

Ecological evaluation of terrestrial flora and fauna in the canton of Lomas de Sargentillo - Guayas for conservation purposes

Evaluación Ecológica de la flora y fauna terrestre en el cantón Lomas de Sargentillo - Guayas con fines de conservación

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Abstract

The present work aims to characterize and identify the species of flora and fauna in various sectors of the canton Lomas de Sargentillo, because they have been modified by the anthropogenic factor. With the objective of evaluating the flora and fauna of the place, through the methodology of rapid ecological assessment, as well as calculating percentage and frequency, identifying and recording 72 species of flora belonging to 34 families; of the 72 species recorded, 58 are native, 14 are introduced and no species of flora is endemic to the country. Fabaceae is the most abundant family, with the following species: Algarrobo (*Prosopis juliflora*), Guachapelí (*Pseudosamanea guachapele*) and Espino de sabana (*Mimosa pigra*). There are 3 species in critical conservation status: Pitahaya (*Hylocereus polyrhizus*), Amarillo (*Centrolobium ochroxylum*) and Ébano (*Ziziphus thyrsoiflora*), 2 species in danger of extinction: Guanábana (*Annona muricata*) and Teca (*Tectona grandis*), 6 species are vulnerable and 61 species are of lesser concern. The most numerous family is Fabaceae (legumes). There are 37 families with 59 species of fauna, of which 2 species are endemic: Ecuadorian lovebird (*Columbina buckleyi*) and Guayaquil squirrel (*Sciurus stramineus*), 55 species are native, and 2 species are introduced. In terms of conservation status, there is 1 endangered species, 1 species with insufficient data, 1 vulnerable species, 3 near-threatened species and 53 species of lesser concern. The most representative families are: Emberizidae and Ardeidae. Due to this diagnosis, it is necessary to design conservation strategies for the canton.

Key words: Biological diversity, rapid ecological assessment, biological values.

Resumen

El presente trabajo tiene como finalidad caracterizar e identificar las especies de flora y fauna en diversos sectores del cantón Lomas de Sargentillo, debido a que han sido modificadas por el factor antropogénico. Con el objetivo evaluar la flora y fauna del lugar; mediante la metodología de la evaluación ecológica rápida, así también se calcularon porcentaje y frecuencia, identificando y registrando 72 especies de flora pertenecientes a 34 Familias; de las 72 especies registradas, 58 son nativas, 14 son introducidas y ninguna especie de flora es endémica del país. Siendo Fabaceae la familia que posee mayor abundancia, con las especies: Algarrobo (*Prosopis juliflora*), Guachapelí (*Pseudosamanea guachapele*) y Espino de sabana (*Mimosa pigra*). Con relación al estado de conservación existen 3 especies en estado crítico: Pitahaya (*Hylocereus polyrhizus*), Amarillo (*Centrolobium ochroxylum*) y Ébano (*Ziziphus thyrsoiflora*) 2 especies en peligro de extinción Guanábana (*Annona muricata*) y Teca (*Tectona grandis*), 6 especies son vulnerable y 61 especies de preocupación menor. La familia más numerosa es Fabaceae (leguminosas). Así también con relación a la fauna se registraron 37 familias con 59 especies de fauna de las cuales, 2 especies son endémicas: tortolita ecuatoriana (*Columbina buckleyi*) y ardilla de Guayaquil (*Sciurus stramineus*), 55 especies son nativas, y 2 especies introducidas. Con relación al estado de conservación existen 1 especie en peligro de extinción, 1 especie con datos insuficientes, 1 especie vulnerable, 3 especies casi amenazadas y 53 especies de preocupación menor. Las familias más representativas son: Emberizidae y Ardeidae. Debido a lo diagnosticado se necesita diseñar estrategias de conservación para el cantón.

Palabras clave: Diversidad biológica, evaluación ecológica rápida, valores biológicos.

Introduction

Ecosystems are made up of a set of components that interact with each other through adaptations and dynamic processes based on the structure and functioning of each habitat. They present different degrees of resistance to changes caused by disturbances, both natural and anthropogenic. Sánchez-Arízaga (2012).

According to Kormondy (1994), this successional state is the result of the internal dynamics of the ecosystems themselves.

Margalef (1986) among the ecological aspects studied is the trophic niche, which expresses the interrelation of the organism with the ecological factors, that is, the position or

function of a population or part of it in the ecosystem.

The function that each species fulfills in the ecosystem, its ecological niche, is determined by several factors, the main one being biological relationships. Currently, the study area and surrounding areas present zones where ecological conditions have changed, such as an increase in degraded areas, increased erosion, and a decrease in the number of native and endemic species due to anthropic activities. Despite being altered ecosystems, they are providing refuge for species of low sensitivity and high biological value.

Dodson, *et al* (1985) points out that the importance of the ecological characterization



Figure 2. Fabaceae: Saman (*Samanea saman*) in the study area.

Research methods

This is a mixed research: quantitative and qualitative, with the purpose of characterizing, identifying and recording flora and fauna species.

By means of a field guide and the observation technique, records and interviews, the identification of flora and fauna species was carried out, indicating habitat, distribution and type of record.

Also, the data obtained from the flora and fauna of the site allow us to diagnose the current conditions and situational status of the area in relation to the importance of its biological value, which is based on identifying the species and comparing them in the list of conservation categories of the IUCN.

Results

In relation to the Ecological Evaluation of the terrestrial flora and fauna in the Lomas de Sargentillo - Guayas canton for conservation purposes, the following results were obtained:

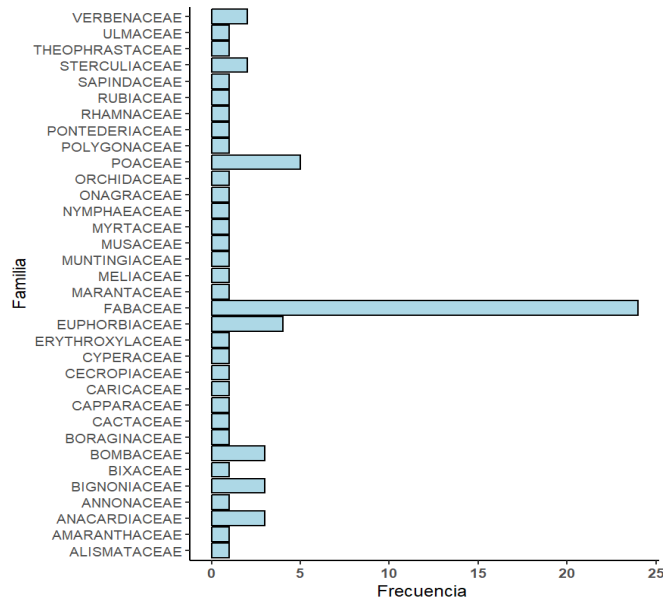


Figure 3. Frequency of flora species by family in sectors of the Lomas de Sargentillo canton.

Figure 3 shows that the highest frequency of flora recorded corresponds to 24 species of

the Fabaceae family, followed by 5 species of the Poaceae family, which are similar to species that are part of a tropical dry life zone.

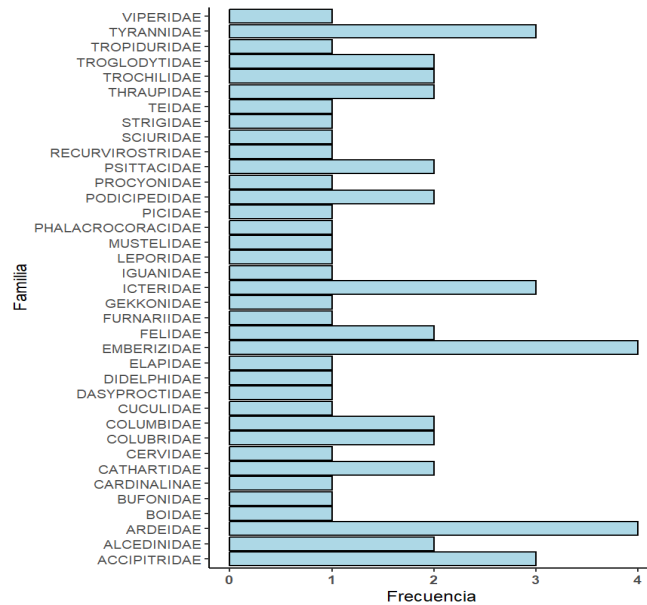


Figure 4. Frequency of fauna species by family in sectors of the Lomas de Sargentillo canton.

Figure 4 shows that the species with the highest frequency of Fauna correspond to the class Aves, belonging to the families Emberizidae and Ardeidae, which recorded a greater number of each with 4 species respectively; In relation to the Reptilia class, there are species belonging to the families Gekkonidae, Iguanidae, Bufonidae and Boidae and in relation to the Mammalia class, the families Didelphidae, Procyonidae and Felidae, most of the fauna species are considered cosmopolitan and correspond to species associated with a high degree of

adaptation or associated with ecotone zones and anthropic intervention.

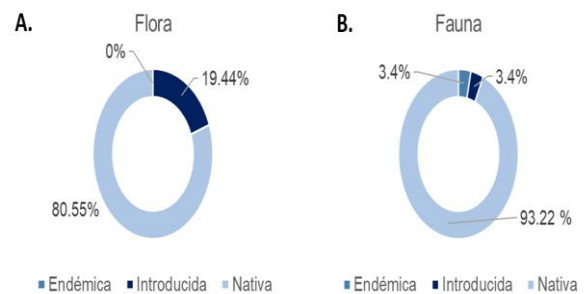


Figure 5A - 5B. Number of flora and fauna species according to their CITE conservation status in sectors of the Lomas de Sargentillo canton.

With 80.55% have a medium biological value because the species recorded are native; also with 19.44% the species have a low biological value because the species recorded are introduced; no floristic species of high biological value are recorded (Figure 5A - 5B).

With 90.32%, they have a medium biological value because the species recorded are native; and with 3.4%, the faunal species have

a high and low biological value, respectively (Figure 5A - 5B).

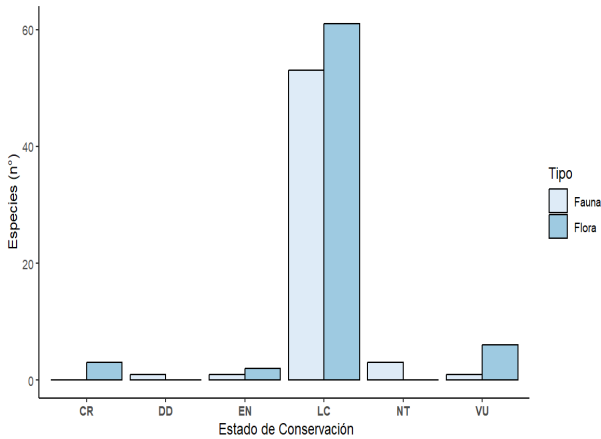


Figure 6. Number of flora and fauna species according to their biological value in sectors of the Lomas de Sargentillo canton.

In terms of conservation status, the highest number of flora and fauna species are of Least Concern, followed by vulnerable species and critically endangered flora species (Figure 6).

Saavedra (2021) recorded 88 species of flora, 114 species of birds, 20 species of mammals, 18 species of herpetofauna and 11 species of fish in the La Esperanza Provincial Area of Productivity and Conservation; of the total number of species identified, there are 10 species of fauna that present some degree of threat (4 species of birds, 5 species of mammals and 1 species of herpetofauna); In relation to the present investigation, the study area has 72 species of flora belonging to 34 families; and faunal species, 37 families with 59 species were registered, being the Aves class the most representative, because they are cosmopolitan species and also because of their high biological value, they would be necessary to promote the creation of a protection area.

Sánchez (2020) recorded 216 species of flora belonging to 70 families and 160 genera in the San Miguel Provincial Area of Productivity and Conservation (APPCSM), located in the foothills of the western mountain range, in the canton of Naranjal. The most diverse family corresponds to the Fabaceae; as in our study

area, it is the most representative family, due to its similarity in its life zone.

Herrera (2023), in the Proposal for the Declaration of Conservation Area and Sustainable Uses of the Candela Fazo waterfall located in Saquisilí, Játun Era, indicates the importance of caring for the areas due to the record of emblematic and native species; therefore, our research agrees with the need to implement these as conservation areas.

Conclusions

There were 72 species of flora, with 58 native species corresponding to a medium biological value; also in relation to the fauna, of the 59 species, 2 are endemic: Ecuadorian lovebird (*Columbina buckleyi*) and Guayaquil squirrel (*Sciurus stramineus*), and 55 species are native, providing a high biological value in what corresponds to the fauna of the canton.

Regarding the conservation status of the fauna, there is 1 endangered species: white-tailed deer (*Odocoileus virginianus-peruvianus*) belonging to the Cervidae family, 1 species with insufficient data, 1 vulnerable species: cachetigris parakeet (*Brotogeris pyrropterus*) of the Psittacidae family, 3 near-threatened species and 53 species of lesser concern.

Degraded spaces and habitats are evident due to the presence of demographic settlements near the sampling sites, generating anthropic environmental impacts.

Because of the flora and fauna species recorded, their degree of conservation and the importance of their biological value, it is important to create protected areas within the canton.

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