ANNOTATED CHECKLIST OF THE VASCULAR FLORA OF THE HICKORY CREEK UNIT OF THE BIG THICKET NATIONAL PRESERVE, TYLER COUNTY, TEXAS

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ABSTRACT

An annotated, vouchered checklist is provided of the vascular plant taxa of the 284 hectares Hickory Creek Unit of the Big Thicket National Preserve, Tyler County, in southeast Texas. The Hickory Creek Unit consists of four plant communities: wetland pine savanna, upland pine savanna, pond, and baygall. Four hundred one taxa are documented and their community affiliations are given. Previous lists for this unit numbered over 500 taxa. We believe that the discrepancy is the result of the larger lists being, in part, "conceptual" (what could be there, not what was actually there).

KEY WORDS: Big Thicket National Preserve, floristics, Hickory Creek Unit, Texas

RESUMEN

Se ofrece un catalogo anotado, con pliegos testigo de los taxa de plantas vasculares de las 284 hectareas de la Hickory Creek Unit de la Big Thicket National Preserve, Condado de Tyler, en el sureste de Texas. La Hickory Creek Unit consiste en cuatro comunidades vegetales: sabana húmeda de pinos, sabana en tierras altas de pinos, estanque, y matorral de Ilex coriacea. Se documentan cuatrocientos un taxa y se da la filiación a su comunidad. Los listados previos de esta unidad contenían más de 500 taxa. Creemos que la discrepancia es el resultado de que las grandes listas fueron en parte "conceptuales" (lo que puede estar allí, no lo que está actualmente allí).

INTRODUCTION

The Big Thicket region of southeast Texas has been characterized as floristically rich (Gunter 1971; Eisner 1973; Ajilvsgi 1979; Watson 1979, 1986; Peacock 1994; Official Guide 1997), a characterization that persists in spite of the fact that botanically the entire area is understudied and underdocumented. As yet, there is no vouchered and annotated plant list for the Big Thicket region, for the Big Thicket National Preserve, or for any of the twelve Big Thicket National Preserve units. The best plant lists from the entire area are the one for the Roy E. Larsen Sandylands Sanctuary, Hardin County (Matos & Rudolph 1985) and the one for the Little Thicket Nature Sanctuary, San Jacinto County (Peterson & Brown 1983). Even at the county level, the only vouchered lists are those of

Nesom and Brown (1998), which are considered by the authors to be "preliminary." All other plant lists for the Big Thicket region, beginning with Parks & Cory (1936) and continuing through Watson (1982), U.S. National Park Service (1993), and Yu (n.d.) are unannotated and are not based on vouchered specimens. Consequently there is no way to determine whether the lists represent what the author found or whether they represent what Cozine (1993) calls a "speculative checklist"; a conjectural compilation of what possibly might be there, not what is actually known to be there.

The purpose of this study was to begin a baseline floristic list for the Big Thicket region and the Big Thicket National Preserve by producing an annotated, vouchered checklist of the vascular flora for one unit of the Big Thicket National Preserve.

SITE AND METHODS

The Big Thicket is located mostly within the longleaf pine region of the West Gulf Coastal Plain in southeast Texas (Parks & Cory 1936; McLeod 1971; Harcombe & Marks 1979; Marks & Harcombe 1981; Harcombe et al. 1993). The Big Thicket National Preserve consists of 12 units scattered over seven Texas counties. The units range from 222 hectares to 10,100 hectares and total about 34,000 hectares (Peacock 1994). The unit we selected for a floristic inventory is the 284 hectare Hickory Creek Unit, located in southern Tyler County (Fig. 1). The Hickory Creek Unit, which consists of four plant communities (pond, wetland pine savanna, upland pine savanna, baygall), was chosen for inclusion in the Big Thicket National Preserve because of its pine savannas (see Ajilvsgi [1979]; Watson [1979], Harcombe & Marks [1981]; and MacRoberts & MacRoberts [1998] for descriptions of these communities). The natural characteristic of the unit was relatively flat open "grasslands" with scattered longleaf pines. The unit has little relief and ranges from 35 meters to 42 meters elevation. Aerial photographs show the unit still partly open in 1974 when the Big Thicket National Preserve acquired it, but most openings have subsequently been invaded by shrubs and offsite pines due largely to fire suppression and dormant-season prescription burns (Streng & Harcombe 1982; McClung 1988; Bridges & Orzell 1989; MacRoberts & MacRoberts 2000). Details regarding edaphic and climatic factors of the Hickory Creek Unit can be found in Deshotels (1978), Watson (1979), Marks and Harcombe (1981), and Streng and Harcombe (1982). A map of the unit is in Harcombe and Marks (1979) and in Streng and Harcombe (1982).

Like all the units of the Big Thicket National Preserve, the Hickory Creek Unit has not been the subject of a floristic inventory although extensive but desultory collecting and floristic sampling has occurred there (Streng 1979; Streng & Harcombe 1982; Watson 1982). Nonetheless, the Hickory Creek Unit is perhaps the best collected unit of the Big Thicket National Preserve. Streng (1979 and Streng & Harcombe 1982) conducted a study of factors affecting tree

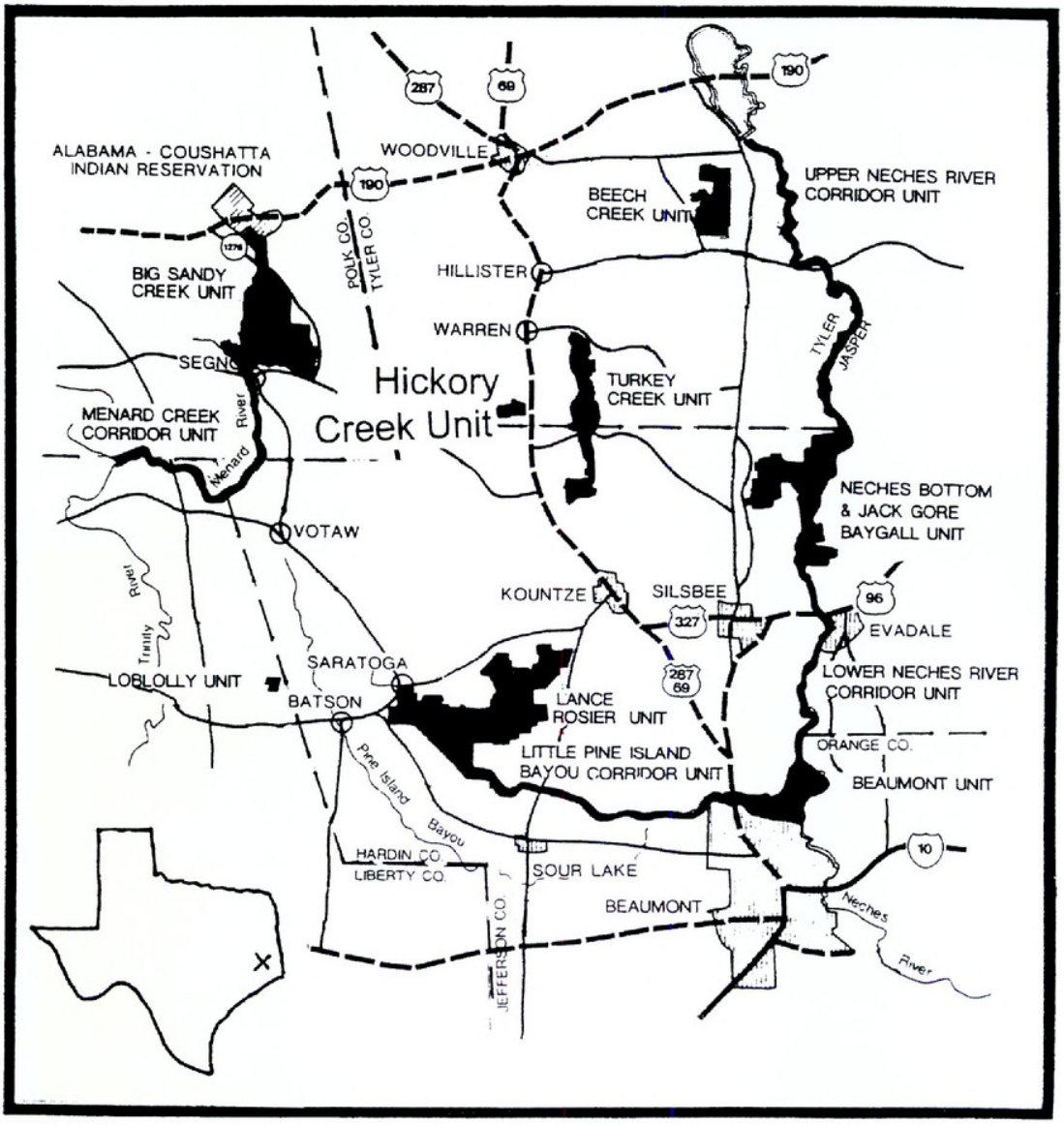

Fig. 1. Location of Hickory Creek Unit within the Big Thicket National Preserve, Texas.

density in the Hickory Creek Unit in the late 1970s and made extensive plant collections. Geraldine Watson, former botanist with the Big Thicket National Preserve, also collected there in the 1970s and 1980s. Their plant specimens have been housed largely at Rice and Lamar universities along with a few collections by Paul Harcombe, Peter Marks, and C. Liu. These collections number about 300 sheets. There are also a few collections housed at SHST and SBSC.

The MacRoberts' collected 430 specimens from the Hickory Creek Unit during 13 field trips beginning 7 March 2000 and ending 13 September 2001. Larry Brown collected about 179 specimens from the unit during four field trips between 27 April and 5 October 2001 (he had previously collected about 30 specimens between 1979 and 1997).

Since our purpose is to produce a list of taxa known to occur on the Hickory Creek Unit, a vouchered specimen was considered to be the only evidence acceptable for inclusion in the list. In all, about 950 herbarium specimens form the data for this report.

Rejected are three previous lists: Watson (1982) produced a list of about 530 taxa for the Hickory Creek Unit, the U.S. National Park Service (1993) produced a list of about 1200 taxa for the entire Big Thicket National Preserve, and Yu (n.d.) produced a list of 525 taxa, excluding trees, for the Hickory Creek Unit. The Yu and National Park Service lists are based largely on the Watson list. Aside from being unannotated and not vouchered, inclusion criteria are not explained for any of these lists. Also, all three lists were found to have extensive misidentifications and dubious entries (Brown & Brown 1996; Brown n.d.).

Nomenclature follows Kartesz (1994), Jones et al. (1997), and Kartesz and Meacham (1999) in most cases.

The following abbreviations are used:

CL = C. Liu. His specimens are at Rice University.
DS = Donna Streng. Her collections are unnumbered and are at Rice University.
GW = Geraldine Watson. Unless otherwise indicated, her National Park Service specimens are at Rice University.
LB = Larry Brown. Unless otherwise indicated, his specimens are at SBSC.
McL = C.A. McLeod. His collections are unnumbered and are at SHST.
MM = Barbara R. and Michael H. MacRoberts. Except where noted, their collections are temporarily at Rice University.
MW = Michael Warnock. His specimens are at SHST.
PH = Paul Harcombe. His specimens are at Rice University.
PM = Peter Marks. His collections are at Rice University.
* = exotic
+ = see note at end of list.

The MacRoberts, Streng, Watson, Harcombe, Marks, and Liu specimens have been annotated by Larry Brown (Brown & Brown 1996; Brown n.d.). Barbara MacRoberts and Justin Williams examined the specimens of McLeod and Warnock at SHST. Where we had more than one voucher, up to four have been listed (see annotated list under results).

In addition to the taxa listed, we designate the plant community or communities with which we found each species most closely associated. Community abbreviations are given below and are put in parentheses (see Ajilvsgi [1979] for additional description of these communities).

(U) = Upland pine savanna (aka Longleaf-Bluestem Uplands).
(W) = Wetland pine savanna (aka Longleaf-Blackgum Savannas).
(B) = Baygall/Stream course. A small part of this is Sweetgum-Oak Floodplain and Palmetto-Oak Flats.
(P) = Ephemeral pond. (These shallow ponds, which may become dry in drought years, but hold water longer than other areas, have not been adequately described on the Big Thicket.)

RESULTS

Annotated list of the vascular plants found in the Hickory Creek Unit taxa.

ACANTHACEAE

Justicia ovata (Walt.) Lindau var. *lanceolata* (Chapman) R.W. Long, (**P,W**) *MM 4416; LB 25539*

Ruellia humilis Nutt., (**U**) *DS; MM 4245, 4452, 4527*

ACERACEAE

Acer rubrum L. var. *rubrum*, (**W**) *MM 4861*

AGAVACEAE

Manfreda virginica (L.) Salisb. ex Rose, (**U**) *GW 2285; DS; MM 4699*

Yucca louisianensis Trel., (**U**) *MM 4838*

ALISMATACEAE

Sagittaria papillosa Buch., (**P**) *GW 2298; DS; MM 4141, 4160*

ANACARDIACEAE

Rhus copallinum L., (**U**) *MW 6490*

Toxicodendron pubescens P. Mill., (**U**) *LB 19236, 26135*

Toxicodendron radicans (L.) Kuntze, (**U**) *LB 25164*

ANNONACEAE

Asimina parviflora (Michx.) Dunal, (**U**) *MM 4284, 4442*

APIACEAE

Centella erecta (L.f.) Fern., (**W**) *DS; MM 4172, 4402*

Eryngium integrifolium Walt., (**W**) *PM s.n.; MM 4708, 4814; LB 26380*

Eryngium yuccifolium Michx., (**U**) *DS; MM 4497*

Oxypolis filiformis (Walt.) Britt. ssp. *filiformis*, (**W,P**) *DS; MM 4705; LB 26128*

Ptiliminium nuttallii (DC.) Britt., (**W**) *McL s.n.*

AQUIFOLIACEAE

Ilex coriacea (Pursh) Chapman, (**W,B**) *MM 4862*

Ilex opaca Ait., (**U**) *MM 4827*

Ilex vomitoria Ait., (**U**) *MM 4830*

ARECACEAE

Sabal minor (Jacq.) Pers., (**W,B**) *MM 4866*

ARISTOLOCHIACEAE

Aristolochia reticulata Jacq., (**U**) *MM 4272*

ASCLEPIADACEAE

Asclepias amplexicaulis Sm., (**U**) DS

Asclepias longifolia Michx. ssp. *longifolia*, (**W**) *MM 4504*

Asclepias obovata Ell., (**U**) *GW 2215; DS; LB 25550*

Asclepias tuberosa L., (**U**) *GW 2214; DS*

ASTERACEAE

Ambrosia artemisiifolia L., (**U**) *MM 4758*

Arnoglossum ovatum (Walt.) H.E. Robins., (**W**) *DS; MM 4494, 4706*

Baccharis halimifolia L., (**U**) *MM 4912*

Berlandiera pumila (Michx.) Nutt. var. *pumila*, (**U**) *DS; MM 4277; LB 25152, 26359*

Bidens aristosa (Michx.) Britt., (**U**) *DS; MM 4759*

Boltonia diffusa Ell., (**W**) *GW 3429; DS; MM 4533*

Chrysopsis mariana (L.) Ell., (**U**) *DS; MM 4449*

Chrysopsis pilosa Nutt., (**U**) *MM 4697, 4768*

Cirsium horridulum Michx., (**U**) *MM 4834*

Conoclinium coelestinum (L.) DC., (**U**) *MM 4756*

Conyza canadensis (L.) Cronq., (**U**) *MM 4762*

Coreopsis linifolia Nutt., (**W**) *PM s.n.; MM 4794*

Coreopsis tinctoria Nutt., (**U**) DS

Echinacea sanguinea Nutt., (**U**) *DS; MM 4439, 4453, 4528*

Elephantopus carolinianus Raeusch., (**U**) *LB 26347*

Elephantopus tomentosus L., (**U**) *MM 4447*

Erechtites hieraciifolia (L.) Raf. ex DC., (**U**) *LB 26161*

Erigeron strigosus Muhl. ex Willd., (**U**) *GW 2302; DS; MM 4162; LB 25165*

Eupatorium capillifolium (Lam.) Small, (**U**) *MM 4913*

Eupatorium compositifolium Walt., (**U**) *PH & CL 901108*

Eupatorium hyssopifolium L., (**W**) *MM 4810; LB 25537, 26150, 26351*

Eupatorium lancifolium (T. & G.) Small, (**U**) *LB 26138, 26139*

Eupatorium leucolepis (DC.) T. & G., (**W**) *GW 2181; DS; MM 4520; LB 26355*

Eupatorium mohrii Greene, (**U**) *GW 2182; LB 8150, 25545, 26379*

Eupatorium rotundifolium L., (**W**) *GW 404, 2282; DS; MM 4539*

Eupatorium semiserratum DC., (**U**) *LB 25538*

Eurybia hemispherica (Alexander) Nesom, (**U**) *DS; MM 4787*

Euthamia leptocephala (T. & G.) Greene, (**U**) *GW 3460*

Facelis retusa* (Lam.) Schultz-Bip., (U**) *GW 3348*

Gamochaeta purpurea (L.) Cabrera, (**U**) *MM 4248; LB 25171*

Helenium amarum (Raf.) H. Rock, (**U**) DS
Helenium drummondii H. Rock, (**W**) *DS; MM 4146*
Helenium flexuosum Raf., (**U**) *DS; MM 4237, 4458*
Helianthus angustifolius L., (**W,U**) *PM s.n.; DS; MM 4455, 4456*
Helianthus annuus L., (**U**) DS
Helianthus debilis Nutt., (**U**) *GW 2357*
Helianthus mollis Lam., (**U**) *GW 2183; DS; MM 4700*
Hieracium gronovii L., (**U**) *MM 4839*
Hymenopappus artemisiifolius DC., (**U**) *MM 4300*
Liatris acidota Engelm. & Gray, (**W**) *PH 901105; MM 4538; LB 26131*a
Liatris elegans (Walt.) Michx., (**U**) *DS; MM 4764*
Liatris pycnostachya Michx., (**U,W**) *DS; MM 4801*
Marshallia graminifolia (Walt.) Small, (**W**) *PM s.n.; DS; MM 4507, 4702*
Oligoneuron nitidum (T. & G.) Small, (**U**) *GW 354; DS; MM 4532*
Pityopsis graminifolia (Michx.) Nutt., (**U**) *DS; MM 4766*
Pluchea foetida (L.) DC., (**W,P**) *DS; MW 6496; MM 4519, 4701*
Pluchea rosea Godfrey, (**W,P**) *MM 4511, 4712, 4714*
Rudbeckia grandiflora (D.Don) J.F.Gmel ex DC. var. *alismifolia* (T.& G.) Cronq., (**U**) *DS; MM 4526; LB 25561*
Rudbeckia hirta L., (**U**) *DS; MM 4448*
Silphium gracile Gray, (**U**) *MM 4294, 4524, 4698*
Solidago canadensis L., (**U**) *LB 26367*
Solidago ludoviciana (Gray) Small, (**U**) *DS; LB 26146, 26148, 26162*
Solidago odora Ait., (**U**) *MM 4767; LB 5574*b [RICE]
Solidago rugosa P. Mill., (**B**) *GW 3461*
Soliva sessilis* Ruiz & Pavon, (U**) *LB 25150*
Symphyotrichum dumosum (L.) Nesom, (**B,W,U**) *GW 2278; DS; MM 4457, 4534*
Symphyotrichum patens (Ait.) Nesom, (**U**) *GW 3427*
Symphyotrichum pratense (Raf.) Nesom, (**U**) *GW 3428; DS; MM 4291, 4531*
Vernonia texana (Gray) Small, (**U**) *PH* & Liu *901110; DS; LB 26136*

BIGNONIACEAE

Bignonia capreolata L., (**U**) *MM 4254*

BLECHNACEAE

Woodwardia areolata (L.) T. Moore, (**B**) *MM 4886, 4950*
Woodwardia virginica (L.) Sm., (**W,B**) *MM 4155, 4304; LB 19231*

BUDDLEJACEAE

Polypremum procumbens L., (**U**) *DS; MM 4537*

CAMPANULACEAE

Lobelia appendiculata A. DC., (**U**) *DS; MM 4236*
Lobelia flaccidifolia Small, (**W**) *MM 4399, 4900*
Lobelia puberula Michx., (**W,U**) *GW 2184, 3454; DS; MM 4784*
+*Lobelia reverchonii* B.L.Turner, (**W**) *GW 3453; DS; MM 4813*
Triodanis perfoliata (L.) Nieuwl. var. *biflora* (Ruiz & Pavon) Bradley, (**U**) *MM 4240*

CAPRIFOLIACEAE

Lonicera japonica* Thunb., (U**) *MM 4842*
Lonicera sempervirens L., (**U**) *LB 26354*
Viburnum dentatum L., (**U**) *MM 4180, 4303*

CISTACEAE

Helianthemum carolinianum (Walt.) Michx., (**U**) DS
Lechea mucronata Raf., (**U**) *DS; LB 26140*
Lechea tenuifolia Michx., (**U**) *LB 19510*

CLUSIACEAE

Hypericum crux-andreae (L.) Crantz, (**W**) *DS; MM 4509; LB 26137*
Hypericum galioides Lam., (**W**) *PM s.n.; DS; MM 4157, 4424*
Hypericum gentianoides (L.) B.S.P., (**U**) *DS; MM 4500; LB 25572*
Hypericum gymnanthum Engelm. & Gray, (**U**) *LB 25571*
Hypericum hypericoides (L.) Crantz., (**U**) *MM 4899*
Hypericum mutilum L., (**P**) *LB 26131*

COMMELINACEAE

Commelina virginica L., (**U**) DS
Tradescantia hirsutiflora Bush, (**U**) *MM 4943*

CONVOLVULACEAE

Ipomoea cordatotriloba Dennst., (**U**) *MM 4785*
Ipomoea pandurata (L.) G.F.W. Mey., (**U**) *DS; LB 26127*
Jacquemontia tamnifolia (L.) Griseb., (**U**) *MM 4788*

CORNACEAE

Cornus florida L., (**U**) *MM 4852*
Nyssa biflora Walt., (**P,B,W**) *GW 2253; MM 4493; LB 25166*
Nyssa sylvatica Marsh., (**W,B**) *MM 4311, 4909, 4910; MW 3288*

CUSCUTACEAE

+*Cuscuta* sp., (**U**) *MM 4919*

CYPERACEAE

Carex complanata Torr. & Hook., (**B,U**) *MM 4888*
Carex frankii Kunth., (**P**) DS
Carex glaucescens Ell., (**P,B**) *DS; LB 25560*
Carex intumescens Rudge, (**P,B**) *MM 4885*
Cyperus croceus Vahl, (**U**) *MM 4774*
Cyperus haspan L., (**W**) *GW 2202* [SHST]; *DS; LB 26363*b
Cyperus retrorsus Chapman, (**U**) *LB 26370*
Cyperus virens Michx., (**P**) DS
Eleocharis microcarpa Torr., (**P,W**) *MM 4394*
Eleocharis tuberculosa (Michx.) Roemer & J.A. Schultes, (**P,W**) *MM 4265, 4282, 4401, 4406*
Fimbristylis dichotoma (L.) Vahl., (**W**) *MM 4395*
Fuirena breviseta (Coville) Coville, (**W,P**) *MM 4709; LB 26152*
Fuirena bushii Kral, (**W,P**) *MM 4387, 4536; LB 25548, 25551*
Fuirena squarrosa Michx., (**W**) *GW 2196* [SHST]
Isolepis carinata Hook. & Arn. ex Torr., (**W,U**) *MM 4878, 4891*
Rhynchospora colorata (L.) H. Pfeiffer, (**P,W**) DS
Rhynchospora corniculata (Lam.) Gray, (**P**) *LB 25548, 26151*
Rhynchospora elliottii A. Dietr., (**P,W**) *MM 4151, 4463, 4938; LB 25519*
Rhynchospora filifolia Gray, (**P,W**) *MM 4461, 4545*b; *LB 25557*
Rhynchospora glomerata (L.) Vahl., (**W**) DS
Rhynchospora gracilenta Gray, (**W**) *MM 4421; LB 25525, 25529, 25542*a
Rhynchospora harveyi W. Boott, (**W**) *LB 25565*
Rhynchospora inexpansa (Michx.) Vahl., (**W**) *LB 25531*
Rhynchospora latifolia (Baldw. ex Ell.) W. Thomas, (**P,W**) *GW 2216; MM 4460*
Rhynchospora oligantha Gray, (**W**) *MM 4250, 4310; LB 25521*a
Rhynchospora perplexa Britt., (**W**) *MM 4513; LB 4483* [RICE], *25555*
Rhynchospora plumosa Ell., (**W**) *DS; MM 4249, 4259; LB 25172*
Rhynchospora pusilla Chapman ex M.A. Curtis, (**W**) *DS; MM 4389; LB 25563, 25573*
Rhynchospora rariflora (Michx.) Ell., (**W**) *MM 4252; LB 25521*c
Rhynchospora recognita (S. Gale) Kral, (**W**) *DS; MM 4293; LB 25536, 25547*
+*Scleria baldwinii* (Torr.) Steud., (**P,W**) *MM 4514; LB 25169, 25556*
Scleria ciliata Michx., (**W**) *LB 25144*
Scleria georgiana Core, (**W**) *MM 4260, 4407; LB 25177, 25524*
Scleria pauciflora Muhl. ex Willd., (**W**) *LB 25173*
Scleria reticularis Michx., (**P,W**) *LB 1606, 6606, 25524*b,
Scleria triglomerata Michx., (**W,U**) *MM 4916*

CYRILLACEAE

Cyrilla racemiflora L., (**B,W**) *MW 3978, 6483; MM 4869*

DENNSTAEDTIACEAE

Pteridium aquilinum (L.) Kuhn, (**U**) *MM 4302, 4865*

DROSERACEAE

Drosera brevifolia Pursh, (**W**) *MM 4163*
Drosera capillaris Poir., (**W**) *MM 4306, 4432*

EBENACEAE

Diospyros virginiana L., (**U,W**) *MM 4901; LB 26360*

ERICACEAE

Lyonia mariana (L.) D. Don, (**W,B**) *MM 4871*
Rhododendron viscosum (L.) Torr., (**U,W,B**) *DS; MM 4450*
Vaccinium arboreum Marsh., (**U**) *MM 4288*
Vaccinium corymbosum L., (**U**) *MM 4147, 4153, 4168; LB 26134*
Vaccinium stamineum L., (**U**) *DS; MW 3291; McL*

ERIOCAULACEAE

Eriocaulon decangulare L., (**W**) *GW 3365; DS; MM 4423; LB 19234*
Lachnocaulon anceps (Walt.) Morong, (**W**) *GW 3368; DS; MM 4239, 4434*

EUPHORBIACEAE

Chamaesyce maculata (L.) Small, (**U**) *LB 26345*
Cnidoscolus texana (Muell.-Arg.) Small, (**U**) *MM 4904*
Croton argyranthemus Michx., (**U**) *DS; MM 4292, 4775*
Croton capitatus Michx., (**U**) *MM 4757*
Croton willdenowii G.L. Webster, (**U**) *LB 14891, 19509, 25523, 25553*
Euphorbia corollata L., (**U**) *DS; MM 4777*
Phyllanthus urinaria* L., (U**) *LB 26348*
Stillingia sylvatica Garden ex L., (**U**) *MM 4246*
Tragia smallii Shinners, (**U**) *MM 4441; LB 19230, 25148*
Tragia urticifolia Michx., (**U**) *DS; MM 4238; LB 25149, 25163*

Triadica sebifera* (L.) Small, (U,B,W**) *MM 4850*

FABACEAE

Aeschynomene indica L., (**U**) *LB 14893*
Albizia julibrissin* Durz., (U**) *LB 26349*
Baptisia nuttalliana Small, (**U**) *MM 4835, 4854, 4873*
Centrosema virginianum (L.) Benth., (**U**) *MW 6493*
Chamaecrista fasciculata (Michx.) Greene, (**U**) *DS; LB 26144*
Crotolaria sagittalis L., (**U**) *DS; MM 4256; LB 26142*
Desmodium paniculatum (L.) DC., (**U**) *LB 26350, 26366*
Kummerowia striata* (Thunb.) Schindl., (U**) *GW 2339*
Mimosa hystricina (Small) B.L. Turner, (**U,W**) *DS; MM 4289, 4440; LB 26163*
Orbexilum simplex (Nutt. ex T. & G.) Rydb., (**U**) *DS; MM 4915; LB 25157*
Rhynchosia latifolia Nutt. ex T. & G., (**U**) DS
Strophostyles umbellata (Muhl. ex Willd.) Britt., (**U**) *PH* & Liu *901107*
Stylosanthes biflora (L.) B.S.P., (**U**) DS
Tephrosia onobrychoides Nutt., (**W**) *DS; MM 4393; MW 6486*
Trifolium dubium* Sibthorp, (U**) *MM 4893*

FAGACEAE

Quercus falcata Michx., (**U**) *GW 2281; MM 4840, 4848, 4859*
Quercus hemisphaerica Bartr. ex Willd., (**B**) *MM 4889; LB 26358*
Quercus incana Bartr., (**U**) *MM 4273*
Quercus laurifolia Michx., (**U**) *LB 26159*
Quercus margarettiae Ashe ex Small, (**U**) *GW 2276*
Quercus marilandica Muenchh., (**U**) *MM 4837*
Quercus muehlenbergii Engelm., (**U**) *MM 4841*
Quercus nigra L., (**U,B**) *GW 2277; MM 4843; LB 26147*
Quercus similis Ashe, (**B**) *LB 25154*
Quercus stellata Wangenh., (**U**) *MM 4847*
Quercus virginiana P. Mill., (**U**) *DS; MM 4911*

GENTIANACEAE

Sabatia gentianoides Ell., (**W**) *DS; MM 4426, 4508*

HALORAGACEAE

Prosperpinaca pectinata Lam., (**P**) *MM 4540; LB 26160*

HAMAMELIDACEAE

Liquidambar styraciflua L., (**U,W**) *MM 4856*

HYDROPHYLLACEAE

Hydrolea ovata Nutt. ex Choisy, (**P**) *DS; MM 4713*

IRIDACEAE

Alophia drummondii (Graham) R.C. Foster, (**U**) *DS; MM 4451, 4529*
Sisyrinchium campestre Bickn., (**UW**) *MM 4144*b, *4159, 4167, 4301* [SBSC]
Sisyrinchium rosulatum Bickn., (**U**) *MM 4257, 4914*
Sisyrinchium sagittiferum Bickn., (**U,W**) *GW 2304; MM 4137, 4167*a

JUNCACEAE

Juncus brachycarpus Engelm., (**U**) *MM 4944, 4948*
Juncus bufonius L., (**W**) *LB 25173*
Juncus dichotomus Ell., (**W**) *MM 4253, 4872, 4902; LB 25143*
Juncus diffusissimus Buckl., (**W**) *MM 4883*
Juncus effusus L., (**W**) DS
Juncus ellottii Chapman, (**W**) *DS; MM 4881; LB 25147, 25167*
Juncus marginatus Rostk., (**W**) *DS; LB 25159*
Juncus nodatus Coville, (**P**) *DS; MM 4939, 4940*
Juncus repens Michx., (**P**) *MM 4946*
Juncus scirpoides Lam., (**U**) DS
Juncus tenuis Willd., (**W**) *MM 4896; LB 25145*
Juncus validus Coville, (**P**) *MM 4945, 4247, 4427*

LAMIACEAE

Hedeoma hispida Pursh, (**U**) *MM 4894*
Hyptis alata (Raf.) Shinners, (**W**) *DS; MM 4495, 4802*
Monarda punctata L., (**U**) DS
Physostegia digitalis Small, (**W**) *GW 355; DS; MM 4525; LB 19235*
Prunella vulgaris L., (**U**) *MM 4255*
Pycnanthemum tenuifolium Schrad., (**U**) *MM 4454*
Scutellaria elliptica Muhl. ex Spreng., (**U**) *MM 4908; LB 25161*
Scutellaria integrifolia L., (**W**) *DS; MM 4295, 4917; LB 25161*
Trichostema dichotomum L., (**U**) *MM 4763*

LAURACEAE

Persea borbonia (L.) Spreng., (**U**) *LB 26352, 26377*
Persea palustris (Raf.) Sarg., (**U,B,W**) *MM 4166; MW 3980; LB 25534*
Sassafras albidum (Nutt.) Nees, (**U**) *MM 4855; LB 26376*

LENTIBULARIACEAE

Pinguicula pumila Michx., (**W**) *MM 4876; MW 4157*

Utricularia radiata Small, (**P**) *MM 4875*
Utricularia subulata L., (**W**) *GW 3384*; DS

LILIACEAE
Aletris aurea Walt., (**W**) *DS; MM 4242; MW 3977*
Allium canadense L., (**U,W**) *MM 4269*
Hymenocallis liriosme (Raf.) Shinners, (**P**) *GW 2332; MM 4145; LB 25170*
Hypoxis curtisii Rose, (**P**) *LB 26384*
Hypoxis rigida Chapman, (**W**) *MM 4270, 4897; LB 25142*
Nothoscordum bivalve (L.) Britt., (**U**) *MM 4143*
Schoenolirion croceum (Michx.) Wood, (**W**) *DS; MM 4173*
Tofieldia racemosa (Walt.) B.S.P., (**W**) *GW 350; DS; MM 4505; LB 19229*

LINACEAE
Linum medium (Planch.) Britt., (**U,W**) *PM 4; DS; MM 4251, 4422*

LOGANIACEAE
Gelsemium sempervirens A. St.-Hil., (**U**) *MM 4183*
Mitreola sessilifolia (J.F. Gmel.) G. Don, (**W**) *PM 1; DS; MM 4544*

LYCOPODIACEAE
Lycopodiella appressa (Chapman) Cranfill, (**W**) *PM 18; MM 4307, 4430, 4541*
Lycopodiella caroliniana (L.) Pichi Sermolli, (**W**) *GW 358*

LYGODIACEAE
Lygodium japonicum (Thunb.ex Murr.) Sw., (**U**) *LB 26164*

MAGNOLIACEAE
Magnolia grandiflora L., (**U**) *MM 4849*
Magnolia virginica L., (**W,B**) *MM 4305*

MALVACEAE
Hibiscus moscheutos L. ssp. *lasiocarpos* (Cav.) O.J. Blanchard, (**W,B,P**) *GW 2185; MM 4403, 4545*

MELASTOMATACEAE
Rhexia lutea Walt., (**W**) *DS; MM 4425, 4523*
Rhexia mariana L., (**W**) *DS; MM 4428, 4522*
Rhexia petiolata Walt., (**W**) DS

MYRICACEAE
Morella caroliniensis (P. Mill.) Small, (**B,W**) *MM 4170; McL; MW 3292*
Morella cerifera (L.) Small, (**U,B,W**) *MM 4828*

OLEACEAE
Chionanthus virginicus L., (**U**) *LB 25151*
Ligustrum sinense* Lour., (U**) *MM 4154, 4868*

ONAGRACEAE
Ludwigia hirtella Raf., (**W,U**) *DS; MM 4391, 4415; LB 25522*
Ludwigia linearis Walt., (**W**) *PM 13; DS; MM 4503, 4710*
Ludwigia pilosa Walt., (**P**) *MM 4790; LB 14895*
Oenothera linifolia Nutt., (**U**) *DS; MM 4235, 4244*

OPHIOGLOSSACEAE
Botrychium biternatum (Sav.) Underwood, (**U**) *MM 4898*

ORCHIDACEAE
Calopogon oklahomensis D.H. Goldman, (**W,U**) *MM 4864; GW 3358* [TAMU]
Calopogon tuberosus (L.) B.S.P., (**W**) *DS; MM 4429, 4937*
Isotria verticillata Raf., (**B**) *GW 1475*
Platanthera nivea (Nutt.) Luer, (**W**) *GW 349; DS; MW 6480; McL*
Pogonia ophioglossoides (L.) Ker-Gawl., (**W**) DS
Spiranthes brevilabris Lindl., (**W**) DS
Spiranthes praecox (Walt.) S. Wats., (**U,W**) *GW 3380; MM 4271, 4279*
Spiranthes tuberosa Raf., (**U, W**) *LB 18627*

OSMUNDACEAE
Osmunda cinnamomea L., (**W,B**) *MM 4863*
Osmunda regalis L., (**W,B**) *DS; MM 4158, 4261*

OXALIDACEAE
Oxalis dillenii Jacq., (**U**) *MM 4142, 4178*
Oxalis lyonii Pursh, (**U**) *GW 2303; MM 4161*
Oxalis violacea L., (**U**) *DS; LB 26385*

PASSIFLORACEAE
Passiflora lutea L., (**U**) *MM 4443*

PINACEAE
Pinus echinata P. Mill., (**U**) *MM 4836*
Pinus palustris P. Mill., (**W,U**) *MM 4857*
Pinus taeda L., (**W,U**) *MM 4858*

PLANTAGINACEAE
Plantago aristata Michx., (**U**) DS
Plantago virginica L., (**U**) *MM 4298*

PLATANACEAE
Platanus occidentalis L., (**U**) *LB 26369*

POACEAE
Andropogon gerardii Vitman, (**U**) DS
Andropogon ternaris Michx., (**U**) *GW 2270; LB 26365*

Andropogon virginicus L., (**W,P**) *GW 2272; DS; MM 4781, 4791*
Anthaenantia rufa (Nutt.) J.A. Schultes, (**W**) *GW 2284; DS; MM 4797; LB 26381*
Anthaenantia villosa (Michx.) Beauv., (**W**) *GW 2203, 2207; DS; LB 26364*
Aristida longespica Poir.var.*geniculata* (Raf.) Fern., (**U**) *GW 2219*; DS
Aristida palustris (Chapman) Vasey, (**P,W**) *GW 2205; MM 4704; LB 26153*
Aristida purpurascens Poir. var. *purpurascens*, (**U**) *MM 4783*
Aristida purpurascens Poir. var. *virgata* (Trin.) Allred, (**U,P,W**) *DS; MM 4800; LB 5576, 26143*
Axonopus fissifolius (Raddi) Kuhlm., (**U,W**) *DS; MM 4390, 4778*
Chasmanthium laxum (L.) Yates var. *laxum*, (**B**) *MM 5157*a, *5157*b; *LB 26344, 26368*
Coelorachis cylindrica (Michx.) Nash, (**U**) *MM 4942*
Coelorachis rugosa (Nutt.) Nash, (**P,W**) *GW 2188; DS; MM 4711; LB 26154*
Dichanthelium aciculare (Desv. ex Poir.) Gould & Clark, (**U**) DS
Dichanthelium acuminatum (Sw.) Gould & Clark var. *fasciculatum* (Torr.) Freckmann, (**P,U,W**) *DS; MM 4262; LB 25155, 25158*
Dichanthelium commutatum (J.A. Schultes) Gould, (**W**) *DS; MM 4275*
Dichanthelium consanguineum (Kunth) Gould & Clark, (**U,W**) *MM 4263, 4280, 4412; LB 19232*
Dichanthelium dichotomum (L.) Gould var. *tenue* (Muhl.) Gould & Clark, (**W**) *DS; LB 25146*a
Dichanthelium longiligulatum (Nash) Freckmann, (**W**) *MM 4234, 4462; LB 25168, 25175*
Dichanthelium scabriusculum (Ell.) Gould & Clark, (**W**) *MM 4392*
Dichanthelium scoparium (Lam.) Gould, (**U,W**) *MM 4411*
Dichanthelium sphaerocarpon (Ell.) Gould var. *sphaerocarpon*, (**U**) *MM 4290; LB 25554*
Dichanthelium sphaerocarpon (Ell.) Gould var. *isophyllum* (Scribn.) Gould & Clark, (**U**) *LB 25162*
Dichanthelium villosissimum (Nash) Freckmann, (**U,P,W**) *MM 4286, 4299, 4444; LB 26354*
Dichanthelium wrightianum (Scribn.) Freckmann, (**P**) *LB 26126*
Digitaria ciliaris (Retz.) Koel., (**U**) *LB 26346*
Digitaria cognata (Schult.) Pilger. ssp. *cognata*, (**U**) *MM 4779*
Digitaria ischaemum* (Schreb.) Schreb. ex Muhl., (U**) DS
Eragrostis elliottii S. Wats., (**W**) *GW 2247*
Eragrostis refracta (Ell.) Scribn., (**W**) *DS; MM 4796*
Eragrostis secundiflora J. Presl, (**U**) DS
Eragrostis spectabilis (Pursh) Steud, (**U**) *GW 2268, 2287; LB 14894, 26141*
Gymnopogon ambiguus (Michx.) B.S.P., (**U**) *GW 2312; DS; LB 6605*
+*Gymnopogon brevifolius* Trin., (**U**) *MM 4780* [SBSC]
Muhlenbergia capillaris (Lam.) Trin. var. *capillaris*, (**W**) *DS; MM 4793; LB 26373*
Panicum anceps Michx., (**W**) DS
Panicum brachyanthum Steud., (**U,W**) *DS; MM 4770*
Panicum hemitomon J.A. Schultes, (**P**) *LB 25543*
Panicum rigidulum Bosc ex Nees, (**P,U,W**) *MM 4715, 4772; LB 25558, 26106*
Panicum tenerum Bey. ex Trin., (**P,W**) *MM 4410, 4433, 4502, 4543, 4815;, LB 6669, 14896, 25523*a
Panicum verrucosum Muhl., (**W**) *MM 4812; LB 6607*
Panicum virgatum L., (**P,W**) DS
Paspalum bifidum (Bertol.) Nash, (**U**) *LB 6666*
Paspalum floridanum Michx., (**U,W**) *GW 2190; DS; MM 4771; LB 25528*
Paspalum laeve Michx., (**W**) *LB 26383*
Paspalum lividum Trin., (**P**) *GW 2222*
Paspalum notatum* Fluegge, (U**) DS
Paspalum plicatulum Michx., (**U,W**) *DS; MM 4243, 4388, 4501*
Paspalum praecox Walt., (**W**) *GW 2192; DS; MM 4404; LB 25541*
Paspalum setaceum Michx., (**W**) *GW 2221; DS; MM 4799; LB 25535*
Paspalum urvillei* Steud., (U**) DS
Poa annua* L., (U**) *MM 4831*
Saccharum giganteum (Walt.) Pers., (**P**) *CL 901176, 901177*
Sacciolepis indica* (L.) Chase, (P**) *GW 2194*
Schizachyrium scoparium (Michx.) Nash var. *divergens* (Hack.) Gould, (**U,W**) *GW 2186; DS; MM 4765; LB 26375*
Schizachyrium tenerum Nees, (**U**) *MM 4696, 4782; LB 19508*
Setaria parviflora (Poir.) Kerguelen, (**U**) DS
Sporobolus junceus (Beauv.) Kunth, (**U**) *DS; MM 4773; LB 26356*
Steinchisma hians (Ell.) Nash, (**U**) *MM 4398, 4941*

Tridens ambiguus (Ell.) J.A. Schultes, (**U,W**) *GW 2208; DS; MM 4760; LB 25562,*
Tridens strictus (Nutt.) Nash, (**W**) *GW 2193; LB 5577* [RICE]; *MM 4792, 4806*
Tripsacum dactyloides (L.) L., (**U**) *DS; MM 4459*

POLEMONIACEAE
Phlox pilosa L., (**U**) DS

POLYGALACEAE
Polygala cruciata L., (**W**) *GW 353*; DS
Polygala incarnata L., (**U,W**) *GW 3385; DS; MM 4276; LB 19233*
Polygala mariana P. Mill., (**U,W**) *DS; MM 4278, 4530*
Polygala polygama Walt., (**U**) DS
Polygala ramosa Ell., (**W**) *DS; MM 4405*

POLYGONACEAE
Polygonum punctatum Ell., (**P**) *LB 26372*

PRIMULACEAE
Anagallis minima (L.) Krause, (**U**) *MM 4895*

RANUNCULACEAE
Delphinium carolinianum Walt., (**U**) *MM 4496*

RHAMNACEAE
Berchemia scandens (Hill) K. Koch, (**U**) *MM 4829*
Frangula caroliniana (Walt.) Gray, (**U**) *MM 4826*

ROSACEAE
Crataegus marshallii Egglest., (**U**) *GW 2301*
Crataegus opaca Hook. & Arn., (**B,P,W**) *GW 2305; MM 4135, 4136, 4890*
Crataegus spathulata Michx., (**B**) *MM 4949*
Photinia pyrifolia (Lam.) Robertson & Phipps, (**W**) *DS; MM 4148*
Prunus caroliniana (P. Mill.) Ait., (**U**) *LB 26353*
Prunus serotina Ehrh., (**U**) *MM 4187*
Pyrus calleryana* Dcne., (U**) *MM 4184*
Rubus argutus Link, (**U**) *GW 2299; MM 4867*
Rubus trivialis Michx., (**U**) *GW 2300; MM 4176*

RUBIACEAE
Cephalanthus occidentalis L., (**W,P**) *MM 4417, 4515*
Diodia teres Walt., (**U**) *DS; LB 26145*
Diodia virginiana L., (**W**) *MM 4542; LB 26133*
Galium pilosum Ait., (**U**) *MM 4437; LB 25153*
Hedyotis nigricans (Lam.) Fosberg, (**U**) *DS; MM 4498*
Houstonia pusilla Schoepf, (**U**) *MM 4177*
Mitchella repens L., (**U**) *MM 4853*
Oldenlandia boscii (DC.) Chapman, (**P**) *LB 19227, 25544, 25570*

SARRACENIACEAE
+*Sarracenia alata* Wood, (**W**) *MM 4175; McL*

SCROPHULARIACEAE
Agalinis fasciculata (Ell.) Raf., (**U**) DS
Agalinis oligophylla Pennell, (**U**) *GW 3448, 3455; MM 4769; LB 6603*
Agalinis purpurea (L.) Pennell, (**U**) *LB 26343, 26378*
Agalinis viridis (Small) Pennell, (**U**) *GW 3426*
Gratiola brevifolia Raf., (**U,W**) *DS; MM 4266*
Gratiola pilosa Michx., (**U**) *MM 4499*
Lindernia crustacea* (L.) F. Muell., (P**) *LB 26363*
Mecardonia acuminata (Walt.) Small, (**U,W**) *MM 4776*
Penstemon laxiflorus Pennell, (**U**) *DS; MM 4274*

SMILACACEAE
Smilax bona-nox L., (**U**) *PM 15*; DS
Smilax glauca Walt., (**W,U**) *DS; MM 4185; LB 19246*
Smilax laurifolia L., (**W,B**) *MM 4870*
Smilax pumila Walt., (**U**) *MM 4832*
Smilax rotundifolia L., (**U**) *MM 4903; LB 25160*
Smilax smallii Morong, (**U**) *DS; MM 4182, 4851*

SOLANACEAE
Solanum ptychanthum Dunal, (**U**) *LB 26155*

SYMPLOCACEAE
Symplocos tinctoria (L.) L'Her., (**U**) *MM 4171*

VERBENACEAE
Callicarpa americana L., (**U**) *MM 4445*

VIOLACEAE
Viola lanceolata L., (**W**) *MM 4174*
Viola palmata L., (**U**) *MM 4138, 4164, 4186*
Viola primulifolia L., (**W**) *MM 4144a, 4918*
Viola sagittata Ait., (**U**) *MM 4165*

VITACEAE
Parthenocissus quinquefolia (L.) Planch., (**U**) *MM 4860*
Vitis rotundifolia Michx., (**U**) *MM 4833*

XYRIDACEAE
Xyris ambigua Bey. ex Kunth, (**W**) *DS; MM 4703; McL; LB 26132*
Xyris baldwiniana J.A. Schultes, (**W**) *MM 4156, 4397, 4419; LB 25524a*
Xyris stricta Chapman var. *obscura* Kral, (**W**) *LB 25540, 26129*
Xyris torta Sm., (**W**) *DS; MM 4517; LB 18626a, 25527*

Notes:
Cuscuta sp. The specimen had no flowers or fruit.
Gymnopogon brevifolius. This is the third record for this species in Texas.
Lobelia reverchonii. We prefer to keep this a good species.
Sarracenia alata. This species was introduced to the Hickory Creek Unit by Geraldine Watson in the early 1970's. It occurs naturally in wetland pine savannas nearby.
Scleria baldwinii. This is the first pineywoods region record.

DISCUSSION

Our plant list numbers 401 taxa (385 native) for the Hickory Creek Unit. Previous plant lists (Watson 1982; Yu n.d.) numbered well over 500 taxa. Why the discrepancy? Three possibilities suggest themselves: 1) our list is only about 75 percent complete, 2) the Unit was much richer 25 years ago when the first lists were developed, and 3) previous lists are at least partly conjectural, being "padded" with taxa that could possibly be there but which have not actually been found there.

These possibilities are not mutually exclusive and, at the present time, it is impossible to fully assess them. However, some comments are apropos.

Before we began collecting, the documented plant list for the Hickory Creek Unit numbered about 190 taxa (Brown n.d.). We doubled the list in 17 field trips in 2000 and 2001. If the total number of taxa at Hickory Creek numbered 530—i.e., only about one third had previously been documented—one would expect that, at least at first, approximately two out of every three of our collections would have been an addition. This was not the case, and we actively avoided recollecting in many cases. Additionally, on the basis of the specimens collected from the Hickory Creek Unit in the 1970's and 1980's and reported by Watson (1982), there is no evidence that there then existed plant communities additional to those that occur there now that would account for the additional taxa. The same taxa collected by Streng and Watson in the 1970's were recollected in 2000–2001, and Watson's listed species do not signal other communities. Finally, aerial photographs, scientific literature, historical accounts, and reminiscences by "old timers" clearly do not place additional plant communities there. With only four communities represented, one would expect on the basis of typical community counts (75 to 125 taxa per community type with some overlap among communities) only 400 taxa. Consequently, while we have obviously not found every taxon that exists at the Hickory Creek Unit, we feel that our list of 401 taxa is over 90 percent complete.

There is some evidence to support the second hypothesis. The Hickory Creek Unit is severely fire suppressed and has lost much of its herbaceous layer (Streng & Harcombe 1982; McClung 1988; MacRoberts & MacRoberts 2000). Today there remain only small patches of the extensive pine savannas that were

previously there. Some taxa undoubtedly could have been lost or at least become very rare in the ensuing years. For example, we did not find several of the conspicuous orchids that had been collected in the 1970's. Nonetheless, it is unlikely that 125 taxa have been lost in that period.

The third hypothesis probably explains a good deal of the discrepancy. The Parks and Cory (1936) Big Thicket plant list was partly conjectural ("could possibly be there") (Cozine 1993) and there is no reason to suppose that the Watson (1982) list was not also partly conjectural. Many species on Watson's (1982) list do not occur in the area and were probably added either because of misidentification (both in the field and of herbarium specimens) or because of conjecture. Cases in point include *Eriocaulon koernickianum* Van Heurck & Muell.-Arg. (undoubtedly misidentified *Lachnocaulon anceps*) and *E. septangulare* With. (probably misidentified *E. decangulare*) (see Brown & Brown 1996).

Thus, while it is the case that our list is incomplete and that a few taxa may have been lost, most taxa that have grown in the Hickory Creek Unit during the past quarter century have been collected (probably 90+ percent). We believe that the Hickory Creek Unit has about 400 to 425 native taxa, far fewer than have been attributed to it.

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