coastal Energy Impact Program were surveyed and evaluated for early summer flora.

Information collected via the Coastal Energy Impact Program planning grant assisted the Division in the development of the endangerment status for plants under Ohio Revised Code Chapter 1518 (Endangered Plant Law). Reasonably accurate data is now available on the rare plants of the Lake Erie coastal zone. This information should be of great value in environmental impact assessment and development project planning.

Data collected during 1980 and earlier will be made available to concerned entities through the Natural Heritage Program data services system.

The Ohio Department of Natural Resources, Division of Natural Areas and Preserves, commends the Ohio Department of Energy, Coastal Energy Impact Program, for its concern for endangered plant species, plant communities and natural areas in the coastal zone.

APPENDIX A
PROJECT AUTHORIZATION LETTER



James A. Rhodes
GOVERNOR

Robert S. Ryan
DIRECTOR

30 East Broad Street 34th Floor
Columbus, Ohio 43215
(614) 466-1805

June 12, 1980

TO: ALL ODOE/CEIP Contractors

FR: Michael Adams, Jacqueline Bird

A handwritten signature in cursive script that reads "Jacqueline F. Bird".

RE: Authorization to Commence Work Under CEIP Grants

This memorandum is to serve as written permission for your agency to begin work outlined in your Ohio Department of Energy (ODOE) contract under the Coastal Energy Impact Program. "June 12, 1980" will be the official commencement date entered on your contract. To allow adequate time for project completion, the "February 28, 1981" deadline date will be extended by formal contract modification in the near future.

In regard to invoices submitted by your agency to ODOE:

- 1) All invoices must be submitted using the ODOE "Request for Payment" and "Financial Statement" forms (copies enclosed). The Request for Payment form must bear an original signature by an appropriate authority;
- 2) All invoices must have documentation of expenditures attached, i.e., copies of time sheets, travel receipts, subcontractor invoices, etc. No reimbursement can be made without full documentation;
- 3) The first invoice should be accompanied by a statement certifying that amounts reported as staff salaries represent the actual amounts paid to staff. ODOE should be notified of any subsequent changes.

Be aware that all CEIP grants will be audited upon project completion. In anticipation of this, please assure that complete and accurate records are maintained including those regarding your required 20% match, if applicable.

The Contractor must comply with all guidelines as published in Office of Management and Budget Circular A-102, "Uniform Administrative Requirements for Grants-in-Aid to State and Local Governments";

cont'd...

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Authorization to Commence Work

General Services Administration Federal Management Circular FMC 74-4, "Cost Principles Applicable to Grants and Contracts with State and Local Governments"; General Services Administration Federal Management Circular FMC 73-2, "Audit of Federal Operations and Programs by Executive Branch Agencies"; and any other applicable guidelines or regulations.

ODOE recognizes the inconveniences caused by the excessive length of the federal approval process and is attempting to alleviate them. Federal regulations state that OCZM review shall take 45 days. ODOE submitted its projects application to the U.S. Office of Coastal Zone Management/CEIP on December 15, 1979 and received approval on May 19, 1980. State encumbrance procedures were then initiated and are now complete.

We look forward to working with you on these projects. If there are any questions on this or any other matter pertaining to CEIP, please contact us at 614/466-1088.

Attachments

APPENDIX B
RARE SPECIES OF NATIVE OHIO WILD PLANTS



Ohio Department of Natural Resources

DIVISION OF NATURAL AREAS & PRESERVES
Fountain Square • Columbus, Ohio 43224 • (614) 466-7803

March, 1980

RARE SPECIES OF NATIVE OHIO WILD PLANTS

The attached list represents a tabulation of Ohio endangered, threatened, potentially threatened, and presumed extirpated vascular plant species as determined by the Division of Natural Areas and Preserves' Natural Heritage Program on the indicated date. The list was compiled pursuant to Ohio Revised Code Chapter 1518 which directs the Chief of the Division of Natural Areas and Preserves to adopt criteria and lists of plants endangered or threatened in the state. The Division gratefully acknowledges the cooperation and assistance of the Ohio Biological Survey Endangered Species and Population Committee in the development of this list.

The potentially threatened and presumed extirpated species are listed for scientific and public education purposes. Rare hybrids are included on this list, but are not considered special plant species in the Natural Heritage Program data base.

The species are listed by family according to classic phylogenetic order. Nomenclature is generally that of M.L. Fernald, 1950, Gray's Manual of Botany, eighth edition. Where more recent names are employed, applicable synonyms in Fernald are indicated in parentheses. A column marked "Code No." indicates data processing numbers utilized by the Natural Heritage Program. The columns marked "US" and "OH" indicate status levels of the species as assigned by the U.S. Fish and Wildlife Service and by the Ohio D.N.R., Division of Natural Areas and Preserves. Status codes are as follows:

- X - Presumed Extirpated
- E - Endangered
- PE - Proposed Endangered (Fed. status)
- T - Threatened
- PT - Proposed Threatened (Fed. status)
- P - Potentially threatened
- H - Hybrid

This list will be updated annually as new data become available. Revised lists should be available in April of each year. Rules governing endangered and threatened plants are available from the Division of Natural Areas and Preserves.

Questions should be directed to the Natural Heritage Program in the Division of Natural Areas and Preserves.

DESIGNATION CRITERIA

Endangered Species: A native Ohio plant species may be designated endangered if, based on its known status in Ohio, one or more of the following criteria applies:

- (1) The species is a federal endangered species extant in Ohio.
- (2) The natural populations of the species in Ohio are limited to three or fewer sites, each of which is one square mile or less in area and is separated from each of the other sites by at least two linear miles.
- (3) The distribution of the natural populations of the species in Ohio is limited to a geographic area delineated by one or two United States Geological Survey 7.5 minute quadrangle maps.
- (4) The total number of plants in all the natural populations of the species in Ohio is limited to one hundred or fewer individual, physically unconnected plants.

Threatened Species: A native Ohio plant species may be designated threatened if, based on its known status in Ohio, one or more of the following criteria applies:

- (1) The species is a federal threatened species extant in Ohio but not on the state endangered species list.
- (2) The natural populations of the species in Ohio are limited to no less than four nor more than ten sites, each of which is one square mile or less in area and is separated from each of the other sites by at least two linear miles.
- (3) The distribution of the natural populations of the species in Ohio is limited to a geographic area delineated by no less than three nor more than five United States Geological Survey 7.5 minute quadrangle maps.

Presumed Extirpated Species: A native Ohio plant species may be designated presumed extirpated when no natural populations of the species are known to occur in the state.

Potentially Threatened Species: A native Ohio plant species may be designated potentially threatened if it qualifies for one or more of the following criteria.

- (1) The species is extant in Ohio and does not qualify as a state endangered or threatened species, but it is either
 - a. a proposed federal endangered or threatened species or a species listed in the Federal Register as under review for such proposal, and/or
 - b. a species protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- (2) The natural populations of the species are imperiled to the extent that the species could conceivably become a threatened species in Ohio within the foreseeable future.
- (3) The natural populations of the species, even though they are not threatened in Ohio at the time of designation, are declining in abundance or vitality at a significant rate throughout all or large portions of the state.

DIVISION OF NATURAL AREAS AND PRESERVES
NATURAL HERITAGE PROGRAM
Special Plants

Pteridophytes

	<u>Code No.</u>	COASTAL ZONE COUNTIES	<u>OH</u>
LYCOPODIACEAE. Clubmoss Family			
<i>Lycopodium inundatum</i> , Bog Clubmoss.....	EA F46		P
SELAGINELLACEAE. Spikemoss Family			
<i>Selaginella rupestris</i> , Rock Spikemoss.....	EY F47		T
ISOETACEAE. Quillwort Family			
<i>Isoetes engelmannii</i> (<i>I. engelmannii</i>), Appalachian Quillwort.....	EB 359		E
<i>Isoetes muricata</i> , Spiny-spored Quillwort.....	EB F48		X
EQUISETACEAE. Horsetail Family			
<i>Equisetum sylvaticum</i> , Woodland Horsetail.....	EZ A07		T
<i>Equisetum variegatum</i> (<i>E. variegatum</i> var. <i>variegatum</i>), Variegated Scouring-rush.....	EZ F50	O	P
<i>Equisetum X nelsonii</i> (<i>E. variegatum</i> var. <i>nelsonii</i>), Nelson's Scouring-rush.....	EZ F51		H
<i>Equisetum X trachyodon</i> (<i>E. variegatum</i> var. <i>jesupi</i>), Jesup's Scouring-rush.....	EZ F52		H
OPHIOGLOSSACEAE. Adder's-tongue Family			
<i>Botrychium biternatum</i> (<i>B. dissectum</i> var. <i>tenuifolium</i> ; see Gleason and Cronquist), Sparse-lobe Grape-fern..	EC F53		E
<i>Botrychium lanceolatum</i> , Triangle Grape-fern.....	EC 082		E
<i>Botrychium multifidum</i> , Leathery Grape-fern.....	EC F54		T
<i>Botrychium simplex</i> (including varieties & formae), Least Grape-fern.....	EC F55		E
<i>Botrychium ternatum</i> (not in Fernald 1950; see Wherry 1961), American Ternate Grape-fern.....	EC F56		E
<i>Ophioglossum engelmannii</i> (<i>O. engelmannii</i>), Limestone Adder's-tongue.....	EC F57		E
SCHIZAEACEAE. Curly-grass Family			
<i>Lygodium palmatum</i> , Climbing Fern.....	ED 429		P
ADIANTACEAE (POLYPODIACEAE). Maidenhair Family			
<i>Vittaria lineata</i> (not in Fernald 1950; see Wagner & Sharp, 1963), Appalachian Gametophyte.....	EF B08		T
HYMENOPHYLLACEAE. Filmy Fern Family			
<i>Trichomanes boschianum</i> , Appalachian Filmy Fern.....	EE 726		E

	<u>Code No.</u>	<u>OH</u>
POLYPODIACEAE. Polypody Family		
<i>Polypodium polypodioides</i> , Little Gray Polypody.....	EF F69	E
ASPLENIACEAE (POLYPODIACEAE). Spleenwort Family		
<i>Asplenium bradleyi</i> , Bradley's Spleenwort.....	EF 057	E
<i>Asplenium montanum</i> , Mountain Spleenwort.....	EF F58	P
<i>Asplenium resiliens</i> , Black-stem Spleenwort.....	EF 063	X
<i>Asplenium ruta-muraria</i> var. <i>cryptolepis</i> (<i>A. cryptolepis</i> var. <i>cryptolepis</i> & var. <i>ohionis</i> ; including <i>A. r.</i> var. <i>subtenuifolium</i>), Wall-rue.....	EF 065	T
<i>Asplenium X clermontae</i> (not in Fernald 1950; see Wherry 1961), Miss Clermont's Spleenwort.....	EF F59	H
<i>Asplenium X ebenoides</i> (<i>X Asplenosorus ebenoides</i>), Scott's Spleenwort.....	EF F60	H
<i>Asplenium X inexpectatum</i> (<i>X Asplenosorus inexpectatus</i>), Unexpected Spleenwort.....	EF F61	H
<i>Asplenium X kentuckyense</i> (not in Fernald 1950; see Wherry 1961 under <i>A. X Kentuckyense</i>), Kentucky Spleenwort.....	EF F62	H
<i>Asplenium X trudellii</i> (<i>X A. trudellii</i>), Trudell's Spleenwort.....	EF 066	H
<i>Cystopteris X tennesseensis</i> (not in Fernald 1950; see Wherry 1961), Tennessee Bladder Fern.....	EF 209	H
<i>Dryopteris clintoniana</i> (<i>D. cristata</i> var. <i>clintoniana</i>), Clinton's Wood Fern.....	EF F64	E
<i>Dryopteris X boottii</i> (<i>X D. boottii</i>), Boott's Wood Fern...EF F65		H
<i>Dryopteris X pittsfordensis</i> (not in Fernald 1950; see Wherry 1961), Pittsford Wood Fern.....	EF B10	H
<i>Dryopteris X slossonae</i> (not in Fernald 1950; see Wherry 1961), Miss Slosson's Wood Fern.....	EF F66	H
<i>Dryopteris clintoniana</i> (<i>D. cristata</i> var. <i>clintoniana</i>) <i>X Dryopteris goldiana</i> ,.....	EF F67	H
<i>Dryopteris goldiana X Dryopteris intermedia</i>	EF F68	H
<i>Gymnocarpium dryopteris</i> (<i>Dryopteris disjuncta</i>), Oak Fern.....	EF 296	T
<i>Phegopteris connectilis</i> (<i>Thelypteris phegopteris</i> ; <i>Dryopteris phegopteris</i>), Long Beech-fern.....	EF 720	P
<i>Woodsia ilvensis</i> , Rusty Woodsia.....	EF 759	X
BLECHNACEAE (POLYPODIACEAE). Blechnum Family		
<i>Anchistea virginica</i> (<i>Woodwardia virginica</i>), Virginia Chain-fern.....	EF 761	P
<i>Lorinseria areolata</i> (<i>Woodwardia areolata</i>), Netted Chain-fern.....	EF F70	E
Gymnosperms		
PINACEAE. Pine Family		
<i>Larix laricina</i> , Tamarack.....	FA 377	P
<i>Pinus echinata</i> , Yellow Pine.....	FA 775	P
CUPRESSACEAE (PINACEAE). Cypress Family		
<i>Juniperus communis</i> (including varieties) Ground Juniper.	FC 371	T
<i>Thuja occidentalis</i> , Arbor Vitae.....	FC 776	P

Angiosperms - Monocotyledons

		<u>Code No.</u>	<u>OH</u>
SPARGANIACEAE. Bur-reed Family			
Sparganium androcladum, Keeled Bur-reed.....	GB	A70 Lu	T
Sparganium chlorocarpum, Small Bur-reed.....	GB	686	E
POTAMOGETONACEAE (ZOSTERACEAE). Pondweed Family			
Potamogeton amplifolius, Large-leaved Pondweed.....	GC	543	P
Potamogeton epihydrus, Nuttall's Pondweed.....	GC	F25 A	P
Potamogeton filiformis, Filiform Pondweed.....	GC	H51 O	E
Potamogeton friesii, Fries' Pondweed.....	GC	H52	X
Potamogeton gramineus, Grass-like Pondweed.....	GC	H53	E
Potamogeton hillii, Hill's Pondweed.....	GC	H54	X
Potamogeton natans, Floating Pondweed.....	GC	547 O, La, Lu	T
Potamogeton perfoliatus, Red-head Pondweed.....	GC	H55	X
Potamogeton praelongus, White-stem Pondweed.....	GC	H56	E
Potamogeton pulcher, Spotted Pondweed.....	GC	B16	E
Potamogeton richardsonii, Richardson's Pondweed.....	GC	H58 A O	T
Potamogeton robbinsii, Robbins' Pondweed.....	GC	H59	E
Potamogeton spirillus, Spiral Pondweed.....	GC	B17	T
Potamogeton strictifolius, Straight-leaved Pondweed.....	GC	H60	X
Potamogeton tennesseensis, Tennessee Pondweed.....	GC	549	E
Potamogeton vaseyi, Vasey's Pondweed.....	GC	H61	X
Potamogeton zosteriformis, Flat-stem Pondweed.....	GC	B18 O	T
NAJADACEAE. Naiad Family			
Najas flexilis, Slender Naiad.....	GZ	E95 A, O, E	P
Najas gracillima, Thread-like Naiad.....	GZ	E96	X
JUNCAGINACEAE. Arrow-grass Family			
Scheuchzeria palustris, Scheuchzeria.....	GE	634	E
Triglochin maritimum (T. maritima), Seaside Arrow-grass..	GE	H62	T
Triglochin palustre (T. palustris), Marsh Arrow-grass....	GE	H63	T
ALISMATACEAE. Water-Plantain Family			
Echinodorus rostratus, Bur-head.....	GF	H64	T
Lophotocarpus calycinus, Southern Wapato.....	GF	A72 E, O, Lu	P
Sagittaria australis, Long-beaked Arrowhead.....	GF	H65	T
Sagittaria cuneata, Wapato.....	GF	H66 E, O, Lu	T
Sagittaria graminea, Grass-leaf Arrowhead.....	GF	618 O	T
Sagittaria latifolia var. pubescens, Hairy Arrowhead.....	GF	H67	E
HYDROCHARITACEAE. Frog's-bit Family			
Vallisneria americana, Eel-grass.....	GG	H68 A, La, C, E, O Lu	P

	Code No.	OH
GRAMINEAE (POACEAE). Grass Family		
Agropyron trachycaulum, Bearded Wheat Grass.....	GH 015	O P
Agrostis elliottiana, Elliott's Bent-grass.....	GH 017	E
Ammophila breviligulata, American Beach Grass.....	GH H69	A, La, C, E, O, Lu T
Aristida purpurascens, Purple Triple-awned Grass.....	GH H70	T
Calamagrostis inexpansa, Northern Reed-grass.....	GH H71	E
Calamagrostis insperata (not in Fernald; see Braun), Bartley's Reed Bent Grass.....	GH H72	E
Cinna latifolia, Northern Wood-reed.....	GH H74	E
Danthonia compressa, Flattened Wild Oat Grass.....	GH H75	T
Deschampsia caespitosa, Tufted Hairgrass.....	GH 214	E
Deschampsia flexuosa, Crinkled Hairgrass.....	GH H76	T
Digitaria filiformis, Slender Finger-grass.....	GH B26	E
Erianthus alopecuroides, Silver Plume Grass.....	GH H77	E
Glyceria acutiflora, Sharp-glumed Manna-grass.....	GH B28	E
Glyceria borealis, Northern Manna-grass.....	GH H78	X
Glyceria grandis, Tall Manna-grass.....	GH B30	T
Glyceria melicaria, Long Manna-grass.....	GH H79	P
Glyceria pallida, Pale Manna-grass.....	GH 292	P
Gymnopogon ambiguus, Beardgrass.....	GH H80	E
Koeleria macrantha (K. cristata), Junegrass.....	GH H81	T
Leptoloma cognatum, Fall Witch-grass.....	GH H82	C T
Melica nitens, Three-flowered Melic.....	GH 446	E
Muhlenbergia capillaris, Hairgrass.....	GH H83	X
Muhlenbergia curtisetosa, Short-awned Nimble-will.....	GH H84	X
Muhlenbergia cuspidata, Plains Muhlenbergia.....	GH H85	Lu E
Panicum bicknellii, Bicknell's Panic-grass.....	GH H86	X
Panicum boreale, Northern Panic-grass.....	GH H87	E
Panicum calliphyllum, Tall Green Panic-grass.....	GH H88	X
Panicum columbianum, American Panic-grass.....	GH B39	T
Panicum depauperatum, Starved Panic-grass.....	GH H89	P
Panicum laxiflorum, Pale Green Panic-grass.....	GH H90	T
Panicum leibergii, Leiberg's Panic-grass.....	GH H91	X
Panicum longifolium, Long-leaved Panic-grass.....	GH H92	X
Panicum oligosanthos, Prairie Panic-grass.....	GH H93	P
Panicum philadelphicum, Philadelphia Panic-grass.....	GH 488	P
Panicum verrucosum, Warty Panic-grass.....	GH H94	E
Panicum villosissimum, Villous Panic-grass.....	GH H95	E
Panicum yadkinense, Spotted Panic-grass.....	GH B41	X
Paspalum setaceum, Slender Paspalum.....	GH H96	X
Poa languida, Weak Spear-grass.....	GH 529	T
Poa paludigena, Marsh Spear-grass.....	GH H97	X
Poa wolfii, Wolf's Bluegrass.....	GH H98	X
Schizachne purpurascens, False Melic.....	GH B46	E
Sphenopholis obtusata, Prairie Wedgegrass.....	GH B48	T
Sporobolus cryptandrus, Sand Dropseed.....	GH H99	A, La, C, E, O, Lu P
Sporobolus heterolepis, Prairie Dropseed.....	GH 693	E
Stipa avenacea, Blackseed Needle Grass.....	GH B49	E
Stipa spartea, Porcupine Grass.....	GH G67	E
Triplasis purpurea, Purple Sand-grass.....	GH J00	A, La, C, Lo, E O, Lu P

	<u>Code No.</u>	<u>OH</u>
GRAMINEAE (POACEAE). Grass Family (Cont'd.)		
Trisetum pensylvanicum, Swamp-oats.....	GH J01	T
Uniola latifolia, Wild Oats.....	GH J02	P
Zizania aquatica, Wild Rice.....	GH B03 O	T
CYPERACEAE. Sedge Family		
Carex aggregata, Crowded Sedge.....	GJ B50	P
Carex alata, Broad-winged Sedge.....	GJ J03	E
Carex albolutescens, Pale Straw Sedge.....	GJ J04	E
Carex amphibola var. rigida, Stiff Wood Sedge.....	GJ J05	E
Carex annectens var. xanthocarpa, Yellow-fruited Sedge..	GJ R57	T
Carex aquatilis, Leafy Tussock Sedge.....	GJ J06 A, La	E
Carex arctata, Drooping Wood Sedge.....	GJ J07	E
Carex argyrantha, Silvery Sedge.....	GJ J08	E
Carex atherodes, Wheat Sedge.....	GJ A14 O	T
Carex aurea, Golden-fruited Sedge.....	GJ J09 A, O	T
Carex baileyi, Bailey's Sedge.....	GJ J10	X
Carex bebbii, Bebb's Sedge.....	GJ J10	E
Carex brevior, Tufted Fescue Sedge.....	GJ J11 O	P
Carex brunnescens, Brownish Sedge.....	GJ J12	X
Carex buxbaumii, Brown Bog Sedge.....	GJ J13	P
Carex cephalantha, Little Prickly Sedge.....	GJ J13	E
Carex cephaloidea, Thin-leaf Sedge.....	GJ J14	E
Carex conoidea, Field Sedge.....	GJ J18	T
Carex crawei, Crawe's Sedge.....	GJ E33 O	T
Carex crus-corvi, Raven-foot Sedge.....	GJ J15	X
Carex cryptolepis (C. flava var. fertilis), Little Yellow Sedge.....	GJ J16	P
Carex debilis var. debilis, Weak Sedge.....	GJ J17	E
Carex debilis var. rudgei, Rudge's Sedge.....	GJ J17	P
Carex decomposita, Cypress-knee Sedge.....	GJ J20	X
Carex deweyana, Dewey's Sedge.....	GJ J19	X
Carex diandra, Lesser Panicked Sedge.....	GJ J20	E
Carex eburnea, Bristle-leaf Sedge.....	GJ J22 E, O	P
Carex emmonsii, Emmons' Sedge.....	GJ J21	E
Carex festucacea, Fescue Sedge.....	GJ J22	P
Carex flava (C. flava var. flava, but not C. flava var. fertilis. See C. cryptolepis.), Yellow Sedge.....	GJ J23	E
Carex foenea, Hay Sedge.....	GJ J24	X
Carex folliculata, Long Sedge.....	GJ J25	T
Carex formosa, Handsome Sedge.....	GJ J26	E
Carex glaucoidea (C. flaccosperma var. glaucoidea), Blue- green Sedge.....	GJ J27	T
Carex gravida, Heavy Sedge.....	GJ E34	T
Carex haydenii, Hayden's Sedge.....	GJ J28	E
Carex howei, Howe's Sedge.....	GJ B57	E
Carex incompta, Prickly Bog Sedge.....	GJ J29	P
Carex interior, Inland Sedge.....	GJ J30	T
Carex lasiocarpa, Slender Sedge.....	GJ A15 E	T
Carex limosa, Mud Sedge.....	GJ J31	X
Carex louisianica, Louisiana Sedge.....	GJ J32	E
Carex lupuliformis, False Hop Sedge.....	GJ J26 O	P

	Code No.	OH
CYPERACEAE. Sedge Family (Cont'd.)		
Carex meadii, Mead's Sedge.....	GJ B61	T
Carex merritt-fernaldii, Fernald's Sedge.....	GJ J33	X
Carex mesochorea, Midland Sedge.....	GJ B64	X
Carex muhlenbergii, Muhlenberg's Sedge.....	GJ J34	P
Carex nigromarginata, Black-margined Sedge.....	GJ B66	E
Carex oligosperma, Few-seeded Sedge.....	GJ J35	E
Carex ormostachya, Stiff Broad-leaved Sedge.....	GJ L56	E
Carex pallescens, Pale Sedge.....	GJ J36	T
Carex pedunculata, Long-stalked Sedge.....	GJ B67	T
Carex prairea, Prairie Sedge.....	GJ A16	P
Carex projecta, Necklace Sedge.....	GJ J30	T
Carex pseudo-cyperus, Smaller Bearded Sedge.....	GJ J37	X
Carex radiata, Radiate Sedge.....	GJ J38	T
Carex retroflexa, Reflexed Sedge.....	GJ J39	T
Carex retrorsa, Reflexed Bladder Sedge.....	GJ J40	X
Carex richardsonii, Richardson's Sedge.....	GJ J41	X
Carex rostrata, Beaked Sedge.....	GJ E39	T
Carex sartwellii, Sartwell's Sedge.....	GJ J42	T
Carex scabrata, Rough Sedge.....	GJ J43	T
Carex seorsa, Weak Bog Sedge.....	GJ J44	T
Carex sprengelii, Sprengel's Sedge.....	GJ J45	E
Carex sterilis, Fen Sedge.....	GJ J46	E
Carex straminea, Straw Sedge.....	GJ J47	E
Carex striatula, Lined Sedge.....	GJ G83	X
Carex suberecta, Prairie Straw Sedge.....	GJ B70	E
Carex X sullivantii, Sullivant's Sedge.....	GJ R58	H
Carex tenera, Slender Straw Sedge.....	GJ J49	P
Carex tetanica, Slender Millet Sedge.....	GJ J35	T
Carex trichocarpa, Hairy-fruited Sedge.....	GJ B72	P
Carex trisperma, Three-seeded Sedge.....	GJ J37	T
Carex viridula, Little Green Sedge.....	GJ J50	T
Carex willdenowii, Willdenow's Sedge.....	GJ J51	T
Cladium mariscoides, Twig-rush.....	GJ E41	T
Cyperus acuminatus, Pale Umbrella-sedge.....	GJ J52	E
Cyperus diandrus, Low Umbrella-sedge.....	GJ J53	T
Cyperus dipsaciformis, Teasel-sedge.....	GJ J54	E
Cyperus engelmannii (C. engelmannii), Engelmann's Umbrella-sedge.....	GJ E42	P
Cyperus houghtonii, Houghton's Umbrella-sedge.....	GJ J55	X
Cyperus lancastris, Many-flowered Umbrella-sedge....	GJ J56	T
Cyperus refractus, Reflexed Umbrella-sedge.....	GJ B75	T
Cyperus schweinitzii, Schweinitz's Umbrella-sedge.....	GJ J57	P
Eleocharis compressa, Flat-stem Spikerush.....	GJ B77	P
Eleocharis elliptica, Yellow-seeded Spikerush.....	GJ J58	T
Eleocharis intermedia, Matted Spikerush.....	GJ A17	T
Eleocharis olivacea, Olivaceous Spikerush.....	GJ J59	T
Eleocharis pauciflora, Few-flowered Spikerush.....	GJ J60	E
Eleocharis quadrangulata, Four-angled Spikerush.....	GJ J61	T
Eleocharis rostellata, Beaked Spikerush.....	GJ 247	P
Eleocharis wolfii, Wolf's Spikerush.....	GJ J62	X
Eriophorum gracile, Slender Cottongrass.....	GJ J63	X

	<u>Code No.</u>	<u>OH</u>
CYPERACEAE. Sedge Family (Cont'd.)		
Eriophorum virginicum, Tawny Cottongrass.....	GJ E48	T
Eriophorum viridi-carinatum, Green Cottongrass.....	GJ J64	T
Hemicarpha micrantha, Dwarf Bulrush.....	GJ 317	E
Rhynchospora alba, White Beak-rush.....	GJ 600	T
Rhynchospora globularis, Grass-like Beak-rush.....	GJ B78	E
Scirpus expansus, Woodland Bulrush.....	GJ E56	E
Scirpus purshianus, Pursh's Bulrush.....	GJ B79 O	T
Scirpus smithii, Smith's Bulrush.....	GJ J65 O	E
Scirpus subterminalis, Swaying Rush.....	GJ 646	E
Scirpus torreyi, Torrey's Bulrush.....	GJ J66	X
Scleria pauciflora, Few-flowered Nut-rush.....	GJ J67	T
Scleria triglomerata, Tall Nut-rush.....	GJ B82	T
Scleria verticillata, Low Nut-rush.....	GJ E58 E	T
ARACEAE. Arum Family		
Arisaema stewardsonii, Swamp Jack-in-the-pulpit.....	GL J68	P
Arisaema triphyllum, Small Jack-in-the-pulpit.....	GL J69	P
Calla palustris, Wild Calla.....	GL J70	P
LEMNACEAE. Duckweed Family		
Lemna valdiviana, Pale Duckweed.....	GM B83	X
Wolffia papulifera, Pointed Water-meal.....	GM 758	T
Wolffiella floridana, Wolffiella.....	GM J71	X
XYRIDACEAE. Yellow-eyed-grass Family		
Xyris difformis (X. caroliniana), Carolina Yellow-eyed-grass.....	GN J72	X
Xyris torta, Twisted Yellow-eyed-grass.....	GN 766	E
ERIOCAULACEAE. Pipewort Family		
Eriocaulon septangulare, White-buttons.....	GP 259	X
PONTEDERIACEAE. Pickerelweed Family		
Heteranthera reniformis, Mud-plantain.....	GR A20	X
JUNCACEAE. Rush Family		
Juncus alpinus, Alpine Rush.....	GS J74 A, E, O	T
Juncus balticus, Baltic Rush.....	GS 367 A, O	T
Juncus greenei, Greene's Rush.....	GS J75	T
Juncus interior, Inland Rush.....	GS J76 O, S	E
Juncus platyphyllus, Flat-leaved Rush.....	GS B88	T
Juncus scirpoides, False Bulrush.....	GS B89 E	T
Juncus secundus, One-sided Rush.....	GS J77 E	T
Luzula bulbosa, Southern Woodrush.....	GS B91	T

Code No.

OH

LILIACEAE. Lily Family

Aletris farinosa, Unicorn-root.....	GT J79		P
Clintonia borealis, Bluebead-lily.....	GT E85		E
Clintonia umbellulata, Speckled Wood-lily.....	GT J80		T
Disporum maculatum, Nodding Mandarin.....	GT 223		T
Erythronium rostratum (not in Fernald 1950; see Braun 1967), Goldenstar.....	GT E86		E
Lilium philadelphicum, Wood-lily.....	GT 398	0	P
Lilium superbum, Turk's-cap Lily.....	GT 769		P
Melanthium virginicum, Bunchflower.....	GT E90		T
Nothoscordum bivalve, False Garlic.....	GT J81		E
Smilacina trifolia, Three-leaved Solomon's-seal.....	GT J82		X
Smilax illinoensis, Illinoian Smilax.....	GT J83		H
Smilax lasioneura, Pale Carrion-flower.....	GT J84		P
Smilax pulverulenta, Downy Carrion-flower.....	GT J85		E
Stenanthium gramineum, Feather-bells.....	GT J86		P
Streptopus roseus, Rose Twisted-stalk.....	GT 704		E
Tofieldia glutinosa, False Asphodel.....	GT A24		T
Trillium cernuum, Nodding Trillium.....	GT 732		X
Trillium nivale, Snow Trillium.....	GT A74		P
Trillium recurvatum, Prairie Wake-robin.....	GT J87		E
Trillium undulatum, Painted Trillium.....	GT J88		E
Veratrum viride, White Hellebore.....	GT J89		P
Veratrum woodii, Wood's Hellebore.....	GT E93		T
Zygadenus glaucus (Zigadenus glaucus), Wand-lily.....	GT 767		T

AMARYLLIDACEAE. Amaryllis Family

Agave virginica, American Aloe.....	GV A25		P
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IRIDACEAE. Iris Family

Iris brevicaulis, Leafy Blue Flag.....	GX J91	E	E
Iris verna, Dwarf Iris.....	GX 357		E
Sisyrinchium atlanticum, Atlantic Blue-eyed-grass.....	GX J92		E
Sisyrinchium montanum, Northern Blue-eyed-grass.....	GX J93	E	T
Sisyrinchium mucronatum, Narrow-leaved Blue-eyed-grass...	GX J94	E, O	T

	<u>Code No.</u>	<u>OH</u>
ORCHIDACEAE. Orchid Family		
Arethusa bulbosa, Dragon's-mouth.....	GY 051	E
Calopogon tuberosus (C. pulchellus), Grass-pink.....	GY K69	P
Coeloglossum viride (Habenaria viridis), Long-bracted Orchid.....	GY A28	E
Corallorhiza maculata, Spotted Coral-root.....	GY 177	P
Corallorhiza trifida, Early Coral-root.....	GY A27	E
Corallorhiza wisteriana, Spring Coral-root.....	GY 179	E
Cypripedium acaule, Stemless Lady's-slipper.....	GY 204	P
Cypripedium calceolus var. parviflorum, Small Yellow Lady's-slipper.....	GY 205	E
Cypripedium calceolus var. pubescens, Large Yellow Lady's-slipper.....	GY 205	P
Cypripedium candidum, White Lady's-slipper.....	GY K52	E
Cypripedium reginae, Showy Lady's-slipper.....	GY 206	T
Goodyera tessellata, Checkered Rattlesnake-plantain.....	GY K53	X
Hexalectris spicata, Crested Coral-root.....	GY 328	E
Isotria verticillata, Whorled Pogonia.....	GY 364	P
Liparis loeselii, Fen Orchid.....	GY 404	P <i>A, E, O</i>
Listera cordata, Heartleaf Twayblade.....	GY 406	X
Malaxis unifolia, Green Adder's-mouth.....	GY 439	P
Platanthera blephariglottis (Habenaria blephariglottis), White Fringed Orchid.....	GY 298	X
Platanthera ciliaris (Habenaria ciliaris), Yellow Fringed Orchid.....	GY 299	T
Platanthera clavellata (Habenaria clavellata), Green Woodland Orchid.....	GY G95	T
Platanthera flava (Habenaria flava), Tubercled Rein- orchid.....	GY 300	P
Platanthera grandiflora (Habenaria psycodes var. grandiflora; H. fimbriata), Large Purple-fringed Orchid.....	GY AC9	X
Platanthera hookeri (Habenaria hookeri), Hooker's Orchid.....	GY K55	X
Platanthera hyperborea (Habenaria hyperborea), Tall Northern Green Orchid.....	GY K56	X
Platanthera leucophaea (Habenaria leucophaea), Prairie Fringed Orchid.....	GY K57	X <i>Lu, O</i>
Platanthera orbiculata (Habenaria orbiculata), Large Round-leaved Orchid.....	GY 302	T
Platanthera peramoena (Habenaria peramoena), Purple Fringeless Orchid.....	GY 303	P
Platanthera psycodes (Habenaria psycodes var. psycodes), Small Purple Fringed Orchid.....	GY F05	T
Pogonia ophioglossoides, Rose Pogonia.....	GY K61	T
Spiranthes lacera var. gracilis (Spiranthes gracilis), Southern Slender Ladies'-tresses.....	GY K63	P
Spiranthes lucida, Shining Ladies'-tresses.....	GY A76	T
Spiranthes magnicamporum (not in Fernald 1950; see Luer 1975), Great Plains Ladies'-tresses.....	GY V12	T <i>E, O</i>
Spiranthes ovalis, Lesser Ladies'-tresses.....	GY 691	T
Spiranthes romanzoffiana, Hooded Ladies'-tresses.....	GY K65	E
Spiranthes tuberosa, Little Ladies'-tresses.....	GY A75	P
Triphora trianthophora, Three-birds-orchid.....	GY 736	T

Angiosperms - Dicotyledons

	<u>Code No.</u>	<u>OH</u>
SALICACEAE. Willow Family		
Populus balsamifera, Balsam Poplar.....	KM 777 O	E
Populus heterophylla, Swamp Cottonwood.....	KM 778	X
Salix bebbiana, Long-beaked Willow.....	KM 779 O, Lu	P
Salix candida, Hoary Willow.....	KM 780	T
Salix caroliniana, Carolina Willow.....	KM 781	E
Salix glaucophylloides var. glaucophylloides (S. glaucophylloides var. glaucophylla), Blue-leaved Willow...	KM 782	X
Salix glaucophylloides var. albovestita, Dune Willow....	KM 782	X
Salix pedicellaris, Bog Willow.....	KM 783	E
Salix petiolaris (S. gracilis var. textoris), Slender Willow.....	KM 784	T
Salix serissima, Autumn Willow.....	KM 785	T
Salix X subsericea.....	KM 786	H
Salix syrticola, Sand-dune Willow.....	KM 787	X
MYRICACEAE. Bayberry Family		
Comptonia peregrina, Sweet-fern.....	JH 788	T
Myrica pensylvanica, Bayberry.....	JH 789	E
BETULACEAE (CORYLACEAE). Birch Family		
Betula lenta, Sweet Birch.....	JK C50	P
Betula populifolia, Gray Birch.....	JK K04 E	P
Betula pumila, Swamp Birch.....	JK 791	T
Corylus cornuta, Beaked Hazel.....	JL 792	E
FAGACEAE. Beech Family		
Castanea dentata, American Chestnut.....	JJ 142	P
Quercus ellipsoidalis, Jack Oak.....	JJ 794	X
Quercus falcata, Spanish Oak.....	JJ 795	T
Quercus marilandica, Blackjack Oak.....	JJ 796	T
Quercus shumardii, Shumard's Red Oak.....	JJ B93	P
ULMACEAE. Elm Family		
Celtis tenuifolia, Dwarf Hackberry.....	JD C59 O	P
Ulmus americana, American Elm.....	JD 797	P
Ulmus thomasi, Rock Elm.....	JD 798	E
URTICACEAE. Nettle Family		
Pilea fontana, Coolwort.....	JF 799	P
Urtica chamaedryoides, Spring Nettle.....	JF 800	E
VISCACEAE (LORANTHACEAE). Mistletoe Family		
Phoradendron serotinum (P. flavescens), American Mistletoe.....	MA X61	T
POLYGONACEAE. Buckwheat Family		
Polygonum careyi, Carey's Smartweed.....	JT 801	X

	<u>Code No.</u>	<u>OH</u>
POLYGONACEAE. Buckwheat Family (Cont'd.)		
Polygonum cilinode, Mountain Bindweed.....	JT 802	E
Polygonum pennsylvanicum var. eglandulosum, Lake Erie Pinkweed.....	JT 803	E, O T
Polygonum ramosissimum, Bushy Knotweed.....	JT 804	O E
CHENOPODIACEAE. Goosefoot Family		
Chenopodium capitatum, Strawberry-blite.....	JQ 805	X
Chenopodium leptophyllum, Slender Goosefoot.....	JQ 806	O E
AMARANTHACEAE. Amaranth Family		
Froelichia floridana, Cottonweed.....	JR 807	E
PORTULACACEAE. Purslane Family		
Claytonia caroliniana, Carolina Spring-beauty.....	JP 808	A T
CARYOPHYLLACEAE. Pink Family		
Arenaria patula, Spreading Sandwort.....	JN 809	E
Arenaria stricta (including varieties), Rock Sandwort....	JN V96	O T
Sagina decumbens, Southern Pearlwort.....	JN 810	X
Silene caroliniana var. pennsylvanica, Carolina Catchfly..	JN 811	T
Silene caroliniana var. wherryi, Wherry's Catchfly.....	JN 811	E
Silene nivea, Snowy Champion.....	JN 812	X
Silene regia, Royal Catchfly.....	JN 669	E
Silene rotundifolia, Round-leaved Catchfly.....	JN 670	T
CERATOPHYLLACEAE. Hornwort Family		
Ceratophyllum echinatum, Prickly Hornwort.....	HG 813	O T
NYMPHAEACEAE. Water-lily Family		
Nuphar variegatum, Bullhead Lily.....	HF 814	O, Lu E
RANUNCULACEAE. Buttercup Family		
Aconitum noveboracense, Northern Monkshood.....	HH 815	E
Actaea rubra, Red Baneberry.....	HH 816	E
Anemone cylindrica, Prairie Thimbleweed.....	HH 817	Lu, O T
Clematis occidentalis, Purple Virgin's-bower..... (C. verticillaris. See Pringle 1971)	HH 169	X
Coptis groenlandica, Goldthread.....	HH 818	P
Delphinium exaltatum, Tall Larkspur.....	HH 212	T
Ranunculus fascicularis, Early Buttercup.....	HH 819	E, O T
Ranunculus pusillus, Low Spearwort.....	HH 820	E
Trollius laxus, Spreading Globe-flower.....	HH 821	E
MAGNOLIACEAE. Magnolia Family		
Magnolia macrophylla, Bigleaf Magnolia.....	HA 822	E
Magnolia tripetala, Umbrella Magnolia.....	HA 436	T
CALYCANTHACEAE. Calycanthus Family		
Calycanthus fertilis, Sweet-shrub.....	HC 823	E
FUMARIACEAE (PAPAVERACEAE). Fumitory Family		
Adlumia fungosa, Mountain-fringe.....	JA 006	E
Corydalis sempervirens, Rock-harlequin.....	JA 186	O T

	Code No.	OH
CRUCIFERAE (BRASSICACEAE). Mustard Family (Cont'd.)		
Arabis divaricarpa, Limestone Rock-cress.....	KP 824 Lu	E
Arabis drummondii, Drummond's Rock-cress.....	KP 825 O	E
Arabis hirsuta var. pycnocarpa, Western Hairy Rock-cress.....	KP 826 O	T
Arabis hirsuta var. adpressipilis, Southern Hairy Rock-cress.....	KP 826	P
Arabis lyrata, Lyre-leaf Rock-cress.....	KP 044 La	P
Arabis patens, Spreading Rock-cress.....	KP 045	E
Armoracia aquatica, Lake-cress.....	KP 827	X
Cakile edentula var. lacustris, Inland Sea-rocket.....	KP C61 A,La,C,Lo,O,E,Lu	P
Cardamine rotundifolia, Mountain-watercress.....	KP 106	P
Dentaria multifida, Narrow-leaved Toothwort.....	KP 829	T
Descurainia pinnata, Tansy-mustard.....	KP 830 O,S	P
Draba brachycarpa, Little Whitlow-grass.....	KP 831	E
Draba cuneifolia, Wedge-leaf Whitlow-grass.....	KP 832	E
Draba reptans, Carolina Whitlow-grass.....	KP 228	T
Erysimum arkansanum, Western Wall-flower.....	KP 833	E
Leavenworthia uniflora, Michaux's Leavenworthia.....	KP 834	T
Rorippa sessiliflora, Sessile Yellow-cress.....	KP 835	T
SARRACENIACEAE. Pitcher-plant Family		
Sarracenia purpurea, Pitcher-plant.....	KE 627	P
DROSERACEAE. Sundew Family		
Drosera intermedia, Spathulate-leaved Sundew.....	KF 836	E
Drosera rotundifolia, Round-leaved Sundew.....	KF 231	P
SAXIFRAGACEAE. Saxifrage Family		
Heuchera parviflora, Small-flowered Alumroot.....	LB 326	T
Heuchera villosa, Hairy Alumroot.....	LB 838	T
Parnassia glauca, Grass-of-Parnassus.....	LB C62	P
Ribes glandulosum, Skunk Currant.....	LB 840	X
Ribes hirtellum, Smooth Gooseberry.....	LB 841	P
Ribes lacustre, Bristly Black Currant.....	LB 842	X
Ribes missouriense, Missouri Gooseberry.....	LB 843	X
Ribes rotundifolium, Appalachian Gooseberry.....	LB 844	E
Sullivantia sullivantii, Sullivantia.....	LB 845	P
ROSACEAE. Rose Family		
Agrimonia striata, Hairy Agrimony.....	LC 846	T
Amelanchier laevis, Allegheny Serviceberry.....	LC C63 La	T
Amelanchier sanguinea, Rock Serviceberry.....	LC 847	T
Crataegus brainerdii, Brainerd's Hawthorn.....	LC 848	X
Crataegus phaenopyrum, Washington-thorn.....	LC 849	X
Crataegus uniflora, Dwarf Hawthorn.....	LC 850	X
Dalibarda repens, Robin-run-away.....	LC 210	E
Filipendula rubra, Queen-of-the-prairie.....	LC 270	P
Geum aleppicum, Yellow Avens.....	LC 284 E,Lu	P
Geum rivale, Water Avens.....	LC 851 O	T
Gillenia trifoliata, Bowman's-root.....	LC 290	T
Potentilla anserina, Silverweed.....	LC 852 A,La,C,E,O,Lu	P
Potentilla arguta, Tall Cinquefoil.....	LC C64 O	E
Potentilla fruticosa, Shrubby Cinquefoil.....	LC C65	P
Potentilla palustris, Marsh Fivefinger.....	LC 853	T
Potentilla paradoxa, Bushy Cinquefoil.....	LC 854 E,O,Lu	T

	<u>Code No.</u>	<u>OH</u>
ROSACEAE. Rose Family (Cont'd.)		
Prunus nigra, Canada Plum.....	LC 857	E
Prunus pumila, Great Lakes Sand Cherry.....	LC 858	X
Prunus susquehanae, Sand Cherry.....	LC 859	E
Pyrus angustifolia, Narrow-leaved Crab.....	LC 860	X
Pyrus decora, Western Mountain-ash.....	LC 861	E
Rosa arkansana, Arkansas Rose.....	LC 862	X
Rosa blanda, Smooth Rose.....	LC A41	T
Rubus hispidus var. hispidus, Large Hispid Dewberry.....	LC C66	E
Rubus idaeus var. strigosus, Wild Red Raspberry.....	LC 608	P
Rubus pubescens, Dwarf Red Bramble.....	LC C67	T
Rubus trivialis, Southern Dewberry.....	LC 863	X
Sanguisorba canadensis, Canadian Burnet.....	LC C68	P
Spiraea latifolia, Northern Meadow-sweet.....	LC 864	X
Waldsteinia fragarioides, Barren Strawberry.....	LC C69	P
LEGUMINOSAE (FABACEAE). Pea Family		
Astragalus neglectus, Cooper's Milk-vetch.....	LD 865	X
Baptisia australis, Blue False Indigo.....	LD 077	E
Baptisia leucantha, Prairie False Indigo.....	LD X59	T
Clitoria mariana, Butterfly-pea.....	LD 866	T
Desmodium illinoense, Prairie Tick-trefoil.....	LD 867	E
Desmodium pauciflorum, Few-flowered Tick-trefoil.....	LD 868	T
Desmodium sessilifolium, Sessile Tick-trefoil.....	LD 869	E
Galactia volubilis, Milk-pea.....	LD 870	E
Lathyrus maritimus (L. japonicus var. glaber), Inland Beach-pea.....	LD 871	T
Lathyrus ochroleucus, Yellow Vetchling.....	LD 872	E
Lathyrus venosus, Wild Pea.....	LD 873	X
Lupinus perennis, Wild Lupine.....	LD 874	P
Phaseolus polystachios, Wild Kidney Bean.....	LD 875	T
Psoralea psoralioides, False Scurf-pea.....	LD 876	T
Trifolium reflexum, Buffalo Clover.....	LD 878	X
Trifolium stoloniferum, Running Buffalo Clover.....	LD 879	X
LINACEAE. Flax Family		
Linum sulcatum, Grooved Flax.....	LY 880	P
OXALIDACEAE. Wood-sorrel Family		
Oxalis montana, White Wood-sorrel.....	LX 881	E
POLYGALACEAE. Milkwort Family		
Polygala cruciata, Cross-leaved Milkwort.....	LZ 882	E
Polygala curtissii, Curtiss' Milkwort.....	LZ 883	E
Polygala incarnata, Pink Milkwort.....	LZ 884	E
Polygala paucifolia, Gay-wings.....	LZ 536	E
Polygala polygama, Racemed Milkwort.....	LZ 885	E
EUPHORBIACEAE. Spurge Family		
Acalypha rhomboidea var. deamii, Deam's Three-seeded Mercury.....	LS 886	E
Croton glandulosus, Northern Croton.....	LS 888	T
Euphorbia polygonifolia, Seaside Spurge.....	LS 890	P
Euphorbia purpurea, Glade Spurge.....	LS 269	X
Euphorbia serpens, Roundleaf Spurge.....	LS 891	E

	<u>Code No.</u>	<u>OH</u>
EUPHORBIACEAE. Spurge Family (Cont'd.)		
Phyllanthus caroliniensis, Carolina Leaf-flower.....	LS 892	E
CALLITRICHACEAE. Water-starwort Family		
Callitriche deflexa, Austin's Water-starwort.....	NJ 893	T
Callitriche verna (C. palustris), Water-starwort.....	NJ 894 A	T
ANACARDIACEAE. Sumac Family		
Rhus aromatica var. arenaria, Beach Sumac.....	LW 895	X
Rhus vernix, Poison Sumac.....	LW C70 Ca	P
AQUIFOLIACEAE. Holly Family		
Ilex opaca, American Holly.....	LQ 896	E
Nemopanthus mucronata, Catberry.....	LQ C71	P
CELASTRACEAE. Staff-tree Family		
Euonymus americanus, American Strawberry-bush.....	LP 897	T
Pachistima canbyi, Cliff-green.....	LP 477	E
ACERACEAE. Maple Family		
Acer pensylvanicum, Striped Maple.....	LV 001 A	E
RHAMNACEAE. Buckthorn Family		
Ceanothus herbaceus (C. ovatus), Prairie Redroot.....	LT 146 O	E
Rhamnus alnifolia, Alder-leaved Buckthorn.....	LT 576	P
Rhamnus caroliniana, Carolina Buckthorn.....	LT 577	P
VITACEAE. Grape Family		
Vitis baileyana, Possum Grape.....	LU 898	E
Vitis cinerea, Pigeon Grape.....	LU C72	T
Vitis labrusca, Northern Fox Grape.....	LU C73 O	P
MALVACEAE. Mallow Family		
Sida hermaphrodita, Virginia Mallow.....	KD 899	P
HYPERICACEAE (GUTTIFERAE). St. John's Wort Family		
Hypericum boreale, Northern St. John's-wort.....	KC 900	E
Hypericum canadense, Canadian St. John's-wort.....	KC 901	T
Hypericum denticulatum, Coppery St. John's-wort.....	KC 902	E
Hypericum ellipticum, Few-flowered St. John's-wort.....	KC 903	X
Hypericum gymnanthum, Least St. John's-wort.....	KC 904	E
Hypericum hypericoides (Ascyrum hypericoides), St. Andrew's Cross.....	KC C74	P
Hypericum kalmianum, Kalm's St. John's-wort.....	KC 905	T
Hypericum majus, Tall St. John's-wort.....	KC 906 E, O	T
Hypericum tubulosum (including H. walteri), Large Marsh St. John's-wort.....	KC 907	T
CISTACEAE. Rockrose Family		
Helianthemum bicknellii, Plains Frostweed.....	KK 309 E	T
Helianthemum canadense, Canada Frostweed.....	KK 909	T
Hudsonia tomentosa, Beach-heather.....	KK 339	X

	<u>Code No.</u>	<u>OH</u>
CISTACEAE. Rockrose Family (Cont'd.)		
Lechea intermedia, Round-fruited Pinweed.....	KK A45	T
Lechea leggettii, Leggett's Pinweed.....	KK 910	T
Lechea minor, Thyme-leaf Pinweed.....	KK 911	E
Lechea stricta, Prairie Pinweed.....	KK 912	X
Lechea tenuifolia, Narrow-leaved Pinweed.....	KK A46	E
Lechea villosa, Hairy Pinweed.....	KK C75	P
VIOLACEAE. Violet Family		
Viola hirsutula, Southern Wood Violet.....	KH C76	P
Viola lanceolata, Lance-leaved Violet.....	KH 913	E
Viola missouriensis, Missouri Violet.....	KH 914	X
Viola nephrophylla, Northern Bog Violet.....	KH 915	T ^{E,O}
Viola pallens, Northern White Violet.....	KH C77	P
Viola pedata, Bird-foot Violet.....	KH 753	T
Viola pedatifida, Prairie Violet.....	KH 916	X
Viola primulifolia, Primrose-leaved Violet.....	KH 917	E
Viola rotundifolia, Round-leaved Violet.....	KH 918	P
Viola tripartita var. glaberrima, Wedge-leaf Violet.....	KH 754	T
Viola tripartita var. tripartita, Three-parted Violet....	KH 754	E
Viola walteri, Walter's Violet.....	KH 920	T
PASSIFLORACEAE. Passion-flower Family		
Passiflora incarnata, Passion-flower.....	KJ 921	T
CACTACEAE. Cactus Family		
Opuntia compressa (O. humifusa), Prickly Pear.....	JM C78	P
ELAEAGNACEAE. Oleaster Family		
Shepherdia canadensis, Canadian Buffalo-berry.....	LL 922	T
MELASTOMATACEAE. Melastoma Family		
Rhexia virginica, Virginia Meadow-beauty.....	LK 581	T
ONAGRACEAE. Evening-primrose Family		
Epilobium angustifolium, Fireweed.....	LJ E99	T
Epilobium strictum, Simple Willow-herb.....	LJ 923	T
Oenothera pilosella, Meadow Sundrops.....	LJ 925	P
Oenothera triloba, Sessile Evening-primrose.....	LJ 924	X
HALORAGACEAE. Water-milfoil Family		
Myriophyllum exalbesens, American Water-milfoil.....	LF 926	P ^{A,La,E,O}
Myriophyllum heterophyllum, Two-leaved Water-milfoil.....	LF 927	E
Myriophyllum verticillatum, Green Water-milfoil.....	LF 928	X
ARALIACEAE. Ginseng Family		
Aralia hispida, Bristly Sarsaparilla.....	L2 929	X
Aralia spinosa, Devil's-walkingstick.....	L2 C79	P
Panax quinquefolius, American Ginseng.....	L2 480	P ^{La}
UMBELLIFERAE (APIACEAE). Parsley Family		
Chaerophyllum procumbens var. shortii, Short's Chervil...L3	930	P
Eryngium yuccifolium, Rattlesnake-master.....L3	932	T

	<u>Code No.</u>	<u>OH</u>
UMBELLIFERAE (APIACEAE). Parsley Family (Cont'd.)		
Hydrocotyle americana, American Water-pennywort.....	L3 343	P
Hydrocotyle umbellata, Navelwort.....	L3 933	E
Ligusticum canadense, American Lovage.....	L3 934	E
Perideridia americana, Perideridia.....	L3 503	E
Thaspium pinnatifidum, Cut-leaf Meadow-parsnip.....	L3 718	T
CORNACEAE. Dogwood Family		
Cornus canadensis, Bunchberry.....	LM 935	T
Cornus rugosa, Round-leaved Dogwood.....	LM A94	T A,O
PYROLACEAE. Pyrola Family		
Chimaphila umbellata, Pipsissewa.....	KQ 153	T
Pyrola secunda, One-sided Wintergreen.....	KQ 936	X
ERICACEAE. Heath Family		
Andromeda glaucophylla, Bog-rosemary.....	KQ 030	X
Arctostaphylos uva-ursi, Bearberry.....	KQ 937	X
Chamaedaphne calyculata, Leather-leaf.....	KQ 938	P
Gaultheria hispidula, Creeping Snowberry.....	KQ 939	X
Ledum groenlandicum, Labrador-tea.....	KQ 940	E
Lyonia ligustrina, Maleberry.....	KQ 941	X
Rhododendron calendulaceum, Flame Azalea.....	KQ 942	E
Rhododendron maximum, Great Rhododendron.....	KQ 943	T
Rhododendron nudiflorum, Pinxter-flower.....	KQ 944	T
Rhododendron roseum, Northern Rose Azalea.....	KQ 588	T
Vaccinium atrococcum, Black Highbush Blueberry.....	KQ C80	T
Vaccinium caesium, Small Deerberry.....	KQ 945	E
Vaccinium macrocarpon, Large Cranberry.....	KQ 746	P
Vaccinium myrtilloides, Velvet-leaf Blueberry.....	KQ 946	X
Vaccinium oxycoccos, Small Cranberry.....	KQ 747	E
PRIMULACEAE. Primrose Family		
Dodecatheon meadia, Shooting-star.....	KW 225	P
Hottonia inflata, Featherfoil.....	KW 334	E
Trientalis borealis, Star-flower.....	KW 730	P
STYRACACEAE. Storax Family		
Halesia carolina, Silverbell.....	KU 304	E
Styrax americana, Snowbell.....	KU 948	E
Styrax grandifolia, Bigleaf Snowbell.....	KU 949	X
OLEACEAE. Olive Family		
Chionanthus virginicus, Fringe-tree.....	NN 950	E
Fraxinus tomentosa, Pumpkin Ash.....	NN 951	X
GENTIANACEAE. Gentian Family		
Bartonia virginica, Yellow Bartonia.....	NB C81	P
Gentiana alba (G. flavida), Yellowish Gentian.....	NB 281	E
Gentiana clausa, Closed Gentian.....	NB 952	T A
Gentiana crinita, Fringed Gentian.....	NB 283	P A
Gentiana procera, Small Fringed Gentian.....	NB C82	P
Gentiana puberulenta (G. puberula), Prairie Gentian.....	NB 953	E
Gentiana quinquefolia, Stiff Gentian.....	NB X60	P C

	<u>Code No.</u>	<u>OH</u>
GENTIANACEAE. Gentian Family (Cont'd.)		
Gentiana saponaria, Soapwort Gentian.....	NB 954	E
Gentiana villosa, Sampson's Snakeroot.....	NB 955	E
Obolaria virginica, Pennywort.....	NB C83	P
Swertia caroliniensis, American Columbo.....	NB 705	P
MENYANTHACEAE (GENTIANACEAE). Buckbean Family		
Menyanthes trifoliata, Buckbean.....	NB 448	E
APOCYNACEAE. Dogbane Family		
Apocynum sibiricum (incl. var. cordigerum), Clasp- leaf Dogbane.....	NC 956	A, E, O, Lu P
ASCLEPIADACEAE. Milkweed Family		
Asclepias amplexicaulis, Bluntleaf Milkweed.....	ND C84	P
*Asclepias variegata, White Milkweed.....	ND C85	T
Asclepias viridis (Asclepiodora viridis), Spider Milkweed.....	ND 957	T
Matalea obliqua (Gonolobus obliquus), Angle-pod.....	ND C24	P
CONVOLVULACEAE. Morning-glory Family		
Cuscuta compacta, Sessile Dodder.....	NE 958	E
Cuscuta coryli, Hazel Dodder.....	NE 959	T
Cuscuta glomerata, Glomerate Dodder.....	NE 960	X
Cuscuta pentagona, Five-angled Dodder.....	NE 961	T
POLEMONIACEAE. Phlox Family		
Phlox glaberrima, Smooth Phlox.....	NF 962	P
Phlox ovata, Mountain Phlox.....	NF 963	T
Phlox stolonifera, Creeping Phlox.....	NF 964	P
Polemonium reptans var. villosum, Braun's Jacob's-ladder.....	NF 531	P
HYDROPHYLLACEAE. Waterleaf Family		
Phacelia bipinnatifida, Fern-leaf Scorpion-weed.....	NG 965	T
Phacelia dubia, Small-flowered Scorpion-weed.....	NG 508	X
Phacelia ranunculacea, Blue Scorpion-weed.....	NG 510	E
BORAGINACEAE. Borage Family		
Cynoglossum boreale, Northern Wild Comfrey.....	NH 966	E
Lithospermum croceum, Plains Puccoon.....	NH DLO	P
Myosotis macrosperma, Bristly Scorpion-grass.....	NH 968	T
Onosmodium hispidissimum, False Gromwell.....	NH 969	P
LABIATAE (LAMIACEAE). Mint Family		
Collinsonia verticillata (Micheliella verticillata), Early Stoneroot.....	NL 170	E
Hedeoma hispida, Rough Pennyroyal.....	NL 970	E
Meehania cordata, Meehania.....	NL 444	P
Monarda punctata, Dotted Horsemint.....	NL 971	E
Pycnanthemum muticum, Blunt Mountain-mint.....	NL A96	T
Pycnanthemum pilosum, Hoary Mountain-mint.....	NL 972	E
Satureja arkansana, Limestone Savory.....	NL C88	E, D P
*Asclepias viridiflora, Green Milkweed.....	ND DK7	O P

	<u>Code No.</u>	<u>OH</u>
LABIATAE (LAMIACEAE). Mint Family (Cont'd.)		
Scutellaria integrifolia, Hyssop Skullcap.....	NL C89	P
Scutellaria saxatilis, Rock Skullcap.....	NL 651	E
Scutellaria serrata, Showy Skullcap.....	NL C90	P
Synandra hispidula, Synandra.....	NL 708	T
Trichostema dichotomum var. lineare (T. setaceum), Narrow-leaved Bluecurls.....	NL 974	E
SCROPHULARIACEAE. Figwort Family		
Agalinis gattingeri (Gerardia gattingeri), Gattinger's Foxglove.....	NP 975	X
Agalinis paupercula var. paupercula (Gerardia paupercula var. paupercula), Small Purple Foxglove.....	NP 976	E
Agalinis paupercula var. borealis (Gerardia paupercula var. borealis), Northern Purple Foxglove.....	NP 976	X
Agalinis skinneriana (Gerardia skinneriana), Skinner's Foxglove.....	NP 977	E
Aureolaria pedicularia var. pedicularia (Gerardia pedicularia var. pedicularia), Woodland Fern-leaf False Foxglove.....	NP 978	X
Aureolaria pedicularia var. ambigens (Gerardia pedicularia var. ambigens), Prairie Fern-leaf False Foxglove.....	NP 978	E
Besseyia bullii (Wulfenia bullii), Besseyia.....	NP 979	X
Buchnera americana, Bluehearts.....	NP 980	T
Gratiola virginiana, Round-fruited Hedge-hyssop.....	NP 981	T
Gratiola viscidula var. shortii, Short's Hedge-hyssop....	NP 982	T
Linaria canadensis, Old-field Toadflax.....	NP 983	E
Melampyrum lineare, Cow-wheat.....	NP 984	T
Penstemon canescens, Gray Beard-tongue.....	NP 986	E
Penstemon laevigatus, Smooth Beard-tongue.....	NP 987	T
Penstemon pallidus, Downy White Beard-tongue.....	NP C91	T
Penstemon tubaeflorus, White-wand Beard-tongue.....	NP 988	X
Tomanthera auriculata (Gerardia auriculata), Ear-leaf Foxglove.....	NP 722	E
Veronica anagallis-aquatica, Brook-pimpernel.....	NP C92	P
BIGNONIACEAE. Bignonia Family		
Bignonia capreolata, Cross-vine.....	NZ C93	P
OROBANCHACEAE. Broomrape Family		
Orobanche ludoviciana, Louisiana Broom-rape.....	NQ 989	E
LENTIBULARIACEAE. Bladderwort Family		
Utricularia cornuta, Horned Bladderwort.....	NS 990	E
Utricularia gibba, Humped Bladderwort.....	NS A59	T
Utricularia intermedia, Flat-leaved Bladderwort.....	NS 991	T
Utricularia minor, Lesser Bladderwort.....	NS 992	T
ACANTHACEAE. Acanthus Family		
Ruellia caroliniensis, Carolina Ruellia.....	NR 993	P
Ruellia humilis, Low Ruellia.....	NR 611	P
PLANTAGINACEAE. Plantain Family		
Plantago cordata, Heart-leaf Plantain.....	NM 527	E

	Code No.	OH
RUBIACEAE. Madder Family		
*Galium labradoricum, Bog Bedstraw.....	NU 995	E
Galium palustre, Marsh Bedstraw.....	NU 996	E
Houstonia nigricans, Narrow-leaved Summer Bluets.....	NU C94	T E,O
Houstonia purpurea, Large Summer Bluets.....	NU C95	P
Spermaceoce glabra, Smooth Buttonweed.....	NU C96	P
CAPRIFOLIACEAE. Honeysuckle Family		
Linnaea borealis, American Twinflower.....	NV 402	X
Lonicera canadensis, Canada Fly-honeysuckle.....	NV 411	P
Lonicera flavida, Pale Yellow Honeysuckle.....	NV 997	X
Lonicera oblongifolia, Swamp Fly-honeysuckle.....	NV 998	X
Lonicera prolifera, Grape Honeysuckle.....	NV 999	T
Lonicera villosa, Mountain Fly-honeysuckle.....	NV A01	X
Symphoricarpos albus var. albus, Snowberry.....	NV A02	E O
Viburnum alnifolium, Hobblebush.....	NV A03	P
Viburnum molle, Soft-leaved Arrow-wood.....	NV A04	E
Viburnum opulus var. americanum (V. trilobum), Highbush-cranberry.....	NV B07	P
Viburnum rufidulum, Southern Black-haw.....	NV A05	E
VALERIANACEAE. Valerian Family		
Valeriana ciliata, Prairie Valerian.....	NW A06	T
Valeriana uliginosa, Swamp Valerian.....	NW X23	X
CAMPANULACEAE. Bellflower Family		
Campanula rotundifolia, Harebell.....	NT B02	T E,O
COMPOSITAE (ASTERACEAE). Composite Family		
Artemisia caudata, Beach Wormwood.....	NX K07	T E,O,A,C
Aster acuminatus, Mountain Aster.....	NX K08	X
Aster dumosus, Bushy Aster.....	NX K09	T E,O
Aster infirmus, Weak Aster.....	NX K11	T
Aster linariifolius, Stiff-leaf Aster.....	NX 069	P
Aster oblongifolius, Shale Barren Aster.....	NX K12	T
Aster ptarmicoides, Yarrow Aster.....	NX K13	X
Aster solidagineus (Sericocarpus linifolius), Narrow- leaved Aster.....	NX C14	T
Aster surculosus, Creeping Aster.....	NX K15	X
Cacalia muhlenbergii, Great Indian-plantain.....	NX K17	T
Cacalia tuberosa, Fen Indian-plantain.....	NX E02	T
Chrysogonum virginianum, Golden-knees.....	NX 155	P
Cirsium carolinianum, Carolina Thistle.....	NX K18	E
Cirsium hillii, Hill's Pasture Thistle.....	NX K19	T
Echinacea purpurea, Purple Coneflower.....	NX 239	P
Erigeron divaricatus, Bushy Horseweed.....	NX K21	E
Eupatorium album, White Thoroughwort.....	NX K22	E
Eupatorium aromaticum, Small White Snakeroot.....	NX K23	E
Eupatorium hyssopifolium, Hyssop Thoroughwort.....	NX K24	E
Eupatorium incarnatum, Pink Thoroughwort.....	NX K25	P
Eupatorium rotundifolium (including E. pubescens), Roundleaf Thoroughwort.....	NX K26	P
Gnaphalium viscosum (G. macounii), Winged Cudweed.....	NX K27	X
*Diodia virginiana, Southern Buttonweed.....	NU DL1	P

	<u>Code No.</u>	<u>OH</u>
COMPOSITAE (ASTERACEAE). Composite Family (Cont'd.)		
Helianthus mollis, Ashy Sunflower.....	NX A63	T
Helianthus occidentalis, Western Sunflower.....	NX K28	T
Heterotheca mariana (Chrysopsis mariana), Golden-aster...	NX K30	P
Heterotheca graminifolia (Chrysopsis graminifolia), Silkgrass.....	NX K29	E
Hieracium canadense, Canada Hawkweed.....	NX K31	E
Hieracium marianum, Maryland Hawkweed.....	NX K32	X
Hymenoxys acaulis (Actinea herbacea), Lakeside Daisy.....	NX K33	E
Krigia dandelion, Potato-dandelion.....	NX K34	E
Krigia virginica, Dwarf Dandelion.....	NX K35	T
Kuhnia eupatorioides (including varieties; Brickellia eupatorioides), False Boneset.....	NX K16	P
Liatris cylindracea, Slender Blazing-star.....	NX E10	T
Liatris novae-angliae (L. novae-angliae var. nieuwlandii = X L. nieuwlandii in Fernald 1950), New England Blazing-star.....	NX A64	T
Liatris scabra, Large Blazing-star.....	NX K36	E
Liatris squarrosa, Scaly Blazing-star.....	NX K37	T
Megalodonta beckii, Water-marigold.....	NX K38	X
Pluchea camphorata, Camphorweed.....	NX A65	X
Prenanthes aspera, Rough Rattlesnake-root.....	NX K39	X
Prenanthes crepidinea, Nodding Rattlesnake-root.....	NX K40	T
Prenanthes racemosa, Prairie Rattlesnake-root.....	NX K41	T
Senecio pauperculus, Balsam Squaw-weed.....	NX 659	P
Silphium laciniatum, Compass-plant.....	NX E13	E
Solidago arguta, Cut-leaf Goldenrod.....	NX K42	E
Solidago odora, Sweet Goldenrod.....	NX K43	J
Solidago ohioensis, Ohio Goldenrod.....	NX K44	P
Solidago remota, Great Lakes Goldenrod.....	NX K45	T
Solidago riddellii, Riddell's Goldenrod.....	NX K46	P
Solidago rigida, Stiff Goldenrod.....	NX K47	P
Solidago squarrosa, Leafy Goldenrod.....	NX 683	T
Verbesina helianthoides, Hairy Wing-stem.....	NX K48	P
Verbesina occidentalis, Yellow Crownbeard.....	NX K49	E
Vernonia fasciculata, Prairie Ironweed.....	NX K50	E

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APPENDIX C

COUNTY LISTS OF RARE PLANTS OF THE COASTAL ZONE

ASHTABULA COUNTY

<u>Ohio Status</u>	<u>Scientific Name</u>	<u>Common Name</u>
E	<i>Acer pensylvanicum</i>	Striped Maple
T	<i>Ammophila breviligulata</i>	American Beach Grass
P	<i>Apocynum sibiricum</i>	Clasping-leaf Dogbane
T	<i>Artemisia caudata</i>	Beach Wormwood
P	<i>Cakile edentula</i> var. <i>lacustris</i>	Inland Sea-rocket
T	<i>Callitriche verna</i>	Water-starwort
E	<i>Carex aquatilis</i>	Leafy Tussock Sedge
T	<i>Carex aurea</i>	Golden-fruited Sedge
T	<i>Claytonia caroliniana</i>	Carolina Spring-beauty
T	<i>Cornus rugosa</i>	Round-leaved Dogwood
P	<i>Cyperus schweinitzii</i>	Schweinitz's Umbrella-sedge
P	<i>Euphorbia polygonifolia</i>	Seaside Spurge
T	<i>Gentiana clausa</i>	Closed Gentian
P	<i>Gentiana crinita</i>	Fringed Gentian
T	<i>Juncus alpinus</i>	Alpine Rush
T	<i>Juncus balticus</i>	Baltic Rush
T	<i>Lathyrus maritimus</i>	Inland Beach-pea
P	<i>Liparis loeselii</i>	Fen Orchid
P	<i>Myriophyllum exalbescens</i>	American Water-milfoil
P	<i>Najas flexilis</i>	Slender Naiad
P	<i>Potamogeton epihydrus</i>	Nuttall's Pondweed
T	<i>Potamogeton richardsonii</i>	Richardson's Pondweed
P	<i>Potentilla anserina</i>	Silverweed
P	<i>Sporobolus cryptandrus</i>	Sand Dropseed
P	<i>Triplasis purpurea</i>	Purple Sand-grass
P	<i>Vallisneria americana</i>	Eel-grass

LAKE COUNTY

<u>Ohio Status</u>	<u>Scientific Name</u>	<u>Common Name</u>
T	<i>Amelanchier laevis</i>	Allegheny Serviceberry
T	<i>Ammophila breviligulata</i>	American Beach Grass
P	<i>Arabis lyrata</i>	Lyre-leaf Rock-cress
P	<i>Cakile edentula</i> var. <i>lacustris</i>	Inland Sea-rocket
E	<i>Carex aquatilis</i>	Leafy Tussock Sedge
P	<i>Euphorbia polygonifolia</i>	Seaside Spurge
T	<i>Lathyrus martimus</i>	Inland Beach-pea
P	<i>Myriophyllum exalbescens</i>	American Water-milfoil
P	<i>Panax quinquefolius</i>	American Ginseng
T	<i>Potamogeton natans</i>	Floating Pondweed
P	<i>Potentilla anserina</i>	Silverweed
P	<i>Rhus vernix</i>	Poison Sumac
P	<i>Sporobolus cryptandrus</i>	Sand Dropseed
P	<i>Triplasis purpurea</i>	Purple Sand-grass
P	<i>Vallisneria americana</i>	Eel-grass

CUYAHOGA COUNTY

T	<i>Ammophila breviligulata</i>	American Beach Grass
T	<i>Artemisia caudata</i>	Beach Wormwood
P	<i>Cakile edentula</i> var. <i>lacustris</i>	Inland Sea-rocket
P	<i>Cyperus schweinitzii</i>	Schweinitz's Umbrella-sedge
P	<i>Euphorbia polygonifolia</i>	Seaside Spurge
P	<i>Gentiana quinquefolia</i>	Stiff Gentian
P	<i>Kuhnia eupatorioides</i>	False Boneset
T	<i>Lathyrus maritimus</i>	Inland Beach-pea
T	<i>Leptoloma cognatum</i>	Fall Witch-grass
E	<i>Monarda punctata</i>	Dotted Horsemint
P	<i>Potentilla anserina</i>	Silverweed
P	<i>Sporobolus cryptandrus</i>	Sand Dropseed
P	<i>Triplasis purpurea</i>	Purple Sand-grass
P	<i>Vallisneria americana</i>	Eel-grass

LORAIN COUNTY

P	<i>Cakile edentula</i> var. <i>lacustris</i>	Inland Sea-rocket
P	<i>Euphorbia polygonifolia</i>	Seaside Spurge
P	<i>Triplasis purpurea</i>	Purple Sand-grass

ERIE COUNTY

<u>Ohio Status</u>	<u>Scientific Name</u>	<u>Common Name</u>
T	<i>Ammophila breviligulata</i>	American Beach Grass
P	<i>Apoeynum sibiricum</i>	Clasping-leaf Dogbane
T	<i>Artemisia caudata</i>	Beach Wormwood
T	<i>Aster dumosus</i>	Bushy Aster
P	<i>Betula populifolia</i>	Gray Birch
P	<i>Cakile edentula</i> var. <i>lacustris</i>	Inland Sea-rocket
T	<i>Campanula rotundifolia</i>	Harebell
P	<i>Carex eburnea</i>	Bristle-leaf Sedge
T	<i>Carex lasiocarpa</i>	Slender Sedge
P	<i>Carex trichocarpa</i>	Hairy-fruited Sedge
T	<i>Carex viridula</i>	Little Green Sedge
T	<i>Cyperus diandrus</i>	Low Umbrella-sedge
P	<i>Cyperus engelmannii</i>	Engelmann's Umbrella-sedge
P	<i>Cyperus schweinitzii</i>	Schweinitz's Umbrella-sedge
T	<i>Desmodium pauciflorum</i>	Few-flowered Tick-trefoil
P	<i>Eleocharis compressa</i>	Flat-stem Spikerush
T	<i>Eleocharis elliptica</i>	Yellow-seeded Spikerush
P	<i>Euphorbia polygonifolia</i>	Seaside Spurge
P	<i>Geum aleppicum</i>	Yellow Avens
T	<i>Helianthemum bicknellii</i>	Plains Frostweed
T	<i>Houstonia nigricans</i>	Narrow-leaved Summer Bluets
T	<i>Hypericum majus</i>	Tall St. John's-wort
E	<i>Iris brevicaulis</i>	Leafy Blue Flag
T	<i>Juncus alpinus</i>	Alpine Rush
T	<i>Juncus scirpoides</i>	False Bulrush
T	<i>Juncus secundus</i>	One-sided Rush
P	<i>Liparis loeselii</i>	Fen Orchid
P	<i>Lophotocarpus calycinus</i>	Southern Wapato
P	<i>Myriophyllum exalbescens</i>	American Water-milfoil
P	<i>Najas flexilis</i>	Slender Naiad
T	<i>Polygonum pennsylvanicum</i> var. <i>eglandulosum</i>	Lake Erie Pinkweed
P	<i>Potentilla anserina</i>	Silverweed
T	<i>Potentilla paradoxa</i>	Bushy Cinquefoil
T	<i>Ranunculus fascicularis</i>	Early Buttercup
T	<i>Rosa blanda</i>	Smooth Rose
P	<i>Rubus idaeus</i> var. <i>strigosus</i>	Wild Red Raspberry
T	<i>Sagittaria cuneata</i>	Wapato
P	<i>Satureja arkansana</i>	Limestone Savory
T	<i>Scleria verticillata</i>	Low Nut-rush
P	<i>Senecio pauperculus</i>	Balsam Squaw-weed
T	<i>Sisyrinchium montanum</i>	Northern Blue-eyed-grass
T	<i>Sisyrinchium mucronatum</i>	Narrow-leaved Blue-eyed-grass
P	<i>Solidago rigida</i>	Stiff Goldenrod
T	<i>Spiranthes magnicamporum</i>	Great Plains Ladies'-tresses
P	<i>Sporobolus cryptandrus</i>	Sand Dropseed
P	<i>Triplasis purpurea</i>	Purple Sand-grass
P	<i>Vallisneria americana</i>	Eel-grass
T	<i>Viola nephrophylla</i>	Northern Bog Violet

OTTAWA COUNTY

<u>Ohio Status</u>	<u>Scientific Name</u>	<u>Common Name</u>
P	<i>Agropyron trachycaulum</i>	Bearded Wheat Grass
T	<i>Ammophila breviligulata</i>	American Beach Grass
T	<i>Anemone cylindrica</i>	Prairie Thimbleweed
P	<i>Apocynum sibiricum</i>	Clasping-leaf Dogbane
E	<i>Arabis drummondii</i>	Drummond's Rock-cress
T	<i>Arabis hirsuta</i> var. <i>pycnocarpa</i>	Western Hairy Rock-cress
T	<i>Arenaria stricta</i>	Rock Sandwort
T	<i>Artemisia caudata</i>	Beach Wormwood
P	<i>Asclepias viridiflora</i>	Green Milkweed
T	<i>Aster dumosus</i>	Bushy Aster
P	<i>Cakile edentula</i> var. <i>lacustris</i>	Inland Sea-rocket
T	<i>Campanula rotundifolia</i>	Harebell
T	<i>Carex atherodes</i>	Wheat Sedge
E	<i>Carex aurea</i>	Golden-fruited Sedge
P	<i>Carex brevior</i>	Tufted Fescue Sedge
T	<i>Carex crawei</i>	Crawe's Sedge
P	<i>Carex eburnea</i>	Bristle-leaf Sedge
P	<i>Carex lupuliformis</i>	False Hop Sedge
P	<i>Carex muhlenbergii</i>	Muhlenberg's Sedge
E	<i>Carex sprengelii</i>	Sprengel's Sedge
T	<i>Carex viridula</i>	Little Green Sedge
E	<i>Ceanothus herbaceus</i>	Prairie Redroot
P	<i>Celtis tenuifolia</i>	Dwarf Hackberry
T	<i>Ceratophyllum echinatum</i>	Prickly Hornwort
E	<i>Chenopodium leptophyllum</i>	Slender Goosefoot
T	<i>Cladium mariscoides</i>	Twig-rush
T	<i>Cornus rugosa</i>	Round-leaved Dogwood
T	<i>Corydalis sempervirens</i>	Rock-harlequin
T	<i>Cuscuta coryli</i>	Hazel Dodder
T	<i>Cyperus diandrus</i>	Low Umbrella-sedge
P	<i>Cyperus engelmannii</i>	Engelmann's Umbrella-sedge
P	<i>Cyperus schweinitzii</i>	Schweinitz's Umbrella-sedge
P	<i>Descurainia pinnata</i>	Tansy-mustard
P	<i>Eleocharis compressa</i>	Flat-stem Spikerush
T	<i>Eleocharis intermedia</i>	Matted Spikerush
T	<i>Eleocharis olivacea</i>	Olivaceous Spikerush
P	<i>Equisetum variegatum</i>	Variiegated Scouring-rush
P	<i>Euphorbia polygonifolia</i>	Seaside Spurge
T	<i>Geum rivale</i>	Water Avens
T	<i>Houstonia nigricans</i>	Narrow-leaved Summer Bluets
E	<i>Hymenoxys acaulis</i>	Lakeside Daisy
T	<i>Hypericum majus</i>	Tall St. John's-wort
T	<i>Juncus alpinus</i>	Alpine Rush
T	<i>Juncus balticus</i>	Baltic Rush
E	<i>Juncus interior</i>	Interior Rush
P	<i>Lilium philadelphicum</i>	Wood-lily
P	<i>Linum sulcatum</i>	Grooved Flax
P	<i>Liparis loeselii</i>	Fen Orchid
P	<i>Lophotocarpus calycinus</i>	Southern Wapato
P	<i>Myriophyllum exalbescens</i>	American Water-milfoil
P	<i>Najas flexilis</i>	Slender Naiad
E	<i>Nuphar variegatum</i>	Bullhead Lily

OTTAWA COUNTY (Continued)

<u>Ohio Status</u>	<u>Scientific Name</u>	<u>Common Name</u>
X	<i>Platanthera leucophaea</i>	Prairie Fringed Orchid
T	<i>Polygonum pensylvanicum</i> var. <i>eglandulosum</i>	Lake Erie Pinkweed
E	<i>Polygonum ramosissimum</i>	Bushy Knotweed
E	<i>Populus balsamifera</i>	Balsam Poplar
E	<i>Potamogeton filiformis</i>	Filiform Pondweed
T	<i>Potamogeton natans</i>	Floating Pondweed
T	<i>Potamogeton richardsonii</i>	Richardson's Pondweed
T	<i>Potamogeton zosteriformis</i>	Flat-stem Pondweed
P	<i>Potentilla anserina</i>	Silverweed
E	<i>Potentilla arguta</i>	Tall Cinquefoil
T	<i>Potentilla paradoxa</i>	Bushy Cinquefoil
T	<i>Ranunculus fascicularis</i>	Early Buttercup
T	<i>Rosa blanda</i>	Smooth Rose
T	<i>Sagittaria cuneata</i>	Wapato
T	<i>Sagittaria graminea</i>	Grass-leaf Arrowhead
P	<i>Salix bebbiana</i>	Long-beaked Willow
P	<i>Satureja arkansana</i>	Limestone Savory
T	<i>Scirpus purshianus</i>	Pursh's Bulrush
E	<i>Scirpus smithii</i>	Smith's Bulrush
P	<i>Senecio pauperculus</i>	Balsam Squaw-weed
T	<i>Sisyrinchium mucronatum</i>	Narrow-leaved Blue-eyed-grass
P	<i>Solidago riddellii</i>	Riddell's Goldenrod
P	<i>Solidago rigida</i>	Stiff Goldenrod
T	<i>Spiranthes magnicamporum</i>	Great Plains Ladies'-tresses
P	<i>Sporobolus cryptandrus</i>	Sand Dropseed
E	<i>Symphoricarpos albus</i> var. <i>albus</i>	Snowberry
P	<i>Thuja occidentalis</i>	Arbor Vitae
P	<i>Triplasis purpurea</i>	Purple Sand-grass
P	<i>Vallisneria americana</i>	Eel-grass
T	<i>Viola nephrophylla</i>	Northern Bog Violet
P	<i>Vitis labrusca</i>	Northern Fox Grape
T	<i>Zizania aquatica</i>	Wild Rice

LUCAS COUNTY

<u>Ohio Status</u>	<u>Scientific Name</u>	<u>Common Name</u>
T	<i>Ammophila breviligulata</i>	American Beach Grass
T	<i>Anemone cylindrica</i>	Prairie Thimbleweed
P	<i>Apocynum sibiricum</i>	Clasping-leaf Dogbane
E	<i>Arabis divaricarpa</i>	Limestone Rock-cress
P	<i>Cakile edentula</i> var. <i>lacustris</i>	Inland Sea-rocket
T	<i>Cyperus diandrus</i>	Low Umbrella-sedge
P	<i>Cyperus engelmannii</i>	Engelmann's Umbrella-sedge
P	<i>Cyperus schweinitzii</i>	Schweinitz's Umbrella-sedge
P	<i>Eleocharis compressa</i>	Flat-stem Spikerush
T	<i>Eleocharis intermedia</i>	Matted Spikerush
P	<i>Euphorbia polygonifolia</i>	Seaside Spurge
P	<i>Geum aleppicum</i>	Yellow Avens
P	<i>Lophotocarpus calycinus</i>	Southern Wapato
E	<i>Muhlenbergia cuspidata</i>	Plains Muhlenbergia
E	<i>Nuphar variegatum</i>	Bullhead Lily
X	<i>Platanthera leucophaea</i>	Prairie Fringed Orchid
T	<i>Potamogeton natans</i>	Floating Pondweed
P	<i>Potentilla anserina</i>	Silverweed
T	<i>Potentilla paradoxa</i>	Bushy Cinquefoil
T	<i>Sagittaria cuneata</i>	Wapato
P	<i>Salix bebbiana</i>	Long-beaked Willow
T	<i>Sparganium androcladum</i>	Keel'd Bur-reed
P	<i>Sporobolus cryptandrus</i>	Sand Dropseed
P	<i>Triplasis purpurea</i>	Purple Sand-grass
P	<i>Vallisneria americana</i>	Eel-grass

SANDUSKY COUNTY

P	<i>Descurainia pinnata</i>	Tansy-mustard
E	<i>Juncus interior</i>	Inland Rush

WOOD COUNTY

None

APPENDIX D
OHIO PLANTS OF FEDERAL CONCERN

OHIO PLANTS OF FEDERAL CONCERN

Summarized by the
Division of Natural Areas and Preserves
Ohio Department of Natural Resources
Fountain Square, Bldg. F
Columbus, Ohio 43224

KEY

Federal Status: (From Federal Register, Vol. 45, No. 242, December 15, 1980)

- T = Species currently listed as threatened by U.S. Fish & Wildlife Service
- 1 = F&WS presently has sufficient information on hand to support the biological appropriateness of taxa being listed as endangered or threatened species. Development of proposed and final rules may require several years.
- 2 = F&WS currently has information which indicates the probable appropriateness of listing as endangered or threatened, but sufficient information is not presently available to biologically support a proposed rule. Further biological research will usually be necessary to determine status of the taxa.

STATE STATUS

- E = State of Ohio Endangered Species, from criteria in Ohio Administrative Rule 1501:18-1-02, effective July 14, 1980.
- T = State of Ohio Threatened Species, from criteria in Ohio Administrative Rule 1501:18-1-02, effective July 14, 1980.
- X = A native Ohio plant species presumed extirpated from the state.
- P = A native Ohio plant species designated as potentially threatened, from criteria listed in "Rare Species of Native Ohio Wild Plants", DNAP, March, 1980.

<u>Federal Status</u>	<u>State Status</u>	<u>Scientific Name</u>	<u>Common Name(s)</u>
T	E	<i>Aconitum noveboracense</i>	Northern Wild Monkshood
2	X	<i>Besseyia bullii</i>	Besseyia
1	E	<i>Calamagrostis insperata</i>	Ofer Hollow Reed Grass Bartley's Reed Bent Grass
1	E	<i>Hymenoxys acaulis</i> var. <i>glabra</i>	Lakeside Daisy
2	E	<i>Paxistima canbyi</i>	Cliff-green
1	E	<i>Plantago cordata</i>	Heart-leaved Plantain Heart-leaf Plantain
1	X*	<i>Platanthera leucophaea</i>	Prairie White-fringed Orchid Prairie Fringed Orchid
2	X	<i>Poa paludigena</i>	Blue Grass Marsh Spear-grass
2	P	<i>Polemonium reptans</i> var. <i>villosum</i>	Jacob's Ladder Braun's Jacob's-ladder
2	X	<i>Potamogeton hillii</i>	Hill's Pondweed
2	X**	<i>Rhus trilobata</i> var. <i>arenaria</i> (Synonym <i>Rhus aromatica</i> var. <i>arenaria</i>)	Sumac Beach Sumac
2	E	<i>Silene regia</i>	Royal Catchfly
1	P	<i>Sullivantia sullivantii</i>	Sullivantia
2	T	<i>Synandra hispidula</i>	Synandra
1	E	<i>Trollius laxus</i> ssp. <i>laxus</i>	Spreading Globe-flower
2	X	<i>Valeriana uliginosa</i>	Swamp Valerian

* Ohio populations discovered in 1980. Official Ohio list will be amended in 1981 to reclassify species to endangered status.

** Possible Ohio populations discovered, which will be verified by June 1981.

APPENDIX E

ADMINISTRATIVE RULES FOR O.R.C. CHAPTER 1518

Administrative Rules for

Ohio Revised Code Chapter 1518

"Ohio Endangered Plant Law"

These rules implement Ohio Revised Code Chapter 1518, which became effective on August 23, 1978 after passage of Amended Substitute House Bill No. 908 on April 25, 1978. Rules 1501:18-1-03 and 1501:18-1-04 identify the species designated as endangered and threatened and are available separately from this material. The species lists may be requested from the Division of Natural Areas and Preserves, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224.

1501:18-2-04. Legally Obtained Plants. Any nurseryman, dealer, or individual who has legally obtained any native species of wild plants listed as endangered or threatened in Rules 1501:18-1-03 and 1501:18-1-04 of the Administrative Code from another state or commercial propagator shall provide proof upon demand that said plants were legally acquired.

1501:18-2-05. Exceptions. Nothing herein shall be interpreted in such a manner as to prevent any nurseryman or dealer who is licensed under Chapter 927. of the Revised Code from selling, offering for sale, shipping, or otherwise disposing of any endangered or threatened species of plants or parts thereof when such plants have been commercially grown by a licensed nursery or legally imported into this state. Furthermore, nothing herein shall prohibit a person from wilfully rooting up, injuring, destroying, removing, taking, or possessing an endangered or threatened plant from his property or from the property of another when said person has written permission of the owner, lessee, or other person entitled to possession.

1501:18-1-01. Definitions. As used in rules 1501:18-1-01 to 1501:18-2-05 of the Administrative Code:

- (A) "Commercial Purposes" means with intent to sell or trade for gain or profit.
- (B) "Commercially Grown" means grown under cultivation in tilled plots or in a greenhouse.
- (C) "Division" means the Ohio Department of Natural Resources, Division of Natural Areas and Preserves.
- (D) "Endangered Species" means a native Ohio plant species whose natural population(s) are in immediate danger of extirpation from Ohio, and/or any federal endangered plant species in Ohio.
- (E) "Chief" means Chief of the Division of Natural Areas and Preserves.
- (F) "Federal Endangered Species" means all species native to this state which are listed as endangered on the United States list of endangered and threatened wildlife and plants pursuant to the Endangered Species Act of 1973, 87 Stat. 884, 16 U.S.C. 1531, as amended.
- (G) "Federal Threatened Species" means all species native to this state which are listed as threatened on the United States list of endangered and threatened wildlife and plants pursuant to the Endangered Species Act of 1973, 87 Stat. 884, 16 U.S.C. 1531, as amended.
- (H) "Native Habitat" means the environment in which a species could exist as a natural population.
- (I) "Native Species" means a species which, by accepted scientific evidence, was present in Ohio immediately prior to European exploration and settlement.

- (J) "Natural Population" means one or more plants of a single species which, by lack of contrary evidence, were apparently established in a given area through dispersal by natural means, excluding dispersal by humans, human transportation systems, or planting by humans.
- (K) "Person" means any individual, firm, partnership, corporation, company, association, or any combination of individuals, or any employee, agent, or officer thereof.
- (L) "Plant" means any member of the plant kingdom, including but not limited to: roots; stems, including bulbs, corms, tubers, rhizomes, stolons, and other stem forms; leaves; flowers; fruits; cones; seeds; spores; and gametophytes.
- (M) "Species" means a species, subspecies or variety.
- (N) "Threatened Species" means a native Ohio plant species likely to become an endangered species in Ohio within the foreseeable future, and/or any federal threatened plant species in Ohio not on the state endangered species list.
- (O) "Wild Plant" means an individual member of a natural plant population.

1501:18-1-02. Designation Criteria. The following criteria shall be used for identifying and designating species of plants native to Ohio which are in danger of extirpation or which are threatened with becoming endangered.

- (A) Endangered Species. A native Ohio plant species may be designated endangered if, based on its known status in Ohio, one or more of the following criteria applies:
 - (1) The species is a federal endangered species extant in Ohio.
 - (2) The natural populations of the species in Ohio are limited to three or fewer sites, each of which is one square mile or less in area and is separated from each of the other sites by at least two linear miles.
 - (3) The distribution of the natural populations of the species in Ohio is limited to a geographic area delineated by one or two United States Geological Survey 7.5 minute quadrangle maps.
 - (4) The total number of plants in all the natural populations of the species in Ohio is limited to one hundred or fewer individual, physically unconnected plants.
- (B) Threatened Species. A native Ohio plant species may be designated threatened if, based on its known status in Ohio, one or more of the following criteria applies:
 - (1) The species is a federal threatened species extant in Ohio but not on the state endangered species list.
 - (2) The natural populations of the species in Ohio are limited to no less than four nor more than ten sites, each of which is one square mile or less in area and is separated from each of the other sites by at least two linear miles.
 - (3) The distribution of the natural populations of the species in Ohio is limited to a geographic area delineated by no less than three nor more than five United States Geological Survey 7.5 minute quadrangle maps.
- (C) Rules 1501:18-1-03 and 1501:18-1-04 of the Administrative Code shall be amended at least biennially to add or delete species to or from the endangered or threatened species lists as new data warrant.

1501:18-1-03. Endangered Species. The following species of plants are designated in danger of extirpation from the state:

(see species list)

1501:18-1-04. Threatened Species. The following native species of plants are designated as threatened with becoming endangered in the state:

(see species list)

1501:18-2-01. Commercial Taking of Plants. It shall be unlawful for any person to take native species of wild plants or parts thereof that are listed as endangered by rule 1501:18-1-03 of the Administrative Code, or threatened by rule 1501:18-1-04 of the Administrative Code, for commercial purposes from any woodland, field, or forest, or from any other location in which such plant is found growing in its native habitat.

1501:18-2-02. Collecting Endangered and Threatened Plants. It shall be unlawful for any person to take, possess or transport for botanical, educational and scientific purposes, or for propagation in captivity to preserve the species, any native Ohio species of wild plants or parts thereof, that are listed as endangered by rule 1501:18-1-03 of the Administrative Code or threatened by rule 1501:18-1-04 of the Administrative Code without first obtaining a permit from the Chief of the division. Nothing in this rule shall prohibit the taking or possession of species listed on the "United States List of Endangered and Threatened Wildlife and Plants" for botanical, education, or scientific purposes, or for propagation in captivity to preserve the species, under a permit or license from the United States or any instrumentality thereof.

1501:18-2-03. Collecting Permits.

- (A) All persons requesting a permit for the taking, transporting or possession of any native species of wild plants listed as endangered or threatened with statewide extirpation for botanical, educational, or scientific purposes, or for propagation in captivity to preserve the species, shall at the time of application for such permit provide the following information in writing to the Chief:
 - (1) A program or project description with a clear statement of study objectives.
 - (2) Justification of the study.
 - (3) Project location.
 - (4) Duration of study.
 - (5) Species and number of specimens to be collected or involved in the study.
 - (6) Assurance that a final or annual report will be filed with the division, containing a clear statement of the final disposition of each individual specimen along with a copy of any published papers resulting from the study of these plants.
- (B) A permit shall be valid for a period not to exceed one year, but may be renewed at the discretion of the Chief.
- (C) Persons failing to provide full information required in paragraph (A) of this rule to the satisfaction of the Chief shall be denied a permit.
- (D) Failure to meet the requirements of the permit at the conclusion of the project shall be reason for the Chief not to issue future permits to the person failing to comply.
- (E) A permit must be displayed upon demand to any law enforcement officer having jurisdiction.

APPENDIX F

DATA SERVICES BROCHURE AND APPLICATION FORM

need to acquire written permission to publish information provided by the Heritage Program, and a requirement that the Division be given credit as the information source.

The Heritage staff will review the Data Request Form and will contact the prospective data user to answer any questions. A decision will be made about the level of detail necessary to adequately fulfill the data user's needs. A cost estimate for the data search can be given at this time if requested. This program does not charge for data services which result in no data being made available to the user. Charges for services rendered are made in order to recover actual costs to the Division of Natural Areas and Preserves.

The requested information will be retrieved from the Heritage data systems using the most cost-efficient methods, and will be provided to the user with specified restrictions. If the application for access to data is denied, a written explanation will be provided.

Information will not be provided by telephone or to drop-in visitors. Normally, data can be provided to users within two weeks of receipt of the Data Request Form.

Fee Structure for Heritage Services

Charges for services rendered are made in order to recover actual costs to the Division of Natural Areas and Preserves.

DATA USER	MANUAL SEARCHES	COMPUTER SEARCHES
Governmental Agencies - local, regional, state, federal.	No charge for first hour per month; thereafter \$10 per hour.	\$25 base fee + 2¢/line for first 300 lines; thereafter 1¢ per line.
Non-Gov't. Agencies, Organizations, Individuals.	\$12 per hour.	\$30 base fee + 2¢/line first 300 lines; thereafter 1¢ per line.

If no information is available on a search request, there will be no charge to the data user. Otherwise, minimum charge will be for one hour's work, except where a memorandum of agreement is involved. Heritage staff will determine the most cost-efficient search procedures for individual data user requests.

Memoranda of Agreement

Written agreements can be negotiated to offset fees for services. Data users providing useful information to the Heritage Program can obtain reduced or deferred fees. Contact the Heritage Administrator for details.

Billing Procedure

No prepayment is necessary for governmental agencies. Prepayment may be required for non-government data users. Invoices normally will be provided along with the data. Data users should indicate cost limitations they wish to place on requests for data. Fee estimates can be given prior to initiating searches.

FOR FURTHER INFORMATION, CONTACT:

Natural Heritage Program
Division of Natural Areas & Preserves
Fountain Square, Building F
Columbus, Ohio 43224
Phone: 614/466-8970

Division of Natural Areas & Preserves

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DATA

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SERVICES

Division of Natural Areas & Preserves



JAMES A. RHODES
Governor

ROBERT W. TEATER
Director

Data Services

In the summer of 1976, the Ohio Department of Natural Resources, in conjunction with The Nature Conservancy, established the Natural Heritage Program to systematically identify and help protect significant natural areas, high quality plant communities, rare species and unique geologic features. The Nature Conservancy operated the Natural Heritage Program until October 1977, when the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, assumed sole management.

A variety of individuals, institutions and organizations contributed biological data to the program, and while this information was provided free of charge, a substantial amount of time and money was necessary to process it into its current useable format.

In all cases, information was supplied in the belief it would be used to help protect the rare and endangered plants, animals and associated natural features of Ohio. In some instances, locational information about rare and endangered species was provided, with the understanding that it would not be published or released for public distribution. These agreements of confidentiality with the individuals and institutions that contributed information must be honored.

If data users recognize that the purpose of the Natural Heritage Program is to protect these species and features, they will better understand why the program staff must carefully control the use of Heritage information. This does not mean the information is unavailable. In most cases, data can be provided for specific research projects, development or review of environmental impact statements, and other legitimate uses. However, data users must also realize that publication of exact locational information may not aid the protection of an endangered species, but may, in fact, contribute to its destruction. For example, publication of exact locations

for attractive, but endangered wildflowers may lead collectors to these sites. Such sensitive information is best restricted from publication.

The program's data management system includes manual and computer files which store pertinent information on rare and endangered species, plant communities and unique natural features. This is not a complete listing of all rare species, communities and natural features found in Ohio, but is Ohio's most complete single source of existing natural heritage information.

Sound environmental decisions cannot be made in ignorance of the facts. The Natural Heritage Program can provide some basic information needed to make better use of our natural resources, while maintaining the heritage of our natural diversity for future generations to enjoy.

What data are available?

Heritage data are grouped by class. According to the needs of the data user, locational information on U.S.G.S. topographic maps can be withdrawn for all classes, individual class, or parts of classes. The following breakdown summarizes each class:

SPECIAL PLANTS (560+ SPECIES)

- Species with Federal status.
- Ohio Endangered and Threatened Plants (state official status).
- Plants having no legal status but considered potentially threatened in Ohio.

SPECIAL ANIMALS (175+ SPECIES)

- Species with Federal status.
- Ohio Endangered Wild Animals (state official status).
- Animals having no legal status, but considered rare in Ohio.

PLANT COMMUNITIES (65+ Community types) Native plant communities of high quality.

GEOLOGIC FEATURES (40+ Features) Unique or high quality geologic features which

should be preserved for scientific and educational purposes.

REGISTRY - Information on State Nature Preserves; public or privately owned natural areas; and state wild, scenic and recreational rivers.

OTHER - A catchall class which includes information on bird roosts and rookeries, breeding animal populations and champion sized trees. These are natural features of statewide significance, but lack legal status.

In what format are the data available?

The manual, map and computer data systems are flexible and allow for searches which can include a number of variables. Computer printouts can be obtained for the following search criteria:

1. Geographic Area - County, physiographic region, watershed, subwatershed, topographic quad, or managed area. Manual searches can provide information for areas smaller than U.S.G.S. topographic maps or areas which include portions of topographic maps.
2. Species - Individual species, groups of species, taxonomically related species.
3. Plant community type - wetlands.
4. Status - Degree of endangerment or other special status. (For example, legal status only).
5. Date of Information.
6. Ownership.

Application Procedure

Prospective data users should obtain Data Request Forms from:
Heritage Data Services
Division of Natural Areas & Preserves
Fountain Square, Building F-1
Columbus, Ohio 43224

These forms request detailed information about the planned use of the data, and require the data user to agree to certain restrictions. These restrictions include the

NATURAL HERITAGE PROGRAM
DATA REQUEST FORM

Please enclose: a) A letter formally requesting information from the
Natural Heritage Program.
b) Preliminary reports and maps detailing study area.

DATE _____

WHO IS REQUESTING THE INFORMATION?

Agency _____

Name and Title _____

Address _____

Phone _____

WHAT PROJECT OR PROGRAM IS THE INFORMATION FOR? IF THERE IS A CONTRACTING AGENCY,
PLEASE GIVE NAME, ADDRESS, PHONE NUMBER OF CONTACT PERSON.

For which groups in your study area do you want locational information?
Please check appropriate boxes.

Plants - Federal Status only
 State Legal Status only (endangered & threatened)
 Potentially Threatened (non-legal status)

Animals - Federal Status only
 State Legal Status (endangered) only
 Rare (non-legal)

Plant Communities - All Wetlands only
 Other (please specify) _____

Geologic Features - All

Other - (please specify) _____

Registry - All
 State Nature Preserves
 Natural Areas
 State Wild, Scenic and Recreational Rivers
 Other (please specify) _____

(over)

BESIDES NAME, LOCATION, AND STATUS, PLEASE SPECIFY ANY ADDITIONAL INFORMATION YOU MAY REQUIRE. _____

DESCRIBE THE LEVEL OF LOCATIONAL ACCURACY NECESSARY FOR YOUR PROJECT. _____

HOW WILL THE INFORMATION BE USED? _____

IN WHAT FORM AND DETAIL DO YOU WISH TO PUBLISH THIS INFORMATION? _____

The information supplied above is complete and accurate. Any material supplied by the Natural Heritage Program will not be published without prior written permission and without crediting the Division of Natural Areas and Preserves as the source of the material.

Signature _____

Return completed form to: Heritage Data Services, Division of Natural Areas & Preserves, Ohio Department of Natural Resources, Fountain Square, Building F, Columbus, Ohio 43224. Phone 614/466-8970.