Proc. Fla. State Hort. Soc. 97:227-230. 1984.

DEVELOPMENT AND IMPLEMENTATION OF AN OUTDOOR CLASSROOM USING NATIVE VEGETATION[1]

GEORGE E. FITZPATRICK
University of Florida,
Fort Lauderdale Research and Education Center,
3205 College Avenue,
Fort Lauderdale, Florida 33314

WILLIAM B. SNYDER
Rare Fruit and Vegetable Council of Broward County,
6308 N.W. 73 Avenue,
Tamarac, Florida 33319

LOWELL E. SHOWALTER
Showalter and Associates,
7460 N.W. 7 Street,
Plantation, Florida 33317

Additional index words. native plant garden, magnet school.

Abstract. **The use of native vegetation in school yard landscapes allows direct instruction in the natural sciences in primary and secondary schools. The development of native plant gardens as units in outdoor classrooms is proliferating in Florida and recent experiences allow critical examination of specific examples. The most successful outdoor classroom projects have been characterized by qualities such as careful organization and planning, active involvement of school staffs, students, parent-teacher groups, and local horticultural organizations.**

The use of field experience in education, particularly in science education, has many benefits, including greater stimulation of curiosity, awakening of interests that classroom work cannot arise, easier transfer of learning to solution of real-life problems, firsthand study of things that cannot be brought into the classroom due to size or inconvenience, and many others (4). In recent years the use of field experience in education has evolved in certain unique directions. One of these directions is the development of organized educational experiences utilizing outdoor classrooms. Traditional activities such as school gardens and 4-H programs have provided a structural foundation to the use of native plant gardens as integral parts of instructional effort.

As more of the population moves to urban areas, opportunities to provide direct field experiences in the natural sciences decrease, and this is one of the main uses and justifications of the concept of outdoor classrooms utilizing native vegetation. In a very real sense, outdoor classrooms can simulate the botanical, and to some degree, zoological, aspects of a region's natural history. In heavily urbanized areas, outdoor classrooms may constitute the only opportunity for young students to see, study, and appreciate the natural heritage of the region (5). There are curriculum guides to help in the development of such programs (1), and the actual planning and installation can be accomplished following the same basic principles as those used in landscape design (2, 3).

A recent example of a successful, comprehensive outdoor classroom project is the Walker Elementary Magnet School Native Plant Garden in Fort Lauderdale.

The Native Plant Garden

Walker Elementary Magnet School is located in the northwest quadrant of the City of Fort Lauderdale. The enrollment is approximately 600, between the grades of kindergarten and fifth. In 1982, a number of parents of students at the school, along with members of the school board's advisory committee on environmental education, proposed the installation of a Native Plant Garden to augment the science curriculum as well as to beautify the school grounds. As a magnet school, Walker has a full-time science teacher and all students have regular science instruction, a relative rarity at the elementary level. The school's Parent-Teacher Organization appointed a committee to plan and develop the garden and the school's principal authorized the use of a corner of the schoolyard approximately 68 ft by 112 ft in area. The plot already had 3 mature trees: a live oak (*Quercus virginiana* Mill.), slash pine (*Pinus elliottii* var. *densa* Little & Dorman), and seagrape (*Coccoloba uvifera* [L.] L.). One of the committee members, Lowell Showalter, supervised the development of the conceptual drawing and planting plan (Fig. 1), which was itself organized as part of a training project at the Broward County Parks and Recreation Division's Markham Park Nursery.

The conceptual plan detailed 227 individual plants comprising 41 species, detailed in the plant schedule in Fig. 1.

Landscape Installation

After the development of the conceptual plan, the committee began plant acquisition. Of the 227 specimens used, all were donated by local nurseries and horticultural clubs and organizations. In addition, wood chip mulch and horticultural compost for the plant installation were donated by the Broward County Streets and Highways Division. The plants were kept in an interior courtyard on the school grounds and supplied with overhead irrigation.

The committee selected a planting date in early March, during southern Florida's dry season and a time when relatively cool temperatures could be expected. The date selected was a Saturday, as the entire planting effort was accomplished with volunteer labor.

The Parent Teacher Organization donated funds for lunch and refreshments, and supervised food preparation, using the school's cafeteria facilities. The planning committee appointed one of its members, a trained botanist experienced in landscape design and installation, as the field coordinator. The coordinator appointed 3 team leaders, who were also trained botanists, so that the volunteer planting

[1]Florida Agricultural Experiment Stations Journal Series No. 6293. We gratefully acknowledge Keith and Schnars, P.A., Fort Lauderdale, Florida, for the use of its graphics laboratory in the preparation of Figure 1.

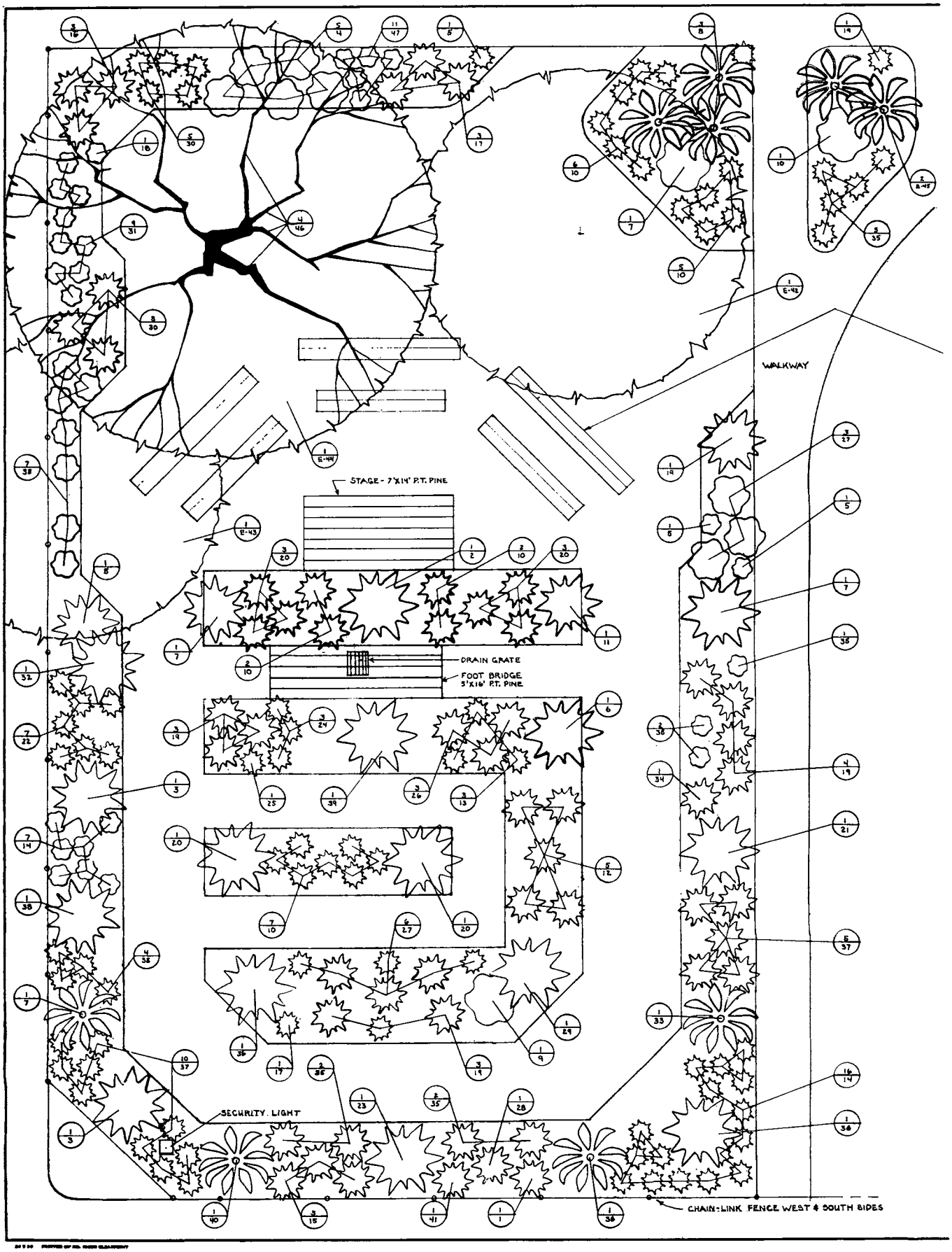
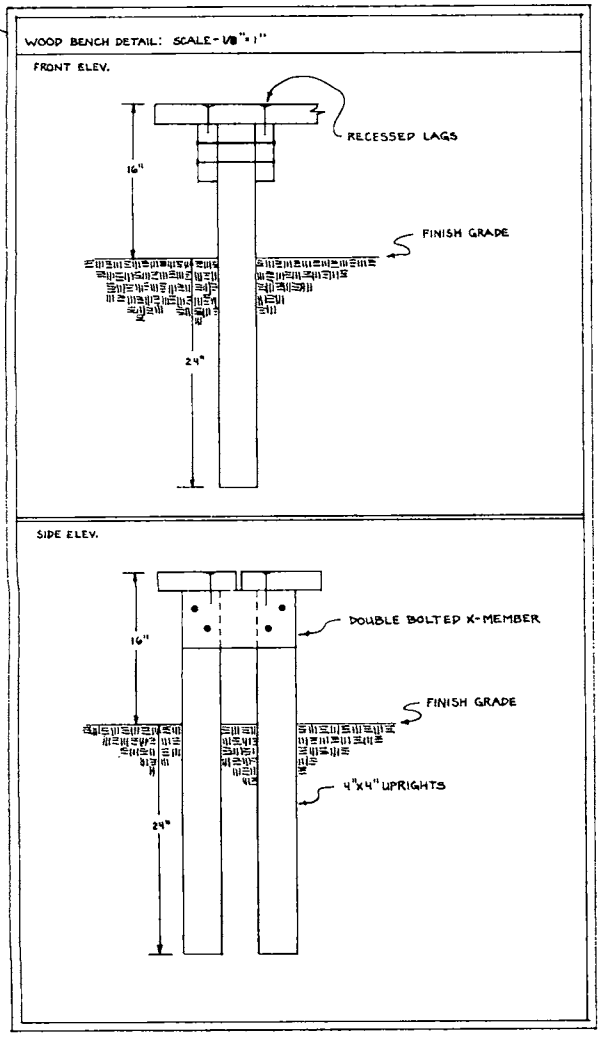


Fig. 1. The conceptual drawing and planting plan for the Native Plant Garden at Walker Elementary Magnet School, Fort Lauderdale, Florida.

WALKER ELEMENTARY SCHOOL
OUTDOOR CLASSROOM PROJECT
NATIVE PLANT GARDEN

NOTE: USE PRESSURE TREATED PINE ONLY. UPRIGHTS ARE 4"X4"X38" WITH 2"X6"X12" CROSSMEMBERS. USE (2) BOLTS PER JUNCTION. RECESS LAG BOLTS WHEN ATTACHING BENCH PLANKS. (3) UPRIGHTS PER BENCH.



PLANT SCHEDULE

CODE#	BOTANICAL	COMMON
1	ACACIA FARNESIANA	SWEET ACACIA
2	ACER RUBRUM	RED MAPLE
3	BURSERA SIMARUBA	GUMBO LIMBO
4	CALLICARPA AMERICANA	BEAUTYBERRY
5	CHRYSOBALANUS ICACO	COCOPLUM
6	CHRYSOPHYLLUM OLIVIFORME	SATIN LEAF
7	COCCOLOBA DIVERSIFOLIA	PIGEON PLUM
8	COCCOTHRINAX ARGENTATA	FLORIDA SILVER PALM
9	CONOCARPUS ERECTA	GREEN BUTTONWOOD
10	CONOCARPUS ERECTA - VAR. SERICEA	SILVER BUTTONWOOD
11	CORDIA SEBESTENA	GEIGER TREE
12	DODONEA VISCOSA	VARNISH LEAF
13	DODONEA VISCOSA - VAR. PURPUREA	PURPLE VARNISH LEAF
14	DURANTA REPENS	GOLDEN DEWDROP
15	ERYTHRINA HERBACEA	CHEROKEE BEAN
16	EUGENIA FOETIDA	SPANISH STOPPER
17	FORESTIERA SEGREGATA	FLORIDA PRIVET
18	GUAIACUM SANCTUM	LIGNUM VITAE
19	HAMELIA PATENS	FIREBUSH
20	ILEX CASSINE	DAHOON HOLLY
21	KRUGIODENDRON FERREUM	BLACK IRONWOOD
22	LANTANA CAMARA	LANTANA
23	LYSILOMA LATISILIQUA	WILD TAMARIND
24	MYRICA CERIFERA	WAX MYRTLE
25	PERSEA BORBONIA	RED BAY
26	PICRAMNEA PENTANDRA	BITTERBUSH
27	PISONIA DISCOLOR	BLOLLY
28	PITHECELLOBIUM UNGUIS-CATI	CAT'S CLAW
29	PLATANUS OCCIDENTALIS	SYCAMORE
30	PSYCHOTRIA UNDATA	WILD COFFEE
31	PSYCHOTRIA SULZNERI	SOFT LEAVED WILD COFFEE
32	QUERCUS LAURIFOLIA	LAUREL OAK
33	SAPINDUS SAPONARIA	SOAPBERRY
34	SCAEVOLA FRUTESCENS	INKBERRY
35	SERENOA REPENS	SAW PALMETTO
36	SIMAROUBA GLAUCA	PARADISE TREE
37	SOPHORA TOMENTOSA	NECKLACE POD
38	SWIETENIA MAHOGANI	MAHOGANY
39	TAXODIUM DISTICHUM	BALD CYPRESS
40	THESPESIA POPULNEA	PORTIA TREE
41	ZANTHOXYLUM FAGARA	WILD LIME
	EXISTING:	
42	COCCOLOBA UVIFERA	SEA GRAPE
43	PINUS ELLIOTTII - VAR. DENSA	SLASH PINE
44	QUERCUS VIRGINIANA	LIVE OAK
45	SABAL PALMETTO	CABBAGE PALM
	FAMILY GROUPS:	
46	BROMELIACEAE	BROMELIAD SPP.
47	POLYPODIACEAE	FERN SPP.

SYMBOL CODE = (AMT. CODE)

GRAPHIC SCALE:

0 1 2 3 4 5 10 20

CONCEPTUAL DRAWING & PLANTING PLAN

SCALE: 1" = 5'0" | APPROVED BY: | DRAWN BY J. CROWELL

DATE: FEB. 22, 1983 | REVISED

MARKHAM NURSERY TRAINING PROJECT - DESIGN
NURSERY SUPV. - L. SHOWALTER ASST. - J. CROWELL

DIV. OF BROWARD CO. PARKS & RECREATION | DRAWING NUMBER 1 OF 1

teams would be able to effectively and correctly place the appropriate plant species in the appropriate location, according to the conceptual plan (Fig. 1).

The Parent Teacher Organization recruited the volunteer planters from its own membership, local horticultural clubs, and the local neighborhood. On the planting date, more than 335 volunteers worked to install the garden. They ranged in age from under 4 to over 70. Many of the volunteers were students, so the installation itself had an educational purpose. The field coordinator and team leaders instructed the volunteers in correct planting procedures. All 227 individual plants were installed in approximately 7 hr, including the lunch break.

During the time immediately after the installation of the plants, the outdoor classroom was finished by the addition of 6 benches, a stage, and a wooden bridge over a low area (which had been planted with baldcypress). Funds for this were provided by the school and the Parent Teacher Organization, and labor for the construction was donated by several of the volunteers who had worked on the landscape installation.

Uses of the Outdoor Classroom

Since the installation, the native plant garden has become an integral part of the school's program. Obvious uses in the school's science program include field taxonomy, nature study, and related topics. These have been augmented by uses by the other 2 magnet programs in the school: fine arts and music. Recitals by the school's string ensemble have become a very popular use of the outdoor classroom, one that had not been initially anticipated.

Another unanticipated benefit of the outdoor classroom is that it has become a focus of community involvement in the educational process. As word of the project spread, more individuals became involved. A local developer, for example, donated a large (3 ton) boulder to enhance the landscape and afford the students an opportunity to study local geology. A group of Seminole Indians, offered to build a chickee in the garden. In the time since the Outdoor Classroom's installation, the school psychologist has reported a reduction in the number of student behavior problems. While it is obviously not possible to establish a cause-effect relationship, many persons associated with the project believe that the high level of student, parent, and neighborhood involvement in the installation and use of the Outdoor Classroom did have a positive effect on student behavior. These kinds of activities all illustrate the vitality of outdoor classrooms as important functional units in educational programs to instill in students a knowledge and appreciation of natural history.

Literature Cited

1. Advisory Committee for Environmental Education. 1982. Outdoor classroom. Mimeo report, School Board of Broward County, Florida. Fort Lauderdale, Florida.
2. Ingram, D. L. 1984. Basic principles of landscape design. Univ. Florida, Inst. Food Agr. Sci., Ext. Cir. 536.
3. Robinette, G. O. 1968. Off the board/into the ground. Techniques of planting design implementation. Kendall Hunt Publ. Co., Dubuque, Iowa.
4. Thurber, W. A. and A. T. Collette. 1964. Teaching science in today's secondary schools. Allyn and Bacon, Boston.
5. Workman, R. W. 1980. Growing native. Native plants for landscape use in coastal south Florida. The Sanibel-Captiva Conservation Foundation, Sanibel, Florida.

Proc. Fla. State Hort. Soc. 97:230-235. 1984.

WHO DOES THE GARDEN WORK?[1]

CHRISTINA H. GLADWIN
Food and Resource Economics Department,
University of Florida, IFAS,
G155D McCarty Hall,
Gainesville, FL 32611

Additional index words. Intrahousehold division of labor, garden plans, hours of work.

Abstract. **Recent studies of labor allocation on the family farm in north Florida have shown that women are doing more of the farming now, as compared to the 1930s. Are they also doing more of the gardening? Is the typical north Florida rural garden "his" garden or "her" garden or "their" garden? How is family labor allocated to the different gardening tasks? An examination of survey data from 100 farmer-gardeners in north central Florida, and more detailed garden histories from 25 farmers, reveals some of the answers to these questions. In general, results show that farm women's contributions to the garden** complement **rather than compete with those of farm men. Even in the garden, complementarity is the norm which allows both men and women to focus their energies on the one goal of family farm survival.**

The contribution of farm women and family labor to the survival of the family farm in the U.S. and Florida has been an ignored aspect of farm entrepreneurship until recently (1, 5, 14). In Florida as in many agricultural states of the U.S., however, the contribution of the farm wife or agribusiness woman has assumed a new importance as inflationary pressures on land, equipment, and operating expenses force the male, able-bodied farmer on the small and medium-sized family farm to seek off-farm work to support the family and subsidize the farm (4, 6, 10, 13, 17). The co-managerial role of the farm woman became even more important in the 1970s, when off-farm income became more important than farm income for more than half of U.S. farms with gross sales of $40,000 to $100,000, and for more than one-third of the farms with gross sales of $100,000 to $200,000 (18).

A recent survey of labor allocation on the family farm in north Florida has shown that farm women are doing more of the farming now, as compared to the 1930s (5, 6). The data suggest that although farm men are indispensable (and are doing more farm work and off-farm work than the women), Florida farm women are now farming an average of 22 hr per week, as compared to 11 hr per week in the 1930s (6, 15). Evidence also shows that more farm women perceive themselves to be *farmers* rather than farmers' *wives*: 56% of the 50 farm women interviewed considered

[1]Florida Agricultural Experiment Stations Journal Series No. 6040. The author is grateful for the help of John Butler, who interviewed gardeners in Levy County, coded, and helped formalize the North Florida farmer's garden plan. She is also grateful to the farmers who gave their time, patience, and insights into gardening, the National Science Foundation for grant BNS821-8894, and Janet Weston and Dr. Masuma Downie, who interviewed and coded in Gilchrist and Baker counties.