

**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF RECREATION AND PARKS**

**VISITOR CARRYING CAPACITY GUIDELINES**

## THE SELECTION AND CAPACITY DETERMINATION OF USE SITES

### Introduction

The Division of Recreation and Parks has the responsibility of planning the use of and managing a sizable portion of Florida's public lands and water areas. With tremendous population increases and the constant and extensive development of private lands, the state recreation and parks system has a more significant role than ever before in (a) providing opportunities for quality outdoor recreation experiences, and (b) preserving representative and unique natural areas of the state. Both the quality of the recreation experience and the protection of the natural areas are directly affected by the implementation of the site plans, or land use plans, which are prepared for the various areas of the system and which designate sites to be established for public use and lands to be set aside for preservation purposes. Important factors given thorough study during the site planning process are the types of recreation activities to be provided, where these activities are to take place, and the amount of public use to be allowed.

### Site Selection and Site Deterioration

Proper site selection is a critical part of the site planning process. Deterioration of recreation sites through normal use can be minimized when a designer remains sensitive to the plant communities he is working with. Some communities are significantly more tolerant of man's presence than others.

To assure the consideration of these factors, it is helpful to map plant communities existing at each site. This, coupled with analysis of plant communities' characteristics as summarized in Attachment A, should insure selection of the best available site which in turn will minimize the degree of deterioration from normal use.

Other factors, such as wildlife, soils, topography, and hydrology, should also be considered during the site planning process. Plant communities, once identified, suggest the soil makeup and animals which will be found at the site, but geology and hydrology should be considered separately.

### Plant Community Limitations

Attachment A, "Characteristics of Florida's Major Plant Communities," was prepared to assist in the study of areas' plant community limitations. Included is a relative ranking of each community's ability to tolerate use other than that normally associated with wilderness. Practically all of the plant communities of Florida are represented on lands of the state recreation and parks system. They vary from unstable types which cannot withstand trampling, such as sand dunes, to stable types, such as pine flatwoods.

Several plant communities are rare or endangered because of extensive development which has taken place over the past 30 years. For example, the coastal hammocks which were once found in a continuous band along the barrier islands of the Atlantic Coast, have been reduced to remnants, due to extensive coastal development. To encourage active use of unstable and fragile plant communities is contrary to sound environmental management. Wherever possible, use sites will be located in communities and on terrain resistant to trampling. Similarly, communities which are considered to be rare or endangered, will be avoided. These areas best serve the public in scenic, interpretive, and biological research categories.

In some instances, planners are faced with the dilemma of not having a stable community in which to place a use site. Many east coast barrier islands consist of three basic communities--dune, coastal hammock, and mangroves. The coastal hammock is stable but endangered, and the dunes and mangroves are unstable as well as endangered. The most suitable location, therefore, is the outer portion of the coastal hammock. In areas which do not possess suitable plant communities, and yet some degree of use is determined desirable, the degree of development and corresponding intensity of use will be low.

Additional biological factors must be considered during the initial planning. Sand dunes are unable to withstand trampling, but high intensity use of adjacent beaches can be allowed by the installation of boardwalks over the dunes. Also, the location of a use site adjacent to an important wildlife nesting or feeding area may be detrimental even though the community is well suited for active use. Early field investigations for the purpose of inventorying plant communities, will provide such information.

### Overcrowding and Site Deterioration

Areas in the state recreation and parks system have always been popular with large segments of the public and have accordingly received considerable use. But previously, they were seldom overcrowded to the extent that a lessening of the quality of the users' outdoor recreation experiences resulted. Now, in several areas, the number of persons seeking outdoor recreation exceeds the space allotments of the public use sites. Carrying capacities--limitations on the number of persons to use each site at a given time--can protect users' experiences by preventing overcrowding which (a) causes deterioration of the natural attribute of each use site and (b) impedes each user's ability to move freely and to fully enjoy the natural setting without undue distraction.

### Optimum Carrying Capacities for Users

In order to determine appropriate carrying capacities for each park situation, two guides are provided here: Attachment A, "Characteristics of Florida's Major Plant Communities," already discussed, and Attachment B, "Optimum Carrying Capacities for Outdoor Recreation Activities." Attachment B gives the recommended limits on the number of users for most outdoor recreation activities in an attempt to prevent overcrowding, and a recommended land base to assure that sufficient support area and buffer area are provided. A range is given for almost every activity, to allow for differences in each site. The site's classification is a main factor in density variation. For state parks, special feature sites and preserves, the carrying capacities should be reduced to insure compatibility with the management objectives of each category.

The carrying capacities determined by these guidelines are to be followed in the preparation of site plans for new use sites and for authorized alterations of existing use sites. The applicable carrying capacity for a given use site also governs the number of parking spaces, the size of restrooms, and all quantities of support facilities to be provided.

### Control of Established Carrying Capacities

Carrying capacity computations derived with the help of the guidelines contained here are vital to planning of new use sites, renovation of older developed sites and continuous management of all areas of the system, to prevent overcrowding and resource deterioration. The estimated optimum carrying capacity is included in each approved park unit management plan, in a tabular format. This estimate is evaluated and revised, as needed, as part of the periodic unit management plan update procedure

## ATTACHMENT A

### CHARACTERISTICS OF FLORIDA'S MAJOR PLANT COMMUNITIES

	Moisture Level Moist- ▲ Dry- ◇ Moderate- ❖	Shade Potential Dense- ▲ None- ◇ Moderate- ❖	Understory Buffer Dense- ▲ None- ◇ Moderate- ❖
<u>Group 1</u>			
Pine Flatwoods	❖	❖	❖
Mixed Hardwood/Pine	❖	▲	▲
<u>Group 2</u>			
Xeric Hammock	◇	▲	❖
Coastal Hammock*	◇	▲	◇
Mesic Hammock	❖	▲	◇
Tropical Hammock*	❖	▲	❖
<u>Group 3</u>			
Sand Pine Scrub*	◇	❖	▲
Sandhill*	◇	❖	◇
<u>Group 4</u>			
Low Flatwoods	▲	◇	❖
Hydric Hammock	▲	▲	◇
<u>Group 5</u>			
Dunes*	◇	◇	◇
Wetlands*	▲	varies	▲

\*Indicates rare and endangered communities.

The group number indicates the relative degree to which each community is affected by development. Group 1 is least affected, Group 5 is most affected.

**ATTACHMENT B  
OPTIMUM CARRYING CAPACITY FOR OUTDOOR RECREATION ACTIVITIES  
LAND-BASED ACTIVITIES**

<b>Recreation Activity</b>	<b>Required Land Base</b>	<b>Area Requirements</b>	<b>People/Unit of Facility</b>	<b>Turnover Rate</b>
<b>Camping</b>				
Hike-in	10-50 acres/site	Sites clustered to a maximum of 4 sites/acre	4/site	1/day
Short-walk, Tent	2-10 acres/site	3-8 sites/acre	4/site	1/day
Limited Facility	1-5 acres/site	3-8 sites/acre	4/site	1/day
Standard Facility	1-3 acres/site	3-10 sites/acre	8/site	1/day
Groups	20-50 acres/area	5-20 acres/area	10-30/site	1/day
Cabins	1-3 acres/cabin	2-6/acre	4-12/cabin	1/day
Amphitheater/Campfire	1-2 acres/facility	1/4-1/2 acre/facility	1/2 camping capacity	1/day
Museum/Visitor Center	1-5 acres/structure	1/4-1/2 acre/structure	1/20 sq. ft.	4/day
Picnicking	1/4-4 acres/site of exhibit area	8-15 tables/acre	4/table	2/day
<b>Trails</b>				
General Hiking (Nature Trails)	min. of 25 acres/mile of trail, max. length 1 mile	5-20 groups/mile	2/group	4/day
Primitive Hiking	min. of 100 acres/mile of trail, min. length 1 mile	1-5 groups/mile	2/group	2/day
Bicycle	min. of 25 acres/mile of trail	10-20 bikes/lane/mile	1/bike	4/day
Equestrian	min. 75 acres/mile of trail min. length 5 miles	2-8 groups/mile	4/group	1 to 2/day

**OPTIMUM CARRYING CAPACITY FOR OUTDOOR RECREATION ACTIVITIES  
WATER-BASED ACTIVITIES**

<b>Recreation Activity</b>	<b>Required Water/Land Base</b>	<b>Area Requirements</b>	<b>People/Unit of Facility</b>	<b>Turnover Rate</b>
<b>Swimming</b>	<b>min. 1/8 acre of land/ swimmer</b>	<b>50-200 sq. ft. of water and 200-500 sq. ft. of beach/swimmer</b>		<b>2/day</b>
<b>Surfing</b>	<b>min. 1/2 mile of beach for a surfing area, and 1/8 acre of land/surfer</b>	<b>40-100 linear ft. of beach/surfer</b>		<b>2/day</b>
<b>Fishing</b>				
<b>Shoreline</b>	<b>min. 1/4 mile of shoreline for a fishing area, and 1/8 acre of land/fisherman</b>	<b>1 fisherman/20-100 linear feet</b>		<b>2/day</b>
<b>Jetty Pier</b>	<b>min. 1/8 acre of land/ fisherman</b>	<b>1 fisherman/10-40 linear feet</b>		<b>2/day</b>
<b>Boating</b>				
<b>Limited Power (10 HP or less)</b>	<b>min. 200 acres of water, and 1/4 acre of land/boat</b>	<b>1 boat/5-10 acres of water</b>	<b>2/boat</b>	<b>2/day</b>
<b>Unlimited Power</b>	<b>min. 600 acres of water and 1/4 acre of land/boat</b>	<b>1 boat/10-20 acres of water</b>	<b>4/boat</b>	<b>1/day</b>
<b>Water-skiing</b>	<b>min. 600 acres of water and 1/4 acre of land/boat</b>	<b>1 boat/20-50 acres of water</b>	<b>4/boat</b>	<b>1/day</b>
<b>Sailing</b>	<b>min. 200 acres of water and 1/4 acre of land/boat</b>	<b>1 boat/5-10 acres of water</b>	<b>2/boat</b>	<b>2/day</b>
<b>No Power, Still Water</b>	<b>min. 50 acres of water and 1/4 acre of land/boat</b>	<b>1 boat/5-10 acres of water</b>	<b>2/boat</b>	<b>2/day</b>
<b>No Power, Moving</b>	<b>min. 1 mile of stream</b>	<b>2-10 boats/mile</b>	<b>2/boat</b>	<b>2/day</b>