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# **Reference Plant Collection of the Coweeta Hydrologic Laboratory**

J. Dan Pittillo  
Martha Lee

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200 Weaver Blvd.  
Asheville, North Carolina 28804

Reference Plant Collection of the  
Coweeta Hydrologic Laboratory, North Carolina

J. Dan Pittillo  
Professor of Biology

and

Martha Lee  
Graduate Assistant

Department of Biology  
Western Carolina University  
Cullowhee, North Carolina 28723



## Introduction

Coweeta Hydrologic Laboratory, an outdoor research facility, is situated on the eastern flanks of the Nantahala Mountains of the Southern Blue Ridge Province between the Blue Ridge escarpment 30 km (18.5 mi) to the southeast and the western Blue Ridge escarpment 75 km (36 mi) to the northwest. Its intercepted waters descend from the Nantahala crest that peaks at 1,575 m (5,200 ft) elevation to the valley floor of Coweeta Creek at 670 m (2,200 ft) over a distance of only 4.4 km (2.7 mi), and continue eastward into the Little Tennessee River Valley.

The Laboratory is comprised of three major tributaries. Shope Fork and Ball Creek come together to form what is called the Coweeta Creek Basin. The Basin totals 1,626 ha (4,016 acres) and is compartmentalized into over 40 watershed units that have been experimentally treated (or left intact in the case of control watersheds) since establishment of hydrological research here the early 1930's. A third basin, drained by Dryman Fork Creek, is situated to the south of the other two basins, and is separated by a major dividing ridge. Dryman Fork Basin contains about 558 ha (1,379 acres) and has not been treated since its acquisition in the 1920's (Dils 1957; Hewlett and Douglass 1968).

Since 1968 Coweeta has served as a site for a variety of ecological studies and is currently designated a site for Long Term Ecological Research (LTER), a program of the National Science Foundation. This collection project is a part of that effort. Coweeta was also designated a Biosphere Reserve under the Man and Biosphere Program of the United Nations in 1976 (UNESCO 1981). It is paired with the Great Smoky Mountains National Park as the main treatment unit for ecosystem studies. While Coweeta has a long history and a series of publications dealing with various watershed function and management studies (Douglass 1972; Crossley and Swank 1983), it did not have a comprehensive list and documented vascular flora until this project. The Great Smoky Mountains, on the other hand, had flora lists with herbarium documentation of the flora dating from the late 1920's and early 1930's, with documentation in herbaria at the University of Tennessee (and to a lesser extent other herbaria) and the Park Headquarters (White 1982). The core of the flora listing was first completed by Jennison in 1937 and published in 1939. Peter White reviewed and documented 1,492 taxa, including 288 he judged to be exotics, in his annotated checklist (White 1982). Coweeta's flora listing is practically nonexistent except for partial lists in publications or theses (e.g., Williams 1954). No documentation in the form of herbarium specimens is known for the cited plant materials. As ecosystem studies become more detailed with reference to vascular plants, documentation becomes much more important.

## Methods

Since ecosystem studies often deal with various life stages of plants, collection of as many representatives of life stages of the Coweeta flora as possible was a major objective. To accomplish this, a pattern of search was established to cover as much of the varied habitats of the basin as practical. Roads, paths, disturbed areas, mature forests, woodland seeps, rock outcrops, cliffs, etc., were included in a collecting plan for a 2-day period to achieve this aim. Collections were made at about 2-week intervals over the growing season for the 2-year collecting period. Specimens were normally collected in duplicate (some in triplicate); rare, threatened, or endangered species were collected only if there were three or more specimens present at the collection site. In some cases, only pieces of a species were collected. The best clue for the identification of early life stage of a given species was observation of the

life-stage sequences in the field population. Venation patterns, pubescence, and other physical characteristics also helped with identifications. Field notebooks organized by families with charts of life stages were found to be very helpful in record keeping. The Coweeta topographic map (scale 1:144,000) with grid lines was used to coordinate the collection locations, and these coordinates were indicated on each label. The entire label data set was filed on four flexible computer disks using a pfs-FILE (personalized filing system for Apple II by Software Publ. Corp.) program, which should prove useful for future data manipulation. To our knowledge, this was the first time an attempt was designed to cover an area as large as Coweeta with collections of all available life stages.

## Results and Discussion

The collection consists of 604 taxa represented by 327 genera of 97 families. Seldom was it possible to collect all the life forms for a given species (32 of the 604 taxa have complete life-cycle sets). We did not expect to collect complete sets of most plants since germination of seeds or spores is of short duration and infrequent for many species. Additionally, some species flower and fruit infrequently and thus were not found during the study. The main collection is deposited in the herbarium at Coweeta Laboratory. The duplicate collection is deposited at Western Carolina University Herbarium (WCUH) in Cullowhee.

Management of the collections is an important task. With about 2,400 specimens that were processed by about 12 student workers over a period of 2 years, careful management was required. In addition to the usual efforts of collecting and herbarium preparation, this project included attempts to fill life-stage gaps, accurate mapping of collection sites, collating multiple labels with several specimens that make up the sets, and composing several specimens on the herbarium sheet with a sense of proportion and attention to detail. This resulted in an effort of at least three times and perhaps six or seven times that involved with single-stage collections.

Because of the care and attention given to the above efforts, the plant life sets will be very valuable for ecosystem biologists. Some general knowledge of plant identification may be required, such as recognition of general groupings, like plums, apples, oaks, etc., but once this is achieved, the local herbarium is small enough that these specimens could be quickly compared. For those interested in species biology, specimens with various life stages may save considerable time in searching for them in the field since the season and types of habitat will be given by the labels.

Hopefully, this paper will be an encouragement to collectors to look for additional life stages during routine collecting. Often it is possible with a few extra small sampling bags to collect the seedlings or early juveniles of a given species at the same time that flowers or fruits are collected. We have observed that some species have all stages present at a given time, e.g., annuals such as speedwell (*Veronica arvensis*) or perennials such as grass of parnassus (*Parnassia asarifolia*). Closer observation will enable the collector to recognize the variation that a species may display at the different life stages.

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## The Collection

The following charts are organized into four major groups. On the assumption that most users would be familiar with the differences between ferns and fern allies, gymnosperms, monocots, and dicots, these four groups were organized by families, genera, and species alphabetically. Scientific names are followed by common names. Scientific and most common names are the same as those used by Radford, Ahles, and Bell (1968) or Bailey (1949) for cultivated species, with some common names after Fernald (1950) or from local usage.

Definition of symbols used below are:

S = seedlings (specimens with cotyledons or seed coverings attached).

J = juvenile (a stage in which cotyledons have fallen off the plant [annuals] or the specimen is 2 to several years old [perennials including ferns]).

F1 = flowers (or cones of gymnosperms) (reproductive stage at anthesis).

Fr = fruit (mature sporangia of ferns and fern allies, cones of gymnosperms, or matured ovaries of angiosperms).

Rs = rosettes (plants with more than two leaves disposed around the crown or stem at ground level).

Other = additional specimens, or if in parentheses, an indication of the character state of the specified stage.

\*\* = specimen of the given type deposited at Coweeta and WCUH herbaria.

\* = specimen at Coweeta herbarium only.



Species name (Common name)	S	J	Fl	Fr	Rs	Other
<u>FERNS AND FERN ALLIES</u>						
ASPIDIACEAE (Woodfern family)						
<i>Athyrium asplenioides</i> (Michaux) A.A. Eaton (Southern lady fern)		**		**		Red petiole
<i>A. thelypteroides</i> (Michaux) Desvaux (Silvery spleenwort)				**		Young fronds
<i>Dryopteris goldiana</i> (Hooker) Gray (Goldie's woodfern)				**		
<i>D. intermedia</i> (L.) Gray (Fancy fern)				**		
<i>D. marginalis</i> (L.) Gray (Margin shield fern, Woodfern)		**		**		Red petiole
<i>Onoclea sensibilis</i> L. (Sensitive fern)		*				Frond
<i>Polystichum acrostichoides</i> (Michaux) Schott (Christmas fern)		**		**		Frond lobed form
<i>Thelypteris hexagonoptera</i> (Michaux) Weatherby (Broad beech-fern)				**		
<i>T. noveboracensis</i> (L.) Nieuwland (New York fern)				**		Young fronds
ASPLENIACEAE (Spleenwort family)						
<i>Asplenium montanum</i> Willd. (Mountain spleenwort)				**		
<i>A. platyneuron</i> (L.) Oakes (Ebony spleenwort)		**		**		
<i>A. trichomanes</i> L. (Maidenhair spleenwort)		**		**		
ISOETACEAE (Quillwort family)						
<i>Isoetes engelmannii</i> A. Brown (Quillwort)				**		
LYCOPODIACEAE (Clubmoss family)						
<i>Lycopodium clavatum</i> L. (Running clubmoss)				**		
<i>L. flabelliforme</i> (Fernald) Blanchard (Running pine)				**		
<i>L. lucidulum</i> Michaux (Shining club moss)		**		**		Germinating gemmae
OPHIOGLOSSACEAE (Grapefern family)						
<i>Botrychium alabamense</i> Maxon (Alabama grapefern)		**		**		
<i>B. dissectum</i> Sprengel (Common grapefern)				**		Dwarfed form
<i>B. virginianum</i> (L.) Swartz (Rattlesnake fern)		**		**		

S = seedling J = juvenile Fl = flower Fr = fruit/cone/sporangium Rs = rosette

Species name (Common name)	S	J	Fl	Fr	Rs	Other
OSMUNDACEAE (Royal fern family)						
<i>Osmunda cinnamomea</i> L. (Cinnamon fern)		*		**		Mature frond
<i>O. claytoniana</i> L. (Interrupted fern)				**		Mature frond
POLYPODIACEAE (Polypody family)						
<i>Polypodium virginianum</i> L. (Rock cap fern)		**		**		
PTERIDACEAE (Pteris family)						
<i>Adiantum pedatum</i> L. (Maidenhair fern)				**		Immature frond
<i>Dennstaedtia punctilobula</i> (Michaux) Moore (Hay scented fern)				**		Immature frond
<i>Pteridium aquilinum</i> (L.) Kuhn var. <i>latiusculum</i> (Devaux) Underwood (Bracken fern)						Immature frond, sterile frond
SELAGINELLACEAE (Small clubmoss family)						
<i>Selaginella apoda</i> (L.) Spring (Meadow spike moss)				**		
<u>GYMNOSPERMS</u>						
CUPRESSACEAE (Cypress family)						
<i>Juniperis virginiana</i> L. (Red cedar)		**		**		
PINACEAE (Pine family)						
<i>Abies fraseri</i> (Pursh) Poiret (Fraser fir, She-balsam)						Sterile branch
<i>Pinus rigida</i> Miller (Pitch pine)		**	**			Sterile branches
<i>P. strobus</i> L. (White pine)	**	*		**		
<i>Tsuga canadensis</i> (L.) Carr (Canada hemlock, Eastern hemlock)	**	*		**		Young shoots
<u>ANGIOSPERMS - MONOCOTS</u>						
ALISMATACEAE (Water-plantain family)						
<i>Sagittaria latifolia</i> Willd. var. <i>pubescens</i> (Muhl.) J.G. Smith (Duck potato, Wapato)		*			**	Tuberous root
AMARYLLIDACEAE (Amaryllis family)						
<i>Hypoxis hirsuta</i> (L.) Coville (Yellow star grass)			**	**		

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AMARYLLIDACEAE CONT.						
<i>Narcissus jonquilla</i> L. (Jonquill)			**			
<i>N. pseudo-narcissus</i> L. (Daffodill)			**	**		Double flower form
ARACEAE (Arum family)						
<i>Arisaema triphyllum</i> (L.) Schott (Indian turnip, Jack-in-the-pulpit)		**	**	*		
<i>A. triphyllum</i> (L.) Schott (= <i>A. quinatum</i> (Nutt.) Schott) (Indian turnip)		*	**	*		
COMMELINACEAE (Dayflower family)						
<i>Commelina communis</i> L. (Dayflower)			**			
<i>Tradescantia ohioensis</i> Raf. (Spiderwort)			**	**		
<i>T. subaspera</i> Raf. (Spiderwort)			**	**		
CYPERACEAE (Sedge family)						
<i>Bulbostylis capillaris</i> (L.) Clarke (Bulb-styled sedge, Rush)			**	**		
<i>Carex</i> sp. (Sedge)			*	*		
<i>Carex</i> sp. (Sedge)			*			
<i>C. aestivalis</i> M.A. Curtis (Sedge)			**	**		(Fl. male)
<i>C. austro-caroliniana</i> Bailey (Sedge)			**	**		(Fl. male)
<i>C. communis</i> Bailey (Sedge)			**	**		(Fl. male)
<i>C. crebriflora</i> Weigland (Sedge)				**		
<i>C. crinata</i> Lam. (Sedge)			**	**		
<i>C. debilis</i> Michaux var. <i>pubera</i> Gray (Sedge)				**		
<i>C. debilis</i> Michaux var. <i>rudgei</i> Bailey (Sedge)				**		
<i>C. incompta</i> Bicknell (Sedge)				**		
<i>C. intumescens</i> Rudge (Sedge)				**		
<i>C. laxiflora</i> Lam. (Sedge)			**	**		Lvs. 2 forms (Fl. male)
<i>C. leptalea</i> Wahlenberg (Sedge)				**		

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CYPERACEAE CONT.						
<i>Carex lurida</i> Wahlenberg (Sedge)			**	**		(Fl. male)
<i>C. muricata</i> L. var. <i>ruthii</i> (MacKenzie) Gleason (Sedge)				**		
<i>C. pennsylvanica</i> Lam. (Sedge)			**	**		
<i>C. scabrata</i> Schweintz (Sedge)				**		
<i>C. tribuloides</i> Wahlenberg (Sedge)			**			
<i>C. vulpinoidea</i> Michaux (Sedge)				**		
<i>Cymophyllus fraseri</i> (Andrz.) MacKenzie (Fraser's sedge; apparently a transplant)						Single leaf
<i>Cyperus</i> sp. (Umbrella sedge)			**			
<i>C. strigosus</i> L. (Umbrella sedge)			*			
<i>Rhynchospora capitellata</i> (Michaux) Vahl. (Beakrush)				**		
<i>Scirpus expansus</i> Fernald (Bulrush)			**			
<i>S. polyphyllus</i> Vahl. (Bulrush)			**	**		
<i>Scleria triglomerata</i> Michaux (Nut rush)				**		
DIOSCOREACEAE (Yam family)						
<i>Dioscorea batatas</i> Dcne. (Cinnamon vine)		**	**	**		Tubers
<i>D. villosa</i> L. (Wild yam)			**	**		
IRIDACEAE (Iris family)						
<i>Iris sanguinea</i> Donn (Japanese iris)			**			Young shoots
<i>Sisyrinchium albidum</i> Raf. (Blue-eyed grass)			**	**		
JUNCACEAE (Rush family)						
<i>Juncus acuminatus</i> Michaux (Rush)			**	**		Young shoots
<i>J. effusus</i> L. (Bulrush, Soft-stem rush)				**		
<i>J. gymnocarpus</i> Coville (Bulrush)				**		
<i>J. marginatus</i> Rostk. (Rush)			**	**		

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JUNCACEAE CONT.						
<i>Juncus subcaudatus</i> (Englem.) Coville & Blake (Rush)			**			
<i>J. tenuis</i> Willd. (Path Rush)			**	**		
<i>Luzula acuminata</i> Raf. var. <i>carolinae</i> (Watson) Fernald (Woodrush)			**	**		
<i>L. echinata</i> (Small) Hermann (Woodrush)			**	**		
LILIACEAE (Lily family)						
<i>Aletris farinosa</i> L. (Stargrass, Colicroot)			**	**	**	
<i>Allium tricoccum</i> Aiton (Ramps)	**	**	**	**		Leafed plant
<i>A. vineale</i> L. (Field garlic)	**		**	**		
<i>Amianthium muscatoxicum</i> (Walter) Gray (Fly-poison)						Early shoots
<i>Clintonia umbellata</i> (Michaux) Morong (Speckled wood lily)	**	**	**	**		Young shoots
<i>Disporum lanuginosum</i> (Michaux) Nicholson (Yellow mandarin)			**	**		
<i>Erythronium americanum</i> Ker. (Dog-tooth violet, Trout lily, Fawn lily)	**	**	**	**		
<i>Hemerocallis fulva</i> L. (Day lily)	**	*				
<i>Lilium michauxii</i> Poiret (Turk's cap lily, Carolina lily)			**	**		
<i>L. superbum</i> L. (Turk's cap lily)	**	**	**	**		
<i>Medeola virginiana</i> L. (Cucumber root)	**	**	**	**		
<i>Melanthium hybridum</i> Walter (Bunch-flower)	*	**			*	
<i>Polygonatum biflorum</i> (Walter) Ell. (Solomon's seal)	**	**	**	**		
<i>P. pubescens</i> (Willd.) Pursh (Solomon's seal)			*	**		
<i>Smilacina racemosa</i> (L.) Desf. (False Solomon's-seal)	**	**	**	**		Young fruit
<i>Smilax glauca</i> Walter (Catbrier, Greenbrier, Smilax)	**	**	**	**		
<i>S. herbacea</i> L. var. <i>herbacea</i> (Carrion flower)			**			
<i>S. rotundifolia</i> L. (Greenbrier, Catbrier, Smilax)	**			**		Twigs, rootstock
<i>Streptopus roseus</i> Michaux (Twisted stalk)	**	**	**	**		

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LILIACEAE CONT.						
<i>Trillium catesbaei</i> Ell. (Trillium)		**	**	**		
<i>T. erectum</i> L. var. <i>erectum</i> (Wake robin, Red trillium)		**	**	**		
<i>T. erectum</i> var. <i>vaseyi</i> (Harbison) Ahles (Wake robin, Red trillium)		**	**	**		
<i>T. grandiflorum</i> (Michaux) Salisbury (Large white trillium)	**	**	**	**		
<i>T. undulatum</i> Willd. (Painted trillium)			**			
<i>Uvularia grandiflora</i> Smith (Bellwort)			**			
<i>U. perfoliata</i> L. (Bellwort)		**	**	*		
<i>U. pudica</i> (Walter) Fernald (Bellwort)			**	*		(Fr. young)
<i>U. sessilifolia</i> L. (Wild oats)		**	**	**		
<i>Veratrum parviflorum</i> Michaux (Hellebore)	**	**	**	**		(Fl. buds)
ORCHIDACEAE (Orchid family)						
<i>Aplectrum nyemale</i> (Muhl. ex Willd.) Torrey (Puttyroot, Adam-and-eve)		**				
<i>Cypripedium acaule</i> Aiton (Pink lady's slipper)		**	**	**		
<i>C. calceolus</i> var. <i>pubescens</i> (Willd.) Correll (Yellow lady's slipper)			*	*		
<i>Goodyera pubescens</i> (Willd.) R. Brown (Downy rattlesnake plantain)		**		**	**	
<i>Habenaria ciliaris</i> (L.) R. Brown (Yellow-fringed orchid)			**	**		
<i>H. clavellata</i> (Michaux) Sprengel (Small green wood orchid)			*	**		
<i>H. flava</i> (L.) R. Brown var. <i>herbicola</i> (R. Brown) Ames & Correll (?) (Southern reinorchid)			*	**		
<i>H. psycodes</i> (L.) Sprengel var. <i>grandiflora</i> (Bigelow) Gray (Large purple-fringed orchid)			*			
<i>Isotria verticillata</i> (Muhl. ex Willd.) Raf. (Large whorled pogonia)		**	**			
<i>Liparis lilifolia</i> (L.) Richard (Lily-leaved twayblade)			*			
<i>Orchis spectabilis</i> L. (Snowy orchis)		**	**	**		
<i>Spiranthes cernua</i> (L.) Richard (Nodding ladies' tresses, Twisted stalk)			**	**		

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ORCHIDACEAE CONT.						
<i>Spiranthes gracilis</i> (Bigelow) Beck var. <i>gracilis</i> (Slender ladies' tresses)			*	*		
<i>Tipularia discolor</i> (Pursh) Nuttall (Crane fly orchid)		**	**			
<i>Triphora trianthophora</i> (Swartz) Rydberg (Three birds orchid)			**			
POACEAE (Grass family)						
<i>Agrostis elliottiana</i> Schultes (Bent grass)				**		
<i>A. perennans</i> (Walter) Tuckerman (Bent grass)				**		
<i>A. stolonifera</i> L. (Redtop)			**			
<i>A. tenuis</i> Sibthorp (Bent grass)			**	**		
<i>Andropogon gerardii</i> Vitman (Bluestem, Turkeyfoot)			**			Old shoots
<i>A. scoparius</i> Michaux (Little bluestem)			**	**		Old shoots
<i>A. ternarius</i> Michaux (Broom-straw, Beard grass)				**		
<i>A. virginicus</i> L. (Broom sedge)		**	**	**		Old shoots
<i>Anthoxanthum odoratum</i> L. (Sweet vernal grass)			**	**		
<i>Arundinaria gigantea</i> (Walter) Muhl. (Cane)						Current & over- winter shoots
<i>Brachyelytrum erectum</i> (Schreber) Beauvois (Brachyelytrum)				**		
<i>Bromus purgans</i> L. (Broom grass)				**		
<i>Calamagrostis cinnoides</i> (Muhl.) Barton (Reed grass)			**	**		
<i>Danthonia compressa</i> Austin (Oat grass)				**		
<i>D. sericea</i> Nuttall var. <i>sericea</i> (Wild oatgrass)				**		
<i>D. spicata</i> (L.) Beauvois (Oat grass)	**	**	**	**		
<i>Deschampsia flexuosa</i> (L.) Trinis (Hair grass)		**		**		
<i>Digitaria ischaemum</i> (Schreber) Schreber Muhl. (Crab grass)	**			**		
<i>Elymus virginicus</i> L. (Wild rye grass)			**			
<i>Eragrostis hirsuta</i> (Michaux) Nees (Love grass)				**		

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Species name (Common name)	S	J	Fl	Fr	Rs	Other
POACEAE CONT.						
<i>Eriocanthus alopecuroides</i> (L.) Ell. (Beard grass, Plume grass)				**		
<i>Festuca elatior</i> L. (Fescue)	**	**	**	*		
<i>F. octiflora</i> Walter (Six-weeks fescue)				**		
<i>F. rubra</i> L. (Red fescue)		**		**		Inflorescence sprouts
<i>Holcus lanatus</i> L. (Velvet grass)			**			
<i>Hystrix patula</i> Moench (Bottlebrush grass)				**		
<i>Leersia virginica</i> Willd. (Cut grass)				**		
<i>Lolium perenne</i> L. (Rye grass)				**		
<i>Microstigeum vimineum</i> (Trinius) A. Camus (Eulalia)	**	**	**	**		
<i>Muhlenbergia schreberi</i> J.G. Gmelin (Muhly grass)			**			
<i>M. tenuifolia</i> (Willd.) BSP. (Muhly grass)			**	**		
<i>Panicum anceps</i> Michaux var. <i>anceps</i> (Panic grass)				**		
<i>P. angustifolium</i> Ell. (Panic grass)				*		
<i>P. clandestinum</i> L. (Panic grass)		**		**		
<i>P. commutatum</i> Schultes (Panic grass)				**	**	
<i>P. depauperatum</i> Muhl. (Panic grass)				**		
<i>P. dichotomiflorum</i> Michaux (Panic grass)				*		
<i>P. lanuginosum</i> Ell. (Panic grass)			**			
<i>P. villosissimum</i> Nash (Panic grass)				**		
<i>Paspalum laeve</i> Michaux (Paspalum grass)				**		
<i>P. setaceum</i> Michaux (Paspalum grass)				**		
<i>Phleum pratense</i> L. (Timothy)			**			
<i>Poa palustris</i> L. (Fowl bluegrass)				**		
<i>P. sylvestris</i> Gray (?) (Blue grass)			**			
<i>Setaria viridis</i> (L.) Beauvois (Foxtail grass)			**	**		

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POACEAE CONT.						
<i>Sorghastrum nutans</i> (L.) Nash (Indian grass)			**			
<i>Tridens flavus</i> (L.) Hitchcock var. <i>flavus</i> (Purple top)			*	*		
XYRIDACEAE (Yellow-eyed grass family)						
<i>Xyris torta</i> Smith (Yellow-eyed grass)		**	**	**		
<u>ANGIOSPERMS - DICOTS</u>						
ACERACEAE (Maple family)						
<i>Acer pensylvanicum</i> L. (Striped maple)	**		**	**		Twigs, (Fl. male + female)
<i>A. rubrum</i> L. (Red maple)	**	**	**	**		Twigs, stump sprouts
<i>A. saccharum</i> Marshall (Sugar maple)	**	**		**		
<i>A. spicatum</i> Lam. (Mountain maple)			**	**		
AIZOACEAE (Mesembryanthemum family)						
<i>Mollugo verticillata</i> L. (Carpet-weed)				**		
ANACARDIACEAE (Sumac family)						
<i>Rhus copallina</i> L. (Winged sumac)		**		**		Young shoots
<i>R. glabra</i> L. (Smooth sumac)				**		Young shoot
<i>R. radicans</i> L. (Poison ivy)			**	**		Twigs, young shoots
<i>R. vernix</i> L. (Poison sumac, Poison ash)				**		(Fr. young)
APIACEAE (Parsley family)						
<i>Angelica triquinata</i> Michaux (Angelica)		**	**	**		(Fr. young)
<i>A. venenosa</i> (Greenway) Fernald (Angelica)			**			
<i>Cryptotaenia canadensis</i> (L.) DC. (Honewort)			**	**		(Fr. young)
<i>Daucus carota</i> L. (Wild carrot, Queen Anne's lace)	**	**	**	**	**	
<i>Osmorhiza claytonii</i> (Michaux) Clarke (Sweet Cicely, Anise-root)				**		
<i>Oxypolis rigidior</i> (L.) Raf. (Cowbane, Water-dropwort)			**	*		

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APIACEAE CONT.						
<i>Sanicula gregaria</i> Bicknell (Sanicle, Snakeroot)			**	**		Young fruit
<i>S. marilandica</i> (Sanicle, Snakeroot)				**		
<i>Thaspium barbinode</i> (Michaux) Nuttall (Meadow parsnip)			**	**		
<i>Zizia aptera</i> (Gray) Fernald (Meadow parsnip)			**	**		
APOCYNACEAE (Dogbane family)						
<i>Apocynum cannabinum</i> L. (Indian hemp)			**			Young shoots
<i>Vinca minor</i> L. (Periwinkle)			**			
AQUIFOLIACEAE (Holly family)						
<i>Ilex ambigua</i> (Michaux) Torrey var. <i>montana</i> (T. & G.) Ahles (Mt. holly, Mt. winterberry)			**	*		Twigs, young shoots
<i>I. opaca</i> Aiton (American holly)	*		**			
ARALIACEAE (Ginseng family)						
<i>Aralia nudicaulis</i> L. (Wild sarsaparilla)		**	**			
<i>A. racemosa</i> L. (Spikenard)		**	**			
<i>A. spinosa</i> L. (Hercules club, Devil's walkingstick)		**				Leaf portion
<i>Panax quinquefolium</i> L. (Ginseng)		**				1 mature "3 prong"
ARISTOLOCHIACEAE (Pipevine family)						
<i>Aristolochia macrophylla</i> Lam. (Dutchman's pipe)	**		**	**		(Fr. young)
<i>Hexastylis virginica</i> (L.) Small (Heart leaf, Wild ginger)	**	**	**			
ASCLEPIADACEAE (Milkweed family)						
<i>Asclepias exaltata</i> L. (Poke milkweed)			**	**		Young shoots
<i>A. incarnata</i> L. ssp. <i>pulchra</i> (Willd.) Woodson (Swamp milkweed)			**			
<i>A. quadrifolia</i> Jacquin (Milkweed)			**			
<i>A. tuberosa</i> L. (Butterfly weed, Chigger weed)			**	**		

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ASTERACEAE (Aster family)						
<i>Achillea millefolium</i> L. (Milfoil, Yarrow)		**	**			
<i>Ambrosia artemisiifolia</i> L. (Ragweed)	**	**	**			
<i>Antennaria plantaginifolia</i> (L.) Richardson (Pussy-toes)				**	**	Stolons
<i>A. solitaria</i> Rydberg (Pussy-toes)				**	**	Stolons
<i>Aster cordifolius</i> L. (Heart-leaved aster)			**			Resprouted flower
<i>A. curtisii</i> T. & G. (Aster)			*	**		
<i>A. divaricatus</i> L. var. <i>chlorolepis</i> (Burgess) Ahles (Heart-leaved aster)			**	*		
<i>A. divaricatus</i> L. var. <i>divaricatus</i> (Heart-leaved aster)			**	**		
<i>A. dumosus</i> L. (Blue aster)			**			
<i>A. infirmis</i> Michaux (Aster)			**	**		
<i>A. lateriflorus</i> (L.) Britton (Starved aster)			**	**		
<i>A. macrophyllus</i> L. (Aster)			**	**		
<i>A. patens</i> Aiton (Aster)			**	**		(Fr. immature)
<i>A. paternus</i> Cronquist (White topped aster)			**	**		
<i>A. pilosus</i> Willd. (Frost aster)			**			Dwarf specimen
<i>A. puniceus</i> L. (Blue aster)	**	**	**		**	
<i>A. umbellatus</i> Miller var. <i>umbellatus</i> (Aster)			**	**		
<i>A. undulatus</i> L. (Blue aster)			**			
<i>Bidens bipinnata</i> L. (Spanish needles)	**	**	**	**		
<i>B. frondosa</i> L. (Beggars ticks)	**	*	**	**		
<i>Cacalia atriplicifolia</i> L. (Pale Indian-plantain)			**	**	**	
<i>C. muhlbergii</i> (Sch.-Bip.) Fernald (Great Indian-plantain)					**	(½ leaf)
<i>Carduus discolor</i> (Muhl. ex. Willd.) Nuttall (Thistle)			*	**	**	
<i>C. lanceolatus</i> L. (Bull thistle)			**	**		

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ASTERACEAE CONT.						
<i>Chrysanthemum leucanthemum</i> L. (Ox-eye daisy)	*	**	**		**	
<i>Coreopsis major</i> Walter var. <i>stellata</i> (Nuttall) Robinson (Coreopsis)			**			
<i>Coreopsis pubescens</i> Ell. (Coreopsis)			**		**	
<i>Elephantopus carolinianus</i> Willd. (Elephant's foot)				**		
<i>Erechtites hieracifolia</i> (L.) Raf. (Fireweed)			**	**		
<i>Erigeron annuus</i> (L.) Persoon (Daisy fleabane)		**	**	**		
<i>E. canadensis</i> L. (Horseweed, Hogweed, Butterweed)			**	**		
<i>E. pulchellus</i> Michaux (Robin's plantain)		**	**	**	**	
<i>E. strigosus</i> Muhl. ex. Willd. (Daisy fleabane)			**			
<i>Eupatorium album</i> L. (Thoroughwort)				**		
<i>E. aromaticum</i> L. (Thoroughwort)			**			
<i>E. coelestinum</i> L. (Ageratum, Mistflower)			**			
<i>E. fistulosum</i> L. (Queen-of-the-meadow, Joe-Pye weed)			**			
<i>E. perfoliatum</i> L. (Boneset)			**	**		
<i>E. purpureum</i> L. (Thoroughwort)			**	**		
<i>E. rugosum</i> Houttuyn (Thoroughwort)	**	**	**	**		
<i>Galinsoga ciliata</i> (Raf.) Blake (Peruvian daisy)	**		**			
<i>Gnaphalium obtusifolium</i> L. (Rabbit tobacco, Everlasting)			**	**	**	
<i>Helenium autumnale</i> L. (Sneeze-weed)			**	**		(Fr. young)
<i>Helianthus atrorubens</i> L. (Sunflower)			**	**	**	
<i>H. microcephalus</i> T. & G. (Coneflower)			**	**		
<i>H. strumosus</i> L. (Sunflower)		**	**	**		
<i>Heterotheca mariana</i> (L.) Shinnars (Golden aster)			**	**	**	
<i>Hieracium paniculatum</i> L. (Hawkweed)			**	**	*	

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ASTERACEAE CONT.						
<i>Hieraceum pratense</i> Tausch (King devil)		**	**	**	**	
<i>H. venosum</i> L. (Rattlesnake weed)		**	**	**	**	
<i>Krigia montana</i> (Michaux) Nuttall (Blue Ridge dwarf dandelion)		**	**	**	**	
<i>K. virginica</i> (L.) Willd. (Dwarf dandelion)			**	**	**	
<i>Lactuca canadensis</i> L. (Wild lettuce)			**	**		
<i>Liatris squarrosa</i> (L.) Michaux (Blazing star)			**	**	**	Corm
<i>Polymnia wedalia</i> L. (Bearsfoot)				**		
<i>Prenanthes roanensis</i> (Chickering) Chickering (Roan rattlesnake)			**	**		
<i>P. trifoliolata</i> (Cassini) Fernald (Rattlesnake weed, Gall-of-the-earth)			*	**	**	
<i>Pyrrhopappus carolinianus</i> (Walter) DC. (Goat rue)			**	**		
<i>Rudbeckia hirta</i> L. (Black-eyed Susan)			**			
<i>R. laciniata</i> L. (Coneflower)			**	**	**	(Fr. young)
<i>Senecio smallii</i> Britton (Ragwort)			**	**	**	
<i>Silphium compositum</i> Michaux (Rosin weed)			**		**	(Fl. buds only)
<i>Solidago bicolor</i> L. (White goldenrod, Silverrod)			**	**		
<i>S. caesia</i> T. & G. (Goldenrod)			**	**		
<i>S. curtisii</i> T. & G. var. <i>curtisii</i> (Goldenrod)			**	**		
<i>S. elliotii</i> T. & G. (Goldenrod)			*	*		
<i>S. erecta</i> Pursh (Goldenrod)			**	**		
<i>S. gigantea</i> Aiton (Goldenrod)			*	*		
<i>S. nemoralis</i> Aiton (Goldenrod)			**			
<i>S. odora</i> Aiton (Goldenrod)			**			
<i>S. petiolaris</i> Aiton (Goldenrod)			*	*		
<i>S. roanensis</i> Porter (Goldenrod)			*			(Depauperate)

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ASTERACEAE CONT.						
<i>Solidago rugosa</i> Miller var. <i>rugosa</i> (Goldenrod)			**			
<i>S. uliginosa</i> Nuttall (Goldenrod)			**	**		
<i>Taraxacum officinale</i> Wiggers (Common dandelion)			**	**	**	
BALSAMINACEAE (Touch-me-not family)						
<i>Impatiens capensis</i> Meerb. (Spotted touch-me-not, Jewel-weed)	**		**	**		
<i>I. pallida</i> Nuttall (Pale jewel-weed, Touch-me-not)	**		**	**		
BERBERIDACEAE (Barberry family)						
<i>Berberis thunbergii</i> DC. (Japanese barberry)			**			
<i>Caulophyllum thalictroides</i> (L.) Michaux (Blue cohosh, Papoose-root)			**	**		Young shoots
<i>Diphylleia cymosa</i> Michaux (Umbrella-leaf)	**	**	**	**		
<i>Mahonia bealei</i> Carr. (Oregon grape)						Shoot
<i>Podophyllum peltatum</i> L. (May apple)		**	**	**		(Fr. young and mature)
BETULACEAE (Birch family)						
<i>Alnus serrulata</i> (Aiton) Willd. (Tag alder)			**	**		(Fl. male + female)
<i>Betula lenta</i> L. (Sweet birch)	**	**	**	**		Twigs
<i>B. lutea</i> Michaux f. (= <i>B. allegheniensis</i> Britton) (Yellow birch)			**	**		Twigs, bark
<i>Carpinus caroliniana</i> Walter (Ironwood, American hornbeam, Musclewood)	**	**	**	**		Twigs
BRASSICACEAE (Mustard family)						
<i>Arabis thaliana</i> (L.) Heynhold (Mouse-ear cress)				**	**	
<i>Arabis canadensis</i> L. (Rockcress)				**	**	
<i>A. laevigata</i> (Muhl. ex Willd.) Poiret var. <i>laevigata</i> (Rockcress)			**			
<i>Barbarea verna</i> (Miller) Ascherson (Winter cress, Cressy greens)				**		
<i>B. vulgaris</i> var. <i>arcuata</i> (Opiz.) Fries (Winter cress)			**		**	
<i>Cardamine clematitis</i> Shuttlew. (Bitter cress)		**	**	**	**	

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BRASSICACEAE CONT.						
<i>Cardamine diphylla</i> (Michaux) Wood (Toothwort, Branch mustard)			**	**		
<i>C. hirsuta</i> L. (Winter cress)		**	**	**	**	
<i>Lepidium campestre</i> (L.) R. Brown (Cow cress)			**	**		Small to large specimens
CALYCANTHACEAE (Calycanthus family)						
<i>Calycanthus floridus</i> var. <i>laevigatus</i> (Willd.) T. & G.- (Sweet-shrub, Spicebush)	*		**	**		Twig
CAMPANULACEAE (Bluebell family)						
<i>Campanula divaricata</i> Michaux (Bluebell)			**	**		
<i>Lobelia amoena</i> Michaux (Lobelia)			**	**		
<i>L. inflata</i> L. (Indian tobacco)			**	*		(One dwarfed)
<i>L. puberula</i> Michaux (Lobelia)			**			
<i>L. siphilitica</i> L. (Great lobelia)			**	**		(One dwarfed)
<i>L. spicata</i> Lam. (Indian tobacco)			**		**	
<i>Specularia perfoliata</i> (L.) A. DC. (Venus' looking-glass)			**	**		
CAPRIFOLIACEAE (Honeysuckle family)						
<i>Diervilla sessilifolia</i> Buckley (Bush-honeysuckle)			**	**		Twigs, young leaves
<i>Lonicera japonica</i> Thunberg (Japanese honeysuckle)			**	**		Twigs, red form flower
<i>Sambucus canadensis</i> L. (Elderberry)			**	**		
<i>S. pubens</i> Michaux (Red elderberry)				**		
<i>Symphoricarpos orbiculatus</i> Moench (Coral-berry, Indian current)			**	**		Twig
<i>Triosteum perfoliatum</i> L. (Horse gentian)			**	**		(Fr. immature)
<i>Viburnum acerifolium</i> L. (Maple-leaved viburnum)		**	**	**		
<i>V. cassinoides</i> L. (Witherod)				**		Twig, vegetative shoot
<i>V. nudum</i> L. (Possum-haw, Swamp-haw)						Leafy twig

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CARYOPHYLLACEAE (Pink family)						
<i>Cerastium holosteoides</i> var. <i>vulgare</i> (Hartman) Hylander- (Mouse-ear chickweed)			**	**	**	
<i>Dianthus armeria</i> L. (Garden pink)			**	**	**	
<i>Saponaria officinalis</i> L. (Soapwort, Bouncing bet)		**	**	**	**	
<i>Silene antirrhina</i> L. (Sleepy catchfly)			**	**		
<i>S. ovata</i> Pursh (Campion)			**			
<i>S. stellata</i> (L.) Aiton f. (Starry campion)			**	**		
<i>S. virginica</i> L. (Fire pink)			**	**	*	
<i>Stellaria pubera</i> Michaux (Giant chickweed)			**	**		Stolons
CELASTRACEAE (Staff-tree family)						
<i>Euonymus americanus</i> L. (Strawberry bush, "Heart's-a-bustin")			**	**		Twigs, rooted layers
<i>E. fortunei</i> Hand.-Mazz. (Spindle tree)						Sterile shoots with roots
CISTACEAE (Rockrose family)						
<i>Lechea racemulosa</i> Michaux (Pin-weed)			**	**		
CLETHRACEAE (White alder family)						
<i>Clethra acuminata</i> Michaux (Sweet pepperbush)			**	**		Twigs (Fr. young)
CONVOVULACEAE (Bindweed family)						
<i>Calystegia sericata</i> (House) Bell (Bindweed)		**	**			
<i>Convolvulus arvensis</i> L. (Bindweed)			**			
<i>Cuscuta compacta</i> Jussieu (Compact dodder)			**			
<i>C. gronovii</i> Willd. ex R. & S. (Dodder)			**			
<i>C. rostrata</i> Shuttlew. ex Englem. (Dodder)			**	**		
<i>Ipomoea pandurata</i> (L.) G.F.W. Meyer (Man-root)		**	**	*		
CORNACEAE (Dogwood family)						
<i>Cornus alternifolia</i> L. (Alternate-leaved dogwood)			**			Twigs, layered stem

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CORNACEAE CONT.						
<i>Cornus amomum</i> Miller (Swamp dogwood)						Leaves, rooted branches
<i>C. florida</i> L. (Flowering dogwood)	*	**	**	**		
DIAPENSIACEAE (Diapensia family)						
<i>Galax aphylla</i> L. (Galax)		**	**	**	**	
EBENACEAE (Ebony family)						
<i>Diospyros virginiana</i> L. (Persimmon)			**	**		Twigs (Fr.=seeds, calyx)
ERICACEAE (Heath family)						
<i>Chimaphilia maculata</i> (L.) Pursh (Spotted wintergreen, pipsissewa)		**	**	**		
<i>Epigaea repens</i> Michaux (Trailing arbutus)		**	**	**		
<i>Gaylussacia baccata</i> (Wang.) K. Koch (Black huckleberry, Dangleberry)			**	**		Twigs, fall leaves
<i>G. ursina</i> (M.A. Curtis) T. & G. ex Gray (Huckleberry, Buckberry)			**	**		
<i>Kalmia latifolia</i> L. (Mountain laurel)		**	**	**		
<i>Leucothoe axillaris</i> (Lam.) D. Don var. <i>editorum</i> (Fernald S. Schubert) Ahles-(Doghobble)			**	**		Layered branch
<i>L. recurva</i> (Buckley) Gray (Fetter-bush)			**	**		
<i>Lyonia ligustrina</i> (L.) DC. (Male-blueberry, Male-berry)			**	**		Twigs
<i>Menziesia pilosa</i> (Michaux) Jussieu (Minnie bush)			**	**		Twigs
<i>Monotropa uniflora</i> L. (Indian pipe)			**	**		
<i>Oxydendrum arboreum</i> (L.) DC. (Sourwood)		**	**	**		Twigs, stump sprout
<i>Rhododendron calendulaceum</i> (Michaux) Torrey (Flame azalea)			**	**		Twigs
<i>R. catawbiense</i> Michaux (Mt. rosebay, Purple laurel)			**	**		
<i>R. maximum</i> L. (Rosebay, Great laurel)		**	**	**		
<i>Vaccinium constablaei</i> Gray (= <i>V. corymbosum</i> Gray)- (Highbush blueberry)			**	**		Twigs
<i>V. constablaei</i> Gray (= <i>V. simulatum</i> ) (Highbush blueberry)						Sterile shoots
<i>V. erythrocarpum</i> Michaux (Bearberry)			**			

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ERICACEAE CONT.						
<i>Vaccinium stamineum</i> L. (Squaw huckleberry)			**	**		Twigs
<i>V. vacillans</i> Torrey (Lowbush blueberry)			**	**		Twigs
EUPHORBIACEAE (Spurge family)						
<i>Acalypha rhomboidea</i> Raf. (Three-sided mercury)				**		
<i>A. virginica</i> L. (Three-seeded mercury)			**			
<i>Euphorbia corollata</i> L. var. <i>corollata</i> (Three-seeded mercury)			**			
<i>E. corollata</i> L. var. <i>zinniflora</i> (Small) Ahles (Flowering spurge, Tramps, Spurge)			**			Root sprouts
<i>E. maculata</i> L. (Flowering spurge)			**	**		
FABACEAE (Bean family)						
<i>Ampicarpa bracteata</i> (L.) Fernald (Hog peanut)		**	**			Storage roots
<i>Baptisia tinctoria</i> (L.) R. Brown (Wild indigo)			**	**		Young shoots
<i>Cassia fasciculata</i> Michaux (Partridge pea)		**	**	**		
<i>C. hebecarpa</i> Fernald (Wild senna)			**	**		
<i>Desmodium nudiflorum</i> (L.) DC. (Beggar's lice, Beggar's ticks)		**	**	**		(Fl. in bud)
<i>Lathyrus latifolius</i> L. (Everlasting pea)			**	**		Young shoots
<i>Lespedeza cuneata</i> (Dumont) G. Don (Sericea lespedeza)	**	**	**	**		
<i>L. intermedia</i> (Watson) Britton (Lespedeza)			*	*		
<i>L. violacea</i> (L.) Persoon (Lespedeza)			**			
<i>Melilotus officinalis</i> (L.) Lam. (Yellow sweet clover)		**	**	**		
<i>Robinia pseudo-acacia</i> L. (Black locust)	**	*	**			Twigs, stump sprouts
<i>Schrankia microphylla</i> (Solander ex Smith) Macbride- (Sensitive briar)			**	**		
<i>Stylosanthes biflora</i> (L.) BSP. (Pencil flower)			**			
<i>Tephrosia virginiana</i> (L.) Persoon (Goat's rue)				**		(Fr. young)
<i>Thermopsis villosa</i> (Walter) Fernald & Schubert- (Bush pea)	**	**	**	**		Winter sprouts

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FABACEAE CONT.						
<i>Trifolium pratense</i> L. (Red clover)			**			
<i>T. campestre</i> Schreber (Hop clover)			**	**		
<i>T. repens</i> L. (White clover, Ladino clover)			**	**		
<i>Vicia angustifolia</i> Reichard (Common vetch)		**	**	**		
<i>V. caroliniana</i> Walter (Vetch)		**	**	**		
FAGACEAE (Beech family)						
<i>Castanea dentata</i> (Marsh) Borkh. (American chestnut)			**	**		Twigs, stump sprouts
<i>C. mollissima</i> Blume (Chinese chestnut)		**	**			Twigs
<i>C. pumila</i> (L.) Miller (Chinquapin)		**		**		Twigs, stump sprouts
<i>Fagus grandifolia</i> Erhart (Beech)	**	**		**		Twigs
<i>Quercus alba</i> L. (White oak)	**	**	**	*		
<i>Q. coccinea</i> Muenchh. (Scarlet oak)	*	**	**	**		Stump sprout
<i>Q. falcata</i> Michaux (Spanish oak, Southern red oak)		**	**	**		Juvenile shoot
<i>Q. imbricaria</i> Michaux (Shingle oak)						Twigs, leafy branch
<i>Q. marilandica</i> Muenchh. (Black jack oak)		**	**	**		Stump sprout
<i>Q. prinus</i> L. (Rock chestnut oak)		**	**	**		Twigs, stump sprouts
<i>Q. rubra</i> L. var. <i>rubra</i> (Red oak)		**		**		Twigs, stump sprouts
<i>Q. rubra</i> var. <i>borealis</i> (Michaux f.) Farwell (Northern red oak)		**	**	**		
<i>Q. velutina</i> Lam. (Black oak)		**				(Leaves sun & shade types)
FUMARIACEAE (Fumitory family)						
<i>Corydalis sempervirens</i> (L.) Persoon (Pale corydalis)	**	*	**	**		
<i>Dicentra canadensis</i> (Goldie) Walpers (Squirrel corn)		**	**			
<i>D. cucullaria</i> (L.) Bernh. (Dutchman breeches)						Cladophylls

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GENTIANACEAE (Gentian family)						
<i>Gentiana decora</i> Pollard (Closed gentian)			**			
<i>G. quinquefolia</i> L. (Ague-weed)			**			
<i>G. saponaria</i> L. (Gentian)			**			
<i>Sabatia angularis</i> (L.) Pursh (Rose pink, Bitter-bloom)			**	**		
GERANIACEAE (Geranium family)						
<i>Geranium carolinianum</i> L. (Cranesbill)			**	**		
HAMAMELIDACEAE (Witch-hazel family)						
<i>Hamamelis virginiana</i> L. (Witch-hazel)		**	**	**		Twigs
HIPPOCASTANACEAE (Buckeye family)						
<i>Aesculus octandra</i> Marshall (Buckeye)	**	**	**	**		Twigs, young leaves
HYDROPHYLLACEAE (Waterleaf family)						
<i>Hydrophyllum canadense</i> L. (Water leaf)	*	**	**	**	**	
HYPERICACEAE (St. John's wort family)						
<i>Hypericum buckleyi</i> M.A. Curtis (St. John's wort)			**	**		Young shoots
<i>H. gentianoides</i> (L.) BSP. (Pineweed)			*	**		
<i>H. mutilum</i> L. (St. John's wort)		**	**	**	**	
<i>H. punctatum</i> Lam. (St. John's wort)			**	**	**	
<i>H. stragalum</i> P. Adams & Robson (St. John's wort)			**	**		
JUGLANDACEAE (Walnut family)						
<i>Carya glabra</i> (Miller) Sweet (Pignut hickory)		**		**		Twigs
<i>C. ovalis</i> (Wang.) Sargent (Sweet pignut hickory)			**	**		
<i>C. pallida</i> (Ashe) Engler & Graebner (Pale hickory)		**	**	**		
<i>C. tomentosa</i> (Poiret) Nuttall (Mockernut hickory)			**	**		Young shoots

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JUGLANDACEAE CONT.						
<i>Juglans cinerea</i> L. (Butternut, White walnut)			**	**		Twigs
<i>J. nigra</i> L. (Black walnut)			**	**		Twigs
LAMIACEAE (Mint family)						
<i>Collinsonia canadensis</i> L. (Horsebalm)			**	**		Young shoots
<i>Dracocephalum virginianum</i> L. (Obedient plant)		**	**			
<i>Glechoma hederacea</i> L. (Ground ivy)			**	**		
<i>Monarda clinopodia</i> L. (Lemon-mint)			**	**		
<i>M. didyma</i> L. (Bee-balm, Oswego tea)		**	**			
<i>Prunella vulgaris</i> L. (Self-heal)			**	**	**	
<i>Pycnanthemum incanum</i> (L.) Michaux (Mountain mint)			**	**		Young shoots
<i>P. montanum</i> Michaux (Mountain mint)			**	**		Young shoots
<i>P. tenuifolium</i> Schrader (Mountain mint)			**			
<i>Salvia lyrata</i> L. (Sage)		**	**	**	**	
<i>Scutellaria elliptica</i> Muhl. (Skullcap)			**			
<i>S. incana</i> Biehler (Skullcap)			**	**		
<i>Stachys latidens</i> Small (Hedge nettle)			**			
<i>S. tenuifolia</i> Willd. (Hedge nettle)			**	**		
<i>Trichostema dichotomum</i> L. (Blue curls)	**		**			
LAURACEAE (Laurel family)						
<i>Lindera benzoin</i> (L.) Blume (Spicebush)		**	**	**		Twigs
<i>Sassafras albidum</i> (Nuttall) Nees (Sassafras)		**	**	**		Twigs, (Fr. calyx only)
LINACEAE (Flax family)						
<i>Linum striatum</i> Walter (Flax)			**	**		

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LORANTHACEAE (Mistletoe family)						
<i>Phoradendron flavescens</i> (Raf.) M.C. Johnston (Mistletoe)					**	
MAGNOLIACEAE (Magnolia family)						
<i>Liriodendron tulipifera</i> L. (Tulip poplar)	**	**	**	**		Twigs, stump sprouts
<i>Magnolia acuminata</i> L. (Cucumber tree, Umbrella tree)		**	**	**		Stump sprouts
<i>M. fraseri</i> Walter (Umbrella tree)		**	**	**		Twigs
MELASTOMATACEAE (Melastoma family)						
<i>Rhexia virginica</i> L. var. <i>virginica</i> (Meadow beauty)			**		**	
NYSSACEAE (Sour gum family)						
<i>Nyssa sylvatica</i> Marshall (Black gum)		**	**	**		Stump sprouts
OLEACEAE (Olive family)						
<i>Chionanthus virginicus</i> L. (Fringe-tree)			**	**		Twigs, young shoots
<i>Forsythia viridissima</i> Lindl. (Forsythia, Yellow-bells)			**	**		
<i>Fraxinus americana</i> L. (American ash, White ash)			**	**		Twigs, (Fl. m + f.) young shoots
<i>F. americana</i> L. var. <i>biltmoreana</i> (Beadle) J. Wright ex Fernald- (American or White ash)						Twigs, leafy branch
<i>Ligustrum sinense</i> L. (Privet)			**	**		
ONAGRACEAE (Evening primrose family)						
<i>Circaea lutetiana</i> ssp. <i>canadensis</i> (L.) Magnus Ascherson- (Enchanter's nightshade)			**	**		
<i>Epilobium coloratum</i> Biehler (Willowherb)			**	**		
<i>Ludwigia alternifolia</i> L. (Seed-box)			**	**		
<i>L. palustris</i> (L.) Ell. (Water purslane)			**			Young shoots
<i>Oenothera biennis</i> L. (Evening primrose)			**	**	**	
<i>O. tetragona</i> Roth (Sundrops)			**	**	**	
OROBANCHACEAE (Broom-rape family)						
<i>Conopholis americana</i> (L.) Wallroth (Squawroot, Cancer-root)			**	**		

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OROBANCHACEAE CONT.						
<i>Epifagus virginiana</i> (L.) Barton (Beech-drops)				**		
<i>Orobanche uniflora</i> L. (One-flowered cancer root)			**			
OXALIDACEAE (Wood sorrel family)						
<i>Oxalis grandis</i> Small (Wood sorrel, Lady's sorrel)			**	**		
<i>O. stricta</i> L. (Wood sorrel)		**	**	**		
<i>O. violacea</i> L. (Violet wood sorrel)			**			
PAPAVERACEAE (Poppy family)						
<i>Sanguinaria canadensis</i> L. (Bloodroot)		**	**			(Fr. young)
PHRYMACEAE (Lopseed family)						
<i>Phyrma leptostachya</i> L. (Lopseed)		**	**			
PHYTOLACCACEAE (Pokeberry family)						
<i>Phytolacca americana</i> L. (Poke, Pokeweed)	**	**	**	**		
PLANTAGINACEAE (Plantain family)						
<i>Plantago lanceolata</i> L. (English plantain)		**	**	**	**	
<i>P. major</i> L. (Plantain)	**	**	**	**	**	
<i>P. virginica</i> L. (Plantain)			**	**	**	
PLATANACEAE (Sycamore family)						
<i>Platanus occidentalis</i> L. (Sycamore)		**		**		Twigs, winter lvs. (Fl. m + f)
POLEMONIACEAE (Polemonium family)						
<i>Phlox caroliniana</i> L. (Phlox)			**	**		
POLYGALACEAE (Milkwort family)						
<i>Polygala curtisii</i> Gray (Polygala)			**	**		
<i>P. sanguinea</i> L. (Milkwort)			**	**		
<i>P. verticillata</i> L. var. <i>verticillata</i> (Milkwort)			**	**		

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POLYGONACEAE (Smartweed family)						
<i>Polygonum cespitosum</i> var. <i>longisetum</i> (DeBruyn) Stewart- (Smartweed)	**	**	**	**		
<i>P. pennsylvanicum</i> L. (Smartweed)			**	**		
<i>P. sagittatum</i> L. (Tearthumb)			**	**		
<i>P. scandens</i> L. var. <i>cristatum</i> (Engelm. & Gray) Gleason- (Climbing buckwheat)			**	**		
<i>P. scandens</i> L. var. <i>scandens</i> (Climbing buckwheat)				**		
<i>P. tenue</i> Michaux (Knotweed)			**	**		
<i>Rumex acetosella</i> L. (Sheep-sorrel, Sour-grass)		**	**		**	
<i>R. crispus</i> L. (Dock, Curly dock)			**	**		
<i>R. obtusifolius</i> L. (Blunt-leaved dock)			**	**	**	
<i>Tovaria virginiana</i> (L.) Raf. (Jumpseed)			**	**		
PORTULACACEAE (Portulacca family)						
<i>Claytonia virginica</i> L. (Spring beauty)		**	**	**		
PRIMULACEAE (Primrose family)						
<i>Lysimachia lanceolata</i> Walter var. <i>lanceolata</i> (Fringed loosestrife)			**	**		
<i>L. quadrifolia</i> L. (Whorled loosestrife)			**	**		Root sprouts
RANUNCULACEAE (Buttercup family)						
<i>Aconitum reclinatum</i> Gray (Wolfsbane)			**			
<i>A. uncinatum</i> L. (Monkshood)		**	**	**		
<i>Actaea pachypoda</i> Ell. (Baneberry, Little doll's eyes)			**	**		
<i>Anemone quinquefolia</i> Linnaeus (Thimbleweed)		**	**			
<i>A. virginiana</i> L. (Thimbleweed)			**	**		
<i>Cimicifuga americana</i> Michaux (Bugbane)			**	**		
<i>C. racemosa</i> Nuttall (Black cohosh)			**			
<i>Clematis virginiana</i> L. (Virgin's bower)			**	**		Young shoot, young fruit

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RANUNCULACEAE CONT.						
<i>Hepatica acutiloba</i> DC. (Liverleaf)		**	**	**		
<i>Ranunculus allegheniensis</i> Britton (Buttercup)			**	**		
<i>R. hispidus</i> Michaux (Buttercup)		**	**	**		
<i>R. recurvatus</i> Poiret (Buttercup)		**	**	**		
<i>Thalictrum clavatum</i> DC. (Meadow rue)	**	**	**	**		(Fr. immature)
<i>T. coriaceum</i> (Britton) Small (Meadow rue)				**		(Fr. immature)
<i>T. dioicum</i> L. (Meadow rue)		**	**			(Fl. male + female)
<i>T. polygamum</i> Muhl. (Meadow rue)			**			(Fl. female)
<i>T. thalictroides</i> (L.) Boivin (Windflower, Rue anemone)	**	**	**	**		
<i>Trautvetteria carolinensis</i> (Walter) Vail (Tassel-rue)		**	**	**		
<i>Xanthorrhiza simplicissima</i> Marshall (Yellow-root)			**	**		
RHAMNACEAE (Buckthorn family)						
<i>Ceanothus americanus</i> L. (New Jersey tea)			**	**		
ROSACEAE (Rose family)						
<i>Agrimonia parviflora</i> Aiton (Agrimony, Cocklebur, Harvest-lice)			**	**		(Fr. young)
<i>A. pubescens</i> Wallroth var. <i>microcarpa</i> (Wallroth) Ahles- (Agrimony, Harvest-lice)				*		(Fr. young)
<i>A. rostellata</i> Wallroth (Agrimony, Cocklebur, Harvest-lice)			**	**		(Fr. young)
<i>Amelanchier arborea</i> (Michaux f.) Fernald (Shadbush, Serviceberry)	**	**	**	**		(Fr. young) Twigs Stump sprouts
<i>Aruncus dioicus</i> (Walter) Fernald (Goat's-beard)			**	**		(+ old male Fl.)
<i>Crataegus flabellata</i> (Bosc) K. Koch (Hawthorn)						Leafy branch
<i>Duchesnea indica</i> (Andrz.) Focke (Indian strawberry, Mock strawberry)				**		
<i>Fragaria virginiana</i> Duchesne (Wild strawberry)			**	**	**	
<i>Geum virginianum</i> L. (Avens)		**	**	**	**	
<i>Gillenia trifoliata</i> (L.) Moench (Indian-physic)	**	**	**	**		

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ROSACEAE CONT.						
<i>Kerria japonica</i> DC. var. <i>planiflora</i> Witte (Globeflower)				**		Twigs (Fl. sterile)
<i>Malus angustifolia</i> (Aiton) Michaux (Crabapple)			**	**		Twigs
<i>M. pumila</i> Miller (Common apple)			**	**		Twigs (Fr. sections)
<i>Physocarpus opulifolius</i> (L.) Maxim. (Ninebark)			**			
<i>Potentilla canadensis</i> L. (Five-fingers)			**	*	**	
<i>P. tridentata</i> Aiton (Three-toothed cinquefoil)			**	**	**	
<i>Prunus angustifolia</i> Marshall (Chickasaw plum)			**			
<i>P. pensylvanica</i> L. (Fire cherry, Pin cherry)			**			
<i>P. persica</i> (L.) Batsch (Peach)			**			
<i>P. serotina</i> Erhart (Black cherry)						Twigs, young + leafy shoots
<i>Rosa caroliniana</i> L. (Wild rose)			**	**		
<i>R. multiflora</i> Thunberg (Multiflora rose)		**	**	**		Twigs
<i>R. palustris</i> Marshall (Swamp rose)			**	**		
<i>Rubus allegheniensis</i> Porter (Blackberry)			**	**		Primocanes, twigs
<i>R. argutus</i> Link (Blackberry)			**	**		Primocanes
<i>R. canadensis</i> L. (Blackberry)			**	**		Twigs, primocanes
<i>R. flagellaris</i> Willd. (Dewberry)			**	**		Primocanes
<i>R. hispida</i> L. (Dewberry)			**	**		Overwinter shts. primocanes
<i>R. occidentalis</i> (Black-cap, Black raspberry)			**	**		Primocanes
<i>R. odoratus</i> L. (Flowering raspberry)			**	**		
<i>Sorbus americana</i> Marshall (Mountain ash)		**				Leafy shoot
<i>S. arbutifolia</i> (L.) Heynhold var. <i>arbutifolia</i> (Red chokeberry)			**	**		(Fr. young)
<i>S. melanocarpa</i> (Michaux) Schneider (Black chokeberry)			**	**		Root sprout, young fruit
<i>Spirea henryi</i> Hensl. (Spirea)			**	**		Twigs breaking dormacy

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RUBIACEAE (Madder family)						
<i>Diodia teres</i> Walter (Buttonweed)	**	**	**	**		
<i>Galium aparine</i> L. (Bedstraw)			**	**		
<i>G. circaezans</i> Michaux (Wild licorice)		**	*	**		
<i>G. latifolium</i> Michaux (Bedstraw)		**	**	*		
<i>G. pilosum</i> Aiton (Bedstraw)			**	*		
<i>G. tinctorium</i> L. (Bedstraw, Galium)			**	*		
<i>G. triflorum</i> Michaux (Bedstraw)			**	**		Early shoots
<i>Houstonia caerulea</i> L. (Bluets)			**		**	
<i>H. purpurea</i> L. (Purple bluet)			**	**	**	
<i>H. serpyllifolia</i> Michaux (Bluet, Quaker ladies)			**	**		
<i>H. tenuifolia</i> Nuttall (Purple bluet)			**	**	**	
<i>Mitchella repens</i> L. (Partridge berry)				**		Trailing shoots
SALICACEAE (Willow family)						
<i>Populus cf. candicans</i> Ait. (Balm-of-Gilead)						Twigs, young and leafy shoots
<i>P. nigra</i> L. (Black poplar)						Twigs, leafy shoots
<i>Salix humilus</i> Marshall (Small pussy willow)			**	**		Leafy branch (Fl. m. + f.)
<i>S. nigra</i> Marshall (Black willow)			**			Twigs, (Fl. male + female)
<i>S. sericea</i> Marshall (Silky willow)		**	**	**		Twigs, (Fl. male + female)
SANTALACEAE (Sandalwood family)						
<i>Pyrularia pubera</i> Michaux (Buffalo nut)		**	**	**		Twig, leafy shoot
SAXIFRAGACEAE (Saxifrage family)						
<i>Astilbe biternata</i> (Vent.) Britton (False goats beard)			**			
<i>Heuchera americana</i> L. (Alum root)		**	**		**	
<i>H. villosa</i> Michaux (Alum root)			**	**		

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SAXIFRAGACEAE CONT.						
<i>Hydrangea arborescens</i> L. (Hydrangea)		**	**	**		
<i>Parnassia asarifolia</i> Vent. (Grass of Parnassus)		**	**	**	**	
<i>Ribes cynosbati</i> L. (Dogberry)				**		Leafy shoot
<i>Saxifraga michauxii</i> Britton (Saxifrage)		**	**	**	**	
<i>S. micranthidifolia</i> (Haw.) Steudel (Branch lettuce)		**	**	**	**	
<i>Tiarella cordifolia</i> L. (Foamflower)		**	**	**	**	Stolons
SCROPHULARIACEAE (Figwort family)						
<i>Agalinis purpurea</i> (L.) Pennell (Gerardia)			**	*		
<i>A. tenuifolia</i> (Vahl) Raf. (Gerardia)			**			
<i>Aureolaria flava</i> (L.) Farwell (False foxglove)			*	**		
<i>A. laevigata</i> (Raf.) Raf. (Foxglove)			**	**		
<i>Chelone glabra</i> L. (Turtleheads)			**	**		Sun and shade leaves
<i>Melampyrum lineare</i> Desr. (Cow-wheat)			**	**		
<i>Mimulus ringens</i> L. (Monkey-face)			**	**		
<i>Paulownia tomentosa</i> (Thunberg) Steudel (Princess tree, Royal Paulownia)						Leafy twig
<i>Pedicularis canadensis</i> L. (Lousewort)		**	**	**	**	
<i>Penstemon smallii</i> Heller (Beard-tongue)			**	**	**	
<i>Verbascum thaspus</i> L. (Woolly mullein)			**	**	*	
<i>Veronica arvensis</i> L. (Speedwell)	**	**	**	**		
<i>V. officinalis</i> L. (Speedwell)			**	**		
SOLANACEAE (Nightshade family)						
<i>Physalis heterophylla</i> Nees (Ground cherry)			**	*		
<i>Solanum carolinense</i> L. (Bullnettle)			**	**		

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SYMPLOCACEAE (Sweetleaf family)						
<i>Symplocos tinctoria</i> (L.) L'Her. (Sweet leaf, Horse sugar)		**	**	**		Vegetative shoots
TILIACEAE (Linden family)						
<i>Tilia heterophylla</i> Vent (Linden, White basswood)	**		**	**		Twig, young stump sprouts
ULMACEAE (Elm family)						
<i>Celtis occidentalis</i> L. (Hackberry, Sugarberry)				**		
URTICACEAE (Nettle family)						
<i>Laportea canadensis</i> (L.) Weddell (Wood-nettle)		**	**	**		
<i>Pilea pumila</i> (L.) Gray (Clearweed)	**	**	**	**		
VERBENACEAE (Vervain family)						
<i>Verbena urticifolia</i> L. (White vervain)			**	**		
VIOLACEAE (Violet family)						
<i>Viola blanda</i> Willd. (?) (Violet)			**		**	
<i>V. canadensis</i> L. (Canada, White violet)			**			
<i>V. cucullata</i> Aiton (Blue violet)		*	**	*	**	
<i>V. emarginata</i> (Nuttall) LeConte var. <i>emarginata</i> (Blue violet)			**	**	**	
<i>V. eriocarpa</i> Schweinitz var. <i>leiocarpa</i> Fernald & Wiegand (Yellow violet)			**			
<i>V. hastata</i> Michaux (Halberd-leaved violet)			**	**		
<i>V. macloskeyi</i> var. <i>pallens</i> (Banks. ex DC.) C.L. Hitchcock (White violet)			**		**	
<i>V. palmata</i> L. var. <i>triloba</i> (Schweinitz) Ging. ex. DC. (Woolly woods violet)			**	**	**	
<i>V. papilionacea</i> Pursh (Violet)			**			
<i>V. papilionacea</i> Pursh var. <i>priceana</i> (Pollard) Alexander (Confederate violet)			**		**	
<i>V. pedata</i> L. (Birdfoot violet)		**	**	**	**	
<i>V. rafinesquii</i> Greene (Violet)	**		**	**		
<i>V. rotundifolia</i> Michaux (Round-leaved violet)			**	**	**	

S = seedling J = juvenile Fl = flower Fr = fruit/cone/sporangium Rs = rosette

Species name (Common name)	S	J	Fl	Fr	Rs	Other
VITACEAE (Vine family)						
<i>Parthenocissus quinquefolia</i> (L.) Planchon (Virginia creeper)		*	**	**		Twigs
<i>Vitis aestivalis</i> Michaux var. <i>aestivalis</i> (Summer grape)						Leafy shoots
<i>V. aestivalis</i> var. <i>argentifolia</i> (Munson) Fernald (Silver-leaf grape)	**			**		
<i>V. baileyana</i> Munson (Possum grape)			**	**		
<i>V. labrusca</i> L. (Fox grape)			**	**		Leafy shoots
<i>V. vulpina</i> L. (Frost grape)						Leafy shoot

S = seedling J = juvenile Fl = flower Fr = fruit/cone/sporangium Rs = rosette

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Reference plant collection of the Coweeta Hydrologic Laboratory, North Carolina. Gen. Tech. Rep. SE-29. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1984. 34 pp.

Describes the results of a botanical survey of the 4,000-acre Coweeta Creek Basin, a Long Term Ecological Research area.

**KEYWORDS:** Botanical survey, herbarium, flora, Long Term Ecological Research.

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