

# Kentucky State Nature Preserves Commission

## Report on

### Kentucky's Native Flora Status and Trends in Rare Plants

#### Submitted to

Governor Paul E. Patton  
and the

2002 Kentucky General Assembly

February 2002

*Endangered*



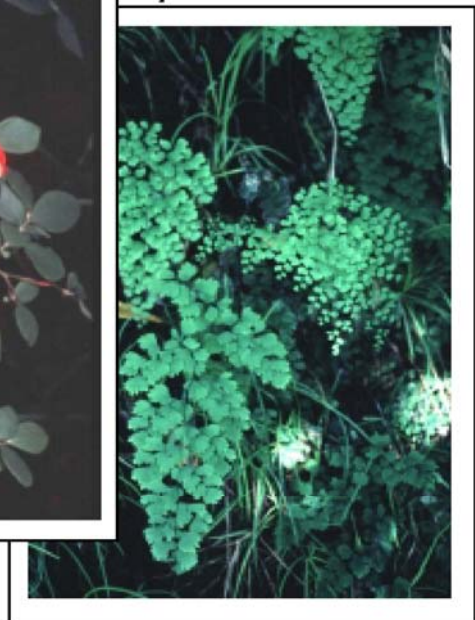
*Price's potato-bean*

*Threatened*



*Wood Lily*

*Special Concern*



*Maidenhair fern*

***The General Assembly finds and declares that it is the policy of the Commonwealth to recognize endangered and threatened species of plants for human enjoyment, for scientific purposes, and to ensure their perpetuation as viable components of their ecosystems for the benefit of the people of Kentucky. ~~~ Kentucky Rare Plant Recognition Act. KRS146.600***

The 1994 Kentucky General Assembly passed the Kentucky Rare Plant Recognition Act (KRS 146.600 ~ 146.619) recognizing the importance of rare plants to our natural heritage and ensuring their perpetuation as viable components of their ecosystems. This report is required every four years pursuant to KRS 146.610(4). This report provides information to Governor Patton and the 2002 Kentucky General Assembly on the conditions and needs of Kentucky's rare plants. It includes information on: 1) the status of rare plants; 2) the state program and other activities on rare plant protection; and 3) provides recommendations that address extinction and decline in rare plants and the conservation of the state's native flora.

### **Status of Kentucky's Rare and Native Plant Flora**

Of the 2,467 native plants reported from Kentucky, 377 are presently included on the list of Endangered, Threatened, Special Concern and Historic Plants and Animals of Kentucky, an annually updated list that was developed by the Kentucky State Nature Preserves Commission (KSNPC) in 1981. Of these listed species, 112 (30 percent) have at least one population on natural lands that are managed primarily for natural resource protection<sup>1</sup> (i.e. state nature preserves). Only 50 listed plants have more than one protected occurrence. One or a few protected occurrences for these plants is far short of what is needed to ensure that they can sustain themselves in the Kentucky landscape. In order for a rare plant to be considered secure under nationally accepted guidelines<sup>2</sup>, 100 populations of a species must be documented or there

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<sup>1</sup> This also includes lands such as national parks that are established to protect the natural features of the site; these lands are not designated for multiple use.

<sup>2</sup> This standard methodology is used to assess the status of rare plants and animals by state heritage programs in all fifty states.

must be other conditions that indicate it is secure, including stable populations on natural areas dedicated to its protection and management.

About 13 percent (50) of all rare plants documented from Kentucky have not been seen in the state in the last 20 years; this figure rises to 34 percent (122) with the inclusion of plants not seen in Kentucky in the last ten years. This generally provides evidence that rare plants are disappearing from our flora and could be indicative of a trend toward extinction. However, the lack of botanical inventories and a sustained monitoring program may account for some of the plants that have not been found for many years. KSNPC needs additional staff to complete this work.

Most recent inventories and monitoring for individual species show decline. For instance, about half of the populations of glade cress (*Leavenworthia exigua* var. *laciniata*), a small plant found only in Bullitt and southern Jefferson counties, were shown to have either been extirpated (11percent) or degraded (42 percent). There is no question that this decline is the result of a landscape changing from agricultural to residential. Royal catchfly (*Silene regia*) is another species that is vulnerable to extinction. There are historic records for this prairie species from all over the state, but with the dramatic decline in Kentucky prairie habitat the remaining populations are known only from a few roadsides in Hardin County. This story can be repeated for wood lily (*Lilium philadelphicum*), another grassland species, for wetland species such as least trillium (*Trillium pusillum*) and many others.

Primary threats to rare plants are: 1) habitat destruction; 2) land development that fragments the natural landscape; 3) invasive exotic plants; and 4) disruption of ecosystem functions such as fire. Considering the changing patterns of development and resource use in Kentucky, it is clear that natural areas are being degraded and converted for other uses. It follows that the native flora is also declining in diversity and that the rare plants will be the first to disappear, simply because their low population numbers make them acutely vulnerable.

## **Rare Plant Recognition Act**

The Kentucky State Nature Preserves Commission (KSNPC) was assigned the responsibility of implementing the Rare Plant Recognition Act. To do this, KSNPC is promulgating proposed regulations to create lists of endangered and threatened plant species and

the mechanisms by which plants may be added and removed from the lists. Drafts of the proposed administrative regulations for this legislation are provided as Appendix 1. The Notice of Intent to begin the promulgation of these regulations was filed in December 2001. The various public meetings and procedures have followed according to schedule and we expect the final regulation will be in effect by June 2002. These draft regulations have been approved by the Rare Plant Committee of the Kentucky Academy of Sciences and have been circulated throughout the scientific community. KSNPC is committed to maintaining an open dialogue with the interested public and scientific community on this listing process and species to be included.

These regulations will only list plant species that are vulnerable to extinction and qualify for endangered, threatened or other status. Dissemination of this information will hopefully be used to preserve these plants. The Act itself, and the regulations, do not create any obligation on the part of the landowner to protect the rare plants on these lists.

### **Kentucky State Nature Preserves Commission Rare Plant Program**

KSNPC functions as a clearinghouse for information on Kentucky's rare flora as well as the native flora as a whole, and issues relating to the protection of native plants. A botanical database of primarily rare plant information from many sources (herbaria, literature, government reports and field botanists) is maintained by the Commission. From this information, and with input from other botanists, KSNPC developed the proposed regulatory list of state rare plants. Commission botanists also provide technical assistance to state and federal agencies and private landowners in assessing impacts and developing protection strategies for rare plant populations.

KSNPC has two permanent botanists and occasional seasonally hired assistants. The KSNPC botany program is primarily funded through a limited cooperative agreement with the U. S. Fish and Wildlife Service. This federal program provides funds for species field inventories, population monitoring, site protection and restoration, and public education; however, these activities are mostly focused on the nine federally listed plants in Kentucky. This cooperative agreement also gives the Commission the authority to make decisions on allowable collection of federally listed plants.

KSNPC supplements the limited federal funding for the rare plant program by conducting

general floristic surveys and other studies for government agencies. The federal funding, while an asset, has a downside in that staff time is not directed toward state-listed plants.

### **Additional Contributions to the Protection of Rare Plants**

Universities and colleges continue to contribute to the knowledge of the Kentucky flora. Most notably Dr. Ronald Jones at Eastern Kentucky University is developing the first comprehensive flora for the state. Another study at ECU by Dr. Patrick Calie is focusing on the genetics of Short's goldenrod, a Kentucky endemic that is one of the rarest plants in the world. Other studies are on-going, with faculty at Morehead State University, Northern Kentucky University and Berea College being especially active in contributing to our knowledge of plant distributions in the Commonwealth. In January 2002, Kentucky scientists published papers adding 21 new species to the state list, and two of these plant species are new to science. These numbers are exceptional for a state and emphasize that Kentucky remains a frontier for botanical exploration. It is also indicative of the need for additional research and protection for native plant habitats.

Both public agencies and private conservation groups are protecting rare plants and the native flora on their land through proper management, as well as providing a refuge for rare plant species. Of the 42 nature preserves under the care of Kentucky State Nature Preserves Commission, 25 have populations of rare plants and most of these have more than one. Agencies and groups that focus on rare plant protection in their management of natural lands include the U.S. Forest Service, National Park Service and The Nature Conservancy.

The Kentucky Natural Heritage Database, which is a database managed by KSNPC, includes botanical information and is used by private and public groups for environmental planning. This database is a compilation of all known records from literature and information resulting from field studies conducted all over the state.

Inventory funding has also become available through the Heritage Land Conservation Fund and resulted in biological inventories of public lands newly purchased through this state program. Additions to state parks and other county and city lands have added to the knowledge of the Kentucky flora.

## **Recommendations for Kentucky Rare Plant Conservation**

- 1. Provide funding for Kentucky's Endangered Plant Program.** KSNPC has relied solely on outside funding for work on rare plants and the Kentucky flora, including implementation of the Kentucky Rare Plant Recognition Act. We need general fund dollars to support this work. With recent budget shortfalls at the Commission, the staff botanists have directed more of their time toward general botanical contracts and had less time to focus on the rare plant program. Kentucky is far behind many states in gathering information on its state flora. The lack of botanical information reduces our ability to: 1) identify vulnerable plants in our ecosystems while they are still viable; 2) take advantage of opportunities to protect Kentucky's native flora and develop protection strategies; and 3) identify exotic plants that threaten natural lands as well as agricultural crops and recreational lands. Most importantly, if Kentucky can protect and restore state endangered and threatened plants, then federal listing (and the accompanying federal regulations) will not be necessary.

### **Recommendations:**

- A. Provide funding for botanists to implement the Kentucky Rare Plant Recognition Act.**
  - B. Train state biologists with other agencies in rare plant identification and issues through the development of materials focused on Kentucky's flora; seek opportunities to increase awareness of these issues through existing state programs.**
  - C. Support efforts to systematically survey Kentucky biological resources as recommended by Governor Patton's Task Force on Smart Growth.**
- 2. Develop a public information program for Kentucky rare plants as outlined in the statute.** KSNPC regularly gets requests for information on endangered species and native plants from school children and other interested people. We have very little nontechnical material that can provide answers to their questions and, the information is not available anywhere else. KSNPC has begun to develop fact sheets for a few endangered plants and a database on the endangered, threatened and special concern

plants that will be accessible through the Commission's Web site this year. Much more specific educational material is needed on the Kentucky flora and these materials would be a resource for the Kentucky Environmental Education Council to provide schools across the state.

**Recommendations:**

- A. Develop educational materials on all of Kentucky's rare plants.**
- B. Provide Internet access to public education materials.**
- C. Provide an educational outreach program on Kentucky's rare plants coordinated with the Kentucky Environmental Educational Council.**

- 3. Provide information to landowners.** Most of the rare plants in the state occur on private lands. Landowners should be provided information about rare plants on or near their property and guidelines for voluntary protection. Landowners should be informed that there are no laws, either federal or state, that restrict their activities simply because rare plants occur on their land. The overwhelming experience of field biologists with the citizenry is that landowners are interested and willing to consider rare plant protection. Many times, if a rare plant still exists on a property, it likely occurs in an area that has not been, nor will be intensively used by the landowner.

**Recommendations:**

- A. Provide landowners access to information and consultation on rare plant and native flora protection through a landowner contact specialist.**
- B. Develop materials on the rare plants in Kentucky suitable for use in local conservation programs.**

- 4. Regulation of indiscriminate plant collecting and sale.** Legislation restricting the sale of selected commercially exploited native and rare plants should be enacted. Commercially exploited species like ginseng, goldenseal and orchids (including our namesake, the Kentucky lady's-slipper, a rare orchid) are being taken from the wild at alarming rates. Since KSNPC's 1998 report, evidence indicates illegal collection of plants on public and private lands has increased dramatically - primarily due to the increased interest in herbal remedies. Some of these plants will become endangered (and some already are) in the next ten years as a result of indiscriminate collection from public

lands, from trespassing and collecting on private lands, and other illegal activities.

Kentucky is one of only two southern states that does not have a law protecting landowners from illegal collecting on their land and restricting the sale of rare plants.

**Recommendation:**

**A. Enact legislation restricting the collection of rare and commercially exploited plants without landowner permission, and restrict the sale of rare plants.**

- 5. Biological inventories on public lands.** Most public lands have not been inventoried for rare plants; very few public land managers have any idea what native plants they have on these lands. Without knowing where these species occur, we are wasting easy opportunities to conserve them. We also lack management guidelines that can be provided for rare plant protection, even when we are aware of their occurrence on some public lands. Biological inventories of state lands will provide information for sound and comprehensive management plans and improve the accuracy of the endangered and threatened plant lists.

**Recommendations:**

**A. Develop and implement policies or law on the protection of rare plants on state lands.**

**B. Make biological inventories and the development of management plans a requirement for publicly owned natural lands.**

- 6. Educate plant nursery owners and other groups about invasive exotic plants and/or restrict their sale.** The cost of controlling invasive exotic plants in Kentucky to protect natural resources, recreation, crop production and other agricultural industries is increasing. Exotic plant invasion is now the second most significant threat to our flora, both nationally and at the state level, following only the conversion of natural lands for other uses. Invasive plants like musk thistle, kudzu and bush honeysuckle are reducing stable and diverse natural systems to monocultures of unsightly non-native weeds. Some of these plants are escaped horticultural plants and others have been introduced through agriculture. While the agriculture industry has become more attuned to this threat, the nursery industry rarely screens for these problem species.



A chapter of the Southeast Exotic Pest Plant Council has recently been established in Kentucky that focuses on raising awareness of the threat posed by invasive pest plants to natural areas. Most state agencies that manage natural lands in Kentucky are represented on the board as well as interested nonprofit groups.

**Recommendations:**

- A. Provide a newsletter or other information to plant nurseries and agricultural groups on invasive noxious plants.**
- B. Identify those exotic plants that result in significant costs to the state and restrict their sale and distribution through legislation.**
- C. Improve the procedure for updating the official state list of noxious plants.**
- D. Support research on noxious weed control.**

## **Conclusions**

The General Assembly, through The Rare Plant Recognition Act, has mandated the protection of rare plants to KSNPC. The Commission is currently promulgating the regulation to establish a list of plants that qualify for this designation. While a listing is the requisite first step to identify these at-risk species, a program to implement the spirit of this law through public education and focused efforts to reverse the trend of decline and extinction is needed.

The Kentucky State Nature Preserves Commission believes the recommendations set forth herein would provide the most effective and cost efficient measures to reverse the decline of Kentucky's native flora. We seek to protect beauties such as the Kentucky lady's-slipper orchid and the wood lily, medicinally valuable plants such as ginseng and goldenseal and numerous other plants that are not only important to our ecology and economy but are part of Kentucky's natural heritage.

This report and other information on Kentucky's rare plants and animals may be accessed at the Kentucky State Nature Preserves Commission webpage at <http://kynaturepreserves.org>.



The Kentucky State Nature Preserves Commission



The Natural Resources and Environmental Protection Cabinet

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## APPENDIX A

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET

Department for Natural Resources

Kentucky State Nature Preserves Commission

(Proposed Administrative Regulation)

**400 KAR 3:010.** Definitions for 400 KAR Chapter 3.

RELATES TO: KRS 146.485, 146.610

STATUTORY AUTHORITY: KRS 146.485, 146.610

NECESSITY, FUNCTION, AND CONFORMITY: KRS 146.610 requires the Kentucky State Nature Preserves Commission to promulgate administrative regulations for the listing of state threatened and endangered plant species. This administrative regulation will establish definitions for these provisions.

Section 1. Definitions. As used in this chapter, the following terms shall have the following meanings:

(1) "Candidate" means a plant species that appears to be rare in the state, and for which substantive evidence as to its status is not available, and has not yet been included on the state endangered or threatened lists.

(2) "Commission" is defined in KRS 146.605.

## NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET

Department for Natural Resources

Kentucky State Nature Preserves Commission

(Proposed Administrative Regulation)

**400 KAR 3:020.** Criteria for identifying and designating endangered and threatened species of plants.

RELATES TO: KRS 146.485, 146.610

STATUTORY AUTHORITY: KRS 146.485, 146.610

NECESSITY, FUNCTION, AND CONFORMITY: KRS 146.610 requires the Kentucky State Nature Preserves Commission to promulgate administrative regulations for the listing of state threatened and endangered plant species. This administrative regulation will establish

guidelines for identifying and designating threatened and endangered plants to accomplish these provisions.

Section 1. Plant species native to Kentucky which are listed as endangered or threatened on the "United States List of Endangered and Threatened Plants", as set forth at 50 C.F.R. 17.12, shall be considered endangered or threatened pursuant to this Chapter.

Section 2. Plant species native to Kentucky which are listed in the "Species listed in Appendices I, II, and III" to the Convention on International Trade in Endangered Species of Wild Fauna and Flora at 50 C. F. R. 23.23, as codified in the Code of Federal Regulations October 1, 2000, may be considered endangered or threatened pursuant to this Chapter.

Section 3. The Commission may identify and designate additional plant species as endangered or threatened and change or remove these designations as more information becomes available. The Commission may also develop other lists for public education purposes such as plants of special concern. In addition to the factors set forth in KRS 146.610(2)(a), the Commission shall utilize the following criteria in its identification and designation of these additional species:

- (1) Only species that have been described and named in a refereed professional scientific journal and widely accepted among professional botanists shall be considered;
- (2) Hybrids shall not be listed unless they are known to be naturally reproducing; and
- (3) Only plant species native to Kentucky shall be considered.

Section 4. Incorporation by Reference.

- (1) The following material is incorporated by reference:
  - (a) The published list of federally listed plants found at 50 C. F. R. 17.12, as published in the Code of Federal Regulations, October 1, 2000; and

(b) The “Species listed in Appendices I, II, and III” found at 50 C. F. R. 23.23, as published in the Code of Federal Regulations, October 1, 2000.

(2) This material may be inspected, copied, or obtained, subject to applicable copyright law, at the Kentucky State Nature Preserves Commission, 801 Schenkel Lane, Frankfort, KY 40601, Monday through Friday, 8 a.m. to 4:30 p.m.

## NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET

Department for Natural Resources

Kentucky State Nature Preserves Commission

(Proposed Administrative Regulation)

**400 KAR 3:030.** Procedures for inclusion, removal or change of status of plant species on the state endangered or threatened list.

RELATES TO: KRS 146.485, 146.610

STATUTORY AUTHORITY: KRS 146.485, 146.610

NECESSITY, FUNCTION, AND CONFORMITY: KRS 146.610 requires the Kentucky State Nature Preserves Commission to promulgate administrative regulations for the listing of state threatened and endangered plant species. This administrative regulation will establish procedures for nomination and inclusion of plant species to these lists.

### Section 1. Candidate Nomination.

(1) Any person may nominate a candidate for inclusion, removal, or change of status on the state endangered or threatened list.

(2) The nomination shall be in writing and shall be submitted to the Director of the Kentucky State Nature Preserves Commission, 801 Schenkel Lane, Frankfort, Kentucky 40601.

(3) Prior to consideration for inclusion on a list, a candidate shall be established as occurring in the state by a voucher specimen deposited in a public herbarium or photographic documentation that has been confirmed by a botanical authority on this plant, and accompanied by written documentation as to the specific location of the collection site, date of collection, description of the habitat and population size.

(4) The Commission may consult with the Kentucky Academy of Science and other experts regarding the status of listed and candidate plant species.

#### Section 2. Consideration of Candidate.

(1) If the requirements of Section 1 have been satisfied, the Commission shall, utilizing the factors set forth in KRS 146.610(2)(a) and the criteria set forth in 400 KAR 3:020, Section 3, consider the candidate for inclusion, removal or change of status on the state endangered or threatened list.

(2) The Commission may conduct its own investigation as to the status of the candidate.

(3) The Commission may place a candidate into a category for which it is nominated, a category other than the one for which it has been nominated or may decline to place the candidate on any list.

(4) The Commission shall notify the person who nominated the candidate of the Commission's decision on the listing of the species.

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET

Department for Natural Resources

Kentucky State Nature Preserves Commission

(Proposed Administrative Regulation)

**400 KAR 3:040.** Endangered and threatened plant lists.

RELATES TO: KRS 146.485, 146.610

STATUTORY AUTHORITY: KRS 146.485, 146.610

NECESSITY, FUNCTION, AND CONFORMITY: KRS 146.610 requires the Kentucky State Nature Preserves Commission to promulgate administrative regulations for the listing of state threatened and endangered plant species. This administrative regulation establishes the lists of threatened and endangered plant species.

Section 1. Endangered Lists. The following plant species based on the factors in KRS 146.610(2)(a) and 400 KAR 3:020, Section 3, are considered endangered in the Commonwealth of Kentucky:

<b>Scientific Name</b>	<b>Common Name</b>
<b>Vascular Plants</b>	
<i>Acer spicatum</i>	Mountain maple
<i>Adlumia fungosa</i>	Climbing fumitory
<i>Agalinus auriculata</i>	Earleaf agalinis
<i>Agalinis obtusifolia</i>	Ten-lobe agalinis
<i>Agalinis skinneriana</i>	Pale agalinis
<i>Angelica triquinata</i>	Filmy angelica
<i>Apios priceana</i>	Price's potato-bean
<i>Arabis missouriensis</i>	Missouri rockcress
<i>Arabis hirsuta var. adpressipilis</i>	Hairy rockcress
<i>Aster hemisphericus</i>	Southern prairie aster
<i>Aster radula</i>	Low rough aster
<i>Berberis canadensis</i>	American barberry
<i>Botrychium matricariifolium</i>	Matricary grapefern
<i>Botrychium oneidense</i>	Blunt-lobe grapefern
<i>Calamagrostis canadensis var.</i>	Blue-joint reed grass
<i>Calamagrostis porteri ssp.</i>	Reed bent grass
<i>Calopogon tuberosus</i>	Grasspink
<i>Carex aestivalis</i>	Summer sedge
<i>Carex atlantica ssp. Capillacea</i>	Prickly bog sedge
<i>Carex jorii</i>	Cypress-swamp sedge
<i>Carex juniperorum</i>	Cedar sedge
<i>Carex lanuginosa</i>	Woolly sedge

<i>Carex leptoneura</i>	Finely-nerved sedge
<i>Castanea dentata</i>	American chestnut
<i>Castilleja coccinea</i>	Scarlet indian paintbrush
<i>Cheilanthes alabamensis</i>	Alabama lip fern
<i>Cheilanthes feei</i>	Fee's lip fern
<i>Chelone obliqua</i> var. <i>obliqua</i>	Red turtlehead
<i>Chrysogonum virginianum</i>	Green-and-gold
<i>Chrysosplenium americanum</i>	American golden-saxifrage
<i>Collinsonia verticillata</i>	Whorled horse-balm
<i>Comptonia peregrina</i>	Sweet-fern
<i>Conradina verticillata</i>	Cumberland-rosemary
<i>Convallaria montana</i>	American lily-of-the-valley
<i>Corallorrhiza maculata</i>	Spotted coralroot
<i>Cymophyllus fraserianus</i>	Fraser's sedge
<i>Cypripedium candidum</i>	Small white lady's-slipper
<i>Deschampsia cespitosa</i> ssp. <i>Glauca</i>	Tufted hair grass
<i>Draba cuneifolia</i>	Wedge-leaf whitlow-grass
<i>Drosera brevifolia</i>	Dwarf sundew
<i>Echinodorus parvulus</i>	Dwarf burhead
<i>Eriophorum virginicum</i>	Tawny cotton-grass
<i>Eryngium integrifolium</i>	Blue-flower coyote-thistle
<i>Eupatorium semiserratum</i>	Small-flowered thoroughwort
<i>Eupatorium steelei</i>	Steele's joe-pye-weed
<i>Gentiana flavida</i>	Yellow gentian
<i>Gentiana puberulenta</i>	Prairie gentian
<i>Gymnopogon brevifolius</i>	Shortleaf skeleton grass
<i>Helianthemum canadense</i>	Canada frostweed
<i>Helianthus silphioides</i>	Silphium sunflower
<i>Heracleum lanatum</i>	Cow-parsnip
<i>Hexastylis contracta</i>	Southern heartleaf
<i>Houstonia serpyllifolia</i>	Michaux's bluets
<i>Hydrocotyle americana</i>	American water-pennywort
<i>Hydrolea ovata</i>	Ovate fiddleleaf
<i>Iris fulva</i>	Copper iris
<i>Isoetes butleri</i>	Butler's quillwort
<i>Isoetes melanopoda</i>	Blackfoot quillwort
<i>Koeleria macrantha</i>	June grass
<i>Krigia occidentalis</i>	Western dwarf dandelion
<i>Leucothoe recurva</i>	Fetterbush
<i>Listera australis</i>	Southern twayblade
<i>Lobelia appendiculata</i> var.	Gattinger's lobelia
<i>Lonicera dioica</i> var. <i>orientalis</i>	Wild honeysuckle
<i>Lonicera reticulata</i>	Grape honeysuckle
<i>Ludwigia hirtella</i>	Hairy ludwigia
<i>Lycopodiella appressa</i>	Southern bog club-moss
<i>Lycopodiella inundatum</i>	Northern bog club-moss
<i>Lycopodium clavatum</i>	Running-pine



<i>Lysimachia fraseri</i>	Fraser's loosestrife
<i>Lysimachia terrestris</i>	Swamp-candles
<i>Maianthemum stellatum</i>	Starflower false solomon's-seal
<i>Marshallia grandiflora</i>	Large-flowered barbara's-buttons
<i>Matelea carolinensis</i>	Carolina anglepod
<i>Melampyrum lineare</i> var.	American cowwheat
<i>Melanthium parviflorum</i>	Small-flowered false hellebore
<i>Melanthium virginicum</i>	Virginia bunchflower
<i>Minuartia cumberlandensis</i>	Cumberland sandwort
<i>Mirabilis albida</i>	Pale umbrella-wort
<i>Muhlenbergia bushii</i>	Bush's muhly
<i>Nestronia umbellula</i>	Conjurer's-nut
<i>Oenothera linifolia</i>	Thread-leaf sundrops
<i>Oenothera perennis</i>	Small sundrops
<i>Oldenlandia uniflora</i>	Clustered bluets
<i>Onosmodium molle</i> ssp.	Hairy false gromwell
<i>Onosmodium molle</i> ssp. <i>Molle</i>	Soft false gromwell
<i>Onosmodium molle</i> ssp. <i>Occidentale</i>	Western false gromwell
<i>Parnassia asarifolia</i>	Kidney-leaf grass-of-parnassus
<i>Parnassia grandifolia</i>	Largeleaf grass-of-parnassus
<i>Paronychia argyrocoma</i>	Silverling
<i>Philadelphus pubescens</i>	Hoary mockorange
<i>Platanthera psycodes</i>	Small purple-fringed orchid
<i>Poa saltuensis</i>	Drooping blue grass
<i>Pogonia ophioglossoides</i>	Rose pogonia
<i>Polygala cruciata</i>	Cross-leaf milkwort
<i>Polymnia laevigata</i>	Tennessee leafcup
<i>Prenanthes alba</i>	White rattlesnake-root
<i>Prenanthes aspera</i>	Rough rattlesnake-root
<i>Prenanthes barbata</i>	Barbed rattlesnake-root
<i>Psoralidium tenuiflorum</i>	Few-flowered scurf-pea
<i>Ptilimnium nuttallii</i>	Nuttall's mock bishop's-weed
<i>Pycnanthemum albescens</i>	White-leaved mountain-mint
<i>Rhododendron canescens</i>	Hoary azalea
<i>Rhynchosia tomentosa</i>	Hairy snout-bean
<i>Rhynchospora macrostachya</i>	Tall beakrush
<i>Rubus canadensis</i>	Smooth blackberry
<i>Rudbeckia subtomentosa</i>	Sweet coneflower
<i>Sabatia campanulata</i>	Slender marsh-pink
<i>Sagittaria rigida</i>	Sessile-fruit arrowhead
<i>Salvia urticifolia</i>	Nettle-leaf sage
<i>Sambucus racemosa</i> ssp. <i>Pubens</i>	Red elderberry
<i>Sanguisorba canadensis</i>	Canada burnet
<i>Saxifraga micranthidifolia</i>	Lettuce-leaf saxifrage
<i>Schisandra glabra</i>	Bay starvine
<i>Scirpus expansus</i>	Woodland bulrush
<i>Scirpus fluviatilis</i>	River bulrush

<i>Scirpus hallii</i>	Hall's bulrush
<i>Scirpus heterochaetus</i>	Slender bulrush
<i>Scirpus microcarpus</i>	Small-fruit bulrush
<i>Scirpus verecundus</i>	Bashful bulrush
<i>Scleria ciliata</i> var. <i>ciliata</i>	Fringed nut-rush
<i>Silene regia</i>	Royal catchfly
<i>Silphium laciniatum</i> var. <i>laciniatum</i>	Compassplant
<i>Solidago shortii</i>	Short's goldenrod
<i>Sparganium eurycarpum</i>	Large bur-reed
<i>Spiraea alba</i>	Narrow-leaved meadowsweet
<i>Spiranthes odorata</i>	Sweetscent ladies'-tresses
<i>Sporobolus heterolepis</i>	Northern dropseed
<i>Stachys eplingii</i>	Epling's hedge-nettle
<i>Streptopus roseus</i> var. <i>perspectus</i>	Rosy twistedstalk
<i>Symphoricarpos albus</i>	Snowberry
<i>Talinum calcaricum</i>	Limestone fameflower
<i>Tephrosia spicata</i>	Spiked hoary-pea
<i>Thermopsis mollis</i>	Soft-haired thermopsis
<i>Torreyochloa pallida</i>	Pale manna grass
<i>Toxicodendron vernix</i>	Poison sumac
<i>Tragia urticifolia</i>	Nettle-leaf noseburn
<i>Trichostema setaceum</i>	Narrow-leaved bluecurls
<i>Trientalis borealis</i>	Northern starflower
<i>Trifolium reflexum</i>	Buffalo clover
<i>Trillium nivale</i>	Snow trillium
<i>Trillium pusillum</i>	Least trillium
<i>Utricularia macrorhiza</i>	Greater bladderwort
<i>Vaccinium erythrocarpum</i>	Highbush cranberry
<i>Viburnum latanoides</i>	Alderleaf viburnum
<i>Viburnum nudum</i>	Possum haw viburnum
<i>Woodsia appalachiana</i>	Mountain woodsia
<i>Xyris difformis</i>	Carolina yellow-eye-grass
<b>MOSSES</b>	
<i>Brachythecium populeum</i>	Matted feather moss
<i>Bryum cyclophyllum</i>	A moss
<i>Bryum miniatum</i>	A moss
<i>Dicranodontium asperulum</i>	A moss
<i>Entodon brevisetus</i>	A moss
<i>Herzogiella turfacea</i>	A moss
<i>Oncophorus rauii</i>	A moss
<i>Orthotrichum diaphanum</i>	A moss
<i>Polytrichum piliferum</i>	A haircap moss
<i>Polytrichum strictum</i>	A haircap moss
<i>Sphagnum quinquefarium</i>	A sphagnum moss
<i>Tortula norvegica</i>	Tortula

Section 2. Threatened Lists.

The following plant species, based on the factors in KRS 146.610(2)(a) and the criteria listed in 400 KAR 3:020 Section 3, are considered threatened in the Commonwealth of Kentucky:

<i>Scientific Name</i>	<i>Common Name</i>
<i>Aconitum uncinatum</i>	Blue monkshood
<i>Adiantum capillus-veneris</i>	Southern maidenhair-fern
<i>Aesculus pavia</i>	Red buckeye
<i>Agrimonia gryposepala</i>	Tall hairy groovebur
<i>Amianthium muscitoxicum</i>	Fly-poison
<i>Amsonia tabernaemontana</i> var.	Eastern bluestar
<i>Arabis perstellata</i>	Braun's rock cress
<i>Armoracia lacustris</i>	Lake cress
<i>Aster concolor</i>	Eastern silvery aster
<i>Aster drummondii</i> var. <i>texanus</i>	Texas aster
<i>Aster pilosus</i> var. <i>priceae</i>	White heath aster
<i>Aster saxicastellii</i>	Rockcastle aster
<i>Baptisia tinctoria</i>	Yellow wild indigo
<i>Bartonia virginica</i>	Yellow screwstem
<i>Berchemia scandens</i>	Supplejack
<i>Boykinia aconitifolia</i>	Brook saxifrage
<i>Cabomba caroliniana</i>	Carolina fanwort
<i>Calamagrostis porteri</i> ssp. <i>Porteri</i>	Porter's reed grass
<i>Calycanthus floridus</i> var. <i>glaucus</i>	Sweetshrub
<i>Carex alata</i>	Broadwing sedge
<i>Carex crebriflora</i>	Coastal plain sedge
<i>Carex decomposita</i>	Epiphytic sedge
<i>Carex gigantea</i>	Large sedge
<i>Carya aquatica</i>	Water hickory
<i>Castanea pumila</i>	Allegheny chinkapin
<i>Ceanothus herbaceus</i>	Prairie redroot
<i>Cimicifuga rubifolia</i>	Appalachian bugbane
<i>Clematis crispa</i>	Blue jasmine leather-flower
<i>Cypripedium parviflorum</i>	Small yellow lady's-slipper
<i>Delphinium carolinianum</i>	Carolina larkspur
<i>Deschampsia flexuosa</i>	Crinkled hair grass
<i>Echinodorus berteroi</i>	Burhead
<i>Elodea nuttallii</i>	Waterweed
<i>Euphorbia mercurialina</i>	Mercury spurge
<i>Fimbristylis puberula</i>	Hairy fimbristylis
<i>Forestiera ligustrina</i>	Upland privet
<i>Glandularia canadensis</i>	Rose verbena
<i>Glyceria acutiflora</i>	Sharp-scaled manna grass
<i>Gratiola pilosa</i>	Shaggy hedge-hyssop
<i>Halesia tetraptera</i>	Common silverbell

<i>Hedeoma hispidum</i>	Rough pennyroyal
<i>Helianthemum bicknellii</i>	Plains frostweed
<i>Helianthus eggertii</i>	Eggert's sunflower
<i>Heterotheca subaxillaris</i> var. <i>latifolia</i>	Broad-leaf golden-aster
<i>Hieracium longipilum</i>	Hairy hawkweed
<i>Hypericum crux-andreae</i>	St. Peter's-wort
<i>Juncus filipendulus</i>	Long-styled rush
<i>Juniperus communis</i> var. <i>depressa</i>	Ground juniper
<i>Lathyrus palustris</i>	Vetchling peavine
<i>Leavenworthia exigua</i> var. <i>laciniata</i>	Glade cress
<i>Leavenworthia torulosa</i>	Necklace glade cress
<i>Liatris cylindracea</i>	Slender blazingstar
<i>Lilium philadelphicum</i>	Wood lily
<i>Lilium superbum</i>	Turk's cap lily
<i>Limnobium spongia</i>	American frog's-bit
<i>Liparis loeselii</i>	Loesel's twayblade
<i>Listera smallii</i>	Kidney-leaf twayblade
<i>Lobelia nuttallii</i>	Nuttall's lobelia
<i>Maianthemum canadense</i>	Wild lily-of-the-valley
<i>Malvastrum hispidum</i>	Hispid false mallow
<i>Melampyrum lineare</i> var. <i>latifolium</i>	American cow-wheat
<i>Melanthium woodii</i>	False hellebore
<i>Minuartia glabra</i>	Appalachian sandwort
<i>Monotropsis odorata</i>	Sweet pinesap
<i>Muhlenbergia cuspidata</i>	Plains muhly
<i>Nemophila aphylla</i>	Small-flower baby-blue-eyes
<i>Oenothera triloba</i>	Stemless evening-primrose
<i>Orontium aquaticum</i>	Goldenclub
<i>Paxistima canbyi</i>	Canby's mountain-lover
<i>Perideridia americana</i>	Eastern eulophus
<i>Philadelphus inodorus</i>	Mock orange
<i>Phlox bifida</i> ssp. <i>Bifida</i>	Cleft phlox
<i>Phlox bifida</i> ssp. <i>Stellaria</i>	Starry cleft phlox
<i>Platanthera cristata</i>	Yellow-crested orchid
<i>Platanthera integrilabia</i>	White fringeless orchid
<i>Polygala polygama</i>	Racemed milkwort
<i>Pontederia cordata</i>	Pickerel-weed
<i>Potamogeton pulcher</i>	Spotted pondweed
<i>Prenanthes crepidinea</i>	Nodding rattlesnake-root
<i>Ptilimnium capillaceum</i>	Mock bishop's-weed
<i>Rubus whartoniae</i>	Wharton's dewberry
<i>Sagittaria graminea</i>	Grass-leaf arrowhead
<i>Saxifraga michauxii</i>	Michaux's saxifrage
<i>Schizachne purpurascens</i>	Purple-oat
<i>Scutellaria saxatilis</i>	Rock skullcap
<i>Sedum telephioides</i>	Allegheny stonecrop
<i>Silene ovata</i>	Ovate catchfly

<i>Silphium laciniatum</i> var. <i>robinsonii</i>	Compassplant
<i>Solidago albopilosa</i>	White-haired goldenrod
<i>Solidago curtisii</i>	Curtis' goldenrod
<i>Solidago roanensis</i>	Roan mountain goldenrod
<i>Spiraea virginiana</i>	Virginia spiraea
<i>Spiranthes lucida</i>	Shining ladies'-tresses
<i>Spiranthes magnicamporum</i>	Great plains ladies'-tresses
<i>Sporobolus clandestinus</i>	Rough dropseed
<i>Stellaria fontinalis</i>	Water stitchwort
<i>Talinum teretifolium</i>	Roundleaf fameflower
<i>Taxus canadensis</i>	Canadian yew
<i>Thaspium pinnatifidum</i>	Cutleaf meadow-parsnip
<i>Thuja occidentalis</i>	Northern white-cedar
<i>Trepocarpus aethusae</i>	Trepocarpus
<i>Trifolium stoloniferum</i>	Running buffalo clover
<i>Trillium undulatum</i>	Painted trillium
<i>Viburnum molle</i>	Missouri arrow-wood
<i>Viola walteri</i>	Walter's violet
<i>Vitis rupestris</i>	Sand grape
<i>Zizaniopsis miliacea</i>	Southern wild rice