by Linda Conway Duever

This is the first of a series of articles describing the Natural Communities defined by the Florida Natural Areas Inventory (FNAI). As explained in the February, 1983, Palmetto, this classification system must be viewed as a system of mental constructs imposed upon an infinite variety of growing, changing, intergrading, natural environments. Hence, more often than not, a given site will not precisely fit the classic description of the appropriate natural community. Below are presented idealized profiles of three related upland communities. By practicing comparing these to vegetation observed in the field, an interested naturalist should be able to learn to identify plant communities accurately and contribute valuable site information to conservation efforts.

SANDHILL

Sandhill occurs on rolling hills of marine-deposited yellowish sands of the Norfolk, Lakeland, or Blanton series. Though these well-drained high pinelands are considered xeric environments, they do not look as continued next page
SANDHILL  from page 1

FNAI has defined nine Sandhill plant communities:

- Longleaf Pine/Turkey Oak Woods
- Open Longleaf Forest
- Slash Pine/Turkey Oak Hills
- Bluejack Sandhill
- Coastal Longleaf Sandhill
- Coastal Slash Pine Sandhill, and
- Turkey Oak Sandhill.

They all have a thin pine (Pinus palustris or P. elliottii) canopy, a variable oak, Quercus laevis. Q. incana, and/or others), and an understory dominated by wiregrass (Aristida stricta).

Longleaf/Sand Pine Forest and Scrubby Longleaf Pine Forest have a sparse, shrubby understory.

Classic open Sandhills carpeted with wiregrass are maintained by frequent burning of the dense ground cover. About every 2-5 years, a fire sweeps through and burns back encroaching oaks and shrubs. Longleaf pines are extremely fire resistant and are scarcely damaged by these ground fires. Oaks become more prominent on sites that have not been burned regularly (or have been logged) and the scrubby sandhill types develop only where fire is a relatively rare occurrence.

Sandhill covers extensive areas of the southeastern coastal plain. In Florida it is most abundant in the Panhandle and extends down the central ridge of the peninsula into Highlands County. Although Sandhill is still widespread, undisturbed examples are quite rare. Almost all tracts have been logged and most have been plowed, grazed, or overly protected from fire. Some logged sites will eventually recover if seed trees are left, but many develop into dense stands of oaks. Wiregrass rarely reseeds and may be impossible to restore on sites where it has been shaded out or chopped up. (Recent research indicating that wiregrass produces viable seed after summer fires suggests that summer burning might be useful in restoration of damaged sites, but reestablishing a full complement of herbaceous species would still be challenging.)

Distribution of the scrubby sandhill types is poorly documented and some of them may prove to be very limited. Coastal sites are disappearing especially rapidly.

Typical Sandhill species include those mentioned above plus: sand post oak (Quercus margaretta), sparkleberry (Vaccinium arboreum), persimmon (Diospyros virginiana), shining sumac (Rhus copallina), pinewoods drosspea (Sporobolus juncus), sandhill sorgum (Sorghastrum nutans), dog tongue (Eriogonum tomentosum), Queen’s delight (Stillingia sylvatica sylvatica), gopher apple (Licania michauxii), sandhill crotone (Crotone argyranthemus), bracken (Pteridium aquilimum), runner oak (Quercus pumila), and creeping live oak (Q. minima). Legumes, especially Tephrosia, Clistoria, Dalea, Rhyhchosia, and Baptisia species, are often numerous. Other families prominent in the herbaceous flora are Compositae, Asclepiadaceae, Euphorbiaceae, Rosaceae, and Labiatae.

Some species generally restricted to Sandhill habitat include scrub buckwheat (Eriogonum floridanum), Apalachicola rosemary (Conradina glabra), bent goldenaster (Heterotheca flexuosa), Carex baltzellii, and Calamintha dentata.

THE PALMETTO  (ISSN-0276-4164)
Florida Native Plant Society
1203 Orange Ave., Winter Park, FL 32789
Copyright 1983 by The Florida Conservation Foundation
Peggy S. Lantz, Editor
Rt. 3, Box 437 - Orlando, FL 32811

The Palmetto is published quarterly by the Florida Native Plant Society under the auspices of The Environmental Information Center and The Florida Conservation Foundation.

We encourage the reuse of the articles appearing in The Palmetto in order to disseminate information on Florida native plants as widely as possible, but in accordance with the copyright law permission must be granted in writing by the Editor or the Publisher. Credit must be given to The Palmetto and The Florida Native Plant Society, and the notice of copyright must appear in the reprinted article.

Articles on any aspect of Florida native plants are invited. Include drawings or photos, if possible. They will be handled with care, and will be returned if you indicate a self-addressed stamped envelope. Send to Peggy S. Lantz, Editor, The Palmetto, Rt. 3, Box 437, Orlando, FL 32811, 305/299-1472.

INSIDE THIS ISSUE
Natural Communities ........ page 1
Backyard Notebook ......... page 3
Members’ Meeting ............ page 3
Transplanting Trees ........ page 4
Conference Proceedings .... page 7
Plant Ecology ................. page 11
Books ........................ pages 11, 12
Chapter News ............... page 13

SCRUB

Scrub is found on high sand dunes and ridges along former shorelines. The glaring white surface of St. Lucie or Lakewood fine sand creates a blazingly hot daytime environment and moderates the evening chill. Since the loose sand drains rapidly, this creates a very xeric environment for plants unable to extend their roots deeply enough to tap subsurface moisture in the underlying clayey yellow soils.

FNAI has defined eight Scrub plant communities. Sand Pine Scrub, Sand Pine/Turkey Oak Scrub, Turkey Oak Scrub, and Slash Pine Scrub are generally shrubby habitats with a variable canopy of the named tree species (Pinus clausa, Quercus laevis, P. elliottii). The other Scrub types have many of the same shrubs, but no trees. Oak Scrub is a shrub thicket dominated by sand live oak (Quercus geminata) and/or Chapman’s oak (Q. chapmanii) and/or myrtle oak (Q. myrtifolia) and/or scrub oak (Q. inopina). In Rosemary Scrub, the oaks are interspersed with rosemary bushes (Ceratola ericoides) and there is a great deal of open space. Penmatto Scrub is dominated by saw palmetto (Serenoa repens). Tropical Scrub develops where tropical hammock species, such as wild coffee (Psychotria spp.), have begun to invade an unburned site.

Scrub is a fire-maintained community, adapted to regenerate rapidly after infrequent catastrophic fires. A 30 to 40 year interval between fires would be considered “normal” for many Scrub sites. Fire history, soil variations, and allelopathy are all thought to be significant factors in Scrub succession, but the interrelationships among community types are still poorly understood.

Classic Scrub with sand pine is found only in Florida, but there are scrub-like oak/rosemary communities scattered across the sandy regions of the southeast. Most of the Florida Scrub is along the coast, on the Lake Wales Ridge down the center of the peninsula, or in the Ocala National Forest region. Since it occupies high, dry sites ideal for construction or agriculture, scrub is disappearing rapidly. Tropical Scrub is found only around Marco Island, where the last known remnant is slated for residential development.
Rosemary Scrub, a scarce type which is the habitat for many endemic plants, has its richest diversity of rare species in Highlands county, where the last remnants risk conversion to citrus groves. Oak Scrub and Sand Pine Scrub are still quite common, but much of the sand pine type is in commercial forests.

Typical Scrub species include those mentioned above plus shiny blueberry (Vaccinium myrsinites), fetterbush (Lyonia ferruginea), Polygonella polygama, gopher apple (Licania michauxii), hog plum (Ximenia americana), silk bay (Persea humilis), scrub briar (Smilax auriculata), scrub selaginella (Selaginella arenicola), nodding pinweed (Lechea cernua), L. deckerti, scrub prickly pear (Opuntia compressa), scrub rush (Rhynchospora megalocarpa), wiregrass (Aristida stricta), reindeer moss (Cladonia subtenuis), grey puffs (C. evansi), and British soldier (C. leporina).

Plants endemic to Scrub include

silkbay (Persea humilis) and woody
wireweed (Polygonella myriophylla),
Florida bonamia (Bonamia grandiflora), Florida gayfeather (Liatis olingereae), nolina (Nolina brittoniana), scrub balm (Dicerandra frutescens), scrub titi (Cyrilla arida), white werea (Warea carteri), Highlands scrub hypericum (Hypericum cumulicola), scrub plum (Prunus geniculata), Ashe's mint (Calamintha ashei), pygmy fringetree (Chionanthus pygmaea), scrub holly (Ilex opaca var. arenciola), pink lupine (Lupinus aridorum), short-leaved rosemary (Conradina brevifolia), Paronychia chartacea, and Polygonella ciliata var. basiramia are found only in central Florida Scrub. Large-flowered rosemary (Conradina grandiflora), four-petal pawpaw (Asimina tetrameria), and L. kela's mint (Dicerandra immaculata) are restricted to southeast Florida coastal Scrub. Florida goldenaster (Chrysopsis floridana) is a Tampa Bay area scrub endemic.

**XERIC HAMMOCK**

Xeric Hammock occurs on high, dry sandy inland sites that have not burned for many years. Such places are usually found on ridges adjacent to wetlands which function as firebreaks.

FNAl has defined three Xeric Hammock plant communities. Mature Scrub Hammock develops from Scrub after an extensive period without fire. Sand live oak (Quercus virginiana), blackjack oak (Q. marilandica), and/or southern red oak (Q. falcata). Sparkleberry trees that shades out most other species except saw palmetto (Serenoa repens). Scrubby Sandhill Hammock results when a Sandhill with a shrubby understory goes unburned. This forms an open woodland of small oaks, typically turkey oak (Quercus laevis), sand post oak (Q. margarettia), live oak (Q. virginiana), blackjack oak (Q. marilandica), and/or southern red oak (Q. falcata). Sparkleberry

---

**FALL MEMBERS' MEETING AND BUSINESS MEETING**

Saturday, October 22, 1983, 9 A.M. - 5 P.M.

Tallahassee

"The Role of the State Government in Protecting Native Areas"

The State of Florida has the opportunity to protect native areas that are not only under its direct control, but also those areas held by private landowners, through regulations, laws, and policies. At this meeting, we will hear from State Authorities on how the CARL program and the Save Our Rivers program, as well as older programs, are working, and ways in which FNPS and its members can insure that significant portions of our natural heritage can be protected.

Field trips to the Coast and to the Bluffs will be conducted on Sunday. There will also be a business meeting for officers and directors to which all members are invited.

The newly-formed Tallahassee area chapter is hosting. For more information, call or write the FNPS office, 1203 Orange Ave., Winter Park 32789, 305/644-5307.
ENERGY ANALYSIS — from page 9

irrigation per square meter of lawn
required for survival would be
significantly less in the e.c. landscape.
Less frequent watering of the grass would
be possible because of 1) the deeper root
growth and 2) tree shading which reduces
solar insolation on the grass and thus
lowers soil evaporation rates. Also, the
fact that the non-lawn sections of the
landscape would typically require only
minimal watering during the dry season
reduces “peak” water demands.
Consequently, the need to expand water
supply systems in the future is reduced.

The Urban Forest Landscape

A third alternate landscape is the
“urban forest” system. This system would
differ from the e.c. landscape in the
following ways:

1. the quarter-acre would be totally
covered by a multiple-canopy
forest of native trees with shade-
tolerant native shrubs and ground
cover underneath;

2. after a three- to five-year
establishment period, the trees,
shrubs and ground cover would no
longer be sprayed, fertilized or
irrigated; and

3. only minimal maintenance
involving the removal of exotic
invader species and the selective
pruning of diseased or decayed
limbs would be done.

Clearly, the urban forest landscape
would require only very minimal
amounts of fossil fuel inputs and would
provide very large reductions in the
energy used in air conditioning. In
addition to a reduction in labor for
landscape maintenance, the major
advantage of this system over the e.c.
landscape would be the providing of
appropriate habitat for small wildlife in a
naturalistic setting. This is an important
ecological benefit since many ecologists
have predicted that the vast destruction
of wildlife habitat will be one of the major
environmental issues during the next
twenty years. It should be noted that
some people might consider this
characteristic a disadvantage due to the
potential presence of “undesirable”
snakes, rodents and insects.

CONCLUSIONS

The results of the analyses described in
this paper include the somewhat
surprising conclusion that the addition of
trees and shrubs to a residential
landscape consisting of only a lawn may
actually increase indirect energy inputs
associated with landscape maintenance.
However, an energy analysis of alternate
landscape designs has revealed that the
installation of an appropriate “energy
conservation” landscape can reduce the
indirect energy inputs for maintenance.
After an initial establishment period, the
energy inputs of fertilizers, pesticides,
and water can be dramatically reduced by
utilizing relatively simple water
conservation techniques and by selecting
native trees and shrubs which are
appropriate to the site and are disease
and drought resistant. Consequently an
energy conserving landscape can not
only reduce the electrical energy used in
air conditioning a residence, but can also
reduce the indirect energy inputs
required in maintenance.

AUTHORS AND ARTISTS

Captain Ken Alvarez is the District
Biologist for the Florida Dept. of Natural
Resources.

Joe Cascio is a landscape architect with
Post, Buckley, Schuh & Jernigan.

Linda Duever is a plant ecologist
working on the Florida Natural Areas
Inventory for the Nature Conservancy in
Tallahassee.

Lowell Lotspeich, who created the
drawing of the sandhill community on the
cover, is an architect in Winter Park.

Dr. John H. Parker is an Associate
Professor in the Physical Science Dept. of
Florida International University.

Doris Rosebraugh is a landscape
designer and teacher of landscape
design, and is a member of the Dade
County Chapter.

GLOSSARY

xeric — dry; applied to environments
continually subject to droughty or
desertlike conditions. (This term is
not used for sites that are only dry
seasonally.)

allelopathy — process by which certain
plants chemically inhibit the growth
of others nearby.

heritaceous — non-woody; applied to
grasses, “wildflowers,” and other
small plants.

relict — a remnant stand of a community
or species that was once widely
distributed.

taxonomy — the science of classifying,
naming and identifying organisms.

synonymy — a list of the scientific names
for a particular species with
discriminations and explanations.