THE ANALYSIS OF ECOLOGICAL REQUIREMENTS FOR SPECIES WITH POTENTIAL USE IN LANDSCAPE FROM THE SANDBANK OF THE MUNICIPALITY OF MARACANÃ, PARÁ STATE, BRAZIL

Lilian Carla Ferreira Favacho¹; Mário Augusto G. Jardim²; Fábio Gomes de Oliveira³ ⁴

ABSTRACT

The potential for urban afforestation use can be attributed to any plant that shows potential for ornamental use and, in general, any vegetable can have this potential. This study aimed to identify some ecological requirements for plant species with the potential landscape originally from the sand coastal of the Environmental Protection Area (EPA), on the Algodoal-Maiandeua Island, in the municipality of Maracanã, Pará State, Brazil. We investigated eight species involving trees, palm trees and shrubs. We observed that seed propagation, medium brightness and recommended planting in external environments are the predominant characteristics. The species have potential for afforestation on streets and gardens, but further studies are required to boost the cultivation and marketing of the species.

Key-words: Floristic Composition, Ecologic Status, Propagation, External and Internal Environments.

REQUERIMENTOS ECOLÓGICOS DE ESPÉCIES COM POTENCIAL PAISAGÍSTICO DA RESTINGA DE MARACANÃ, PARÁ

RESUMO

O potencial paisagístico pode ser atribuído a todo vegetal que apresente um uso ornamental e de maneira geral, qualquer vegetal poderá ter essa finalidade. Este trabalho teve como objetivo identificar alguns requerimentos ecológicos de espécies vegetais com potencial paisagístico da restinga da Área de Proteção Ambiental, Algodoal-Maiandeua, Maracanã, Pará, Brasil. Foram investigadas oito espécies entre árvores, palmeiras e arbustos. Observou-se que as características dominantes foram: propagação sexuada por sementes, luminosidade média e plantio indicado no ambiente externo. As espécies apresentam potencial para arborização urbana e jardins. Novas pesquisas poderão auxiliar no cultivo e na comercialização.

INTRODUCTION

Any plant has potential to be used in ornamental landscaping of an environment (TOMBOLATO, 2008). For Heiden et al. (2006), primitive civilizations already observed the plants that had shape and aesthetics for ornamental use. Over time, the population growth suppressed many green spaces, leading to a decline of the richness of native species. Currently, urban landscapes are created to promote soil quality, recreational sites and revitalization of neighborhoods.

The use of native plant species is essential to preserve biodiversity in urban areas (ISERNHAGEM et al., 2009). Stumpf et al. (2007) and Reis et al. (2003) suggest that the urban spaces try to rescue the original landscape of the region relying on the creative perception of local residents to value biodiversity in the urban environment.

The use of native species in the domestic market can contribute to the development of this market sector and expand the array of products offered to enhance biological diversity. Brazil has great floristic biodiversity where about 5,000 native species are used in urban afforestation (VEIGA et al., 2009). However, introducing native species in the production chain of seedlings requires investment in research and training to re-adequate the production (HEIDEN et al., 2006).

For Tombolato (2008) ornamental native species constitute an alternative income source for small and medium-sized farmers. Although there is a demand for the use of native species in landscaping projects, the production sector is still insufficient, which makes it unfeasible to promote ecological and regional landscaping projects (HEIDEN et al., 2006).

The objective of this study was to identify and describe the ecological requirements of species with potential use in urban landscaping, obtained from the Environmental Protection Area (EPA) on the Algodoal-Maiandeua Island, municipality of Maracanã, Pará State, Brazil.

MATERIAL AND METHODS

Study site

The EPA Algodoal/Maiandeua is located on the municipality of Maracanã, northeastern Pará State, Brazil. This EPA is an ocean island 200 km from the state capital city of Belém and it is located at 00º 35’ 03” to 00º 38’ 29” S latitude and 47º 31’ 54” to 47º 34’ 57” west longitude (MARGALHO et al., 2009). The species were registered with a Cannon camera. The photographs were sent to the coordination of Emilio Goeldi Museum of Botany of Pará for botanical identification in the APG III system (2009). For the description of growth and propagation features of the species, we used the specialized botanical and ecological literature at http://floradobrasil.jbrj.gov.br. The standards for brightness (high, medium, and low) were adopted to recommend the use of the species in external and internal environments.
RESULTS AND DISCUSSION

We selected eight species with potential for landscaping use. Table 1 shows the botanical identification, growth feature, propagation and brightness type.

Table 1. Species from the EPA Algodoal-Maiandeua, municipality of Maracanã, Pará State, Brazil, with landscape potential characterized by family, genus, species, growth feature (GF), propagation type (PT): seed; asexual propagation and brightness type (BT).

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>GF</th>
<th>PT</th>
<th>BT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apocynaceae</td>
<td>Hymathantus articulatus (Vahl) Woodson</td>
<td>tree</td>
<td>Seed</td>
<td>high</td>
</tr>
<tr>
<td>Areceaceae</td>
<td>Bactris hirta Mart.</td>
<td>palm</td>
<td>Seed</td>
<td>low</td>
</tr>
<tr>
<td>Areceaceae</td>
<td>Mauritiella armata Mart.</td>
<td>palm</td>
<td>Seed</td>
<td>high</td>
</tr>
<tr>
<td>Areceaceae</td>
<td>Mauritia flexuosa L.f.</td>
<td>palm</td>
<td>Seed</td>
<td>medium</td>
</tr>
<tr>
<td>Clusiaceae</td>
<td>Clusia columnaris Engl.</td>
<td>tree</td>
<td>Seed</td>
<td>medium</td>
</tr>
<tr>
<td>Clusiaceae</td>
<td>Platonia insignis Mart.</td>
<td>tree</td>
<td>seed/asexual</td>
<td>medium</td>
</tr>
<tr>
<td>Lecythidaceae</td>
<td>Eschweilera ovata (Cambess.) Miers</td>
<td>tree</td>
<td>Seed</td>
<td>medium</td>
</tr>
<tr>
<td>Sapindaceae</td>
<td>Pseudima frutescens (Aubl.) Radlk.</td>
<td>shrub</td>
<td>Seed</td>
<td>high</td>
</tr>
</tbody>
</table>

Sexual propagation by seeds was dominant except for Platonia insignis Mart. Among the eight species, four grow in medium luminous conditions (secondary succession plants); three in high luminosity and one in low luminosity. Therefore, all species have potential to be used in urban afforestation. Propagation by seeds is a positive factor for the market; however, there is no infrastructure to collect and supply seeds in the local market.

Regarding morphological and environmental characteristics of the species studied, we observed that M. flexuosa (Figure 1a) and M. armata (Figure 1b) are found on solid ground and in marshes. They are palm trees that can reach up to 30 m tall. Their fruits are edible fruits and the species are seed-propagated requiring a considerable amount of light to grow and reach sexual maturity. M. armata has formation of tussocks with needles and, therefore, need to be planted in areas without contact with passersby (CLAY et al., 2000). These species, as well as other arecaceae, were recorded in urban afforestation in the Distrito Federal in Brazil (Salman et al., 2008) and on eight squares in the city of Planalto, Bahia State in Brazil (Silva et al., 2012). Because they offer beautiful architecture, they are used in the afforestation of gardens, parks and medians. The palm tree B. hirta (Figure 1c) has elegance, small size of tussocks and absence of spines on its leaves, which make it an ideal species for shady gardens and indoor environments, and it can also be used in afforestation of squares (LORENZI et al., 2010). H. articulatus (Figure 1d), P. insignis (Figure 1e), C. columnaris (Figure 1f), P. frutescens (Figure 1g) and E. ovata (Figure 1h) are species that can provide good shading and, therefore, with potential to be used in urban afforestation. Their fruits are edible and recommended for private gardens and even “orchard gardens” largely used in country houses (RIZZINI and MORS, 1976).
CONCLUSION

The species studied show potential to be used in afforestation of urban streets, squares and gardens as well as in indoor environments; however, their use is limited by the lack of research on propagation and cultivation in the urban environment. Moreover, the absence of a production chain for this sector hinders the production and marketing of the species.


REFERENCES


Lilian Carla Ferreira Favacho et al.


