



# *Dunes Management* *Guidelines*

Approved by the KICA Board of Directors at its meeting on June 5, 2006.



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# *Dunes Management Guidelines*

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## Introduction

Ocean beaches and the associated transition zones, including dunes, are productive and diverse habitats that extend along 181 miles of South Carolina coastline.<sup>1</sup> These beaches are primarily composed of unconsolidated sand and located on barrier islands and the ocean strand that front the Atlantic Ocean.

Currently, 76 miles of South Carolina's beach and shoreline is protected through state or federal ownership. There are an additional 17 miles that are privately owned and undeveloped. However, 88 miles (48.6%) of beach are currently impacted by development.<sup>2</sup> The decline in undeveloped beachfront habitat may represent the greatest threat to many of the species associated with the open beach and transition zone habitat. In South Carolina, coastal regions are responsible for a significant portion of the state's tourism, and in 1996, accounted for 56% of the state's visitors.<sup>3</sup>

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<sup>1</sup> SCDHEC 2005

<sup>2</sup> KANA 1988

<sup>3</sup> SCDNR and NOAA 2000

## Section I Background

One of the wonderful attractions to Kiawah Island is its beach system. Many homes and other structures within the dune system are located in areas where maritime shrub thickets naturally occur. Such vegetation frequently is removed or pruned to provide more open views of the ocean and to provide avenues for boardwalks or beach access roadways and walkways<sup>1</sup>. In some areas on Kiawah's beaches, the dunes are accreting – that is, they are growing or building more beaches. As a result of this land being built up, secondary dunes are maturing as vegetated areas begin to develop.

The Kiawah Island Community Association, Inc. (KICA) is responsible for maintenance and stewardship of much of the dunes property. KICA owns the approximate 10 miles of beachfront from the ocean's mean high tide mark back landward to the edge of privately owned property (See Appendix F). By state mandate, the Town of Kiawah Island is required to manage the beach to the mean high tide line. This is accomplished under the Town's "Local Comprehensive Beach Management Plan." The beachfront above mean high tide line generally belongs to the Association. It is the Association's goal to ensure that the dunes remain a vibrant part of the island for all members and future generations. This is achieved, in part, with the cooperation and input from other island principals such as the Town, KICA members, regimes, the developer, and the Architectural Review Board (ARB). These groups all work in concert with entities like the South Carolina Department of Natural Resources and the Kiawah Island Natural Habitat Conservancy to ensure the preservation of Kiawah's beach ecosystem.

Most members who purchased ocean front property did so with the expectation of having an ocean view. However, as some ocean front sites matured and grew taller, areas that previously enjoyed open views to the water became partially – or in some cases, completely – obstructed. To restore views to the water, some maritime shrub thickets have been cut as hedges. KICA understands the desire of members who own these ocean front properties to retain an ocean view across the Association's common property. The Association does support selective pruning where necessary and in an environmentally sound manner to achieve and maintain an ocean view. This selective pruning will be accomplished in a professional manner, in accordance with the industry standards approved by the American National Standards Institute, and the guidelines in Section VI of this document so as to ensure the continued health of the existing vegetation and shrub thicket. KICA does not permit unauthorized pruning on its common property.

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<sup>1</sup> J.W., McCord, SCDNR, based on personal observation by KICA biologist, N. Shea

## Section II

### Why are the Dunes important to Kiawah Island?

The dunes are part of the transitional zone collectively known as beaches. They create a diverse and unique ecosystem that is constantly under dynamic change due to the effect of tides, wave action and winds laden with salt and sand. The dunes are important to the rest of the beach system as well as upland areas for several reasons.

Dunes provide a buffer for upland areas during storm events. They also act as a source of sand for the beach if it is eroded by these storm events, currents or tides. As maritime shrub thickets mature on secondary dunes, they offer protection to more upland forested areas.

Dunes support many diverse species of plants and wildlife (See Appendix A). Some of these plants are unique to this ecosystem and a few rare species have federal protection. Plants, in turn, provide various habitats to many wildlife species including several kinds of migratory songbirds.

## Section III

### What makes up a Beach System?

As a system, the beach is made up of several transitional zones. The dune zone is located centrally on the beach. Dunes grade upwards to more upland areas like the maritime forest and slope down to the beach flats/intertidal beach to the aquatic marine habitats like the surf zone and shallow shelf. Below is a brief description of some of the major transitional zones and the plant species associated with them.

1. Front Beach: The front beach is composed of the sub-tidal surf zone, which is constantly underwater, and the intertidal beach which is landward of the surf zone and is usually flooded at high tide and exposed when the tide is low.
  - a. Vegetation: Very little vegetation occurs in this area due to the changes occurring to currents and tides.
  
2. Drift line: This is a zone of debris located above the high tide mark. The debris is mostly composed of smooth cordgrass washed down from the river and creek systems. This area usually marks the boundary between the intertidal beach and the beach flat or upper beach.
  - a. Vegetation: This area is sparsely vegetated. Seabeach Amaranth (*Amaranthus pumilus*), a protected species can possibly be found here.
  
3. Beach Flat (upper beach): This is an area of unconsolidated sand and shell between the intertidal beach and the fore dunes. It is very affected by sand and salt spray and is usually sparsely vegetated.
  - a. Vegetation: Annuals: Russian Thistle (*Salsola kali*), Crested Saltbush (*Atriplex cristata*), Harpers Searocket (*Cakile edentula harperi*). Perennials: Seacoast Marshelder (*Iva imbricata*), Dune Water Pennywort (*Hydrocotyle bonariensis*), Bitter Panic Grass (*Panicum amarum*) and Shoreline Seapursalane (*Sesuvium portulacastrum*). These plants are fundamental in the building up of dunes. The rare Beach Morning glory (*Ipomoea stolonifera*) and Seabeach Amaranth, both protected species, have the potential to be found in the beach flats.

### Section III (continued)

#### Dune System:

4. Dune System: The dune system is located landward of the beach flat or upper beach and has several transitional graduations to it. The dunes, subject to the forces of salt air off the ocean, are built as a result of blowing sand being deposited around plantings acting as windbreaks. These same plants are subject to salt pruning as is the entire beach system. This area is very dry due to excessive draining characteristics.
  - a. Maritime Dry Grassland: This part of the dune system is located on the primary dune (those most seaward), terraces and swales. The primary dune building plants Sea Oats (*Uniola paniculata*) and Bitter Panic Grass (*Panicum amarum*) are found in the grassland. As the dunes are building and become more stable, other successional<sup>2</sup> species establish themselves. The rare Sweetgrass, used in the ancestral African art of Sweetgrass basket weaving, is found in the lower dune.
    1. Vegetation: Annuals: Dune Sandspur (*Cenchrus tribuloides*), Seabeach Evening Primrose (*Oenothera humifusa*), Beach Pea (*Strophostyles helvola*), Gulf Croton (*Croton punctatus*), Camphorweed (*Heterotheca subaxillaris*), Prickly pear (*Opuntia pusilla*), Salt Meadow Cordgrass (*Spartina patens*), Firewheel (*Galardia pulchella*). Woody species: *Yucca* sp., Greenbriar (*Smilax spp.*), Wax Myrtle (*Morella cerifera*), Southern Red Cedar (*Juniperus virginiana* var. *silicola*), Hercules Club (*Zanthoxylum clava-herculis*).
5. Intra-dune ponds: These are depressions found in the swales between dunes that have permanent or seasonal water associated with them.
6. Maritime Shrub Thicket: Moving gradually landward across the secondary, and in some cases, the tertiary dunes, wind pruning becomes less of an influence on the plants. There is a thickening of the vegetation and it increases their heights and is termed a "thicket." Many plants found in the grassland are also found in the thickets, which are located on these more landward dune structures.
  - a. Other vegetation: Yaupon (*Ilex vomitoria*), Red Bay (*Persea borbonia*), Goundsel Tree (*Baccharis halimifolia*), Live Oak (*Quercus virginiana*), Poison ivy (*Toxicodendrod radicans*), Grapes

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<sup>2</sup> Plant succession is a natural process over time, by which an "empty" portion of land "for example, a newly tilled field" becomes forested.

(*Vitus spp.*), Peppervine (*Ampelopsis arborea*), Japanese honeysuckle (*Lonicera japonica*).

7. Maritime Forest: The maritime forest stands at the edge of the dunes system. It is made up of all the species that are found in the maritime shrub thicket. The distinguishing factor is the height of the plantings. Once the height of the canopy reaches 5 meters (approximately 16 feet)<sup>5</sup>, it is considered maritime forest. Plants include live oak, loblolly pine and wax myrtle.

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<sup>5</sup> Schafale and Weakly 1990

## Section IV

### Wildlife in Dunes Area

There are many animal species associated with the beach and its transitional zones. Some species are characteristic of particular habitats already described (See Appendix C).

1. Surf Zone/Intertidal Beach/Beach Flats: There are several invertebrate species that occupy these zones. The Ghost Crab (*Ocypode puadmata*), Coquina Clam (*Donak variables*) and Mole Crab (*Emerita talpoida*) are also inhabitants of this zone. These smaller animals serve as a food supply for shore birds and sea birds. The Piping Plover (*Charadrius melodus*), the Willet (*Gatoptrophorus semipalmatus*), the Sanderling (*Calidris alba*), and the Red Knot use this area to forage. Terns and gulls use this area as a resting space and scavenge dead animals washed ashore.
2. Beach Flat: Several varieties of sea turtle use the beach flat for nesting. Loggerhead (*Caretta caretta*), Green (*Chelonian mydas*), and Leatherback (*Dermochelys coriacea*) turtles utilize South Carolina beaches. The beach flat can also provide nesting sites for the Least Tern (*Sterna antillarm*) and Gull-billed Tern (*Sterna nilotica*).
3. Maritime Grassland: This area is an important forage site for a variety of birds: Common Ground Dove (*Columsina passering*), Uncommon Ipswich Savannah Sparrow (*Passerculus sandwichensis prenceps*) and Wilson's Plover (*Charadrius wilsonia*).
4. Intra-dune Ponds: These areas can be an important source of drinking water for birds and mammals. The water associated with these ponds is usually lower in salinity.
5. Maritime Shrub Thicket: Because of the thickness and variety of cover offered in the thicket, wintering and Neotropical birds use these areas as cover. Birds like Warblers, Yellow-breasted Chat (*Icteria virens*) and Eurasian Collard Dove use the thicket for cover. These are potential prey for the Coopers Hawk (*Accipiter cooperii*) that is a fall and winter resident of the thicket.

## Section V

### What is Dunes Management?

Dunes management is a comprehensive plan with a series of steps that combine to meet the goal of dunes preservation. It begins with regulations (such as those prohibiting vehicles on the beach, walking on the dunes, or the removal of plant materials from the dunes). There are other regulations such as the South Carolina Beach Front Management Act (See Appendix G).

Education and research are key to providing best management practices based on knowledge of the flora and fauna.

Finally, dunes management takes commitment. The Association's management program involves the proper stewardship of the existing habitat so that it can optimally support and provide a healthy diversity of plants and animals.

The Association supports the following conservation recommendations, which are consistent with Kiawah Island Architectural Review Board and Kiawah Island Natural Habitat Conservancy missions:

- Encourage a "whole island" planned development concept to mitigate anthropogenic impacts on the long-term maintenance of all beaches and beach fronts
- Educate members and guests about the importance of beach dune habitat and initiate participative projects such as dune revegetation programs
- Support the development of website information available to members and guests on the status, management and natural history regarding species of concern associated within this habitat
- Support surveys and other data gathering efforts.

## Section VI Dunes Pruning as Part of Dunes Management

It is the Association's responsibility to maintain the health and vigor of the beach dunes system owned by KICA. We will ensure that the dunes are protected for the safety and enjoyment of all who visit or live on Kiawah Island, and we will work in unison with the homeowners, regimes, as well as the Architectural Review Board (ARB) and the developer, to make the dunes, their vegetation, and their wildlife sustainable and attractive assets and to maintain, and where possible enhance, property values for all members. With these goals in mind, the following pruning guidelines apply to KICA common property.

1. Pruning may be performed after obtaining prior written approval from both the Association and the ARB.
2. Work will be performed by an ISA certified arborist who is approved by both the Association and the ARB. ANSI A300 (Part 1) Tree, Shrub, and Other Woody Plant Maintenance – Standard Procedures (Pruning) will be adhered to unless deviations are mutually agreed upon between the KICA Land Management Staff, the ARB, and the arborist doing the work.
3. Pruning on the primary dunes may be performed only to remove noxious, non-native species.
4. Pruning is confined to maritime shrub thickets and maritime forest, and only foot traffic is allowed for this purpose. Vehicles are not permitted on the dunes.
5. A visual inspection of dunes areas will be conducted in mid-June by KICA, the ARB, and approved arborists to verify the state of the dunes and to address specific pruning issues.
6. The optimal pruning window for vegetation under 4-inch caliper is during the months of December, January, and February.
7. Removal of trees of 4" caliper or greater requires the approval of both the Association and the ARB.
8. More extensive pruning may be permitted for quick growing, non-sensitive species such as wax myrtles and yaupons. However, KICA reserves the right to restrict pruning and prohibit heading or removal of certain sensitive dunes species (see Appendix B).
9. All cuttings will remain in the dunes and be allowed to decompose as a source of nutrition and to provide cover for wildlife. Exception: cuttings will be removed from boardwalks and beach accesses.
10. Chemicals and chemical applications may not be used on the dunes areas (herbicides, pesticides, fertilizers, etc.)

These guidelines will be reviewed consistent with the established KICA  
Guideline Review Process.

## Section VII

### Process to Request Approval for Dunes Pruning

Written permission from the Association and the Architectural Review Board (ARB) is required for all dunes pruning and planting beginning June 1, 2006. Members and other entity representatives interested in pruning along the dunes should contact the Association (866) 226-1770 (toll free), locally at 768-9194, or electronically at [KICAadmin@kiawah-owners.org](mailto:KICAadmin@kiawah-owners.org). The Association's representative will make an appointment to introduce him/herself to the member and his/her contractor, to examine the property, and explain the dunes pruning request process.

The member will complete a Dunes Pruning Application (Appendix D) requesting and describing the work to be done on Association property. The form includes start and completion dates and is signed by the member or his/her representative. (Note: A simplified yearly renewal request may be presented to Association staff by July 1 of the next year should annual pruning again be desired.)

The Association's representative will present the application form at a regularly scheduled Land and Lakes Management Advisory Committee (LLMAC) for its consideration and review. The member will simultaneously submit his/her plan to the ARB; this is not done by KICA. The recommendation of the LLMAC is then presented to the KICA Board at a regularly scheduled meeting for final decision. The Director of Land Management will notify the member in writing of the board's decision.

Should the LLMAC recommend disapproval, the member has the right of appeal first to the LLMAC and then to the Board in person or in writing. The KICA Board provides for an appeals process in the covenant compliance procedures and/or Land & Lakes Guidelines SOP. Members may request these from the Land Management Department at (866) 226-1770 extension 252 or locally at 843-768-2315

For approved pruning projects, the Association will, after notification by the member or his/her arborist, inspect the completed work site. The Association may request replacement plantings if deemed appropriate following pruning. Mitigation could be required if removal of plant material was not previously approved.

For subsequent years, the process for reinitiating previous existing pruning approvals will be initiated by a letter from KICA staff to the member or his/her representative. This letter will be mailed not later than mid-May so as to permit the scheduling of a mid-June site review by KICA and ARB staff with the approved arborist. Simplified notification forms, to be completed and submitted to both KICA and the ARB—will be attached should pruning consistent with the originally-approved project/site be desired. Following the site review, a coordinated (between KICA and ARB staffs) endorsed copy of the form will be returned to the member or his/her representative either confirming the annual approval and/or the identification of necessary corrective actions based upon mid-June evaluation.

As information, KICA has no jurisdiction over private property; the ARB provides approvals should members wish to prune or alter beachfront plants on their own property.