A CHECK LIST OF VASCULAR FLORA OF TABLEROCK MOUNTAIN BURKE COUNTY, NORTH CAROLINA

A Thesis

by

Thomas D. Taylor

Submitted to the Graduate School of
Appalachian State University
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

August 1974

Major Subject: Biology

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Approved by:

Homer H. Hurley
(Chairman of Committee)

J. W. Carpenter, Jr.
(Head of Department)

J. W. Carpenter Jr.
(Member)

W. R. Hubbard
(Member)

B. F. Strickland
(Dean of Graduate School)

ABSTRACT

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(August 1974)

Thomas D. Taylor, B.A., Lenoir Rhyne College
Directed by: Dr. Homer H. Hurley

The Tablerock area affords one of the most interesting places for a floristic study in Burke County. It consists of several distinct plant communities thus enabling the author to become familiar with a large diversity of plants. The study area consists of (1) a heath bald with predominant vegetation of Hypericum, Gaylussacia, Sorbus, Vaccinium, Amelanchier, and Viburnum; (2) rich coves composed of Liriodendron, Tilia, Acer, Betula, and species of Orchidaceae and Liliaceae; and (3) dry ridges having Pinus, Comptonia, Vaccinium as the dominant vegetation. The area has been disturbed by hiking, climbing, and logging activities.

This site was chosen in addition because it represented the most mountainous section of Burke County where the author was then residing.

A listing of vascular taxa by families was prepared from the survey.

ACKNOWLEDGEMENTS

The author gratefully acknowledges the encouragement given by the faculty of Appalachian State University and especially that of Dr. I. W. Carpenter, Jr. Special thanks are given also to Dr. Homer H. Hurley, who gave generously of his time while directing the work on this paper; and to John P. Kennedy, District Forest Ranger, who permitted a study of the area.

Finally, the author's gratitude goes to his many secondary school students who encouraged him to undertake the work and to his wife, Grace, and sons, Tommy and Paul, who have accompanied him many times in the field.

The typist for this paper was Mrs. Thomas Taylor.

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INTRODUCTION

The flora of the Eastern United States is noted for its diversity and abundance. The Eastern United States has been studied from the very early period of our history: Michaux (1801, 1805). More recently, botanists in North Carolina have published works reporting species, habitat, and location: Radford (1968), Wells (1967), and Justice and Bell (1968).

The Problem. The flora of the Tablerock section and Burke County in general has been neglected. Many common species in the area have not been reported; therefore, the author has undertaken a floristic study of this section of Burke County. Tablerock was chosen because of the unique flora it supports. This area also gave the author a chance to observe, collect, and identify plants from several types of plant communities.

Objectives. The objectives of this survey were (1) to collect and identify all of the species of vascular plants in the Tablerock area as indicated by the map in Figure 1, (2) to contribute to the scientific knowledge of the mountain flora of North Carolina, (3) to contribute specimens to the herbaria of Appalachian State University and Western Piedmont Community College, and (4) possibly to stimulate others to do work of a similar nature in the North Carolina mountains.

The citations of this thesis follow the style of Castanea, The Journal of the Southern Appalachian Botanical Club.

REVIEW OF LITERATURE

The author was unable to locate a specific check list of plants for the Tablerock area; however, there have been a number of works published which include species found in Burke County. Other works list vascular plants for larger areas (e.g. the Southeastern United States, piedmont North Carolina) which include Burke County.

In 1785 Andre Michaux was directed by the French government to come to the United States to obtain botanical specimens for France. After spending some time in New York, he chose Charleston, South Carolina, as the site of an arboretum and as a base for his excursions into the Southern Appalachian Mountains. Many new species were found, described, and classified by both Andre Michaux and his son, F. A. Michaux, who accompanied him. Notable among these are Cladrastis lutea and Shortia galacifolia, collected by Michaux and later named by Asa Gray. Andre Michaux (1801) described the many species of oak observed on his trip which included Burke County in the latter part of the 18th century. He listed 25 species of oaks with descriptions, drawings, and habitats. F. A. Michaux (1805) reported 26 species of trees other than the oaks previously listed in 1801 by his father. Throughout his travels Andre Michaux taught Americans the commericial value of herbs and also introduced plants from France which he felt would adapt here.

Several studies have been made of granite outcrops in the Southeastern United States. Studies were made by Oosting and Anderson (1937) in the mountains in Jackson County, North Carolina; by Oosting and Anderson (1939) in the lower piedmont of North Carolina near the Fall Zone in Wake and Franklin counties. McVaugh (1943) was the first to compare the vegetation of the granite outcrops of North Carolina, South Carolina, Georgia, and Alabama. Keever, Oosting, and Anderson (1951) did a study in the upper piedmont in Alexander County, North Carolina. Extensive studies have been made of outcroppings of granite in the Atlanta area of the piedmont plateau of Georgia by Burbanck and Platt (1964). Palmer (1970) studied the vegetation of Overton Rock Outcrop, Franklin County, North Carolina.

Blomquist (1934) reported 67 species of ferns in North Carolina. Blomquist and Correll (1940) modified this to 68 species, 13 varieties, 10 forms, and 2 hybrids. Godfrey (1948 & 1950) enumerated the Asteraceae of the state. Blomquist (1948) published a book listing 360 species of grasses of North Carolina. Jacob and Burlage (1958) listed over 230 different species now collected in the mountains. More recently Ahles and Radford (1959) listed species new to the flora of the Carolinas. Ramseur (1960) listed many vascular plants found in the high mountain communities of the Southern Appalachians. Beal (1960) published his work on the Alismataceae. Justice and Bell (1968) listed 496 species within the mountain region and the piedmont of North Carolina. Radford, Ahles, and Bell

(1968) listed 180 families and 3360 species in the Carolinas.

Pittillo, Horton, and Greenlee (1969) by searching through the harbarium of Western Carolina University found 285 county records from 264 taxa of 80 families of vascular plants previously unreported. Leonard (1971) listed 26 species added as new state records since the publishing of The Manual of the Vascular Flora of the Carolinas by Radford, Ahles, and Bell (1968).

DESCRIPTION OF THE AREA

Tablerock, elevation 3909 feet, with the area surrounding the base down to an elevation of 2400 feet, was chosen for the study. Tablerock is located in the northwestern sector of Burke County, North Carolina, as part of the Appalachian Mountains. The boundaries of the study area were the public campsites to the north and the south; to the east, the forest service road connecting the two sites; and to the west, the trail, including Little Tablerock, back to the south campsite (See Figure 1). The outcrop of Tablerock is partially covered with Ashe stony loam soil. The east side drops vertically for several hundred feet. The west side slopes down toward the Linville River with water drainage evident in many places. The east side, after the sudden drop, consists of ridges and hollows with spring branches and small streams.

Climate. Burke County has a mean annual rainfall of 50.08 inches of which 8.1 inches are snow and sleet. The climate includes relatively long, mild summers with generally short and comparatively mild winters. The lowest mean temperature reached for a month is January with 30.9 degrees fahreinheit. The average frost-free season at Morganton is around 192 days, from April 14 to October 23. Killing frost may occur as early as October 5 and as late as May 3 Carney (undated). The climatological data for Morganton reflects the sheltering effects of Tablerock and the Appalachian Mountains; therefore, temperatures and precipitation in the Tablerock

study area are at variance with the data for Morganton. The length of frost-free season and mean monthly temperatures of Tablerock could be expected to be shorter and cooler than those of Morganton. The surface winds at Morganton average eight miles per hour. This average should be significantly higher at Tablerock.

Soils. The soil of the study area is limited to rock outcrop, rough stony land, Ashe stony loam, and Ashe loam Lee (1926). Rock outcrop areas include exposures of solid rock with little soil build-up. Rough stony land may consist in part of little more than bare rock. It is associated with Ashe Porters and Talladega stony loams, and wherever there is any soil it is similar to that of the adjoining stony loam. Ashe stony loam is gray, dark-gray, or dark brownish-gray loam 1 to 3 inches thick. Underneath this for a depth of 5 to 8 inches lies a brown or yellowish-brown mellow loam. The subsoil is yellow friable crumbly clay loam extending to approximately 3 feet where it passes into partly disintegrated rock. For the first 2 or 3 inches, Ashe loam is brownish-gray or very dark gray loam containing a very high proportion of organic matter. Underlying this layer is a brownish-yellow friable mellow loam which ranges in depth from 7 to 10 inches. The subsoil of yellow or brownish-yellow friable crumbly clay loam passes, at a depth ranging from 24 to 35 inches, into light-gray soft disintegrating gneiss rock streaked with yellow. In many places, particularly on the north side, the surface may be black due to the heavy accumulation of organic matter (See Figure II).

Floristic Elements. In the northeastern section of the study area, the dominant vegetation includes Carya ovata, Carya ovalis, Halesia carolina, Oxydendrum arboreum, Acer rubrum, Aesculus octandra, Quercus velutina, Quercus alba with an understory of Kalmia latifolia, Rhododendron maximum and smaller specimens of the preceding species. In areas where there are no trees or shrubs, various herbs are the major ground cover. In damp habitats, Podophyllum peltatum, Impatiens capensis, Eupatorium fistulosum are plentiful. In dry habitats Coreopsis major var. stellata, Iris cristata and species of Solidago and Aster are abundant.

In the northwest, the mixed deciduous forest changes rather rapidly as one goes into the Linville Gorge drainage area. The predominant floristic element becomes thickets of Rhododendron maximum. The taller, though less frequent, elements are Carya ovalis, Acer rubrum, Quercus velutina, Pinus strobus, Robinia pseudo-acacia, Quercus alba with Castanea dentata reaching small tree size. The understory changes from almost pure stands of Rhododendron maximum to mixed stands of Rhododendron maximum with Kalmia latifolia, Halesia carolina, Pyrularia pubera, Tsuga canadensis, Hamamelis virginiana, Betula lenta, Sassafras albidum and Amelanchier arborea.

The southeastern vegetation consists of Liriodendron tulipifera, Acer rubrum, Betula lenta, Pinus strobus, Quercus velutina, Robinia pseudo-acacia with an understory of Sassafras albidum, Symplocos tinctoria, Robinia hispida, Rhododendron maximum, Kalmia latifolia, Pinus pungens, Magnolia fraseri,

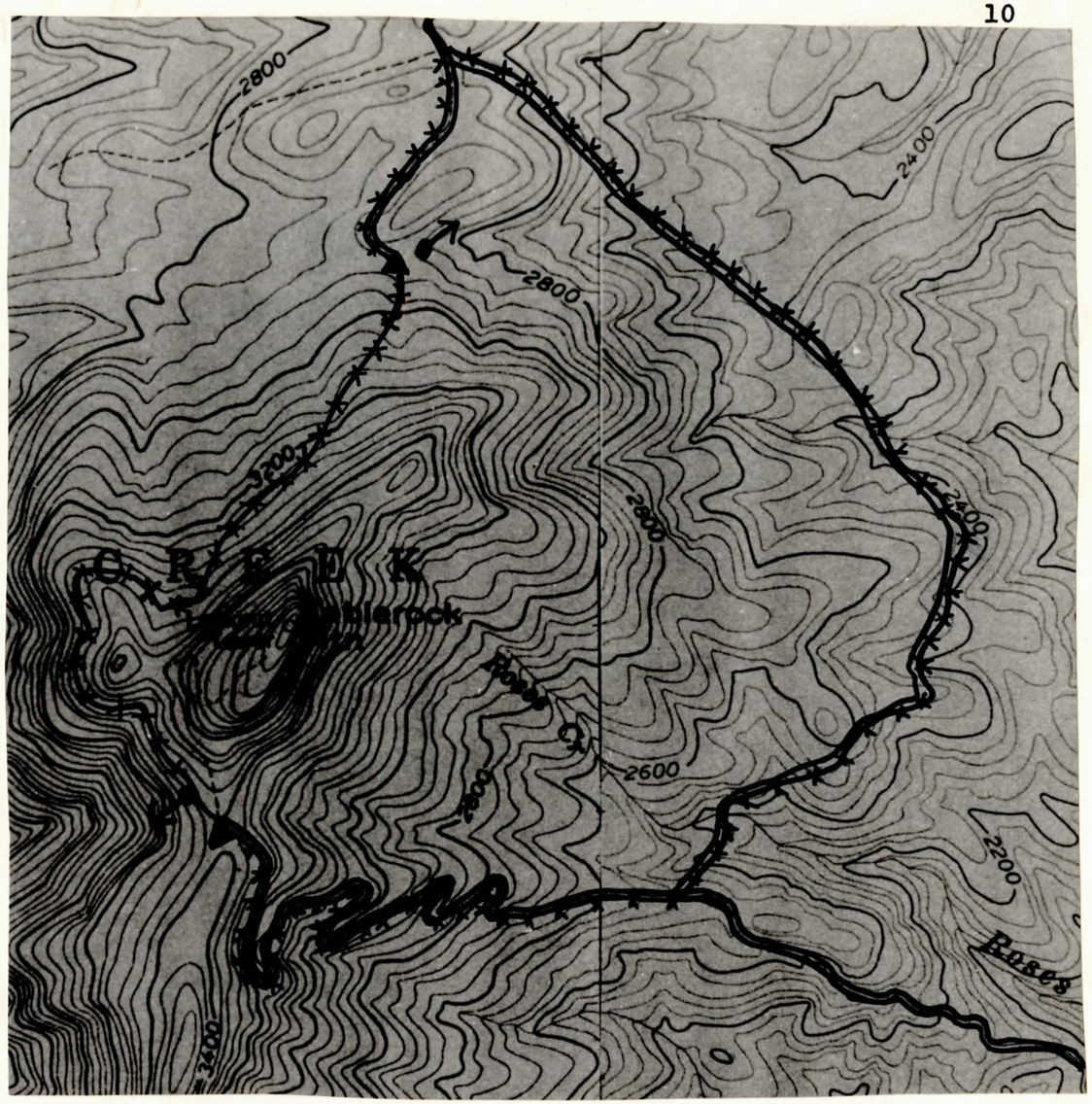
Cornus florida and Halesia carolina.

The southern area consists of pine ridges and deciduous coves. The ridge flora is composed of Pinus pungens, Pinus strobus and Pinus rigida. The undercover includes Gaylussacia baccata, Robinia hispida, Vaccinum atrococcum, Vaccinum constablaei, Vaccinum vacillans, and Comptonia peregrina. The coves have Carya ovata, Carya ovalis, Liriodendron tulipifera, Quercus shumardii, Tsuga canadensis, Tsuga caroliniana, and Magnolia fraseri as the taller elements. The underbrush consists of Kalmia latifolia, Rhododendron maximum, Oxydendrum arboreum, and Halesia carolina.

The picnic area has vegetation similar to that of the southern coves. There is a gradual change as one goes north and west. The large species of this section are Quercus shumardii and Magnolia fraseri. At lower altitudes (2400-3000 ft.), the vegetation is shrubby and is composed of Kalmia latifolia, Rhododendron maximum, Rhododendron catawbiense, Rhododendron minus, Clethra acuminata, Betula lenta, Lyonia ligustriana, Sassafras albidum, Hamamelis virginiana and Sorbus melanocarpa.

At the higher elevations, the vegetation is dwarfed. The largest tree is Pinus pungens. Intermediate in size are Betula lenta, Sassafras albidum, Castanea dentata, Quercus shumardii, Ilex ambigua, and Amelanchier arborea. The lower shrubs consists of Clethra acuminata, Rhododendron maximum, Rhododendron minus, Rhododendron calendulaceum, Rhododendron catawbiense, Sorbus melanocarpa, and Kalmia latifolia.

On top of the bald, the preceding species are mixed with Virburnum nudum, Leiophyllum buxifolium var. buxifolium, with open areas covered with Hypericum densiflorum, Hypericum hypericoides, and Hudsonia montana. Gaylussacia baccata and species of Vaccinium were prominent throughout the bald knob.



Legend

springs

campsites

gravel roads

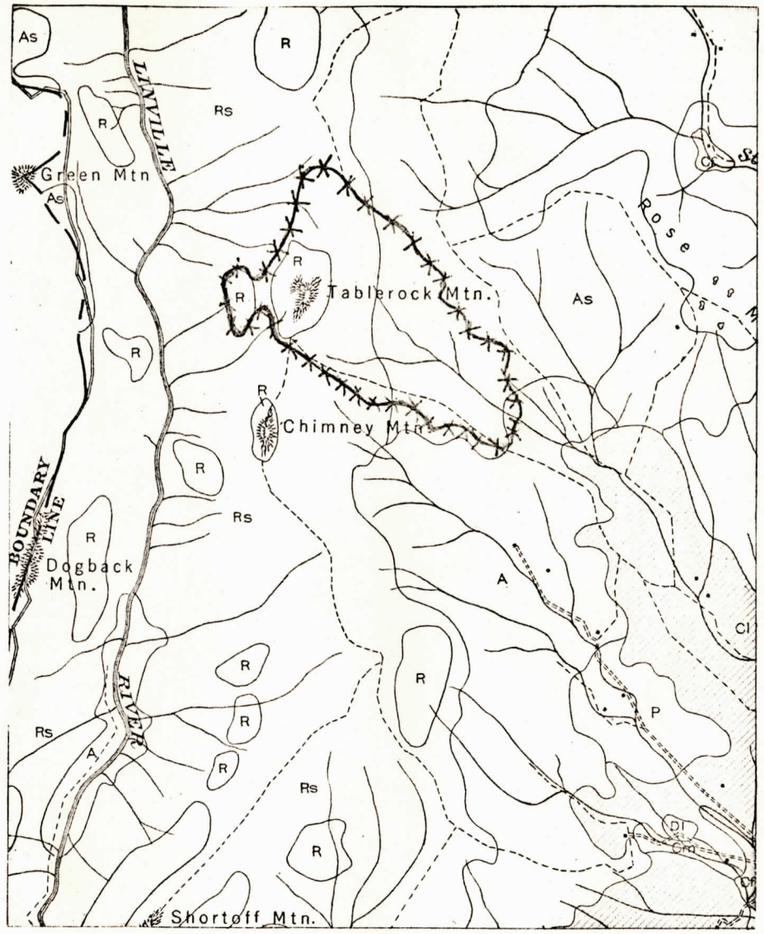
study boundary

0 ½ 1 1½ 2

Scale in miles

Contour interval 40 feet

Figure I. Collection Area



Legend

R = Rock outcrop

Rs = Rough stony land

A = Ashe loam

As = Ashe stony loam

= Study boundary

0 1 2

Scale 1 Inch = 1 mile

Figure II. Soil Types of Collection Area

PROCEEDURES USED

Method of Collection. The field work began in September 1972 and was completed in July 1974. Vascular plants were collected from plots selected to include all microclimes of the area. Random search patterns were walked to discover any plant possibly not found in the selected plots. Trips were made 1 to 3 times weekly throughout the spring, summer, and fall. Plots were selected so as to collect specimens from the top of Tablerock, near the public picnic grounds, in deep forest areas, and in disturbed areas where man has cut forest trees and made logging roads.

Method of Identification. The plants were placed in a standard plant press and dried for 48 hours. Questionable species were checked by comparing with herbarium specimens at Appalachian State University and Western Piedmont Community College. The specimens were then placed in the herbaria of the preceding institutions. The check list of the species follows that of Radford, Ahles, and Bell's The Vascular Flora of the Carolinas. The list is included in the appendix.

SUMMARY

The primary purpose of this study was to collect, prepare, identify, and report all the vascular plants in the Tablerock area. A total of 401 species were reported from the area. These were distributed among 94 families and 254 genera. One hundred and eleven of these had not been previously reported for Burke County.

LITERATURE CITED

Ahles, H. E. and A. E. Radford. 1959. Species New to the Flora of North Carolina. Jour. Elisha Mitchell Sci. Soc. 75: 140- 147.

Beal, E. O. 1960. The Alismataceae of the Carolinas. Jour. Elisha Mitchell Sci. Soc. 76: 68-79.

Carney, C. B. and A. V. Hardy. (undated). Climatological Summary No. 20-31.

Blomquist, H. L. 1948. The Grasses of North Carolina. Duke University Press, Durham, N.C.

_____, and D. S. Correll. 1940. A County Checklist of North Carolina Ferns and Fern Allies. Jour. Elisha Mitchell Sci. Soc. 56: 63-1-5.

Burbanck, M. P. and R. B. Platt. 1964. Granite Outcrop of the Piedmont Plateau in Georgia. Ecology 45: 292-306.

Godfrey, R. K. 1948. Studies in the Compositae of North Carolina I. Liatris. Jour. Elisha Mitchell Sci. Soc. 64: 241-249.

_____. 1950. Studies in the Compositae of North Carolina. Jour. Elisha Mitchell Sci. Soc. 66: 186-194.

Jacob, M. L. and H. M. Burlage. 1958. Index of Plants of North Carolina with Reputed Medicinal Uses. (No publisher given).

Justice, W. S. and C. R. Bell. 1968. Wild Flowers of North Carolina. The University of North Carolina Press, Chapel Hill, N.C.

Keever, C., H. J. Oosting, and L. E. Anderson. 1951. Plant Succession on Exposed Granite of Rocky Face Mountain, Alexander County, North Carolina. Bull. Torrey Bot. Club 78 (5): 401-421.

Lee, W. D. and S. R. Bacon. 1926. Soil Survey of Burke County, North Carolina. USDA Bull. No. 22 Series 1926.

Leonard, S. W. 1971. Additions to the Flora of the Carolinas. Jour. Elisha Mitchell Sci. Soc. 87: 96ff.

Michaux, A. 1801. Histoires des Chenes. Paris, France.

Michaux, F. A. 1805. Memoire sur La Naturalisation des Arbres Forestiers de L'amerique Septentrional. Paris, France.

Oosting, H. J. and L. E. Anderson. 1937. The Vegetation of a Barefaced Cliff in Western North Carolina. Ecology 18: 280-292.

_____. 1939. Plant Succession on Granite Rock in Eastern North Carolina. Bot. Gazette 100: 750-758.

Palmer, P. G. 1970. The Vegetation of Overton Rock Outcrop, Franklin County, North Carolina. Jour. Elisha Mitchell Sci. Soc. 86: 80-87.

Pittillo, J. C., J. H. Horton, and K. W. Greenlee. 1969. Additions to the Flora of the Carolinas. I. Jour. Elisha Mitchell Sci. Soc. 85: 18-22.

Radford, A. E., H. E. Ahles, and C. R. Bell. 1968. Mannual of the Vascular Flora of the Carolinas. University of North Carolina Press, Chapel Hill, N.C.

Ramseur, G. S. 1960. The Vascular Flora of the High Mountain Communities of the Southern Appalachians. Jour. Elisha Mitchell Sci. Soc. 76: 82-97.

Wells, B. W. 1967. The Natural Gardens of North Carolina. University of North Carolina Press, Chapel Hill, N.C.

OTHER LITERATURE USED

Batson, Wade T. 1964. Wild Flowers in South Carolina. University of South Carolina Press, Columbia, S.C.

_____. 1972. Genera of the Southeastern Plants. The State Printing Co., Columbia, S.C.

Blomquist, H. L. and H. J. Oosting. 1959. A Guide to the Spring and Early Summer Flora of the Piedmont, North Carolina. Seeman Printery Inc., Durham, N.C.

Campbell, Carlos C., William F. Hutson, and Aaron J. Sharp. 1970. Great Smokey Mountains Wildflowers. The University of Tennessee Press.

Fernald, M. L. 1950. Gray's Manual of Botany. American Book Co., New York, N.Y.

Gleason, H. A. 1968. The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada. Hafner Publishing Co., N.Y.

Grimm, William C. 1968. How to Recognize Wild Plants. The Stackpole Company, Harrisburg, Pa.

_____. 1966. The Book of Trees. The Stackpole Company, Harrisburg, Pa.

Holmes, J. S. 1944. Common Forest Trees of North Carolina: How to Know Them. North Carolina Department of Conservation and Development, Raleigh, N.C.

Sargent, C. S. 1947. Silva of North America. Peter Smith, N.Y.

Wheery, Edgar T. 1948. Wild Flower Guide. Doubleday & Company, Inc., Garden City, N.Y.

_____. 1964. The Southern Fern Guide. Doubleday & Company, Inc., Garden City, N.Y.

APPENDIX

PHYLOGENETIC LIST OF TAXA BY FAMILIES

* = Species not previously reported for Burke County
** = Species identified but not collected

LYCOPODIACEAE

Lycopodium lucidulum Michaux
Lycopodium tristachyum Pursh. *

SELAGINELLACEAE
Selaginella rupestris (L.) Spring *
Selaginella tortipila A. Braun

OPHIOGLOSSACEAE
Botrychium virginianum (L.) Swartz

OSMUNDACEAE
Osmunda cinnamomea L.
Osmunda claytoniana L.

SCHIZAEACEAE
Lygodium palmatum (Bernh.) Swartz *

PTERIDACEAE
Adiantum pedatum L.
Dennstaedtia punctilobula (Michaux) Moore
Pteridium aquilinum (L.) Kuhn

ASPIDIACEAE
Athyrium asplenioides (Michaux) A. A. Eaton
Cystopteris protrusa (Weatherby) Blasdell
Dryopteris marginalis (L.) Gray
Polystichum acrostichoides (Michaux) Schott
Thelypteris hexagonoptera (Michaux) Weatherby *
Thelypteris noveboracensis (L.) Nieuwland *

ASPLENIACEAE
Asplenium montanum Willd.
Asplenium platyneuron (L.) Oakes
Asplenium trichomanes L.

POLYPODIACEAE
Polypodium virginianum L.

PINACEAE
Pinus pungens Lambert
Pinus rigida Miller
Pinus strobus L.
Tsuga canadensis (L.) Carr
Tsuga caroliniana Englem.

CUPRESSACEAE
Juniperus virginiana L.

SPARGANIACEAE
Sparganium americanum Nuttall *

POACEAE
Agrostis alba L.
Andropogon scoparius Michaux
Andropogon ternarius Michaux
Dactylis glomerata L.
Digitaria filiformis (L.) Keeler *
Holcus lanatus L. *
Panicum dichotomum L.
Panicum languinosum Ell.
Phleum pratense L.
Poa autumnalis Muhl. ex Ell. *
Sorghastrum nutans (L.) Nash

CYPERACEAE
Carex austro-caroliniana Bailey *
Carex leptalea Wahlenberg *
Carex scabrata Schweinitz *
Carex virescens Muhl. ex Schkuhr. *
Cyperus lancastriensis Porter
Cyperus rivularis Kunth.
Cyperus strigosus L.
Eleocharis obtusa (Willd.) Schultes
Eleocharis tenuis (Willd.) Schultes
Scirpus expansus Fernald

ARACEAE
Arisaema triphyllum (L.) Schott

COMMELINACEAE
Commelina communis L.
Tradescantia subaspera Ker.

JUNCACEAE
Juncus acuminatus Michaux
Juncus canadensis J. Gray ex La Harpe *
Juncus effusus L.

LILIACEAE
Aletris farinosa L.
Allium vineale L.
Amianthium muscaetoxicum (Walter) Gray
Chamaelirium luteum (L.) Gray
Clintonia umbellulata (Michaux) Morong
Convallaria majalis var. majalis L. *
Disporum lanuginosum (Michaux) Nicholson *
Lilium michauxii Poiret

Medeola virginiana L.
Polygonatum biflorum (Walt.) Ell.
Smilacina racemosa (L.) Desf.
Smilax hispida Muhl.
Smilax rotundifolia L.
Smilax smallii Morong *
Trillium erectum L.
Trillium grandiflorum (Michaux) Salisbury *
Trillium undulatum Willd. *
Uvularia grandiflora Smith *
Uvularia pudica (Walter) Fernald
Veratrum parviflorum Michaux
Xerophyllum asphodeloides (L.) Nuttall
Zigadenus densus (Desr.) Fernald *
Zigadenus leimanthoides Gray *

DIOSCOREACEAE
Dioscorea villosa L.

AMARYLLIDACEAE
Hypoxis hirsuta (L.) Coville

IRIDACEAE
Iris verna var. verna L.
Sisyrinchium mucronatum Michaux *

ORCHICACEAE
Cypripedium acaule Aiton
Cypripedium calceolus var. pubescens (Willd.) Correll
Goodyera pubescens (Willd.) R. Brown
Goodyera repens var. ophioides Fernald
Habenaria ciliaris (L.) Brown
Liparis lilifolia (L.) Richard
Listera smallii Wiegand *
Orchis spectabilis L.
Spiranthes cernua var. cernua (L.) Richard
Spiranthes gracilis (Bigelow) Beck
Triphora trianthophora (Swartz) Rydberg

SALICACEAE
Salix sericea Marshall

MYRICACEAE
Comptonia peregrina (L.) Coulter

JUGLANDACEAE
Carya glabra (Miller) Sweet *
Carya ovalis (Wand.) Sargent *
Carya ovata (Miller) K. Koch *

BETULACEAE
Alnus serrulata (Aiton) Willd.

Betula lenta L.
Betula nigra L.

FAGACEAE
Castanea dentata (Marshall) Borkh. *
Castanea dentata x pumila (a hybrid) *
Castanea pumila (L.) Miller *
Quercus alba L.
Quercus coccinea Muenchh.
Quercus marilandica Muenchh.
Quercus muhlenbergii Engelm. *
Quercus prinus L.
Quercus rubra var. rubra L.
Quercus shumardii Buckley *

URTICACEAE
Boehmeria cylindrica (L.) Swartz *
Laportea canadensis (L.) Gaudin
Pilea pumila (L.) Gray

SANTALACEAE
Pyrularia pubera Michaux

LORANTHACEAE
Phoradendron serotinum (Raf.) M. C. Johnson

ARISTOLOCHIACEAE
Aristolochia macrophylla Lam. *
Asarum canadense L. *
Hexastylis shuttleworthii (L.) Small

POLYGONACEAE
Polygonum cespitosum var. longisetum (De Bryun) Steward *
Polygonum scandens L. *
Rumex acetosella L.
Rumex obtusifolius L. *

PHYTOLACCACEAE
Phytolacca americana L.

CARYOPHYLLACEAE
Arenaria groenlandica var. groenlandica (Retz.) Sprengel
Silene stellata (L.) Aiton f.
Silene virginica L.
Stellaria pubera Michaux *

RANUNCULACEAE
Cimicifuga racemosa Nuttall
Clematis virginiana L.
Ranunculus acris L. *
Ranunculus bulbosus L. *
Ranunculus recurvatus Poiret

Thalictrum dioicum L. *
Thalictrum thalictroides (L.) Boivin

BERBERIDACEAE
Caulophyllum thalictroides (L.) Michaux
Podophyllum peltatum L.

MAGNOLIACEAE
Liriodendron tulipifera L.
Magnolia acuminata L.
Magnolia fraseri Walter

CALYCANTHACEAE
Calycanthus floridus L. *

LAURACEAE
Sassafras albidum (Nuttall) Nees

PAPAVERACEAE
Sanguinaria canadensis L.

FUMARIACEAE
Corydalis sempervirens (L.) Persoon

BRASSICACEAE
Arabis canadensis L.
Arabis laevigata (Muhl. ex Willd.) Poiret
Cardamine concatenata (Michaux) Ahles *
Lepidium virginicum L.

CRASSULACEAE
Sedum telephoides Michaux *

SAXIFRAGACEAE
Heuchera americana L. *
Heuchera villosa Michaux
Hydrangea arborescens L.
Saxifraga michauxii Britton
Tiarella cordifolia L.

HAMAMELIDACEAE
Hamamelis virginiana L.

PLATANACEAE
Platanus occidentalis L.

ROSACEAE
Agrimonia gryposepala Wallroth *
Amelanchier arborea (Michaux f.) Fernald
Amelanchier arborea var. laevis (Weigand) Ahles
Amelanchier canadensis (L.) Medicus *
Amelanchier sanguinea (Pursh) DC *

Aruncus dioicus (Walter) Fernald
Fragaria virginiana Duchesne
Gillenia trifoliata (L.) Moench
Potentilla canadensis L. *
Prunus serotina Ehrhart
Rosa palustris Marshall *
Rubus allegheniensis Porter *
Rubus flagellaris Willd.
Rubus odoratus L. *
Sorbus arbutifolia (L.) Heynhold
Sorbus melanocarpa (Michaux) Schneider
Spirea japonica L. f.

FABACEAE
Albizia julibrissin Durazzini
Baptisia tinctoria (L.) R. Brown
Cassia nictitans L.
Clitoria mariana L.
Desmodium nudiflorum (L.) Gray *
Lespedeza bicolor Turcz. *
Lespedeza cuneata (Dumont) G. Don.
Lespedeza hirta (L.) Hornemann
Lespedeza repens (L.) Barton
Lespedeza violacea (L.) Persoon *
Phaseolus polystachios (L.) BSP
Robinia hispida L.
Robinia pseudo-acacia L. *
Schrankia microphylla (Solander ex Smith) Macbride
Stylosanthes biflora (L.) BSP
Tephrosa virginiana L.
Thermposis villosa (Walt.) Fernald & Schubert *
Trifolium agrarium L. *
Trifolium pratense L.
Trifolium procumbens L. *
Trifolium repens L.
Vicia angutifolia Reichard

OXALIDACEAE
Oxalis grandis Small
Oxalis stricta L.

GERANIACEAE
Geranium columbinum L.
Geranium dissectum L.

SIMAROUBACEAE
Ailanthus altissima (Miller) Swingle

POLYGALACEAE
Polygala curtissii Gray
Polygala paucifolia Willd. *
Polygala polygama Walt.

EUPHORBIACEAE
Euphorbia corollata L.

ANACARDIACEAE
Rhus copallina L.
Rhus glabra L.
Rhus radicans L. *

AQUIFOLIACEAE
Ilex ambigua var. montana (T & G) Ahles
Ilex opaca Aiton
Ilex verticillata (L.) Gray

CELASTRACEAE
Euonymus americanus L.

ACERACEAE
Acer pensylvanicum L.
Acer rubrum L.
Acer saccharinum L. *

HIPPOCASTANACEAE
Aesculus octandra Marshall *

BALSAMINACEAE
Impatiens capensis Meerb.
Impatiens pallida Nuttall *

VITACEAE
Parthenocissus quinquefolia (L.) Planchon *
Vitis labrusca L.
Vitis rotundifolia Michaux

RHAMNACEAE
Ceanothus americanus L.

TILIACEAE
Tilia heterophylla Vent

HYPERICACEAE
Hypericum densiflorum Pursh.
Hypericum hypericoides (L.) Crantz *
Hypericum mutilum L.

CITACEAE
Hudsonia montana Nuttall

VIOLACEAE
Viola hastata Michaux
Viola macloskeyi var. pallens (Banks ex DC) C. L. Hitchcock *
Viola palmata var. palmatum L. *
Viola palmata var. triloba (Schweinitz) Ging. ex DC

Viola papilionacea Pursh.
Viola pedata L.
Viola rotundifolia Michaux *
Viola walteri House *

PASSIFLORACEAE
Passiflora incarnata L.

MELASTOMATACEAE
Rhexia virginica L.

ONAGRACEAE
Epilobium coloratum Bichler *
Ludwigia alternifolia L.
Oenothera tetragona Roth

ARALIACEAE
Aralia nudicaulis L.
Aralia racemosa L.
Panax quinquefolium L.

APIACEAE
Angelica venenosa (Greenway) Fernald
Cicuta maculata L.
Daucus carota L.
Osmorhiza longistylis (Torrey) DC
Taenidia integerrima (L.) Drude
Zizia trifoliata (Michaux) Fernald

NYSSACEAE
Nyssa sylvatica Marshall

CORNACEAE
Cornus alternifolia L.
Cornus florida L.

CLETRACEAE
Clethra acuminata Michaux

ERICACEAE
Chimaphila maculata (L.) Pursh.
Epigaea repens L.
Gaultheria procumbens L.
Gaylussacia baccata (Wang) K. Koch
Kalmia latifolia L.
Leiophyllum buxifolium var. buxifolium (Bergius) Ell. *
Leiophyllum buxifolium var. prostratum (Loudon) Gray
Leucothoe recurva (Buckley) Gray
Lyonia ligustrina (L.) DC
Monotropa hypopithys L.
Monotropa uniflora L.
Oxydendrum arboreum (L.) DC

Rhododendron calendulaceum (Michaux) Torrey
Rhododendron catawbiense Michaux
Rhododendron Maximum L.
Rhododendron minus Michaux
Rhododendron nudiflorum (L.) Torrey
Vaccinium atrococcum (Gray) Porter
Vaccinium constablaei Gray *
Vaccinium stamineum L.
Vaccinium vacillans Torrey

DIAPENSIACEAE
Galax aphylla L.

PRIMULACEAE
Lysimachia quadrifolia L.

EBENACEAE
Diospyros virginiana L. *

SYMPLOCACEAE
Symplocos tinctoria (L.) L'Her.

STYRACACEAE
Halesia carolina L.

OLEACEAE
Fraxinus americana L. *

GENTIANACEAE
Gentiana catesbaei Walter *
Gentiana clausa Raf.

APOCYNACEAE
Apocynum cannabinum L. *

ASCLEPIADACEAE
Asclepias exaltata L.
Asclepias incarnata L. *
Asclepias quadrifolia Jacquin *
Asclepias tuberosa L.
Asclepias variegata L.

CONVOLVULACEAE
Calystegia sepium (L.) R. Brown *
Cuscuta campestris Yuncker
Ipomea pandurata (L.) G. F. W. Meyer

HYDROPHYLLACEAE
Hydrophyllum virginianum L.

LAMIACEAE
Collinsonia tuberosa Michaux *

Lycopus virginicus L.
Monarda clinopodia L.
Prunella vulgaris L.
Pycnanthemum incanum (L.) Michaux
Salvia lyrata L.
Scutellaria serrata Andrz.

SOLANACEAE
Lycopersicon esculentum Miller ** *
Solanum carolinense L.

SCROPHULARIACEAE
Agalinis decemloba (Greene) Pennell
Agalinis purpurea (L.) Pennell
Agalinis setacea (J. F. Gmelin) Raf.
Aureolaria laevigata (Raf.) Raf.
Aureolaria pectinata (Nuttall) Pennell
Aureolaria virginica (L.) Pennell
Chelone obliqua L. *
Linaria canadensis (L.) Dumont
Melampyrum lineare Desr.
Mimulus ringens L.
Paulownia tomentosa (Thunberg) Steudel *
Pedicularis canadensis L.
Penstemon canescens Britton *
Penstemon smallii Hiller
Scrophularia marilandica L.
Verbascum thapsus L. *

OROBANCHACEAE
Conopholis americana (L.) Wallroth **
Orobanche uniflora L.

PLANTAGINACEAE
Plantago lanceolata L.
Plantago rugelii Ecne.

RUBIACEAE
Galium aparine L.
Galium latifolium Michaux
Houstonia caerulea L. *
Houstonia purpurea L.
Mitchella repens L.

CAPRIFOLIACEAE
Lonicera japonica Thunberg
Sambucus canadensis L.
Sambucus pubens Michaux *
Virburnum acerifolia L.
Virburnum nudum L.

CAMPANULACEAE
Campanula divaricata Michaux
Lobelia cardinalis L.
Lobelia inflata L. *
Lobelia puberula Michaux
Lobelia spicata Lam.
Specularia perfoliata (L.) A. DC

ASTERACEAE
Achillea millefolium L.
Ambrosia artemisiifolia L.
Ambrosia trifida L.
Aster acuminatus Michaux *
Aster curtisii T. & G.
Aster divaricatus L.
Aster dumosus L.
Aster grandiflorus L.
Aster lateriflorus (L.) Britton
Aster linarifolius L. *
Aster paludosus Aiton *
Aster paternus Cronquist
Aster solidagineus Michaux *
Aster surculosus Michaux
Bidens frondosa L.
Cacalia atriplicifolia L.
Cacalia muhlenbergii (Sch-Bip) Fernald *
Carduus lanceolatus L. *
Chrysanthemum leucanthemum L.
Chrysogonum virginianum L. *
Coreopsis major var. stellata (Nuttall) Robinson
Elephantopus carolinianum Willd. *
Erechtites hieracifolia (L.) Raf.
Erigeron canadensis var. canadensis L.
Erigeron philadelphicus L. *
Erigeron pulchellus Michaux
Erigeron strigosus Muhl. ex Willd.
Eupatorium fistulosum Barratt
Eupatorium purpureum L.
Eupatorium rotundifolium var. rotundifolium L.
Eupatorium rotundifolium var. ovatum (Bigelow) Torrey
Eupatorium serotinum Michaux *
Galinsoga ciliata (Raf.) Blake
Gnaphalium obtusifolium L.
Gnaphalium purpureum var. purpureum L.
Helianthus atrorubens L.
Heliopsis helianthoides (L.) BSP *
Heterotheca graminifolia (Michaux) Shinners
Heterotheca mariana (L.) Shinners
Heterotheca pilosa (Nuttall) Shinners *
Hieracium paniculatum L.
Hieracium pratense Tausch
Hieracium venosum L.

Krigia montana (Michaux) Nuttall *
Krigia virginica (L.) Willd.
Liatris graminifolia Willd.
Prenanthes serpentaria Pursh.
Rudbeckia fulgida Aiton *
Rudbeckia laciniata L.
Senecio aureus L.
Senecio millefolium T. & G. *
Silphium compositum var. reniforme (Raf.) T. & G.
Solidago altissima L.
Solidago bicolor L.
Solidago curtissi var. pubens (M.A. Curtis) Gray *
Solidago flexicaulis L. *
Solidago nemoralis Aiton *
Solidago petiolaris Aiton *
Solidago stricta Aiton *
Sonchus asper (L.) Hill
Taraxacum officinale Wiggers
Verbesina occidentalis (L.) Walter
Verbesina walterii Shinners *
Vernonia noveboracensis (L.) Michaux

VITA

Born April 20, 1934, to Mr. and Mrs. James W. Taylor in Pacolet, South Carolina, the author was one of thirteen children. His secondary education was obtained at Parrotsville High School in Parrotsville, Tennessee, and at Grant Union High School in Del Paso Heights, California. Upon completion of four years in the Air Force, he enrolled at Lenoir Rhyne College, Hickory, North Carolina, where he received the B.A. degree in Science. He is married to Grace Adelene Walker of Morganton, North Carolina. He is the father of two sons, Tommy, age 13; and Paul, age 11. He taught in the public schools until graduate work was begun at Appalachian State University. Graduate work was completed for a master's degree in August, 1974. The author is presently an instructor in the Medical Arts and Science Division of York Technical College, Rock Hill, South Carolina. His present address is 1457 Sullivan Street, Rock Hill, South Carolina 29730.