

# Cultural ecosystem services and disservices in an urban park in Bogota, Colombia

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**Abstract:** Cultural Ecosystem Services (CES) are important for contributing to the physical and mental health of humans, but they have been little studied in low-income populations. It is intended to understand the meaning of the “Entrenubes” Ecological Park (PEN) for visitors, through: 1) identifying the sociodemographic variables associated with the different ecosystem services and disservices; 2) Define how the relative importance of interactions with these variables differs between ES. A questionnaire was applied to 281 visitors. A Multiple Correspondence Analysis (MCA), chi-squared test and ordinal logistic regression were performed between ES and visitor profile. 7 CES and 3 regulatory ones were identified. No significant associations were found between ES preferences, disservices and sociodemographic characteristics of the visitors. Recreation presented the highest average perception. Drug abuse was the predominant disservice. These results provide criteria for decision-making in urban green infrastructure planning.

**Keywords:** Green spaces; perceptions; environmental justice; urban planning

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## Introduction

The planet is quickly being urbanized. Along Latin America most of the populations are urban, and in Colombia more than 75% of the population lives in cities (WORLD BANK, 2013). Between 1985 and 2010, the population of Bogotá went from 3,982,941 inhabitants to 7,363,782 due to demographic displacement from rural areas. This change was mainly motivated by the intense armed conflict that the country experienced (CRISTANCHO; TRIANA, 2018). Currently, the city has 8,300,000 inhabitants (DANE, 2018), and 84% of the population has very low incomes (average monthly income of US\$ 344) with a precarious distribution of wealth (PEREA; RINCÓN, 2014). In the southeast of the city, about a million people with very low incomes (a monthly income of less than US\$ 344) live in the municipalities of San Cristóbal, Usme and Rafael Uribe (MAYOR'S OFFICE OF BOGOTÁ, SECRETARY OF PLANNING, 2014). 17,325 out of this population are displaced people (Moreno, 2016). For 15 years, there has been a natural area in this side of the city called Entrenubes Ecological Park (PEN) that benefits all the people who live in its surroundings and visit it.

Parks are one of the most important components of urban green infrastructure, which provide regulatory and Cultural Ecosystem Services (CES) (LIU et al., 2017). Man-park interactions are studied from the perspective of different user groups, including demographic factors (ARTMANN et al., 2017). These can provide a better understanding on how people perceive and experience urban nature, to use this information in park management (DICKINSON; HOBBS, 2017). Very few studies on this relationship have been carried out in Latin America where the historical, social and economic conditions are different from those in Europe or North America (DOBBS et al., 2019; HAASE et al., 2014); Therefore, it is necessary to have a clear vision of the relationship between sociodemographic variables of the users and the ecosystem services that parks provide in a Latin American city.

Ecosystem Services (ES), understood as the benefits that ecosystems provide to human beings, are classified as provision, regulation, support and / or cultural services (CES) (MEA, 2005). The supply of drinking water (provision ES) is guaranteed by ecosystems to the extent that they ensure the storage and controlled release of water flows (PATAKI et al., 2011). Urban trees moderate local temperatures (ES regulation) by providing humidity and shade, and vegetation attenuates noise that causes physiological and psychological damage to people (ES regulation) (FANG; LING, 2003). Leaves of trees and shrubs filter particles from polluted air that are responsible for human respiratory and cardiovascular diseases (ES regulation) (NOWAK, 1994). Remnants of urban ecosystems provide habitats for native plants and birds and enhance seed dispersal (supporting ES) (MULLER et al., 2010).

Cultural Ecosystem Services (CES) are defined as non-material benefits that people procure from ecosystems through cognitive, spiritual, recreational and aesthetic experiences (MEA, 2005). A more recent version defines them as “the characteristics of the elements of nature that give people the opportunity to obtain cultural goods or benefits (HAINES-YOUNG; POTSCHIN-YOUNG, 2018). CES are especially important

to contribute to the physical and mental health of the inhabitants of a city (GÓMEZ-BAGGETHUN; BARTON, 2013). CES directly or indirectly, promote people's well-being by reducing stress (WARD THOMPSON et al., 2012), improving cognitive ability (GIDLOW et al., 2016) and increasing opportunities for physical activity (COOMBES et al., 2010). These benefits are obtained in natural spaces, where the other types of services are found; Therefore, CES are inseparable from other ecosystem services provided by remnants of ecosystems within the city (LA ROSA et al., 2016). Therefore, knowledge is required about the importance of CES in the well-being of people (RUSSELL et al., 2013; MARTÍNEZ PASTUR et al., 2016).

Understanding the benefits that visitors to an urban park perceive may contribute not only to improve the life quality of local communities, but also to provide information to promote the preservation of local knowledge (KOSANIC; PETZOLD, 2020).

The conceptualization of CES has been criticized, in part, for its reductionist view of culture as a service provided by ecosystems (SETTEN et al., 2012). In this paper, CES are presented as a reciprocal action between the visitor and the ecosystem, mediated by environmental spaces and cultural practices. The environmental space refers to a place or landscape in which people interact with each other and with the natural environment; cultural practices are expressions of people in natural environments; leisure activities such as playing, exercising, creating, expressing themselves. The result of these interactions is human well-being (FISH; WINTER, 2016). The qualitative research of the CES is a useful instrument for a more sustainable management of protected natural areas (HERNÁNDEZ-MORCILLO et al., 2013; Raymond et al., 2013). Despite its positive impact on the quality of life of city dwellers, few studies have been conducted on urban CES, from the point of view of its importance for urban planning and environmental policies (PLIENINGER et al., 2013). Highlighting its use and importance in highly populated urban areas such as Bogotá can help improve the management of urban green infrastructure.

Although Green Spaces in cities provide Ecosystem Services, they can also be perceived as contrary to human well-being or as disservices (VON DÖHREN; HAASE, 2015; DELSHAMMAR, et al., 2015; SHAPIRO; BÁLDI, 2014). In other words, negative experiences can also occur in urban forests (KIRKPATRICK; DAVISON; DANIELS, 2013). For example, dense vegetation in public spaces can reduce safety in a neighborhood and stimulate fear of criminal behavior (HANSEN; PAULEIT, 2014). Although these types of damage have not been sufficiently studied, it is important to assess them to minimize the negative perceptions they may cause (DELSHAMMAR; ÖSTBERG; ÖXELL, 2015). Our qualitative research examines the perceived services and disservices in the PEN with the purpose of providing empirical evidence for their use in city environmental planning (HEGETSCHWEILER et al., 2017).

This study focuses on understanding the meaning of the PEN for visitors. The following specific objectives will be achieved: 1) identify the sociodemographic variables associated with the different ecosystem services and disservices; 2) determine how the relative importance of interactions with these variables differs between CES.

## 1. Materials and methods

### 1.1 Study site

PEN is located in the southeast of Bogotá; it is the result of a proposal from the local community to the city government. It was established in 2004 as part of the Main Ecological Structure (MEE) of the city with the purpose of preserving and restoring representative samples of the high Andean forest (MAYOR'S OFFICE OF BOGOTÁ, Decree 190 of 2004 & Decree 437 of 2005). The PEN has an area of 626 ha; it is located between 2,600m and 3,100m above sea level. It has an average annual temperature of 12.3°C (54.14°F) and an average annual rainfall of 1200mm. Secondary successional states predominate, including low and high scrub with vegetation characteristic of the sub-paramo ecosystem. In small spaces there are exotic species, the result of previous land use, such as *Ulex europaeus*, *Acacia* sp., *Cupressus* sp., *Pinus* sp and *Eucalyptus* sp. Although the PEN has been gradually restored, there are still spaces with abandoned quarries. There are slum settlements built by squatters on the eastern edge of the park. (MAYOR'S OFFICE OF SANTA FE DE BOGOTÁ, D.C.- Technical Administrative Department of the Environment – DAMA 2003).

### 1.2 Background

A documentary, academic review of planning and management was carried out on urban CES and PEN. For the review of scientific publications, a parameterized query was carried out using the terms “Urban Cultural Ecosystem Services” in Academic Google, without a temporal filter; The administrative documentary review focused on the terms “motivation” and “origin” associated with the PEN and available at the Mayor’s Office of Bogotá. The study of ES is based on the categories established in the Millennium Ecosystem Assessment (MEA, 2005). Since not all ES categories defined in the MEA are understandable in a local context (DUO et al., 2020), the terms used by the respondents were incorporated, when asked about the benefits of the PEN that most contribute to human well-being.

### 1.3 Survey content, design, and application

Questions for the Pilot Test were developed through the existing literature on CES (BERTRAM, C; REHDANZ, 2015; DOU et al., 2017). The initial questionnaire consisted of 25 questions. Some open questions allowed defining response options in the final questionnaire, such as: PEN benefits that contribute the most to human well-being, disservices, monthly income, and number of household members. From the pilot test of 20 people, a final questionnaire of 18 questions was developed to identify services and disservices. The questionnaire was prepared using Google-form software. It allowed to collect and store data in the cloud, using the mobile phone. Due to the limited availability of Internet connection in PEN, most of the surveys were developed using paper

questionnaires. The collected data was subsequently digitized and stored in the computer program. The questionnaire was structured in three parts. The first two sections asked where respondents lived and how often they visited the park. The second section, with open questions, explored the perceptions of the visitors about the ES and the disservices in PEN. In relation to ES, two frameworks were used; the first inquiring about the benefit that most contributes to human well-being and the second as the relative importance of CES. The third section covered sociodemographic characteristics. Likert Scale (LIKERT, 1932) was used within the survey to understand the relative importance of CES; For this classification, the CES categorization of the MEA (2005) was used. A classification of the degree of importance was used, on a scale from one (not important) to five (very important) with an affirmative sentence about the importance of a certain CES. The concept of ecosystem services remains unknown to the public, increasing the risk of misinterpretation. Therefore, we address this problem by avoiding technical terms in the questionnaire and conducting personal interviews to explain questions or misunderstood terms. To define disservices, respondents were asked about the aspects of the PEN that can negatively affect the well-being of visitors.

The survey was conducted between December 2017 and February 2018 by two people with expertise and training in environmental science. The park administration records the daily entry of people to the park, therefore, it provided data on visitors over 18 years of age per year, during 2014, 2015 and 2016. This data was taken as the target population to estimate the sample size. The daily average of visitors over the age of 18 was 125. A representative sample of 281 visitors were interviewed. The questionnaires were applied during peak hours, 7:00-9:00am on weekdays, and 7:00am to 2:00pm on weekends. In total, information was collected 4 days a week, until the sample was completed. Each survey lasted approximately ten minutes. Two incomplete surveys were excluded for data analysis.

The relative frequency of responses to sociodemographic characteristics was calculated. Google Maps was used to determine the distance in kilometers from a visitor's residence to the PEN. In order to meet the requirements of the Chi-square test of frequency values greater than 5, the categories of each socioeconomic variable were organized into two groups; A chi-squared test was applied to identify associations between the sociodemographic characteristics of the respondents, ES and disservices; the values of the probability function (Likelihood Ratio) were used to reject the null hypothesis, that is, that there was no significant difference between the socio-economic variable and the ecosystem service or disservice. To verify the significant differences, a post-hoc test was applied, by the Bonferroni's method, after the Chi-square test. A Multiple Correspondence Analysis (MCA) was performed between ES (benefits that most contribute to human well-being) and sociodemographic characteristics to identify possible groups of variables. For the analysis of the relative importance of cultural ecosystem services and the profile visitors, ordinal logistic regression was used. These analyzes were performed with R-studio (4.0) and SPSS v23.

## 2. Results

### 2.1 Visitor characteristics

From a total of 281 visitors surveyed, 51.07% were women and 48.93% were men (Table 1). 66% had an age range between 18 and 37 years; the predominant educational levels were university (42.14%) and secondary (40.71%); the monthly salary of 66% of those surveyed was less than US\$ 448. 51.07% of the families consisted of 1 to 3 members. 69.64% visit other parks in the city and only 30.36% visit protected areas outside of Bogotá. The frequency of visits to PEN is predominantly weekly (34.64%). 50.71% of the visitors are employees. 68% of those surveyed reside between 4 and 8 km away from the park.

**Table 1. Visitors' characteristics**

	Frequency	%
Gender		
Women	143	51.07
Man	137	48.93
Age		
18-24	52	18.57
25-30	57	20.36
31-37	54	19.29
38-44	32	11.43
45-51	46	16.43
>52	39	13.93
Educational level		
None	2	0.71
Primary	24	8.57
Secondary	114	40.71
Technician	22	7.86
University	118	42.14
Monthly income (US\$)		
< 240-241	93	33.21
242-448	93	33.21
449-655	34	12.14

656-862	27	9.64
863-1034	17	6.07
>1034	16	5.71
Household		
1 - 3	143	51.07
4 - 6	117	41.79
7 -10	18	6.43
>10	2	0.71
Visiting other parks		
Protected area outside Bogota	85	30.36
Urban park of Bogota	195	69.64
Visit frequency		
Once a week	97	34.64
Once a month	53	18.93
Once a year	69	24.64
First time	61	21.79
Occupation		
Housewife	29	10.36
Employee	142	50.71
Student	31	11.07
Independent worker	65	23.21
Retired	7	2.5
Unemployed	4	1.43
Voluntary	2	0.71
Distance between origin and PEN (km)		
< 3	11	3.92
4 - 8	191	68.22
9 - 13	27	9.64
14 -18	21	7.5
19 -23	30	10.72

Source: the authors, 2019

## 2.2 Ecosystem services provided by PEN

When asking visitors about the benefit that most contributes to human well-being, in the PEN, a total of 10 ES were obtained. Three for regulation and seven for

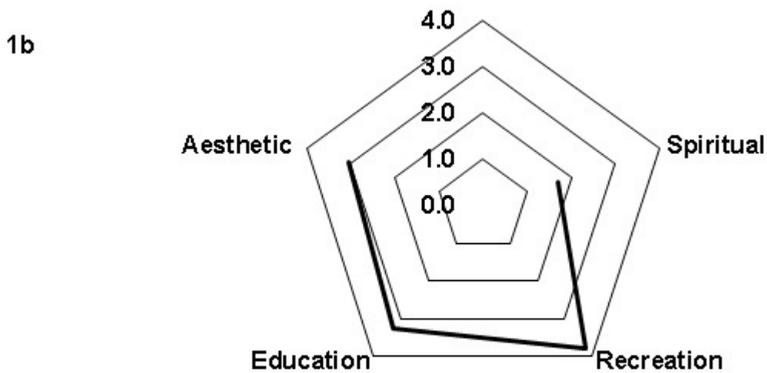
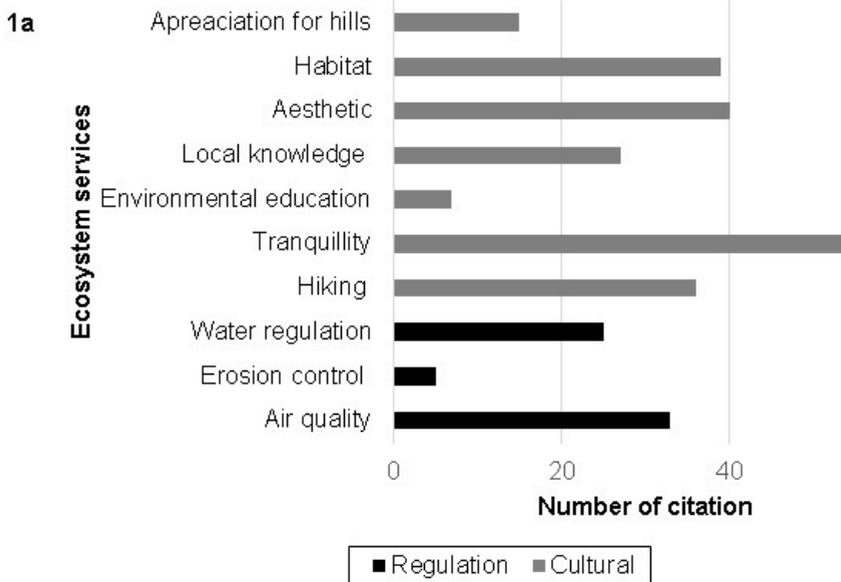
CES (Figure 1a). Calmness received the highest perception, being recognized by 19% of respondents, followed by Aesthetic and Habitat. The ES Appreciation for Hills (5%), Erosion control (2%) and Environmental Education (2%) were perceived by a smaller number of respondents.

**Figure 1a. Ecosystem services that contribute the most to human well-being in the PEN. / Figure 1b. Relative importance of Cultural Ecosystem Service**

Source: the authors, 2019

2.3 Sociodemographic variables associated with ecosystem services

No significant associations were found between the perception of ES and the



socioeconomic characteristics of the visitors. The MCA highlighted two groups of visi-

tors. One of low income (<240-241), with low educational level (illiterate, primary and secondary),  $\geq 38$  years old, whose occupations were unemployed, retired, housewife, independent worker, or student. This first group perceives benefits such as calmness, hiking, air quality, habitat, and erosion control. The second, with higher income levels, employees, with incomes between US\$ 243 and \$1034, ages 18 - 37, and technical and university education training; they mainly perceive benefits in the PEN such as local aesthetic, knowledge, environmental education, appreciation for hills, and SE of regulation such as water regulation (Figure 2a and 2b).

Figure 2. Association between SE and sociodemographic characteristics in the PEN

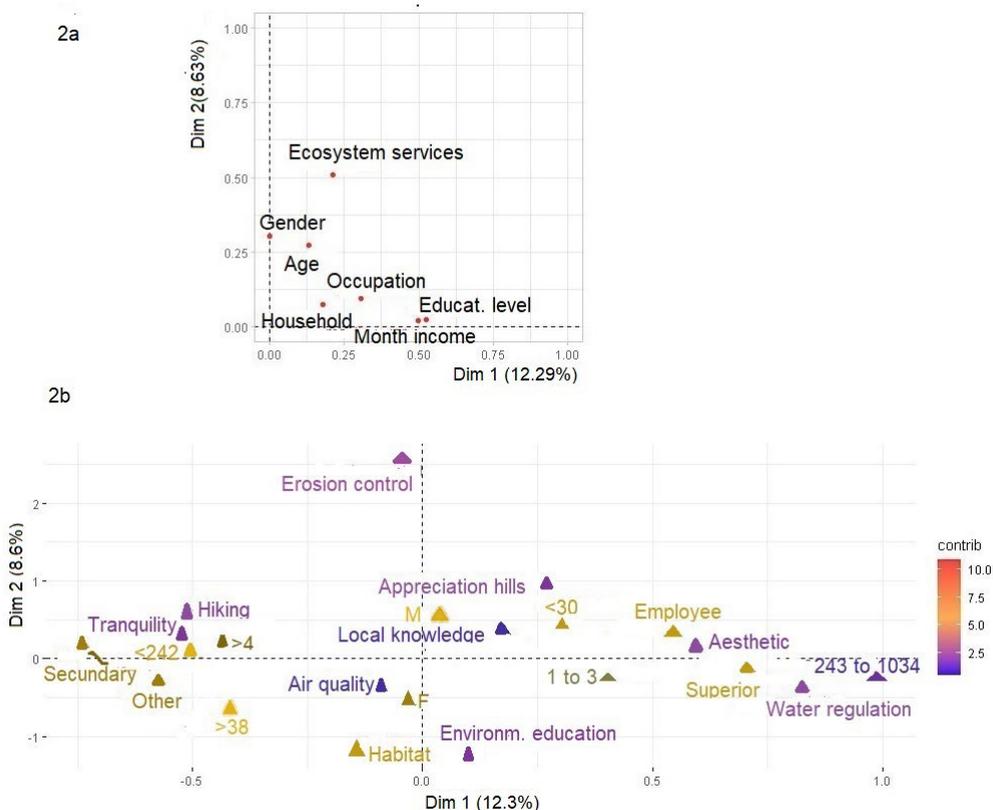


Figure 2a shows the two dimensions that explained 20.9% of the data variance associated to SE and with sociodemographic characteristics of the visitors. Monthly income and educational level contributed mainly to dimension 1. While gender and age were more correlated to dimension 2. Figure 2b shows that categories of monthly income variables of US\$ 243- 1034, and secondary and higher education levels contributed to the formation of dimension 1. Habitat, age  $\geq 38$  and male gender were the categories that most contributed to defining dimension 2

Source: the authors, 2019

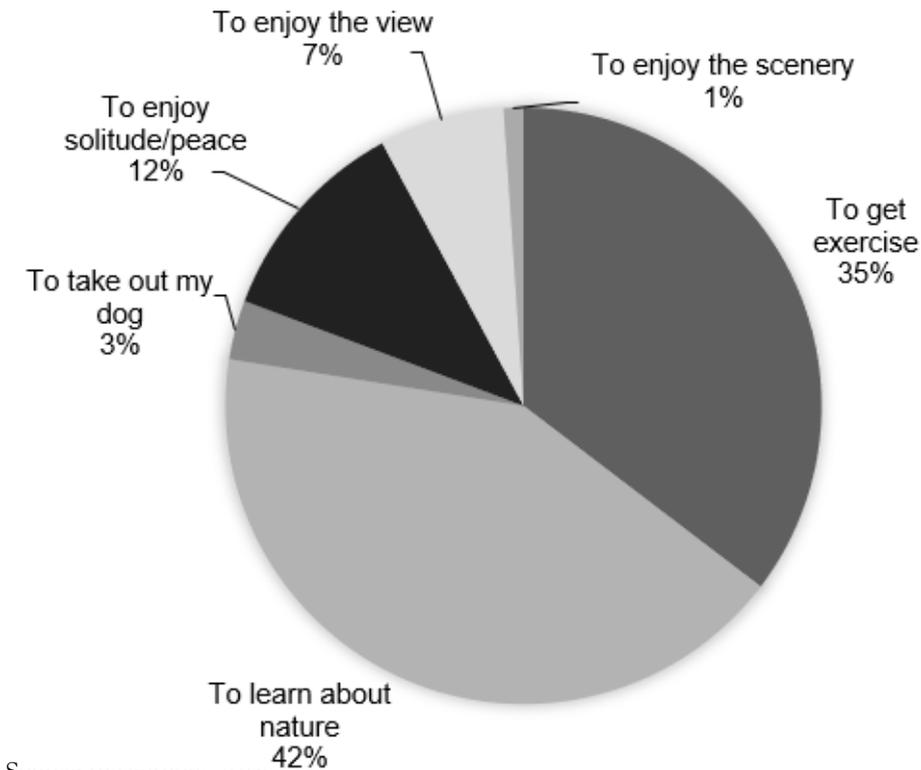
#### 2.4 Relative importance of Cultural Ecosystem Services for visitors

Respondents' perception of the relative importance of CES in the PEN was mixed. Recreation had the highest average, followed by education and aesthetic services. The spiritual or religious service had the lowest value of all the service categories (Figure 1b). A modeling with ordinal regression developed for each of the CES evidenced the absence of significant relationships between the relative importance of the CES and the sociodemographic characteristics of the visitors.

### 2.5 Reasons for visiting the PEN

Six reasons for visiting the area were identified. 42% visit the area to learn about nature, 35% to do physical exercise and 12% to enjoy loneliness and / or have peace. The remaining 11% was distributed between enjoying the view, enjoying the scenarios offered by the park and walking the dog (Figure 3)

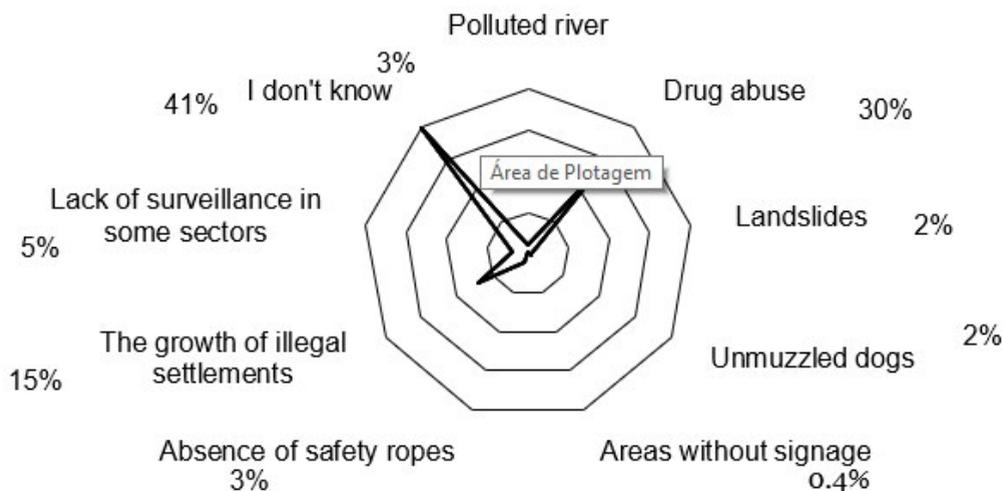
Figure 3. Reasons for visiting



### 2.6 Disservices identified by visitors

Here, disservices are understood as the activities that can occur in the park and that could endanger human well-being (Figure 4). 41% of those surveyed said they did not perceive danger within the park. The others perceived 8 disservices. Intensive use of psychoactive substances (30% of those surveyed) and the growth of illegal settlements (15%) were identified as the most dangerous activities for PEN visitors. No significant associations were found between the socioeconomic characteristics of the visitors and the disservices.

Figure 4. Frequency of Disservices identified by visitors



Source: the authors, 2019

### 3. Discussion

#### 3.1 Ecosystem services and socioeconomic variables of visitors

Although no significant associations were found between the perception of ES and the socioeconomic characteristics of the visitors, the descriptive statistical techniques highlight the characteristics of the visitors with respect to their perception of ES (Fig 2a, 2b) and disservices (Fig 4) of the PEN. For example, the low-income group identifies the PEN with tranquility and usefulness of this space for habitat conservation (BARBOSA et al., 2007; SCOPELLITI et al., 2016, MEARS et al., 2019, XIAO et al., 2017) This can be explained through visitors who use these spaces for outdoor relaxation (FISCHER et al., 2018; SHAN 2014). Likewise, the perception of habitat can be linked to the visual experiences of birds, plants and landscapes (GRUNEWALD et al., 2017). Both the location and the biological quality of green spaces are important factors that affect the results.

positive of contact with nature. Green areas with high biological diversity are more likely to have restorative effects on visitors. Our research also reveals the low relative importance given by respondents to the aesthetic category of the PEN. Some visitors probably prefer to make use of natural spaces for more social purposes, where they can share with friends or family (FISCHER et al., 2018) and the aesthetic component is only a complement.

Our results identify a connection between age and recreational activities. According to what was expressed by visitors, we refer in this category; to get exercise and to take my dog out (Figure 3). Possibly, open public spaces such as the PEN, are frequently used by adolescents for moderate to intense physical activity, at different times of the day (CERIN et al., 2017; HECKE et al., 2018). This result can also be linked to the geographic diversity of the park. The mountainous relief, forests and plains can motivate the physical effort to appreciate the landscape from the top of the mountain. In line with our findings, previous studies in Europe and Asia indicate that recreation was linked to physical activity (ZHANG et al., 2015 for China, SCHETKE et al., 2016 for Pakistan and Vietnam, FISCHER et al., 2018 for Europe).

About 50% of the respondents showed interest in education within the reasons for visiting (Figure 3). Possibly the proximity and exclusivity of having a natural area in this sector of the city offers the opportunity to observe the flora and avifauna and to acquire knowledge about biodiversity (SAMPAIO et al., 2018; DOU et al., 2017). In the PEN, visitors, accompanied by a guide, acquire knowledge about the fauna and use of traditional plants of the high Andean ecosystem. The infrastructure available in the PEN such as nurseries, organic garden, arboretum, reinforce the understanding of the benefits that humans receive from ecosystems (CLARK et al., 2014). Consistent with our results in Beijing, parents visit green spaces with their children to learn more about nature (DOU et al., 2017).

### *3.2 Disservices perceived by visitors*

Ecosystem functions of the PEN include the provision of habitat for biodiversity that is sometimes perceived as opposed to human well-being. Respondents expressed feelings of insecurity and helplessness in isolated areas of the park where there are occasional users of psychoactive substances, illegal urban housing, absence of security guards, polluted streams, steep and slippery slopes, potentially dangerous muzzle less dogs. The feeling that their lives are in danger is probably linked for the most part to isolated sites used as hiding places for criminal activities. A visit to PEN may be less encouraging if the visitor is concerned about a possible crime. This reduces the benefits for physical and mental health (RICHARDSON et al., 2013). This perception is compounded by the fact that two sectors along the park's boundaries are dominated by organized drug gangs and groups involved in the illegal land market. These gangs are dedicated to the violent appropriation of land and its subsequent illegal sale (PEREA; RINCON, 2014). In the UK, a study of dangers in urban green spaces was found, where urban forests were considered unsafe due to fears of physical aggression, theft or harassment and intimidation by young people (MACNAGHTEN; URRY, 2000). In Penang, Malaysia, parents

expressed concern about putting their children at risk of being in gangs with a history of child abuse and illegal substance use by taking them to neighborhood parks (MANI et al., 2012). In southern China, negative perceptions of green spaces were related to vandalism caused by young adolescents and migrant workers from rural areas with little education and income (JIM; SHAN, 2013). In New Zealand, the extent to which residents are satisfied with the easy access to green areas in their neighborhood depends on the degree of fear of crime. When fear is at high levels, the positive well-being effects of easy access to green spaces are lost. Providing green spaces for citizens is not enough to improve well-being unless crime and fear of injury are controlled (FLEMING, MANNING; AMBREY, 2016). In general, it can be said that fear of crime in urban green spaces increases when few people are present, when vegetation is lush, and when spaces are dark or restricted (YOKOHARI et al., 2006).

### 3.3 Implications

The effective management of a green space like PEN has many challenges. The different types of users and their individual preferences regarding CES should be considered (PLIENINGER et al., 2015), as well as knowing the aspects that could limit their use within the area. The CES that an urban park offers depend not only on the physical characteristics that its forests offer; also, of the importance that natural spaces have for the local population, of how many people visit them, of what they do in them and of the value they add to their experience (TRATALOS et al., 2016). The characterization of visitors and their preferences by CES support planning and management of both the park and the city.

Despite strong pressure on urban areas to increase the density of construction, especially in areas of social inequality, it is recognized that green spaces produce benefits like CES. These can be useful in urban planning and management models for decision making. The analysis of the perception of well-being using CES in the city can provide tools to design green infrastructures with quality and quantity criteria for the enjoyment of citizens.

This study identified visitors' perceptions of ecosystem services provided by PEN with emphasis on CES. Respondents identified 10 ES, 7 cultural and 3 regulatory. Recreation had the highest relative importance within the CES. Learning about nature was the predominant reason for visiting, and the most mentioned disservice was drug abuse.

The disservices perceived by visitors allow the PEN administration and other city government entities to be alerted to the need to act in a timely manner to reduce the use of psychoactive substances. To face this situation, it will be necessary to develop long-term programs that provide food security, education, health, and employment opportunities for youth and adults. However, the greatest threat to the continuity of the CES in the PEN is the illegal construction of houses on the park boundaries because it decreases the park area. Solving this problem implies, on the one hand, a program planned by the government that provides sufficient low-cost housing solutions for the demanding population. On the other hand, develop rural care programs (education, health, housing, employ-

ment) so that people do not have the need to involuntarily move to the city. This must be accompanied by a national will for peace to stop the violence that re-emerged after the Havana Peace Agreement (BOTERO-TORRES, 2020).

Based on our findings on the reasons for visiting PEN, we suggest providing visitors with a deeper scientific understanding that highlights the importance of conserving the park. Current educational programs, promoted by local institutions, highlight the bio-physical components of the site. It would be important to complement the educational programs with historical and cultural information about the PEN's area of influence in the city. The purpose of these programs will be to strengthen the ownership of visitors by the PEN.

Studies of CES perceptions can provide more information than purely quantitative or monetary studies (CHAN et al., 2012; BUCHEL; FRANTZESKAKI, 2015). Knowing visitor priorities for enjoying CES, as well as the potential downsides of green spaces, can enhance government investments in conserving urban nature.

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# Serviços ecossistêmicos culturais e desserviços num parque urbano em Bogotá, Colombia

Carmen Montes-Pulido  
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São Paulo. Vol. 24, 2021

*Artigo Original*

**Resumo:** Os Serviços Ecossistêmicos Culturais (SEC) são importantes por contribuírem à saúde física e mental dos habitantes, embora tenham sido pouco estudados em populações de baixa renda. Se pretende entender o significado do Parque Ecológico Entrenubes (PEN) para os visitantes, através de: 1) Identificar as variáveis sociodemográficas associadas aos diferentes serviços ecossistêmicos e desserviços; 2) Determinar como a importância relativa das interações com estas variáveis difere entre os SEC. Se aplicou um questionário a 281 visitantes. Se realizou uma análise de correspondência múltipla (ACM), teste chi-quadrado e regressão logística ordinal entre SE e perfil de visitantes. Se identificaram 7 SEC e 3 de regulação. Não foram encontradas associações significativas entre preferências por SE, desserviços e características sociodemográficas dos visitantes. A recreação apresentou a maior percepção média. O abuso de drogas foi o desserviço predominante. Os resultados fornecem critérios para a tomada de decisão no planejamento de unidades de conservação urbanas.

**Palavras-chave:** Espaços verdes; percepções; justiça ambiental; planejamento urbano

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# Servicios ecosistémicos culturales y diservicios en un parque urbano de Bogotá, Colombia

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**Resumen:** Los servicios ecosistémicos culturales (SEC) son importantes por contribuir a la salud física y mental de los habitantes, aunque han sido poco estudiados en poblaciones de bajos ingresos. Se pretende entender el significado del Parque Ecológico Entre Nubes (PEN) para los visitantes, a través de: 1) identificar las variables sociodemográficas asociadas a los diferentes servicios del ecosistema y diservicios; 2.) determinar cómo la importancia relativa de las interacciones con estas variables difiere entre los SEC. Se aplicó un cuestionario a 281 visitantes. Se realizó un análisis de correspondencia múltiple (ACM), prueba chi-cuadrado y ordinal logistic regression entre SE y perfil de visitantes. Se identificaron 7 SEC y 3 de regulación. El ingreso mensual y el nivel educativo estuvieron asociados a los SE. No se encontraron asociaciones significativas entre preferencias por SE, diservicios y características sociodemográficas de los visitantes. El abuso de drogas fue el diservicio predominante. Los resultados aportan criterios para toma de decisiones en planificación de infraestructura verde urbana.

**Palabras-clave:** Espacios verdes, justicia ambiental, percepciones, planeación urbana

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