BIG THICKET

PLANT ECOLOGY

An Introduction

Third Edition

GERALDINE ELLIS WATSON

Number 5 in the Temple Big Thicket Series

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Preface

This book is the result of a lifetime spent in Big Thicket country and of close observation and appreciation of its plant and animal life. It is written in a non-technical style for the benefit of the many non-professional persons interested in the general nature of the Big Thicket. The description of plant associations given in this work is based on the virgin condition and not as conditions are now. This is important so that people who plan to restore the natural habitat will have an authentic guideline.

I have used the botanical nomenclature of Correll and Johnston's 1970 work, *Manual of the Vascular Plants of Texas* (see References). Some plant names have been changed, so the serious botanist will want to consult more recent literature if there is a conflict.

In 1936, some interested persons led by R. E. Jackson created the East Texas Big Thicket Association for the purpose of setting aside some of the area known as the Big Thicket, but for various reasons the effort failed. In 1964, a Saratoga naturalist, Lance Rosier, revived the Big Thicket Association and a fresh effort was launched to save some of the remains. I became a member and began writing a weekly column called "The Big Thicket—Past, Present and Future" in the local newspaper, *The Pine Needle*. A search for information turned up a plethora of amazing claims, such as, "If it grows between the Mississippi River and the Edwards Plateau, it can be found in the Big Thicket." Ocelots and monkeys were even reported as residents. The Big Thicket was called a "Biological Crossroads," yet I could find no verification, published or unpublished, for any of these claims.

Abundant literature was available on the legends, people, and history of the Big Thicket (see Abernethy in the References, for instance), but it would not be sufficient to take a scientist or a senator to

the Kaiser Burnout, which is now a pine plantation, and recount the Civil War legend; or to take them to the old Hooks Bear Camp site and tell of the wildlife of bygone days. The response would probably have been, "So what! There were probably dinosaurs here once," or, "What kind of National Park would a pine plantation make?" It appeared to me that if we were to save any of the Big Thicket, we would have to produce evidence based on the "here" and "now" that there is something here worth saving.

Some of the questions to which I sought answers were as follows: Is the Big Thicket unique? Is it really a biological crossroads? Why? Is it disappearing at the rate of fifty acres a day, as some claim? Or, as the opponents of preservation claim, is it bigger and better than ever? In light of these questions, I began to take a long, close, unemotional look at the Big Thicket.

Actually, my emotions were involved. I had spent a happy childhood along the streams and forests of Tyler County. On Sunday afternoons, my mother, Retha Ellis, took us for walks to pick wildflowers among the towering virgin pines. She gave names to them and pointed out those her mother had used to make medicines and dyes for her homespun cloth. I followed my father, Herbert Ellis, an avid hunter and fisherman, into the deep forests and along the streams and he would identify the trees. A small branch of Turkey Creek was only a few hundred yards from our home.

During my lifetime, I have watched all these beautiful scenes of my childhood made ugly and disappear. But neither the agony of watching my homeland disintegrate nor the memory of its past glory could be counted as reasons to create a national preserve to anyone but myself.

In my quest for the truth, and evidence of that truth, I went back to school at Lamar University, enrolling in all the classes that would help me understand and interpret this land. Dr. Donovan Correll, of the Texas Research Foundation, was compiling the *Manual of the Vascular Plants of Texas* and enlisted my help collecting specimens in my area and, in the process, taught plant taxonomy and herbarium management to me. I had been listing plants with location and blooming dates for four years, but realized my list was worthless without voucher specimens, so, with the encouragement of Dr.

Richard Harrel, as an undergraduate problem at Lamar, I organized a herbarium and began to systematically botanize, preserve, and catalogue the vegetation of the Big Thicket.

As an amateur botanist in the right place at the right time, I had the most eminent persons in that field for teachers. Scientists from all over the world were coming to the Big Thicket and, since Lance Rosier had died, I was the person on the scene to assist them and learn from them. Eventually, after ten years in the classroom, the field, and laboratories, the answers began to come.

It didn't take long to decide that the Big Thicket was being rapidly altered. As I returned to the flower-filled meadows, the deep forests of giant oaks, magnolias, and beeches, and the sunny longleaf pinelands of my childhood, I found either raw earth as far as the eye could see, neat rows of pine trees, or real estate developments. The charming little streams were either choked with brush or dredged for drainage ditches.

I also reached the conclusion that the Big Thicket is indeed unique and the key word is "diversity." In no other area of comparable size can such biological diversity be found. It was apparent that this is due largely to its geological history. The age differences of the surface formations, with resultant differences in elevation, drainage patterns, and soil types, and its location on the continent where climate changes occur, caused a great number of plant communities to develop. Patterns began to appear, and I segregated several distinct plant associations. Here, one can literally step from a hydrophytic community with ferns, sphagnum moss, and orchids into a xerophytic community with cactus, yucca, and other desert flora. Or stand in one spot and, facing in four different directions, view scenes typical of the Appalachians, or the Florida Everglades, a southwestern desert, or the pine barrens of the Carolinas (see fig. 1).

This diversity has become a matter of record as scientists like Dr. Paul Harcombe of Rice University and Dr. Peter Marks of Cornell University continue to collect and quantify forest ecology research data here. Dr. Richard Harrel of Lamar University continues to study the aquatic communities of the area, and the late Dr. Saul Aronow, an authority on quaternary and tertiary geology, was generous with his vast knowledge of that land below the surface of the Big Thicket.

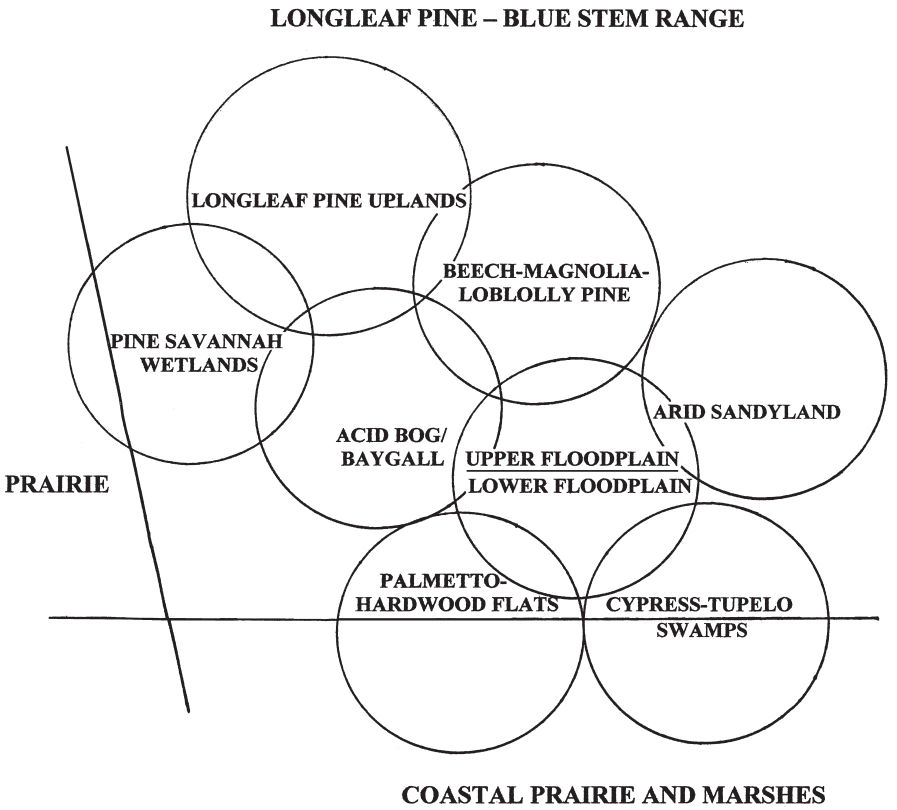
Dr. Paul Feeny, a British scientist, stated in the prestigious journal, *Science*, that the Big Thicket was unique in all the world (see fig. 1).

It is my hope that this book will inspire more in-depth, detailed research, which will be irrefutable proof that the Big Thicket is indeed a biological wonder of the world. And that there is still a need to fight for its protection.

Along with Dr. Correll, Dr. Harrel, and Dr. Aronow, I wish to thank Maxine Johnston, former head librarian at Lamar University, for making it possible for my works to be published.

FIGURE 1

Inter-relationship of Big Thicket Plant Communities



KEYS TO UNDERSTANDING

MANY THICKETS

Few areas in the United States have inspired such claim and acclaim as the Big Thicket of Southeast Texas; and seldom are such claims so controversial and so contradictory. While the controversies can generally be laid at the feet of those who want to use all its natural resources for personal and corporate profits, contradictions come from reliable, well-intentioned sources as well. Considering the complex nature of the Big Thicket, it is not surprising in this age of specialization that each person who investigates the Thicket sees it in the light of his own experience and interests.

The Big Thicket has had many interpreters: The folklorist traces its legends and pins its boundaries down to the bear hunters' happy hunting grounds in the "Old Hurricane Section." The promoter envisions hordes of tourists and skyrocketing land values. The lumber man with an eye to the fantastic growth rate of pines, views the Thicket as wasteland and useless ornamentals such as magnolia and dogwood trees taking up space where the more profitable pine trees could grow. The biologist discovers opportunities for the study of ecological succession. Canoeists, hikers, birdwatchers, sportsmen, lovers of wilderness and solitude—each has found in the Big Thicket the fulfillment of his own particular need and has defined it accordingly.

There are two major keys to understanding the Big Thicket. One: It is not one, but many extensive thickets, both natural and unnatural, interspersed with open woodlands. Two: There are three major definitions of the nature, the location, and the causes of the Big Thicket.

Natural Thickets

Immense natural thickets occupy topographic depressions, seepage slopes, and filled, abandoned stream channels. In moisture-saturated soil, if a tree grows tall, it cannot retain its footing but falls and contributes to the acidic organic debris where fungi decay it and lichens, mosses, and ferns grow on it. When a large canopy tree falls, the sunlit opening quickly acquires a dense population of acid- and moisture-loving shrubs such as titi (*Cyrilla racemiflora*), gallberry holly (*Ilex coreaceae*), wax myrtle (*Myrica heterophylla*), and various ericaceous shrubs. The dense population of titi in poorly drained areas of the Traditional Thicket gave it one of its names: "the tight-eye thicket" ("titi" being corrupted to "tight eye").

There are also natural thickets found in areas that are isolated from wildfire by streams, and where the soil and leaf mulch are too damp to burn. The leaves of some species such as beech (*Fagus grandifolia*), magnolia (*Magnolia grandiflora*), and some oaks are actually fire retardant. Thickets of shrubs such as titi, sweetpepper bush (*Clethra alnifolia*), and azaleas (*Rhododendron* species), form a band in the seepage slopes between the closed-canopy slope forest and the water of baygalls (see photos 1 and 2).

Unnatural Thickets

The most common thickets today are artificial ones caused by fire suppression (see photo 2). Under natural control, all land not protected by water barriers is swept by wildfires every few years, especially during drought cycles, allowing only those species tolerant in varying degrees of fire to survive. Without fire, wetland savannahs are thickly populated with moisture-loving shrubs, while the uplands become dense thickets of yaupon (*Ilex vomitoria*), wax myrtle (*Myrica cerifera*), and various species of non-pyric tree saplings.

PHOTO 1: Natural Thicket (by Geraldine Watson)