

FINAL PROJECT REPORT 7:



# Social Values of Live Oaks on Jekyll Island

Findings and Recommendations from a 2018-2019 Study

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## CONTENTS

Executive Summary .....	1
Introduction .....	3
Research Methods .....	4
Participant Characteristics .....	7
The Live Oak as an Iconic Species .....	9
Live Oaks and Tourism .....	11
Resident Empowerment .....	13
Environmentally-Responsible Behaviors .....	17
Works Cited .....	21
Appendices .....	22
Tables and Figures .....	22
Resident Comments.....	29
Visitor Comments .....	31

## EXECUTIVE SUMMARY

This report provides an assessment of the importance of live oaks toward social and cultural aspects of Jekyll Island, including tourism, community values, and recreation. This research was undertaken to understand values surrounding live oaks and to assess how management opportunities can sustain resident and visitor relationships with an iconic natural feature of Jekyll Island and coastal Georgia. Furthermore, understanding how Jekyll Island residents and visitors engage with and value live oaks can support the sustainability of an important nature-based destination on the Georgia coast.

### *Purpose*

Study participants identified the live oak as an iconic species of Jekyll Island. Results from a broader iconic species study characterized iconic species as those that serve as symbolic representatives of Jekyll Island and the experiences people value, such as connections to nature, aesthetics, and a sense of community. This characterization of live oaks as an iconic species was then used to understand how live oaks influence tourism, resident attitudes, and both residents' and visitors' environmental behaviors.

### *Methods*

A survey was designed based on stakeholder interviews to assess the importance of the live oak within Jekyll Island residents' and visitors' values, attitudes, and behaviors. From 2018 to 2019, a total of 93 resident and 156 visitor surveys featuring the live oak were collected and analyzed.

### *Tourism*

Though live oaks were not a main factor in visitors' decision to come to Jekyll Island, they influence their decisions to return or recommend Jekyll Island to others. About half of visitors planned to see or visit live oaks on their current trip, including many who had visited them on previous trips; this finding indicates a sustained expectation for Jekyll Island to provide visitors with opportunities to see and experience live oaks.

### *Resident Attitudes*

Residents generally agreed that Jekyll Island's association with and conservation of live oaks provide them with feelings of social and psychological empowerment, though there are opportunities to enhance these relationships, particularly through resident involvement in live oak conservation efforts.

### *Environmental Behaviors*

The survey also assessed potential effects of resident and visitor behaviors on live oak sustainability and identified possible opportunities to alter any negative impacts and/or enhance positive contributions. Participants were generally more willing to perform live oak-oriented conservation actions that were more individual and passive (e.g., supporting live oak-friendly policies, tourism, and businesses) slightly more than active behaviors such as donating money, seeking conservation information, or talking with others about live oak conservation. One major exception was interest in participating in planting events, which represents both residents and visitors across many demographic factors. Residents were particularly interested in supporting business and development through which live oaks are protected.

*Recommendations Summary*

Live oaks leave lasting impressions on visitors and encourage continued visitation. Landscaping and care of live oaks should anticipate impacts of visitor interactions, which include touching, climbing, and sitting on branches. Tourism marketing should recognize the unique aspects of live oaks on Jekyll Island, such as easy access to diverse settings (e.g., maritime forest, historic district, Driftwood Beach) and island management's dedication to conservation; highlighting unique ecological and social attribute of Jekyll Island's live oaks through marketing and programming also provides opportunities for environmental education and nature-based recreation activities.

Based on findings, we recommend increasing opportunities for residents to contribute to live oak conservation efforts, such as planting events, landscaping volunteering, or collecting information for a tree registry. Additionally, we encourage business and development on Jekyll Island to be particularly conscious of live oak conservation in order to maintain resident satisfaction.

We also recognize multiple benefits from enhancing the interior trail systems toward opportunities for residents and visitors to see live oaks in a forested setting. Enhancing the trail system can enrich environmental education and interpretation toward maritime forest dynamics and conservation issues. A tour of notable live oaks could serve as point of interest for hikers, bikers, and nature enthusiasts and provide connectivity among different environments in which live oaks are found.

This study identified the importance of live oaks toward multiple ways residents and visitors value Jekyll Island. While a sustained, robust live oak canopy on Jekyll Island is essential for maintaining these values, there are opportunities within tourism, education, and community engagement to enhance these values.

## INTRODUCTION

Conservation practices and policies are enacted to preserve the values of ecosystems, biodiversity, or individual species. The values that conservation practices aim to protect are often multiple, diverse, and span across social and ecological domains. Intangible social and cultural aspects of ecosystem values have been underrepresented in conservation science largely from a lack of appropriate ways of assessing these values. The following report details how an iconic tree species embodies social and cultural values and recommends practices and opportunities to enhance these values for the residents and visitors of Jekyll Island.

Iconic species are important because of the way they represent values of a community, such as conservation, cultural heritage, or their unique ecosystems. Exploring the live oak as one of Jekyll Island's most iconic species will allow us to better understand how management actions and planning decisions may affect residential and tourist attitudes shaped by relationships with live oaks.

At a basic level, we are assessing multiple ways that the live oaks define the character of Jekyll Island. However, the social and environmental factors that create the character of a destination can be complex and thus require research toward how people form connections with specific locations and their unique setting. These connections influence environmental attitudes, community identity, and a sense of well-being, among other factors. Therefore, planning and management decisions that may affect iconic species could directly and indirectly affect specific ways people value and form attachments with destination.

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## STUDY OBJECTIVES

1. Define characteristics and values that contribute to the iconic status of Jekyll Island's live oaks.
2. Assess relationships between live oaks and residents' and visitors' values, attitudes, and behaviors.
3. Identify opportunities to enhance social, cultural, and recreational values provided by live oaks.

## RESEARCH METHODS

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### TIMELINE

The findings outlined in this report resulted from a 2.5-year study on Jekyll Island.

June 2017: Interviews with visitors, residents, and employees to establish the focal species and scope of the study.

Winter 2017: Survey developed based on interview findings.

May 2018: Survey pilot tested on St. Simons Island in May 2018 and revised.

July 2018-June 2019: Survey distributed on Jekyll Island.

September- December 2019: Data analyzed, and report finalized.

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### PERMITS

The University of Georgia Human Subjects office granted this study IRB approval for primary data collection from residents, employees, and tourists.

The Jekyll Island Authority Research Committee approved this study on July 2, 2017.

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### INTERVIEWS

In 2017, we conducted structured interviews with Jekyll Island visitors, residents, and employees to understand which species are most iconic, what that status means to different people, and the ways iconic species are valued.

#### **Interview Sample**

We selected interview participants through intentional sampling to represent three types of experience with Jekyll Island: residents, visitors, and employees. We identified resident and employee participants through referrals from other participants and recruited visitors by asking every third visitor at tourist sites if they were available for a ten-minute interview, with an approximate response rate of 50%. The Georgia Sea Turtle Center and Tideland's Nature Center were purposefully excluded to reduce responses that may reflect bias from recent exposure to species in captive settings. Interview recruitment stopped when we reached response saturation, in which we were not receiving any new responses that differed much from the existing data.

There were 33 participants interviewed for this study. Nineteen were visitors to the island and 14 were residents or employees. Because data was collected without identifying information, individual participant characteristics are limited. The trends among demographic information of participants include on average above 50 years of age, majority Caucasian, and approximately equally split between male and female. Interviews took place over 12 consecutive days in July 2017.

#### **Interview Design**

After general introductory questions about what makes Jekyll Island special, we asked each interview participant to name three plant or animal species they consider to be iconic of Jekyll Island. We then asked a set of follow up questions for each of their three choices. The eight resident and employee follow up questions were based on connections between the species and personal identity, symbolism, ecology, economy, and culture. As visitors may not have been knowledgeable on the local ecology, economy, and culture, visitor follow up questions

were based on the significance of the chosen species toward tourism experiences and Jekyll Island as a destination. The interview protocol was reviewed by experienced researchers prior to the study.

### Data Analysis

Iconic species lists generated by interview participants were analyzed with a simple cognitive salience index (Sutrop, 2001), which scores species by frequency and rank across lists. The species with the top two scores were used as case studies in the remainder of the Iconic Species study. Across 33 interviews, the live oak was cited as an iconic species second-most frequently ( $n=18$ ), just after the loggerhead sea turtle ( $n=20$ ). Residents and employees listed the live oak most often of all species within their lists. This report focuses solely on the live oak as an iconic species of Jekyll Island. Additional interview data was reviewed and categorized by common themes expressed by participants (Saldaña, 2016).

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## SURVEYS

### Survey development

From interview findings and existing surveys, we created a survey that was distributed during 2018 and 2019 to residents and tourists of Jekyll Island. This survey broadly measured how the sea turtle and live oak, as iconic species, factor into values, attitudes, and environmentally-friendly behaviors people have toward Jekyll Island. For residents, this survey also measures how those species influence a sense of empowerment and for tourists, how their attitudes towards those species influence their decisions to visit. Thus, four different versions of the survey were created:

Table 1. Factorial Survey Design.

Participant Type	Focal Species	
	Resident Live Oak Survey	Resident Sea Turtle Survey
Visitor Live Oak Survey	Visitor Sea Turtle Survey	

### Pilot Test

The survey was pilot tested in May 2018 on St. Simons Island, Georgia focusing only on the live oak as the case species. We distributed the resident version of the survey through a drop-off/pick-up method on five randomly selected neighborhood streets. A resident answered the door at 65% of homes on these streets and 75% of these residents returned the survey the next day. We tested the visitor survey by approaching beachgoers on a two mile stretch of beach for five mornings. About 80% of people agreed to complete the visitor survey or resident survey (if a resident at the beach). The pilot test confirmed the feasibility for residents to complete and return the survey through the drop-off/pick-up method and for visitors to complete the survey through intercept sampling at tourist locations. In June 2018, we revised the survey based on pilot data analysis for reliability, expert review, and input from Jekyll Island employees.

### Final Survey

The revised and final versions of the surveys were distributed starting in July 2018. The resident and visitor surveys shared six question sections and each version had two unique question sections. The surveys for the two focal species were nearly identical in format except the names were substituted within each question. The only other differences were six environmentally responsible behavior questions unique to the sea turtles and three unique to the live oak.

Table 2. Survey Question Sources

Shared Sections	Question Source
Place Attachment	(Raymond, Brown, & Weber, 2010) (adapted)
Iconic Species Characteristics	Interview Responses
Iconic Species Value	Interview Responses
General Species Values	Interview Responses
Environmentally Responsible Behaviors	(Larson et al., 2018) (adapted)
Socio-Demographic Information	Jekyll Island Visitors 2018 Questionnaire (adapted)
Unique Sections	
<i>Resident</i>	
Psychological Empowerment	(Boley & McGehee, 2014) (adapted)
Social Empowerment	(Boley & McGehee, 2014) (adapted)
<i>Visitor</i>	
Tourism Behaviors	Interview Responses
Tourism Attitudes	Interview Responses

### Survey Distribution

Survey distribution was split into two daytime blocks (10am-12pm and 1pm-3pm) and one evening block (4pm-7pm). The daytime blocks were designated for survey distribution to primarily Jekyll Island visitors (and residents who were there) at outdoor tourist sites. Each tourist location was sampled twice, including the fishing pier/Clam Creek area, Driftwood Beach, Great Sand Dunes Park/Beach, St. Andrews Beach/Picnic Area, Glory Beach, the Historic District, and the Beach Village. We asked every third person to complete a survey, alternating between the sea turtle and live oak versions.

We distributed surveys to residents with a drop-off/pick-up method, in which we knocked on doors, explained the research project to a resident, dropped off a survey packet for them to complete and leave at their door before the following afternoon. If no one answered, we returned the next day to try those houses again on a second pass. If the completed survey packet was not left outside the door for pick-up, we left a reminder postcard and returned the next day. We approached all residences on Jekyll Island except The Cottages and the Villas by the Sea. If the house was occupied by a visitor, we gave them a visitor version of the survey. Survey versions alternated between the sea turtle and the live oak for the focal species.

The American Community Survey 5-year estimates of Jekyll Island's Block Group report a population of 568 (+/-215 margin of error) 306 households on Jekyll Island and 757 housing units, 40% of which are occupied (U.S. Census Bureau, 2018). Our survey collection method over three weeks in the summer and one week in the winter approached approximately 450 homes (excluding apartment and condo complexes) and captured 182 total resident surveys, of which 93 were focused on the live oak. Of the 488 homes we approached, 291 did not answer (60%), 125 completed and returned a survey (25%), 24 accepted a survey but did not return it (5%), and 6 declined (1%). Some homes were occupied by visitors and some resident surveys were collected during visitor-site survey collection.



## PARTICIPANT CHARACTERISTICS

### Sample Overview

From 2018 to 2019, we collected 483 total surveys from island residents and visitors. For the focal species, 249 surveys featured the live oak and 234 surveys featured the sea turtle. The live oak surveys consisted of 93 resident surveys and 156 visitor surveys. The sea turtle surveys consisted of 89 resident surveys and 145 visitor surveys.

### Demographic Overview

The Iconic Species Survey measured five socio-demographic variables: gender, age, race/ethnicity, education, and income. Of the 243 participants who completed a survey on live oaks, 65% were female and 35% male. Participant ages ranged from 20 to 94 with an average age of 55. Almost all participants identified as Caucasian/white (92%). Survey participants were highly educated; all had completed high school and 77% had attended at least some college. Additionally, more than 70% of residents and visitors reported household income at or above the median in the state of Georgia.

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## RESIDENT DEMOGRAPHICS

Of the residents who completed a live oak survey, 16% were seasonal residents and 84% were year-round residents. Seasonal residents spent an average of 4.8 months per year on Jekyll Island. Seasonal and year-round residents had been living on Jekyll Island between less than a year and 50 years, with an average residence time of 15.7 years (SD=12.3). Eighty six percent of surveyed residents were the current homeowners, 11% were renters, and one person each lived with the owner, were housed by their job, and one unspecified alternative arrangement. According to US Census American Community Survey 5-year estimates, 77% of housing units are owner-occupied on Jekyll Island (U.S. Census Bureau, 2018). According to a previous study, almost 70% of homeowners are not year-round residents and use their Jekyll Island home as a rental or second home (Selig Center for Economic Growth, 2017). Based on our door to door, drop-off/pick-up survey distribution method, our sample likely did not capture many of the second homeowners who were not currently occupying their homes on Jekyll Island.

Of the 87 residents who identified their race/ethnicity within our study, 82 people identified as Caucasian/White, 1 person identified as African American/Black, 2 people identified as Asian, 3 people identified as American Indian, and 3 people as Other. None reported Hispanic race/ethnicity. Participants were able to choose more than one category. 52% identified as female, 47% as male.

Census block estimates for the Jekyll Island population indicate a median age of 70.6, with two thirds of residents over 65 and no racial diversity outside of Caucasian (+/- 13 margin of error for non-white individuals) (U.S. Census Bureau, 2018).

The most common level of education was a bachelor's degree (29%), followed by a master's degree (24%) and some amount of college but no bachelor's degree (20%). All residential participants within the live oak survey sample completed high school and ten percent held a PhD. According to five-year US Census estimates, all Jekyll Island residents are high school graduates and half have a bachelor's degree or higher (63% within our sample)(U.S. Census Bureau, 2018). The most common annual household income categories reported by participants were \$50,000-\$75,000 (26%) and \$100,000-\$200,000 (27%). Few participants (11%) reported the two lowest income brackets and 15% reported over \$200,000.

The 2018 American Community Survey 5-year estimates report the median household income of Jekyll Island residents as \$75,089, which is approximately 1.5 times that of the surrounding county and of the state (U.S. Census Bureau, 2018). Household incomes of part-time residents or second home owners on Jekyll Island are approximately 1.5 times that of a year round resident (Selig Center for Economic Growth, 2017).

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#### VISITOR DEMOGRAPHICS

Most visitors were not on their first trip to Jekyll Island (86%). Two thirds of visitor participants returned at least once per year and more than a third of visitors returned to Jekyll Island three times or more per year. The average age for Jekyll Island visitors within our study was 48 years old (SD = 15.2). Ages ranged from 20 to 78. Approximately 70% of visitor participants were female and 30% were male. Of the 154 visitors who identified their race/ethnicity, 147 people identified as Caucasian/White, 4 people identified as African American/Black, 1 person identified as Asian, 2 people identified as American Indian, 3 people identified as Hispanic, and 1 person as Other. Participants were able to choose more than one category.

The most common education levels were some amount of college (31.4%) and a bachelor's degree (33.3%). Less than 10% of visitor participants held a graduate degree (professional or Masters/PhD). All visitors had completed high school or a GED. The most common household income bracket was above \$100,000 (32.2%), with 5% of visitors reporting over \$200,000. Approximately half of visitors reported a household income under \$75,000, half of which reported between \$50,000-75,000.

Of the 156 visitors given live oak surveys, 151 provided a home zip code representing 111 unique locations. Three-fourths of participants were from inside Georgia, with the most commonly reported visitor zip codes from the Brunswick area (31523, n=12; 31525, n=9; and 31520, n=5). One-fourth of visitors represented 15 other states, primarily in the eastern United States. Overall, visitors came from Colorado, Florida, Georgia, Illinois, Indiana, Kentucky, Maryland, Michigan, Minnesota, Nevada, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

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#### VISITOR MOTIVATIONS

Visitor participants across both the live oak and sea turtle-focused surveys gave their primary motivations for visiting Jekyll Island from 14 possible options. Relaxation, visiting the beach, and spending time with family and friends were the most cited reasons (70-83% of visitors). In addition to the beach, between a third and a half of visitors chose at least one other primary motivation that is supported by Jekyll Island's natural and historic resources or outdoor recreation options (i.e. spending time in nature, outdoor recreation, seeing historic sites, experiencing a new setting, and visiting the Sea Turtle Center).

*"That's what we're here for! The ecology. We could go up to Myrtle Beach, we could go down to Miami, we could go to some of these other places, we could go to Daytona and it's not the Georgia Coast, It's not Jekyll. Even St. Simons, and I live over there so I can say this, but it's not quite the same as stepping onto Jekyll." -Interview Participant*

## THE LIVE OAK AS AN ICONIC SPECIES

While “iconic species” is a term often used in environmental discourse, from social media to scientific publications, it does not yet have a well-established meaning toward conservation science. Thus, the broader iconic species study aimed to assess characteristics of iconic species and a variety of values that iconic species provide toward people and places.

We assessed the variety of values through two foci: The value live oaks provide as an iconic species and a broad range of values iconic species commonly contribute to nature-based destinations. To create the question sets to measure the iconic attributes of the live oak, we combined attitudes and behaviors expressed by interview participants with items from existing studies. These measures allow us to better understand the characteristics that define how the live oak serves as an icon of Jekyll Island. Because these values are highly intangible, identifying the concrete psychological mechanisms and tangible characteristics that contribute to this iconic status is important for maintaining these symbolic relationships, which can influence the ways residents and tourists connect to the island. Thus, these survey sections allowed us to better understand how iconic species contribute to resident empowerment, tourism, and environmentally-responsible behaviors through the remainder of this report.

Two question sets were developed from interview responses and existing species valuation research to assess:

1. **Iconic Value:** This section assesses the ways in which the live oak influences participants’ perceptions of Jekyll Island based on its iconic status.
2. **General values:** This section includes a range of values identified from interviews describing how live oaks are important to Jekyll Island and its residents and visitors.

### Iconic Value

We used four items to better understand the value of the live oak as an iconic species of Jekyll Island:

*The live oak’s presence here affects how I feel about this place.*      *I value what the live oak represents about Jekyll Island.*  
*The live oak defines an important part of Jekyll Island’s identity.*      *Jekyll Island would be a very different place without the live oaks.*

Participants responded to the items on a scale ranging from Strongly Disagree (1) to Strongly Agree (7).

Overall, residents and visitors both agreed that the live oaks contribute to how they feel about Jekyll Island (Figure 7). Participants agreed most with “Jekyll Island would be a very different place without the live oaks” and least (though still with agreement) that “The live oak’s presence here affects how I feel about this place.” There were no significant differences between resident and visitor scores across these questions, but women ( $M=5.85$ ,  $SD= 0.07$ ) rated overall iconic value slightly higher than men ( $M= 5.47$ ,  $SD= 0.13$ ,  $t(233) = 2.78$ ,  $p<.05$ ).

Results indicate that live oaks have a prominent role in people’s perceptions of Jekyll Island. If the presence of live oaks on the island were noticeably reduced, residents’ and visitors’ perceptions of Jekyll Island would change in part because they view live oaks as essential aspects of the island’s character, representing important values, experiences, and ideas of identity. Maintaining or enhancing the symbolic role of live oaks toward how residents and visitors see the island may strengthen their attachment to Jekyll Island, which can translate to continued visitation, resident empowerment, community cohesion, and more environmentally-responsible behavior. While species often have concrete, tangible cultural, economic, and ecological values, these questions demonstrate that the live oaks provide important intangible values through symbolic association.

## Maintaining Iconic Status

Species can become iconic through multiple means, including but not limited to cultural importance (arts, folklore, food, etc.), ecological characteristics (rarity or commonality, keystone status, etc.), or unique behaviors and attributes. However, iconic species are often iconic because of their association with distinct places. For nature-based destinations, this iconic status can be affirmed and enhanced through marketing and environmental management. Tourism marketing that depicts the live oak as an important attribute of Jekyll Island affirms its iconic value. Celebrating the ecological and cultural importance of the live oak through resident and visitor activities such as the maritime forest ranger walks and holiday lighting decorations can enhance the live oaks' iconic value. The remainder of this report details ways that the iconic status of the live oaks can be leveraged and strengthened to benefit the overall experience that Jekyll Island residents and visitors have.

## General Values of Live Oaks

To better understand the role of iconic species, we also assessed residents' and visitors' perceptions of other values related to the live oaks. We developed a set of questions from the variety of values related to iconic species that were expressed within interview (Figure 8). Participants responded to the items within the prompt "How important is the live oak for..." on a scale ranging from Not at all (1) to Extremely Important (7).

Overall, the live oaks were rated as "somewhat important" or higher toward all listed values. When we compared these types of values with each other (Figure 8) some groupings stood out based on how participants rated the values. Contributions to the aesthetics and local (ecological) environment of Jekyll Island were both rated as the most important aspects of the live oaks. Contributions for tourism and the global environment were similarly rated as moderately important. The live oak's importance for memories of Jekyll Island, sense of community, and cultural activities were rated similarly around "somewhat important" (5). Solo and family activities were the least important of all values related to the live oak. Visitors perceived the live oak as slightly more important (mean difference >0.7) for the global environment, sense of community, and cultural activities than residents did ( $t(236)=-2.894$ ,  $t(236)=3.419$ ,  $t(237)=-3.274$ ,  $p<0.05$ ). The novelty of the live oak to visitors and its visibility throughout tourist areas may account for these differences.

Women saw the live oak as slightly but significantly more important toward the global environment, sense of community, cultural activities, family activities, tourism, and memories made of Jekyll Island than male participants did. While men did not on average disagree with these values, these findings indicate how live oaks may be meaningful differently across gender.

Of the different values associated with the live oak, activities ranked the lowest. While the live oak isn't currently recognized as a large source of individual, family, or cultural activities, there is potential for growth. Maritime Live Oak forest managers identified "improved access to forest" and "enhance connections to cultural landscape" as two opportunities that can be derived through desired forest management goals. These goals can be addressed through enhancing a range of activities that center around live oaks, such as recreation, education, and cultural celebration. Recommendations for these types of activities are detailed within the remainder of the report.

Overall, participants most strongly considered live oaks as important aspects of Jekyll Island both aesthetically and ecologically. While more research is required to assess in detail how visitors and residents characterize and recognize these values, at a basic level the simple presence of the live oak creates these opportunities and the loss of the live oak as a visible aspect of the landscape would have wide effects toward the experiences people have on Jekyll Island.

## LIVE OAKS AND TOURISM

Live oaks are notable elements of Jekyll Island’s identity as a destination. Our survey assessed some basic ways visitors might engage with, recognize, and value the presence of live oaks on Jekyll Island. Survey findings support the inclusion of the live oak as an important aspect of Jekyll Island’s marketing and destination identity. Based on these findings, we provide recommendations to enhance the relationships between live oaks and tourism on Jekyll Island.

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### TOURISM ATTITUDES

We assessed visitors’ perceptions of live oaks within tourism on Jekyll Island through six items (Figure 9). Visitors responded to the items on a scale ranging from Strongly Disagree (1) to Strongly Agree (7).

Generally, visitors were neutral about the live oak as a factor in their decision to visit Jekyll Island (item set mean = 4.23). The live oaks’ role in visitors’ willingness to recommend and return to Jekyll Island were rated slightly positively, along with perceptions that Jekyll Island is the best place to experience live oaks. On average, visitors disagreed that oaks are an important part of visitor activities and were an important draw or primary aspect of their decision to visit. Results suggest that while the live oaks were not part of visitors’ motivations on the front end, they leave an impression that slightly affects willingness to return or recommend Jekyll Island to others. Results also indicate an opportunity for live-oak specific leisure, recreation, education programming.

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### TOURISM BEHAVIORS

We asked visitors about their current and past interactions with live oaks with four items:

*Do you plan to visit live oaks while on this trip to Jekyll Island?*

*Have you visited live oaks on a past trip to Jekyll Island?*

*Do you plan to take a picture related to live oaks on this trip?*

*Have you or do you plan to post that picture to social media?*

While “visiting” a live oak could take many different forms, the intent of the question set is to gauge broad interest and intentional action in engaging with the species. Further research into modes of engagement with live oaks is detailed in the photography study within this report.

About half of visitors (47%) planned to visit live oaks while on their current trip to Jekyll Island and 68% had visited the live oaks while on a previous trip. Approximately one of every six visitors were on their first trip to Jekyll Island; 72% of first-time visitors planned to visit live oaks. Even though 79% of return tourists had visited the live oaks on a previous trip, 43% intended to visit them again on their current trip.

Overall, 41% planned to take a picture related to live oaks while on their current trip. Of those, about 42% (n=63) planned to or had already posted that picture to social media. Of first-time visitors, approximately half (55%) intended to take a photograph related to live oaks and 40% of those who took a photo intend to post it to social media.

Currently, live oaks are present in a mosaic of environments on Jekyll Island, including maritime forests, landscaped historic areas, and as natural artifacts on the beaches. To sustain opportunities visitor engagement with live oaks, we recommend diverse settings for visitors to approach and engage with both individual trees and to see them in forested settings. While the live oaks are easy to approach on foot in the historic district and other

landscaped areas of the island, enhancing the accessibility of the trails within the interior forests for people on foot may allow more opportunities for visitors to see and engage with live oaks in a forest setting. However, the undergrowth, including saw palmetto, may serve as a barrier toward proximity to the live oaks in forested settings. Therefore, interpretative materials such as small signage or a designed “live oak tour” of particular trail-adjacent oaks could make seeing and experiences maritime forest live oaks easier for visitors, especially for visitors less comfortable in natural settings.

Visitor observation and social media photo data demonstrate that some of the ways visitors engage with the trees include walking up to touch them and climbing or hanging on low branches. We recommend landscaping and mulching practices that protect the roots from foot traffic impacts. In the survey comment section, some residents expressed concerns about people climbing and hanging on branches, indicating possible conflict between resident and visitor interactions with live oaks.

Almost half of tourists who had visited the live oaks on a previous trip intended to do it again on their current trip, indicating a sustaining audience that could have expectations to see or have access to certain trees or forested areas during their trips. If landscape changes are made in these areas or notable trees are lost or obscured, visitor satisfaction could be affected. In these circumstances, the expectation to see a certain tree could be met with targeted, empathetic signage that recognizes the relationships people form with trees.

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## RECOMMENDATIONS

- Diverse settings for visitors to approach, view, and experience the sensory aspects of live oaks, including individual notable trees as well as forested settings
- Increase accessibility of interior trail system
- Create tree signage or a “live oak tour” accessible both on paper maps/pamphlets and on a website or digital map.
- Ensure tree landscaping practices protects roots and branches from visitor impacts, such as foot traffic and sitting/standing/climbing
- Create interpretative signage (either temporary or permanent) that can explain landscape changes when notable trees are lost or removed. Signage should recognize the value of personal relationships people form with trees.

## RESIDENT EMPOWERMENT

Conservation efforts globally are shifting from focuses only on ecological goals toward engaging communities and supporting social, cultural, spiritual, and economic values as well as livelihoods. Empowerment, commonly understood as a person's control over their future, self-efficacy, and access to equitable benefits, is one mode of improving communities' relationships with conservation, environmental management, and development. Empowerment has often been a focus of sustainable tourism because of possible disconnects that can emerge between residents and their access to resources and benefits through the development of tourism economies, infrastructure, and changes to the landscape.

Ecotourism impacts may be understood through different forms of empowerment, including political, economic, social, and psychological (Scheyvens, 1999). Through our study on iconic species, we focused on how live oaks and related conservation and management efforts may provide a sense of social and psychological empowerment for residents. Social empowerment describes the sense of cohesion and strength of ties within a community. Opportunities for social engagement or equitable distribution of benefits among a community are ways resident social empowerment may be enhanced by management actions. Psychological empowerment is how aspects of the community, such as traditions, practices, or their natural resources, are tied to individuals' sense of self-esteem and pride.

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### STUDY OVERVIEW

The purpose of this aspect of the study was to assess how live oaks (LOs) on Jekyll Island may play a role in enhancing residents' sense of empowerment. We assessed these relationships through six dedicated items on the Iconic Species Survey, relevant interview responses, and other related survey items. The dedicated empowerment survey items were adapted from an existing survey scale based on resident empowerment through sustainable tourism (RETS, (Boley & McGehee, 2014)). Residents responded to the items on a scale ranging from Strongly Disagree (1) to Strongly Agree (7).

The following section presents the results of the study and discusses insights and potential strategies for fostering residents' sense of empowerment through live oak conservation and management.

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### PSYCHOLOGICAL EMPOWERMENT

Table 3. Items and Scores of Psychological Empowerment from Live Oak Conservation

<b>Psychological Empowerment (N=92)</b>	<b>Mean</b>	<b>Standard Deviation</b>
Jekyll Island's association with live oaks... makes me proud to be a Jekyll Island resident.	5.87	1.27
makes me feel special because people travel here to see them.	5.37	1.41
reminds me that I have a unique environment to share with visitors.	5.93	1.26

Residents commonly agreed with all three items describing psychological empowerment. The mean score across all three measures (M=5.72) translates to between "somewhat agree" and "agree," indicating generally positive attitudes of psychological empowerment facilitated by Jekyll Island's association with live oaks.

When comparing the three items, residents were less likely to 'feel special because people travel to Jekyll Island to see the live oaks' than the other measures of psychological empowerment. In comments and interviews,

residents indicated that live oaks provided other forms of psychological empowerment, but some did not think the live oaks were something that people traveled to Jekyll island specifically to see. This aspect of psychological empowerment could be enhanced through marketing and tourism development targeting the live oak as a reason to visit Jekyll Island.

When we looked at associations between measures of empowerment and other survey findings, approximately half of residents were generally likely to support more local tourism related to live oaks. Additionally, feelings of psychological empowerment from Jekyll Island's association with live oaks served as a significant predictor of support for more local tourism related to live oaks. A simple linear regression equation ( $F(1,87) = 55.59, p < .001$ ) with an  $R^2$  of 0.39 indicated that support for live oak tourism increased almost one scale level (0.874) for each increased level of psychological empowerment.

Eighteen percent of residents were generally unlikely to support more tourism related to live oaks. Possible reasons for not supporting live oak tourism would be disagreement with more tourism in general, more tourism infrastructure development, or fear of negative impacts on the health of the trees and ecosystems.

Jekyll Island residents benefit psychologically from recognizing that the live oaks are unique aspects of the island, which may be enhanced through education opportunities, tourism marketing, and community events. However, both interview and survey respondents noted that Jekyll Island isn't the only place to enjoy live oaks. Therefore, highlighting the unique aspects of live oaks on Jekyll island may be the key element to ensuring residents continue to feel psychological empowerment and support for tourism. Unique elements of Jekyll Island's live oaks could include long-lived individuals, public access points to the maritime live oak forests, cultural recognition of live oaks (lighting the trees during holidays), preservation and management efforts in practice, or Driftwood beach, whose trees demonstrate barrier island geology. Interview and survey participants emphasized how Jekyll Island trails and walking paths allow ample opportunities to experience the aesthetics of live oaks, emphasizing shade, filtered light, breezes, and dynamic branches.

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## SOCIAL EMPOWERMENT

Table 4. Items and Scores of Social Empowerment from Live Oak Conservation

	Mean	Standard Deviation
<b>Social Empowerment (N=91)</b>		
The conservation efforts associated with Jekyll Island's live oaks...		
make me feel more connected to my community	5.22	1.34
foster a sense of community spirit within me.	5.08	1.38
provide ways for me to get involved in my community.	4.86	1.42

Resident generally agreed with the three items describing social empowerment. Community connections through live oak conservation was rated highest. Residents expressed that living among the live oaks was a reason that people decide to move to Jekyll Island. For instance, one resident stated, "We chose a house with a lot of trees on the lot. The presence of the trees was essential. On this lot we have 16 trees, 8 are pines and the other 8 are live oaks."

Overall, residents agreed that the conservation efforts foster a sense of community spirit within them. Conservation is a shared value among many Jekyll Island residents and the continued protection of live oaks allows residents a pathway to community spirit. A sense of community spirit in part takes the form of individuals' emotions but also exists within communication and social exchange between community members. Sixty percent



of residents were generally likely to talk to friends or family about how to protect the live oaks. One resident connected the live oaks to the “island ethos:”

*“As a part of the island ethos, so to speak, it’s the fact that they’re constantly replenishing. We’re constantly planting newer live oaks. We just got through planting 300 different trees, a significant number of those were live oaks. Four, five generations down the road will have live oaks... It’s kind of like the underlying culture and philosophy of living on the island. The people that live on this island take the island personally. If you took those things away, the sea turtles and the live oaks, if you took that stuff away it would just be Fort Lauderdale on the ocean. You know, but because of that people have a tendency to bond and protect the island.”*

While this resident mentioned specific planting efforts to promote future generations of oaks, residents only slightly agreed that conservation efforts “...provide ways for me to get involved in my community.” Community involvement through live oak conservation is an opportunity to enhance residents’ psychological empowerment. Volunteering opportunities tied to live oak conservation, such as pruning and care training, clearing invasive species, and collecting acorns for propagation may also directly enhance this aspect of resident empowerment. When asked within the survey, “How likely are you to participate in live oak planting opportunities?”, 61% of residents were overall likely to participate. One long-time resident directly expressed the loss they felt when opportunities to volunteer with island landscaping were no longer offered to residents, not for the loss of the related incentive (golfing passes) but because it allowed them time with their neighbors to beautify the island. Establishing a tree registry that interfaces with the public could provide multiple benefits toward resident and visitor values. A tree registry could serve a point for residents to be involved with both the recognition of JI’s live oaks as special and through contributions to tourism and conservation efforts. Currently, the registry managed by Golden Isles For Trees (GIFT) has documented very few trees on Jekyll Island.

Residents indicated that living under the live oaks and the related risks were a shared experience. One resident said, “They’ve become a sacred tree. I had to take it down because lightning had hit it and killed it, but it hurt me to take it down even though I knew over the years it would just be a limit of time. It was sad to see a big one go and I think more of the people have that same feeling about the tree canopy, and as far as live oaks, the anchor species.” Another resident expressed these shared feelings: “There’s this giant branch, it’s beautiful. It goes over the front of my house...When Matthew came through, I figured it was probably on the front of my house and took out the kitchen and the living room. And it didn’t. So, I have mixed [emotions]...It’s beautiful. I love it. But it may come down on me.” Within the survey, the number of residents likely to remove a live oak to protect their home was equal to those unlikely to remove a tree. While decisions to remove trees are complex and involve factors such as personal risk, costs, and local ordinances, levels of social empowerment provided by Jekyll Island’s live oaks was not a significant predictor of this behavior within a simple linear regression equation ( $F(1,84)=0.919$ ,  $p>.05$ ). Social empowerment did predict resident’s likelihood of engaging in other conservation-related behaviors: talking to friends and family about live oak protection ( $F(1,86)=56.20$ ,  $p<.001$ ,  $R^2=0.40$ ), donating money toward live oak protection ( $F(1,86)=31.88$ ,  $p<.001$ ,  $R^2=0.27$ ), and seeking more information on how to protect live oaks ( $F(1,86)=37.56$ ,  $p<.001$ ,  $R^2=0.30$ ).

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## RECOMMENDATIONS SUMMARY

- Enhance psychological empowerment through:
  - Marketing and tourism development targeting the live oak as a reason to visit Jekyll Island
  - Recognition of unique aspects of Jekyll Islands live oaks within education opportunities, marketing, and community events
  - Unique aspects to highlight:
    - Long-lived individuals
    - Public access points to maritime-live oak forest
    - How aesthetic elements can be experienced in recreation and tourism settings
    - Cultural recognition of live oaks (e.g., lighting trees during holidays)
    - JI's preservation and management efforts in practice
    - Driftwood Beach and demonstration of barrier island geography
- Enhance social empowerment through:
  - Volunteer opportunities for residents, such as pruning and tree care training, clearing invasive species, and oak propagation
- Maintain support for live oak tourism through psychological empowerment
- Maintain residents' willingness to perform live-oak conservation actions (looking for information, donating money, and talking to friends and family) through social empowerment.

## ENVIRONMENTALLY-RESPONSIBLE BEHAVIORS

The social and ecological sustainability of nature-based destinations is tied in part to the behaviors, or actions, of residents and visitors. Efforts such as social marketing, education, and environmental design aim to influence people toward more environmentally friendly behaviors. The purpose of this section of our study was to understand the likelihood of visitors and residents to behave in environmentally-friendly ways, assess potential effects of resident and visitor behaviors on live oak sustainability, and identify possible opportunities to alter any negative impacts and/or enhance positive contributions.

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### STUDY OVERVIEW

Within our survey we measured two types of environmentally responsible behaviors: general environmental behaviors (5 questions) and live oak-focused behaviors (8 questions). Participants indicated their likelihood to perform these behaviors on a scale of 1 (Extremely Unlikely) to 7 (Extremely Likely), with a 4 representing a neutral stance with Neither Unlikely nor Likely. The general environmentally-responsible behaviors were adapted from Larson et al. (2018) and the live-oak specific behaviors were adapted from interview responses and consultation with forest managers and restoration scientists.

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### STUDY RESULTS

#### General Environmentally-Responsible Behaviors

On average, residents and visitors were both slightly likely ( $M = 4.78$ ) to perform the general environmentally-responsible behaviors. Participants were most likely to make their yard or land more desirable for wildlife and vegetation ( $M = 5.38$ ) and least likely to participate as an active member of an environmental group in their community ( $M = 4.07$ ), indicating a preference for individual rather than community-based actions. Residents and visitors did not significantly differ on any individual general environmental behavior score.

Overall, participants were likely to perform both the general environmental behavior and live oak specific behaviors (item set means = 4.56 and 4.78, respectively). While there was no significant difference between the likelihood of performing general and live oak-specific behaviors for residents, visitors were slightly more likely to perform the general behaviors ( $M = 4.75$ ,  $SD = 1.39$ ) than live-oak specific ones ( $M = 4.47$ ,  $SD = 1.36$ ) ( $t(147) = 4.387$ ,  $p < .05$ ). This finding suggests that general environmental intentions may not translate to local, live oak-specific actions, possibly because visitors are on vacation and don't have the interest, time, awareness, or information affording these behaviors. Investment into opportunities to connect visitors to these live oak-specific actions are detailed in the following sections.

#### LIVE OAK-SPECIFIC BEHAVIORS

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Overall, both residents and visitors were mostly neutral toward most of the live oak-focused actions. Generally, residents and visitors were more likely to perform behaviors that were more passive, such as supporting businesses and tree policies, than behaviors that require more active effort or resources, such as donating money or talking with others. One exception is planting, which requires high amounts of active effort but was rated positively. This trend is also reflected within the general environmental behaviors. Of all the live-oak specific behaviors, participants were most likely to support a stronger tree ordinance ( $M = 5.00$ ) and least likely to donate money toward live oak conservation ( $M = 4.08$ ).

Residents and visitors were willing to perform the live oak conservation behaviors in slightly different ways. The following sections outline major findings and differences and recommends practices to enhance opportunities to behave in ways that support live oak conservation.

### **Fundraising Marketing for Live Oak Conservation**

Participants were significantly less likely to donate money toward live oak conservation than any other action. Unless there are planned behavior change interventions (such as marketing campaigns for donations and conservation funding), other non-monetary avenues for people to become involved in live oak conservation may be more viable, such as planting events or citizen science projects.

Residents ( $M=4.34$ ,  $SD= 1.76$ ) were slightly more likely than visitors ( $M=3.92$ ,  $SD= 1.53$ ) to donate money toward live oak conservation ( $t(241)=1.97$ ,  $p=0.05$ ,  $d= 0.25$ ). Possible incentives to solicit resident conservation donations in addition to the current adopt-a-tree program include small-grants funding for research efforts, or arts-based programs. The current “Plant a Live Oak” program from the Jekyll Island Foundation targets groups interested in “pedestrian friendly environment with prominent exposure to residents and guests.” This program may benefit from expanding with a lower-cost option targeted toward conservation-oriented audiences for planting a live oak in less resident and visitor-visible areas, such as the interior forest.

We examined demographic attributes (age, gender, education, income, and visitation frequency) to see if there is a type of visitor most likely to donate money toward live oak conservation. No factor was significantly correlated with willingness to donate, which suggests that any donation campaigns for live oak conservation should target visitors widely. For residents, gender was associated with willingness to donate; female residents ( $M = 5.05$ ,  $1.41$ ) were more likely to donate money toward live oak conservation than male ( $M= 3.37$ ,  $SD= 1.87$ ) ( $t(72)= 3.63$ ,  $p < .05$ ,  $d = 0.80$ ).

Findings indicate that resident-focused donation campaigns may potentially be more effective if they appeal to the ways that women value and interact with the live oaks. Overall, women were more likely than men to value the live oak as a symbol as well as toward global health, sense of community, cultural activities, tourism, family activities, and memories made of Jekyll Island. Additionally, female residents felt higher levels of psychological empowerment from Jekyll Island’s association with live oaks. Highlighting how the oaks are connected to a sense of community, social experiences, and the identity of being a Jekyll Island resident could increase interest in donation campaigns.

### **Supporting Live Oak-Friendly Business and Development**

Residents were more likely to support live oak-friendly businesses and developments than any other action. Though visitors were overall likely to support live oak-friendly businesses and development, this particular action did not stand out above the others as it did for residents. Comparably, five of the 30 resident survey comments concerned development while only three of the 48 visitor comments did. Visitors may not be able to as closely see the effects from developments that remove oaks the way residents can and thus, residents are more sensitive to businesses and developments in which live oaks are affected.

As developments on Jekyll Island are primarily targeted at bringing in new residents and short-term visitors, residents could feel less empowered to address the impacts of development on live oak conservation in their community; a lack of empowerment may be expressed through dissatisfaction with governing decisions. In interviews, one resident stated, “[the live oak] is important to my identify as a resident of the area because it is a species that challenges development. It is something that is easy to rally behind and support.” To have a good

standing in the residential community, businesses and developments need to involve live oak protection where they can. If that is not possible, these developments should proactively support live oak conservation elsewhere on the island or surrounding area to mitigate dissatisfaction from residents. Businesses on the island have opportunities to advertise their sea turtle-friendly practices (e.g. lighting) but could also benefit from marketing their contributions to live oak-friendly practices, such as conservation support or donations.

### **Tree Protection Ordinance**

Visitors were more likely to support a stronger tree ordinance than all other actions. While visitors may not feel potential restrictions and repercussions of a strong ordinance as residents would, they benefit from the effects of a strong tree ordinance toward preserving and enhancing the canopy. The higher likelihood of residents supporting live oak-friendly business/development rather than a stronger tree protection ordinance suggests that their interest in tree protection policies may be directed toward development decisions more than toward other residents, existing properties, or the island-wide policy. The current tree protection ordinance from Jekyll Island is one of the strongest in the state, has special protections for live oaks, contains replacement requirements that support a growing live oak canopy, and considers tree health as well as aesthetics. While there may not be capacity for a stronger tree protection ordinance currently, marketing and educational opportunities could make visitors aware of some benefits of strong local tree ordinance with the goal of strengthening ordinances elsewhere, including other municipalities within the live oak range.

### **Tree Planting**

No demographic factor (age, gender, income, education, visitation frequency, or residence time) was associated with likelihood to participate in planting opportunities. Therefore, the target audience for planting opportunities is broad and includes both residents and visitors. Elderly survey participants often commented that their interest is limited by physical requirements. Seeing young live oaks in contrast to the iconic mature trees could provide an educational opportunity by raising awareness of the dynamic aspects of the maritime live oak forest and sustainable management.

### **Supporting Tourism**

Mean scores for supporting live oak tourism were almost equal between residents and visitors, indicating that this type of tourism was seen favorably for both stakeholder groups, which is not always the case with nature-based tourism. While 'supporting more tourism related to live oaks' was not explicitly defined within the survey, possible options could include increasing the volume of visitors for interpretive services, tours, and education about the maritime live oak forests. Involving residents in these aspects of live oak tourism may also directly increase feelings of social and psychological empowerment.

Live oaks could be highlighted as a draw to the island for those interested in historic, large trees or ecotourism related to forests. A tour of notable trees could be developed in tandem with the interior trail system to demonstrate some of the unique ecological aspects of live oaks, such as the sweeping branches, resurrection ferns, and root sprouts.

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 RECOMMENDATIONS SUMMARY:

**Fundraising Marketing for Live Oak Conservation**

- Current willingness to donate toward conservation is somewhat low but might benefit from conservation campaign and marketing; non-monetary opportunities for contributing to live oak conservation efforts may be more viable.
- Target audience for donations are residents. Incentives to solicit conservation donations could include targeted small-grants funding for research efforts, arts-based programs, or expanding the current Plant a Live Oak program with a forested-setting planting option.
- Female residents were more likely to donate than male; possible conservation donation campaigns should target how women commonly value the live oaks, including how the oaks are connected to a sense of community, social experiences, and the identity of being a Jekyll Island resident.

**Supporting Live Oak-Friendly Business and Development**

- To have a good standing in the residential community, businesses and developments need to involve live oak protection where possible, such proactively supporting live oak conservation elsewhere on the island.
- Businesses on the island have opportunities to advertise their sea-turtle friendly practices (e.g. lighting) but could also benefit from marketing their contributions to live oak-friendly practices, such as conservation donations.

**Tree Protection Ordinance**

- While there may not be capacity for a stronger tree protection ordinance currently, marketing and educational opportunities could make visitors aware of some benefits of strong local tree ordinance with the goal of strengthening ordinances elsewhere, including other municipalities within the live oak range.

**Tree Planting**

- The target audience for planting opportunities is broad and includes both residents and visitors.
- Tree planting provides an educational opportunity and could be integrated into other educational programming. Seeing young live oaks in contrast to the iconic mature trees could raise awareness of the dynamic aspects of the live oak maritime forest and promote ideas of investing in ecosystem sustainability.

**Supporting Tourism**

- Both residents and visitors support more tourism related to live oaks.
- Options include increasing interpretive services, tours, and education about the maritime live oak forests, such as demonstrations of research on these forest ecosystems (including citizen science opportunities).
- Involving residents in these aspects of live oak tourism may also directly increase feelings of social and psychological empowerment.
- Further live oak tourism marketing could focus on visitors interested in large trees. Opportunities could involve a tour of notable trees in tandem with further development of the interior forest trail system that demonstrates unique ecological aspects of live oaks, such as the sweeping branches, resurrection ferns, and root sprouts.

## WORKS CITED

- Boley, B. B., & McGehee, N. G. (2014). Measuring empowerment: Developing and validating the Resident Empowerment through Tourism Scale (RETS). *Tourism Management, 45*, 85-94. doi:10.1016/j.tourman.2014.04.003
- Larson, L. R., Cooper, C. B., Stedman, R. C., Decker, D. J., & Gagnon, R. J. (2018). Place-Based Pathways to Proenvironmental Behavior: Empirical Evidence for a Conservation–Recreation Model. *Society & natural resources, 31*(8), 871-891. doi:10.1080/08941920.2018.1447714
- Raymond, C. M., Brown, G., & Weber, D. (2010). The measurement of place attachment: Personal, community, and environmental connections. *Journal of Environmental Psychology, 30*(4), 422-434. doi:10.1016/j.jenvp.2010.08.002
- Scheyvens, R. (1999). Ecotourism and the empowerment of local communities. *Tourism Management, 20*(2), 245-249.
- Selig Center for Economic Growth. (2017). *An Economic Impact Study of Georgia's Jekyll Island*. Retrieved from
- Sutrop, U. (2001). List task and a cognitive salience index. *Field Methods, 13*(3), 263-276. doi:10.1177/1525822X0101300303
- U.S. Census Bureau. (2018). American Community Survey 5-year Estimates.

APPENDICES

TABLES AND FIGURES

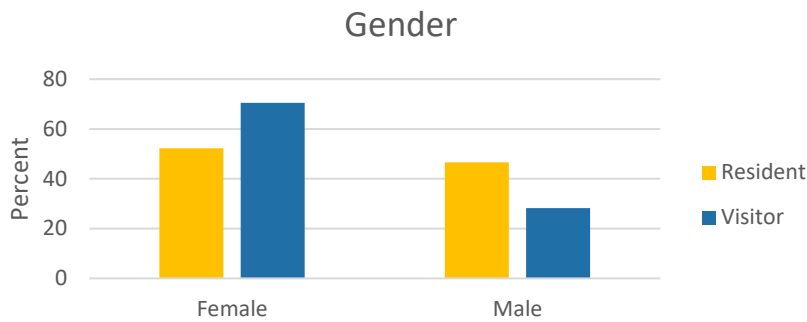


Fig. 1. Gender Breakdown of Residents and Visitors.

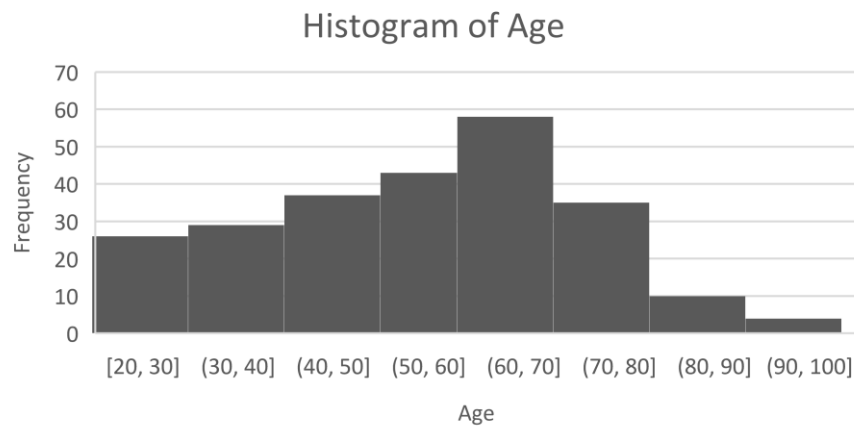


Fig. 2. Age Distribution of Participants.

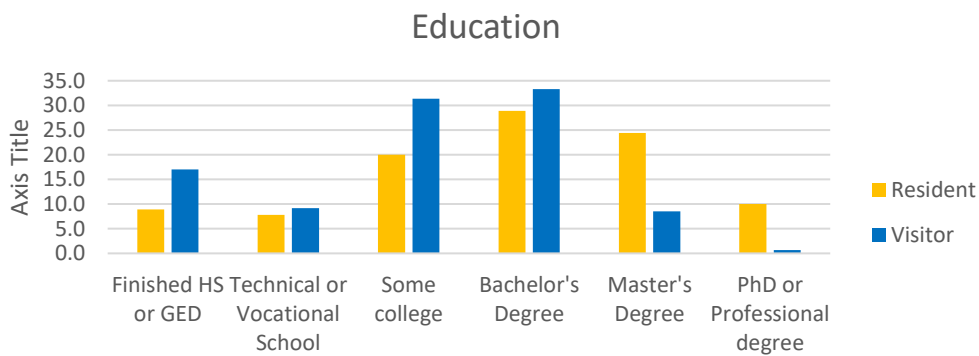


Fig. 3. Education Levels of Resident and Visitor Participants.



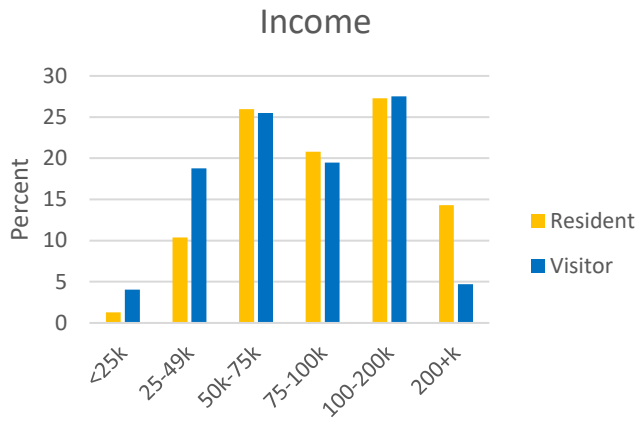


Fig. 4. Income Levels of Resident and Visitor Participants.

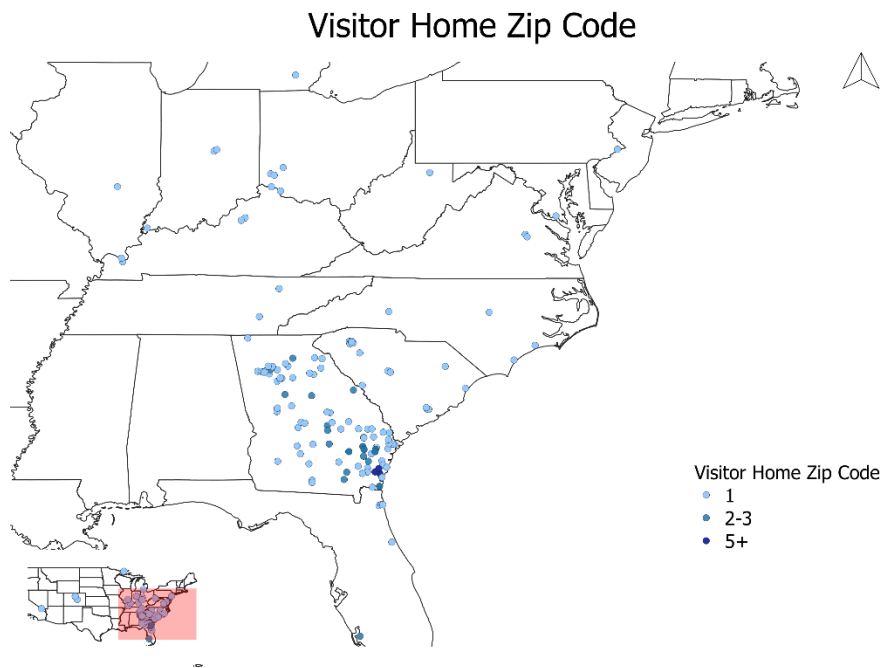


Fig. 5. Visitor Zip Code Frequency and Spread.

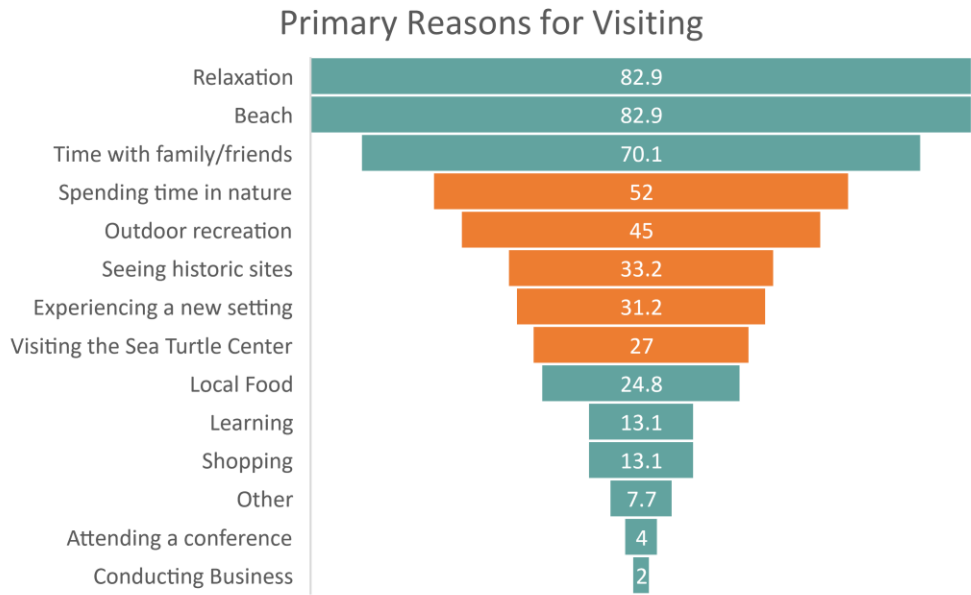


Fig 6. Percent Agreement for Primary Motivations for Visiting Jekyll Island.

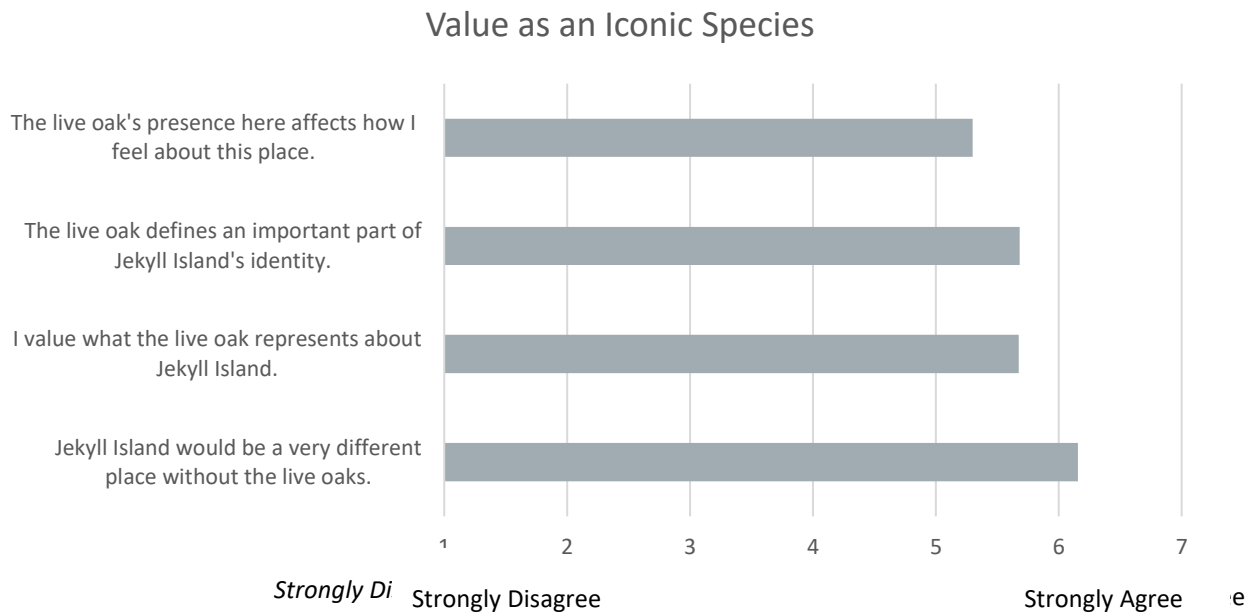


Fig. 7. Agreement with Live Oak Iconic Value Questions.

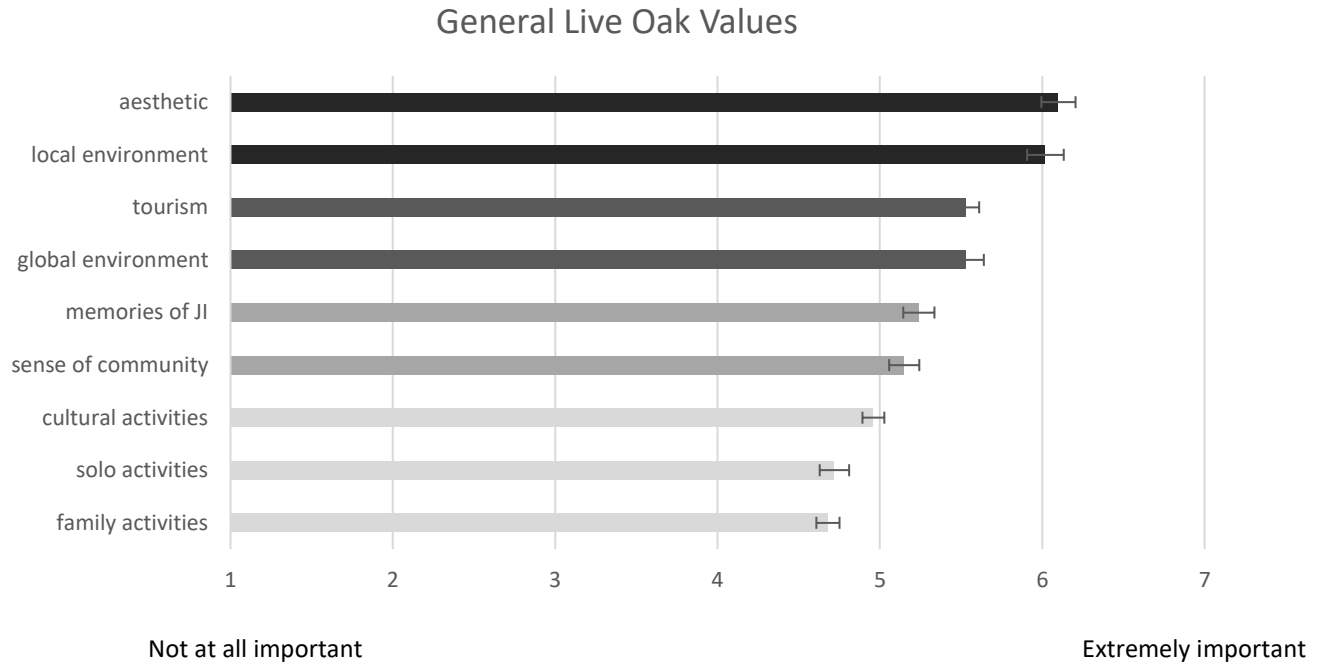


Fig. 8. Importance of Live Oaks toward General Values Related to Jekyll Island.

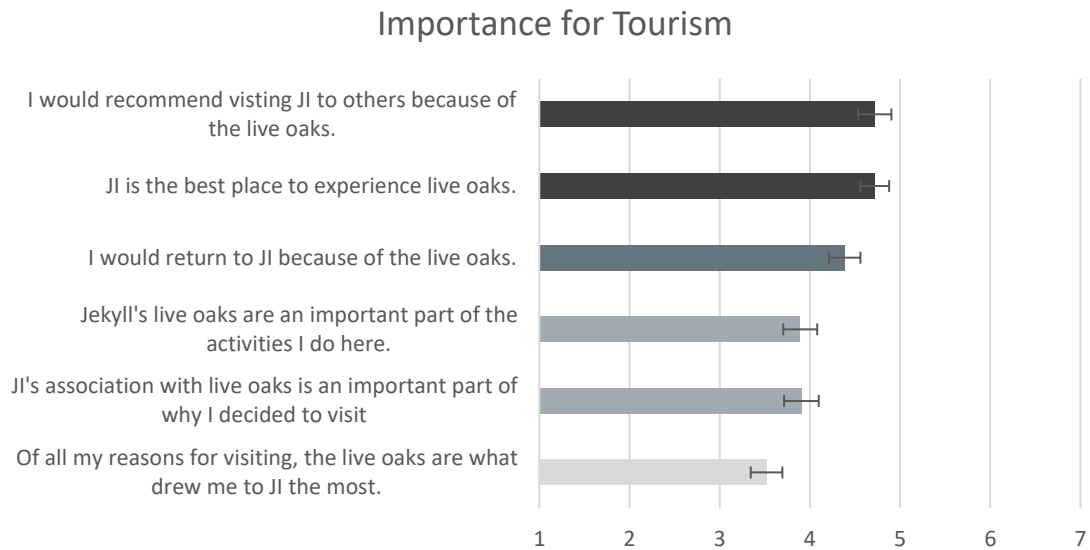


Fig. 9. Attitudes Toward Live Oak Importance for Tourism.

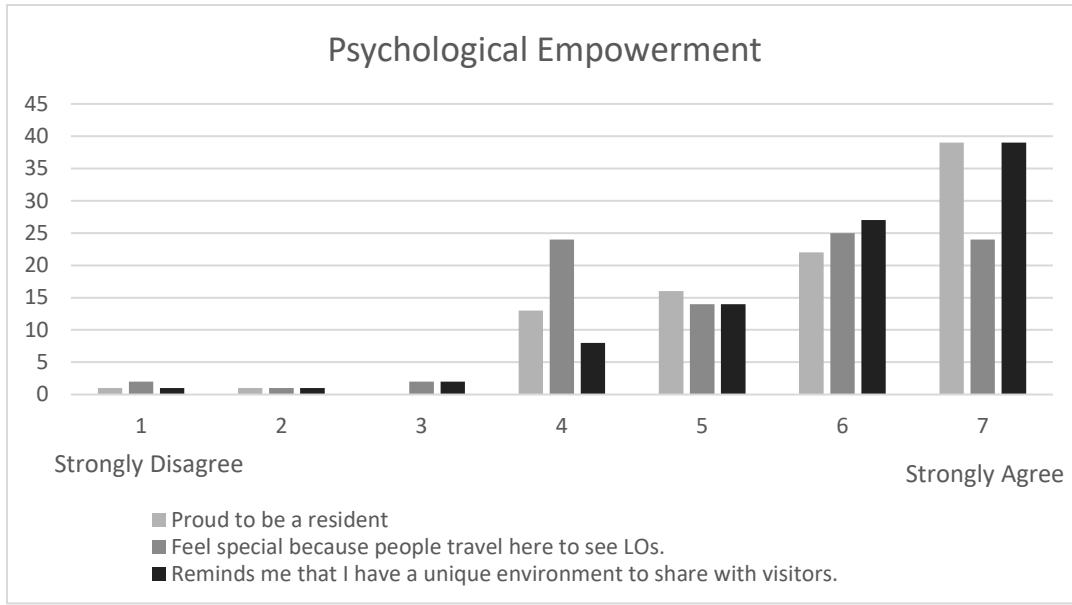


Figure 10. Score Distribution for Psychological Empowerment from Live Oak Conservation.

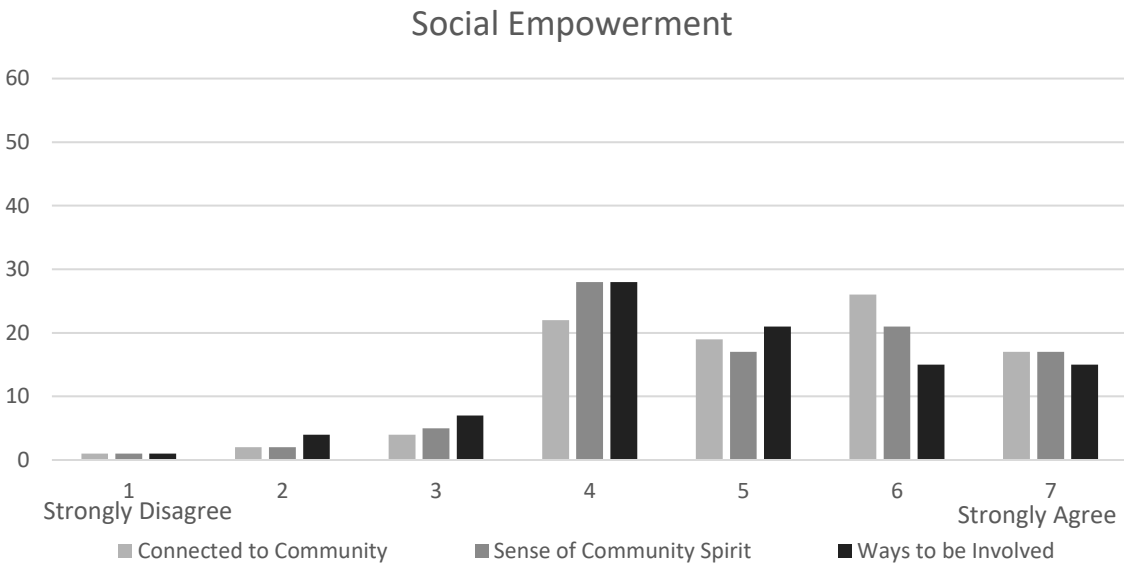


Figure 11. Score Distribution for Social Empowerment from Live Oak Conservation.

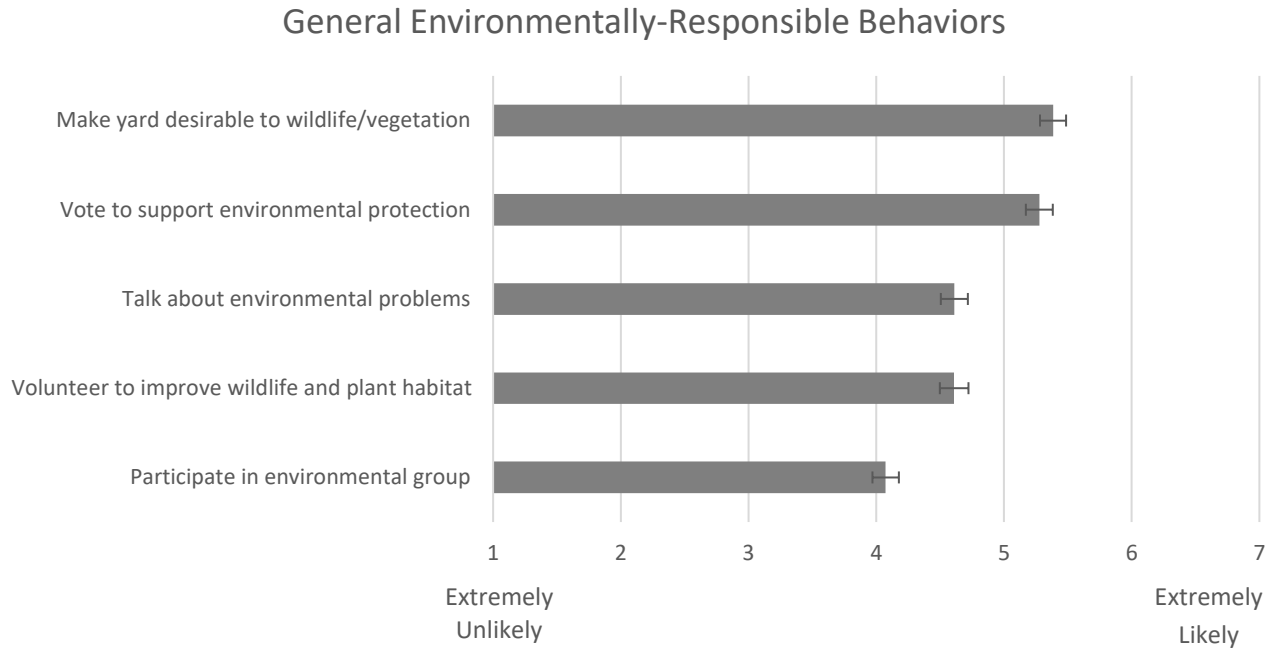


Fig 12. General Environmentally-Responsible Behaviors Likelihood Among All Participants.

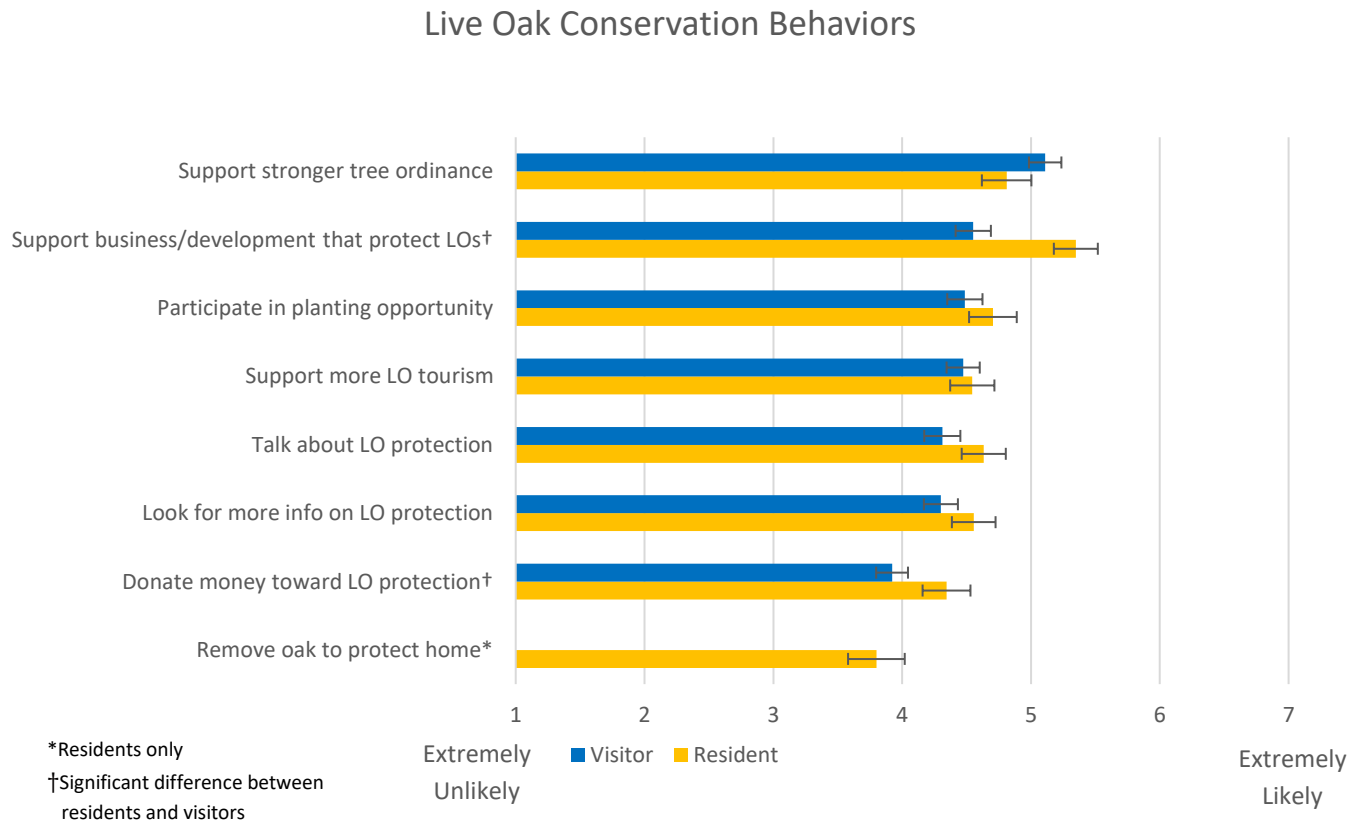


Fig. 13. Live Oak (LO)-Specific Conservation Behavior Likelihood Among Residents and Visitors.

Table 5. Paired T-tests between Likelihood to Donate Money, Support Stronger Tree Protection Ordinance and All Other Live Oak Conservation Behaviors.

Behavior	M	SD	Donate Money			Tree Protection Ordinance		
			t	p	df	t	p	df
Support stronger tree protection ordinance	5.00	1.67	10.09	0.000	242	-	-	-
Donate money toward LO protection	4.08	1.64	-	-	-	10.90	0.000	242
Look for more info on LO protection	4.40	1.62	4.735	0.000	241	6.64	0.000	242
Talk about LO protection	4.43	1.71	4.46	0.000	242	6.07	0.000	243
Support more LO tourism	4.50	1.60	4.93	0.000	240	5.21	0.000	241
Participate in planting opportunity	4.57	1.71	5.11	0.000	238	4.46	0.000	239
Support business/development that protects LOs	4.84	1.71	8.520	0.000	241	1.68	0.095*	242

## RESIDENT COMMENTS

I love looking at the *Quercus virginiana* with its branches festooned with Spanish Moss.

Aesthetically, developments such as the Cottages and Jekyll Ocean Oaks detract from Jekyll's look and feel, it's grace and charm. Sustaining Jekyll's natural environment, especially live oaks, should be a higher priority for the JIA than revenue-generating commercial / residential development.

Jekyll's visitors are enthralled with their beauty- lots of pictures taken of the trees and videos of moss blowing in the wind. There needs to be educational signs throughout the island giving information about the trees, the resurrection ferns and Spanish moss. Children should not use the low hanging branches as swings. Signs discouraging that should be placed near trees with low branches. Biggest problem is on the great lawn in front of Club pool. Sign could be positive e.g. "I am 300 years old- please don't swing on me." It is baffling why the JIA chose the palm tree to be the branding symbol of Jekyll when the Live Oak is clearly the dominant and most stunning tree on the islands. Palms are a dime a dozen and do not reflect the charm of the island. Campaigns for tree donation and preservation are inadequate. Developers have cleared far too many trees. The mitigation cost for a commercial developer should be increased to discourage eliminating oaks and other trees. Parking lots should be planted with shade trees- oaks for all varieties rather than palm trees. Palm trees in parking lots etc. make Jekyll look like urban areas in Florida rather than the grace of coastal Georgia. Conservation department should consider educational class about the flora and fauna of Jekyll. Thank you for your work. Hope your dissertation and survey results are disseminated.

The live oak trees are beautiful, but I'm not sure most people would know which are live oaks compared to the many other oak trees on the island.

They are wonderful trees but other parts- plants, animals, etc. on Jekyll are amazing too. But Mother Nature is amazing all over the plant! Check out Australia, Greenland, Iceland, everywhere has something! Wonderful!

It is critical that they be protected AND WE NEED TO PLANT MORE!

They have been around a lot longer than we have.

Love, love the Live Oaks, Only downfall is in the spring when they drop their leaves- I have a large live oak over my driveway- makes a mess! But love them!

Live Oaks are an important part of the natural habitat of J.I., as well as the marsh Cabbage Palms, Saw Palmetto. Similar to coastal areas from Maryland to Texas. Regulations, laws should always protect our natural resources from unreasonable development. Uphold the Shoreline Protection Act and Marsh Protection and Trees and animals.

There is no maintenance - 5 times limbs have fallen on my fences- recently a limb fell on the airport fence. We have limbs over our house that we cannot cut. Jekyll is turning into a "resort" not a state park as we have known it from visiting since the 1960's.

In the five years we have lived here we have lost eight trees, mostly from the maritime forest which fell during hurricanes and tropical storms. We are grateful to live on Jekyll and recognize from time to time that we may lose

trees in storms, but that is the price of living in paradise. Our conservation department does all they can to protect these majestic trees and our beautiful canopy.

We have a beautiful large live oak on our property and love it. Unfortunately, I am too old to participate in any physical volunteer activity.

Live oaks are nice, but our beach is better.

I would not focus on just live oaks. It is the total environment that drew me here. Nature, recreation and historical settlements all combine to the overall privilege of living here.

I would prefer to see JIA plant oaks instead of palm trees which are not natural. Palms provide little shade and are not as handsome.

I live with 6 giant historic oak trees "covering" my property and I do what I can to protect them!

I love our live oaks and I am glad I live where they are protected. But they are not the only reason I love Jekyll so. The reasons = wildlife, birds, plants, climate, and most of all LIMITED DEVELOPMENT.

Beautiful

Always like any support Jekyll Island gets. Let's keep Jekyll Island Jekyll Island and limit the building that is going on. We don't need it.

They are beautiful- DON'T MESS WITH THEM.

I appreciate the efforts made to protect Jekyll's oaks after watching several large oaks being destroyed to make room for a new medical office on Route 17 in Brunswick.

When we moved here, we heard they really shed all their leaves every 11 years. Each year of 50 years I think it must be the 11th year in the cycle!

Vital to the natural environment of Jekyll Island but cannot damage property. Replant in safe areas that also enhance wildlife and pleasure.

This island is a magical place for me. I come here to relax, make my pottery, ride my bike, etc. It is important for all of us to make sure Jekyll is here for years to come!

Thx very much. Make me think.

Sarah- please send me the results and your analysis of this survey (email address provided)

The Jekyll live oaks are beautiful and worthy of protection, but certainly not unique to the southeast. They are a part of many other wonders of nature on our island.

One of the most beautiful aspects of Jekyll Island

They are beautiful and definitely a part of Jekyll Island.

I love the smell of the oaks as well as their shade- This survey has helped me place more value on how they define Jekyll.



## VISITOR COMMENTS

Natural areas need to be protected.

I would be very sad to see any trees removed for commercial development.

I think recent developments on the island are endangering the oaks. The loss of oaks will lead to a decline in tourism and health of the planet.

Beautiful and nostalgic

My daughter brought us here to see the amazing Driftwood Beach- It is so beautiful. I was speechless!! Will tell all my friends.

Beautiful- If I lived in the community I would be involved, but only visit.

Protect as many as possible. They are so beautiful.

The live oaks are a great reminder of all the great times my family has spent here over the last 55 years. We always had picnics and played on the beach- The live oaks would be missed terribly if they died or were removed.

I did not know there were live oaks before I came to the island for this first time this week.

I love seeing the live oaks when we visit but would still come even if they were no longer here.

This is my first time here, so I don't know much.

We are on vacation from Illinois. And love this place.

They are beautiful and a part of southern living and make up a great portion of JI just not the showcase but are important to the environment.

Definitely regulation to protect the trees. Tree first, development last! Don't build anymore resort areas, there are plenty!

Beautiful, peaceful

They are beautiful and I love seeing them when I travel to the South yearly.

I've never seen more beautiful trees in all of my travels.

Jekyll Island is very nice

All flora and fauna are important. Live oak is key to maritime forests on islands like Jekyll and many areas more inland.

We have live oaks in our yard

The live oaks are beautiful. Your beaches were a disappointment. The water is dirty- no seashells. We live in SC and believe our beaches to be cleaner. Probably will not return.

Nature and wildlife are very important to me since I'm from the sticks. While staying here I've made multiple comments on how beautiful, green, and full of life this island is. Last year we visited Florida and it was not as beautiful and well taken care of.

The gracefulness of the oaks is calming and inspiring Ahh- the tales these old trees could tell...

Shade

We love Jekyll! We enjoy the beach and people are so nice.

Valuable but not the first thing I think of about JI

I'm active in live oak and tree protection as a city administrator and family forester. Thanks for this important work.

They are gorgeous- Being from Florida they are not as unique as they might be to people living in other areas. North Fl. Works hard to preserve our live oaks as well.

I come to Jekyll for relaxation and uncrowded nature. I like taking pictures of my family at its historic sites on the island's west side.

Beautiful :)

Brunswick union area has the most beautiful oaks!!

Best place to vacation and appreciate the trees, beach, and all the natural beauty.

I remember climbing on the limbs at North Jekyll when I was young.

Beautiful place to make memories with family and friends. Peaceful!! Makes for GREAT day trips to just get away.

Primary reason is to visit the beach

Majestic live oaks are a major player in the Jekyll Island ecosystem but not the only player. Let's consider all, from live oaks to grasses. Thank you!

They are my favorite trees- I have 5 in my own yard.

Just let them be and don't cut. Beautiful to the environment. Can never replace them.

Fascinating and Unique

They are beautiful, to be protected and cherished

They are definitely beautiful and important to the environment; they just aren't my primary reason for visiting Jekyll Island.

I think all I have seen is a beautiful sight to look upon

They are wonderful!! Beautiful, important to Jekyll Island

I didn't know about the live oak trees until I asked a local friend about them, very interesting tree. We must save them.

The live oaks are what makes the island what it is. The island is historic and the oaks and part of the history.

I love the aesthetics of the live oaks here but that's not what brings me here. I support the conservation of them, but I honestly wouldn't get involved personally.

I visit from Colorado so live oaks are not in my area. However, I work from a nonprofit there that is restoring a wildlife burn scar.

Live oaks are a symbolic aspect of all Coastal Georgia. They stand the test of time and are important to the local wildlife.