

Statewide Comprehensive Outdoor Recreation Plan (SCORP) for Puerto Rico 2014-2019



**Puerto Rico National
Parks Company**

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Introduction

The Puerto Rico National Park Company has the responsibility of preparing and updating every five years the Statewide Comprehensive Outdoor Recreation Plan (SCORP) for Puerto Rico.

The SCORP allows the National Park Company the opportunity to identify the outdoor recreational needs and demand of the population in Puerto Rico. This Comprehensive Plan also helps to identify opportunities to improve and protect the outdoor recreational areas, as well as to guaranty the access of these areas to the general population.



This SCORP will cover from the year 2013 to the year 2018. With the comprehensive plan, we aim to meet the following objectives:

- Identify the needs of the population regarding outdoor recreation.
- Identify the preferences of the population regarding outdoor recreation.
- Identify and update an inventory of places for outdoor recreation in Puerto Rico.
- Identify opportunities related to outdoor recreation in Puerto Rico.
- Provide recommendations for the implementation of the Comprehensive Plan within the next five years.

Components of the SCORP

This SCORP has six main components:

- Socio-demographic Profile including key demographic characteristics for the population in Puerto Rico
- Study of demand for outdoor recreation
- Inventory of places for outdoor recreation
- Wetlands component
- Identification of opportunities
- Five-year implementation plan (2014 to 2019)

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Socio-demographic Profile

The Commonwealth of Puerto Rico located at the east part of the Caribbean, have a total area of 5,324.84 square miles of which 3,423.78 square miles are from land area. Puerto Rico has 78 municipalities (counties equivalent), with San Juan as the capital.

Regions composition

In this SCORP, some of the analysis will use the Puerto Rico Department of Recreation and Sport Regions. **Figure 1** presents the 78 municipalities in the 10 regions. For the full list of the municipalities that comprise each region, refer to the Appendix. This SCORP continued to use the same regions than the previous SCORP.

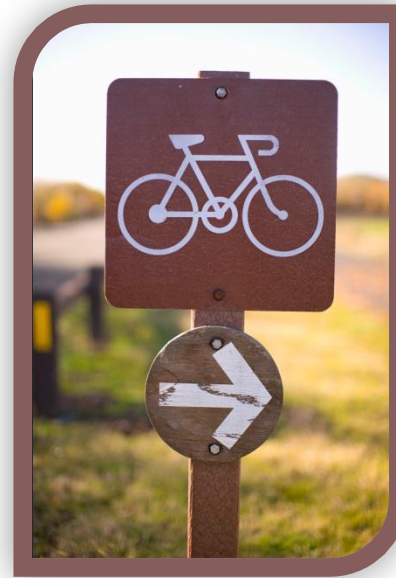
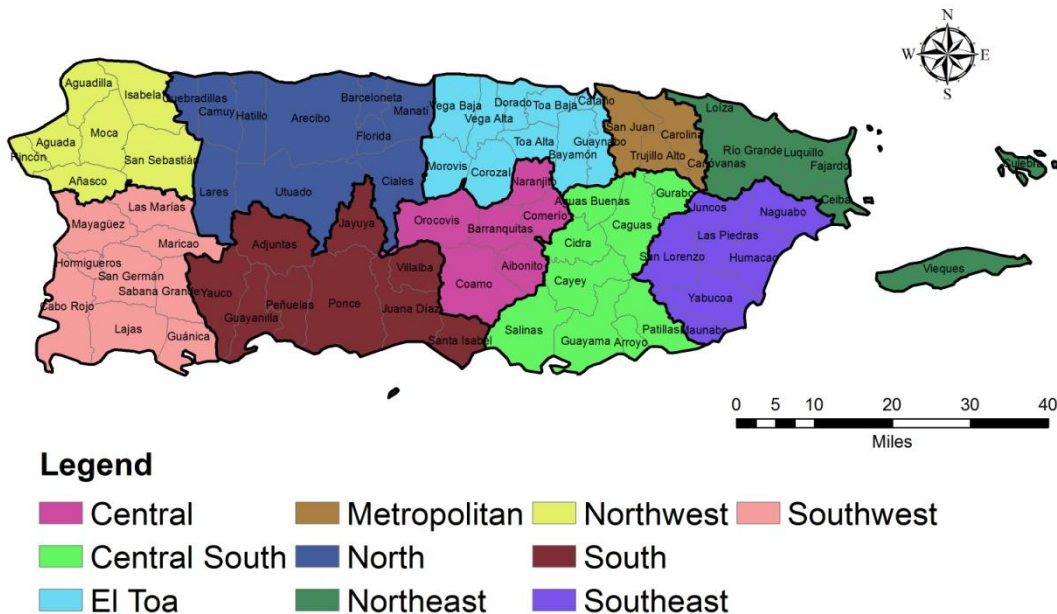


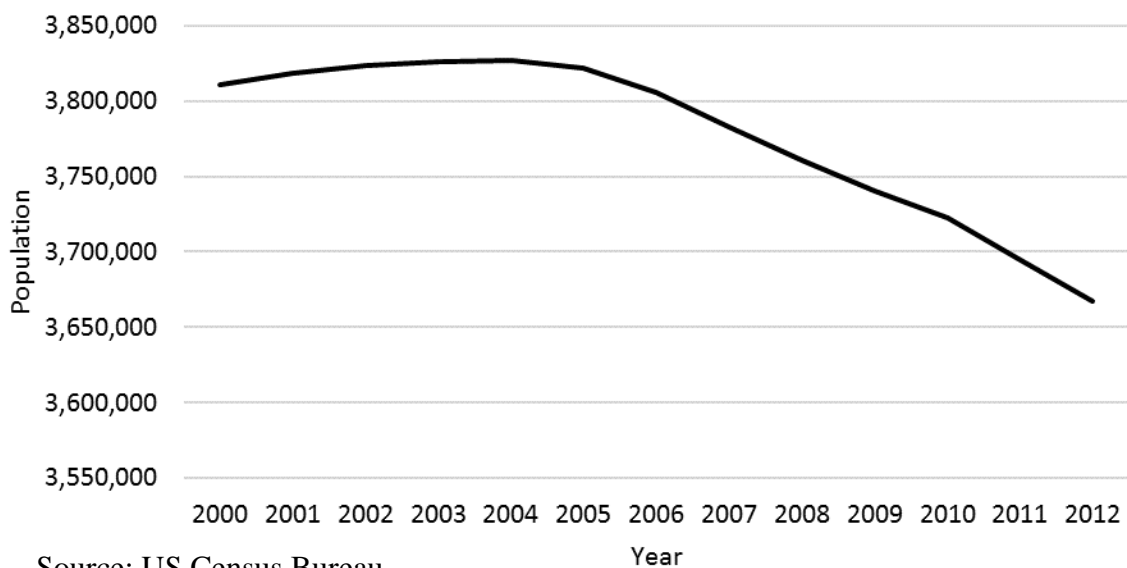
Figure 1. Distribution of municipalities by region, Puerto Rico



Size and geographic distribution of the population

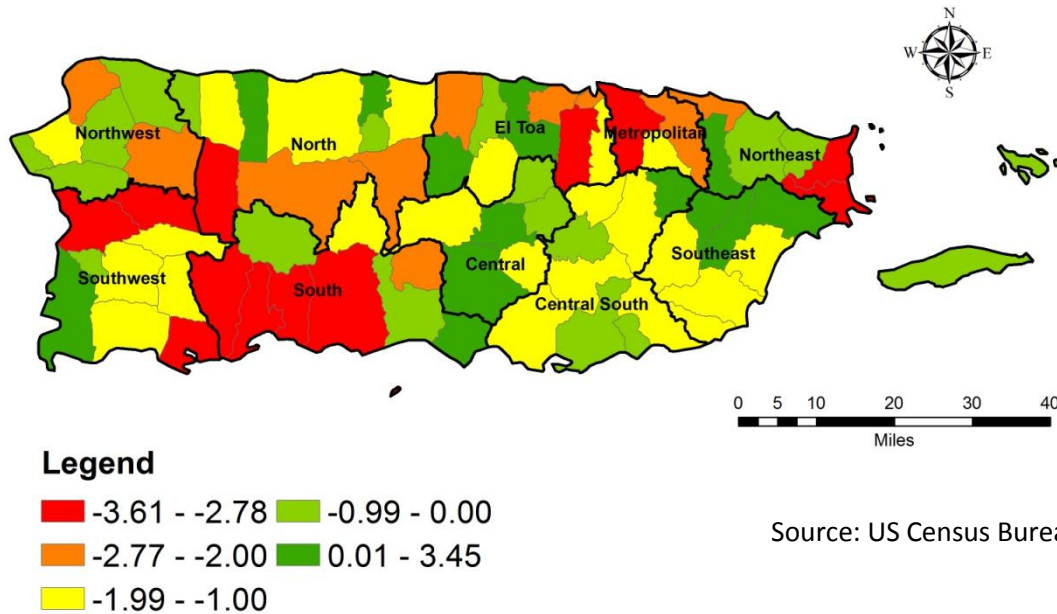
According to the United States Census Bureau, in the year 2010, the population of Puerto Rico was 3,725,789 inhabitants. This represents a decrease in the population size for the first time in Puerto Rico history when compared to the 2000 Census population. By July 1, 2012, according to the population estimates prepared by the US Census Bureau, the population of Puerto Rico continued to decline to 3,667,084 (Figure 2).

Figure 2. Puerto Rico population estimates, 2000 to 2012



The main reasons for the decline in the population include the migration and a reduction in the number of births during the period between the Censuses; that trend continued after the 2010 Census. With the latest population estimates, Puerto Rico has a population density of 1,088 persons per square mile. The municipality of San Juan has the highest population with 382,299 inhabitants (US Census Bureau, 2013). According to the 2012 Census Bureau Estimates, San Juan and 63 other municipalities are losing population. Figure 3 presents a map with the population percent change, per municipality, since the 2010 Census.

Figure 3. Population percent change by municipality from 2010 to 2012, Puerto Rico



When analyzing the data by the Recreation and Sport Regions, the *El Toa* region is the one with the highest population (695,484 inhabitants) followed by the Metropolitan region (Table 1). Currently, every region is losing population, with the Metropolitan region losing over 8,000 inhabitants per year (US Census Bureau, 2012).

Table 1. Change in population from year 2011 to year 2012 by region, Puerto Rico

Region	2011 Population	2012 Population	Difference
Central	171,069	170,816	-253
Central South	422,688	421,402	-1286
El Toa	700,154	695,484	-4670
Metropolitan	637,059	628,745	-8314
Northeast	212,568	211,535	-1033
Northwest	273,542	271,861	-1681
North	360,885	358,618	-2267
South	384,816	380,218	-4598
Southeast	254,929	254,484	-445
Southwest	276,383	273,921	-2462

Source: US Census Bureau, 2012

Population by age and sex

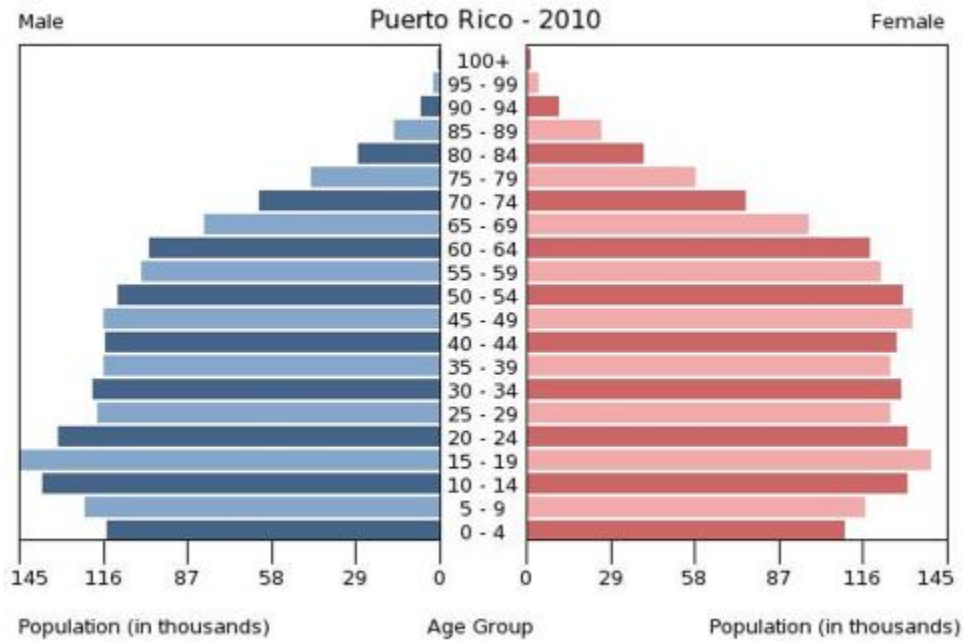
Females represent 51% of the total population of Puerto Rico. The proportion of females increases with age and represent nearly 56.5% of the population with 65 years or more (US Census Bureau, 2011). The median age of the population of Puerto Rico is 37.5 years. The female population has a median age of 39.2 years while the median age of the male population is 35.8 years (US Census Bureau, 2011).

One of the best ways to visualize the age and sex distribution of the population is by using a population pyramid. As the population gets older, the pyramid loses its shape (Figure 4). If the current demographics trends continues, Puerto Rico will have an inverted population pyramid by the year 2050 (Figure 4).

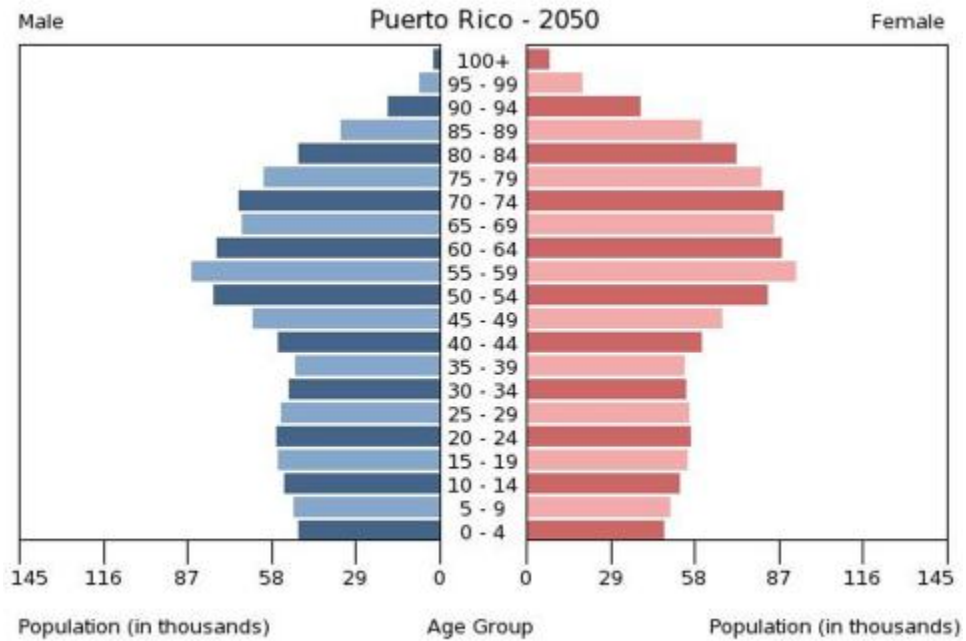
The aging population requires an in-depth analysis of the population with 65 years of age or more. In Puerto Rico, the elderly population is growing at a fast pace. In the 2000 Census, 11.2% of the population had 65 years of age. According to 2010 Census data, in a 10-year period there was a 3.3 percentage points increase in this population group, and this population represented 14.5% of the population in 2010.

Table 2 shows the population's age distribution of the regions. The Southwest region has the oldest population. All the regions have more than 12% of the population with at least 65 years of age; therefore, every region has an age distribution considered old. The latter highlights the importance of considering the characteristics of the population in the planning of outdoor recreation because the recreational needs and demands change with age.

Figure 4. Population pyramids, Puerto Rico 2010 and 2050



Source: U.S. Census Bureau



Source: U.S. Census Bureau

Table 2. Population by selected age groups by regions for the year 2010

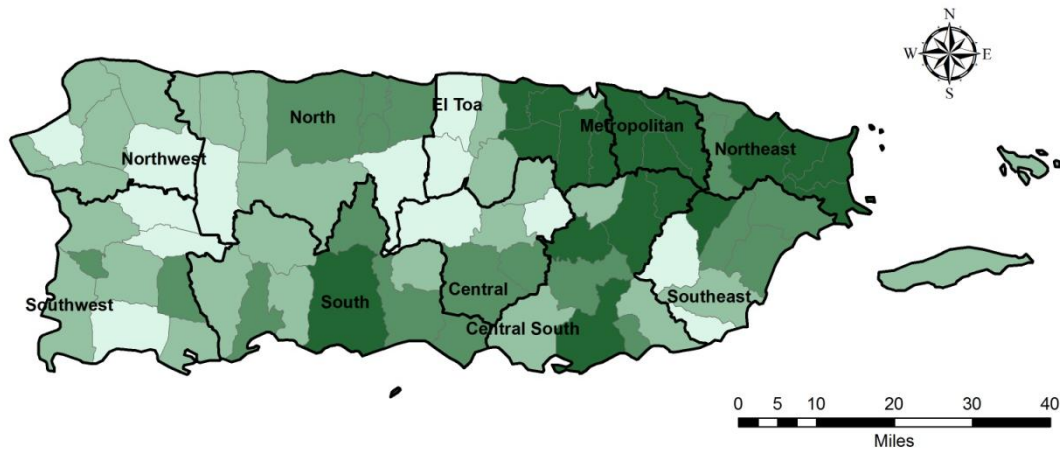
Region	Population 18 years or more	%	Population 65 years or more	%
Central	126,767	74.0%	21,204	12.4%
Central South	317,964	75.0%	57,396	13.5%
El Toa	533,689	75.7%	99,265	14.1%
Metropolitan	501,591	77.5%	105,376	16.3%
Northeast	159,179	74.4%	29,620	13.9%
Northwest	209,441	76.0%	40,016	14.5%
North	275,211	75.7%	53,865	14.8%
South	290,208	74.3%	53,262	13.6%
Southeast	191,576	75.0%	33,551	13.1%
Southwest	216,868	77.6%	48,443	17.3%

Source: US Census Bureau, 2010

Education

The 2011 American Community Survey (ACS) data for Puerto Rico indicated that 71.3% of the population over 25 years of age has at least a high school diploma and that at least 23.3% has a bachelor degree. The percentages of the educational attainment of the population over 25 years of age increased between 2005 and 2011. According to the ACS data for Puerto Rico, in 2005, only 66.4% of the population over 25 years of age had at least a high school diploma and only 20.8% had at least a bachelor degree.

The estimates by region show some noticeable differences in term of the educational attainment for the population over 25 years of age. There are regions, like the *Metropolitan* region, in which in all of their municipalities more than 70% of their population over 25 years of age graduated from high school. However, there are other regions with municipalities with less than 60% of their population over 25 years of age with a high school diploma (Figure 5).

Figure 5. Percent of the population with high school diploma by municipality, 2007-2011**Legend**

Source: US Census Bureau

Income and poverty levels

According to the Census Bureau, during the year 2011, Puerto Rico was the jurisdiction with the highest poverty level in the United States (45%). The percentage under the poverty level in 2011 was slightly lower than in the year 2000 (48.2%).

Puerto Rico was also the jurisdiction with the lowest median household income. The median household income in Puerto Rico was \$18,660, followed by Mississippi that had a median household income of \$36,919 (US Census Bureau, 2011). The organizations that offer outdoor recreation must consider this information when developing their approach. A high poverty/low income levels indicate that these population groups cannot spend the same amount of money on outdoor recreation compared to other jurisdictions in the United States.

Household and family type

The household composition has shown one of the most drastic demographic changes during the past few decades. The family households, especially the married couple's households have been decreasing continuously. In 2000, 54.1% on the households were from married couples; this percentage decreased to 41.5% in 2010. On the other hand, the non-family households have increased in the past few years, from 20.4% in 2000 to 28.1% in 2011. Within the family households, female householders with no husband present are the group with the biggest increase from 21.3% of the households in 2000 to 24.2% in the year 2011 (US Census Bureau, 2000 and 2011).

Population with disabilities

One demographic group that is decreasing is the population with disabilities. According to the US Census Bureau, there were approximately 934,674 persons with disabilities in the year 2000. That represented the 26.8% of the civilian non-institutionalized population (US Census Bureau, 2000). That percent decreased to 20.8% in 2011, nearly 766,245 persons with disabilities (US Census Bureau, 2011). This trend could change if the population keeps aging at a rapid pace and as the percentage of people with over 65 years of age continue to grow. In this age group, over half of the population has a disability.

Although according to the US Census Bureau the amount of people with disabilities decreased, there is one fifth of the population with disabilities. Every new and existing offer for outdoor recreation needs to consider this information and not marginalize this significant portion of the population.

Availability of vehicles

Reliable transportation is necessary for the people that want to enjoy outdoor recreation in Puerto Rico. The availability of vehicles in the house is essential because the unreliability of the collective transportation system due to long waiting times and irregular schedule (Villanueva Lugo & Palermo Alvarado, 2005). In addition, the collective transportation has limitations outside the metropolitan area that surround the capital of San Juan.

In Puerto Rico, 80.9% of the housing units have available one or more vehicles. This means that 19.1% of the housing units do not have at least one vehicle. With an average household size of 2.95 persons, there are over 700,000 persons without a vehicle in need of other means of transportation (US Census Bureau, 2011).

The demand for collective transportation will increase with the aging of the population. If the collective transportation expands and develops, that could improve the offer for outdoor recreation in Puerto Rico.

Study of Demand for Outdoor Recreation

One of the key components of the SCORP is the study of demand for outdoor recreation. This study had two main parts. The first consisted of a quantitative telephone survey with participants from all the 10 Recreation and Sport Regions. The second consisted of a qualitative study based of two focus groups. The directors from the Recreation and Sport Departments of several municipalities participated in the first focus group while representatives from non-governmental organizations that work with outdoor recreation in Puerto Rico participated in the second focus group.



Methodology for the phone survey

The quantitative part of this study consisted of a telephone survey to 661 people over 18 years of age conducted between May 6 and May 17, 2013. We pilot tested for the questionnaire between April 22 and April 27, 2013. Considering the results of the pilot study we changed the wording of several questions to increase their understanding and limit the interview near the 15-minute mark. Surveys longer than 15 minutes yield poor completion rates (Boland, Sweeney, Scallan, Harrington, & Staines, 2006). The study only included land line phones, as there are legal limitations for the inclusion of cell phones. Additionally, adding cellphones add complexity in times when respondent cooperation is more difficult to obtain (The PEW Research Center, 2010).

The sample distribution consisted of a proportional allocation according to the population size of each one of the ten study regions. This distribution ensured an appropriate representation of each region. Therefore, the regions with more residents had a larger sample size. The distribution by age and sex represents an essential component of research analysis. For this reason, this study used a random selection to determine the survey's participant within each household. Even with this method, women and older people were oversample. The latter happened because of the differences in the demographic characteristics of people with land line phones compared to people with cell phones (The PEW Research Center, 2010). To compensate for the differences in age and sex distribution we created a weighting variable, which allowed an appropriate representation of all age and gender groups of interest. Finally, this study had a margin of error of 3.8% and a confidence level of 95%.

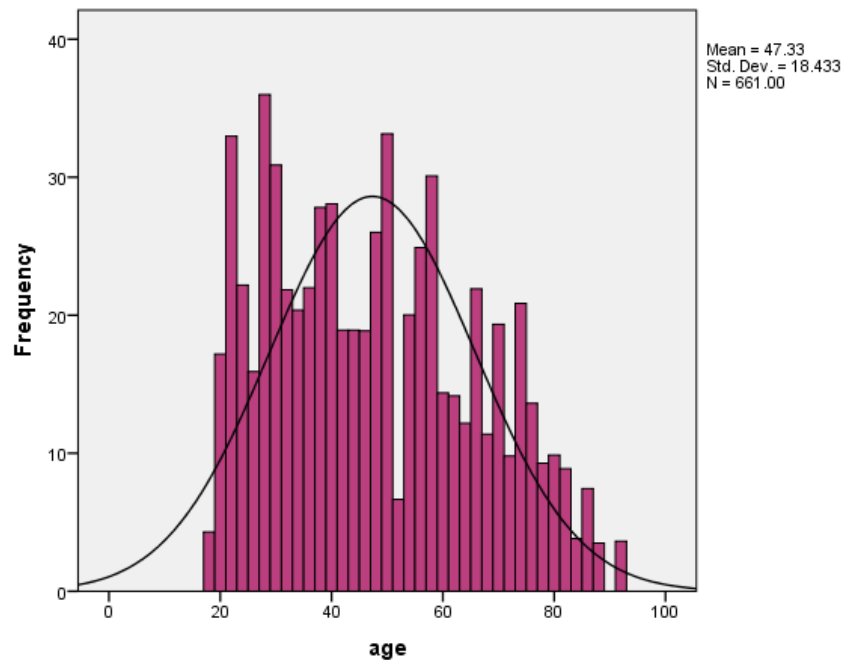
Results

Profile of participants

The results of this study are from a sample with the following characteristics:

- The participants had an average age of 47.3 years and a median age of 46 years. In addition, 26.9% had over 60 years of age. Figure 6 shows that age variable has a near normal distribution.
- Females represented 53.1% of the sample.
- More than half (54%) of the participants indicated been married, and 24.7% has never been married.
- In four out of ten households, there was a person under 18 years of age.
- Nearly 79% of the participants had at least a high school diploma and 30% had at least a bachelor degree.
- More than 60% of the participants had a household income lower than \$20,000 in the previous year.
- Nearly 23% of the households had at least a person with disabilities. According the US Census Bureau, in Puerto Rico, 25% of people with 18 years of age or more have a disability (US Census Bureau, 2011).

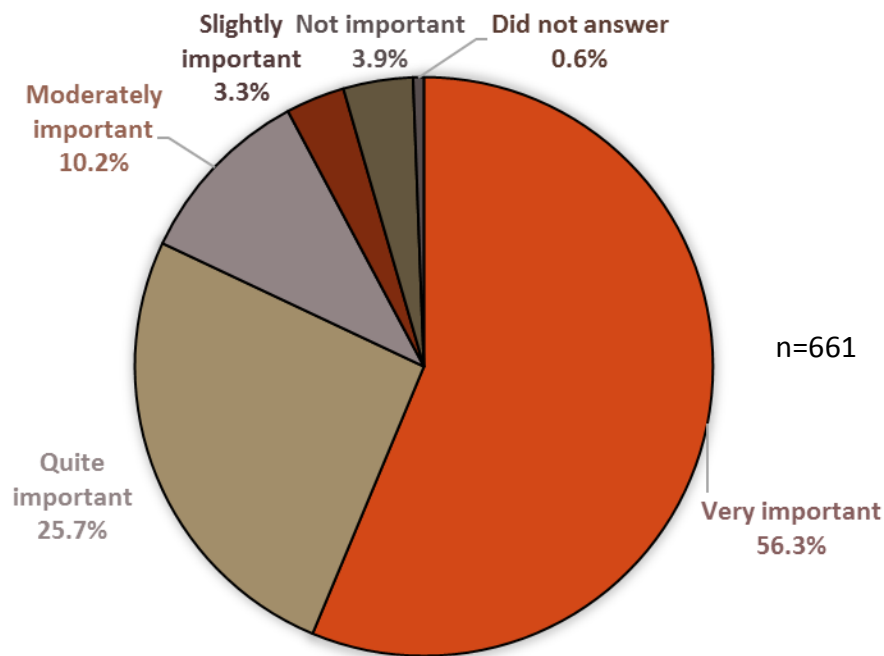
Figure 6. Histogram of the age distribution



Importance of outdoor recreation

The first topic in the study is the importance of participating in outdoor recreation. For most of the participants in the study (82%), the participation in outdoor recreation is very important or quite important (Figure 7). This is eight percent points lower than the study conducted in 2007.

Figure 7. Importance of outdoor recreation for participants



There was no significant difference in the importance of participating in outdoor recreation by gender. The mean (average) age of the participants who answered that outdoor recreation is important to them (very important or quite important) was 46.5 years old while the mean age for the ones who said that outdoor recreation was not important or slightly important was 57.6 years old. The latter was the only demographic variable in which there was a statistical difference on the importance of participating in outdoor recreation (T-test p-value < 0.05). This indicates that, for the older population, the participation in outdoor recreation is less important than in younger populations.

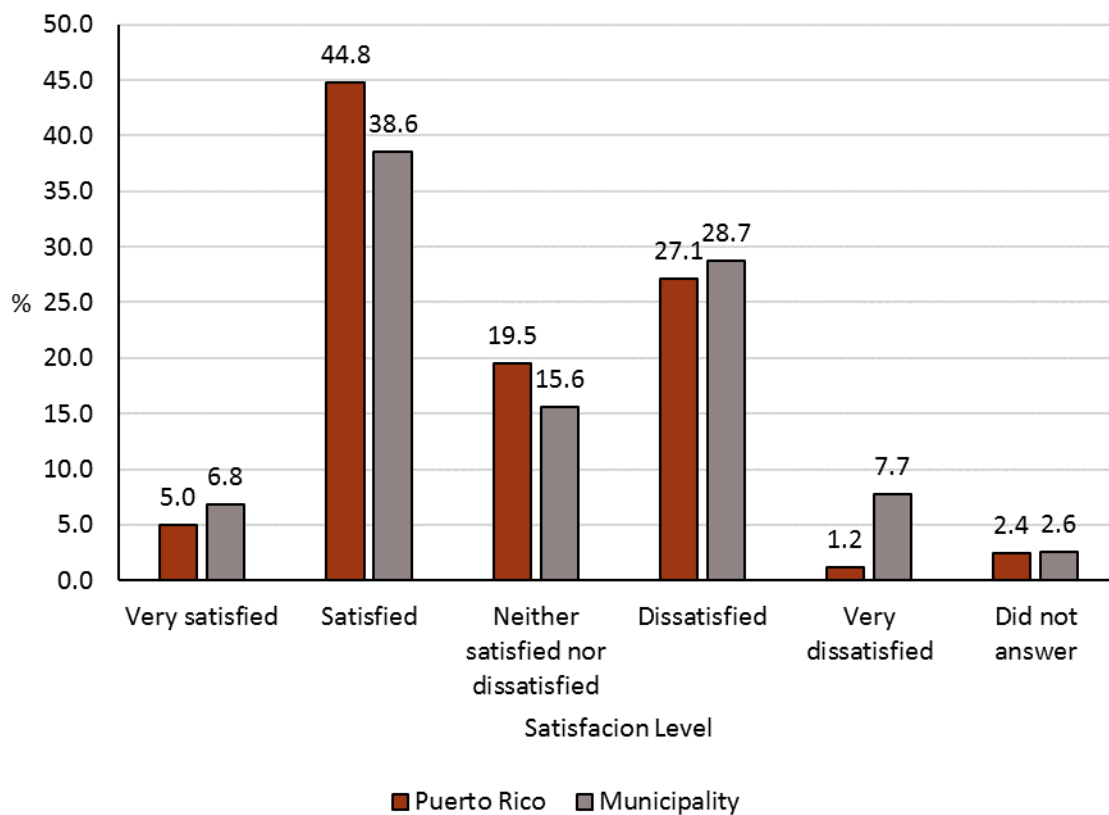
Satisfaction with the opportunities of outdoor recreation

The participants expressed their satisfaction with the opportunities of outdoor recreation available in Puerto Rico and their municipality of residence. Both geographic levels received similar scores of satisfaction.

Nearly half of the participants said that they were satisfied or very satisfied with the opportunities available in Puerto Rico. In relation with their municipalities, a slightly lower percentage (45.3%) answered that they were satisfied or very satisfied. The percentage that was very dissatisfied was larger at the municipality level than for Puerto Rico (Figure 8).

The satisfaction with opportunities for outdoor recreation in Puerto Rico and the municipalities decreased substantially from 66% and 62.4%, respectively, in 2007 to less than 50% at both levels in 2013.

Figure 8. Satisfaction with the opportunities of outdoor recreation available in Puerto Rico and municipalities

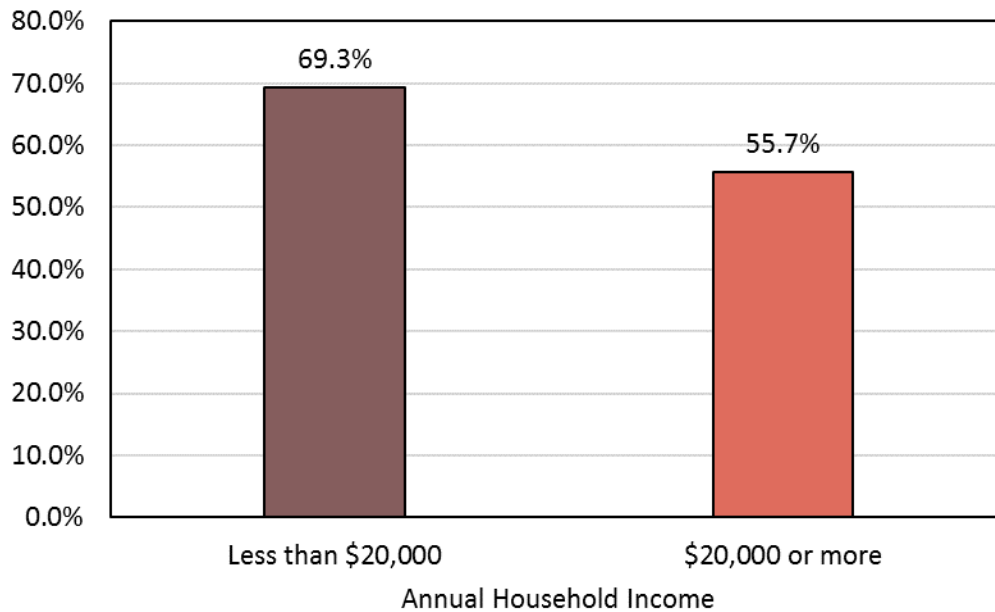


The satisfaction for opportunities in Puerto Rico and the municipalities showed a difference by age. The mean age of the participants dissatisfied or very dissatisfied with current opportunities of outdoor recreation in Puerto Rico was 43.1 years old.

Meanwhile, the mean age for the satisfied or very satisfied was 49.4 years old. This difference was statistically significant, meaning that the older population is more satisfied with the current offer of outdoor recreation in Puerto Rico than the younger population. We identified a similar difference when asked about the outdoor recreation offer in the municipality level (7.4 years in difference).

There were difference in satisfaction with the current offer of outdoor recreation in Puerto Rico by income level. The people with an annual household income lower than \$20,000 were more satisfied with the current opportunities for outdoor recreation available in Puerto Rico than people with an annual household income over \$20,000 were (Figure 9).

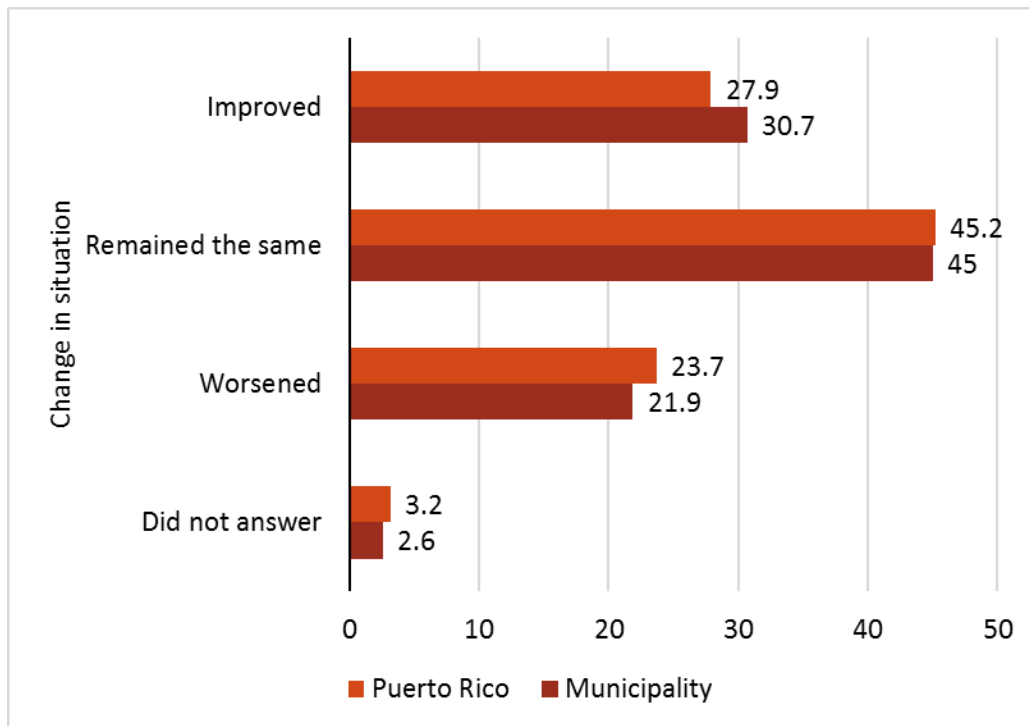
Figure 9. Percent of the participants satisfied or very satisfied with the opportunities of outdoor recreation available in Puerto Rico by annual household income



Changes with the situation of the offer of outdoor recreation during the past five years

Nearly 45% of the participant indicated that the offer of outdoor recreation during the past five years has remained the same for Puerto Rico and their municipalities. Nearly three out of ten participants indicated that the situation improved compared to five years ago (Figure 10). The results of this study differed from the 2007 SCORP; in the past study, half of the participants indicated that, in the previous five years, they saw an improvement in the offer.

Figure 10. Change with the situation of the offer of outdoor recreation in Puerto Rico and municipalities



Satisfaction with aspects of outdoor recreation in Puerto Rico

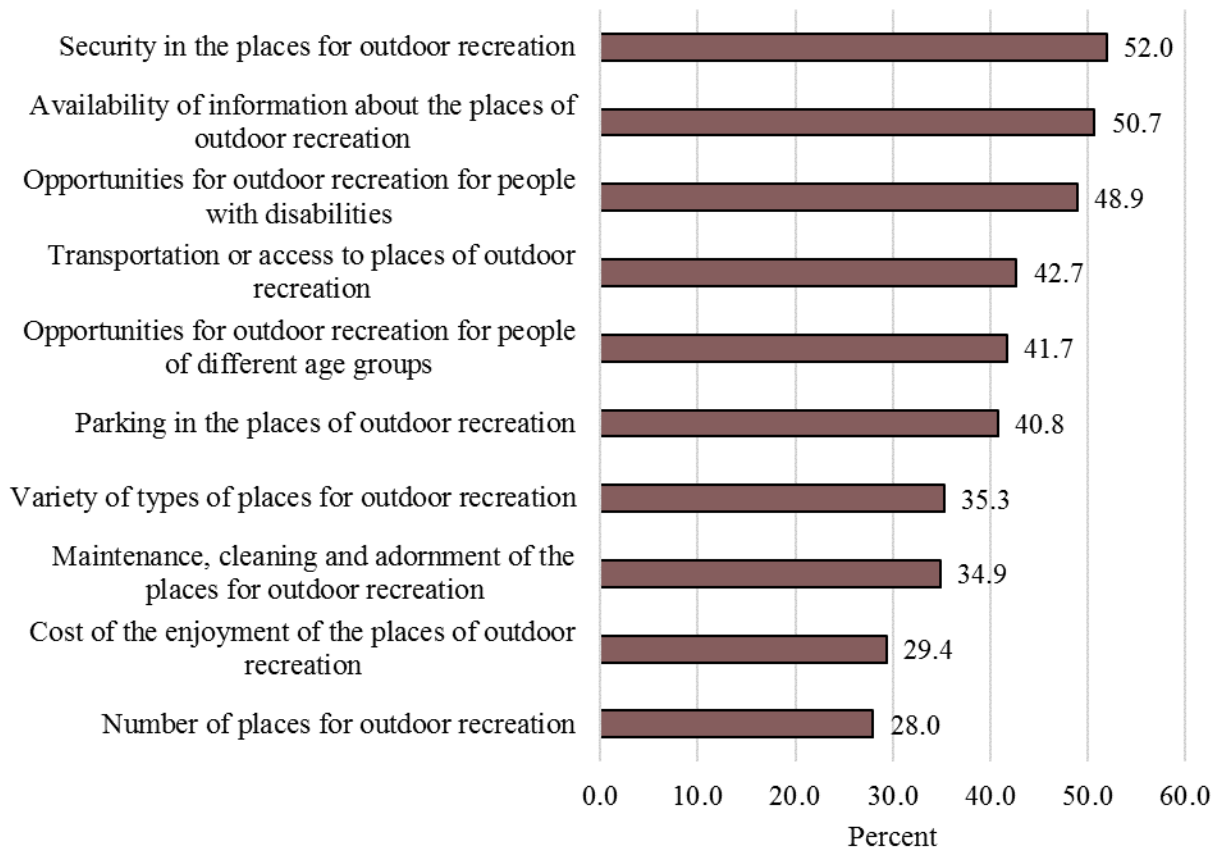
Outdoor recreation has a set of aspects ranging from security to the availability of parking. The participants indicated their satisfaction with ten aspects. Table 3 shows the results of the satisfaction toward each one of these aspects. We produced an index to determine the overall level of satisfaction with the outdoor recreation in Puerto Rico. This index is similar to the one used in the study of 2007, with a maximum score of 50 and a minimum score of 10. For this study, the index score was 29, which is lower than 33, the score of the 2007 study.

To visualize why this value was lower, we made a chart with the values of the participants who said they were dissatisfied or very dissatisfied with each of the aspects of the outdoor recreation. In six of the ten aspects, over 40% of the participants said they were dissatisfied or very dissatisfied. Within these aspects, there were two aspects (security and availability of information) in which over half of the participants indicated that they were dissatisfied or very dissatisfied (Figure 11).

Table 3. Satisfaction with ten aspects of outdoor recreation in Puerto Rico

Premise	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied	Did not answer
Number of places for outdoor recreation	3.2	50.3	16.7	26.3	1.7	1.8
Maintenance, cleaning and adornment of the places for outdoor recreation	1.7	44.0	18.2	28.6	6.3	1.2
Security in the places for outdoor recreation	1.3	33.9	11.4	40.8	11.2	1.4
Variety of types of places for outdoor recreation	1.4	43.8	15.2	30.0	5.3	4.3
Opportunities for outdoor recreation for people of different age groups	0.8	31.8	18.3	35.3	6.4	7.4
Opportunities for outdoor recreation for people with disabilities	3.6	30.2	12.3	43.2	5.7	5.0
Cost of the enjoyment of the places of outdoor recreation	1.6	48.4	16.0	24.4	5.0	4.6
Transportation or access to places of outdoor recreation	0.6	40.1	13.7	37.6	5.1	2.9
Parking in the places of outdoor recreation	1.1	43.5	12.4	35.2	5.6	2.1
Availability of information about the places of outdoor recreation	1.6	34.2	7.5	42.3	8.4	6.0

Figure 11. Percent of participants dissatisfied or very dissatisfied with different aspects of outdoor recreation



Obstacles for the outdoor recreation

In Puerto Rico, there are many places for outdoor recreation available for the population. The availability of the recreation places is important, but there are some obstacles hindering the maximum enjoyment of the outdoor recreation. The obstacle more mentioned was the risk of being a victim of an assault or incident. The latter is the result of high crime rates, including a high mortality rate by homicide of 26 per 100,000 inhabitants (Bezares Salinas & Cartagena Colón, 2013). The situations mentioned explain why there are low satisfaction levels with the security in places for outdoor recreation. Table 4 presents the other obstacles mentioned by the participants.

Table 4. Obstacles for the outdoor recreation in Puerto Rico

Obstacle	Frequency	Percent
Risk of being a victim of an assault or incident	125	18.9
Lack of time	108	16.3
Lack of money	90	13.6
Lack of transportation	53	8.0
Lack of accessibility for people with disabilities	52	7.9
Lack of information on places where to go and what to do	43	6.5
Agglomeration and crowds at recreational places	29	4.3
Risk of an accident	26	3.9
Lack of complementary services (food, bathrooms, nursing)	17	2.6
Lack of accessibility to recreational areas	17	2.6
Lack of facilities or areas for recreation	14	2.1
Poor condition of recreational facilities	13	2.0
Others	73	11.4

The groups that could face additional challenges include the population over 60 years of age and people with disabilities. The participants with over 60 years of age indicated the lack of money and transportation as two of their biggest obstacles for outdoor recreation (Table 5). The participants in which in their household lives a person with disabilities indicated that the lack of accessibility for people with disabilities was one of the main obstacles for outdoor recreation (Table 6).

Table 5. Main obstacles for outdoor recreation for the population with 60 years of age or older

Obstacle	Frequency	Percent
Risk of being a victim of an assault or incident	42	23.4
Lack of money	22	12.5
Lack of transportation	20	11.2
Lack of accessibility for people with disabilities	17	9.5
Lack of time	12	6.7

Table 6. Main obstacle for outdoor recreation in a house with people with disability

Obstacle	Frequency	Percent
Risk of being a victim of an assault or incident	29	19.4
Lack of accessibility for people with disabilities	23	15.5
Lack of time	20	13.7
Lack of money	16	10.5
Lack of information on places where to go and what to do	11	7.1

Problems for outdoor recreation

In addition to the obstacles that the participants have for outdoor recreation, the participants identified the main problems in Puerto Rico and their municipalities regarding outdoor recreation. The main problem for outdoor recreation in Puerto Rico and the municipalities is vandalism. Two of the most mentioned problems were the lack of security in the recreational areas and the lack of personnel to organize or lead activities (Tables 7 and 8). When analyzing the satisfaction level and the problems identified by the participants, is evident that the participants do not feel secure participating in outdoor recreation.

Table 7. Main problems for outdoor recreation in Puerto Rico

Problem	Frequency	Percent
Vandalism	162	24.5
Lack of security in the recreational areas	119	18.0
Lack of people to organize or lead activities	83	12.5
Lack of information about activities	66	10.0
Low level of participation of citizens	65	9.8
Lack of maintenance of facilities	38	5.7
Lack of public transportation to reach the recreational areas	33	5.0
Undesirable atmosphere at recreational facilities (e.g. Excessive noise)	24	3.6
There are not enough recreational facilities	19	2.9
The recreational facilities are not suitable for the interests of the citizenry	17	2.6
Lack of education about recreation	15	2.3
Others	20	3.1
Total	661	100

Table 8. Main problem for outdoor recreation in the municipalities

Problem	Frequency	Percent
Vandalism	131	19.8
Lack of security in the recreational areas	99	15
Lack of people to organize or lead activities	84	12.7
Lack of information about activities	67	10.1
Low level of participation of citizens	62	9.4
Lack of maintenance of facilities	42	6.4
Undesirable atmosphere at recreational facilities (e.g. Excessive noise)	32	4.8
Lack of parking in the recreational areas	31	4.7
Lack of public transportation to reach the recreational areas	29	4.4
Lack of education about recreation	25	3.8
The recreational facilities are not suitable for the interests of the citizenry	21	3.2
There are not enough recreational facilities	20	3.0
Others	18	2.7
Total	661	100

Participation in outdoor recreation activities

The majority of the people indicated that they participated at least once per week (68.7%) in outdoor recreation activities. Four out of ten people indicated participating only once per week in outdoor recreation activities (Figure 12).

When compared outdoor participation by gender, the males participated more in outdoor recreation activities than women did. A high percentage of women performed outdoor recreation activities less than once a week (Figure 13).

The participation in outdoor recreation activities decreased with age. The people who participate less than once a week in outdoor recreation activities had a mean age of 56.4 years of age. This is nearly 10 years higher than the mean age of the people participating in outdoor recreation activities at least once a week. Nearly 45% of the people over 60 years of age indicated that they participated less than once per week in outdoor recreation activities.

Figure 12. Frequency of participation in outdoor recreation activities

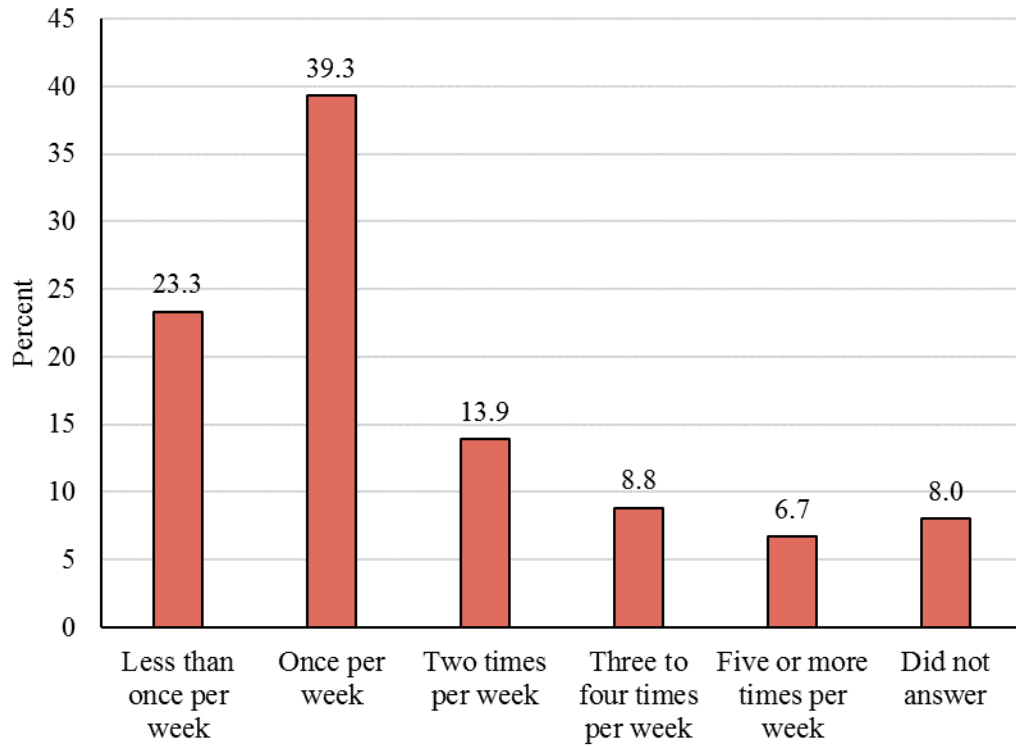
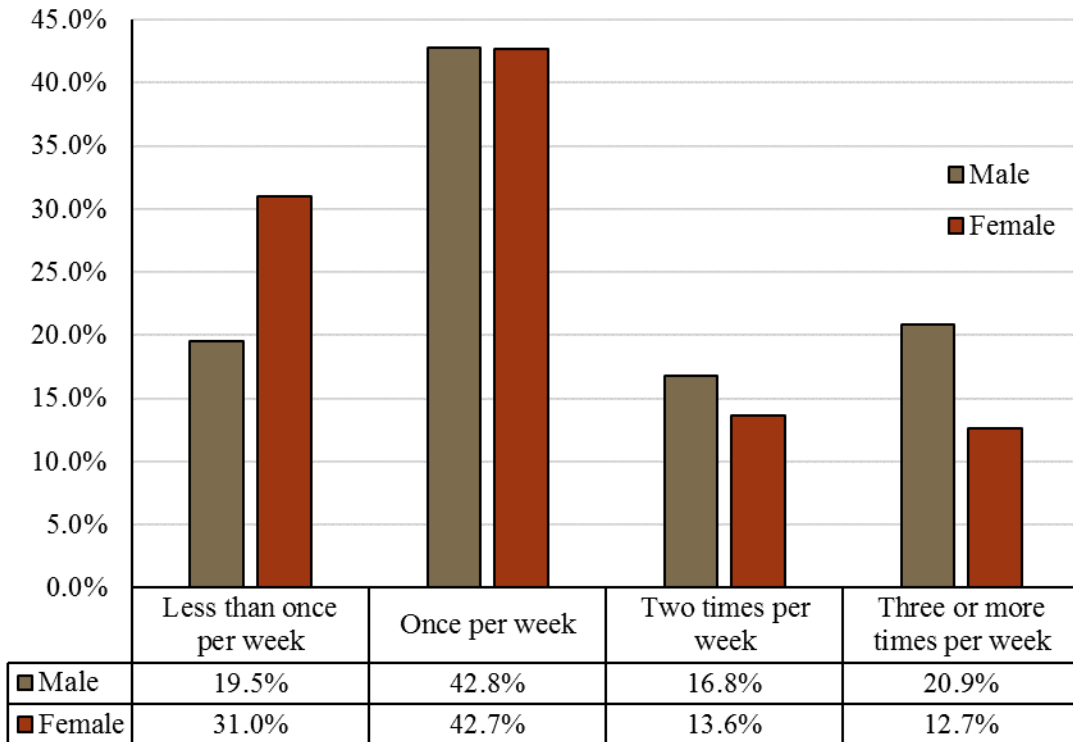
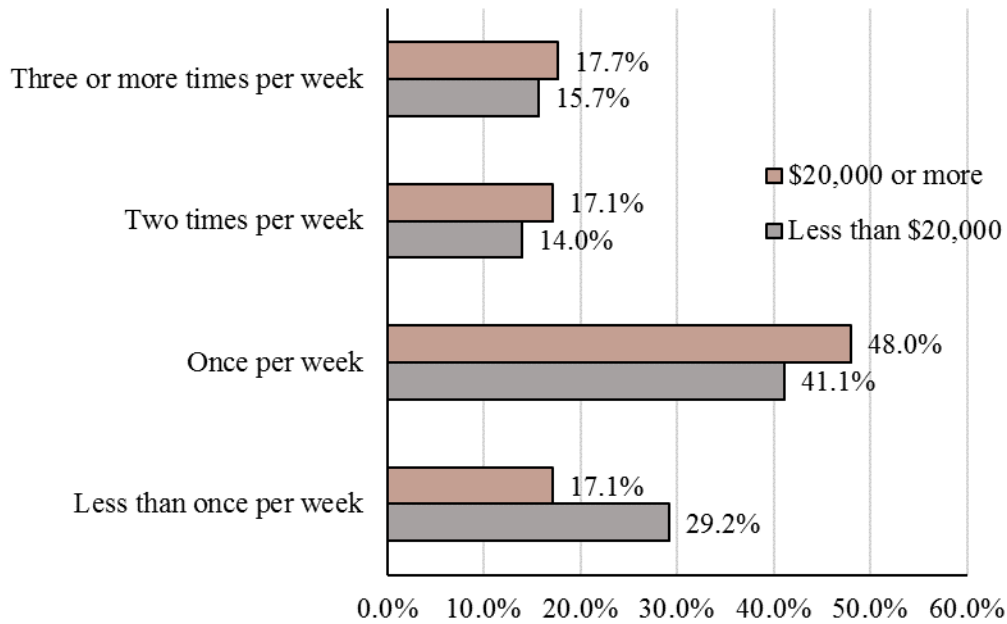


Figure 13. Frequency of participation in outdoor recreation activities by gender



There was also a significant difference in participation of recreational activities by income. People in households with an annual income over \$20,000 participated more in outdoor recreation activities than the population with less income (Figure 14).

Figure 14. Frequency of participation of outdoor recreation activities by annual household income



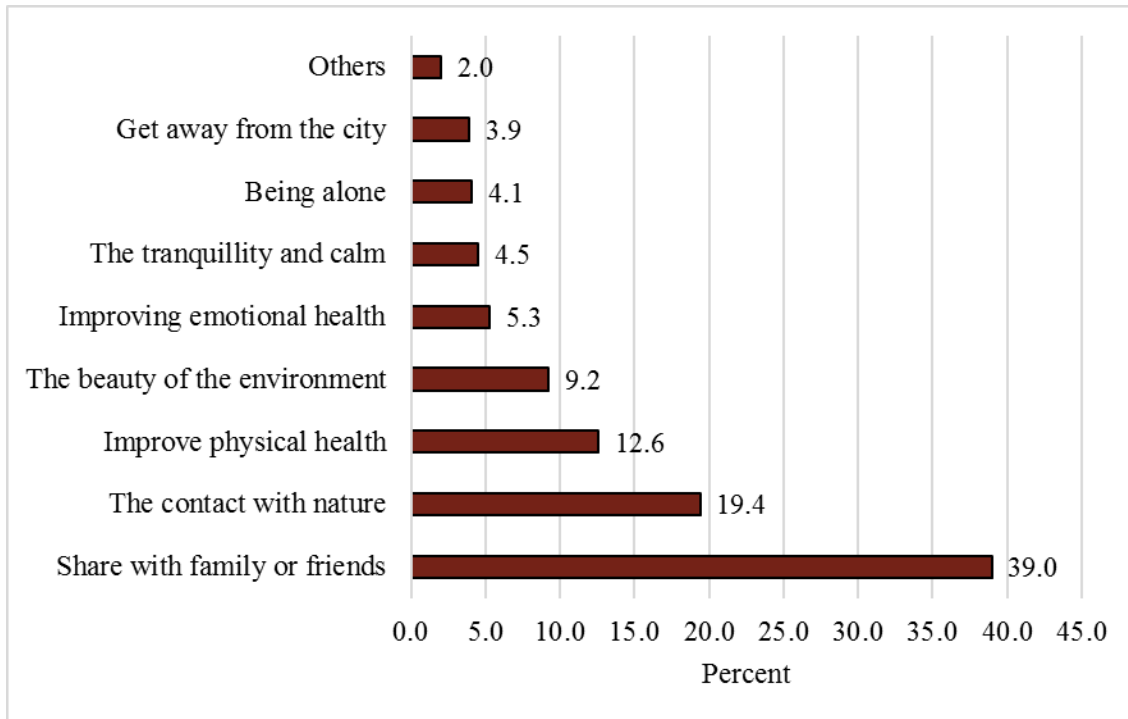
Seven out of ten participants participated in outdoor recreation activities with some family members, and less than ten percent did it on its own. Most of the time the participants do the activities with the immediate family (partner or son/daughter) but nearly one third of the people does it with other family members (Table 9).

Table 9. Relationship of the most common companion for outdoor recreation activities

Relationship	Frequency	Percent
Other family members	218	32.9
Son/daughter	130	19.7
Partner	122	18.4
Friends or acquaintances	119	18.0
Alone	59	9.0
Did not answer	13	2.0

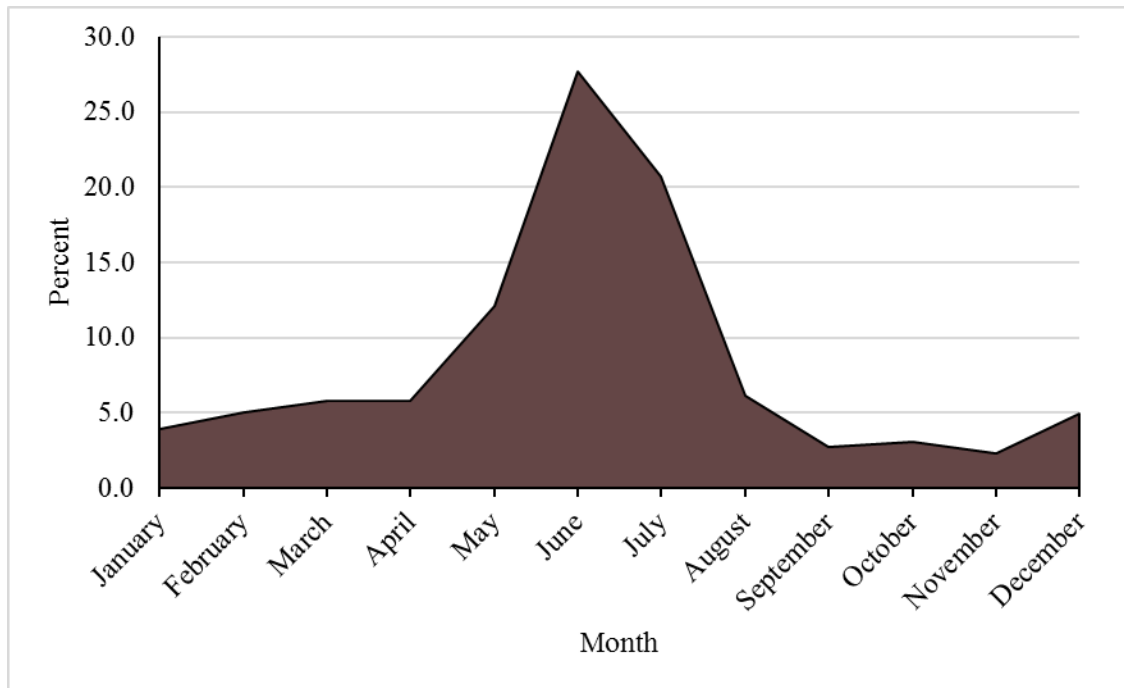
What people enjoyed more about participating in outdoor recreation activities was to share with family and friends. This aspect remained consistent with the previous study. The other aspects that people enjoyed more included the contact with the nature and the improvement of physical health (Figure 15).

Figure 15. Aspects of outdoor recreation that participant enjoyed the most



The participants preferred the summer to participate in outdoor recreation activities, especially the months of June and July. The least preferred month was November with just 2.3% of the participants indicating this is their preferred month of the year for outdoor recreation (Figure 16). This is consistent with the fact that in a tropical island, like Puerto Rico, the preferred months are the best for participating in aquatic activities.

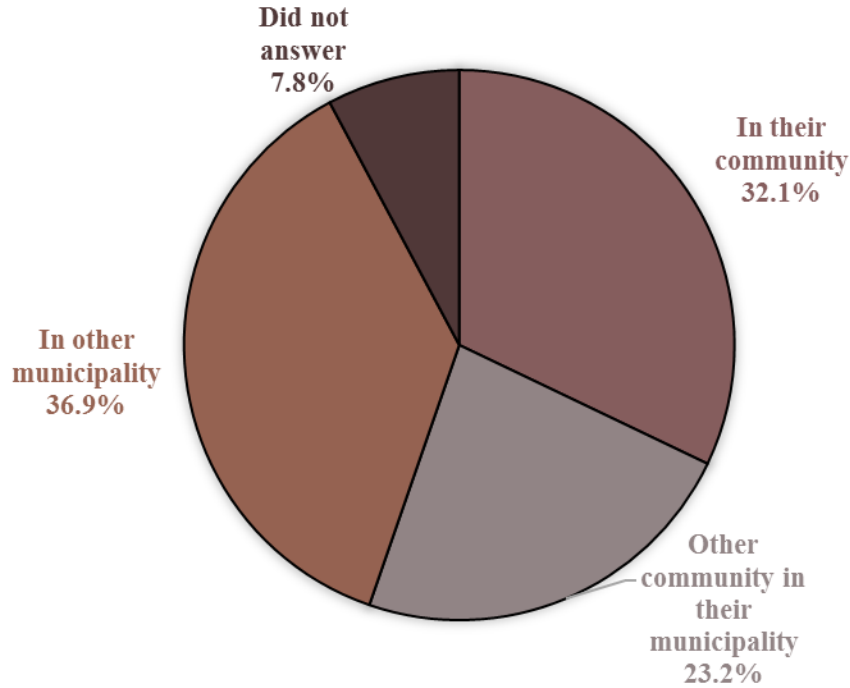
Figure 16. Month of the year the persons prefer to participate in outdoor recreation activities



The people participated more often in outdoor recreation activities within their municipalities (55.3%) than in other municipalities; they especially tend to participate more in their own community. Nevertheless, a high percentage of people participated in outdoor recreation outside their municipality (Figure 17).

The people that regularly participated in outdoor recreation activities outside their municipalities had a mean age of 43.3 years of age. The mean age of this group is lower than the mean age of the people who participated in outdoor recreation within their community (51.3 years of age).

People living in households with an annual income over \$20,000 participated more in recreation activities outside their municipality (47.4%) than people with an annual household income lower than \$20,000 (35.3%) did.

Figure 17. Most common place of outdoor recreation**More frequent outdoor recreation activities**

The people interviewed for this study indicated the outdoor recreation activities in which they participated in the last 12 months; divided on five groups of activities:

- Aquatic activities
- Physical/sport activities
- Nature activities
- Assistance to events
- Other activities

Overall, the most frequent outdoor recreation activity was the appreciation of the views of nature (76.1%), followed by walking in the neighborhood (65.1%), and visiting fairs, festivals, amusement parks or historic sites (64.2%). The activities with less participation were water skiing with 2.2%, windsurfing (2.8%) and hunting (3%). Table 10 presents a list of all the outdoor recreation activities.

Table 10. Participation in outdoor recreation activities during the past 12 months

Aquatic activities	%
Swimming, bathing, or sunbathing on the beach	63.1
Swimming, bathing or sunbathing in a swimming pool	48.3
Swim or bathe in rivers or lakes	33.1
Motor boat ride by the sea	16.4
Canoe, kayak or boat rowing	12.6
Shore fishing in rivers or lakes	12.6
Fishing from shore in the sea	10.4
Fishing in rivers or lakes (by boat)	9.3
Motor boat ride in rivers or lakes	9.2
Underwater activities (diving or snorkel)	8.1
Ride a jet ski	7.8
Surfing	4.4
Boat sailing	3.6
Windsurfing	2.8
Water skiing	2.2
Physical/sport activities	%
Walk in the neighborhood	65.1
Jogging or walking for exercise	60.3
Bicycle riding	31.7
Play volleyball	20.9
Play basketball	18.2
Play baseball or softball	14.6
Horse riding	10.1
Run skates	10.0
Play soccer	8.8
Play tennis	8.2
Play golf	3.8
Hunting	3.0



Nature activities		%
Appreciate the views of nature		76.1
Nature photography		57.9
Cultivate a garden or plants		52.2
Picnics		44.2
Hiking through the forest		34.5
Camping in areas prepared for that		20.1
Mountain climbing		18.6
Explore caves		12.6
Camping in areas not prepared or wild		11.8
Assistance to events		%
Visit fairs, festivals, amusement parks or historic sites		64.2
Attend outdoor sport events		53.5
Attend concerts, dances and open-air theater		45.7
Other activities		%
Ride all-terrain vehicles or motorcycle		17.4
Bike riding		17.1



Appreciating the view of nature was the primary activity performed by males and females; then, the order of the activities varies by gender. A higher percentage of males participated in swimming, bathing, or sunbathing on the beach than females. On the other hand, more females participated in nature photography than males. Finally, males attended outdoor sport events more often than females (Table 11).

Table 11. Participation in outdoor recreation activities in the past 12 months by gender

Position	Male	%	Female	%
1	Appreciate the views of nature	76.3%	Appreciate the views of nature	75.9%
2	Swimming, bathing, or sunbathing on the beach	69.7%	Nature photography	63.1%
3	Walk in the neighborhood	68.6%	Visit fairs, festivals, amusement parks or historic sites	62.3%
4	Visit fairs, festivals, amusement parks or historic sites	66.3%	Walk in the neighborhood	62.0%
5	Jogging or walking for exercise	61.4%	Jogging or walking for exercise	59.2%
6	Attend outdoor sport events	59.8%	Swimming, bathing, or sunbathing on the beach	57.3%
7	Cultivate a garden or plants	54.6%	Cultivate a garden or plants	50.1%
8	Nature photography	52.1%	Swimming, bathing or sunbathing in a swimming pool	49.0%
9	Attend concerts, dances and open-air theater	48.9%	Attend outdoor sport events	48.0%
10	Swimming, bathing or sunbathing in a swimming pool	47.4%	Picnics	46.1%

There was a significant difference in the outdoor recreation activities by age. The young population with a median age of 32 years tended to participate more in outdoor recreation activities like riding a Jet Ski, motor boat riding, and surfing. On the other hand, older people participated more in activities such as cultivating a garden or plants, nature photography, and appreciating the views of nature (Table 12).

Table 12. Comparison of outdoor recreation activities of low and old ages

Lower ages activities	Median	Mean
Ride a jet ski	28	32
Motor boat ride in rivers or lakes	30	36.3
Surfing	32	31.5
Play soccer	32	33.8
Ride all-terrain vehicles or motorcycle	32	33.9
Older ages activities	Median	Mean
Cultivate a garden or plants	46	46.3
Nature photography	44	44.9
Appreciate the views of nature	44	45.7
Picnics	43	45.1
Walk in the neighborhood	42	44.5

Outdoor recreation would like in the community and municipality

The people had the opportunity to identify an outdoor recreation place that they would like to have in their communities and municipalities. The participants preferred having in their communities, more paths to walk and more parks with trees and vegetation (Table 13). A lower amount of people preferred sport courts and parks, which could indicate that there are such sufficient places in most of the communities. When analyzed by gender, men would like to have paths for bicycling and the female paths for walking (Table 14).

At the municipality level, the people would like to have vacation resorts, amusement parks, and open-air theaters. Similarly, the sport venues are less preferred by the people (Figure 18). The latter is important when planning for future outdoor recreation places and offer for the population in Puerto Rico. With the changes in the population, there are also changes in the outdoor recreation preference and activities.

Table 13. Outdoor recreation places the participant would like in their community

Outdoor place	Frequency	Percent
Paths for walking	144	21.8
Park with trees and vegetation	132	20.0
Paths for bicycling	98	14.8
Swimming pool	78	11.8
Open-air theater	61	9.2
Communal gardens	59	8.9
Ball Park	25	3.8
Tennis Court	22	3.3
Basketball and volleyball court	19	2.9
Others	23	3.5
Total	661	100

Table 14. Top outdoor recreation places the participant would like in their community by gender

Male	Frequency	Percent
Paths for bicycling	61	19.6
Park with trees and vegetation	56	18.2
Paths for walking	45	14.7
Open-air theater	40	12.9
Swimming pool	35	11.3
Female	Frequency	Percent
Paths for walking	99	28.2
Park with trees and vegetation	76	21.5
Swimming pool	43	12.2
Paths for bicycling	38	10.7
Communal gardens	32	9

Both males and females had similar preferences about the outdoor recreation places they would like to have in their municipalities (Table 15). Both sexes would like to have vacation resorts and amusement parks in their municipality.

Figure 18. Outdoor recreation places the participant would like in their municipality

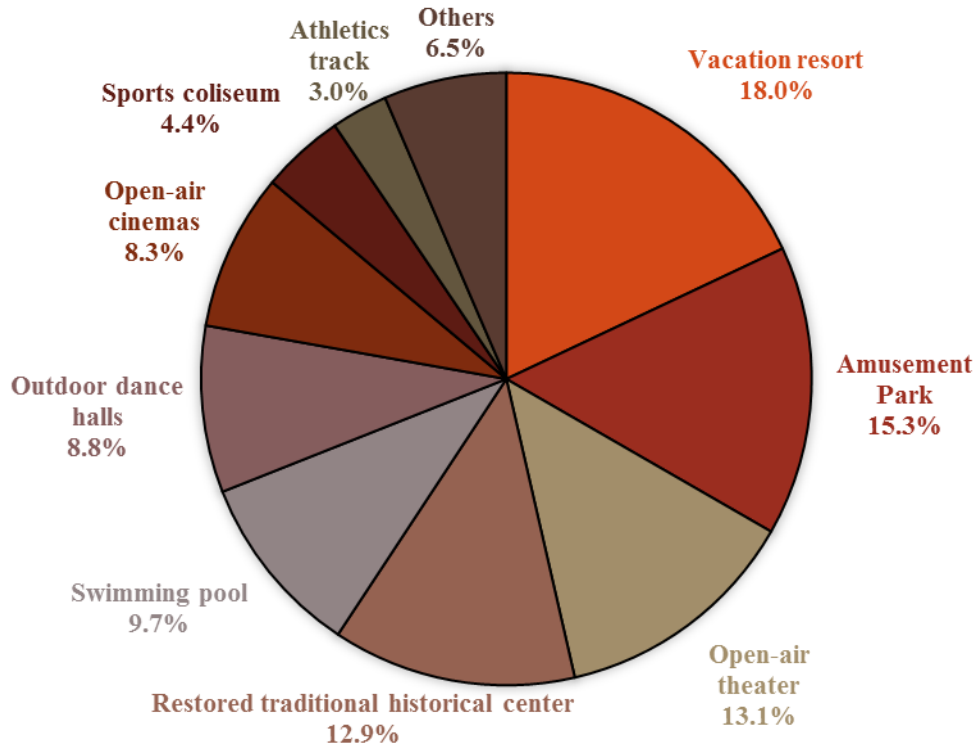


Table 15. Outdoor recreation places the participant would like in their municipality by gender

Male		Frequency	Percent
Vacation resort		59	19.1
Amusement Park		41	13.1
Restored traditional historic center		34	11.0
Swimming pool		34	11.0
Open-air theater		30	9.8
Female		Frequency	Percent
Amusement Park		60	17.1
Vacation resort		60	17.1
Open-air theater		56	16.0
Restored traditional historic center		51	14.4
Swimming pool		31	8.7

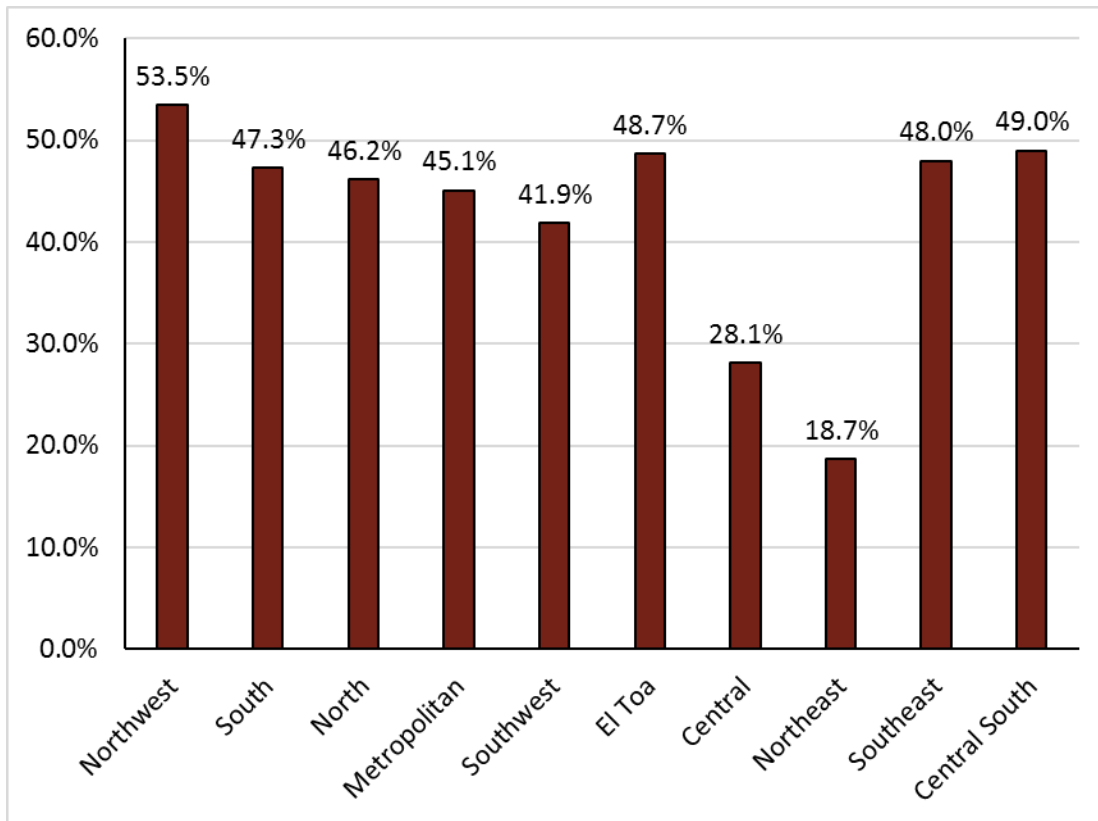
Results by region

For this demand study, there are some analyses for each one of the ten regions of the Sport and Recreation Department of Puerto Rico. We examined the satisfaction with the opportunities of outdoor recreation available at the municipality level, then a description about the main activities, problems and desired outdoor places for each region.

Satisfaction at the municipality level

The Northeast and Central regions have a noticeable lower level of satisfaction compared to the rest of the regions. Only 18.7% of the participants in the Northeast region indicated that they were satisfied or very satisfied with the current outdoor recreation opportunities in their municipalities. This could represent an area of opportunity to improve the outdoor recreation in Puerto Rico. On the other hand, more than half of the participants in the Northwest region reported been satisfied or very satisfied with the outdoor recreation opportunities in their municipalities (Figure 19).

Figure 19. Percent of participants satisfied and very satisfied with the outdoor recreation opportunities in their municipality



Northwest Region

The people from the Northwest region participated in outdoor recreation activities related to nature, such as appreciation of the views of nature, nature photography, and picnics. The main problems related to the outdoor recreation in their municipalities mentioned in this region were vandalism, lack of people to organize or lead activities, and the lack of security in the recreational areas. The people in this region would like to have more paths for walking and ball parks in their communities. Additionally, they would like vacation resorts and open-air theaters in their municipalities (Table 16).

Table 16. Main aspects of the outdoor recreation in the Northwest region

Activities	%
Appreciate the views of nature	92.7%
Nature photography	89.7%
Picnics	72.6%
Walk in the neighborhood	69.7%
Attend outdoor sport events	67.8%
Problems in the municipality	%
Vandalism	35.7%
Lack of people to organize or lead activities	11.6%
Lack of security in the recreational areas	10.5%
Lack of education about recreation	9.5%
Lack of maintenance of facilities	8.0%
Desired outdoor recreation place for community	%
Paths for walking	22.9%
Ball park	16.1%
Open-air theater	14.8%
Park with trees and vegetation	12.7%
Communal gardens	12.3%
Desired outdoor recreation place for municipality	%
Vacation resort	28.1%
Open-air theater	21.4%
Amusement Park	16.3%
Swimming pool	13.4%
Restored traditional historic center	11.1%

South Region

The people from the South region participated more frequently in the following activities: appreciation of the views of nature, walking in the neighborhood, and nature photography. The main problems identified by them were the lack of people to organize or lead activities and vandalism. The people in this region would like to have more paths for walking and bicycling in their communities. Additionally, they would like to have vacation resorts and open-air theaters in their municipalities (Table 17).

Table 17. Main aspects of the outdoor recreation in the South region

Activities	%
Appreciate the views of nature	76.5%
Walk in the neighborhood	67.1%
Nature photography	64.6%
Swimming, bathing, or sunbathing on the beach	63.4%
Jogging or walking for exercise	60.6%
Problems in the municipality	%
Lack of people to organize or lead activities	16.9%
Vandalism	15.9%
Lack of security in the recreational areas	14.3%
Lack of information about activities	10.4%
Undesirable atmosphere at recreational facilities (e.g. Excessive noise)	9.8%
Desired outdoor recreation place for community	%
Paths for walking	25.3%
Paths for bicycling	22.4%
Park with trees and vegetation	18.6%
Swimming pool	15.4%
Communal gardens	8.3%
Desired outdoor recreation place for municipality	%
Vacation resort	22.2%
Open-air theater	16.4%
Restored traditional historic center	16.0%
Open-air cinemas	11.9%
Outdoor dance halls	7.7%

North Region

The people from the North region participated more frequently in activities such as appreciation of the views of nature, walking in the neighborhood, and jogging or walking for exercise. The main problems identified by the people in this region were vandalism and the lack of security in the recreational areas. The people in this region would like to have more paths for walking and parks with trees and vegetation in their communities. Additionally, they would like to have vacation resorts and open-air theaters in their municipalities (Table 18).

Table 18. Main aspects of the outdoor recreation in the North region

Activities	%
Appreciate the views of nature	73.6%
Walk in the neighborhood	66.8%
Jogging or walking for exercise	66.2%
Nature photography	62.0%
Visit fairs, festivals, amusement parks or historic sites	59.7%
Problems in the municipality	%
Vandalism	27.4%
Lack of security in the recreational areas	25.3%
Lack of information about activities	12.3%
Lack of people to organize or lead activities	11.9%
Low level of participation of citizens	7.7%
Desired outdoor recreation place for community	%
Paths for walking	28.4%
Park with trees and vegetation	25.4%
Paths for bicycling	10.2%
Basketball and volleyball court	9.6%
Communal gardens	9.2%
Desired outdoor recreation place for municipality	%
Vacation resort	27.6%
Open-air theater	22.1%
Amusement Park	13.6%
Swimming pool	12.3%
Restored traditional historic center	7.9%

Metropolitan Region

The people from the Metropolitan region participated more frequently in activities like appreciation of the views of nature, visiting fairs, festivals, amusement parks, or historic sites, and swimming, bathing, or sunbathing on the beach. The main problems identified by these people were the vandalism and lack of security in the recreational areas. The people in this region would like to have more parks with trees and vegetation and paths for walking in their communities. Additionally, they would like to have amusement parks, vacation resorts, and swimming pools in their municipalities (Table 19).

Table 19. Main aspects of the outdoor recreation in the Metropolitan region

Activities	%
Appreciate the views of nature	73.9%
Visit fairs, festivals, amusement parks or historic sites	60.9%
Swimming, bathing, or sunbathing on the beach	59.6%
Nature photography	57.3%
Walk in the neighborhood	53.4%
Problems in the municipality	%
Vandalism	15.0%
Lack of security in the recreational areas	14.8%
Lack of information about activities	12.8%
Lack of people to organize or lead activities	11.3%
Low level of participation of citizens	10.0%
Desired outdoor recreation place for community	%
Park with trees and vegetation	27.1%
Paths for walking	18.8%
Swimming pool	18.6%
Paths for bicycling	11.1%
Open-air theater	7.5%
Desired outdoor recreation place for municipality	%
Amusement Park	17.9%
Vacation resort	17.2%
Swimming pool	15.7%
Open-air theater	12.9%
Restored traditional historic center	12.7%

Southwest Region

The people from the Southwest region participated more frequently in activities like appreciation of the views of nature, walking in the neighborhood, and visiting fairs, festivals, amusement parks or historic sites. The main problems identified by the people in this region were the lack of security in the recreational areas and vandalism. The people in this region would like to have more paths for walking and bicycling, along with communal gardens in their communities. Additionally, they would like to have vacation resorts and amusement parks in their municipalities (Table 20).

Table 20. Main aspects of the outdoor recreation in the Southwest region

Activities	%
Appreciate the views of nature	70.5%
Walk in the neighborhood	69.3%
Visit fairs, festivals, amusement parks or historic sites	68.0%
Swimming, bathing, or sunbathing on the beach	67.3%
Cultivate a garden or plants	60.7%
Problems in the municipality	%
Lack of security in the recreational areas	19.2%
Vandalism	18.6%
Lack of information about activities	16.5%
Low level of participation of citizens	13.4%
Lack of people to organize or lead activities	9.1%
Desired outdoor recreation place for community	%
Paths for walking	23.2%
Paths for bicycling	16.0%
Communal gardens	14.9%
Swimming pool	13.1%
Park with trees and vegetation	11.1%
Desired outdoor recreation place for municipality	%
Vacation resort	25.9%
Amusement Park	16.4%
Restored traditional historic center	10.7%
Open-air cinemas	9.3%
Outdoor dance halls	9.2%

El Toa Region

The people from the El Toa region participated more frequently in activities like appreciation of the views of nature, visiting fairs, festivals, amusement parks, or historic sites, and walking in the neighborhood. The main problems identified by the people in this region were vandalism and the lack of security in the recreational areas. The people in this region would like to have more paths for walking, parks with trees and vegetation, and swimming pools in their communities. Additionally, they would like to have outdoor dance halls and restored traditional historic centers (Table 21).

Table 21. Main aspects of the outdoor recreation in the El Toa region

Activities	%
Appreciate the views of nature	77.1%
Visit fairs, festivals, amusement parks or historic sites	75.0%
Walk in the neighborhood	72.3%
Swimming, bathing, or sunbathing on the beach	70.5%
Jogging or walking for exercise	67.0%
Problems in the municipality	%
Vandalism	19.7%
Lack of security in the recreational areas	13.1%
Lack of maintenance of facilities	8.3%
Lack of public transportation to reach the recreational areas	7.5%
Low level of participation of citizens	7.1%
Desired outdoor recreation place for community	%
Paths for walking	19.7%
Park with trees and vegetation	18.4%
Swimming pool	15.4%
Paths for bicycling	11.2%
Open-air theater	9.8%
Desired outdoor recreation place for municipality	%
Outdoor dance halls	14.9%
Restored traditional historic center	13.1%
Amusement Park	11.8%
Sports coliseum	11.0%
Vacation resort	10.5%

Central Region

The people from the Central region participated in outdoor recreation activities like appreciation of the views of nature, walking in the neighborhood, and nature photography. The main problems related to the outdoor recreation in their municipalities mentioned in this region were the lack of security in the recreational areas and the lack of people to organize or lead activities. The people in this region would like to have more paths for walking and bicycling in their communities. Additionally, they would like to have restored traditional historic center and amusement parks in their municipalities (Table 22).

Table 22. Main aspects of the outdoor recreation in the Central region

Activities	%
Appreciate the views of nature	70.3%
Walk in the neighborhood	65.8%
Nature photography	65.4%
Visit fairs, festivals, amusement parks or historic sites	59.8%
Jogging or walking for exercise	58.1%
Problems in the municipality	%
Lack of security in the recreational areas	24.0%
Lack of people to organize or lead activities	21.3%
Lack of parking in the recreational areas	13.6%
Vandalism	13.4%
Lack of information about activities	7.1%
Desired outdoor recreation place for community	%
Paths for walking	24.5%
Paths for bicycling	21.2%
Communal gardens	20.1%
Park with trees and vegetation	10.7%
Open-air theater	9.4%
Desired outdoor recreation place for municipality	%
Restored traditional historic center	19.0%
Amusement Park	16.8%
Open-air theater	11.6%
Outdoor dance halls	11.3%
Vacation resort	10.3%

Northeast Region

The people from the Northeast region like to frequently participate in active outdoor activities such as jogging or walking for exercise, swimming, bathing, or sunbathing on the beach, and bicycle riding. The main problems identified by the people in this region were the lack of people to organize or lead activities and the lack of information about activities. The people in this region would like to have more parks with trees and vegetation and open-air theaters in their communities. Additionally, they would like to have amusement parks, open air-cinema, and open-air theaters in their municipalities (Table 23).

Table 23. Main aspects of the outdoor recreation in the Northeast region

Activities	%
Jogging or walking for exercise	64.7%
Swimming, bathing, or sunbathing on the beach	64.1%
Bicycle riding	60.9%
Appreciate the views of nature	59.6%
Visit fairs, festivals, amusement parks or historic sites	58.5%
Problems in the municipality	%
Lack of people to organize or lead activities	21.8%
Lack of information about activities	16.0%
Lack of parking in the recreational areas	12.3%
Vandalism	11.4%
Lack of security in the recreational areas	7.9%
Desired outdoor recreation place for community	%
Park with trees and vegetation	31.2%
Open-air theater	23.0%
Paths for bicycling	19.1%
Paths for walking	8.4%
Communal gardens	6.2%
Desired outdoor recreation place for municipality	%
Amusement Park	38.3%
Open-air cinemas	24.7%
Open-air theater	13.7%
Restored traditional historic center	9.2%
Vacation resort	4.8%

Southeast Region

The people from the Southeast region participated more frequently in activities like appreciation of the views of nature, visiting fairs, festivals, amusement parks, or historic sites, and swimming, bathing or, sunbathing on the beach. The main problems identified by the people in this region were the lack of people to organize or lead activities and an undesirable atmosphere at recreational facilities. The people in this region would like to have more paths for walking and parks with trees and vegetation in their communities. Additionally, they would like to have amusement parks and outdoor dance halls in their municipalities (Table 24).

Table 24. Main aspects of the outdoor recreation in the Southeast region

Activities	%
Appreciate the views of nature	81.2%
Visit fairs, festivals, amusement parks or historic sites	77.4%
Swimming, bathing, or sunbathing on the beach	70.6%
Walk in the neighborhood	67.8%
Cultivate a garden or plants	64.6%
Problems in the municipality	%
Lack of people to organize or lead activities	16.3%
Undesirable atmosphere at recreational facilities (e.g. Excessive noise)	13.4%
Lack of security in the recreational areas	12.9%
Vandalism	12.8%
Lack of information about activities	12.4%
Desired outdoor recreation place for community	%
Paths for walking	26.9%
Park with trees and vegetation	21.4%
Paths for bicycling	14.8%
Open-air theater	11.7%
Communal gardens	7.2%
Desired outdoor recreation place for municipality	%
Amusement Park	19.8%
Outdoor dance halls	14.7%
Vacation resort	13.3%
Open-air theater	10.3%
Ball park	10.3%

Central South Region

The people from the Central South region like to participate more frequently in activities like appreciation of the views of nature, swimming, bathing, or sunbathing on the beach and walking in the neighborhood. The main problems identified by the people in this region were vandalism and low level of participation of citizens. The people in this region would like to have more paths for walking and bicycling in their communities. Additionally, they would like to have vacation resorts and restored traditional historic centers in their municipalities (Table 25).

Table 25. Main aspects of the outdoor recreation in the Central South region

Activities	%
Appreciate the views of nature	74.5%
Swimming, bathing, or sunbathing on the beach	70.6%
Walk in the neighborhood	63.0%
Visit fairs, festivals, amusement parks or historic sites	61.4%
Attend outdoor sport events	59.3%
Problems in the municipality	%
Vandalism	19.3%
Low level of participation of citizens	17.0%
Lack of people to organize or lead activities	14.1%
Lack of security in the recreational areas	12.7%
Lack of information about activities	11.9%
Desired outdoor recreation place for community	%
Paths for walking	21.4%
Paths for bicycling	21.1%
Park with trees and vegetation	20.4%
Swimming pool	15.2%
Communal gardens	8.5%
Desired outdoor recreation place for municipality	%
Vacation resort	18.2%
Restored traditional historic center	17.0%
Amusement Park	14.0%
Swimming pool	13.6%
Open-air theater	11.2%

Focus groups results

Results of discussion with municipality (county equivalent) representatives

There were six participants in the focus group. The participants were the sports and recreation directors of the following municipalities: Aguas Buenas, Arroyo, Bayamón, Carolina, Orocovis, and Trujillo Alto.

Current situation of outdoor recreation

Beginning the focus group, the participants answered the following question: during the past 5 years, do you think that the recreational facilities had improved, deteriorated, or remained the same? The participants mentioned that people were more aware of outdoor recreation and that there has been a significant increase in the public interest in these activities. However, the participants responded that outdoor recreational facilities have worsened because of the following reasons:

- **Maintenance.** The high cost to maintain facilities have been the primary challenge. Saltpeper had damaged the facilities, and the maintenance of green areas in a climate such as the one in Puerto Rico has become a problem. Additionally, the trees grow, and it becomes difficult to prune them because the municipalities do not have the necessary equipment for this.
- **Safety.** The safety in the facilities has been another main challenge. The darkness in some recreational areas threatens the use of the areas. The participants argued that maintaining proper lightning is expensive; therefore, they cannot have enough lightning particularly in areas outside the inner city. Additionally, the participants mentioned that surveillance is highly expensive and that the municipalities cannot afford this expenditure. The lack of surveillance has provoked vandalism of the facilities and the theft of copper in the pipes. Conversely, the municipalities have had to deal with the theft of equipment because of the lack of surveillance, which provokes a major scarcity for the maintenance of the facilities. Some small municipalities have limited the development of new facilities because they do not have a staff who can monitor the facilities.
- **Transportation.** The participants indicated that they did not have sufficient vehicles for maintaining places with difficult access within the municipalities.
- **Parking.** Although the participants pointed out the barriers they have to maintain the facilities in optimal conditions, they indicated that the

utilization of many facilities have increased, which aggravated the problem of parking in the area.

The representative of one of the municipalities with the largest population indicated that the facilities improved in the past years; however, he acknowledged that the economic burden for the maintenance of the facilities is too high. The participants also commented that although they have the support of their mayors, the municipalities have economic constraints to sustain the facilities that the Department of Recreation and Sports (DRS) transferred to them. Additionally, the participants stated that it was very onerous the maintenance of the facilities in proper conditions for community use, and for meeting the requirements of the agencies that regulate the rights of people with disabilities, as well as the agencies ensuring the safety and protection in the workplace. Most participants reported that representatives of the municipalities have made requests for equipment and funds to the DRS; they have to provide follow-up to these petitions and wait for the determination of DRS regarding granting the request. Some participants commented that in sometimes politics influences the agility of the processes.

Positive aspects of outdoors activities in Puerto Rico

The participants identified during the focus group as a major positive aspect the increase of outdoor activities. The latter occurred even with the challenges that the municipalities faced to maintain the facilities. According to the participants, outdoor activities have increased due to the following reasons:

- **Promotion of the importance of physical activity.** The participants indicated that the promotion of physical activity at the state level has been effective and has boosted outdoor activities.
- **Multi-purpose recreational areas.** The participants mentioned that the availability of multi-purpose facilities with jogging trails and tennis courts, among others, allows visitors to diversify the sports they do and at the same time maximize the use of the facilities.
- **Development of facilities in communities.** The participants said that the development of recreational areas in more communities has allowed the individuals to stay in their communities and use the community recreational facilities. The participants also noted, that when the community members know that the facilities are part of the municipality, they tend to take care of them and use them more.

- **Good programs offered by the municipalities.** The participants highlighted that the municipalities offer a variety of programs for different populations; as these are free of charge, the population tend to participate in them.

Negative aspects of outdoor recreation in Puerto Rico

During the focus group, the participants responded to a question related to the limitations for outdoor activities in Puerto Rico. The participants mentioned the following limitations:

- **Economic limitations.** The lack of economic resources places a heavy burden in the municipalities. When the DRS transferred the recreational facilities to the municipalities, these transfers did not have economic packages to support them.
- **There is a lack of collaboration between agencies.** Participants commented that if there were collaborative agreements between agencies, they could address areas in need and work towards the achievement of common goals.
- **Need to empower the communities.** There are not enough volunteer leaders serving as resources in order to maintain the facilities. The participants noted, that if the communities know that the facilities belong to the municipality, they would participate in its maintenance making more feasible that they stay in good conditions. Nevertheless, the community members need to adopt the facilities and be part of the maintenance process.
- **Elimination of successful programs.** Some participants pointed out that governmental changes and funding cuts resulted in the elimination of successful programs such as Puerto Rico in Shape (*Puerto Rico en forma*). The elimination of these programs has a negative impact in the physical activity practices of the community members. The participants also argued that the elimination of these programs discourage the community members who participated in these programs.
- **Inadequate planning.** The participants mentioned, that because of an inadequate planning, the municipalities built facilities in flood-prone areas or areas with minimal or no security. Additionally, in some occasions, after its construction, there have been no protections to the built facilities.
- **Need of having places for special populations.** The construction of many facilities occurred prior the existence of the regulations of the Occupational Safety and Health Act (OSHA) and the American with Disabilities Act (ADA),

which purposes are to assure that people with physical disabilities have access to the facilities. Therefore, many facilities need changes to adapt them to comply with ADA standards so that people with special needs can access the facilities. Conversely, the elderly and children need to have access to facilities adapted for their needs. The participants claimed that the demographics of Puerto Rico have been changing; requiring facilities adjusted to these generational characteristics and needs.

- **Climate.** The participants commented, that because of the climate characteristics of Puerto Rico, the growth of vegetation causes the maintenance and beatification work more difficult. Additionally, parents want their children playing sports in outdoor facilities; however, sometimes the climate limits this use.
- **Promotion.** The municipalities are responsible for promoting the activities organized for the community members. However, the participants pinpointed that the municipalities do not receive collaboration from the DRS for promoting the facilities or activities.

Preferences

The participants indicated the most important factors for selecting a recreational facility. The factors are:

- Lightning
- Area that is not prone to flooding
- Parking with lightning
- Safety in play areas and public areas
- Access to clean bathrooms

Need for places/recreational activities

The participants highlighted the importance of developing recreational areas:

- **Passive areas suitable for children, elderly, and people with disabilities.** The participants mentioned as one strategy the adaptation of existing facilities for the population with special needs because the construction of new facilities would be more expensive.
- **Develop aquatic recreational programs.** The participants commented on the importance of considering the water bodies for fishing from shore and

kayaking, among other activities. The participants mentioned that the municipalities do not have aquatic proposals.

- **Restructure existing facilities.** The participants presented this alternative to both adapt the facilities for the special populations, as well as to convert the facilities in multipurpose facilities as a way to maximize their use. In this way, the municipality will have better prepared facilities without the overload of constructing new facilities.

Priority areas and suggested actions

During the focus group, the moderator asked the participants about the sectors from which they need collaboration and what recommendations they could offer to improve the areas and recreational activities in Puerto Rico. The participants responded the following:

- **Economic support.** The participants indicated that the municipalities need economic resources and equipment in order to maintain in optimal conditions the recreational facilities. When the DRS transferred the recreational facilities to the municipalities, it added a load to the budget of the municipalities, which make difficult the maintenance of the facilities.
- **Involve private companies.** The participants noted that the private entities can use the recreational facilities of the municipalities, and, therefore, they should be part of the maintenance efforts of the facilities.
- **Volunteer help from the community members.** The participants pinpointed the importance of creating recreational associations in the communities as a way to empower the community members to take care of the facilities. Additionally, the participants pointed out as very worthwhile the training of community leaders to serve as facilitators and serve visitors in the facilities.
- **Collaborative agreements between agencies.** The participants highlighted the importance of promoting teamwork with agencies of the central government and other municipalities. The participants mentioned that collaborations with entities such as the Olympic Committee, the Department of Education, the Police Department, and the Department of Family could allow the development of a comprehensive plan. This plan can incorporate aspects such as surveillance, equipment donation, the identification of children athletic potential in the schools, and the necessary promotion for the development of sports and use of the recreational facilities. The participants presented an example of a collaborative agreement with the

Department of Education that allowed a municipality to establish a sport's program in the schools. Similarly, the participants identified the Department of Family as an agency that could collaborate in the promotion of the recreational facilities, which would justify the request for support for the maintenance of the facilities.

- **Development of new recreational programs.** The participants recommended considering programs implemented in the United and other countries from Central and South America in order to adapt them to the population and geography of Puerto Rico.
- **Evaluation of the programs to measure effectiveness.** The participants argued that the elimination of programs such as Puerto Rico in Shape has been detrimental for the population that participated in them. The participants highlighted the importance of evaluating a program to determine their effectiveness prior their elimination as the governmental changes affects these programs. Some of the examples mentioned include national plays and Puerto Rico in Shape.
- **Improve access roads.** The participants mentioned that there is a need to put tar on the roads and expand the access roads of some recreational facilities.
- **Have meetings between representatives of the DRS and municipalities.** The participants mentioned the importance of continue holding periodic meetings between representatives of the municipalities and the DRS so that the former communicate to the latter their needs.

Results of discussion with representatives of non-governmental organizations (NGOs)

There were eight participants in this focus group. The NGOs included representatives from the association of climbers, passive recreation, the association of campers, Sea Scouts, and the fishing club.

Current situation of outdoor recreation

At the beginning of the focus group, the participants answered the following question: during the past 5 years, do you think that the recreational facilities had improved, deteriorated, or remained the same? The participants responded that the recreational facilities had worsened in the past five years for the following reasons:

- **Maintenance.** The participants mentioned that the deterioration was evident because of the lack of maintenance, painting, and cleaning. The participants also noted that some of the recreational facilities do not have bathrooms available, or they do not have clean bathrooms.
- **Lack of personnel.** The participants expressed that most of the facilities do not have personnel to receive and orient the visitors. Additionally, the participants indicated that having these personnel would ensure the compliance of the regulations and proper use of the facilities.
- **Costs.** The participants expressed their concern with the high costs for parking and food. They argue that the privatization of some areas of the facilities to private entities have increased costs, which make difficult the access to the recreational facilities to the community members with scarce resources.

The moderator asked about the frequency of the utilization of outdoor activities in the past years. The participants responded that this varied according to the facility. The participant pointed out that the use of recreational facilities that allowed biking increased because of the growth and boom of this sport in the past years. However, there has been a decrease in the use of facilities for passive activities. In the family context, there has been a decrease in outdoor activities. The latter occurred because of the lack surveillance, fear, and lack of knowledge about how the municipality uses the money collected for parking and food in such facilities. During the focus group, the participants indicated that the recreational parks must adapt to changing times because nowadays families have an interest in carrying out activities together and there is a demand for popular competitive sports to share in family.

Positive aspects of outdoors activities in Puerto Rico

The participants identified the following positive aspects of outdoor activities:

- **New facilities.** The participants said that the construction of new facilities for the use of the community increases the availability of activities and options of the population. Additionally, the participants pinpointed that the new facilities are in excellent conditions and that these facilities have an adequate design for especial populations; additionally, they have very clean bathrooms.
- **Promotion.** The participants indicated that social media have become tools that have allowed the promotion of outdoor activities in Puerto Rico. The participants mentioned that visitors published the pictures of the places visited and the experiences they had in these facilities in their social media

accounts. In this way, visitors promote the facilities and other people become aware of to visit and use.

- **Multi-purpose recreational areas.** The participants indicated that these facilities offer more variety to the visitors, which increase the probabilities of use as participants have more options for recreation among the visitors.
- **More awareness of the needs of people with physical limitations.** The participants commented that the construction of the new facilities took into account the needs of this population.

Negative aspects of outdoor recreation in Puerto Rico

The participants pointed out some limitations of the recreational activities in Puerto Rico. These are:

- **Safety.** The participants commented that the facilities have no surveillance and that the visitors are the ones who offer this surveillance. Additionally, in some facilities, the cops only give tickets.
- **Need of more places for population with special needs.** The participants argue that nowadays there are few facilities suitable for people with disabilities. However, the participants highlighted that there has been consideration for this population in the new facilities. The participants also expressed that the construction of the new facilities considered the population with disabilities while the construction of the older facilities occurred many years ago and did not consider this population. The participants also mentioned that there is a need to improve current facilities to make them suitable to the population with physical disabilities.
- **Parking.** The participants indicated that the facilities have limited spaces to park the vehicles. Conversely, the facilities with parking spaces available have an excessive cost.
- **Lack of information.** The participants indicated that the community members have access to information; therefore, the agencies must update their Internet pages. Additionally, the participants mentioned the importance of having employees of the National Parks Company (NPC) with knowledge regarding the facilities, in order for them to orient people who communicate to obtain information. The participants said that in some occasions they called the NPC to request information and did not obtain it because of the lack of knowledge of the employees. The participants also mentioned that the brochures do not have updated information and the

agencies do not promote the new facilities or sites. Therefore, the participants have known about these sites or facilities from acquaintances.

- **Bureaucracy.** The participants said that bureaucracy affects outdoor activities. The participants mentioned that some associations have tried to establish contact with the agencies to establish management plans without obtaining a response from these entities. Additionally, the participants notified that, in occasions, the institutions serve as stone of stumbling to the groups. In addition, some associations have faced the difficulty of not having a place for their meetings and the entities have closed the doors to them without explanation.

Preferences

The moderator asked the participants about which are the principal factors when choosing a recreational facility. The participants commented the importance of having good management of the place, which will allow people to have a safe place. Additionally, there should be a person in the place establishing discipline and orienting all the population groups arriving at the facility. The participants also indicated the following:

- Availability of bathrooms
- Availability of drinking water
- Surveillance
- Far from a route of common transit
- Have regulations

Need for places/recreational activities

The participants commented, that although the newly built outdoor recreational facilities have accessibility features for people with physical disabilities, the older facilities need renovations in order to have more options for population groups with special needs. The participants mentioned as an example a platform in the reservoir Lake La Plata, which provides access to people with physical limitations. However, only La Plata has this type of platform in Puerto Rico, limiting that people residing in distant municipalities benefit from this feature. Additionally, the participants noted that there should be areas for shore anglers who do not have facilities for this activity.

Priority areas and suggested actions

During the focus group, the moderator asked the participants about the sectors from which they need collaboration and what recommendations they could offer to improve the areas and recreational activities in Puerto Rico. The participants responded the following:

- **Education.** The participants expressed the need of educating the community members regarding the importance of maintaining the facilities in good condition. Additionally, the participants commented that one of the strategies implemented in the United States was recycling. For example, visitors use the toilet papers that they bring to the place. The latter is the result of the awareness that those visitors have on the importance of using the resources available for the conservation of resources.
- **Collaborative agreements between agencies.** The participants suggested establishing agreements between the agencies for the distribution of tasks, like the maintenance of the facilities. According to the participants, there should be a plan to determine how each agency or association can contribute to the maintenance of the areas. The participants also noted that people realize and have awareness regarding the importance of the contribution of every person and groups for the proper functioning of the facilities.
- **Availability of resources in the facilities.** The participants pointed out, that the availability of a management officer at the facilities, there would be an increase of visitors because this officer will receive the visitors and orient them regarding the availability of recreational alternatives available at the site.
- **More involvement of the NPC in the maintenance of the reservoirs in Puerto Rico.** According to the participants, the NPC uses federal funding for wildlife and does not attend activities related to the reservoirs. The participants mentioned the importance of the involvement of the NPC.
- **Incorporate private entities.** The participants reported that private companies and nonprofit organizations should be part of the maintenance efforts of the facilities. The participants recommended that these private companies, as well as the community and other entities, participate in the cleaning activities of the facilities.
- **Volunteer help form the community members.** According to the participants, the community members must come together and volunteer to

maintain the facilities; for the latter the community needs to have a sense of belonging. Additionally, the participants mentioned that one of the municipalities updated the facilities and handed them to the community members. The community members developed groups responsible for the maintenance and accountability of the facilities, giving a monthly report to the municipality. Finally, the participants recommended engaging the youth and creating clubs that can join and participate in the maintenance of the facilities.

- **Promotion of the facilities.** On several occasions, the participants expressed their concern regarding the lack of knowledge of the population about the facilities available on the island. The participants mentioned that people do not know about the facilities available for their use.

Inventory of places for outdoor recreation

This chapter present the inventory of places for outdoor recreation. The inventory help to identify some of the core issues with outdoor recreation. This is another essential component of the SCORP. The main objective of the inventory is to know the availability of places for outdoor recreation in Puerto Rico. The information in this inventory, along with the rest of the SCORP, will helps in the development of the implementation plan.

The Land and Water Conservation Fund guidelines do not demand a detailed inventory around the whole jurisdiction. For Puerto Rico, the information of places for outdoor recreation came from governmental agencies and the municipalities.

Classification and Methodology

One of the main concerns with this year SCORP was short timeline to prepare the inventory. Because of this limitation, the inventory preparation process concentrated on getting the amount of places for outdoor recreation in each category. For this year SCOPR, three main categories divide the places in the inventory: parks and courts, natural places and other places for outdoor recreation. For the analysis, the outdoor recreation places were subcategorized in 31 more detailed areas that are listed below.

Table 26. Description of categories for places for outdoor recreation

Place for Outdoor Recreation	Description
Parks and courts	
National Park	It is all space, installation, building, beach, spa, forest, marine reserve, monument or historic resource or natural that due to its importance for all Puerto Ricans should be declared as such by Executive Order or under the laws of the Commonwealth of Puerto Rico. (As defined under the Act No. 9 OF 2001, Law of the National Parks System).
Municipal Park	Generally, it is a large park with a variety of facilities and recreational areas designated to respond to a municipal or regional clientele.
Athletics Stadium/Track	Stadium or track designed for use in the sport of athletics and its various events. In general, possess a track in oval shape and other areas for the various athletic events.
Community Park	A small neighborhood park, typically of passive recreation with green areas and that serves a limited geographical area.

Place for Outdoor Recreation	Description
Aquatic Park	A park identified by their aquatic facilities, which may include slides, pedal boats, pools, etc.
Equestrian Park	Place, public or private, for horseback riding either by pleasure, training or competition.
Aerial Park	A small airport, not military, which is used mainly by small airplanes, both private and commercial, where they are practiced recreational activities such as skydiving, among others.
Zoo	Public or private place permanently designated for the exhibition of animals.
Golf Course	A public or private place where you play golf, excluding the mini-golf course and the 'driving range'.
Tennis Court	Court with a rectangular and smooth surface that can be built in various materials and that contains a dividing net. Does not include the tennis courts which are under roof.
Natural places	
Botanical Garden	A public or private garden of considerable size where a wide variety of endemic or exotic vegetation is cultivated or handled, and whose main purpose is to provide contact with nature, relaxation and some component of education/experimentation for the public.
Forest	A forest that has been formally named as "a public utility" by the federal government, state or municipal.
Wildlife Refuges and Nature Reserves	A public wildlife area formally designated to protect the flora and fauna.
Beach (Balneario)	Waterfront recreational center with minimal facilities such as roads, parking, health services and showers, and whose main use are the sea baths.
Commonly used beach (open beach)	Every line of coast accessible to the general public and that are commonly used to practice the sport of surfing, bathing, etc. , but do not have facilities such as bathrooms or parking among others.
Area for underwater activities	Area commonly used for the observation of marine life, in which activities such as diving and snorkeling, among others are practiced.

Place for Outdoor Recreation	Description
Lake or Reservoir	Water bodies used for recreational purposes, usually on public land.
River, stream or waterfall	Surface water bodies that are used for recreational purposes.
Other places for outdoor recreation	
Marina	Area, public or private, where boats are stored for recreation in docks, slips, or dry stacks.
Area for picnic or kiosks	Formally designated area that contains rustic or semi-rustic kiosks that typically offer local food or that can be used for picnic.
Track for cross-country vehicles	Area specifically designated for off-road vehicles, either for recreational or competitive use. (This may be for all-terrain vehicles and include four tracks, motorcycles, etc.)
Velodrome	Area specifically designated for bicycle races and competitions.
Path for bicycle	A sidewalk of variable surface in public or private land accessible to the public and used primarily for running bike.
Vacation Center	Facilities formally designated by a federal, state or municipal agency as an area for social tourism, which is usually an overnight stay in rustic cabins.
Historic Site	A place, monument or other place renowned for its historic merits, which have been formally designated as such and are accessible to the public.
Public Square	A square open to the public and that traditionally is located in the historical center of the municipalities, however, in some cities there may be more of a plaza in more than one site.
Trail for runners or walkers	Sidewalks in public or private areas accessible to the public, mainly used for walking or jogging.
Pool	Pools, excluding those located in private residences
Anchor Area	Coastal areas designated as areas to anchor or ensure small boats, can be mooring buoys.
Camping area	Public or private areas that have been designated to accommodate tents and/or vehicles or trailers for camping.

Place for Outdoor Recreation	Description
Boat Ramp	Ramps that are built on natural areas and are mainly used for small boats and usually have facilities for parking in the area.

The information was obtained mainly from federal, state and municipal government agencies. The governmental agencies in charge of places for outdoor recreation in Puerto Rico are listed below.

- Local Agencies
 - National Parks Company
 - Department of Sports and Recreation
 - Department of Natural and Environmental Resources
 - Institute of Puerto Rican Culture
- Federal
 - U.S. National Park Service
 - U.S. Forest Service
 - U.S. Fish and Wildlife Service
- Municipal
 - The 78 municipalities from Puerto Rico

The federal and local agencies provided lists of places for outdoor recreation in Puerto Rico with the location in term of municipality. A table was provided to the municipalities. In this table, the person that offers the information entered the number of each of the subcategories of places for outdoor recreation.

A total of 67 municipalities completed the table with the information provided or offered information that allows the completion of the table. This information was consolidated and complemented with the information from the other agencies.

Most of the municipalities do not maintain an inventory of places for outdoor recreation in their geographic area. This could be the effect of the change of many of the municipal governments during the last year's election. Also, historically some of the municipalities do not collect that information, especially for the places they do not administer. This limit the amount of information they provide in this inventory.

Findings

The information from the different sources was combined to determine the number of places for outdoor recreation in Puerto Rico. As part of this inventory, a total of 4,515 places for outdoor recreation were identified. This amount represents 594 more places identified in comparison with the 2007 SCORP. The main difference was that the municipalities identified more neighborhood parks and historic sites for this inventory in

comparison to the previous SCORP. At the same time, more trails and rivers, streams or waterfalls were identified.

Table 27. Distribution of places for outdoor recreation

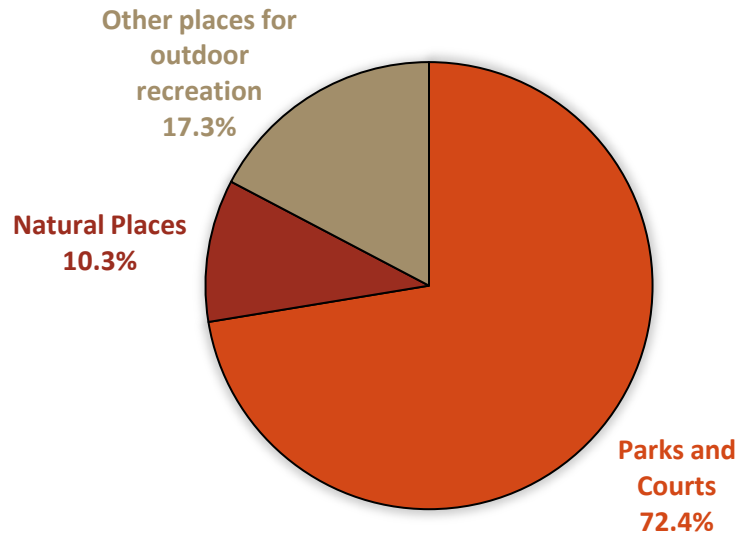
Parks and Courts	Number	Percent
National Parks*	22	-
Regional/Municipal Parks	2005	44.41
Community Parks	955	21.15
Tennis Courts	180	3.99
Athletics Stadiums/Tracks	83	1.84
Golf Courses	18	0.40
Aquatic Parks	15	0.33
Equestrian Parks	10	0.22
Zoo	2	0.04
Aerial Parks	1	0.02
Natural Places	Number	Percent
Commonly used beaches (open beaches)	168	3.72
Rivers, streams or waterfalls	126	2.79
Wildlife Refuges and Nature Reserves	47	1.04
Areas for underwater activities	40	0.89
Lake or Reservoirs	35	0.78
Forests	22	0.49
Beaches (Balnearios)	21	0.47
Botanical Gardens	8	0.18
Other places for outdoor recreation	Number	Percent
Historic Sites	185	4.10
Public Squares	156	3.46
Area for picnic or kiosks	118	2.61
Trails for runners or walkers	102	2.26
Pools	55	1.22
Boat Ramps	54	1.20
Anchor Areas	30	0.66
Camping areas	25	0.55
Marinas	21	0.47
Paths for bicycles	21	0.47
Track for cross-country vehicles	9	0.20
Vacation Centers	6	0.13
Velodrome	3	0.07

*Not added to the total, distributed in other categories

Parks and Courts

The parks and courts are by far the most common places for outdoor recreation in Puerto Rico. They represent the 72.4% of the places for outdoor recreation (Figure 20). There were a total of 3,269 parks and courts identified in the inventory. The most common types of parks are municipal parks and neighborhood parks. This amount of parks is the result of multiple initiatives during the years that focus in this type of place for recreation.

Figure 20. Distribution of places for outdoor recreation by category



The proportion of parks and courts is similar to the one presented in the 2007 SCORP. Most of this park are administered by the municipalities.

National Parks

Maybe the most important parks in Puerto Rico are the National Parks. There are 22 National Parks, the majority of them been Balnearios (beaches) and Vacation Centers. Some of this beaches are among the best in Puerto Rico, with five been granted the Blue Flag Award¹. Below is the list of the National Parks and their location.

List of Puerto Rico National Parks

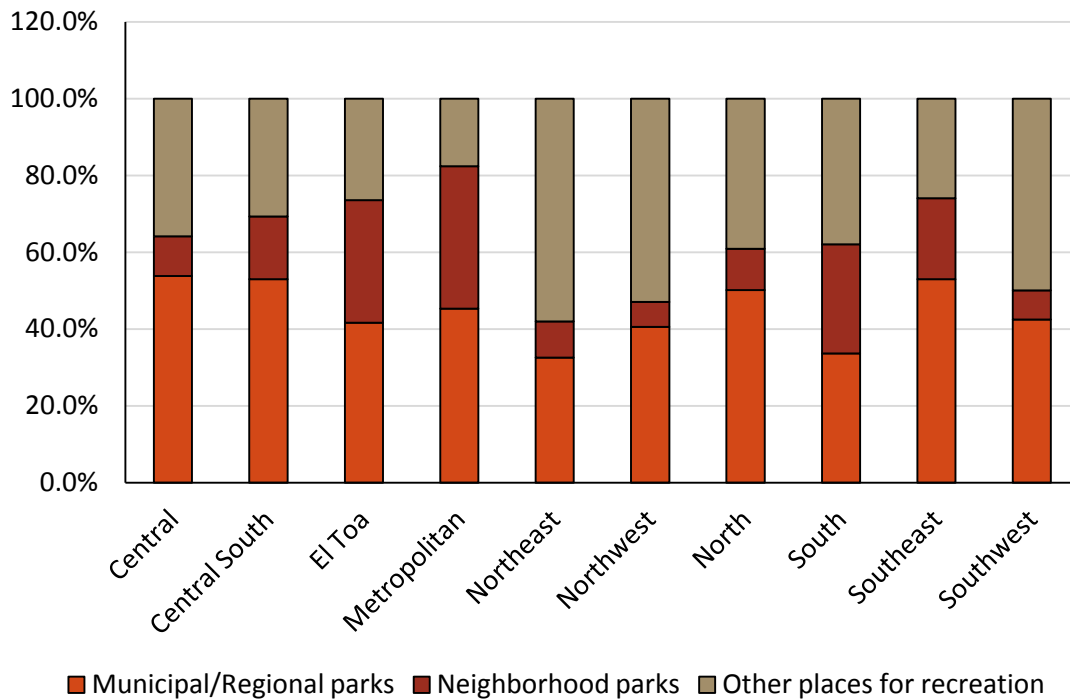
¹ Blue Flag is a program of international recognition given to beaches and marinas that meet high standards for security, services, environmental management, water quality, environmental education and information.

- Balneario Playita del Condado in San Juan
- Balneario La Monserrate in Luquillo
- Balneario Seven Seas in Fajardo
- Balneario Sun Bay in Vieques
- Baleario Punta Salinas in Toa Baja
- Balneario Manuel “Nolo” Morales in Dorado
- Balneario Cerro Gordo in Vega Alta
- Balneario Caña Gorda in Guanica
- Punta Santiago Vacation Center in Humacao
- Punta Guilarte Vacation Center in Arroyo
- Lago Caonillas Vacation Center in Utuado
- Villas de Añasco Vacation Center in Añasco
- Boqueron Vacation Center in Cabo Rojo
- Monte del Estado Vacation Center in Maricao
- Las Nereidas Square in San Juan
- Libertad Square in San Juan
- Julio E. Monagas Park in Bayamón
- Luis Muñoz Rivera Park in San Juan
- Isla de Cabras Park in Cataño
- Enrique Martí Coll Linear Walk in San Juan
- Rio Camuy Cave Park in Camuy
- Puerto Rico Zoo in Mayagüez

Other parks or courts

As stated above, the parks are the most common type of place for outdoor recreation in Puerto Rico. The majority of the municipal and neighborhood parks are baseball/softball parks and basketball courts. The current regulation for new residential project demands a minimum of common, open spaces for recreation, education and cultural activities. The changes in demography characteristics and demands of the population will require more diversity in the offer of parks and recreation areas, including more areas for passive recreation.

There are differences in the proportions of municipal/regional parks and neighborhood parks among the regions. In some regions like the Metropolitan, Southeast and El Toa over 70% of the places for outdoor recreation are municipal/regional parks or neighborhood parks; and in other regions like the Northeast and Northwest less than half of their places for outdoor recreation are this type of parks (Figure 21).

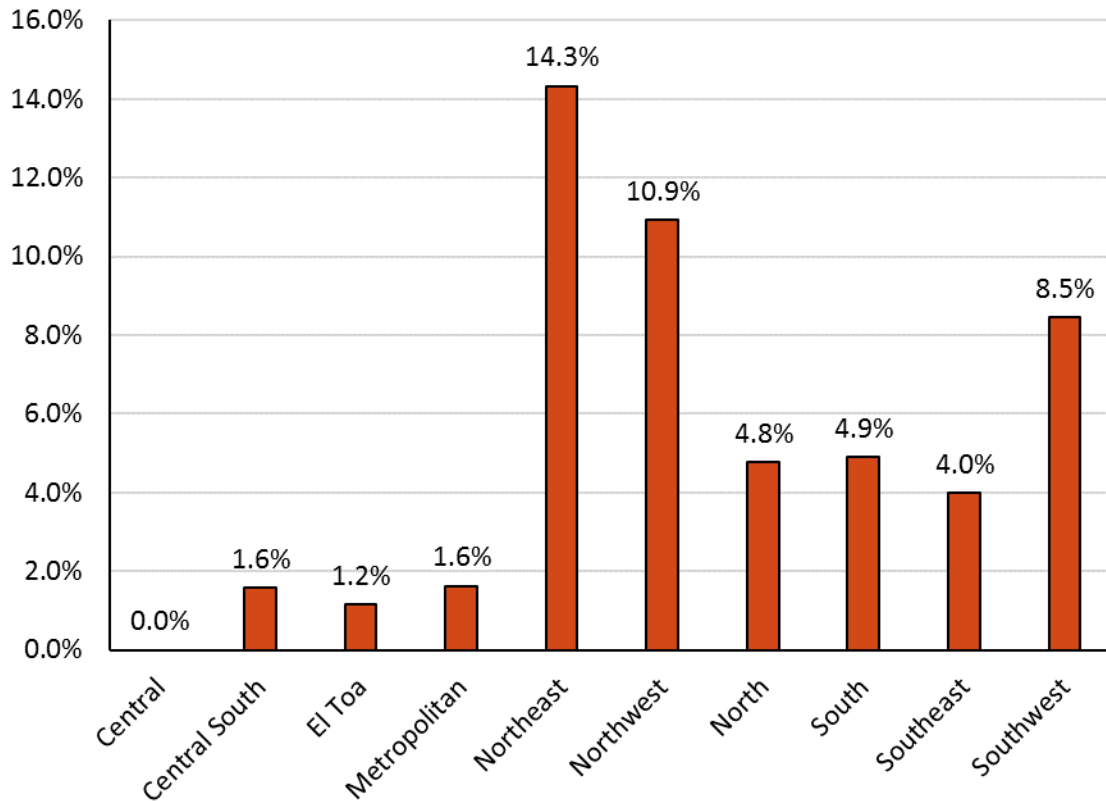
Figure 21. Proportion of parks among the places for outdoor recreation by region

The other subcategory inside the parks and courts with a considerable number is the tennis courts. The tennis courts represent the 4% of all the places for outdoor recreation. The rest of the parks subcategories represent less than 2% of the places for outdoor recreation, and there are limitations on in term of availability in some of the regions. For example, half of the regions do not have a golf course.

Natural Places

Puerto Rico has a lot of natural resources that serve as places for outdoor recreation. The beaches are one of the most important and valuable recreational areas in Puerto Rico. The balnearios and the open beaches represent the 4.2% of the places for outdoor recreation. Puerto Rico have seven beaches with the Blue Flag award of which five are National Parks Balnearios.

In some regions like the Northeast and the Northwest the beaches represent over 10% of the places for outdoor recreation. In the other hands, because of the geographic location some regions do not have beaches (Figure 22).

Figure 22. Proportion of beaches among the places for outdoor recreation by region

Some of the beaches also offer opportunities for underwater activities like diving and snorkeling. These areas are concentrated in the Northeast and Northwest regions. It is important to emphasize that not all the beaches are safe for the population. The Department of Natural and Environmental Resources has a list of the beaches suitable for swimmers. This list includes a total of 52 beaches suitable for swimmers.

The forests are other areas of great importance because they offer opportunities for passive recreation like hiking, walking, picnic and natural photography. The most important forest in Puerto Rico is El Yunque National Forest. El Yunque is the only tropical rain forest in the U.S. National Forest system. This forest contains over 240 species of native trees, of which 88 are rare, and 23 are only found in the forest. The forest also has a great diversity of animal species. The rest of the forest in Puerto Rico are state forest including a dry forest.

Among the rest of natural places for outdoor recreation, this inventory has more botanical gardens and rivers, streams or waterfalls than the previous inventory of 2007. Contrary to other the natural areas for outdoor recreation, most of the rivers, streams and waterfall are not designated for recreation. The population need to be aware of the risks of participating in outdoor recreation activities in this places.

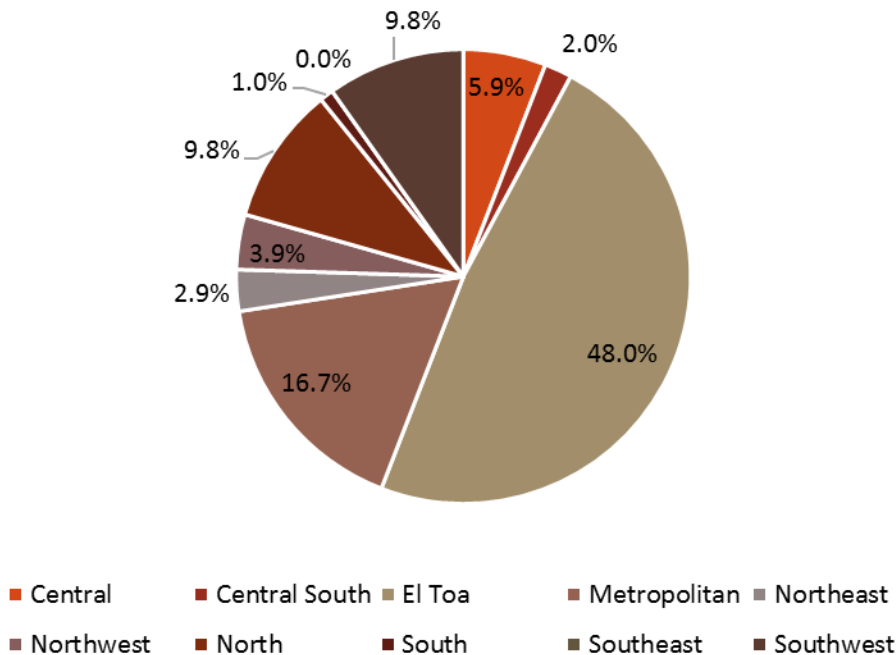
Other places for outdoor recreation

The information for other places for outdoor recreation was offered by the municipalities. This includes information about public squares, historic sites, pools, trails and areas for picnics, among others. The number of historic sites in this inventory is greater than the 2007 inventory. It is recommended another more detailed inventory to collect more detailed information about this places. Some of the most known historic places are located in the Old San Juan area. This historic places include Castillo San Felipe del Morro and Paseo La Princesa, among others.

All the municipalities have at least one public square. This public squares offer open space for outdoor recreation. Most of the municipalities offers concerts and other cultural events in this places. Some of the biggest municipalities have more than one public square.

According to the demand study, one of the most demanded places for outdoor recreation are the trails for walking. Even when there is an increase in the number of trails reported in this inventory, this type of place for outdoor recreation is not common in Puerto Rico. Additionally, most of the current trails are concentrated in El Toa and Metropolitan regions with some other regions lacking this type of places (Figure 23).

Figure 23. Distribution of trails for running or walking by region



The pools are important places for outdoor recreation. The number of pools in this inventory is considerably smaller compared to the previous inventory in 2007. One of the factors for this could be that the new governmental official does not have the information of these facilities. No matter the case, the number of public pools have been decreasing over time. The pools are more common in residential complexes with controlled access than in the rest of the areas of the municipalities.

WETLANDS

Wetlands are an important resource for recreation. They were incorporated as a component to the Statewide Comprehensive Outdoor Recreation Plan (SCORP) under Law Number 99-645 of 1986, as amended, known as the Emergency Wetlands Resources Act. In the SCORP, the wetland component requirements must be consistent with the National Wetlands Priority Conservation Plan. For that, it is necessary to provide evidence of consultation with the State Government agency responsible for fisheries and wildlife resources and contain a list of the types of wetlands that should get priority to be acquired (Compañía de Parques Nacionales de Puerto Rico, 2003). To incorporate the component of wetlands in the SCORP offers the opportunity to place it as a priority that can reveal useful information in the decision making, planning, in the setting of priorities for its acquisition, and its importance as a resource for outdoor recreation (Compañía de Parques Nacionales de Puerto Rico, 2003; Puerto Rico Coastal Management Program, 2011).

Wetlands Definition, Characteristics, and Categories

In Puerto Rico, the public policy on wetlands, defines them as transitional areas between terrestrial and aquatic systems with the characteristic that are frequently flooded or saturated by shallow waters and groundwater over a period of time. As a result, creates changes in the soil, which enables them to grow a type of vegetation particularly adapted to live in such conditions (Casas, n.d.). Wetlands may or may not have vegetation and are classified based on their hydrology, vegetation, and substrate (soil) (Casas, n.d.; Adams, n.d.).

Among its functions and values, the wetlands serve as habitat for a variety of species such as fish, birds, and mammals. Additionally, they regulate the flow of rainwater, reduce the effect of the floods, control soil erosion, serve as buffers against pollutants in water, and recharge aquifers. The wetlands are also of great economic importance for commercial fishing and recreational and educational uses. In spite of its importance, the activities carried out by the human being, such as housing development, road constructions, and agricultural development, among others, have caused deterioration and loss of these natural resources (Adams, n.d.).

In Puerto Rico, there are seven categories of wetlands: (a) saltwater aquatic, (b) saltwater coastal flat, (c) salt water marsh, (d) salt water swamp, (e) freshwater aquatic, (f) freshwater marsh, and (g) freshwater swamp (Casas, n.d.). In this document, I will use Cowardin, Carter, Golet, and LaRoe's (1979) classification systems. The U.S. Fish and Wildlife Service uses this system, which groups wetlands into five major systems: (a) palustrine, (b) estuarine, (c) marine, (d) lacustrine, and (d) riverine (Cowardine et al., 1979). Palustrine and estuarine systems represent the majority of wetlands in Puerto

Rico; however, some authors mentioned marine system as the third major wetland system in Puerto Rico (Adams, n.d.; Departamento de Recursos Naturales y Ambientales, 2008; Junta de Calidad Ambiental, n.d.). Only palustrines systems have wetlands, other systems are composed of wetlands and deep-water habitats (Cowardine et al., 1979).

- a) Palustrine: it is found in freshwater indoor subject to the ebb and flow of tides. Dominated by trees, shrubs, and herbaceous plants in persistent development, upright and deep-rooted or submerged plants and/or floating. Among its variety, there are swamps, marshes, wet meadows, grottoes, and ponds that are small and shallow. Additionally, there are open bodies of water that cover less than 20 acres, and which depth is less than 6.6 feet.
- b) Estuarine: affected by tides, in environments with low-energy waves, where the salinity of the water is higher than 0.5 parts per thousand and it is variable due to evaporation and the mixture of seawater with fresh water. They are generally semi-closed by overland with partially clogged output with sporadic access to the ocean. These include coastal rivers, deltas, coastal lagoons, mud flats, and mangroves.
- c) Marine: it is exposed to waves and currents of the open sea, and waters of salinity greater than 30 parts per thousand; as the areas of open sea and its coasts. These include coral reefs and seagrass marine herbs.
- d) Lacustrine: it is found in fresh water subject to the ebb and flow of the tides, inside of a lake or reservoir greater than 20 acres and/or a greater depth of 6.6 feet that is flooded permanently or intermittently. If there is vegetation, it consists primarily of emergent plants of seasonal development and temporary submerged and/or floating plants, or both. Additionally, they are limited to flat areas of lakes and reservoir with a salinity of the water that comes from the ocean lower than 0.5 parts per thousand.
- e) Riverine: it is found in fresh water subject to the ebb and flow of the tides, within a channel. Its vegetation is equal to that of the lacustrine system and are limited to flat areas of rivers, lakes, ponds, and streams flows (Adams, n.d.; Casas, n.d.; Cowardin, Carter, Golet, & LaRoe, 1979; Departamento de Recursos Naturales y Ambientales, 2008; Junta de Calidad Ambiental, n.d.).

Wetlands in Puerto Rico

The main factor controlling the diversity and uniqueness of the wetlands on the island is the hydrologic framework. The latter is because Puerto Rico has a subtropical climate, abundant rain, and complex topographical and geological forms giving rise to the wetlands. These vary from forests in the highlands to the mangroves, seagrass and coral reefs along the north and south coast of the island; considered to be of great value for

wildlife (Adams, n.d.). In recent years, wetlands have diminished by the increase of agricultural and maritime development.

The lacustrine and riverine systems in Puerto Rico consist mostly of deep-water habitats. The areas on open sea of the estuarine and marine systems contain wetlands and deep-water habitats. Marine wetlands in Puerto Rico include non-consolidated coasts and wetlands for water buffer (Adams, n.d.). There is around 233,514,443.82 m² of marine wetlands; of these 11.07% or 25,859,389.51 m² are protected. From the latter, there are 43.13% or 10,536.12 m² of coral reefs remain protected (Junta de Calidad Ambiental, s.f.)

The palustrine wetland in Puerto Rico has a particular type called "Pterocarpus" known as pallo rosewood forest. Other types can be found pygmy (dwarf) forest, redwood forest, and the palm forest. For example, El Yunque, has acres of the types of forest previously mentioned. Freshwater swamps are other types of emerging palustrine wetlands. One of the largest freshwater swamps is the Caño Tiburones near Arecibo (U.S. & Wildlife Service, s.f.); additionally, there is Laguna Cartagena in Lajas (Adams, s.f.). There is around 321,869,061.30 m² palustrinos wetlands, among these 4.08% or 13,145,132.46 m² are protected (Environmental Quality Board, n.d.).

The most extensive estuarine wetlands on the island are the mangrove forests where the predominant mangroves are red, white, black, and button. The most extensive mangrove in Puerto Rico is located next to the east area of the metropolitan area of San Juan, including wetlands, beaches, and habitats associated with the open sea. Meanwhile, those along the southern coast of the south of the island there are called mangrove habitats. The (emerging) estuarine wetlands are not common on the island (Adams, n.d.). There is around 322,862,969.61 m² of wetlands palustrines, where 23.38% or 75,478,905.04 m² are protected (Junta de Calidad Ambiental, n.d.).

The precipitation and evaporation are factors that affect the type and diversity of wetlands in Puerto Rico (Adams, n.d.). The main types of wetlands in Puerto Rico are summarized as follow:

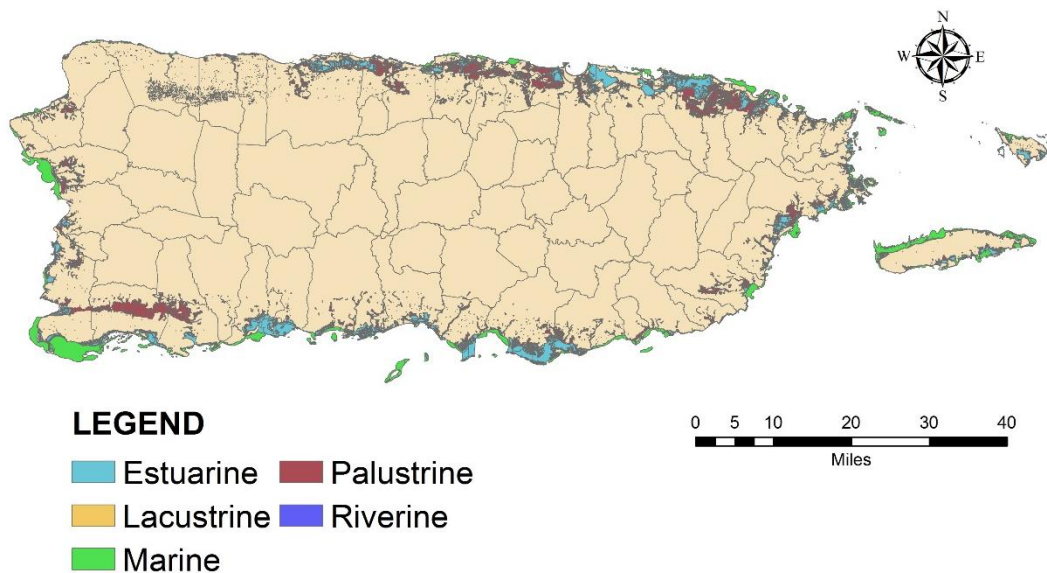
- (a) Palustrine wetlands (red, dwarf forest, hillside palms, riverine palms; "palo de pollo" mangrove, and "palo de pollo" mangrove marsh and swamp)
- (b) Estuarine wetlands (mangrove)
- (c) Marine wetlands (seagrass and coral reefs)

There are about 670 species of vascular plants (many are only found in the wetlands), which show a high degree of attachment to flooded or saturated permanent or semi-permanent land areas; composing the flora of the wetlands in Puerto Rico. According to the Natural Resources Conservation Service, among the plants that could be used in

reforestation projects in wetlands there are various types of herbaceous plants, grasses, shrubs/trees and lianas (Casas, n.d.).

At present, no reliable estimates are available on the extension of the original wetlands on the island. However, the wetlands have greatly reduced in number and size as the result of the agricultural development and population growth of the past decades. Virtually all wetland, except for those in high grounds, have suffered some damage due to the attempt to drain the land for other uses (Adams, n.d.).

Figure 24. Wetlands in Puerto Rico



Management and Prevention of Wetlands

The management and preservation of the wetlands in Puerto Rico consists of the involvement of both governmental and private agencies. The development of federal activities in wetlands is regulated by several federal incentives and statutory prohibitions developed for the reduction of the loss of the wetlands (Adams, n.d.).

The federal government is authorized to purchase lands from owners for conservation purposes in order to protect and restore wetlands according to the program of reserve of wetlands from the Law of Food, Agriculture, Conservation, and Trade of 1990. Additionally, promotes the protection of wetlands through economic incentives bases the Wetland Emergency Act of 1986 and the Management of the Coastal Zone Act (Adams, n.d.).

Meanwhile, the activities of the commonwealth of Puerto Rico are under the Management of the Coastal Zone Act of 1972, where it developed a management plan for integrating the protection of wetlands (mangroves) (PMZCPR). This plan required a certificate of compliance for grant activities in the mangroves. The Planning Board of Puerto Rico was the agency responsible of the administration of the plan (Adams, n.d.).

There are lists of wetlands in order of priority and area developed by the Department of Natural and Environmental Resources and the U.S. Fish and Wildlife Service. In addition, the national heritage program of the Department of Natural and Environmental Resources developed programs for the restoration and management of wetlands of exceptional importance as those of Caño Tiburones and the lagoon of Guánica (Adams, s.f.)

The Conservation Trust of Puerto Rico is the main private organization actively involved in the preservation and management of wetlands. However, this responsibility falls on several state and federal agencies such as the Environmental Quality Board, the Planning Board, the Department of Natural Resources and Environment, the U.S. Fish and Wildlife Service, United States Army Corps of Engineers, and the Environmental Protection Agency (Adams, n.d.).

Protected Wetlands

It is estimated that there are approximately 878.2465 km² of wetlands. However, 60.91% of them have not been evaluated for its ecological value in order to determine if they need to be protected from human intervention. The more impacted wetlands have been those from the coast as the result of the tourism, commercial, and urban development. Three-quarters of the original mangrove of Puerto Rico were destroyed, reclaimed and/or engaged in other agricultural uses (Departamento de Recursos Naturales y Ambientales, 2008). Wetlands are protected primarily through section 404 of the Clean Water Act and the Act of Public Policy on wetlands in Puerto Rico (Compañía de Parques Nacionales de Puerto Rico, 2003). Protected areas have been designated as nature reserves, state forests, national wildlife refuges, or as national estuarine reserve for research. The Environmental Protection Agency granted the Department of Natural and Environmental Resources a subsidy of nearly \$250 thousand for the protection of wetlands. The Department is evaluating the potential impacts of human activity and climate change in the wetlands of Puerto Rico. These funds provide opportunities for environmental agencies conduct research that contributes to the comprehensive programs, at the local level, in the improvement and restoration of wetlands (Kantrow II, 2013).

Natural Reserves

The areas identified as natural reserves have natural resources that merit the conservation, preservation, or restoration of its natural condition based on their physical, ecological, or geographical characteristics, or social value (Departamento de Recursos Naturales y Ambientales, 2008). In Puerto Rico, these areas have been designated by the PMZCPR and through other special laws. The Division of Coastal Zone takes the initiative to identify and delineate the flooded and not flooded areas for submission to the Planning Board in order to be designated as nature reserves (Puerto Rico Coastal Management Program, 2011). Both the Department of Natural and Environmental Resources and the Planning Board are the leaders in deploying the creation of these protected areas. However, the latter is responsible for each nomination, approval of a management plan to conserve, preserve, and restore these natural resources. The Planning Board has designated 30 natural reserves at the request of the Department of Natural and Environmental Resources, while seven natural reserves have been designated by the legislature of Puerto Rico (Departamento de Recursos Naturales y Ambientales, 2008).

Table 28. Natural reserves in Puerto Rico

Name	Municipality
Arrecife Guayama	Guayama
Arrecife Tourmaline	Mayagüez
Bahías Bioluminiscentes	Vieques
Boquerón	Cabo Rojo
Cabezas de San Juan	Fajardo
Caja de Muerto	Ponce
Canal Luis Peña	Culebras
Caño Tiburones	Arecibo
Cueva del Indio	Arecibo
Hacienda la Esperanza	Manatí
La Cordillera	From east to west in the Island
La Parguera	Lajas
Mona y Monito	50 milles to the west of Mayagüez
Pantano Cibuco	Vega Baja
Punta Guanaquilla	Cabo Rojo
Punta Petrona	Santa Isabel
Punta Yegua	Yabucoa
Rio Espiritu Santo	Rio Grande

(Departamento de Recursos Naturales y Ambientales, 2008; Evelio & Fonseca, 1992; Schärer, Váldez-Pizzini, Rivera-Velázquez, Almodóvar, & Granell, 2004)

Estuaries with Important Wetlands in Puerto Rico

There are two estuaries of great importance in Puerto Rico: (a) San Juan Bay estuary and (b) the Estuarine Research Reserve of the Jobos Bay. The latter is the second largest estuary on the island with approximately 2,883 acres, including several types of wetlands and consists of a chain of fifteen small mangrove islands as Cayo Caribe and Mar Negro (Compañía de Parques Nacionales de Puerto Rico, 2003). The San Juan Bay estuary is one of the most particular estuaries of Puerto Rico due to its location is in a densely populated, urbanized, commercialized, and industrialized area. This estuary is composed of several rivers, creeks, and lagoons; additionally, is virtually enclosed within one of the most active ports of the Western Hemisphere (Junta de Calidad Ambiental, s.f.). In addition, for its economic importance and ecology for future generations it is the only estuary under the National Estuaries Program of the Environmental Protection Agency (Compañía de Parques Nacionales de Puerto Rico, 2003).

The waters of the estuary of the Bay of San Juan have two classifications of use. The first classification is coastal and estuarine water intended for the use of recreation and contact, propagation, and preservation of species. Its second classification is surface water destined for use for the supply of drinking water, as well as for the preservation and propagation of species and for recreation (Junta de Calidad Ambiental, s.f.). This estuary contains a variety of wetland systems, such as herbaceous and small estuaries, and extends from Isla de Cabra (west) to Punta Vacía Talega (east). The sea water enters through the Boca del Morro, at the entrance of the Bay of San Juan, the Boquerón in the Condado lagoon y Boca de Cangrejos, between the municipalities of Carolina and Loíza (Compañía de Parques Nacionales de Puerto Rico, 2003). Aside from natural systems, the San Juan Bay has as a valuable resource being the main port of Puerto Rico. Its geographical area has been used for outdoor recreation, with a comprehensive management of conservation plan that seeks to preserve (conserve) and improve the natural environment, among other purposes (Compañía de Parques Nacionales de Puerto Rico, 2003).

Mangroves Forest – Wetlands in Areas of Special Planning

The concept of mangrove concept is used to identify wetlands where there are communities of species of trees or shrubs. They are classified as edge mangrove, Mangrove Island, riverine mangrove, basin mangrove, dwarf mangrove, and hammock mangrove. Although there are various laws that protect mangroves, such as Act No. 6 of February 29, 1968; Act No. 133 from June 1, 197; and Act No. 1 from June 27, 1977 (Departamento de Recursos Naturales y Ambientales, 2008), more than half of the original 30 thousand acres of mangrove forests in Puerto Rico has been destroyed (Adams, s.f.). In spite of the available laws that protect the mangroves, they are fill out for the construction of houses, transport facilities, highways, and dumping sites (Lugo,

1988). Other mangroves are destroyed by the digging for marines and canals (Adams, n.d.).

According to the SCORP for 2003-2008, the Puerto Rico coastal management program classifies the areas that are subject to conflicting uses and areas that require special attention as special planning areas. Mangroves are under this classification and have a management plan prepared in 2003. This plan includes a recreation program, which identifies and promotes practices of passive recreation in mangroves in the Bay of Jobos, forest of *Pterocarpus* of Humacao, Boqueron State Forest, State Forest of Piñones, Caja de Muertos, Flamenco in Culebra, Laguna Grande in Fajardo, and Puerto Mosquito in Vieques. Finally, this plan recommends the development of an educational program focused on environmentally sensitive areas that is addressed to users and visitors (Compañía de Parques Nacionales de Puerto Rico, 2003).

Conservation Priority Areas

Under the Act No. 150 of August 4, 1988, the Program of National Heritage (PPN, in Spanish) was created under the Department of Natural and Environmental Resources. This Act gave the program the responsibility to identify for its protection and preservation areas in Puerto Rico areas that were environmentally sensitive. These areas must be in danger or threatened, rare, peripherals and endemic, or of be special interest (Programa de Patrimonio Natural, s.f). Additionally, it authorizes the PPN to establish areas with conservation priority (APC, in Spanish), which are areas that have priority to be acquired.

To achieve its objectives, the PPN uses strategies such as buying areas, donations, rentals and/or transfers of ownership or responsibility of handling, agreements and contracts, financing, both recurrent and non-recurring funds and projects (Compañía de Parques Nacionales de Puerto Rico, 2003). The PPN established on the island APC including wetlands; some of these wetlands identified in these APC are natural reserves. Example of these areas include the Cabezas de San Juan in Fajardo, Caño Tiburón in Arecibo, La Parguera in Lajas, Punta Yegua in Yabucoa and the islands of Culebra and Vieques (Departamento de Recursos Naturales y Ambientales, 2008).

Table 29. Conservation Priority Areas (CPA) with wetlands

CPA	Municipality
Anegado de Cayures	Aguada
Bahía Ballena	Guánica
Bahía Montalva	Guánica y Lajas
Bosque de Pterocarpus y Bosque Costero	Dorado
Bosque de Pterocarpus y lagunas	Humacao
Cabezas de San Juan	Fajardo
Caño Boquilla	Mayagüez
Caño Corazones	Mayagüez y Cabo Rojo
Caño Tiburones	Arecibo, Barceloneta y Manatí
Charca del Fuerte Buchanan	Bayamón
Charca La Tembladera	Arecibo
Ciénaga Baja	Rio Grande
Ciénaga Cuevas	Cabo Rojo
Ciénaga Cucharillas	Cataño, Guaynabo y Bayamón
Ciénaga San Pedro	Toa Baja
Corredor Ecológico del Noreste	Luquillo y Fajardo
Culebra	Culebra
Ensenada Comezón – Las Picúas	Rio Grande
Lago Puerto Nuevo	Vega Baja
Lago Serrallés	Ponce
Laguna Aguas Prietas	Fajardo
Lagunas de Humacao	Humacao
Laguna Guánica	Cabo Rojo, Lajas y Guánica
Laguna Joyudas	Cabo Rojo
Laguna Tortuguero, Cabo Caribe y Ciénaga Prieta	Manatí, Vega Alta, Vega Baja y Dorado
Lluveras – Punta Verraco	Guayanilla
Manglar Cabuyón	Ponce

CPA	Municipality
Manglar de Carrizales	Hatillo
Manglar Guanajibo	Mayagüez
Manglar Puerto Real	Cabo Rojo
Manglar Punta Petrona	Santa Isabel
Mar Negro	Salinas
Pantano Sabaneras	Mayagüez
Piñones – Rio Mameyes	Carolina, Loíza, Canóvanas, Rio Grande y Luquillo
Playa de Fajardo – Cayo Algodones	Fajardo, Ceiba y Naguabo
Pozo Hondeo	Añasco
Punta Arenas	Cabo Rojo
Punta Pozuelo	Salinas y Guayama
Punta Tuna	Maunabo
Reserva de Aguas	Coamo
Salitrales de Cabo Rojo	Cabo Rojo
Salitrales de Roosevelt Roads	Ceiba
San Jacinto	Guánica
Quebrada Bellaca	Quebradillas y Camuy
Vieques	Vieques

(Departament of Natural and Enviromental Resources, n.d.)

Opportunities Identification

The opportunities for improvement can be identified once the demographic profile, the demand study, and the inventory of recreational facilities are completed. This chapter identifies the main opportunities for improvement and presents the main areas in which the National Parks Company can focus their planning efforts in the next five years.

The demographics changes in Puerto Rico are an essential aspect to consider for outdoor recreation. The population is decreasing at a fast pace, and at the same time is getting older. This means that there are fewer children and more elders in Puerto Rico. At some point in the near future, the elder population will surpass the population 18 years of age and under. Because the outdoor recreation needs and demands change dramatically with age, this changes need to be taken into account.

The aging of the population is perhaps the most important demographic change to take in consideration. According to the demand study, the older the persons, less outdoor recreation activities they participate. In addition, as the people get older, they tend to participate more in passive outdoor activities and in activities near their community.

Other determining factors for outdoor recreation include Puerto Rico's lowest income levels and the highest poverty levels of any USA jurisdiction. Therefore, people in Puerto Rico have less money to spend in outdoor recreation than in other jurisdictions. The agencies need to plan accordingly if they want to improve the outdoor recreation.

According to the participants of the demand study, there are several problems and limitations affecting outdoor recreation in Puerto Rico. The agencies need to address these aspects in order to improve the outdoor recreation.

Issue number 1. Security

The lack of security in places for outdoor recreation was the main problem highlighted during the study. The lack of surveillance causes problems and is one of the main determinants for vandalism in outdoor recreation facilities. People do not feel safe participating in outdoor recreation, and they fear being victims of robbery or being involved in violent incidents. Fear of violence has an association with low levels of physical activities and outdoor recreation (Roman, Stodolska, Yahner, & Shinew, 2012). People's fear is understandable because of high crimes and homicide rates of the past years.

The lack of proper illumination in some places for outdoor recreation is another aspect related to security that needs to be considered. The representatives from the municipalities argue that they do not have the resources to maintain proper lightning in all their places for outdoor recreation. The latter occurs because of the high cost and difficulty in maintaining all the facilities. The places for outdoor recreation that are

located in rural areas are more difficult to maintain than the urban areas, so it takes more time to resolve these issues. There is a reality that most municipalities have serious economic limitations; therefore, resolving this issue without help from other sectors will be extremely hard.

This combination of factors caused a decrease to the level of satisfaction for outdoor recreation compared to the demand study of 2007. The improvement of security in outdoor recreation areas must be a priority to improve the experience of these activities among the population.

Issue number 2. Lack of information

The participants mentioned that there is lack of information about the places of outdoor recreation. According to the people, most of the agencies webpages and promotional brochures have outdated information about the recreational places available for outdoor recreation. Some of these pages are hard to navigate, which makes finding the information difficult.

There is limited to non-existent promotion of the new places for outdoor recreation from the agencies. Therefore, it is hard for the population to learn about new places for outdoor recreation. Generally, the visitors of these places promote them on their social media pages. The latter is a limitation because it is only seen by people who have access to social media and are able to get the information. Agencies need to be more active in the promotion of the new and existing places for outdoor recreation in order that locals and tourist use them.

Issue number 3. Opportunities to outdoor recreation for people with disabilities and elder population

There is a limitation for outdoor recreation opportunities for people with disabilities and other groups like the elder population. Participants of the demand study mentioned that these population groups and women participate less in outdoor recreation activities. In a recent study, some population groups perceive they were constrained from participating in recreation activities; these groups were minorities, women, people with low income, less educational levels, and elderly populations. The constraints that these populations encountered lowered their participation in outdoor recreation activities (Green, Bowker, Wang, Cordell, & Johnson).

The participation of people with disabilities and the elder population in outdoor recreation is important for their physical and mental health. Degenhardt, Frick, Buchecker, and Gutscher (2011) found that contact with nature has a positive impact on the people well-being and overall health. Additionally, Wilson and Christensen (2012)

found that outdoor recreation participants had lower overall depression scores than non-participants in such activities.

Increasing the opportunities for people with disabilities and elders is an important step to improve the outdoor recreation in Puerto Rico. Especially important is that the facilities need to be suitable for people with disabilities. With the possibility of an increase of the amount of people with disabilities, this is going to be an important aspect to address.

Issue number 4. Transportation and access

There is a lack of public transportation to places for outdoor recreation. In Puerto Rico, to access most places for outdoor recreation the people need to have their own transportation. The transportation infrastructure was designed mainly with motor vehicles in mind. The latter limits the access to places for outdoor recreation for people who do not have motor vehicle transportation.

Most people who use the current public transportation system considered it ineffective and limited because of the geographical areas it covers. The lack or limited public transportation reduces the potential of places to use for outdoor recreation. This is also a constraint for people with disabilities and the elder population.

Another issue related to access to places of outdoor recreation is the conditions of the roads. People indicated that some of the roads that lead to the places for outdoor recreation need improvement and in some cases expansion. The municipalities mention they do not have the vehicles to maintain the roads, especially the ones of difficult access.

Other aspect that affects access to the places for outdoor recreation is the situation with the parking. Some places or facilities for outdoor recreation have limited or no parking at all. Participants also think that, in some places, the cost of parking is excessive.

Issue number 5. Lack of collaboration between agencies

The lack of collaboration between governmental agencies was another issue discussed in the demand study. The participants mention that the collaboration between agencies and the municipalities also need to improve. Inadequate planning is one of the main results of the lack of collaboration between the agencies in charge of outdoor recreation in Puerto Rico. This leads to the development of facilities for outdoor recreation in places hard to maintain and difficult for the police to provide surveillance. The lack of collaboration also limits the effectiveness of the programs developed by the Puerto Rico government and the municipalities.

Issue number 6. Lack of personnel in the outdoor recreation places

Most places for outdoor recreation need at least some personnel to work appropriately. These personnel could be paid staff or volunteers. The consensus of the participants is that there is a lack of personnel in most places for outdoor recreation in Puerto Rico.

The people expressed that the main problem with the lack of personnel was that no one is available to receive or orient the visitors in these places. This affects all kind of visitor, especially tourists. Employees or voluntary workers also help to ensure the proper use of the recreational places and prevent vandalism. In addition, the lack of personnel is part of the maintenance problems mentioned in the demand study.

Opportunities for growth

One of the strengths of Puerto Rico is the diversity of opportunities and places for outdoor recreation. Even with the limitation mentioned previously, the outdoor recreation in Puerto Rico presents great opportunities for growth and economic development.

There is a great potential for growth in outdoor recreation activities that can be enjoyed by people of all ages. One of such areas is the aquatic recreation. The amount of beaches and other water places for outdoor recreation in Puerto Rico make this a potential area for growth. The tropical climate of the island is another positive aspect that the government could take advantage of. The tropical climates allow people to participate in their favorite outdoor recreation activities almost every day of the year.

The aging of the population represents a chance for developing new outdoor recreation opportunities for the elder population. The change in the population age structure needs consideration for the future development of places for outdoor recreation to maximize utilization. Finally, the government needs to remember that this population is less active and plan accordingly.

Implementation Program

This chapter presents the Implementation Program to deal with some of the issues previously identify in this SCORP. The implementation plan is for the period of 2013 to 2018, but some of the objective might need a larger span of time to be completed.

The plan acknowledges the importance of collaboration and partnership for outdoor recreation. Local and federal agencies, municipalities, non-governmental organizations and private sector need to work together to ensure the implementation plan is successful, and that most of the outdoor recreation problems are addressed.

Goals

Puerto Rico has some long-term recreation goals acknowledging that the citizen participation improves the quality of life of the population. The following goals were established in the 1994-1998 SCORP; they highlight that recreation is essential for the physical and emotional health of the citizens.

- Promote sport and recreation activities in the citizens, as well as the participation of private and non-governmental entities in the development of these activities.
- Improve and develop sport and recreation programs and facilities for the emotional, physic and mental development of the population.
- Advice and educate the youth people in Puerto Rico for a better use of their free time, thus it is channeled towards activities that will lead to the integral development of the individual.
- Develop and provide facilities to carry out activities and entertainment, and to preserve and protect these facilities for the benefit of future generations.

The National Parks Company has these goals:

- Provide educational and recreational opportunities to all citizens by using parks in a way that promotes their social and individual development.
- Provide guidance on the parks for passive recreation and its role in the preservation of the patrimony of the inhabitants of Puerto Rico.
- Educate and create awareness about the importance of the natural heritage of Puerto Rico in order for its protection and preservation.

Five years implementation plan

Policy 1. Improve the security in places for outdoor recreation

The main problem presented in the demand study was the lack of security in places for outdoor recreation. This is a priority area to work during the next five years. Below are the objectives for the next five years.

Objective 1.1 Develop a collaborative agreement with the state and municipal Police

A collaboration between the state agencies responsible of outdoor recreation, the municipalities, and the Police is essential to improve the security in places for outdoor recreation. One of the focal points of this collaboration will be to increase surveillance near areas of outdoor recreation, especially near parks.

The collaborative agreement will include detailed aspects in order to be effective. First, there will be an increase in surveillance during the nights. As part of the collaboration, the agencies will develop a schedule to avoid duplication of efforts between the state and the municipality police. In addition, the municipalities will post emergency information in a visible place in case anyone using the facilities needs to contact the authorities. The government will also install surveillance cameras in areas of high crime rates.

Objective 1.2 Maintain the facilities in good conditions

The municipality will be in charge of maintaining their facilities in good conditions. Facilities in poor conditions are unsafe and insecure. The access need to be restricted in unusable facilities with poor conditions. The municipality will make an inventory of these facilities to obtain fund for renovations.

The municipalities will also provide proper illumination for all the outdoor recreation and access roads. This is especially important to areas such as community parks. In these parks, people could be more vulnerable to attacks if there is no proper illumination. The state government will identify funds to help the municipalities with this task.

The agencies should involve the community in these efforts. The community could help the municipalities in the identification of places for outdoor recreation in poor condition. Facilities in bad conditions are the focus of vandalism and other crimes.

Possible measures

- Type one crime rates in areas near outdoor recreation places

- Percent of people dissatisfied or very dissatisfied with security in places for outdoor recreation in the SCORP
- Number of accidents in outdoor recreation facilities

Policy 2. Improve the promotion of places for outdoor recreation

Promotion is an essential aspect of outdoor recreation since it provides information that can influence the places the people select to participate in outdoor recreation. With promotion, the people will also know about new places for outdoor recreation and timing of events.

Objective 2.1 Create and maintain an on-line inventory of places for outdoor recreation

The government will create and maintain an inventory with the main places for outdoor recreation in Puerto Rico. This inventory will be available in the National Parks Company and the Tourism Company webpages. The National Park Company will develop the inventory with the assistance of the municipalities and agencies in charge of outdoor recreation in Puerto Rico. The main purpose of the inventory is to provide high quality information about the places for outdoor recreation.

The information in the inventory will include the necessary information for tourists and local residents to identify the kind of outdoor recreation they would like to participate. The minimum information the inventory will include is the following:

- Name of outdoor recreation place
- Category
- Address and directions by car, public transportation, or bike
- Amenities
- Cost (including the cost of parking)
- Opening and closing times
- Pictures

Objective 2.2 Maximize the use of social networks for promotion

Social network platforms are important tools for marketing and promotion (Xiang & Gretzel, 2010). According to the Social Network Study from the Interactive Advertising Bureau, the main social network in Puerto Rico is Facebook. After Facebook, there are other important social network tools like Twitter and Google Plus. Because Puerto Rico is one of top countries in the world with social network utilization, more people will be reached with the use of the social network platforms as promotion tools (El Nuevo Día, 2013).

The agencies in charge of the outdoor recreation in Puerto Rico are going to be more active using the social networks as a mean for promoting the outdoor recreation places and activities. The government will have a Facebook page dedicated to promoting the outdoor recreation places and activities. This page will provide information for the other social network platforms. Staff from the National Parks Company will be in charge of maintaining and interacting with people via the social network.

Another strategy for promotion in the social network will be to make a contest for the best photos and videos of places for outdoor recreation in Puerto Rico. The best photos and videos from this contest will be used to promote the places for outdoor recreation in the social network and other media like newspapers and television.

Objective 2.3 Promote a wider variety of places for outdoor recreation

We mention early that one of Puerto Rico strength is the variety of places for outdoor recreation available. The government is focusing most of the promotional campaign in the beautiful beaches of the Island and their related activities. This has been an important aspect since the climate in Puerto Rico allows for enjoyment of the beaches during most times of the year. However, the other places for outdoor recreation need to be included in future promotions.

The government will start a more active promotion of all the main outdoor recreation places and activities. Puerto Rico has a rain forest, a dry forest, zoo, botanical gardens, historic sites, and other places that need to be promoted. These outdoor recreation places are attractive and affordable for the majority of the people.

Objective 2.4 Conduct a research study with tourists

Research studies are important tools to learn the outdoor recreation needs and demands of the population. Surveys and focus groups could be used to examine the main preferences of the tourists. The survey could be conducted in hotels and resorts of Puerto Rico. The questionnaire will be short and focused on outdoor recreation places and activities. There will also be focus groups with incentives for the participants. The

government will focus future promotional campaigns based on the results from this study.

Possible measures

- Number of visits to places for outdoor recreation
- Number of visits to inventory web page
- Social network page visits and likes
- Hotel utilization rates
- Results of surveys and focus groups

Policy 3. Improve the access to places for outdoor recreation

Another important aspect that this comprehensive plan pays attention to is the access to places for outdoor recreation. The main objective is to eliminate some of the barriers that prevent people from accessing the places for outdoor recreation. Of special importance is the access for people with disabilities and the elder population. The inclusion of these groups in outdoor recreation is an important aspect of this plan.

Objective 3.1 Ensure that the new facilities comply with laws and regulations

In Puerto Rico, all the new outdoor recreation facilities need to ensure physical accessibility for the population to comply with the Architectural Barriers Act (ABA) federal law and local Law #45 of 1985.

To make sure the facilities meet and maintain these laws, the municipalities will conduct periodic inspections in public and private outdoor recreation facilities. This will allow identifying barriers that could arise after the initial construction and inspection of the facilities. This is a more proactive way than having to wait for complaints from the affected people.

Objective 3.2 Propose new parameters for parking for people with disabilities

One concern in the demand study was the lack of parking spots in many of the places for outdoor recreation. This is a bigger problem for people with disabilities. The existing public parking area regulations from the Department of Consumer Affairs ask for four parking spots for people with disabilities for the first 100 regular parking spots and one for every 100 additional parking spots. Probably these are fewer parking spots for vehicles for people with disabilities than the needed when 20% of the population in Puerto Rico has a disability.

The proposal will state that the new outdoor recreation facilities constructed with local or federal government funds will have new parameters for parking for vehicles for people with disabilities. The parking spots for people with disabilities will increase from four to seven for the first 100 regular parking spots and two for every 100 regular parking spots. There will be a study to identify what changes in the legislation are needed to accomplish this objective.

Objective 3.3 Propose changes to the public transportation system in the metropolitan area

The lack of transportation was one of the main issues presented in both the quantitative demand study and the focus groups. This issue affects the elder population more than it affects people in other age groups. This plan proposes some changes to the public transportation system in order to make it an effective mean of transportation to places for outdoor recreation. A better transportation system also helps with the parking issue on some of places for outdoor recreation.

According to Metropolitan Bus Authority, the train and the buses do not have routes near most of the places for outdoor recreation. Part of the issue is that the Metrobus routes were not designed for that purpose. This plan will promote a study to examine the possibility of adding routes to some of the main places for outdoor recreation in the metropolitan area and the possibility of extending the working hours of service.

There is also a service for people with disabilities called Llame y Viaje (Call and Travel). This plan proposes that the current call and travel service area to be extended to more than 3/4 miles of the regular bus routes up to 1 1/2 mile from the regular route with additional fees according to the travel distance.

Possible measures

- Number of outdoor recreation facilities inspected
- Number of transportation routes to places for outdoor recreation
- Number of complaints from people with disabilities

Policy 4. Encourage participation in outdoor recreation activities

Being active throughout the majority of the lifetime is important to the overall health and well-being of the population. Most of the people participate in outdoor recreation activities but sometimes are limited by time and transportation. With this in mind, this plan proposes the following objectives to encourage participation in outdoor recreation activities.

Objective 4.1 Design outdoor recreation programs near the community

One of the main obstacles for participation in outdoor recreation mentioned in the demand study was the lack of time. The latter and the limitation of the transportation, most of the people participate in outdoor recreation activities near their community or other areas in their municipality. There is a demand for recreation programs in the community, near the people's homes. The program offer needs to be diverse and for people of all age groups and genders.

This plan proposes a pilot study starting with one or two Recreation and Sports Regions. The idea is to develop recreation programs with at least one outdoor recreational activity per week in each community. The activities will vary depending on the places for outdoor recreation in the community. This plan includes a survey to determine the preference of the people in each community. Some of the activities could be:

- Volleyball or basketball tournaments - There should be tournaments for people of all ages. Invitations could be sent to people of other communities to add players in categories with few participants.
- Concerts, theater or movies in the parks - For a very low cost, some artists could perform for the people in their communities. The municipality could contract the artist and the community leader could be in charge of the promotion. All the performances and movies will be appropriate for people of all ages.
- Aerobics, Zumba or yoga classes - Depending on the preference of the community and their demographic characteristics.
- Community days - This will include a variety of activities and need to be organized for weekends or holidays.

Objective 4.2 Examine the cost of places for outdoor recreation

Participation in outdoor recreation activities also could be limited by the financial capacity of the population. The participants indicated that is not only the cost of the place for outdoor recreation but the parking and other amenities that sometimes are too expensive. It is important to remember that Puerto Rico have the highest poverty levels within all the United States jurisdictions.

This plan proposes a revision of the prices of all the National Parks and public places for outdoor recreation. The people expect an effort from the agencies to maintain the places for outdoor recreation in good (usable) condition if they are charged with a price for admission. In addition, the cost of parking and amenities needs revision. Sometimes

private entities administer these amenities; the municipality needs to notify them the concerns of the population.

Objective 4.3 Design, construct and maintain a sustainable network of trails and greenways

According to the survey in this SCORP, the people in Puerto Rico demand more trails and greenways, especially for walking. Trails and greenways could benefit the communities by improving the economy, helping in the preservation of open space, and providing opportunities for physical activity. Most of the time, trails and greenways link nature reserves, parks, and historic sites with each other and with populated areas (Clay, Nelson, & Biszko, 2010). Trails and greenways might draw the public to historic sites.

Trails and greenways provide countless opportunities for economic growth. The trails and greenways influence the community economies by increasing property values and attracting business near their location (Clay et al., 2010). Trails and greenways provide people with a safe, inexpensive avenue for regular exercise. Investing in trails and greenways makes the communities a more desirable place to live in.

There is a need to advocate and identify funding sources for planning and developing the necessary trails and greenways infrastructure. The resources could also come from public/private partnerships. Some of these funds will be used to conduct viability analysis and other necessary studies.

The planning efforts need to include the development of a concept plan of how the network of trails and greenways will look like and how it is going to be interconnected. There must be a coordinated effort to connect communities with places of work, businesses, schools, parks and other facilities. All of this will be in concordance with the Plan for the Non-motorized Modes of Transportation of the Department of Transportation and Public Works of Puerto Rico.

Objective 4.4 Promote the design and implementation of an active transportation system

This objective is linked to the previous objective of designing a sustainable network of trails and greenways. This plan suggests starting the design of an active transportation system that takes advantage of the paths and greenways. Active transportation is defined as human powered modes of transportation like walking, cycling, using a wheelchair, in-line skating or skateboarding (Public Health Agency of Canada, 2009). This kind of system is of benefit for the health because bring the opportunity of been more physically active. It is also beneficial to the environment because it reduces gas emissions; additionally, it is beneficial to the economy because people will save money in gas and parking. This also could reduce the traffic congestion common in Puerto Rico.

An active transportation system consists of trails, bicycle paths, pedestrian paths, and greenways. The implementation of an active transportation system would stimulate the economy through job creation, the development of commercial business, and by boosting real estate values for properties located close to the active transportation infrastructure (Built Environment & Active Transportation, n.d.). The infrastructure that supports an active transport is better for pedestrians and bicyclists, reducing the number of accidents and related deaths.

An active transportation system could reduce the need of additional motorized transportation infrastructure like the one used to support more vehicles. The collaboration between municipalities is important to ensure interconnectivity of the infrastructure that supports this kind of transportation system. The economic benefits for the municipalities would be in term of job creation and business development in the areas around the active transportation system infrastructure. This active transportation system needs to be designed in a form that is socially and culturally relevant, with parts of the trails and path passing important landmarks or places of historical importance. The idea is to have an interconnected active transportation system that meets the people's desire for recreational trails while providing active transportation.

Possible measures

- Average cost of places for outdoor recreation
- Number of trails created
- Number of pedestrian or cyclist accidents

Policy 5. Encourage the maintenance of places for outdoor recreation

The maintenance of facilities is a key aspect of outdoor recreation. The places and facilities for outdoor recreation in good (usable) conditions are more attractive and have higher utilization. As explained before, facilities in good conditions are also safer and secure. In Puerto Rico, the municipalities have a large amount of facilities and a hard time trying to maintain them because of lack of resources. This plan includes some objectives to help the municipalities, and other agencies, maintain the facilities.

Objective 5.1 Development of maintenance plans for facilities

A step to improve the maintenance of places for outdoor recreation is the development of a maintenance plan for facilities. The agency or municipality in charge of the place or facility needs to develop the plan for current facilities and especially for new facilities. This plan will ensure that the facilities will be preserved operational and in good conditions.

The plan should incorporate short-term and long-term planning and address all potential concerns regarding the facilities maintenance. In this plan, the municipality or agency will be proactive and not reactive since it will anticipate repairs, deterioration, and replacements instead of reacting after the occurrence of the problems. The plan will need periodic evaluations, revisions, and modifications. There must be a facility manager for the effective implementation of the plan and to make sure each person fulfills its tasks.

Objective 5.2 Establish public and private sector partnerships

The public and the private sector could help in the maintenance of places for outdoor recreation. A government, public, private, and nonprofit partnerships could be crucial to preserve and maintain the places for outdoor recreation. The lack of resources of the municipalities can be attenuated with the financial and human resources contribution of other sectors.

A partnership with the private sector could provide financial resources in exchange for promotional material located in the outdoor recreation facilities. This could be banners, flyers, and brochures, among others. Hence, a partnership with the nonprofit organizations could result in more people available to maintain the facilities in good conditions. In exchange from their collaboration, they could use the facilities for their private activities. The municipalities could also establish a procedure to collect the concerns from the people related to the conditions of places for outdoor recreation. The users could identify problems with the places of outdoor recreation and report them to the municipalities according to the established procedures. These procedures should be in a visible place in all the facilities.

Objective 5.3 Design a campaign for preservation of the natural resources

The people need to be educated about the importance of preserving the places used for outdoor recreation. The camping will encourage everyone to respect, protect, and enjoy the natural places for outdoor recreation. This is especially important because some recreation activities could affect the natural resources and affect the ecosystems. Examples of these natural resources are beaches, forests, wetlands, and other natural places reserved for outdoor recreation.

With a media campaign that includes the radio, television and the social media, the agencies could reach most of the population. The campaigns would be more aggressive during the summer when more people are participating in outdoor recreation activities. The focus of the campaign will be the preservation of the natural resources, but also could include prevention of vandalism on other recreation facilities. In addition, the rules for utilization of places for outdoor recreation need to be visible to every visitor in both Spanish and English.

Possible measures

- Number of voluntary persons for outdoor recreation
- Number of operational facilities
- Money spent in maintenance
- Private sector donations
- Number of partnerships established

Policy 6. Develop outdoor recreation services and programs for elder population

Planning and programming for the elder population is an important aspect of outdoor recreation service provision. One issue is that this population does not have adequate information about the recreation opportunities available for them. As mentioned before, the transportation is another big concern of this population group. To assure that transportation is not an issue, programs for this population need to be developed in their communities or near the routes of public transportation. Even with the appropriate conditions, many elders need to be encouraged to participate in outdoor recreation activities.

This plan includes recommendations for services and programs appropriate for elder population. This recreation programs and events will be designed to enrich and enhance their lives. For this reason, the staff and volunteers that work with the senior population will receive special training to work with older populations.

Objective 6.1 Development of gardening programs

According to the demand study, gardening is one of the main outdoor recreation activities among older populations. It is also an appropriate recreation activity for people of all ages. Gardening is a very affordable activity that is important to the senior population. This activity could be a great foundation for an outdoor recreation program for this group. Another benefit is that if done correctly; gardening may contribute as a moderate physical activity for this population.

One of the possible products of the gardening programs could be the creation of community gardens. In these gardens, the older volunteers contribute their time and expertise to grow nutritious food, socialize, and pass the knowledge to younger members in the community. With the proper lands and funds, the elders could create a garden in their community. The elders could be involved in all stages of the project, including the selection of relevant plants and tools, and planning for long-term care and preservation of the garden.

Objective 6.2 Development of passive recreation programs

The older population participates mostly in passive outdoor recreation activities. These activities often encompass less intensive range of outdoor activities compatible with preserving natural resources. This plan suggests the development of outdoor passive recreation activities for the elder population. The purpose of these programs is to allow participants to enjoy the natural beauty and have a healthy lifestyle.

The municipalities and non-governmental organization need to be involved with this initiative to be successful. The idea is to expand the scope offer of current programs to more activities and more days. The program will consist of tours for walking, hiking, nature photography, fishing, and other passive outdoor recreation activities. The tours will be to visit attractions and interesting natural places. For the safety of the participants, the trips will be to places with appropriate facilities such as boardwalks, trails and pathways.

To ensure that transportation is not an issue, transportation could be provided within the price of the event ticket, with pick up points from various seniors' complexes and communities. In addition, the price of tickets could include lunch or light refreshments.

Possible measures

- Number of new programs created
- Number of elders participating on the programs
- Percent of elders satisfied or very satisfied with outdoor recreation in the SCORP

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APENDIX

Table 30. Municipalities by region

Municipality	Region	Municipality	Region
Aibonito	Central	Aguas Buenas	Central South
Barranquitas	Central	Gurabo	Central South
Coamo	Central	Caguas	Central South
Comerio	Central	Cayey	Central South
Naranjito	Central	Cidra	Central South
Orocovis	Central	Guayama	Central South
Aguada	Northwest	Arroyo	Central South
Aguadilla	Northwest	Patillas	Central South
Añasco	Northwest	Salinas	Central South
Isabela	Northwest	Carolina	Metropolitan
Moca	Northwest	San Juan	Metropolitan
Rincón	Northwest	Trujillo Alto	Metropolitan
San Sebastián	Northwest	Canóvanas	Northeast
Humacao	Southeast	Ceiba	Northeast
Juncos	Southeast	Culebra	Northeast
Las Piedras	Southeast	Fajardo	Northeast
Maunabo	Southeast	Loíza	Northeast
Naguabo	Southeast	Luquillo	Northeast
San Lorenzo	Southeast	Río Grande	Northeast
Yabucoa	Southeast	Vieques	Northeast
Bayamon	El Toa	Arecibo	North
Cataño	El Toa	Barceloneta	North
Corozal	El Toa	Camuy	North
Dorado	El Toa	Ciales	North
Guaynabo	El Toa	Florida	North
Morovis	El Toa	Hatillo	North
Toa Alta	El Toa	Lares	North
Toa Baja	El Toa	Manatí	North
Vega Alta	El Toa	Utua	North
Vega Baja	El Toa	Quebradillas	North
Cabo Rojo	Southwest	Adjuntas	South
Guánica	Southwest	Guayanilla	South
Hormigueros	Southwest	Jayuya	South
Lajas	Southwest	Juana Díaz	South
Las Marías	Southwest	Peñuelas	South
Maricao	Southwest	Ponce	South
Mayagüez	Southwest	Santa Isabel	South
Sabana Grande	Southwest	Villalba	South
San Germán	Southwest	Yauco	South

