NASA Technical Memorandum 102791

Flora And Threatened And Endangered Plants Of John F. Kennedy Space Center, Florida

August 1990

National Aeronautics and
Space Administration

NASA Technical Memorandum 102791

Flora And Threatened And Endangered Plants Of John F. Kennedy Space Center, Florida

Paul A. Schmalzer, Ph.D.
C. Ross Hinkle, Ph.D.
The Bionetics Corporation
Kennedy Space Center, Florida

August 1990

National Aeronautics and
Space Administration

John F. Kennedy Space Center

NASA

Table of Contents

Abstract

The vascular flora of the Kennedy Space Center (KSC) area was first studied in the 1970's (Sweet 1976, Poppleton et al. 1977). Nomenclatural and taxonomic changes as well as additional collections required revision of this list. The revised list includes 1045 taxa of which 850 are native and 195 are introduced. This appears to be a substantial proportion of the regional flora. Forty-six taxa are endemic or nearly endemic to Florida, a level of endemism that appears high for the east coast of central Florida. Seventy-three taxa (69 native) are listed as threatened, endangered, or of special concern on federal or state lists. Taxa of special concern occur in all major habitats, but many are resticted to hammocks and hardwood swamps that constitute a minor proportion of the terrestrial vegetation. For some of these taxa, populations on KSC appear to be important for their regional and global survival. The bryophyte flora of the KSC area include 23 mosses and 20 liverworts and hornworts (Whittier and Miller 1976). The lichen flora is currently unknown.

List of Tables

Page

Acknowledgments

This study was conducted under NASA contracts NAS10-10285 and NAS10-11624. We thank William M. Knott, III, Biological Sciences Officer, Life Sciences Research Office, Albert M. Koller, Jr., formerly, Chief, Programs and Planning Office, and Burton Summerfield, Pollution Control Officer, Biomedical Operations and Research Office, for their guidance. Dr. H.R. DeSelm, Botany Department, University of Tennessee, Knoxville examined and annotated collections of *Andropogon*. We thank Joseph Mailander for data entry and Opal Tilley for manuscript preparation.

Introduction

The vascular flora of an area is a basic component of its biological diversity and an important consideration for environmental planning and impact assessment. In this report, we provide an updated and revised floristic list for the Kennedy Space Center area. The revised list has been entered into a computer database to facilitate future additions and changes. We discuss those species listed as threatened or endangered under state or federal laws or regulations or proposed for such listing. This is one of a series of reports that will document current environmental conditions of Kennedy Space Center.

Floristic Lists

The first vascular floristic list for Kennedy Space Center (KSC) was prepared by botanists from the University of Central Florida (UCF) (Sweet 1976, Poppleton et al. 1977). It was based on collections primarily from northern Merritt Island (from Banana Creek to Haulover Canal) but also included plants from "excursions to the southern point of the Cape (Sebastian Inlet)" (Sweet 1976). The list published in the *Florida Scientist* included "all of coastal Brevard County east of the Indian River, and that portion of Volusia County included in the recently created Canaveral National Seashore" (Poppleton et al. 1977). Neither list corresponded exactly to the political boundaries of KSC. Although the UCF list was computerized (Sweet 1976, Sweet and Poppleton 1977), rapid changes in computer hardware and software over the last decade made those computerized data no longer usable (H. Sweet, Biology Department, University of Central Florida, personal communication).

Subsequent to the vegetation and floristic studies on KSC by UCF (Sweet 1976, Stout 1980), additional work has been carried out (NASA 1983, 1988) including studies of launch impacts on vegetation (Schmalzer et al. 1985, 1986), fire ecology of scrub (Schmalzer and Hinkle 1987) and wetlands (Schmalzer et al. 1990), and vegetation in relation to animal habitat (Breininger et al. 1988, Breininger and Schmalzer 1990). Vegetation sampling in these studies required collection of reference material, sometimes including species not previously reported.

In the last decade several manuals treating all or part of the vascular flora of central Florida have appeared. These include Wunderlin (1982) for all vascular taxa with subsequent revisions (Wunderlin et al. 1985, 1988), Godfrey and Wooten (1979, 1981) for wetland plants, Cronquist (1980) for the Asteraceae, and Lellinger (1985) for pteridophytes (ferns and fern allies). These manuals have improved the resources available for plant identification from the time when the first KSC floristic list was prepared and no manuals provided comprehensive coverage for central Florida (Sweet 1976).

Bryophytes of the KSC area are known from the work of Whittier and Miller (1976). No subsequent additions or changes to this list are known, but it is included here so that available floristic information is centralized.

Threatened and Endangered Plants

The environmental impact statement for KSC (NASA 1979) provided the first list of threatened and endangered plants for the site; 11 taxa (*Acrostichum aureum, Annona glabra, Avicennia germinans, Asclepias curtissii, Chrysophyllum oliviforme, Drosera intermedia, Ophioglossum palmatum, Peperomia obtusifolia, Rhizophora mangle, Tournefortia gnaphalodes, Zamia*

integrifolia) were listed. Poppleton (1981) provided information on 12 taxa (*Asclepias curtissii, Calamovilfa curtissii, Cereus erioiphorus* var. *fragrans, Chrsophyllum oliviforme, Hymenocallis latifolia, Lechea cernua, Ophioglossum palmatum, Persea borbonia* var. *humilis, Rhynchosia cinera, Verbena maritima, Verbena tampensis, Zamia umbrosa*) then proposed for federal listing under the Endangered Species Act and 2 taxa (*Avicennia germinans, Rhizophora mangle*) of special interest in Florida. Schmalzer and Hinkle (1985) included taxa listed by the state of Florida as well as those under review by the U.S. Fish and Wildlife Service; this list contained 60 taxa. As information on the population status and threats to rare plants accumulates, agencies revise their lists of species of concern by adding taxa not previously listed, removing taxa shown to be more common than previously thought, and changing categories. Therefore, it is necessary to revise periodically the list of threatened and endangered plants for an area of concern.

Methods

Floristic List

The original floristic list of Sweet (1976) with additions and corrections of Poppleton et al. (1977) and Poppleton (1981) was compared to nomenclature of Wunderlin (1982), Wunderlin et al. (1985, 1988), Godfrey and Wooten (1979, 1981), Cronquist (1980), and Lellinger (1985). In addition, Hitchcock and Chase (1950) was consulted for the Poaceae, Bailey (1949) for cultivated plants, and Luer (1972) for the Orchidaceae. Treatments are not identical in all recent manuals. In general, we follow Cronquist for the Asteraceae and Wunderlin and Wunderlin et al. for most other groups. For some genera (e.g., *Andropogon*,

Panicum) we follow a more traditional approach. Examination of taxonomic monographs on all the groups represented in this flora was beyond the extent of the present effort. The specimens on which the original floristic list was based are housed at the UCF Herbarium (Sweet 1976, Poppleton et al. 1977); these specimens were not examined for this revision.

Some species on the original list were eliminated when it was clear they had been misidentified. For example, *Acrostichum aureum* occurs in south Florida not central Florida; *Acrostichum danaeifolium* occurs on KSC (Poppleton 1981). Species that appeared to be out of range were also excluded pending further work. More frequent were name changes or varieties now reduced to synonomy. In some cases, species names on the list were found only in Small (1933). These are generally retained in the revised list. To this list we added additional species from fieldwork conducted since 1982; these specimens are maintained in a reference collection at KSC and have been inventoried (Schmalzer and Hinkle, unpublished). Dr. H.R. DeSelm, Botany Department, University of Tennessee, Knoxville examined and annotated the specimens of *Andropogon* from this collection.

The resulting list was entered into a database in dBaseIII on a IBM PC-compatible computer. Data entered were class (pteridophyte, gymnosperm, angiosperm), family, genus, species, variety (if any), and authority.

Introduced and Endemic Plants

The revised species list was examined to determine which species were introduced (non-native) by comparing to comments in Wunderlin (1982) or to other manuals for species not listed there. We considered species to be native to the KSC area if they were native to central Florida. This may be in error in

some cases if the taxa in question have been planted on Merritt Island but occur naturally elsewhere in central Florida. We do not think that such cases are common. A field was added to the database indicating whether the plant was introduced.

Muller et al. (1989) recently produced comprehensive lists of vascular plants and animals endemic to Florida. We compared their list to the revised floristic list to determine taxa endemic to Florida occurring in the KSC area. A field was added to the database indicating this status; categories used were those of Muller et al. (1989): endemic to Florida, nearly endemic to Florida (total range exceeds Florida's boundaries by < 10%), and not endemic.

Threatened and Endangered Plants

We compared the revised floristic list to recently updated lists of endangered and threatened plants of Florida (Wood 1988, Florida Natural Areas Inventory 1989) and to the previous work of Poppleton (1981) and Schmalzer and Hinkle (1985). We also compiled available information on population status, habitat, and threats to existence for the listed taxa.

Results

Floristic Lists

The revised vascular floristic list includes 1045 taxa of vascular plants (Appendix I). Of these, 195 (18.7%) are introduced (Appendix II) and 850 are native. Forty-six of the native taxa (5.3%) are endemic to Florida (Table 1).

Table 1. Plants endemic or nearly endemic to Florida occurring in the Kennedy Space Center area flora.

Gymnosperms

Pinaceae

Pinus clausa (Chapm. ex Englm.) Vasey ex Sarg.

Angiosperms

Amaryllidaceae

Hymenocallis palmeri S. Wats.

Annonaceae

Asimina obovata (Willd.) Nash
Asimina reticulata Chapm.

Asclepiadaceae

Asclepias curtissii A. Gray

Asteraceae

Berlandiera subacaulis (Nutt.) Nutt.
Cacalia floridana A. Gray
Coreopsis leavenworthii T. & G.
Eupatorium mikanioides Chapm.
Helianthus debilis Nutt.
Hieracium megacephalum Nash
Liatris tenuifolia Nutt. var. *quadrifolia* Chapm.
Palafoxia feayi A. Gray
Palafoxia integrifolia (Nutt.) T. & G.
Phoebanthus grandiflora (T. & G.) Blake
Pluchea longifolia Nash
Solidago odora Ait. var. *chapmanii* (A. Gray) Cronq.

Bromeliaceae

Tillandsia simulata Small

Cactaceae

Cereus eriophorus Pfeiffer var.*fragrans* (Small) L. Bens.
Cereus gracilis Mill. var. *simpsonii* (Small) L. Bens.

Table 1. (continued)

Campanulaceae

Campanula floridana S. Wats.
Lobelia feayana A. Gray

Cistaceae
Helianthemum nashii Britt.
Lechea cernua Small

Commelinaceae

Cuthbertia ornata Small

Cyperaceae

Rhynchospora intermedia (Chapm.) Britt.

Fabaceae

Tephrosia angustissima Shuttlew. ex Chapm. var. *curtissii* (Small ex Rydb.) Isely
Vicia floridana S. Wats.

Iridaceae

Iris hexagonia Walt. var. *savannarum* (Small) Foster

Juglandaceae

Carya floridana Sarg.

Lamiaceae

Conradina grandiflora Small
Piloblephis rigida (Batr. ex Benth.) Raf.

Lauraceae

Persea borbonia (L.) Spreng. var. *humilis* (Nash) Koop

Poaceae

Andropogon brachystachyus Chapm.
Andropogon cabanisii Hack.
Andropogon floridanus Scribn.
Andropogon longiberbis Hack.

Table 1. (continued)

Aristida patula Chapm. ex Nash
Calamovilfa curtissii (Vasey) Scribn.
Panicum breve Hitchc. & Chase

Polygalaceae

Polygala rugelii Shuttlew.

Polygonaceae

Polygonella ciliata Meisn.

Ranunculaceae

Clematis baldwinii T. & G.

Scrophulariaceae

Micranthemum glomeratum (Chapm.) Shinners

Verbenaceae

Verbena maritima Small
Verbena tampensis Nash

Bryophytes of the KSC area include 43 taxa, 23 mosses (Musci) and 20 liverworts and hornworts (Hepaticae and Anthocerotae) (Whittier and Miller 1976) (Appendix III).

Threatened and Endangered Plants

Seventy-three taxa (Table 2) are listed or under review for listing on one or more state or federal lists of threatened or endangered plants. Sixty-nine of these are native plants (8.1% of the native flora), while four (*Cereus undatus, Nephrolepis cordifolia, Pavonia spinifex, Pereskia aculeata*) are introduced. These introduced taxa appear to be listed by the Florida Department of Agriculture and Consumer Services (FDA) or the Convention on International Trade in Endangered Species of Wild Fauna and Floras (CITES) because they are commercially exploited. Listed taxa occur in varying habitats (Table 3).

Discussion

Floristic List

The KSC area supports a large vascular flora with elements of temperate distribution some of which approach the southern edge of their distribution and plants of subtropical distribution at or near the northern edge of their distribution. The number reported here (1045) is greater that that (1011) of Sweet (1976) but less than that (1067) of Poppleton et al. (1977). The reduction is due to varieties or species reduced to synonomy by taxonomic revisions or to species excluded that appear to be out of range. Undoubtedly further work will

Table 2. Status of the endangered and threatened plants of the Kennedy Space Center area.

Scientific Name	Common Name	Designated Status[1] USFWS[2]	CITES[3]	FDA[4]	FCREPA[5]	FNAI[6]
Acrostichum danaeifolium[8]	Giant leather fern			T		
Amyris balsamifera	Balsam torchwood					G3 G4, S1
Asclepias curtissii[7,9]	Curtiss milkweed			E		G3, S3
Asplenium platyneuron	Ebony spleenwort			T		
Avicennia germinans[7,8,9]	Black mangrove				SP	
Azolla caroliniana[8]	Mosquito fern			T		
Calamovilfa curtissii[7,8]	Curtiss reedgrass	UR2		E		G1 G2, S1 S2
Calopogon barbatus	Grass pink (unnamed)		II	T		
Calopogon multiflorus	Many-flowered grass pink		II	T		
Calopogon tuberosus[8]	Grass pink (unnamed)		II	T		
Campyloneurum phyllitidis	Strap fern (unnamed)			T		
Cereus eriophorus var. fragrans[7]	Fragrant wool-bearing cereus	E	II	E		G2 G3T1, S1
Cereus gracilis	Prickly-apple	UR2	II	E	T	G2 G3, S2S3
Cereus undatus	Night-blooming cereus		II	T		
Chrysophyllum oliviforme[7,9]	Satinleaf			E		
Cocos nucifera	Coconut palm			T		
Conradina grandiflora	Large-flowered rosemary	UR2		E		G3, S3
Dryopteris ludoviciana	Florida shield fern			T		
Encyclia tampensis	Butterfly orchid		II	T		

Table 2. (continued)

Scientific Name	Common Name	USFWS[2]	CITES[3]	FDA[4]	FCREPA[5]	FNAI[6]
Epidendrum canopseum	Greenfly orchid		II	T		
Ernodea littoralis	Beach creeper			T		
Elophia alta	Wild coco		II	T		
Eulophia ecristata (=*Pteroglossaspis ecristata*)	False coco	UR2	II	T		G3 G4, S2
Habenaria odontopetala	Rein orchid (unnamed)		II	T		
Habenaria repens	Water spider orchid; creeping orchid		II	T		
Harrisella filiformis	Orchid (unnamed)		II	T		
Hexalectris spicata	Crested coralroot		II	T		
Hymenocallis latifolia[7,8]	Broad-leaved spider lily	UR5				G4, S2 S3
Ilex ambigua	Carolina holly; sand holly			T		
Lechea cernua[7]	Nodding pinweed	UR2		E		G3, S3
Lilium catesbaei	Catesby lily			T		G4, S3
Lycopodium alopecuroides	Foxtail club moss			T		
Lycopodium appressum	Southern club moss			T		
Lycopodium carolinianum	Slender club moss			T		
Malaxis spicata	Florida malaxis		II	T		
Nephrolepis biserrata	Boston fern (unnamed)			T		
Ophioglossum palmatum[7,9]	Adder's tongue fern (unnamed)	UR5		E	E	G2, S2
Ophioglossum petiolatum[8]	Adder's tongue fern (unnamed)			T		

Table 2. (continued)

Scientific Name	Common Name	USFWS[2]	CITES[3]	FDA[4]	FCREPA[5]	FNAI[6]
Opuntia compressa	Prickly pear cactus (unnamed)		II	T		
Opuntia stricta (= *Opuntia humifusa*)	Prickly pear cactus (unnamed)		II	T		
Osmunda regalis var. spectabilis[8]	Royal fern			C		
Pavonia spinifex	Pavonia					G4 G5, S2 S3
Peperomia humilis	Pepper (unnamed)			E		G5, S2
Peperomia obtusifolia[9]	Florida peperomia			E		G5, S2
Pereskia aculeata	Lemon vine		II	T		
Persea borbonia var. humilis[7,8]	Dwarf redbay; redbay persea	UR5				G4, S3
Phlebodium aureum[8]	Golden polypody			T		
Pogonia ophioglossoides	Rose pogonia		II	T		
Polygala rugelii	Big yellow milkwort			T		
Polypodium plumula	Polypody fern (unnamed)			T		
Ponthieva racemosa	Shadow witch		II	T		
Psilotum nudum[8]	Whisk fern; fork fern			T		
Remirea maritima	Beach-star			E		G3, S1
Rhizophora mangle[7,8,9]	Red mangrove				SP	
Rhynchosia cinerea[7]	Brown-haired snoutbean	UR2				G3, S3
Scaevola plumieri[8]	Scaevola			T		
Selaginella arenicola	Sand spikemoss			T		
Sophora tomentosa	Necklace pod					G4, S3

Table 2. (continued)

Scientific Name	Common Name	USFWS[2]	CITES[3]	FDA[4]	FCREPA[5]	FNAI[6]
Spiranthes laciniata	Lace-lip ladies'-tresses; lace-lip spiral orchid		II	T		
Suriana maritima	Bay cedar			E		
Tephrosia angustissima	Narrow-leaved hoary pea; coastal hoary pea	UR1		E		GIQ, S1
Thelypteris hispidula	Aspidium fern (unnamed)			T		
Thelypteris interrupta	Aspidium fern (unnamed)			T		
Thelypteris kunthii	Aspidium fern (unnamed)			T		
Thelypteris palustris	Marsh fern			T		
Tillandsia simulata	Wild pine; air plant (unnamed)			T		
Tillandsia utriculata	Giant wild pine; giant air plant			C		
Tournefortia gnaphalodes[9]	Sea lavender			E	T	G4, S3
Verbena maritima[7,8] (=*Glandularia maritima*)	Coastal vervain	UR2		E		G2, S2
Verbena tampensis[7,8] (=*Glandularia tampensis*)	Tampa vervain	UR1		E		G1, S1
Vittaria lineata[8]	Shoestring fern			T		
Woodwardia aerolata	Netted chain fern			T		
Zamia umbrosa[7,9] (= *Zamia pumila*)	East coast coontie		II	C	T	

Table 2. (continued)

Scientific Name	Common Name	USFWS[2]	CITES[3]	FDA[4]	FCREPA[5]	FNAI[6]
	TOTALS	E-1	I-0	E-14	E-1	
		T-0	II-22	T-46	T-4	
		UR1-2	22	C-3	SP-2	
		UR2-6		63	7	22
		UR5-3				
		12				

GRAND TOTAL = 73

Table 2. (continued)

---

1 E = Endangered
T = Threatened
SP = Special Concern
C = Commercially Exploited
I = Appendix I Species
II= Appendix II Species

2 United States Fish and Wildlife Services (list published in List of Endangered and Threatened Wildlife and Plants, 50 CFR 17.11-12).

3 Convention on International Trade in Endangered Species of Wild Fauna and Floras.

4 Florida Department of Agriculture and Consumer Services (list published in Preservation of Native Flora of Florida Act, Section 581.185-187,Florida Statutes).

5 Florida Committee on Rare and Endangered Plants and Animals.

6 The Florida Natural Areas Inventory (FNAI) assigns 2 ranks for each element. The global elements rank is based on a element's worldwide status; the state element rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of elements occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), range, estimated adequately protected EOs, relative threat of destruction, and ecological fragility.

7 Sites or populations identified by Poppleton (1981)

8 Sites or populations known from Bionetics field work (1982-1989)

9 Listed in Final Environmental Impact Statement (EIS) for KSC (NASA 1979)

Table 2. (continued)

UR1 = Under review for federal listing, with substantial evidence in existence indicating at least some degree of biological vulnerability and/or threat.

UR2 = Under review for listing, but substantial evidence of biological vulnerability and/or threat is lacking.

UR3 = Still formally under review for listing, but no longer being considered for listing due to existing pervasive evidence of extinction.

UR4 = Still formally under review for listing, but no longer being considered for listing because current taxonomic understanding indicates species is an invalid taxon and thus ineligible for listing.

UR5 = Still formally under review for listing, but no longer considered for listing because recent information indicates species is more widespread or abundant than previously believed.

Global Element Rank (priority)

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some biological or man-made factor.
G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction because of other factors.
G4 = apparently secure globally (may be rare in parts of range)
G5 = demonstrably secure globally
GH = of historical occurrence throughout range, may be rediscovered (e.g., ivory-billed woodpecker)
GX = believed to be extinct throughout range
G#? = Tentative rank (e.g., G2?)
G#G# = range of rank; insufficient data to assign specific global rank (e.g., G2G3)

Table 2. (continued)

G#T# = rank of taxonomic subgroup such as subspecies or variety; numbers have same definition as above (e.g., G3T1)
G#Q = rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q = same as above, but validity as subspecies or variety is questioned.
GU = due to lack of information, no rank or range can be assigned (e.g., GUT2).
G? = not yet ranked (temporary)

State Element Rank (priority)

Definition parallels global element rank: substitute "S" for "G" in above global ranks, and "in state" for "globally" in above global rank definitions.

Additional state element ranks:

SA = accidental in Florida, i.e., not part of the established biota
SE = an exotic species established in state; may be native elsewhere in North America

Table 3. Common habitats of the endangered and threatened plants of the Kennedy Space Center area.

Scientific Name	Common Name	Habitat	Population Status	Threats to Existence
Acrostichum danaeifolium[2]	Giant leather fern	Sand cordgrass-black rush marsh, mangrove swamp	common within habitat	habitat destruction
Amyris balsamifera	Balsam torchwood	Coastal hammock	unknown	habitat destruction
Asclepias curtissii[1]	Curtiss milkweed	Oak scrub	one small population, ca. 3 plants	habitat destruction, fire exclusion
Asplenium platyneuron	Ebony spleenwort	Hammocks	one population known	habitat destruction
Avicennia germinans	Black mangrove	Mangrove swamps	common within habitat	habitat destruction, freezes
Azolla caroliniana[2]	Mosquito fern	Willow swamp, cattail marsh, drainage ditches	common within habitat	habitat destruction
Calamovilfa curtissii[1,2]	Curtiss reedgrass	Swales in slash pine flatwoods	several populations known	habitat destruction
Calopogon barbatus	Grass pink (unnamed)	Wet pine flatwoods	unknown	habitat destruction
Calopogon multiflorus	Many-flowered grass pink	Pine flatwoods	unknown	habitat destruction
Calopogon tuberosus[2]	Grass pink (unnamed)	Hardwood swamp	one population known	habitat destruction
Campyloneurum phyllidis	Strap fern (unnamed)	Hammocks - epiphytic	unknown	habitat destruction
Cereus eriophorus var. fragrans[1]	Fragrant wool-bearing cereus	Coastal hammock (tropical)	one population known	collection
Cereus gracilis	Prickly-apple	Coastal hammock	unknown	habitat destruction, collection

Table 3. (continued)

Scientific Name	Common Name	Habitat	Population Status	Threats to Existence
Cereus undatus	Night-blooming cereus	Disturbed sites	escaped cultivar	unknown
Chrysophyllum oliviforme[1]	Satinleaf	Hammocks	one population known	habitat destruction
Cocos nucifera	Coconut palm	Beaches and disturbed sites (introduced)	unknown	----------
Conradina grandiflora	Large-flowered rosemary	Scrub	probably extirpated[1]	habitat destruction
Dryopteris ludoviciana	Florida shield fern	Hammocks	one population known	habitat destruction
Encyclia tampensis	Butterfly orchid	Hammocks, hardwood swamps - epiphytic	unknown	habitat destruction, fire
Epidendrum canopseum	Greenfly orchid	Hammocks, hardwood swamps - epiphytic	unknown	habitat destruction
Ernodea littoralis	Beach creeper	Coastal dunes	unknown	habitat destruction
Eulophia alta	Wild coco	Hardwood swamps, marshes and wet pine flatwoods	unknown	habitat destruction
Eulophia ecristata (= *Pteroglossaspis ecristata*)	False coco	Scrub and dry flatwoods	unknown	habitat destruction
Habenaria odontopetala	Orchid (unnamed)	Hardwood swamps, hammocks and wet pine flatwoods	unknown	habitat destruction
Habenaria repens	Water spider orchid; creeping orchid	Hardwood swamps and marshes	unknown	habitat destruction
Harrisella filiformis	Orchid (unnamed)	Hardwood swamps - epiphytic	unknown	habitat destruction, fire
Hexalectris spicata	Crested coralroot	Hammocks	unknown	habitat destruction

Table 3. (continued)

Scientific Name	Common Name	Habitat	Population Status	Threats to Existence
Hymenocallis latifolia[1,2]	Broad-leaved spider lily	Coastal dunes and strand	common within habitat	habitat destruction
Ilex ambigua	Carolina holly; sand holly	Hammocks	one population known	habitat destruction
Lechea cernua[1]	Nodding pinweed	Scrub	one population known, ca. 150-200 plants	habitat destruction, fire exclusion
Lilium catesbaei	Catesby lily	Pine flatwoods	unknown	habitat destruction
Lycopodium alopecuroides	Foxtail club moss	Wet pine flatwoods and swamp edges	unknown	habitat destruction
Lycopodium appressum	Southern club moss	Wet pine flatwoods	unknown	habitat destruction
Lycopodium carolinianum	Slender club moss	Wet pine flatwoods	unknown	habitat destruction
Malaxis spicata	Florida malaxis	Hardwood swamps, hammocks	unknown	habitat destruction
Nephrolepis bisserrata	Boston fern (unnamed)	Hardwood swamps, hammocks	unknown	habitat destruction
Ophioglossum palmatum[1]	Adder's tongue fern (unnamed)	Hammocks - epiphytic on cabbage palm	three small populations, ca. 30 plants	habitat destruction, collection, fire
Ophioglossum petiolatum[2]	Adder's tongue fern (unnamed)	Edge of marshes	one population known	habitat destruction
Opuntia compressa (= *Opuntia humifusa*)	Prickly pear cactus (unnamed)	Coastal dunes and strand	common within habitat	habitat destruction
Opuntia stricta	Prickly pear cactus (unnamed)	Coatal dunes and strand	common within habitat	habitat destruction
Osmunda regalis var. spectabilis[1]	Royal fern	Hardwood swamps	common within habitat	habitat destruction
Pavonia spinifex	Pavonia	Disturbed sites	unknown	unknown

Table 3. (continued)

Scientific Name	Common Name	Habitat	Population Status	Threats to Existence
Peperomia humilis	Pepper (unnamed)	Hammocks	unknown	habitat destruction
Peperomia obtusifolia	Florida peperomia	Hammocks - epiphytic	unknown	habitat destruction fire
Pereskia aculeata	Lemon vine	Shell middens	unknown	habitat destruction
Persea borbonia var. humilis[1,2]	Dwarf redbay; redbay persea	Scrub	one population known, ca. 40-50 plants	habitat destruction, fire exclusion
Phlebodium aureum[2]	Golden polypody	Hammocks - epiphytic	frequent within habitat	habitat destruction, fire
Pogonia ophioglossoides	Rose pogonia	Marshes and wet pine flatwoods	unknown	habitat destruction
Polygala rugelii	Big yellow milkwort	Pine flatwoods and saw palmetto scrub	common within habitat	habitat destruction
Polypodium plumula	Polypody fern (unnamed)	Hammocks - epiphytic	unknown	habitat destruction
Ponthieva racemosa	Shadow witch	Hammocks	unknown	habitat destruction
Psilotum nudum[2]	Whisk fern; fork fern	Hammocks and hardwood swamps - epiphytic	unknown	habitat destruction, fire
Remirea maritima	Beach-star	Coastal dunes and strand	unknown	habitat destruction
Rhizophora mangle	Red mangrove	Mangrove swamps	occasional	habitat destruction, freezes
Rhynchosia cinerea[1]	Brown-haired snoutbean	Scrub	common within habitat	habitat destruction, fire exclusion
Scaevola plumieri[2]	Scaevola	Costal dunes and strand	common within habitat	habitat destruction
Selaginella arenicola	Sand spikemoss	Scrub	one population known	habitat destruction

Table 3. (continued)

Scientific Name	Common Name	Habitat	Population Status	Threats to Existence
Sophora tomentosa	Necklace pod	Costal strand and hammocks	unknown	habitat destruction
Spiranthes laciniata	Lace-lip ladies'-tresses; lace-lip spiral orchid	Marshes	unknown	habitat destruction
Suriana maritima	Bay cedar	Coastal dunes	unknown	habitat destruction
Tephrosia angustissima	Narrow leaved hoary pea; coastal hoary pea	Coastal strand	unknown	habitat destruction
Thelypteris hispidula	Aspidium fern (unnamed)	Hammocks	unknown	habitat destruction
Thelypteris interrupta	Aspidium fern (unnamed)	Hammocks and swamps	unknown	habitat destruction
Thelypteris kunthii	Aspidium fern (unnamed)	Hammocks and swamps	unknown	habitat destruction
Thelypteris palustris	Marsh fern	Hardwood swamps and marshes	unknown	habitat destruction
Tillandsia simulata	Wild pine; air plant (unnamed)	Hammocks and hardwood swamps - epiphytic	unknown	habitat destruction, fire
Tillandsia utriculata	Giant wild pine; giant air plant	Hammocks and hardwood swamps - epiphytic	unknown	habitat destruction
Tournefortia gnaphalodes	Sea lavender	Coastal dunes	probably extirpated[1]	----------
Verbena maritima[1,2] (= *Glandularia maritima*)	Coastal vervain	Coastal dunes and strand	common within habitat	habitat destruction
Verbena tampensis[1,2] (= *Glandularia tampensis*)	Tampa vervain	Edge of hammocks	two populations known, ca. 10-15 plants	habitat destruction
Vittaria lineata	Shoestring fern	Hammocks - epiphytic	unknown	habitat destruction

Table 3. (continued)

Scientific Name	Common Name	Habitat	Population Status	Threats to Existence
Woodwardia aerolata	Netted chain fern	Hardwood swamps	unknown	habitat destruction
Zamia umbrosa[1] (= *Zamia pumila*)	East coast coontie	Hammocks	ca. 100 plants	habitat destruction, collection

[1]Sites and/or populations identified by Poppleton (1981).

[2]Sites and/or populations known from environmental monitoring/research program, The Bionetics Corporation, Contract No. NAS10-10285 and NAS10-11624 with KSC Biomedical Office (NASA 1983, 1988).

result in other changes to the list. Taxonomic questions remain about some taxa.

The KSC area flora exceeds that reported by Herwitz and Wunderlin (1990) for Cayo-Costa and Sanibel Islands in southwest Florida. The Merritt Island-Cape Canaveral barrier island complex has greater area than those islands. In addition, the northern portion of Merritt Island connects to the mainland and is not truely insular. Both of these factors would be expected to increase the size of the flora.

We term this flora as being of the KSC area deliberately. Not all these species may occur within the political boundaries of the Space Center or on adjacent federal properties (Cape Canaveral Air Force Station, Canaveral National Seashore). Location information from the herbarium specimens on which the list was based would have to be added to the database in order to determine occurrence within these boundaries.

There is a substantial introduced element to the flora. This appears to be related in part to past disturbance from agricultural activities, old home sites, and other landscape modifications. Only some of these species have become naturalized. Several, most prominently *Schinus terebinthifolius* (Brazilian pepper), are invasive into natural communities and damage their integrity, creating management problems.

The number of taxa endemic or near endemic to Florida (46) reported here is higher than expected from Muller et al. (1989). The flora of the east coast of Florida is considered lower in endemics than the southern tip of the peninsula, the Central Ridge, or the lower Apalachicola River Basin (Muller et al. 1989); the data for KSC agree with the suggestion that coastal Florida be considered a fourth region of endemism within the state.

The lichen flora of KSC does not appear to have been studied. The Florida Natural Areas Inventory (1989) has recently begun adding lichens to its list of rare plants. Thompson (1989) noted many rare lichens in an outlier of pine-oak scrub in Georgia. Frequent fire negatively impacts lichens and other cryptograms which recover slowly (Miller 1990).

Threatened and Endangered Plants

The number (73) of threatened and endangered plants has increased form the last comprehensive list (Schmalzer and Hinkle 1985). Increases are mainly from expansions in state and federals lists of species of concern rather than changes in the overall floristic list for the KSC area. Some species on previous lists are no longer included. *Acrostichum aureum* and *Drosera intermedia* (NASA 1979) do not occur in the region (Poppleton 1981); *Annona glabra* (NASA 1979) is not on current state or federal lists. Poppleton (1981) found no populations of *Conradina grandiflora* and reported that the one known population of *Tournefortia gnaphalodes* was eliminated by a freeze in 1977. These taxa are probably extirpated from the region but are retained on the current list in case future work locates extant populations.

Endangered and threatened plants occur in various habitats including coastal dunes, coastal strand, scrub, pine flatwoods, hammocks, hardwood swamps, marshes, and mangrove swamps. It is evident that hammocks and hardwood swamps have a high concentration of threatened and endangered plants, especially since these communities make up a small proportion (ca. 13%) of the terrestrial vegetation of KSC (Provancha et al. 1986). Whittier and Miller (1976) noted the importance of hammocks to the bryophyte flora. The

protection of hammocks is very important then to the survival of a large portion of the endangered and threatened flora at KSC.

Detailed information on locations and population status of listed taxa is available only for those studied by Poppleton (1981) or encountered in fieldwork related to long-term environmental monitoring and research at KSC (NASA 1983, 1988). For most of these plants, there are insufficient data to determine how important KSC is to their regional or global survival. It is clear that the protected areas within KSC and adjacent federal properties are important remaining habitat for native flora within the area. For *Calamovilfa curtissii* (Curtiss's reedgrass), KSC supports the largest populations in public ownership and the only confirmed populations on the east coast of Florida (Johnson and Blyth 1988); other known populations are in the Florida Panhandle. Thus, proper management of areas containing this grass are important to its survival.

The major threat to the continued existence of most of these endangered and threatened plants throughout their range is habitat destruction. Several other threats exist. Many hammock species, especially epiphytes, are sensitive to fire. On the other hand, some scrub and flatwood species decline if fire is excluded for too long from those communities. Collection of horticulturally interesting plants such as orchids, bromeliads, and *Ophioglossum palmatum* (hand fern) is a problem in some parts of the state and could occur on KSC outside of the security zone. Rooting by feral hogs could be a threat to terrestrial herbs, especially those of hammocks, but the extent of hog damage to these species is not known. Invasion of exotic plants, particulary Brazilian pepper, displaces native species from hammocks and marshes.

Conclusions and Recommendations

1. The vascular flora of the Kennedy Space Center area is approximately 1045 species of which 850 are native and 195 are introduced. This appears to be a substantial fraction of the regional flora. Additional work is needed to incorporate location information on occurrences of these species into the database. Some taxonomic questions also remain to be resolved.

2. Forty-six taxa in the KSC area vascular flora are endemic to Florida. Seventy-three taxa are listed on federal or state lists of threatened and endangered plants. Taxa of special concern occur in all major habitats of KSC, but many are found in hammocks and hardwood swamps that constitute a minor proportion of the terrestrial vegetation. For many of the listed taxa, current information is needed on location and population status. For some taxa (e.g., *Calamovilfa curtissii*), populations within KSC appear important to their regional and global survival.

3. The bryophyte flora consists of 43 taxa, 23 mosses and 20 liverworts and hornworts. None of the bryophytes are known to be threatened or endangered; their distribution is concentrated in hammocks and hardwood swamps. The lichen flora is currently unknown. Since rarity among lichens is now being recognized and they are known to be sensitive to fire, consideration should be given to documenting the lichen flora.

LITERATURE CITED

Bailey, L.H. 1949. Manual of cultivated plants. Macmillan Publishing Company, Inc. New York. 1116pp.

Breininger, D.R., and P.A. Schmalzer. 1990. Effects of fire and disturbance on plants and birds in a Florida oak/palmetto scrub community. American Midland Naturalist 123:64-74.

Breininger, D.R., P.A. Schmalzer, D.A. Rydene, and C.R. Hinkle. 1988. Burrow and habitat relationships of the gopher tortoise in coastal scrub and slash pine flatwoods on Merritt Island, Florida. Florida Game and Fresh Water Fish Commission Nongame Wildlife Program Final Report. 238pp.

Cronquist, A. 1980. Vascular flora of the Southeastern United States. Volume I. Asteraceae. The University of North Carolina Press, Chapel Hill. 261pp.

Florida Natural Areas Inventory. 1989. Special plant and lichen list. Florida Natural Areas Inventory, Tallahassee.

Godfrey, R.K. and J.W. Wooten. 1979. Aquatic and wetland plants of southeastern United States: Monocotyledons. The University of Georgia Press, Athens. 712pp.

Godfrey, R.K. and J.W. Wooten. 1981. Aquatic and wetland plants of the southeastern United States: Dicotyledons. The University of Georgia Press, Athens. 933pp.

Herwitz, S.R. and R.P. Wunderlin. 1990. Vascular plant species diversity on two barrier islands in southwest Florida. Journal of Coastal Research 6:311-322.

Hitchcock, A.S. and A. Chase. 1950. Manual of the grasses of the United States. Second edition. U.S. Department of Agriculture Miscellaneous Publication No. 200. Washington, D.C. 1051pp.

Johnson, A.F. and A. Blyth. 1988. Re-discovery of *Calamovilfa curtissii* (Gramineae) in the Florida Panhandle. Sida 13:137-140.

Lellinger, D.B. 1985. A field manual of the ferns and fern-allies of the United States and Canada. Smithsonian Institution Press. Washington, D.C. 389pp.

Luer, C.A. 1972. The native orchids of Florida. The New York Botanical Garden, New York. 293pp.

Miller, H.A. 1990. Fire impacts on cryptogams in scrub and pond pine communities. Abstract of presented paper in: Florida Scientist 53(Supplement 1):20.

Muller, J.W., E.D. Hardin, D.R. Jackson, S.E. Gatewood, and N. Caire. 1989. Summary report on the vascular plants, animals and plant communities endemic to Florida. Florida Game and Fresh Water Fish Commission Nongame Wildlife Program Technical Report No. 7. 113pp.

NASA. 1979. Final environmental impact statement for the Kennedy Space Center. National Aeronautics and Space Administration. John F. Kennedy Space Center, Florida.

NASA. 1983. Long-term environmental monitoring plan for the John F. Kennedy Space Center, Florida. MD-LTP-1. NASA, Biomedical Operations and Research Office, John F. Kennedy Space Center, Florida.

NASA. 1988. Ecological program plan for the John F. Kennedy Space Center 1988-1992. MD-LTP-2. NASA, Biomedical Operations and Research Office, John F. Kennedy Space Center, Florida.

Poppleton, J. 1981. The occurrence and ecology of potentially endangered, threatened and rare plants on Merritt Island, St. John's and Pelican Island National Wildlife Refuge. Part I. Status reports. Part II. Plant communities and checklist. Unpublished report.

Poppleton, J.E., A.G. Shuey and H.A. Sweet. 1977. Vegetation of central Florida's east coast: a checklist of the vascular plants. Florida Scientist 40:362-389.

Provancha, M.J., P.A. Schmalzer, and C.R. Hinkle. 1986. Vegetation types (Maps). John F. Kennedy Space Center, Biomedical Operations and Research. (Maps in Master Planning Map format, digitization by ERDAS, Inc.).

Schmalzer, P.A. and C.R. Hinkle. 1985. A brief overview of plant communities and the status of selected plant species at John F. Kennedy Space Center, Florida. Report submitted to NASA, Biomedical Operations and Research Office, John F. Kennedy Space Center.

Schmalzer, P.A. and C.R. Hinkle. 1987. Effects of fire on composition, biomass, and nutrients in oak scrub vegetation on John F. Kennedy Space Center, Florida. NASA Technical Memorandum 100305. John F. Kennedy Space Center, Florida. 146pp.

Schmalzer, P.A., C.R. Hinkle, and D. Breininger. 1985. Effects of Space Shuttle launches STS-1 through STS-9 on terrestrial vegetation of John F. Kennedy Space Center, Florida. NASA Technical Memorandum 83103. John F. Kennedy Space Center, Florida. 39pp.

Schmalzer, P.A., C.R. Hinkle, and T.W. Dreschel. 1986. Farfield deposition from Space Shuttle launches at John F. Kennedy Space Center, Florida.

NASA Technical Memorandum 83104. John F. Kennedy Space Center, Florida. 42pp.

Schmalzer, P.A., C.R. Hinkle, and J.L. Mailander. 1990. Changes in species composition and biomass in *Juncus roemerianus* and *Spartina bakeri* marshes one year after fire. Manuscript submitted to *Wetlands*.

Small, J.K. 1933. Manual of the southeastern flora. Published by the author. New York. 1554pp.

Stout, I.J. 1980. A continuation of base-line studies for environmentally monitoring Space Transportation Systems (STS) at John F. Kennedy Space Center. Volume I. Terrestrial Community Ecology. NASA Contract Report 163122. John F. Kennedy Space Center, Florida.

Sweet, H.C. 1976. A study of a diverse coastal ecosystem of the Atlantic coast of Florida: Botanical studies on Merritt Island. Final report to NASA, John F. Kennedy Space Center, Florida. 258pp.

Sweet, H.C. and J.E. Poppleton. 1977. An EDP technique designed for the study of a local flora. Taxon 26:181-190.

Thomson, J.W. 1989. Lichens in a pine-oak scrub community in Georgia. Castanea 54:262-264.

Whittier, H.O. and H.A. Miller. 1976. Merritt Island ecosystem studies. 2. Bryophytes of Merritt Island. Florida Scientist 39:73-75.

Wood, D.A. 1988. Official lists of endangered and potentially endangered fauna and flora in Florida. Florida Game and Fresh Water Fish Commission. 19pp.

Wunderlin, R.P. 1982. Guide to the vascular plants of Central Florida. University Presses of Florida, Gainesville. 472pp.

Wunderlin, R.P., B.F. Hansen, and D.W. Hall. 1985. The vascular flora of central Florida: taxonomic and nomenclatural changes, additional taxa. Sida 11:232-244.

Wunderlin, R.P., B.F. Hansen, and D.W. Hall. 1988. The vascular flora of central Florida: taxonomic and nomenclatural changes, additional taxa, II. Sida 13:83-91.

Appendix I. Vascular flora of the Kennedy Space Center area

Class[1]	Family	Genus	Species	Variety	Authority
p	Aspidiaceae	Dryopteris	ludoviciana		(Kunze) Small
p	Aspidiaceae	Thelypteris	hispidula (Dcne.) Reed	var. versicolor	(R. St. John) Lellinger
p	Aspidiaceae	Thelypteris	interrupta		(Willd.) Iwatsuki
p	Aspidiaceae	Thelypteris	kunthii		(Desv.) Morton
p	Aspidiaceae	Thelypteris	palustris		Schott
p	Aspleniaceae	Asplenium	platyneuron		(L.) BSP.
p	Blechnaceae	Blechnum	serrulatum		L. C. Rich.
p	Blechnaceae	Woodwardia	areolata		(L.) Moore
p	Blechnaceae	Woodwardia	virginica		(L.) Smith
p	Davalliaceae	Nephrolepis	biserrata		(Sw.) Schott
p	Davalliaceae	Nephrolepis	cordifolia		(L.) Presl
p	Davalliaceae	Nephrolepis	exaltata		(L.) Schott
p	Lycopodiaceae	Lycopodium	alopecuroides		L.
p	Lycopodiaceae	Lycopodium	appressum		(Chapm.) Lloyd & Underw.
p	Lycopodiaceae	Lycopodium	carolinianum		L.
p	Ophioglossaceae	Ophioglossum	palmatum		L.
p	Ophioglossaceae	Ophioglossum	petiolatum		Hook.
p	Osmundaceae	Osmunda	cinnamomea		L.
p	Osmundaceae	Osmunda	regalis L.	var. spectabilis	(Willd.) A. Gray
p	Polypodiaceae	Campyloneurum	phyllitidis		(L.) Presl
p	Polypodiaceae	Phlebodium	aureum		(L.) Small
p	Polypodiaceae	Polypodium	plumula		Humb. & Bonpl. ex Willd.
p	Polypodiaceae	Polypodium	polypodioides (L.) Watt	var. michauxianum	Weatherby
p	Psilotaceae	Psilotum	nudum		(L.) Sw.
p	Pteridaceae	Acrostichum	danaeifolium		Langsd. & Fisch.
p	Pteridaceae	Pteridium	aquilinum		(L.) Kuhn
p	Salviniaceae	Azolla	caroliniana		Willd.
p	Salviniaceae	Salvinia	minima		Baker
p	Selaginellaceae	Selaginella	arenicola		Underw.
p	Vittariaceae	Vittaria	lineata		(L.) J. Smith
g	Cupressaceae	Juniperus	silicicola		(Small) Bailey
g	Cycadaceae	Cycas	revoluta		Thunb.
g	Cycadaceae	Zamia	pumila		L.
g	Pinaceae	Pinus	clausa		(Chapm. ex Englm.) Vasey ex Sarg.
g	Pinaceae	Pinus	elliottii		Englm.
g	Pinaceae	Pinus	palustris		Mill.
g	Pinaceae	Pinus	serotina		Michx.
g	Podocarpaceae	Podocarpus	macrophyllus D. Don	var. maki	Endl.
g	Podocarpaceae	Podocarpus	nagi		Makino
g	Taxodiaceae	Taxodium	ascendens		Brongn.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Acanthaceae	Asystasia	gangetica		(L.) T. Anders
a	Acanthaceae	Dicliptera	sexangalaris		(L.) Juss.
a	Acanthaceae	Justicia	brandegeana		Wassh. & L.B. Smith
a	Acanthaceae	Odontonema	stricta		(Nees) Kuntze
a	Acanthaceae	Ruellia	brittoniana		Leonard ex Fern.
a	Acanthaceae	Ruellia	caroliniensis		(J.F. Gmel.)Steud.
a	Acanthaceae	Thunbergia	alata		Bojer ex Sims
a	Acanthaceae	Thunbergia	fragrans		Roxb.
a	Aceraceae	Acer	negundo L.	ssp. latifolium	(Pax) Schwerin
a	Aceraceae	Acer	rubrum L.	var. trilobum	K. Koch
a	Agavaceae	Agave	americana		L.
a	Agavaceae	Agave	decipiens		Baker
a	Agavaceae	Agave	sisalana		Perrine
a	Agavaceae	Sansevieria	hyacinthoides		(L.) Druce
a	Agavaceae	Yucca	aloifolia		L.
a	Agavaceae	Yucca	filamentosa		L.
a	Aizoaceae	Mollugo	verticillata		L.
a	Aizoaceae	Sesuvium	maritimum		(Walt.) BSP.
a	Aizoaceae	Sesuvium	portulacastrum		L.
a	Aizoaceae	Trianthema	portulacastrum		L.
a	Alismataceae	Sagittaria	lancifolia		L.
a	Alismataceae	Sagittaria	stagnorum		Small
a	Alismataceae	Sagittaria	subulata		(L.) Buch.
a	Amaranthaceae	Alternanthera	philoxeroides		(Mart.) Griesb.
a	Amaranthaceae	Alternanthera	ramosissima		(Mart.) Chod.
a	Amaranthaceae	Amaranthus	cannabinus		(L.) Sauer
a	Amaranthaceae	Amaranthus	hybridus		L.
a	Amaranthaceae	Amaranthus	spinosus		L.
a	Amaranthaceae	Blutaparon	vermiculare		(L.) Mears
a	Amaranthaceae	Froelichia	floridana		(Nutt.) Moq.
a	Amaranthaceae	Gomphrena	serrata		L.
a	Amaranthaceae	Iresine	diffusa		Humb. & Bonpl. ex Willd.
a	Amaryllidaceae	Allium	cuthbertii		Small
a	Amaryllidaceae	Crinum	americanum		L.
a	Amaryllidaceae	Crinum	bulbispermum		(Burman) Milne-Redhead & Schweickt
a	Amaryllidaceae	Hymenocallis	crassifolia		Herb.
a	Amaryllidaceae	Hymenocallis	latifolia		(Mill.) Roem.
a	Amaryllidaceae	Hymenocallis	palmeri		S. Wats.
a	Anacardiaceae	Mangifera	indica		L.
a	Anacardiaceae	Rhus	copallina		L.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Anacardiaceae	Schinus	terebinthifolius		Raddi
a	Anacardiaceae	Toxicodendron	radicans		(L.) Kuntze
a	Annonaceae	Annona	glabra		L.
a	Annonaceae	Asimina	obovata		(Willd.) Nash
a	Annonaceae	Asimina	parviflora		(Michx.) Dunal
a	Annonaceae	Asimina	pygmaea		(Bartr.) Dunal
a	Annonaceae	Asimina	reticulata		Chapm.
a	Apiaceae	Apium	leptophyllum		(Pers.) Muell.
a	Apiaceae	Centella	asiatica		(L.) Urban
a	Apiaceae	Cicuta	mexicana		Coult. & Rose
a	Apiaceae	Eryngium	aromaticum		Baldw. ex Ell.
a	Apiaceae	Eryngium	baldwinii		Spreng.
a	Apiaceae	Eryngium	yuccifolium		Michx.
a	Apiaceae	Hydrocotyle	bonariensis		Lam.
a	Apiaceae	Hydrocotyle	umbellata		L.
a	Apiaceae	Hydrocotyle	verticillata		Thunb.
a	Apiaceae	Oxypolis	filiformis		(Walt.) Britt.
a	Apiaceae	Ptilimnium	capillaceum		(Michx.) Raf.
a	Apiaceae	Sanicula	canadensis		L.
a	Apiaceae	Spermolepis	divaricata		(Walt.) Raf.
a	Apocynaceae	Allamanda	cathartica		L.
a	Apocynaceae	Apocynum	cannabinum		L.
a	Apocynaceae	Carissa	grandiflora		(E.H. Mey.) A. DC.
a	Apocynaceae	Catharanthus	roseus		(L.) G. Don
a	Apocynaceae	Echites	umbellata		Jacq.
a	Apocynaceae	Nerium	oleander		L.
a	Apocynaceae	Tabernaemontana	divaricata		(L.) R. Br.
a	Apocynaceae	Thevetia	peruviana		(Pers.) Schum.
a	Apocynaceae	Vinca	minor		L.
a	Aquifoliaceae	Ilex	ambigua		(Michx.) Torr.
a	Aquifoliaceae	Ilex	cassine		L.
a	Aquifoliaceae	Ilex	glabra		(L.) A. Gray
a	Aquifoliaceae	Ilex	vomitoria		Ait.
a	Araceae	Arisaema	dracontium		(L.) Schott
a	Araceae	Arisaema	triphyllum		(L.) Schott
a	Araceae	Colocasia	esculentum		(L.) Schott
a	Araceae	Peltandra	virginica		(L.) Schott & Endl.
a	Araceae	Pistia	stratiotes		L.
a	Araceae	Syngonium	podophyllum		Schott
a	Araliaceae	Tetrapanax	papyriferus		(Hook.) C. Koch

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Arecaceae	Arecastrum	ramanzoffianum		Becc.
a	Arecaceae	Cocos	nucifera		L.
a	Arecaceae	Phoenix	canariensis		Chabaud
a	Arecaceae	Phoenix	dactylifera		L
a	Arecaceae	Phoenix	reclinata		L.
a	Arecaceae	Phoenix	sylvestris		Roxb.
a	Arecaceae	Sabal	palmetto		(Walt.) Lodd. ex Schultes
a	Arecaceae	Serenoa	repens		(Bartr.) Small
a	Arecaceae	Washingtonia	robusta		Wendl.
a	Aristolochiaceae	Aristolochia	elegans		Masters
a	Asclepiadaceae	Asclepias	curtissii		A. Gray
a	Asclepiadaceae	Asclepias	incarnata		L.
a	Asclepiadaceae	Asclepias	lanceolata		Walt.
a	Asclepiadaceae	Asclepias	pedicellata		Walt.
a	Asclepiadaceae	Asclepias	tomentosa		Ell.
a	Asclepiadaceae	Asclepias	tuberosa L.	ssp. rolfsii	(Britt.) Woods.
a	Asclepiadaceae	Cynanchum	angustifolium		Pers.
a	Asclepiadaceae	Cynanchum	scoparium		Nutt.
a	Asclepiadaceae	Matelea	gonocarpa		(Walt.) Shinners
a	Asclepiadaceae	Morrenia	odorata		(Hook. & Arn.) Lindl.
a	Asteraceae	Acmella	repens		(Walt.) L. C. Rich.
a	Asteraceae	Ambrosia	artemisiifolia		L.
a	Asteraceae	Ambrosia	hispida		Pursh
a	Asteraceae	Aster	carolinianus		Walt.
a	Asteraceae	Aster	dumosus		L.
a	Asteraceae	Aster	elliottii		T. & G.
a	Asteraceae	Aster	reticulatus		Pursh
a	Asteraceae	Aster	subulatus Michx.	var. ligulatus	Schinners
a	Asteraceae	Aster	tenuifolius		L.
a	Asteraceae	Aster	tortifolius		Michx.
a	Asteraceae	Baccharis	angustifolia		Michx.
a	Asteraceae	Baccharis	glomeruliflora		Pers.
a	Asteraceae	Baccharis	halimifolia		L.
a	Asteraceae	Balduina	angustifolia		(Pursh) Robins.
a	Asteraceae	Berlandiera	subacaulis		(Nutt.) Nutt.
a	Asteraceae	Bidens	bipinnata		L.
a	Asteraceae	Bidens	pilosa		L.
a	Asteraceae	Borrichia	frutescens		(L.) DC.
a	Asteraceae	Cacalia	floridana		A. Gray
a	Asteraceae	Cacalia	ovata		Walt.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Asteraceae	Carphephorus	corymbosus		(Nutt.) T. & G.
a	Asteraceae	Carphephorus	odoratissimus		(J.F. Gmel.) Hebert
a	Asteraceae	Carphephorus	paniculatus		(J. F. Gmel.) Hebert
a	Asteraceae	Chrysopsis	gossypina		(Michx.) Ell.
a	Asteraceae	Chrysopsis	graminifolia		(Michx.) Ell.
a	Asteraceae	Chrysopsis	mariana		(L.) Ell.
a	Asteraceae	Chrysopsis	scabrella		T. & G.
a	Asteraceae	Chrysopsis	subulata		Small
a	Asteraceae	Cirsium	horridulum		Michx.
a	Asteraceae	Cirsium	nuttallii		DC.
a	Asteraceae	Conyza	canadensis (L.) Cronq.	var. pusilla	(Nutt.) Cronq.
a	Asteraceae	Coreopsis	gladiata		Walt.
a	Asteraceae	Coreopsis	leavenworthii		T. & G.
a	Asteraceae	Eclipta	prostrata		(L.) L.
a	Asteraceae	Elephantopus	elatus		Bertol.
a	Asteraceae	Elephantopus	tomentosus		L.
a	Asteraceae	Emilia	fosbergii		Nichols.
a	Asteraceae	Erechtites	hieracifolia		(L.) Raf.
a	Asteraceae	Erigeron	quercifolius		Lam.
a	Asteraceae	Erigeron	strigosus		Muhl.
a	Asteraceae	Erigeron	vernus		(L.) T. & G.
a	Asteraceae	Eupatorium	capillifolium		(Lam.) Small
a	Asteraceae	Eupatorium	coelestinum		L.
a	Asteraceae	Eupatorium	compositifolium		Walt.
a	Asteraceae	Eupatorium	leptophyllum		DC.
a	Asteraceae	Eupatorium	mikanioides		Chapm.
a	Asteraceae	Eupatorium	mohrii		Greene
a	Asteraceae	Eupatorium	rotundifolium		L.
a	Asteraceae	Eupatorium	serotinum		Michx.
a	Asteraceae	Euthamia	graminifolia (L.) Nutt.	var. hirtipes	(Fern.) C. & J. Taylor
a	Asteraceae	Euthamia	tenuifolia		(Pursh) Greene
a	Asteraceae	Flaveria	linearis		Lag.
a	Asteraceae	Gaillardia	pulchella		Foug.
a	Asteraceae	Gnaphalium	obtusifolium		L.
a	Asteraceae	Gnaphalium	purpureum L.	var. falcatum	(Lam.) T. & G.
a	Asteraceae	Helenium	amarum		(Raf.) H. Rock
a	Asteraceae	Helianthus	angustifolius		L.
a	Asteraceae	Helianthus	annuus		L.
a	Asteraceae	Helianthus	debilis		Nutt.
a	Asteraceae	Heterotheca	subaxillaris		(Lam.) Brit. & Rusby

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Asteraceae	Hieracium	gronovii		L.
a	Asteraceae	Hieracium	megacephalum		Nash
a	Asteraceae	Iva	frutescens		L.
a	Asteraceae	Iva	imbricata		Walt.
a	Asteraceae	Iva	microcephala		Nutt.
a	Asteraceae	Krigia	virginica		(L.) Willd.
a	Asteraceae	Kuhnia	eupatorioides		L.
a	Asteraceae	Lactuca	floridana		(L.) Gaertn.
a	Asteraceae	Lactuca	graminifolia		Michx.
a	Asteraceae	Liatris	chapmanii		T. & G.
a	Asteraceae	Liatris	elegans		(Watt.) Michx.
a	Asteraceae	Liatris	gracilis		Pursh
a	Asteraceae	Liatris	graminifolia		(Walt.) Willd.
a	Asteraceae	Liatris	tenuifolia		Nutt.
a	Asteraceae	Liatris	tenuifolia Nutt.	var. quadrifolia	Chapm.
a	Asteraceae	Lygodesmia	aphylla		(Nutt.) DC.
a	Asteraceae	Melanthera	nivea		(L.) Small
a	Asteraceae	Mikania	cordifolia		(L.f.) Willd.
a	Asteraceae	Mikania	scandens		(L.) Willd.
a	Asteraceae	Palafoxia	feayi		A. Gray
a	Asteraceae	Palafoxia	integrifolia		(Nutt.) T. & G.
a	Asteraceae	Phoebanthus	grandiflora		(T. & G.) Blake
a	Asteraceae	Pluchea	camphorata		(L.) DC.
a	Asteraceae	Pluchea	foetida		(L.) DC.
a	Asteraceae	Pluchea	longifolia		Nash
a	Asteraceae	Pluchea	odorata		(L.) Cass.
a	Asteraceae	Pluchea	rosea		Godfrey
a	Asteraceae	Polymnia	uvedalia		(L.) L.
a	Asteraceae	Pterocaulon	pycnostachyum		(Michx.) Ell.
a	Asteraceae	Pyrrhopappus	carolinianus		(Walt.) DC.
a	Asteraceae	Rudbeckia	hirta L.	var. angustifolia	(Moore) Perdue
a	Asteraceae	Senecio	confusus		Britt.
a	Asteraceae	Senecio	glabellus		Poir.
a	Asteraceae	Solidago	arguta Ait.	var. caroliniana	A. Gray
a	Asteraceae	Solidago	fistulosa		Mill.
a	Asteraceae	Solidago	leavenworthii		T. & G.
a	Asteraceae	Solidago	odora Ait.	var. chapmanii	(A. Gray) Cronq.
a	Asteraceae	Solidago	sempervirens L.	var. mexicana	(L.) Fern.
a	Asteraceae	Solidago	stricta		Ait.
a	Asteraceae	Solidago	tortifolia		Ell.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Asteraceae	Sonchus	asper		(L.) Hill
a	Asteraceae	Sonchus	oleraceus		L.
a	Asteraceae	Verbesina	virginica L.	var. laciniata	(Poir.) A. Gray
a	Asteraceae	Vernonia	angustifolia		Michx.
a	Asteraceae	Vernonia	gigantia		(Walt.) Trel. ex Branner & Coville
a	Asteraceae	Wedelia	trilobata		(L.) Hitchc.
a	Asteraceae	Xanthium	strumarium L.	var. glabratum	(DC.) Cronq.
a	Asteraceae	Youngia	japonica		(L.) DC.
a	Avicenniaceae	Avicennia	germinans		(L.) L.
a	Bataceae	Batis	maritima		L.
a	Betulaceae	Carpinus	caroliniana		Walt.
a	Bignoniaceae	Bignonia	capreolata		L.
a	Bignoniaceae	Campsis	radicans		(L.) Seem.
a	Bignoniaceae	Jacaranda	acutifolia		Humb. & Bonpl.
a	Bignoniaceae	Kigelia	pinnata		DC.
a	Bignoniaceae	Podranea	ricasoliana		(Tanfani) Sprague
a	Bignoniaceae	Pyrostegia	venusta		(Ker-Gaw.) Miers.
a	Bignoniaceae	Spathodea	campanulata		Beauv.
a	Bignoniaceae	Tecoma	stans		(L.) Juss.
a	Bignoniaceae	Tecomaria	capensis		(Thunb.) Spach.
a	Boraginaceae	Heliotropium	angiospermum		Murr.
a	Boraginaceae	Heliotropium	curassavicum		L.
a	Boraginaceae	Heliotropium	polyphylum		Lehm.
a	Boraginaceae	Tournefortia	gnaphalodes		(L.) R. Brown
a	Boraginaceae	Tournefortia	volubilis		L.
a	Brassicaceae	Cakile	lanceolata		(Willd.) Schulz
a	Brassicaceae	Descurainia	pinnata		(Walt.) Britt.
a	Brassicaceae	Lepidium	virginicum		L.
a	Brassicaceae	Nasturtium	microphyllum		(Boenn.) Reichenb.
a	Brassicaceae	Raphanus	raphanistrum		L.
a	Bromeliaceae	Tillandsia	recurvata		(L.) L.
a	Bromeliaceae	Tillandsia	simulata		Small
a	Bromeliaceae	Tillandsia	usneoides		(L.) L.
a	Bromeliaceae	Tillandsia	utriculata		L.
a	Burseraceae	Bursera	simaruba		(L.) Sarg.
a	Cactaceae	Cereus	eriophorus Pfeiffer	var.fragrans	(Small) L. Bens.
a	Cactaceae	Cereus	gracilis Mill.	var. simpsonii	(Small) L. Bens.
a	Cactaceae	Cereus	pteranthus		Link & Otto
a	Cactaceae	Cereus	undatus		Haw.
a	Cactaceae	Opuntia	cochenillifera		(L.) Mill.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Cactaceae	Opuntia	humifusa		(Raf.) Raf.
a	Cactaceae	Opuntia	stricta		Haw.
a	Cactaceae	Pereskia	aculeata		Mill.
a	Campanulaceae	Campanula	floridana		S. Wats.
a	Campanulaceae	Lobelia	feayana		A. Gray
a	Campanulaceae	Lobelia	glandulosa		Walt.
a	Campanulaceae	Lobelia	paludosa		Nutt.
a	Campanulaceae	Lobelia	puberula		Michx.
a	Campanulaceae	Lobelia	flaccida		Salisb.
a	Cannaceae	Canna	x generalis		Bailey
a	Cannaceae	Canna	cynophallophora		L.
a	Capparaceae	Capparis	flexuosa		(L.) L.
a	Capparaceae	Capparis	tenuifolia		T. & G.
a	Capparaceae	Polanisia	japonica		Thunb.
a	Caprifoliaceae	Lonicera	canadensis		L.
a	Caprifoliaceae	Sambucus	obovatum		Walt.
a	Caprifoliaceae	Viburnum	papaya		L.
a	Caricaceae	Carica	lanuginosa		(Michx.) Rohrb.
a	Caryophyllaceae	Arenaria	cordata		(L.) Willd. ex Roem. & Schult.
a	Caryophyllaceae	Drymaria	americana		(Nutt.) Fenzl ex Walp.
a	Caryophyllaceae	Paronychia	media		(L.) Cyrillo
a	Caryophyllaceae	Stellaria	setacea		Michx.
a	Caryophyllaceae	Stipulicida	cunninghamiana		Miq.
a	Casuarinaceae	Casuarina	equisetifolia		L. ex J.R. Forst. & G. Forst.
a	Casuarinaceae	Casuarina	glauca		Sieb. ex Spreng.
a	Casuarinaceae	Casuarina	demersum		L.
a	Ceratophyllaceae	Ceratophyllum	muricatum		Cham.
a	Ceratophyllaceae	Ceratophyllum	pentandra		(Jacq.) Standl.
a	Chenopodiaceae	Atriplex	album		L.
a	Chenopodiaceae	Chenopodium	ambrosioides		L.
a	Chenopodiaceae	Chenopodium	bigelowii		Torr.
a	Chenopodiaceae	Salicornia	virginica		L.
a	Chenopodiaceae	Salicornia	kali		L.
a	Chenopodiaceae	Salsola	linearis		(Ell.) Moq.
a	Chenopodiaceae	Suaeda	icaco		L.
a	Chrysobalanaceae	Chrysobalanus	michauxii		Prance
a	Chrysobalanaceae	Licania	corymbosum		Michx.
a	Cistaceae	Helianthemum	nashii		Britt.
a	Cistaceae	Helianthemum	cernua		Small
a	Cistaceae	Lechea			

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Cistaceae	Lechea	mucronata		Raf.
a	Cistaceae	Lechea	sessiliflora		Raf.
a	Cistaceae	Lechea	torreyi		Legg. ex Britt.
a	Combretaceae	Conocarpus	erecta		L.
a	Combretaceae	Quisqualis	indica		L.
a	Combretaceae	Laguncularia	racemosa		Gaertn. f.
a	Commelinaceae	Commelina	diffusa		Burm.f.
a	Commelinaceae	Commelina	erecta		L.
a	Commelinaceae	Cuthbertia	ornata		Small
a	Commelinaceae	Murdannia	nudiflora		(L.) Brenan
a	Commelinaceae	Tradescantia	ohiensis		Raf.
a	Commelinaceae	Zebrina	pendula		Schnizl.
a	Convolvulaceae	Calystegia	sepium (L.) R. Br.	ssp. limnophila	(Greene) Brummitt
a	Convolvulaceae	Cuscuta	compacta		Juss.
a	Convolvulaceae	Dichondra	caroliniensis		Michx.
a	Convolvulaceae	Ipomoea	alba		L.
a	Convolvulaceae	Ipomoea	cairica		(L.) Sweet
a	Convolvulaceae	Ipomoea	coccinea		L.
a	Convolvulaceae	Ipomoea	cordatotriloba		Dennst.
a	Convolvulaceae	Ipomoea	hederacea		Jacq.
a	Convolvulaceae	Ipomoea	imperati		(Vahl) Griseb.
a	Convolvulaceae	Ipomoea	indica		(Burm. f.) Merr.
a	Convolvulaceae	Ipomoea	macrantha		R. & S.
a	Convolvulaceae	Ipomoea	panduranta		(L.) G.F.W. Mey.
a	Convolvulaceae	Ipomoea	pes-caprae (L.) R. Br.	ssp. brasiliensis	(L.) Van Ooststr.
a	Convolvulaceae	Ipomoea	purpurea		(L.) Roth.
a	Convolvulaceae	Ipomoea	sagittata		Poir.
a	Convolvulaceae	Merremia	dissecta		(Jacq.) Hall. f.
a	Cornaceae	Cornus	foemina		Mill.
a	Crassulaceae	Kalanchoe	daigremontiana		Ham. & Perr.
a	Crassulaceae	Kalanchoe	fedtschenkoi		Ham. & Perr.
a	Crassulaceae	Kalanchoe	pinnata		(Lam.) Pers.
a	Crassulaceae	Kalonche	tubiflora		(Harv.) Ham.
a	Cucurbitaceae	Citrullus	lanatus		(Thunb.) Mats. & Nakai.
a	Cucurbitaceae	Melothria	pendula		L.
a	Cucurbitaceae	Momordica	charantia		L.
a	Cymodoceaceae	Halodule	wrightii		Aschers
a	Cymodoceaceae	Syringodium	filiformis		Kuetz.
a	Cyperaceae	Bulbostylis	barbata		(Rottb.) Clarke
a	Cyperaceae	Bulbostylis	ciliatifolia		(Ell.) Fern.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Cyperaceae	Bulbostylis	stenophylla		(Ell.) Clarke
a	Cyperaceae	Carex	alata		T. & G.
a	Cyperaceae	Carex	gigantea		Rudge
a	Cyperaceae	Carex	lupulina		Muhl. ex Schkuhr
a	Cyperaceae	Cladium	jamaicense		Crantz
a	Cyperaceae	Cyperus	articulatus		L.
a	Cyperaceae	Cyperus	brevifolius		(Rottb.) Hassk.
a	Cyperaceae	Cyperus	compressus		L.
a	Cyperaceae	Cyperus	distinctus		Steud.
a	Cyperaceae	Cyperus	esculentus		L.
a	Cyperaceae	Cyperus	filiculmis		Vahl
a	Cyperaceae	Cyperus	flavescens		L.
a	Cyperaceae	Cyperus	globulosus		Aubl.
a	Cyperaceae	Cyperus	haspan		L.
a	Cyperaceae	Cyperus	ligularis		L.
a	Cyperaceae	Cyperus	odoratus		L.
a	Cyperaceae	Cyperus	ovularis		(Michx.) Torr.
a	Cyperaceae	Cyperus	planifolius		L.C. Rich.
a	Cyperaceae	Cyperus	polystachyos		Rottb.
a	Cyperaceae	Cyperus	retrorsus		Chapm.
a	Cyperaceae	Cyperus	strigosus		L.
a	Cyperaceae	Cyperus	surinamensis		Rottb.
a	Cyperaceae	Cyperus	tetragonus		Ell.
a	Cyperaceae	Eleocharis	albida		Torr.
a	Cyperaceae	Eleocharis	atropurpurea		(Retz.) Kunth
a	Cyperaceae	Eleocharis	baldwinii		(Torr.) Chapm.
a	Cyperaceae	Eleocharis	cellulosa		Torr.
a	Cyperaceae	Eleocharis	geniculata		(L.) R. & S.
a	Cyperaceae	Eleocharis	montevidensis		Kunth
a	Cyperaceae	Eleocharis	parvula		(R. & S.) Link
a	Cyperaceae	Fimbristylis	caroliniana		(Lam.) Fern.
a	Cyperaceae	Fimbristylis	castanea		(Michx.) Vahl
a	Cyperaceae	Fimbristylis	dichotoma		(L.) Vahl
a	Cyperaceae	Fimbristylis	spathacea		Roth
a	Cyperaceae	Fuirena	scirpoidea		Michx.
a	Cyperaceae	Fuirena	squarrosa		Michx.
a	Cyperaceae	Hemicarpha	micrantha		(Vahl) Pax
a	Cyperaceae	Remirea	maritima		Aubl.
a	Cyperaceae	Rhynchospora	caduca		Ell.
a	Cyperaceae	Rhynchospora	ciliaris		(Michx.) Mohr

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Cyperaceae	Rhynchospora	colorata		(L.) Pfeiffer
a	Cyperaceae	Rhynchospora	debilis		Gale
a	Cyperaceae	Rhynchospora	divergens		Chapm. ex M.A. Curtis
a	Cyperaceae	Rhynchospora	fascicularis		(Michx.) Vahl
a	Cyperaceae	Rhynchospora	filifolia		A. Gray
a	Cyperaceae	Rhynchospora	globularis		(Chapm.) Small
a	Cyperaceae	Rhynchospora	globularis (Chapm.) Small	var. pinetorum	(Small) Gale
a	Cyperaceae	Rhynchospora	intermedia		(Chapm.) Britt.
a	Cyperaceae	Rhynchospora	inundata		(Oakes) Fern.
a	Cyperaceae	Rhynchospora	latifolia		(Baldw.) Thomas
a	Cyperaceae	Rhynchospora	megalocarpa		A. Gray
a	Cyperaceae	Rhynchospora	microcarpa		Baldw. ex A. Gray
a	Cyperaceae	Rhynchospora	miliacea		(Lam.) A. Gray
a	Cyperaceae	Rhynchospora	odorata		Wright ex Griseb.
a	Cyperaceae	Rhynchospora	plumosa		Ell.
a	Cyperaceae	Rhynchospora	pusilla		Chapm. ex M.A. Curtis
a	Cyperaceae	Rhynchospora	wrightiana		Boeckl.
a	Cyperaceae	Scirpus	americanus		Pers.
a	Cyperaceae	Scirpus	robustus		Pursh
a	Cyperaceae	Scirpus	validus		Vahl
a	Cyperaceae	Scleria	oligantha		Michx.
a	Cyperaceae	Scleria	pauciflora		Muhl.
a	Cyperaceae	Scleria	reticularis		Michx.
a	Cyperaceae	Scleria	triglomerata		Michx.
a	Cyrillaceae	Cyrilla	racemiflora		L.
a	Dioscoreaceae	Dioscorea	bulbifera		L.
a	Droseraceae	Drosera	brevifolia		Pursh
a	Droseraceae	Drosera	capillaris		Poir.
a	Ebenaceae	Diospyros	kaki		L. f.
a	Ebenaceae	Diospyros	virginiana		L.
a	Empetraceae	Ceratiola	ericoides		Michx.
a	Ericaceae	Befaria	racemosa		Vent.
a	Ericaceae	Gaylussacia	dumosa		(Andr.) T. & G.
a	Ericaceae	Gaylussacia	frondosa		(L.) T. & G.
a	Ericaceae	Lyonia	ferruginea		(Walt.) Nutt.
a	Ericaceae	Lyonia	fruticosa		(Michx.) Torr.
a	Ericaceae	Lyonia	lucida		(Lam.) K. Koch
a	Ericaceae	Monotropa	uniflora		L.
a	Ericaceae	Vaccinium	arboreum		Marsh.
a	Ericaceae	Vaccinium	darrowi		Camp.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Ericaceae	Vaccinium	myrsinites		Lam.
a	Ericaceae	Vaccinium	stamineum		L.
a	Eriocaulaceae	Eriocaulon	compressum		Lam.
a	Eriocaulaceae	Lachnocaulon	anceps		(Walt.) Morong
a	Eriocaulaceae	Lachnocaulon	minus		(Chapm.) Small
a	Eriocaulaceae	Syngonanthus	flavidulus		(Michx.) Ruhl.
a	Euphorbiaceae	Acalypha	gracilens		A. Gray
a	Euphorbiaceae	Acalypha	ostryifolia		Riddell
a	Euphorbiaceae	Chamaesyce	blodgettii		(Englm. ex Hitchc.) Small
a	Euphorbiaceae	Chamaesyce	bombensis		(Jacq.) Dugand
a	Euphorbiaceae	Chamaesyce	hirta		(L.) Millsp.
a	Euphorbiaceae	Chamaesyce	hypericifolia		(L.) Millsp.
a	Euphorbiaceae	Chamaesyce	hyssopifolia		(L.) Small
a	Euphorbiaceae	Chamaesyce	maculata		(L.) Small
a	Euphorbiaceae	Chamaesyce	mesembryanthemifolia		(Jacq.) Dugand
a	Euphorbiaceae	Chamaesyce	opthalmica		(Pers.) Burch
a	Euphorbiaceae	Chamaesyce	thymifolia		(L.) Millsp.
a	Euphorbiaceae	Cnidoscolus	stimulosus		(Michx.) Englm. & Gray
a	Euphorbiaceae	Croton	glandulosus		L.
a	Euphorbiaceae	Croton	punctatus		Jacq.
a	Euphorbiaceae	Drypetes	lateriflora		(Sw.) Krug & Urban
a	Euphorbiaceae	Euphorbia	trichotoma		HBK.
a	Euphorbiaceae	Jatropha	curcas		L.
a	Euphorbiaceae	Pedilanthus	tithymaloides (L.) Poit.	ssp. smallii	(Millsp.) Dressler
a	Euphorbiaceae	Phyllanthus	abnormis		Baill.
a	Euphorbiaceae	Phyllanthus	tenellus		Roxb.
a	Euphorbiaceae	Poinsettia	cyathophora		(Murr.) Kl. & Gke.
a	Euphorbiaceae	Poinsettia	heterophylla		(L.) Kl. & Gke.
a	Euphorbiaceae	Ricinus	communis		L.
a	Euphorbiaceae	Sapium	sebiferum		(L.) Roxb.
a	Euphorbiaceae	Stillingia	aquatica		Chapm.
a	Euphorbiaceae	Stillingia	sylvatica		L.
a	Euphorbiaceae	Tragia	urens		L.
a	Fabaceae	Abrus	precatorius		L.
a	Fabaceae	Acacia	farnesiana		(L.) Willd.
a	Fabaceae	Aeschynomene	americana		L.
a	Fabaceae	Albizia	julibrissin		Durazz.
a	Fabaceae	Albizia	lebbeck		(L.) Benth.
a	Fabaceae	Alysicarpus	ovalifolius		(Shum. & Thonn.) J. Leonard
a	Fabaceae	Amorpha	fruticosa		L.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Fabaceae	Apios	americana		Medic.
a	Fabaceae	Baptisia	lecontei		T. & G.
a	Fabaceae	Bauhinia	variegata		L.
a	Fabaceae	Caesalpinia	bonduc		(L.) Roxb.
a	Fabaceae	Canavalia	rosea		(Sw.) DC.
a	Fabaceae	Centrosema	virginianum		(L.) Benth.
a	Fabaceae	Chamaecrista	fasciculata		(Michx.) Greene
a	Fabaceae	Chamaecrista	nictitans (L.) Moench	var. aspera	(Muhl. ex Ell.) Irwin & Barneby
a	Fabaceae	Clitoria	mariana		L.
a	Fabaceae	Crotalaria	lanceolata		E. Mey.
a	Fabaceae	Crotalaria	mucronata		Desv.
a	Fabaceae	Crotalaria	pumila		Ortega
a	Fabaceae	Crotalaria	retusa		L.
a	Fabaceae	Crotalaria	rotundifolia		(Walt.) Gmel.
a	Fabaceae	Crotalaria	spectabilis		Roth
a	Fabaceae	Dalbergia	ecastrophyllum		(L.) Taub.
a	Fabaceae	Desmodium	floridanum		Chapm.
a	Fabaceae	Desmodium	incanum		DC.
a	Fabaceae	Desmodium	paniculatum		DC.
a	Fabaceae	Desmodium	tenuifolium		T. & G.
a	Fabaceae	Desmodium	tortuosum		(Sw.) DC.
a	Fabaceae	Desmodium	triflorum		(L.) DC.
a	Fabaceae	Enterolobium	contortisiliquum		(Vell.) Morong
a	Fabaceae	Erythrina	herbacea		L.
a	Fabaceae	Galactia	elliottii		Nutt.
a	Fabaceae	Galactia	volubilis		(L.) Britt.
a	Fabaceae	Indigofera	caroliniana		Mill.
a	Fabaceae	Indigofera	hirsuta		Harv.
a	Fabaceae	Indigofera	spicata		Forsk.
a	Fabaceae	Indigofera	suffruticosa		L.
a	Fabaceae	Kummerowia	striata		(Thunb.) Schindler
a	Fabaceae	Leucaena	leucocephala		(Lam.) de Wit.
a	Fabaceae	Lupinus	diffusus		Nutt.
a	Fabaceae	Macroptilium	lathyroides		(L.) Urban
a	Fabaceae	Medicago	lupulina		L.
a	Fabaceae	Melilotus	alba		Desr.
a	Fabaceae	Melilotus	indica		(L.) All.
a	Fabaceae	Parkinsonia	aculeata		L.
a	Fabaceae	Petalostemon	carneum		Michx.
a	Fabaceae	Petalostemon	feayi		Chapm.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Fabaceae	Phaseolus	polystachios		(L.) BSP.
a	Fabaceae	Phaseolus	sinuatus		Nutt.
a	Fabaceae	Rhynchosia	cinerea		Nash
a	Fabaceae	Rhynchosia	difformis		(Ell.) DC.
a	Fabaceae	Rhynchosia	minima		(L.) DC.
a	Fabaceae	Senna	alata		(L.) Roxb.
a	Fabaceae	Senna	obtusifolia		(L.) Irwin & Barneby
a	Fabaceae	Senna	occidentalis		(L.) Link
a	Fabaceae	Sesbania	emerus		(Aubl.) Urban
a	Fabaceae	Sesbania	punicea		(Cav.) Benth.
a	Fabaceae	Sesbania	vesicaria		(Jacq.) Ell.
a	Fabaceae	Sophora	tomentosa		L.
a	Fabaceae	Strophostyles	umbellata		(Muhl. ex Willd.) Britt.
a	Fabaceae	Tephrosia	angustissima Shuttlew. ex Chapm.	var. curtissii	(Small ex Rydb.) Isely
a	Fabaceae	Vicia	acutifolia		Ell.
a	Fabaceae	Vicia	floridana		S. Wats.
a	Fabaceae	Vigna	luteola		(Jacq.) Benth.
a	Fabaceae	Wisteria	sinensis		(Sims) Sweet
a	Fagaceae	Quercus	chapmanii		Sarg.
a	Fagaceae	Quercus	geminata		Small
a	Fagaceae	Quercus	incana		Bartr.
a	Fagaceae	Quercus	laevis		Walt.
a	Fagaceae	Quercus	laurifolia		Michx.
a	Fagaceae	Quercus	minima		(Sarg.) Small
a	Fagaceae	Quercus	myrtifolia		Willd.
a	Fagaceae	Quercus	pumila		Walt.
a	Fagaceae	Quercus	virginiana		Mill.
a	Gentianaceae	Bartonia	verna		(Michx.) Muhl.
a	Gentianaceae	Eustoma	exaltatum		(L.) Griseb.
a	Gentianaceae	Sabatia	brevifolia		Raf.
a	Gentianaceae	Sabatia	difformis		(L.) Druse
a	Gentianaceae	Sabatia	grandiflora		(A. Gray) Small
a	Gentianaceae	Sabatia	stellaris		Pursh
a	Geraniaceae	Geranium	carolinianum		L.
a	Geraniaceae	Pelargonium	hortorum		Bailey
a	Goodeniaceae	Scaevola	plumieri		(L.) Vahl
a	Haemodoraceae	Lachnanthes	caroliniana		(Lam.) Dandy
a	Haloragaceae	Proserpinaca	palustris		L.
a	Haloragaceae	Proserpinaca	pectinata		Lam.
a	Hamamelidaceae	Liquidambar	styraciflua		L.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Hydrocharitaceae	Halophila	engelmannii		Aschers
a	Hydrocharitaceae	Limnobium	spongia		(Bosc) Steud.
a	Hydrocharitaceae	Thalassia	testudinum		Koenig
a	Hypericaceae	Hypericum	cistifolium		Lam.
a	Hypericaceae	Hypericum	crux-andraea		(L.) Crantz
a	Hypericaceae	Hypericum	gentianoides		(L.) BSP.
a	Hypericaceae	Hypericum	hypericoides		(L.) Crantz
a	Hypericaceae	Hypericum	mutilum		L.
a	Hypericaceae	Hypericum	reductum		P. Adams
a	Hypericaceae	Hypericum	tetrapetalum		Lam.
a	Hypoxidaceae	Hypoxis	juncea		J. E. Smith
a	Iridaceae	Gladiolus	x gandavensis		Van Houtte
a	Iridaceae	Iris	hexagonia Walt.	var. savannarum	(Small) Foster
a	Iridaceae	Sisyrinchium	atlanticum		Bickn.
a	Iridaceae	Sisyrinchium	nashii		Bickn.
a	Juglandaceae	Carya	aquatica		(Michx. f.) Nutt.
a	Juglandaceae	Carya	floridana		Sarg.
a	Juglandaceae	Carya	glabra		(Mill.) Sweet
a	Juglandaceae	Carya	illinoensis		(Wang.) K. Koch
a	Juncaceae	Juncus	acuminatus		Michx.
a	Juncaceae	Juncus	dichotomus		Ell.
a	Juncaceae	Juncus	effusus		L.
a	Juncaceae	Juncus	marginatus		Rostk.
a	Juncaceae	Juncus	megacephalus		M.A. Curtis
a	Juncaceae	Juncus	polycephalus		Michx.
a	Juncaceae	Juncus	roemerianus		Scheele
a	Juncaceae	Juncus	scirpoides		Lam.
a	Juncaceae	Juncus	trigonocarpus		Steud.
a	Lamiaceae	Conradina	grandiflora		Small
a	Lamiaceae	Hyptis	alata		(Raf.) Shinners
a	Lamiaceae	Hyptis	mutabilis		(A. Rich.) Briq.
a	Lamiaceae	Mentha	sp.		
a	Lamiaceae	Monarda	punctata		L.
a	Lamiaceae	Piloblephis	rigida		(Batr. ex Benth.) Raf.
a	Lamiaceae	Prunella	vulgaris		L.
a	Lamiaceae	Salvia	coccinea		Buchoz. ex Etling
a	Lamiaceae	Salvia	lyrata		L.
a	Lamiaceae	Scutellaria	integrifolia		L.
a	Lamiaceae	Teucrium	canadense		L.
a	Lamiaceae	Teucrium	canadense L.	var. hypoleucum	Griseb.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Lamiaceae	Trichostema	dichotomum		L.
a	Lauraceae	Cassytha	filiformis		L.
a	Lauraceae	Cinnamonum	camphora		(L.) Nees & Eberm.
a	Lauraceae	Nectandra	coriacea		(Sw.) Griseb.
a	Lauraceae	Persea	americana		Mill.
a	Lauraceae	Persea	borbonia		(L.) Spreng.
a	Lauraceae	Persea	borbonia (L.) Spreng.	var. humilis	(Nash) Koop
a	Lauraceae	Persea	palustris		(Raf.) Sarg.
a	Lemnaceae	Lemna	minor		L.
a	Lemnaceae	Lemna	perpusilla		Torr.
a	Lemnaceae	Spirodela	polyrhiza		(L.) Schleiden
a	Lemnaceae	Spirodela	punctata		(G. F. W. Mey.) Thomps.
a	Lemnaceae	Wolffiella	gladiata		(Hegelm.) Hegelm.
a	Lentibulariaceae	Pinguicula	caerulea		Walt.
a	Lentibulariaceae	Pinguicula	lutea		Walt.
a	Lentibulariaceae	Pinguicula	pumila		Michx.
a	Lentibulariaceae	Utricularia	foliosa		L.
a	Lentibulariaceae	Utricularia	gibba		L.
a	Lentibulariaceae	Utricularia	inflata		Walt.
a	Lentibulariaceae	Utricularia	purpurea		Walt.
a	Lentibulariaceae	Utricularia	radiata		Small
a	Lentibulariaceae	Utricularia	subulata		L.
a	Liliaceae	Aletris	lutea		Small
a	Liliaceae	Asparagus	setaceus		(Kunth) Jessop
a	Liliaceae	Lilium	catesbaei		Walt.
a	Liliaceae	Lilium	longiflorum Thunb.	var. eximinum	Baker
a	Liliaceae	Schoenocaulon	dubium		(Michx.) Small
a	Loasaceae	Mentzelia	floridana		Nutt.
a	Loganiaceae	Buddleja	madagascariensis		Lam.
a	Loganiaceae	Gelsemium	sempervirens		(L.) J. St. Hil.
a	Loganiaceae	Mitreola	petiolata		(J.F. Gmel.) T. & G.
a	Loganiaceae	Mitreola	sessilifolia		(J.F. Gmel.) G. Don
a	Loganiaceae	Polypremum	procumbens		L.
a	Loranthaceae	Phoradendron	serotinum		(Raf.) M.C. Johnst.
a	Lythraceae	Ammannia	latifolia		L.
a	Lythraceae	Lagerstroemia	indica		L.
a	Lythraceae	Lythrum	alatum Pursh	var. lanceolatum	(Ell.) T. & G. ex Rothr.
a	Lythraceae	Lythrum	lineare		L.
a	Lythraceae	Rotala	ramosior		(L.) Koehne
a	Magnoliaceae	Magnolia	grandiflora		L.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Magnoliaceae	Magnolia	virginiana		L.
a	Malvaceae	Hibiscus	furcellatus		Desv.
a	Malvaceae	Hibiscus	grandiflorus		Michx.
a	Malvaceae	Hibiscus	rosa-sinensis		L.
a	Malvaceae	Hibiscus	schizopetalus		(Mast.) Hook.
a	Malvaceae	Hibiscus	tiliaceus		L.
a	Malvaceae	Kosteletzkya	virginica		(L.) Presl ex A. Gray
a	Malvaceae	Malvastrum	corchorifolium		(Desr.) Britt.
a	Malvaceae	Malvastrum	coromandelianum		(L.) Garcke
a	Malvaceae	Malvaviscus	arboreus Cav.	var. mexicanus	Schlecht.
a	Malvaceae	Pavonia	spinifex		(L.) Cav.
a	Malvaceae	Sida	acuta		Burm. f.
a	Malvaceae	Sida	cordifolia		L.
a	Malvaceae	Sida	rhombifolia		L.
a	Malvaceae	Urena	lobata		L.
a	Marantaceae	Thalia	geniculata		L.
a	Melastomataceae	Rhexia	mariana		L.
a	Melastomataceae	Rhexia	nuttallii		James
a	Melastomataceae	Rhexia	petiolata		Walt.
a	Meliaceae	Melia	azedarach		L.
a	Moraceae	Broussonetia	papyrifera		(L.) Vent.
a	Moraceae	Ficus	aurea		Nutt.
a	Moraceae	Ficus	carica		L.
a	Moraceae	Ficus	elastica		Roxb.
a	Moraceae	Maclura	pomifera		(Raf.) Schneid.
a	Moraceae	Morus	alba		L.
a	Moraceae	Morus	rubra		L.
a	Musaceae	Musa	x paradisiaca		L.
a	Myricaceae	Myrica	cerifera		L.
a	Myrsinaceae	Ardisia	escallonioides		Schlecht. & Cham.
a	Myrsinaceae	Rapanea	punctata		(Lam.) Lundell
a	Myrtaceae	Eucalyptus	robusta		Smith
a	Myrtaceae	Eugenia	axillaris		(Sw.) Willd.
a	Myrtaceae	Eugenia	foetida		Pers.
a	Myrtaceae	Eugenia	uniflora		L.
a	Myrtaceae	Melaleuca	quinquenervia		(Cav.) Blake
a	Myrtaceae	Myrcianthes	fragrans		(Sw.) McVaugh
a	Myrtaceae	Psidium	cattleianum		Sabine
a	Myrtaceae	Psidium	guajava		L.
a	Myrtaceae	Syzygium	cumini		(L.) Skeels

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Myrtaceae	Syzygium	jambos		(L.) Alston
a	Najadaceae	Najas	guadalupensis (Spreng.) Magnus	var. floridana	Haynes & Wentz
a	Najadaceae	Najas	marina		L.
a	Najadaceae	Najas	wrightiana		A. Br.
a	Nyctaginaceae	Boerhavia	diffusa		L.
a	Nyctaginaceae	Bouganvillea	glabra		Choisy
a	Nyctaginaceae	Guapira	discolor		(Spreng.) Little
a	Nyctaginaceae	Mirabilis	jalapa		L.
a	Nymphaeaceae	Nuphar	lutea (L.) Sibth. & Sm.	ssp. macrophylla	(Small) Beal
a	Nymphaeaceae	Nymphaea	elegans		Hook.
a	Nymphaeaceae	Nymphaea	mexicana		Zucc.
a	Nymphaeaceae	Nymphaea	odorata		Ait.
a	Olacaceae	Schoepfia	chrysophylloides		(A. Rich.) Planch.
a	Olacaceae	Ximenia	americana		L.
a	Oleaceae	Forestiera	segregata		(Jacq.) Krug & Urban
a	Oleaceae	Fraxinus	profunda		(Bush) Bush
a	Oleaceae	Jasminum	sambac		Ait.
a	Oleaceae	Ligustrum	japonicum		Thunb.
a	Oleaceae	Olea	europeae		L.
a	Oleaceae	Osmanthus	americana		(L.) Benth. & Hook. f. ex A. Gray
a	Onagraceae	Gaura	angustifolia		Michx.
a	Onagraceae	Ludwigia	alata		Ell.
a	Onagraceae	Ludwigia	arcuata		Walt.
a	Onagraceae	Ludwigia	decurrens		Walt.
a	Onagraceae	Ludwigia	hirtella		Raf.
a	Onagraceae	Ludwigia	maritima		Harper
a	Onagraceae	Ludwigia	microcarpa		Michx.
a	Onagraceae	Ludwigia	octovalvis		(Jacq.) Raven
a	Onagraceae	Ludwigia	palustris		(L.) Ell.
a	Onagraceae	Ludwigia	peruviana		(L.) Hara
a	Onagraceae	Ludwigia	repens		J.R. Forst.
a	Onagraceae	Ludwigia	suffruticosa		Walt.
a	Onagraceae	Oenothera	humifusa		Nutt.
a	Onagraceae	Oenothera	laciniata		Hill
a	Orchidaceae	Calapogon	barbatus		(Walt.) Ames
a	Orchidaceae	Calapogon	multiflorus		Lindl.
a	Orchidaceae	Calopogon	tuberosus		(L.) BSP.
a	Orchidaceae	Encyclia	tampensis		(Lindl.) Small
a	Orchidaceae	Epidendrum	conopseum		R. Br.
a	Orchidaceae	Eulophia	alta		(L.) Fawc. & Rendle

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Orchidaceae	Eulophia	ecristata		(Fern.) Ames
a	Orchidaceae	Habenaria	odontopetala		Reichb. f.
a	Orchidaceae	Habenaria	repens		Nutt.
a	Orchidaceae	Harrisella	filiformis		(Sw.) Cogn.
a	Orchidaceae	Hexalectris	spicata		(Walt.) Barnh.
a	Orchidaceae	Malaxis	spicata		Sw.
a	Orchidaceae	Pogonia	ophioglossoides		(L.) Ker-Gaw.
a	Orchidaceae	Ponthieva	racemosa		(Walt.) Mohr
a	Orchidaceae	Spiranthes	cernua		(L.) L.C. Rich.
a	Orchidaceae	Spiranthes	laciniata		(Small) Ames
a	Orchidaceae	Zeuxine	strateumatica		(L.) Schltr.
a	Oxalidaceae	Oxalis	stricta		L.
a	Oxalidaceae	Oxalis	violacea		L.
a	Papaveraceae	Argemone	mexicana		L.
a	Passifloraceae	Passiflora	incarnata		L.
a	Passifloraceae	Passiflora	lutea		L.
a	Passifloraceae	Passiflora	suberosa		L.
a	Phytolaccaceae	Agdestis	clematidea		Moc. & Sesse.
a	Phytolaccaceae	Phytolacca	americana		L.
a	Phytolaccaceae	Rivina	humilis		L.
a	Piperaceae	Peperomia	humilis		A. Dietr.
a	Piperaceae	Peperomia	obtusifolia		(L.) A. Dietr.
a	Plantaginaceae	Plantago	lanceolata		L.
a	Plantaginaceae	Plantago	virginica		L.
a	Plumbaginaceae	Limonium	carolinianum		(Walt.) Britt.
a	Plumbaginaceae	Plumbago	auriculata		Lam.
a	Plumbaginaceae	Plumbago	scandens		L.
a	Poaceae	Amphicarpum	muhlenbergianum		(Shult.) Hitchc.
a	Poaceae	Andropogon	brachystachyus		Chapm.
a	Poaceae	Andropogon	cabanisii		Hack.
a	Poaceae	Andropogon	capillipes		Nash
a	Poaceae	Andropogon	floridanus		Scribn.
a	Poaceae	Andropogon	glomeratus		(Walt.) BSP.
a	Poaceae	Andropogon	gyrans		Ashe
a	Poaceae	Andropogon	longiberbis		Hack.
a	Poaceae	Andropogon	perangustatus		Nash
a	Poaceae	Andropogon	ternarius		Michx.
a	Poaceae	Andropogon	virginicus		L.
a	Poaceae	Andropogon	virginicus L.	var. glaucopsis	(Ell.) Hitchc.
a	Poaceae	Aristida	patula		Chapm. ex Nash

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Poaceae	Aristida	purpurascens		Poir.
a	Poaceae	Aristida	spiciformis		Ell.
a	Poaceae	Aristida	stricta		Michx.
a	Poaceae	Aristida	tenuispica		Hitchc.
a	Poaceae	Aristida	virgata		Trin.
a	Poaceae	Arundinaria	tecta		(Walt.) Muhl.
a	Poaceae	Arundo	donax		L.
a	Poaceae	Axonopus	affinis		Chase
a	Poaceae	Bambusa	multiplex		(Lour.) Raeusch
a	Poaceae	Bambusa	vulgaris		Schrad. ex J.C. Wendl.
a	Poaceae	Brachiaria	subquadripara		(Trin.) Hitchc.
a	Poaceae	Brachiaria	purpurascens		(Raddi) Henr.
a	Poaceae	Calamovilfa	curtissii		(Vasey) Scribn.
a	Poaceae	Cenchrus	echinatus		L.
a	Poaceae	Cenchrus	incertus		M.A. Curtis
a	Poaceae	Cenchrus	longispinus		(Hack.) Fern.
a	Poaceae	Chasmanthium	sessiliflorum		(Poir.) Yates
a	Poaceae	Chloris	glauca		(Chapm.) Wood
a	Poaceae	Chloris	petraea		Sw.
a	Poaceae	Coelorachis	rugosa		(Nutt.) Nash
a	Poaceae	Cynodon	dactylon		(L.) Pers.
a	Poaceae	Dactyloctenium	aegyptium		(L.) Beauv.
a	Poaceae	Digitaria	ciliaris		(Retz.) Koel.
a	Poaceae	Digitaria	villosa		(Walt.) Pers.
a	Poaceae	Distichlis	spicata		(L.) Greene
a	Poaceae	Echinochloa	colonum		(L.) Link
a	Poaceae	Echinochloa	crusgalli		(L.) Beauv.
a	Poaceae	Echinochloa	walteri		(Pursh) Heller
a	Poaceae	Eleusine	indica		(L.) Gaertn.
a	Poaceae	Eragrostis	ciliaris		(L.) R. Br.
a	Poaceae	Eragrostis	elliottii		S. Wats.
a	Poaceae	Eragrostis	refracta		(Muhl.) Scribn.
a	Poaceae	Eragrostis	spectabilis		(Pursh) Steud.
a	Poaceae	Eremochloa	ophiuroides		(Munro) Hack.
a	Poaceae	Erianthus	giganteus		(Walt.) Muhl.
a	Poaceae	Eriochloa	michauxii		(Poir.) Hitchc.
a	Poaceae	Heteropogon	melanocarpus		(Ell.) Benth.
a	Poaceae	Imperata	cylindrica		(L.) Beauv.
a	Poaceae	Leersia	hexandra		Sw.
a	Poaceae	Leersia	virginica		Willd.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Poaceae	Leptochloa	fascicularis		(Lam.) A. Gray
a	Poaceae	Monanthochloe	littoralis		Englm.
a	Poaceae	Muhlenbergia	capillaris		(Lam.) Trin.
a	Poaceae	Oplismenus	setarius		(Lam.) Roem. & Schult
a	Poaceae	Panicum	albomarginatum		Nash
a	Poaceae	Panicum	amarum		Ell.
a	Poaceae	Panicum	anceps		Michx.
a	Poaceae	Panicum	bartowense		Scribn. & Merrill
a	Poaceae	Panicum	breve		Hitchc. & Chase
a	Poaceae	Panicum	caerulescens		Hack. ex Hitchc.
a	Poaceae	Panicum	chamaelonche		Trin.
a	Poaceae	Panicum	ciliatum		Ell.
a	Poaceae	Panicum	commutatum		Schult.
a	Poaceae	Panicum	dichotomiflorum		Michx.
a	Poaceae	Panicum	ensifolium		Baldw. ex Ell.
a	Poaceae	Panicum	equilaterale		Scribn.
a	Poaceae	Panicum	fasciculatum		Sw.
a	Poaceae	Panicum	fusiforme		Hitchc.
a	Poaceae	Panicum	glabrifolium		Nash
a	Poaceae	Panicum	hemitomon		Schult.
a	Poaceae	Panicum	hians		Ell.
a	Poaceae	Panicum	huachucae		Ashe
a	Poaceae	Panicum	joorii		Vasey
a	Poaceae	Panicum	lancearium		Trin.
a	Poaceae	Panicum	lanuginosum		Ell.
a	Poaceae	Panicum	malacon		Nash
a	Poaceae	Panicum	maximum		Jacq.
a	Poaceae	Panicum	nitidum		Lam.
a	Poaceae	Panicum	patentifolium		Nash
a	Poaceae	Panicum	patulum		(Scrib. & Merr.) Hitchc.
a	Poaceae	Panicum	polycaulon		Nash
a	Poaceae	Panicum	portoricense		Desv. ex Hamilt.
a	Poaceae	Panicum	repens		L.
a	Poaceae	Panicum	rhizomatum		Hitchc. & Chase
a	Poaceae	Panicum	rigidulum		Nees
a	Poaceae	Panicum	roanokense		Ashe
a	Poaceae	Panicum	tenerum		Beyr.
a	Poaceae	Panicum	trifolium		Nash
a	Poaceae	Panicum	virgatum		L.
a	Poaceae	Panicum	webberianum		Nash

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Poaceae	Panicum	wrightianum		Schribn.
a	Poaceae	Panicum	xalapense		HBK.
a	Poaceae	Paspalum	bifidum		(Bertol.) Nash
a	Poaceae	Paspalum	conjugatum		Berg.
a	Poaceae	Paspalum	floridanum		Michx.
a	Poaceae	Paspalum	laeve		Michx.
a	Poaceae	Paspalum	langei		(Fourn.) Nash
a	Poaceae	Paspalum	notatum Fluegge	var. saurae	Parodi
a	Poaceae	Paspalum	plicatulum		Michx.
a	Poaceae	Paspalum	praecox		Walt.
a	Poaceae	Paspalum	setaceum		Michx.
a	Poaceae	Paspalum	urvillei		Steud.
a	Poaceae	Paspalum	vaginatum		Sw.
a	Poaceae	Pennisetum	purpureum		Schum.
a	Poaceae	Phragmites	australis		(Cav.) Trin. ex Steud.
a	Poaceae	Polypogon	monspeliensis		(L.) Desf.
a	Poaceae	Rhynchelytrum	repens		(Willd.) C.E. Hubb.
a	Poaceae	Sacciolepis	striata		(L.) Nash
a	Poaceae	Schizachyrium	littorale		Bicknell
a	Poaceae	Schizachyrium	scoparium		(Michx.) Nash
a	Poaceae	Schizachyrium	stoloniferum		Nash
a	Poaceae	Setaria	corrugata		(Ell.) Schult.
a	Poaceae	Setaria	geniculata		(Lam.) Beauv.
a	Poaceae	Setaria	macrosperma		(Scrib. & Merr.) Schum.
a	Poaceae	Setaria	magna		Griseb.
a	Poaceae	Sorghastrum	elliottii		(Mohr) Nash
a	Poaceae	Sorghastrum	secundum		(Ell.) Nash
a	Poaceae	Sorghum	halepense		(L.) Pers.
a	Poaceae	Sorghum	vulgare		Pers.
a	Poaceae	Spartina	alterniflora		Loisel.
a	Poaceae	Spartina	bakeri		Merr.
a	Poaceae	Spartina	patens		(Ait.) Muhl.
a	Poaceae	Sphenopholis	filiformis		(Chapm.) Scribn.
a	Poaceae	Sphenopholis	obtusata		(Michx.) Scribn.
a	Poaceae	Sporobolis	domingensis		(Trin.) Kunth
a	Poaceae	Sporobolus	floridanus		Chapm.
a	Poaceae	Sporobolus	indicus		(L.) R. Br.
a	Poaceae	Sporobolus	virginicus		(Walt.) Kunth
a	Poaceae	Stenotaphrum	secundatum		(Walt.) Kuntze
a	Poaceae	Tridens	chapmanii		(Small) Chase

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Poaceae	Tridens	flavus		(L.) Hitchc.
a	Poaceae	Triplasis	purpurea		(Walt.) Chapm.
a	Poaceae	Tripsacum	dactyloides		(L.) L.
a	Poaceae	Uniola	paniculata		L.
a	Poaceae	Zea	mays		L.
a	Poaceae	Zoysia	tenuifolia		Willd. ex Trin.
a	Polemoniaceae	Ipomopsis	rubra		(L.) Wherry
a	Polemoniaceae	Phlox	drummondii		Hook.
a	Polygalaceae	Polygala	balduinii		Nutt.
a	Polygalaceae	Polygala	cruciata		L.
a	Polygalaceae	Polygala	grandiflora		Walt.
a	Polygalaceae	Polygala	incarnata		L.
a	Polygalaceae	Polygala	lutea		L.
a	Polygalaceae	Polygala	nana		(Michx.) DC.
a	Polygalaceae	Polygala	polygama		Walt.
a	Polygalaceae	Polygala	rugelii		Shuttlew.
a	Polygalaceae	Polygala	setacea		Michx.
a	Polygonaceae	Antigonon	leptopus		Hook. & Arn.
a	Polygonaceae	Coccoloba	diversifolia		Jacq.
a	Polygonaceae	Coccoloba	uvifera		(L.) L.
a	Polygonaceae	Polygonella	ciliata		Meisn.
a	Polygonaceae	Polygonella	gracilis		(Nutt.) Meisn.
a	Polygonaceae	Polygonella	polygama		(Vent.) Englm. & A. Gray
a	Polygonaceae	Polygonum	hirsutum		Walt.
a	Polygonaceae	Polygonum	hydropiperpoides		Michx.
a	Polygonaceae	Polygonum	opelousanum		Ridd. ex Small
a	Polygonaceae	Polygonum	persicaria		L.
a	Polygonaceae	Polygonum	punctatum		Ell.
a	Polygonaceae	Polygonum	setaceum		Baldw. ex Ell.
a	Polygonaceae	Rumex	pulcher		L.
a	Polygonaceae	Rumex	verticillatus		L.
a	Pontederiaceae	Eichhornia	crassipes		(Mart.) Solms
a	Pontederiaceae	Pontederia	cordata		L.
a	Pontederiaceae	Pontederia	cordata L.	var. lancifolia	(Muhl.) Torr.
a	Portulacaceae	Portulaca	oleraceae		L.
a	Portulacaceae	Portulaca	pilosa		L.
a	Primulaceae	Samolus	ebracteatus		HBK.
a	Primulaceae	Samolus	valerandi L.	ssp. parviflorus	(Raf.) Hulten
a	Proteaceae	Grevillea	robusta		A. Cunn.
a	Ranunculaceae	Clematis	baldwinii		T. & G.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Ranunculaceae	Clematis	crispa		L.
a	Rhamnaceae	Berchemia	scandens		(Hill) K. Koch
a	Rhamnaceae	Krugiodendron	ferreum		(Vahl) Urban
a	Rhamnaceae	Sageretia	minutiflora		(Michx.) Mohr
a	Rhizophoraceae	Rhizophora	mangle		L.
a	Rosaceae	Eriobotrya	japonica		Lindl.
a	Rosaceae	Prunus	angustifolia		Marsh.
a	Rosaceae	Prunus	caroliniana		Ait.
a	Rosaceae	Prunus	persica		(L.) Batsch
a	Rosaceae	Prunus	serotina		Ehrh.
a	Rosaceae	Pyrus	communis		L.
a	Rosaceae	Rubus	cuneifolius		Pursh
a	Rosaceae	Rubus	trivialis		Michx.
a	Rubiaceae	Borriera	laevis		(Lam.) Griseb.
a	Rubiaceae	Cephalanthus	occidentalis		L.
a	Rubiaceae	Chiococca	alba		(L.) Hitchc.
a	Rubiaceae	Diodia	teres		Walt.
a	Rubiaceae	Diodia	virginiana		L.
a	Rubiaceae	Ernodea	littoralis		Sw.
a	Rubiaceae	Galium	hispidulum		Michx.
a	Rubiaceae	Galium	pilosum		Ait.
a	Rubiaceae	Galium	tinctorium		L.
a	Rubiaceae	Hedyotis	corymbosa		(L.) Lam.
a	Rubiaceae	Hedyotis	procumbens		(J.F. Gmel.) Fosberg
a	Rubiaceae	Hedyotis	uniflora		(L.) Lam.
a	Rubiaceae	Morinda	royoc		L.
a	Rubiaceae	Psychotria	nervosa		Sw.
a	Rubiaceae	Psychotria	sulzneri		Small
a	Rubiaceae	Randia	aculeata		L.
a	Rubiaceae	Richardia	brasiliensis		(Moq.) Gomez
a	Rubiaceae	Spermacoce	verticillata		L.
a	Ruppiaceae	Ruppia	maritima		L.
a	Rutaceae	Amyris	balsamifera		L.
a	Rutaceae	Citrus	aurantium		L.
a	Rutaceae	Citrus	reticulata		Blanco
a	Rutaceae	Citrus	sinensis		(L.) Osbeck
a	Rutaceae	Citrus	x paradisi		Macf.
a	Rutaceae	Zanthoxylum	clava-herculis		L.
a	Rutaceae	Zanthoxylum	fagara		(L.) Sarg.
a	Salicaceae	Salix	babylonica		L.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Salicaceae	Salix	caroliniana		Michx.
a	Sapindaceae	Dodonaea	viscosa		(L.) Jacq.
a	Sapindaceae	Exothea	paniculata		(Juss.) Radlk.
a	Sapindaceae	Koelreuteria	paniculata		Laxm.
a	Sapindaceae	Litchi	chinensis		Sonn.
a	Sapindaceae	Sapindus	saponaria		L.
a	Sapotaceae	Bumelia	reclinata		Vent.
a	Sapotaceae	Bumelia	tenax		(L.) Willd.
a	Sapotaceae	Chrysophyllum	oliviforme		L.
a	Sapotaceae	Mastichodendron	foetidissimum		(Jacq.) H.J. Lam.
a	Scrophulariaceae	Agalinis	fasciculata		(Ell.) Raf.
a	Scrophulariaceae	Agalinis	filifolia		(Nutt.) Raf.
a	Scrophulariaceae	Agalinis	harperi		Pennell
a	Scrophulariaceae	Agalinis	linifolia		(Nutt.) Britt.
a	Scrophulariaceae	Agalinis	maritima		(Raf.) Raf.
a	Scrophulariaceae	Agalinis	setacea		(J.F. Gmel.) Raf.
a	Scrophulariaceae	Bacopa	caroliniana		(Walt.) Robins.
a	Scrophulariaceae	Bacopa	monnieri		(L.) Pennell
a	Scrophulariaceae	Buchnera	americana		L.
a	Scrophulariaceae	Gratiola	hispida		(Benth.) Pollard
a	Scrophulariaceae	Gratiola	ramosa		Walt.
a	Scrophulariaceae	Linaria	canadensis		(L.) Dum.
a	Scrophulariaceae	Linaria	floridana		Chapm.
a	Scrophulariaceae	Mecardonia	acuminata		(Walt.) Small
a	Scrophulariaceae	Micranthemum	glomeratum		(Chapm.) Shinners
a	Scrophulariaceae	Penstemon	multiflorus		Chapm.
a	Scrophulariaceae	Russellia	equisetiformis		Schlecht. & Cham.
a	Scrophulariaceae	Scoparia	dulcis		L.
a	Scrophulariaceae	Seymeria	pectinata		Pursh
a	Simaroubaceae	Simarouba	glauca		DC.
a	Smilacaceae	Smilax	auriculata		Walt.
a	Smilacaceae	Smilax	bona-nox		L.
a	Smilacaceae	Smilax	glauca		Walt.
a	Smilacaceae	Smilax	laurifolia		L.
a	Smilacaceae	Smilax	tamnoides		L.
a	Solanaceae	Capsicum	annuum L.	var. glabrisculum	(Dunal) Heiser & Pickersgill
a	Solanaceae	Cestrum	nocturnum		L.
a	Solanaceae	Lycium	carolinianum		Walt.
a	Solanaceae	Physalis	pubescens		L.
a	Solanaceae	Physalis	walteri		Nutt.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Solanaceae	Solanum	americanum		Mill.
a	Solanaceae	Solanum	erianthum		D. Don
a	Solanaceae	Solanum	nigrescens		Mart. & Gal.
a	Solanaceae	Solanum	seaforthianum		Andr.
a	Sterculiaceae	Dombeya	wallichii		D. Jackson
a	Surianaceae	Suriana	maritima		L.
a	Turneraceae	Piriqueta	caroliniana		(Walt.) Urban
a	Typhaceae	Typha	angustifolia		L.
a	Typhaceae	Typha	domingensis		Pers.
a	Typhaceae	Typha	latifolia		L.
a	Ulmaceae	Celtis	laevigata		Willd.
a	Ulmaceae	Ulmus	americana		L.
a	Urticaceae	Boehmeria	cylindrica		(L.) Sw.
a	Urticaceae	Parietaria	floridana		Nutt.
a	Urticaceae	Parietaria	praetermissa		Hinton
a	Verbenaceae	Callicarpa	americana		L.
a	Verbenaceae	Citharexylum	fruticosum		L.
a	Verbenaceae	Clerodendrum	indicum		(L.) Kuntze
a	Verbenaceae	Clerodendrum	speciosum		D'Ombrain
a	Verbenaceae	Lantana	camara		L.
a	Verbenaceae	Lantana	involucrata		L.
a	Verbenaceae	Lantana	montevidensis		(Spreng.) Briq.
a	Verbenaceae	Lantana	ovatifolia		Britt.
a	Verbenaceae	Phyla	nodiflora		(L.) Greene
a	Verbenaceae	Verbena	maritima		Small
a	Verbenaceae	Verbena	scabra		Vahl
a	Verbenaceae	Verbena	tampensis		Nash
a	Verbenaceae	Vitex	trifolia		L.
a	Violaceae	Viola	affinis		Le Conte
a	Violaceae	Viola	lanceolata		L.
a	Violaceae	Viola	primulifolia		L.
a	Vitaceae	Ampelopsis	arborea		(L.) Koehne
a	Vitaceae	Cissus	trifoliata		L.
a	Vitaceae	Parthenocissus	quinquefolia		(L.) Planch.
a	Vitaceae	Vitis	aestivalis		Michx.
a	Vitaceae	Vitis	rotundifolia		Michx.
a	Vitaceae	Vitis	shuttleworthii		House
a	Xyridaceae	Xyris	brevifolia		Michx.
a	Xyridaceae	Xyris	caroliniana		Walt.
a	Xyridaceae	Xyris	elliottii		Chapm.

Appendix I. (continued)

Class[1]	Family	Genus	Species	Variety	Authority
a	Xyridaceae	Xyris	fimbriata		Ell.
a	Xyridaceae	Xyris	jupicai		L. Rich.
a	Xyridaceae	Xyris	smalliana		Nash
a	Zingiberaceae	Alpinia	zerumbet		(Pers.) B.L. Burtt & R.M. Sm.
a	Zygophyllaceae	Tribulus	cistoides		L.
a	Zygophyllaceae	Tribulus	terrestris		L.

1 p=Pteridophyte (ferns and fern allies), g=Gymnosperm, a=Angiosperm

Appendix II. Introduced plants in the Kennedy Space Center area flora.

Pteriodophytes

Davalliaceae

Nephrolepis cordifolia (L.) Presl

Gymnosperms

Cycadaceae

Cycas revoluta Thunb.

Podocarpaceae

Podocarpus macrophyllus D. Don var. maki Endl.
Podocarpus nagi Makino

Angiosperms

Acanthaceae

Asystasia gangetica (L.) T. Anders
Justicia brandegeana Wassh. & L.B. Smith
Odontonema stricta (Nees) Kuntze
Ruellia brittoniana Leonard ex Fern.
Thunbergia alata Bojer ex Sims
Thunbergia fragrans Roxb.

Agavaceae

Agave americana L.
Agave decipiens Baker
Agave sisalana Perrine
Sansevieria hyacinthoides (L.) Druce

Amaranthaceae

Gomphrena serrata L.

Amaryllidaceae

Crinum bulbispermum (Burman) Milne-Redhead & Schweickt

Anacardiaceae

Mangifera indica L.
Schinus terebinthifolius Raddi

Appendix II. (continued)

Apiaceae

Apium leptophyllum (Pers.) Muell.

Apocynaceae

Allamanda cathartica L.
Carissa grandiflora (E.H. Mey.) A. DC.
Catharanthus roseus (L.) G. Don
Nerium oleander L.
Tabernaemontana divaricata (L.) R. Br.
Thevetia peruviana (Pers.) Schum.
Vinca minor L.

Araceae

Colocasia esculentum (L.) Schott
Syngonium podophyllum Schott

Araliaceae

Tetrapanax papyriferus (Hook.) C. Koch

Arecaceae

Arecastrum ramanzoffianum Becc.
Cocos nucifera L.
Phoenix canariensis Chabaud
Phoenix dactylifera L.
Phoenix reclinata L.
Phoenix sylvestris Roxb.
Washingtonia robusta Wendl.

Aristolochiaceae

Aristolochia elegans Masters

Asclepiadaceae

Morrenia odorata (Hook. & Arn.) Lindl.

Asteraceae

Helianthus annuus L.
Sonchus asper (L.) Hill

Appendix II. (continued)

Sonchus oleraceus L.
Wedelia trilobata (L.) Hitchc.
Youngia japonica (L.) DC.

Bignoniaceae

Jacaranda acutifolia Humb. & Bonpl.
Kigelia pinnata DC.
Podranea ricasoliana (Tanfani) Sprague
Pyrostegia venusta (Ker-Gaw.) Miers.
Spathodea campanulata Beauv.
Tecoma stans (L.) Juss.
Tecomaria capensis (Thunb.) Spach.

Brassicaceae

Raphanus raphanistrum L.

Burseraceae

Bursera simaruba (L.) Sarg.

Cactaceae

Cereus pteranthus Link & Otto
Cereus undatus Haw.
Opuntia cochenillifera (L.) Mill.
Pereskia aculeata Mill.

Cannaceae

Canna x *generalis* Bailey

Caprifoliaceae

Lonicera japonica Thunb.

Caricaceae

Carica papaya L.

Casuarinaceae

Casuarina cunninghamiana Miq.
Casuarina equisetifolia L. ex J.R. Forst. & G. Forst.
Casuarina glauca Sieb. ex Spreng.

Appendix II. (continued)

Combretaceae

Quisqualis indica L.

Commelinaceae

Murdannia nudiflora (L.) Brenan
Zebrina pendula Schnizl.

Convolvulaceae

Ipomoea cairica (L.) Sweet
Ipomoea coccinea L.
Ipomoea hederacea Jacq.
Ipomoea purpurea (L.) Roth.

Crassulaceae

Kalanchoe daigremontiana Ham. & Perr.
Kalanchoe fedtschenkoi Ham. & Perr.
Kalanchoe pinnata (Lam.) Pers.
Kalonche tubiflora (Harv.) Ham.

Cucurbitaceae

Citrullus lanatus (Thunb.) Mats. & Nakai.
Momordica charantia L.

Cyperaceae

Bulbostylis barbata (Rottb.) Clarke
Cyperus esculentus L.

Dioscoreaceae

Dioscorea bulbifera L.

Ebenaceae

Diospyros kaki L. f.

Euphorbiaceae

Jatropha curcas L.
Phyllanthus tenellus Roxb.

Appendix II. (continued)

Ricinus communis L.
Sapium sebiferum (L.) Roxb.

Fabaceae

Abrus precatorius L.
Albizia julibrissin Durazz.
Albizia lebbeck (L.) Benth.
Alysicarpus ovalifolius (Shum. & Thonn.) J. Leonard
Bauhinia variegata L.
Crotalaria lanceolata E. Mey.
Crotalaria mucronata Desv.
Crotalaria retusa L.
Crotalaria spectabilis Roth
Desmodium triflorum (L.) DC.
Enterolobium contortisiliquum (Vell.) Morong
Indigofera hirsuta Harv.
Indigofera spicata Forsk.
Kummerowia striata (Thunb.) Schindler
Leucaena leucocephala (Lam.) de Wit.
Macroptilium lathyroides (L.) Urban
Medicago lupulina L.
Melilotus alba Desr.
Melilotus indica (L.) All.
Parkinsonia aculeata L.
Senna alata (L.) Roxb.
Senna obtusifolia (L.) Irwin & Barneby
Wisteria sinensis (Sims) Sweet

Geraniaceae

Pelargonium hortorum Bailey

Iridaceae

Gladiolus x *gandavensis* Van Houtte

Juglandaceae

Carya illinoensis (Wang.) K. Koch

Lamiaceae

Hyptis mutabilis (A. Rich.) Briq.
Mentha sp.

Appendix II. (continued)

Lauraceae

Cinnamonum camphora (L.) Nees & Eberm.
Persea americana Mill.

Liliaceae

Asparagus setaceus (Kunth) Jessop
Lilium longiflorum Thunb. var. *eximum* Baker

Loganiaceae

Buddleja madagascariensis Lam.

Lythraceae

Lagerstroemia indica L.

Malvaceae

Hibiscus rosa-sinensis L.
Hibiscus schizopetalus (Mast.) Hook.
Hibiscus tiliaceus L.
Malvastrum coromandelianum (L.) Garcke
Malvaviscus arboreus Cav. var. *mexicanus* Schlecht.
Pavonia spinifex (L.) Cav.
Sida cordifolia L.

Meliaceae

Melia azedarach L.

Moraceae

Broussonetia papyrifera (L.) Vent.
Ficus carica L.
Ficus elastica Roxb.
Maclura pomifera (Raf.) Schneid.
Morus alba L.

Musaceae

Musa x *paradisiaca* L.

Appendix II. (continued)

Myrtaceae

Eucalyptus robusta Smith
Melaleuca quinquenervia (Cav.) Blake
Psidium cattleianum Sabine
Psidium guajava L.
Syzygium cumini (L.) Skeels
Syzygium jambos (L.) Alston

Nyctaginaceae

Bouganvillea glabra Choisy
Mirabilis jalapa L.

Oleaceae

Jasminum sambac Ait.
Ligustrum japonicum Thunb.
Olea europeae L.

Orchidaceae

Zeuxine strateumatica (L.) Schltr.

Phytolaccaceae

Agdestis clematidea Moc. & Sesse.

Plantaginaceae

Plantago lanceolata L.

Plumbaginaceae

Plumbago auriculata Lam.

Poaceae

Arundo donax L.
Bambusa multiplex (Lour.) Raeusch
Bambusa vulgaris Schrad. ex J.C. Wendl.
Brachiaria purpurascens (Raddi) Henr.
Brachiaria subquadripara (Trin.) Hitchc.
Cynodon dactylon (L.) Pers.
Dactyloctenium aegyptium (L.) Beauv.

Appendix II. (continued)

Echinochloa crusgalli (L.) Beauv.
Eleusine indica (L.) Gaertn.
Eremochloa ophiuroides (Munro) Hack.
Panicum maximum Jacq.
Paspalum notatum Fluegge var. *saurae* Parodi
Pennisetum purpureum Schum.
Polypogon monspeliensis (L.) Desf.
Rhynchelytrum repens (Willd.) C.E. Hubb.
Sorghum halepense (L.) Pers.
Sorghum vulgare Pers.
Sporobolus indicus (L.) R. Br.
Stenotaphrum secundatum (Walt.) Kuntze
Zea mays L.
Zoysia tenuifolia Willd. ex Trin.

Polemoniaceae

Phlox drummondii Hook.

Polygonaceae

Antigonon leptopus Hook. & Arn.

Pontederiaceae

Eichhornia crassipes (Mart.) Solms

Proteaceae

Grevillea robusta A. Cunn.

Rosaceae

Eriobotrya japonica Lindl.
Prunus angustifolia Marsh.
Prunus persica (L.) Batsch
Pyrus communis L.

Rubiaceae

Hedyotis corymbosa (L.) Lam.
Richardia brasiliensis (Moq.) Gomez

Appendix II. (continued)

Rutaceae

Citrus aurantium L.
Citrus reticulata Blanco
Citrus sinensis (L.) Osbeck
Citrus x *paradisi* Macf.

Salicaceae

Salix babylonica L.

Sapindaceae

Koelreuteria paniculata Laxm.
Litchi chinensis Sonn.

Scrophulariaceae

Russellia equisetiformis Schlecht. & Cham.

Solanaceae

Cestrum nocturnum L.
Solanum seaforthianum Andr.

Sterculiaceae

Dombeya wallichii D. Jackson

Verbenaceae

Clerodendrum indicum (L.) Kuntze
Clerodendrum speciosum D'Ombrain
Lantana montevidensis (Spreng.) Briq.
Vitex trifolia L.

Zingiberaceae

Alpinia zerumbet (Pers.) B.L. Burtt & R.M. Sm.

Zygophyllaceae

Tribulus cistoides L.
Tribulus terrestris L.

Appendix III. Bryophytes of the Kennedy Space Center area (Whittier and Miller 1975).

Musci

Amblystegium serpens (Hedw.) B.S.G. var. *juratzkanum* (Schimp.) Ren. & Card.
Amblystegium varium (Hedw.) Lindb.
Anomodon rostratus (Hedw.) Schimp.
Barbula cruegeri Sond. ex C. Muell.
Brachmenium ?systylium (C. Meull.) Jaeg. & Sauerb.
Bryum argenteum Hedw.
Bryum ?capillare Hedw.
Desmatodon sprengeli (Schw.) Williams
Entodon macropodus (Hedw.) C. Meull.
Fissidens garberi Lesq. & James
Forsstroemia trichomitria (Hedw.) Lindb.
Haplocladium microphyllum (Hedw.) Broth.
Isopterygium micans (Sw.) Broth.
Leptodictyum riparium (Hedw.) Warnst ssp. *sipho* (P. Beauv.) Grout.
Leucobryum albidum (P. Beauv.) Lindb.
Octoblepharum albidum Hedw.
Oxyrrhynchium hians (Hedw.) Loesk.
Papillaria nigrescens (Hedw.) Jaeg. & Sauerb.
Rhynchostegium serrulatum (Hedw.) Jaeg.
Sematophyllum adanatum (Michx.) E.G. Britt.
Sphagnum strictum Sull.
Syrrhopodon texanus Sull.
Thuidium recognitum (Hedw.) Lindb. var. *delicatulum* (Hedw.) Warnst

Hepaticae and Anthocerotae

Anthoceros carolinianus Michx.
Cololejeunea cardiocarpa (Mont.) Steph.
Frullania kunzei (Lehm. & Lindenb.) Lehm. & Lindenb.
Frullania squarrosa (R.B.N.) Nees
Lejeunea cf. *cladogyna* Evans
Lejeunea flava (Sw.) Evans
Lejeunea floridana Evans
Lejeunea laetevirens Nees & Mont.
Lejeunea minutiloba Evans
Lophocolea martiana Nees
Microlejeunea ulicina (Tayl.) Evans ssp. *bullata* (Tayl.) Schust.
Odontoschisma denundatum (Nees) Dum.
Odontoschisma prostratum (Sw.) Trev.
Pallavicinia lyelli (Hook.) S.F. Gray
Radula australis Aust.

Appendix III. (continued)

Radula obconica Sull.
Rectolejeunea maxonii Evans
Riccardia multifida (L.) S.F. Gray
Riccia aff. *fluitans* L.
Telaranea nematodes (Aust.) Howe

NASA
National Aeronautics and Space Administration

Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
TM 102791		

4. Title and Subtitle
Flora and Threatened and Endangered Plants of John F. Kennedy Space Center, Florida

5. Report Date
August 20, 1990

6. Performing Organization Code
BIO-2

7. Author(s)
Paul A. Schmalzer, C. Ross Hinkle

8. Performing Organization Report No.

10. Work Unit No.

9. Performing Organization Name and Address
The Bionetics Corporation
Mail Code BIO-2
Kennedy Space Center, Florida 32899

11. Contract or Grant No.
NAS10-11624

13. Type of Report and Period Covered

12. Sponsoring Agency Name and Address
NASA/John F. Kennedy Space Center, FL 32899

14. Sponsoring Agency Code
MD

15. Supplementary Notes

16. Abstract

The vascular flora of the Kennedy Space Center (KSC) area was first studied in the 1970's (Sweet 1976, Poppleton et al. 1977). Nomenclatural and taxonomic changes as well as additional collections required revision of this list. The revised list includes 1045 taxa of which 850 are native and 195 are introduced. This appears to be a substantial proportion of the regional flora. Forty-six taxa are endemic or nearly endemic to Florida, a level of endemism that appears high for the east coast of central Florida. Seventy-three taxa (69 native) are listed as threatened, endangered, or of special concern on federal or state lists. Taxa of special concern occur in all major habitats, but many are resticted to hammocks and hardwood swamps that constitute a minor proportion of the terrestrial vegetation. For some of these taxa, populations on KSC appear to be important for their regional and global survival. The bryophyte flora of the KSC area include 23 mosses and 20 liverworts and hornworts (Whittier and Miller 1976). The lichen flora is currently unknown.

17. Key Words (Suggested by Author(s))	18. Distribution Statement		
Flora, Kennedy Space Center, Florida, Threatened and endangered plants	Unlimited, NTIS		
19. Security Classif. (of this report)	**20. Security Classif. (of this page)**	**21. No. of pages**	**22. Price**
Unclassified	Unclassified	68	