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WITH RESPECT

BIODIVERSITY ACTIONS

CARNAUBA IN NORTH-EASTERN BRAZIL

A Case Study

A Biodiversity Action Plan (BAP) provides guidance in designing and implementing concrete practices on sustainable use and conservation of biodiversity when growing and sourcing natural raw materials.



CARNAUBA *Copernicia prunifera*

The Facts

- A palm tree endemic to North eastern Brazil
- Grows wild in groups (“Carnaubais”), mostly in riparian areas such as flood zones or near rivers
- Main product is Carnauba wax, used in food, cosmetics and pharmaceutical industries
- The wax is extracted from the leaves
- New foliage grows each rainy season, to be harvested the next year
- Cut leaves are sun-dried, releasing a fine powder used to produce the wax
- The process of cutting the leaves for the production of wax does not harm the tree
- Provides income for local people during the dry season, when there are few agricultural opportunities
- Carnauba wood is used in local construction and Carnauba fruits are used for animal feed and human consumption

Caatinga and Cerrado

Carnauba trees are found in two biomes of great ecological importance: the Caatinga and the Cerrado. These two biomes are unique ecoregions, both characterized by an abundance of flora and fauna and high levels of endemism. The Cerrado is considered a global biodiversity hotspot.

Despite their high ecological value, these areas are two of the least protected ecoregions in Brazil. Almost half of the Caatinga area has been deforested, mainly due to expansion of agriculture, illegal logging and wildfires. The Cerrado has had a very high rate of deforestation in recent years because of soybean cultivation. Riparian areas, where Carnauba trees are found, are particularly vulnerable to agricultural expansion because of their fertile soil.

Invasive species

Invasive species put local fauna and flora at risk. The riparian vegetation of the Caatinga biome is especially threatened by the rubber vine (*Cryptostegia madagascariensis*), a plant originating from Madagascar. This invasive species competes with other (mainly native) plant species by blocking their exposure to light, eventually leading to their death.

Revegetation activities contribute to the regeneration of ecosystems. It also contributes to the well-being of local communities. Seed banks and nurseries for the production of seedlings are also sources of income and employment for local communities. Seed collection is carried out by local people who are paid for this work.

Regeneration of species important for food and industry interest and the establishment of agroforestry systems contribute to food security and diversifying food sources for the long-term.

REGENERATION



CERRADO TREE: SPONDIAS TUBEROSA | INSET: CERRADO FRUIT

GOAL 1 REGENERATION OF THE CAATINGA AND CERRADO BIOMES

Possible Actions

- **Establish seed banks and nurseries of native and threatened plant species from the biomes**
 - The main endangered species of flora are identified, with priority for species of interest for humans and wildlife (such as fruit trees).
 - Seeds are collected to create seed banks, including seeds from different genotypes.
 - The seed banks supply quality seeds to establish seedlings from native and threatened Caatinga and Cerrado vegetation in nurseries.
- **Restore degraded lands through revegetation**
 - Degraded areas in Carnauba fields and surroundings are identified to be revegetated.
 - Riparian areas or areas susceptible to soil erosion are prioritized for restoration.
 - Seedlings from the nurseries are used for revegetation. The seedlings are planted at the beginning of the rainy season.
 - Carnauba leaves can be used as mulch to restore soil fertility.
- **Establish agroforestry systems**
 - Legume species or fruit trees are planted among Carnauba trees to create an agroforestry system.
 - By creating agroforestry systems, soil and water quality are improved.
- **Limit the impacts of the wax processing stage**
 - Transforming the powder into wax requires melting the powder. For this process, native trees are often cut and burned.
 - Better alternatives are to source firewood from plantations, or replacing firewood with renewable alternatives, such as using residues from the extraction of the Carnauba powder.



GOAL 2 STOP THE EXPANSION OF INVASIVE SPECIES IN THE CAATINGA AND CERRADO BIOMES

Possible Actions

■ Support research and development of biological control technology to eliminate invasive species

- Biological control technologies include fungi. Local universities are researching which fungi can fight the invasive rubber vine.
- Local carnauba processing companies are providing economic support as well as experimental fields where biological control actions can be tested.

■ Work to eliminate invasive plant species in Carnauba forests

- Invasive species are identified and mapped.
- Eliminate invasive species manually, in a manner that does not disturb other flora and fauna: flowers, seeds and branches are cut to weaken the plants, then the roots are taken out of the soil. The seeds are removed before they can spread. For rubber vine this is the best practice so far and it is best if carried out during the rainy season, when flowering and fruiting are at their peak.
- Removed plants are put in a pile and left to dry to serve as mulch, or eliminated using controlled fires, with the permission from the competent authorities.
- Seeds are collected and contained.
- Elimination practices have to be repeated over time to control re-growth. Close monitoring is done in the second and third years after elimination to control re-growth of juvenile invasive plants.

■ Educate Carnauba supply chain actors on environmental issues

- An education project is developed and financed by the local Carnauba processing companies and its execution is monitored.
- The focus is stopping the spread of invasive species, following good collection practices, reducing the practice of hunting and protecting the two biomes.

EXPECTED IMPACT

A 2017 comprehensive literature synthesis¹ that reviewed multiple scientific studies on biodiversity conservation techniques shows that:

- Fauna colonises reforested areas; its abundance is similar to that found in natural sites.
- Isolated populations are vulnerable to extinction. Improving the inter-connectivity of habitats contributes to the preservation of fauna and flora: revegetation of biological corridors enhances interconnectivity of habitats and genetic exchanges between species.
- Agroforestry reduces erosion and increases soil organic matter.



MARGAY / LEOPARDUS MIEDII

Eliminating invasive species has multiple positive effects, from benefiting the local endangered flora and fauna, to clearing thick obstructions of vines that make Carnauba collection more difficult for the workers and less productive.

Above, right, below:
The margay, the six-banded armadillo and the blue parrot are all local fauna that can benefit from removal of invasive rubber vine.



CONSERVATION



LEAF'S MACAWS (BLUE PARROT) / ANODORHYNCHUS LEAFI | INSET: SIX-BANDED ARMADILLO / EUPHRACTUS SEXOINCTUS

HOW TO BEGIN?

Acting for biodiversity means acting in a systemic and context specific way. You can:

- Assess opportunities and threats to biodiversity in the context of your sourcing.
- Implement actions that focus on conservation, restoration, and sustainable use.
- Plan different measures and coordinate with different actors along the supply chain.

Roles and responsibilities

- An external consultant from a local university was engaged by UEBT to assess the situation and identify needs and measures.
- Carnauba processing companies are engaged to validate the work of the consultant and choose which measures to promote.
- Carnauba processing companies commit economic resources and expertise to implement the measures.
- Local organizations—including local universities—work with companies to find best solutions to implement.
- Suppliers, farmers and field operators contribute to the practical implementation of some actions.
- Specific actions and a work plan are defined for each Carnauba forest. Monitoring begins one year after implementation.

Learnings to share

Carnauba processing companies have been impacted by the deterioration of the Caatinga and Cerrado biomes.

The starting point for these actions was to deal with the direct threat of invasive species. The biodiversity assessment commissioned by UEBT brought attention to a more indirect threat: the degradation of the Caatinga native flora and fauna. Compliance with the UEBT standard motivated companies to expand actions to regenerating biodiversity.

These actions are part of a sector-wide initiative called the [Initiative for Responsible Carnauba](#) (IRC). The biodiversity assessment commissioned by UEBT is meant to support all local Carnauba wax processing companies.

The UEBT Standard

UEBT's Ethical BioTrade Standard—through its requirements in Principles 1 and 2 (Conservation of Biodiversity/Sustainable Use of Biodiversity) guides its members and their suppliers to define and implement systemic approaches to biodiversity conservation and sustainable use. To facilitate this process, UEBT recommends companies adopt Biodiversity Action Plans as a strategic road map for businesses to contribute to reversing the loss of biodiversity on Earth.

The starting point for the biodiversity actions was the motivation of Carnauba processing companies to face the most direct threat to their activities: the presence of invasive species.

Compliance with the UEBT standard motivated companies to expand their actions and include the regeneration of the Caatinga's and Cerrado's rich biodiversity.

About UEBT and this work

This case study is one of many examples of plans and types of actions that can be taken to reduce negative impacts on biodiversity or promote positive impacts.

UEBT has drawn this material from its work with various companies and provides these cases to inspire companies to take concrete actions in their own supply chains.

UEBT wishes to thank the three member companies who developed a BAP on Carnauba, and whose work inspired this case.

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On behalf of:



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References

¹ Smith, R.K., Meredith, H. and Sutherland, W.J. (2017) in: W.J. Sutherland, L.V. Dicks, N. Ockendon and R.K. Smith (eds) *What Works in Conservation 2017*. Open Book Publishers, Cambridge, UK. (Smith et al; 2017)

Picture references CARNAUBA PALM *COPERNICIA PRUNIFERA*, CERRADO TREE AND FRUIT *SPONDIAS TUBEROSA*, LEAR'S MACAWS (BLUE PARROT) *ANODORHYNCHUS LEARI*, SIX-BANDED ARMADILLO *EUPHRACTUS SEXCINCTUS*, MARGAY *LEOPARDUS WIEDII*.



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