

Irregularity in the applications of Environmental Legislation in Enterprises in the urban area of Manaus

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Abstract— This shows an analysis of the New Forest Code with two enterprises in the city of Manaus /AM located around a Permanent Preservation Area (APP) with the purpose of comparing environmental standards with the execution of the enterprises. The results indicate that the enterprises do not follow the laws in force, thus being contributing to the degradation of the area. The presence of these large enterprises causes difficulties in the application of laws that preserve THE PAPs, causing the degradation of the same.

Keywords— Permanent Preservation Area (APPs); Environmental Legislation; environmental degradation.

I. INTRODUCTION

Population growth over the past few decades has been responsible for environmental degradation. In addition, this growth is one of the factors that contribute to changes in the ecosystem and becoming a threat to the life of various species of fauna and flora on the planet. Likewise, Bilac and Alves (2014) showed that the urban environment is related to environmental problems and that this expansion increasingly accelerated and disorderly.

In view, the problems caused by the anthropized action to the environment arose the need to create affective environmental legislation, which has the principle of protecting vegetation, water and soil for the common good of society. According to Borges et al. (2011), laws protecting permanent preservation areas (APP) arose as a result of protecting areas of a wide variety and richness in biodiversity, besides assisting in the permanence of man on earth. Additionally, Freitas et. al., (2013) clarifies that the legislation has the mission of conserving these areas, because most APs are located in areas of spring or water body. Thus, with the preservation standards these areas can be delimited and protected.

Protected areas can be monitored in several ways, as shown by the results of Nascimento et. al., (2005). The authors applied geoprocessing techniques in the applicability of legislation, thus delimited to the areas of permanent preservation, in the alegre river/ES river basin. While Carmo et. al., (2014), conducted the study on areas of permanent preservation around springs and the gaps and alternatives of Brazilian environmental legislation.

With environmental degradations becoming increasingly aggressive, especially in APP's, it was necessary to reformulate the Forest Code, Law No. 12,651 of 25 May 2012. Thus, the reformulation of the law portrays THE APP's as legally protected territorial spaces, environmentally fragile and vulnerable, and may be public or private, urban or rural, covered or not by native vegetation, but decreasing the ciliary forest area.

Second, The function of areas of permanent preservation not only has the function of ensuring vegetation and biodiversity, going beyond that, its purpose is to protect important spaces for the quality of environmental life, preserving water resources, ensuring a balance with the landscape bringing harmony, and thus protecting the soil and ensuring the well-being of the population (SCHÄFFER *et. al.*, (2011).

Thus, this work aims to evaluate the applications of the laws in force that protect app's, comparing them with two authorized ventures. In the analysis will be verified compliance with the standards of the Forest Code for watercourses. Since one of the ventures was used as a form of mitigation to minimize the impacts caused by the construction of the main venture.

II. METHODOLOGY

The research was developed in an APP area in the city of Manaus/ AM, located in a region with several residential and commercial developments. This APP is divided into two sections, having different characteristics regarding the processes that interfere with its maintenance.

The first stretch is located in a stretch of the mindu stream, between Djalma Batista Avenues and Constantino Nery, called "A" enterprise. While the second, it is the part of the

APP directly linked to the Billiard Park on Constantino Nery Avenue, called "B".

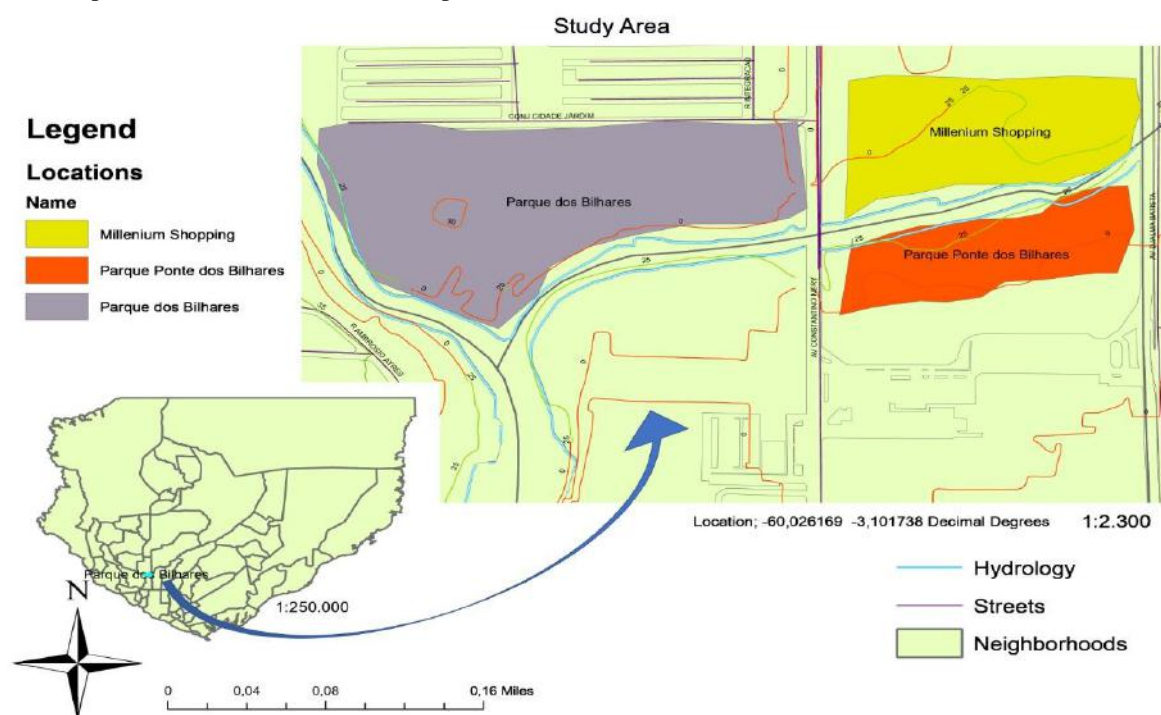


Fig.1: Location of the evaluated enterprises.

The criterion of choice and division of the contiguous areas of the APP's was the presence of large enterprises in the range of the reserve, and also the format of interference, which hinders the applicability of environmental legislation focused on preservation, with the purpose of relating environmental laws and norms with the execution of the two enterprises, in focus.

Initially, visits were made to the site in order to obtain the relationship between the enterprises, their respective measures, and the preservation areas. One of the criteria uses the sites were measured with the highest flow rate. In addition, measures were also used via the GPS of the Google Earth tool, in order to confront the measurements of some stretches (Table 1).

Table 1: Excerpts from data collections

Data collection	Excerptsobserved
Length (m)	Margin of the stream of the largest flow to the enterprise;
	Margin of the stream of the largest flow rate to the end of the vegetation;
	Margin of the stream of the largest flow until the beginning of the vegetation;

III. RESULTS AND DISCUSSIONS

In this section, the most relevant results of the comparative analysis of the environmental preservation law will be shown in two projects located in the south zone of Manaus/AM. The severity of the problems caused by environmental degradation puts at risk the survival of an entire ecosystem, besides affecting the health of those living in the surroundings. According to Article 225, the Brazilian Federal Constitution of 1998, establishing that: "Everyone is entitled to the ecologically balanced environment, as well as common and essential use to sound quality of life, imposing on the Public Power and the collective, defend it and preserve it for present and future generations".

The same decree defines the minimum widths between the APPs and nearby activities, in relation to the gutter and riverbed (Table 2).

Table.2: APP footage of the New Forest Code

D' WATER COURSES (WIDTH)	MINIMUM WIDTH
Lessthan 10 (ten) meters	30 meters
10 to 50 meters	50 meters
50 to 200 meters	100 meters
200 to 600 meters	200 meters
Over 600 meters	500 meters

From this description, it is noted that the fitting of the creek course within the first track. However, there should basically be diversity of fauna, flora and other environmental components, which was not observed and thus not met this criterion. The minimum width of 30 m, corresponds to the design of the structure of the building, together with asphalt (Enterprise A), indicating the non-compliance with the legislation. At the time of carrying out the work there were several embargoes of the Public Prosecutor's Office, but not making it impossible. This value is also observed and reiterated if we take into account the surroundings, described in Table 3.

Table.3: The minimum widths for areas around lakes and natural lagoons.

100 (one hundred) meters, in rural areas, except for the body of water with up to 20 (twenty) hectares of surface, whose marginal range will be 50 (fifty) meters.

30 (thirty) meters, in urban areas.

The areas around perennial springs and water eyes, whatever their topographic situation, at least 50 (fifty) meters.

According to the new Brazilian Forest Code, the balance between the urban area and the natural ecosystem must be maintained through the creation of permanent preservation areas. Despite the attempt in the areas analyzed, there was no movement of the enterprises around the preservation area, as a way to obey the new descriptions of the established laws. An example of the applicability of the laws was verified in Ribeiro's study (2011), where the author suggested that a limit should be used for activities that are developed around them. Thus, Table 4 presents the predetermined minimum widths along rivers or any watercourse. (Table 4).

Table 4: App Footage of the Old Forest Code

D' WATER COURSES (WIDTH)	MINIMUM WIDTH
Less than 10 (ten) meters	5 (five) meters
Equal to half the width of the courses	10 (dec) to 200 meters
Over 200 meters	100 meters
200 to 600 meters	200 meters

It is understood that the law enforcement process in urban areas is difficult to apply, due to the fact that the process of expansion of cities often do not fit the standards of activities in areas of preservation. The measurements showed that the two ventures did not obey the legislation.

In addition, one of the projects analyzed was sanctioned, including the creation of a park as a form of liability. However, the activities developed, the lack of effective public policies, lack of regulatory bodies and supervisors acting, end up not conducting the activities in order to comply with current legislation.

However, the enterprise represented in Figure 1 by orange color should be 50 meters from the APP, because measures showed that the localized water course has a width of 30 m. In addition, this space has a public route for the passage of cars. However, it is observed that the required measures are not in accordance with the provisions of the law. Furthermore, the width between the edge of the creek and vegetation are areas with a wide variety of flora, but in the case observed, they do not agree with the legislation, as it has a small area of 08 (eight) meters of vegetation.

Venture B was an attempt to try to reduce the impacts and degradation process caused by venture A, which led to the construction of the Billiard Park, created with the purpose of reducing the population occupation of the area. But over the years the Park was abandoned by the creators of it and the population due to lack of security. Currently, venture B is not in agreement with the law, because due to the presence of waste released in the creek, causing degradation of water resources, altering the morphological characteristics of the creek.

IV. FINAL CONSIDERATIONS

The design of environmental laws is to directly protect water resources, fauna and flora thus maintaining the balance of the environmental area and the quality of life of society. Thus, this work showed the applicability of environmental laws to two enterprises located very close to one APPs. Measurements were made that revealed that the two enterprises do not follow environmental legislation, and there is no monitoring of the organs to adapt the law. For the "A" project the construction of the park could minimize the impacts, but after a few years, with the accumulation of waste, waterways and the preservation area were affected.

The maintenance of the area could mitigate these impacts bringing quality to the environment and the population that frequent the site. To this end, inspections are extremely indispensable and may thus preserve natural resources and prevent serious problems.

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