A History of the Alexandria Forestry Center Herbarium

James P. Barnett

James P. Barnett, Retired Chief Silviculturist and Emeritus Scientist, U.S. Department of Agriculture, Forest Service, Southern Research Station, Pineville, LA 71360.

INTRODUCTION

The Alexandria Forestry Center (AFC) Herbarium developed as a result of early forest research influences in Louisiana. Specifically, U.S. Department of Agriculture, Forest Service research programs in the region during the early 1920s highlighted the need to identify and understand the significance of understory plants. Initially the issue was weed control in nurseries, but other needs soon developed. For example, the use of forests for cattle grazing raised issues related to the competition of cattle and wildlife for similar forage. To help understand these and other issues, scientists began identifying and documenting the plant species across the range. Over time, the collections themselves broadened, as did the people and organizations that used them. In the 1940s, the herbarium housing the collections was moved to the AFC. Here, the plant collections have continued to grow and are now serving the needs of both research and Kisatchie National Forest (KNF) botanists who have responsibility for identifying and protecting a wide range of plants on national forest lands.

“The Alexandria Forestry Center (AFC) Herbarium developed as a result of early forest research influences in Louisiana. Specifically, U.S. Department of Agriculture, Forest Service research programs in the region during the early 1920s highlighted the need to identify and understand the significance of understory plants.

BRIEF HISTORY OF REFORESTATION WORK IN LOUISIANA

In the late 1800s and early 1900s, the harvest of native pine (*Pinus* spp.) forests across the South was reaching its peak. By the time lumber industries moved westward into Louisiana, railroad logging had become very efficient, with little standing timber remaining as a seed source for regenerating new forests. Henry Hardtner, president of Urania Lumber Company, saw the need for reforestation of cutover land, and in 1913 dedicated 25,719 acres of cutover land for a reforestation reserve. Reforestation specialists from the Forest Service’s Washington Office visited the reserve and proposed areas of experimentation.

When the Forest Service established the Southern Forest Experiment Station (SOFES) headquartered in New Orleans in 1921, reforestation technology was recognized as a critical research need. Philip C. Wakeley was hired in 1924 and given the responsibility for conducting reforestation research. Although research was established with help from Urania Lumber Company and the Great Southern Lumber Company in Bogalusa, LA, the death of Hardtner resulted in the focus of this research turning to Great Southern. As a result, preliminary pine seed, seedling, and planting technology developed from cooperative efforts with Great Southern.

In 1929, the KNF was established mostly from purchased cutover forest land. The onset of the Great Depression in the early 1930s created many problems, but also

Top: Some of the first pine seedling crops grown at the Stuart Nursery in the 1930s. These efforts resulted in over 8.8 million pine seedlings used to help reforest the region.

Inset: Civilian Conservation Corps (CCC) employees in 1935 weeding the Stuart Nursery beds by hand, a laborious effort.

a few opportunities. One such opportunity was the creation of the Stuart Nursery near Pollock in 1933 by the Forest Service. Labor, except for construction, was entirely by Civilian Conservation Corps (CCC) employees. In 1935, the Kisatchie permanent nursery staff consisted of a nurseryman (A.D. Read), assistant nurseryman (J.T. May), and a seed-extracting foreman (H.H. Muntz). SOFES research staff consisted of M.A. Huberman and A.D. McKellar, who were under the supervision of Wakeley. The SOFES's reforestation research efforts were transferred to the Stuart Nursery in collaboration with the KNF, and the nursery's production in 1934 numbered 8,887,000 pine seedlings.

Availability of CCC labor allowed extensive research trials at the Nursery and outplantings on the Palustris Experimental Forest. About 750,000 seedlings were planted in several hundred research studies. This early reforestation research program resulted in Wakeley's (1954) publication, *Planting the Southern Pines*; an earlier version of this document (Wakeley 1935) served as the guide for the CCC efforts to successfully reforest southern pines (Barnett 2013).

EARLY PLANT SPECIMEN COLLECTIONS

A major problem in the management of the new nursery—and related outplantings—was herbaceous growth and control. Even though the CCC labor was plentiful, removing weeds was very laborious and time consuming. The identification of the weeds became an early research initiative, and there was hope that with more knowledge of the plants, approaches could be developed that would reduce the magnitude of the problem.

Almost immediately after the SOFES opened, a herbarium was established in their New Orleans office, with collections made and accepted from across the South (and even other parts of the country). In 1934, McKellar began an effort to collect, identify, and photograph the common herbaceous plants of the Nursery and surrounding area, with hundreds of plants identified and photographed. During 1935, McKellar began to mount specimens and document the pertinent collection information on herbarium cards. By his own account, he was assisted in plant identification by "…Dr. L.J. Pessin, Miss Anna Haas, and Dr. C.A. Brown" (McKellar 1936).

During World War II, few personnel were available to maintain the Nursery and plant collection. However, in 1947, the SOFES established a research center at Alexandria. Range research was a major component of the program, and plant collections were reinstituted. The scope and mission of the herbarium changed to support the range research effort. In 1947, the staff, guided by Robert S. Campbell, began to collect and study plants on longleaf-bluestem (*P. palustris-Andropogon* spp.) ranges (Cassady and Mann 1954). Several eminent botanists, from institutions like the Smithsonian, U.S. Bureau of Plant Industry, and New York's American Museum of Natural History, contributed their services to identify plants from various families. About 80 of the most valuable forage grasses, grass-like plants, forbs, and shrubs were described and illustrated in the *Field Book of Forage Plants on Longleaf Pine-Bluestem Ranges* (Langdon and others 1952). This field book described the plants so that they could be readily identified, discussed their food value for cattle and game, and listed their special habits, values, and properties.

Research Center Leader, John Cassady, led this early range and plant identification work, assisted by a number of scientists that had some training in botany. For example, Walt Hopkins made many collections and photographed many plants for the unit's files and publications, and others (such as Gordon Langdon, Herb Muntz, and Miriam Bornhard) were involved in collections and plant identification. Even though early storage conditions were primitive by today's standards and fire destroyed some material in 1959 (when the entire building burned), their work has endured, and some of these early specimens are still maintained in the AFC Herbarium.

DEVELOPMENT OF THE AFC HERBARIUM

In the early 1960s, the SOFES established an independent range research work unit in Alexandria. Dr. Vinse Duvall led this program for many years. The assignment of botanist Harold Grelen to the unit resulted in the further development and expansion of the herbarium. Grelen not only led the development of the herbarium, but he began to train others, both scientists and technicians, on proper techniques for specimen collection, preparation, and storage. Alton Martin, a range technician, was trained over many years in plant identification, and he developed an exceptional ability to identify plants of the West Gulf region. Even after retirement, Martin continued to assist and train botanists new to the plants of the region. All of these men contributed to a later expansion of the earlier field book (Langdon and others 1952), which included exceptional drawings of the common plants of the region (Grelen and Duvall 1966).

Top: Star grass (*Hynoxis hirsata*) collected, mounted, and documented with herbarium card at the Stuart Nursery by A.D. McKellar in 1935.

Bottom: Center Leader John Cassady and scientists Herb Muntz, R.S. Campbell, and P.R. Wheeler in 1947. These scientists led the early range and plant identification work at AFC Herbarium.

Top: Botanist Harold Grelen played an integral role in the development of the herbarium, training scientists and technicians on proper techniques for specimen collection, preparation, and storage.

Bottom: Alton Martin recording types of vegetation preferred by white-tailed deer. This deer was one of several tamed for these evaluations.

The emphasis of Grelen and Duvall's book was plants that were important as forage for cattle and wildlife. Studies were conducted (e.g., Thill 1983) on the value of various plant communities in maintaining nutritious diets for range cattle and white-tailed deer (*Odocoileus virginianus*), so no effort was made to make a general collection of all plant species. The range research program within the SOFES was terminated in 1990, while responsibility for the herbarium was assigned to the forest management research work unit. Although the emphasis on plants more specific for forage needs continued, there was a shift in collections to include a wider range of understory plants in forests.

EXPANSION OF THE HERBARIUM AS A RESOURCE FOR THE KNF

As the use of the herbarium for research needs declined, botanical programs in the KNF began to increase. Botanists began to use the herbarium to meet some of their needs and plant collections began that had a much wider scope and emphasis. The KNF had increasing responsibility for identifying and protecting a wide range of plants on national forest lands, many of which were listed as sensitive by the regional forester, with some being candidates for Federal listing as threatened or endangered. In 1994, a letter of agreement between the SOFES and KNF was signed. The document established a formal sharing of responsibility for the herbarium. In the last few years, KNF botanists have taken leadership in maintaining the herbarium and adding new plant selections. The herbarium continues to grow and is now serving this expanding mission.

REFERENCES

Barnett, J.P. 2013. Early history of tree seedling nurseries in the South. In: Haase, D.L.; Pinto, J.R.; Wilkinson, K.M., tech. coords. National proceedings: Forest and Conservation Nursery Associations—2012. Proc. RMRS-P-69. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 42–46.

Cassady, J.T.; Mann, W.F., Jr. 1954. The Alexandria Research Center. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 50 p.

Grelen, H.E.; Duvall, V.L. 1966. Common plants of longleaf pine-bluestem range. Res. Pap. SO-23. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 96 p. https://doi.org/10.5962/bhl.title.82294.

Langdon, O.G.; Bomhard, M.L.; Cassady, J.T. 1952. Field book of forage plants on longleaf pine-bluestem ranges. Occas. Pap. 127. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 117 p.

McKellar, A.D. 1936. The weed problem at the Stuart Nursery, Pollock, LA. Occas. Pap. 55. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 20 p. https://doi.org/10.5962/bhl.title.127771.

Thill, R.E. 1983. Deer and cattle forage selection on Louisiana pine-hardwood sites. Res. Pap. SO-196. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 35 p.

Wakeley, P.C. 1935. Artificial reforestation in the southern pine region. Tech. Bull. 492. Washington, DC: U.S. Department of Agriculture. 115 p.

Wakeley, P.C. 1954. Planting the southern pines. Agric. Monogr. 18. Washington, DC: U.S. Department of Agriculture, Forest Service. 233 p.