

INTRODUCTION

A **glade** is an open or grassy area in a forest. It comes from an old Anglo-Saxon word meaning "bright." It has the same origin as the word "glad." Suddenly emerging from a dense dark forest, it is easy to see how the word glade was applied to an open, sunny, grassy area. Although the word "ever" applies to time, it serves as well as an intensive prefix. Countless little glades between fingers of rocky pinewoods explain how the term "ever" in the sense of "all" came into being to signify that vast stretch of sawgrass in that bowl of muck south and east of Lake Okeechobee, known from early days as the Evergreen Everglades.

A **swamp** is land covered with water to such extent that it cannot be used for field crops at any season of the year without drainage. What is land and what is water is often a question. Where oysters grow on the roots of trees, where the mangrove snapper is at home, where the tides of the ocean rise and fall sounds aquatic, but there also, orchids bloom and bright-plumaged birds nest in the branches. The red mangrove has added thousands of acres to the real estate of Florida.

A **swamp-forest** consists of trees and there are millions of acres of such forests in both fresh and salt water throughout the Tropics. Trees that grow in very wet or dry places tolerate or endure rather than prefer such conditions. The mangrove which grows in salt water throughout the Torrid Zone is physiologically dry, with thick, leathery leaves containing water storage tissue and cork-covered roots.

Writing in 1575, Fontanedo mentions a lake by the name of Mayaimi, which he translates into "very large." It is more than likely that Miami is a Calusa

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word meaning "big lake," the same as Okeechobee in Seminole. It must not be overlooked that before the removal of a natural rock dam in the Miami River and the construction of canals to the sea, the whole Everglades region for a considerable portion of the year was in reality "one big lake," the water of which gradually seeped into the sea through holes in a rocky rim, or flowed into a labyrinth of bays and creeks on the shore of the Gulf of Mexico.

Muck is black soil consisting of partly decomposed plants mixed with some sand, some marl and animal refuse. When plants are flooded, there is a lack of aeration and in consequence, a lack of oxidation. For this reason large quantities of organic matter accumulate in lakes. In time these lakes become sloughs and mucky glades, and finally, swamp-forests. In cases where the muck is very fibrous, it is called **peat**. The essential ingredient of marl is the carbonate of lime, variously mixed with sand and clay. True clay or the silicate of aluminum, if it exists at all in South Florida, is here only in very small quantity. Water from springs is highly charged with the carbonate of lime. As the water evaporates, the lime is deposited in a white scum on every twig and leaf.

Flatwoods are sandy regions covered with pines and palmettoes. The soil is usually sour and the drainage poor. A short distance under the surface, the soil is cemented into a **hard-pan**, so dense, there is neither drainage nor capillarity and through which the roots of trees seldom penetrate.

Prairies are grassy, sandy, or marly areas free from trees. Fires have been set to improve the pasturage for many years. Old charred stumps in the ground indicate that these grassy areas in many rolling sandy sections were once forested.

Hammock is a Floridan word of uncertain origin. It is applied to a dense forest of many kinds of hardwoods, sometimes mixed with palms, which has

reached maximal growth and stays practically the same forever, unless molested by man. It is the climax forest of South Florida and is tropical. Sparse forests in dry lands or swamp forests are transition forests which may in time develop into hammocks.

The true Everglades is covered with sawgrass which belongs to the sedge family and is known to botanists as *Cladium effusum*. The leaves have serrated edges which cut the skin. It grows head high in the warm shallow water. It falls in great masses to form with other aquatics the muck and peat of the Everglades. Remove the water and the sawgrass and other aquatics will die and muck will no longer form. What has already formed will rapidly oxidize and the work of nature through the ages will be nulled.

In wet seasons the Indians pole their sharp prowed canoes, perfectly fashioned for the purpose, through and over the sawgrass. In summer it is hot and humid. In winter, if the season is dry, it burns with a pungent, penetrating, vile-smelling smoke. There are evidences of fires from spontaneous combustion. When the water falls, fishes and other creatures are impounded in pools and die by the thousands, as the water evaporates, leaving behind a crust of bad-smelling but fertile guano.

The term Everglades really does not apply to marl or sand lands. It is properly confined to about two million acres of muck, mostly south and east of Okeechobee. There is very little of the true Everglades south of the Tamiami Trail. The bulk of the land through which the trail passes is studded with little hammock islands which would have united long ago into a solid hammock were it not for floods in summer and fires in winter. These hammock islands usually have live oaks in the center, surrounded by a fringe of *cocoplum* forming favorite secluded Seminole camp sites. Sometimes, when the land is low, the major trees in these little islands are cypress. In case the

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land by accretion or otherwise is just a few inches above the surrounding morass, trees in time gain a footing and hold their own.

From a forestry standpoint, there is nothing more important than the level of the **watertable**. In a flat country it is highly desirable to have the watertable at all times within easy reach of tree roots. Many species of trees, moreover, die of suffocation in too much water. In case there is not enough to support an active **transpiration stream** in a summer sun, the tender leaves and twigs wilt and wither. If the capillarity of the soil is right and the level of the watertable within reach of the roots, tree growth never suffers, even if it never rains. This is a great asset and with one or two exceptions, none of our tropical trees shed their leaves in the dry winter weather as they do in many arid, hilly sections of the Tropics to the south of us. When there is insufficient fall, there must be many big ditches and in many cases, the water must be artificially removed at great expense in a way similar to the polder system of Holland. Muck is too porous and organic in character to form efficient dykes. These works must be extremely efficient and elaborate to protect a country where the factor of safety must be great in a land where both rain and wind are at times excessive. The Everglades are not frost free, the muck land is not suitable for home-sites, and sufficient highways would be costly to construct. **Artificial reclamation** would be difficult and expensive. The **natural method of drainage** is by the use of trees. Every tree is an efficient pump which never needs repairs or fuel for power. Trees consolidate the soil by their roots, add to the fertility by their decomposing leaves and furnish roosting places for water birds that enrich the soil. The best land in the Okeechobee region is the **custard apple and elderberry bottoms**. Nature has pointed the way and it is easy to follow. In case this area is allowed to produce trees, either naturally or by planting, never more than a third of

it should be cleared at one time for exhausting field crops. Drainage completely changes the order of things. The equilibrium of nature is suddenly upset. Aquatic plants die and all the little fishes and other creatures, both plant and animal, that inhabit wet places are gradually replaced by other things. Even the birds that feed on these little things go elsewhere for food. Whether for better or worse, the landscape changes and new adjustments are in time established. It becomes an artificial arrangement under man's control, subject to all kinds of experiments and blunders, in his endeavors to improve on nature. In many places in our Northwest, they are closing the ditches to bring back wild life and check the rapid run-off in the surrounding highland. The preference is always for an excess rather than a constant scarcity of water. When big populations develop, there is always a large demand for water and water from a forested watershed is always preferable, because of its purity and regularity. In places where good land is abundant and in consequence, cheap in proportion to the population, speedy reclamation is superfluous. The purpose of intelligent work is to supply what everybody needs for happiness and comfort. What we need in turn depends upon our standard of living. In places such as Holland and Belgium, reclamation even at great expense is necessary, but in sparsely inhabited regions the cost is prohibitive. For that reason, except for tree production, large areas should stay marginal till population demands reclamation. There is land so rich that it yields fine crops without fail and land so poor as to be fit only for forests. In between there are lands classed as marginal. Almost every farm has some land which is marginal and which harbors the woodlot. In many cases it is the man and his advisors who may be marginal and not the land. The Tropics is primarily a tree country and not a country of annuals so there is really no marginal land, except in treeless areas too wet or too dry for cultivation. The cheapest and best way to

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get this land out of the marginal realm is to plant it to trees of some kind wherever possible. Reclamation by artificial drainage upsets the equilibrium of nature, by lowering the watertable overdrains the surrounding highlands, and is in short, a waste of time and effort unless urgently needed to supply food for an ever-increasing population. The following trees are all excellent for cultural reclamation purposes:

The elderberry, a good soil former, consolidator and improver in swampland; it yields excellent fruits for conserves and wines;

The custard apple, a great tropical soil benefactor in swampland with a light corky wood similar to balsa;

The cocoplum grows in wet places and yields a fruit that is excellent for jelly;

Cypress, the wood eternal;

Pencil-cedar, the finest softwood for lead pencils;

Native rubber, good for pulpwood, with the possibility of rubber on the side as a by-product in case the land is not too wet;

Australian-pine, a rapid grower and excellent wind-break in case there is no fire or frost;

The cajeput, which yields an excellent oil and grows well in swampland;

Mahogany, stormfast and the best of cabinet woods, and the

Cocopalm, the world's most useful tree, excellent, if not checked by cold, and other trees of like value increasing in number of kinds as the land improves through the beneficent influence of hardy forerunners. It is likely that the

Bamboo will grow there, a famous tree-grass throughout the Tropics;

The sweet gum, a very important hardwood lumber and the tree that yields storax, and possibly also,

The candlenut, famous throughout the Tropics for the valuable oil yielded by its nuts, considered by some

the equal of tung oil. After the soil is elevated, consolidated and improved, it may be possible to grow such trees as the

Lebbek, Jamaica-dogwood, and wild tamarind, mango, sapodilla. Also perhaps in time the avocado, akee, guava, black mulberry, cashew nut, seagrape and mastic, also perhaps mahoe, pochote, castor bean, pigeon pea, and carissa.

Lignumvitae, the world's toughest wood, Floridan iron-wood, the world's heaviest wood, and cabbage palmetto. Our native tropical Caribbean pine forms excellent wood and grows with marvelous rapidity in rich moist soil.

In short, it is the meeting place of the upper Antillean Zone and the Lower Austral where the tropical meets the subtropical.

This line is not fixed; it moves with the years, as the west and north winds struggle with the east and south winds. Between the two there is a zone of doldrums. There is much to **micro-climatology**. A belt of trees would check the west and north winds. South Florida is in the lee of these northers which break with frigid fury on the northern shore of Cuba and South America, and although they may be free from frost, they cause much discomfort to man and tender tropical vegetation.

The great trouble is not so much drainage as it is to break tradition and get away from old time field crops into crops which have no competition.

If in some magical way the sand, marl and muck soils of South Florida could be evenly mixed, it would form one of the richest sections in all the world, but the forces of nature work otherwise, so that sand forms where there is more sand, marl where there is more marl, and muck where there is more muck. We must trust, therefore, to trees to ameliorate these untoward conditions. Reclamation by trees is at least a progressive, painless process. The general public would

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not be subject to the great upheavals and doubtful results of a sudden cessation of the old order of things and the introduction of something unknown and untried in the land where Nature slaps you in the face in case she has been ruthlessly ravaged.

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The Everglades With Trees

great upheavals and disintegration of the old order of things of something unknown and new Nature slaps you in the face and suddenly ravaged.

THE RECLAMATION OF THE
EVERGLADES WITH TREES

ELDERBERRIE
CUSTA

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... is a weed to
... in place of it. A
... to somebody
... are weeds. All
... wild and some of
... have heard it said
... the plant which
... which if regular
... is such a plant
... should import it
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... with food-medic
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... and almond w
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