

# **JEKYLL ISLAND CONSERVATION PLAN NATURAL HISTORY**

**Submitted To:  
The Jekyll Island State Park Authority  
381 Riverview Drive  
Jekyll Island, Georgia 31527**

**By:  
Cabin Bluff Land Management  
P.O. Box 999  
Woodbine, Georgia 31569  
912-673-9309 - Telephone  
912-576-7154 – Facsimile**

## **JEKYLL ISLAND CONSERVATION PLAN NATURAL HISTORY**

### **INTRODUCTION**

Jekyll Island is one of the southernmost and westernmost barrier islands along the Atlantic Coast of Georgia. The string of barrier islands fronting Georgia's coast bear the brunt of tropical storms' wind and water energy as they approach the mainland.

Jekyll Island is located deep in the Georgia Bight where the Atlantic Ocean dips into the southeastern continental United States. This location, being far removed to the west of the continental shelf edge and the Gulf Stream, has impacts on the surrounding habitat types, marine organism populations, and even the weather.

Jekyll Island is in Glynn County, Georgia with St. Simons Island to the north and Cumberland Island to the south. The wide "marshes of Glynn" separate Jekyll Island from the city of Brunswick, Georgia. Temperatures are on the warm side of temperate with normal summer daytime highs in the 80 to 90 degree Fahrenheit range and winter temperatures normally ranging from 40 to 60 degrees Fahrenheit with short colder periods. The surrounding water bodies tend to reduce the extremes in temperature found only a few short miles inland.

The same water bodies also cause frequent summer thunderstorms. Peak rainfall is usually from July to September with total annual rainfall averaging around 53 inches.

The tide changes about every 6 hours resulting in 2 low and 2 high tides daily. Unlike most of the Atlantic Coast, the tidal range around Jekyll Island is large, ranging in the 6- to 9-foot range. This is a result of being located at the extreme western edge of the Georgia Bight. While this distance may cause extreme tidal fluctuations, it also serves to lessen the intensity of wave energy.

### **GEOLOGIC HISTORY**

The island we think of as Jekyll Island today has had different forms over time as the seabed sediments that make up Jekyll Island were deposited, revealed, and then modified by currents, tides, major storms, and people.

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The majority of Jekyll Island was deposited during the Pleistocene approximately 35,000 to 40,000 years ago. These islands were deposited and then became part of the inland area during the Ice Age when the oceanfront moved to near what is now the continental shelf where new barrier islands were formed. The newest islands formed during the Holocene (4,000 to 5,000 years ago). As the glaciers melted and the sea level again rose, the new barrier islands began moving westward with the water. The Holocene islands eventually moved far enough westward to join the existing island formed during the Pleistocene to form what is now known as Jekyll Island. Holocene caps to the north and south and a narrow Holocene band along the eastern edge frame the Pleistocene core of Jekyll Island.

The majority of the upland soils are composed of coarse sands of marine origin. These soils are usually acidic. The comparatively small organic component in the soils is responsible for the majority of the nutrient and water holding capacities in the soil. These soils are usually classified as Regosols (or soils with poorly differentiated profiles). Because many primary nutrients are in low supply, and many nutrient sinks on the island are ephemeral and dynamic, macro- and micronutrients are very important to vegetational and faunal dynamics on the island. While the topography is low in height and the water table is comparatively high, the high porosity and permeability of the soils make access to reliable water or the ability to withstand droughty conditions highly valued as well.

#### **“NATURAL COMMUNITY”**

One of Jekyll Island's greatly valued assets is its perceived naturalness. While many natural values are present on the island, the habitats and their respective species are much different than if humankind had not impacted the island. Given the intensity of development along the entire southeastern coast, the natural assets on Jekyll Island are becoming increasingly valuable and important. The vulnerability of these fragile, dynamic barrier islands and the even higher vulnerability of certain species on these islands focus attention on

man's responsibility to actively manage these resources to insure their survival and sustainability.

Man's historic impacts to Jekyll Island can best be summarized by the different uses that Jekyll Island has fulfilled in recorded history. The following sections will address our historic impact on the island's environment with focus on land management

### **Native American Utilization (pre 1560)**

The objective for this culture was subsistence.

There was limited utilization of forest & plant resources as well as terrestrial wildlife. Most of the utilization was focused on fish, shellfish, and other marine resources with limited agricultural activity. Jekyll Island was used by many Native American cultures with the most recent being the Creek.

Prescribed fire was in all likelihood used to reduce the underbrush for increased visibility, enhanced wildlife habitat, and decreased biting insects. Prescribed fire and girdling of overstory trees was probably also used where they planted crops of corn, beans, melons, squash, pumpkins, and tobacco.

### **Early European Settlement (1560 to 1780)**

The objectives were to occupy the land and claim the resources for their respective countries.

The Spanish were the first Europeans to influence Jekyll Island. The Spanish built a series of missions along the Georgia coast, however, with a small native population, Jekyll Island was not home to one. There was little large-scale habitat impact from the Spanish activities. It is possible, as with other Spanish settlements, that livestock was brought to help sustain the natives and it is likely that feral hogs were quickly established on Jekyll Island, either through the Spanish directly or via trade with nearby missions on Cumberland and St. Simons. Some pine and live oak timber was removed by the Spanish to repair their ships, and of course much wood was harvested for heat.

As the British began expanding their influence to the Georgia coast, they began establishing a series of forts. The British kept larger groups of people on Jekyll than the Spanish did, and so more timber had to be cut to build the

buildings and larger areas had to be cleared to grow crops. One of the first activities Major William Horton started when the first British fort was established on Jekyll was to clear over 222 acres for gardens and grain. He also had over 10,000 fruit trees planted. If they were planted on a 10 foot by 10 foot spacing, this would have made a 23-acre orchard.

The British extracted much more timber, including pine and oak, and naval stores. The pines valued useful for spars and other uses, while the live oaks were extensively used as beams, decking, and planking. Timber became an important export for the new colony.

As they did across America, the Europeans brought many exotic plants from their homeland to “improve” the new world. Few of the purposeful plantings became established in the wild, but the accidental plantings of many weed species are well established, such as salt cedar. Salt cedar, which is common around the marsh edges now, was probably originally established on the piles of ballast rocks from ships coming to pick up timber, cotton, and other cargo.

#### **Plantation Times (1780-1886)**

As the young Georgia colony became more densely populated, Jekyll Island was transferred into private ownership with an objective of agricultural production, primarily Sea Island cotton with supporting crops of indigo and rice. Smaller scale gardens with a wide variety of crops were also established. Horses, cattle, hogs, and other livestock were allowed free range over the entire island and surrounding marshes. Richard Leake, to be followed by Christopher du Bignon, was the first agricultural owner of the island, which was eventually divided into 7 or 8 major agricultural plantations. By the time of the Civil War almost all of the mature, useful trees on Jekyll Island had been cut for timber, firewood, or to clear the land for houses or agriculture. Jekyll Island missed the big wood markets of the late 1800’s and early 1900’s in coastal Georgia because all of the merchantable wood had already been cut. Most of the early photographs of Jekyll Island show a paucity of trees in the background. Most of the existing trees on Jekyll Island are less than 175 years old.

After the Civil War with no labor to grow crops and no timber to sustain logging activity, Jekyll was left to revert under the influence of natural succession.

### **Jekyll Island Club (1886-1947)**

A group of mostly New Yorkers purchased Jekyll Island from the individual owners as a winter retreat for wealthy northern industrialists. The Jekyll Island Club's primary objective was recreation – hunting, fishing, and riding at first then evolving into a more social and golfing organization. A little less than one-tenth of Jekyll Island's upland areas were developed in the Jekyll Island Club area, service buildings, a nine-hole golf course, and service and support areas. At least two tidal impoundments were developed and managed for waterfowl hunting. Other than the short-term impact of releasing exotic wildlife species and developing the Jekyll Island Club and other limited areas, the early efforts on the land were targeted to restoring habitats from agricultural fields to habitats that benefited game and harvesting wood for heat and steam production in some of the early steamships that docked at Jekyll Island. Some of the restoration was active, and some was passive as succession was allowed to occur in the agricultural fields. Later conversion of some of the restored habitats to golf courses began occurring. As often happens in groups such as this, there were disputes about what went where as interests changed; apparently “the best quail land” was the location chosen for the first golf course on Jekyll Island.

White-tailed deer from Virginia and elsewhere were released on Jekyll during this era, as were fallow deer. While the Spanish had undoubtedly introduced hogs onto Jekyll Island, additional European boar, including 300 from Italy, were released on Jekyll Island. A wide variety of game birds, both native and exotic, were raised or released on Jekyll Island; the list included bobwhite, turkey, grouse, pheasant, guinea fowl, peafowl, tinamou, Central American currawow, ocellated turkey, chacalaca, and a variety of waterfowl. The game lists for animals harvested during the Jekyll Island Club are quite interesting and are in keeping with the tenor of many similar properties from coastal South Carolina to the Thomasville-Tallahassee plantation region in this time. A taxidermist was in residence at the Jekyll Island Club and historic photographs from this era show

a wide diversity of birds, mammals, and some reptiles that were harvested and destined for display in homes, businesses, and museums of this time.

### **Jekyll Island State Park (1947 – present)**

As members of the Jekyll Island Club passed away or were attracted by newer resort destinations, the Jekyll Island Club became unable to operate financially and was finally condemned for failing to meet codes and standards and failure to pay taxes, mortgages, and other debts. The island was acquired by the State of Georgia in 1947. The Jekyll Island State Park Authority, which was created in 1950, has served as the steward of Jekyll Island to oversee the commercial interests and provide the infrastructure to access the undeveloped portions of Jekyll Island. The management objective is to make the recreational island amenities available to the general public while preserving the natural values of the island for the benefit of all of Georgia's citizens. A causeway was constructed in 1954 to allow better vehicular access for Georgia's citizens. The causeway construction severely impacted the flow of Latham Creek and several smaller tidal creeks. Some of the early development efforts included expansion of the golf courses, a failed attempt at constructing a marina, an abandoned Sea Circus site, and expanding residential and commercial lodging availability. Like many publicly owned lands in this time, the management of the natural resources was undertaken with a laissez-faire approach.

### **Future**

What we have today is not "natural", but rather a direct result of the major habitat modifications and changes of successional trajectory that have occurred as we have increasingly impacted the island over the past 4 centuries. The citizens of Georgia and other users of Jekyll Island deserve to continue to visit an area rich in natural assets and ecological amenities. Active restoration of some ecological processes and management to ameliorate historic and current negative human impacts is needed to preserve and enhance many species and their natural values. As development pressures rise along the southeastern coast, it is imperative that active management occurs to help preserve and maintain all the parts of our ecosystems in smaller and smaller areas.

The future objective for the undeveloped portions of Jekyll Island may be to maintain representative examples of barrier island ecosystems with as many of their plant and animal components as possible. This would include active management where appropriate to meet conservation objectives. It is incumbent upon us to provide habitats that are lacking because of man's past activities.

The next island to the north, St. Simons Island, is primarily developed. The next island to the south, Cumberland Island, is primarily hands-off management. A mix of naturally occurring habitats is required by the diversity of wildlife expected to found on these barrier islands. As the area of these habitats is reduced by development on some islands and the lack of active management on other islands, it becomes increasingly critical that these habitats are produced on Jekyll Island.

## **SUMMARY**

Portions of Jekyll Island were formed during the Pleistocene and portions were formed during the Holocene as barrier sand ridges between the Atlantic Ocean and the adjacent mainland. Jekyll Island has changed greatly during the intervening centuries as it has been impacted by daily tidal fluctuations, major storm events, and sea level changes. As land remained above the sea for longer periods of time a diversity of vegetation and associated wildlife communities developed. Eventually humans began visiting the island to gather food from the available plants and animals. European settlement eventually reached the island and began a more extractive land use that involved not just cutting and removing dominant tree species from the island, but wholesale clearing of the land for agricultural production. Later uses involved even more drastic conversions to asphalt and concrete in some areas, but also allowed the healing process of natural succession to form a semblance of natural communities on the island, albeit with a shift away from some of the dominant plant species that used to be present. Other perturbations, such as the introduction of exotic species and the control of naturally occurring fires, were also instituted. As human pressures increase in the area, it is becoming increasingly critical that natural habitat

structure and function are restored and protected in Georgia's coastal barrier islands, including Jekyll Island.

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