



**FOREST MANAGEMENT**  
*PUBLIC SUMMARY*

**PanAmerican Woods Plantations S.A., Costa Rica**

September 2017

Plantations Palo Arco, Moravia and Carrillo  
Guanacaste, Costa Rica.

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Certifier: Rainforest Alliance  
65 Millet Street, Suite 201, Richmond, Vermont USA 05477



## **FSC® Statement**

**Panamerican Woods Plantations (PAWP) is voluntarily and fully committed to the principles and criteria promoted by the Forest Stewardship Council® for environmentally appropriate, socially beneficial and economically viable management of its forest management units located in Guanacaste, Costa Rica.**

**PAWP as a company, promotes and sponsors the independent monitoring of its operations, including its social and environmental impacts, in order to ensure compliance with the FSC® standards and principles as well as continuously strive to improve the nature and scope of its activities.**

**PAWP proudly received its first FSC® certificate in 1999, successfully maintained its status for over a decade as an FSC® certified company and currently holds license code FSC® C018348.**

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**Folkert Kottman**  
**CEO Panamerican Woods Plantations S.A.**

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## Introduction

Between 1983 and 1994 the company Bosque Puerto Carrillo purchased 3822 hectares of land on the Nicoya Peninsula. The properties bought were located in three areas.:

- The plantation “Puerto Carrillo” measures 1363 ha and is situated close to the Pacific coast behind the beach towns of Puerto Carrillo and Samara.
- The plantation “Palo Arco” measures 2124 is located some 30 kilometres southeast from Carrillo. The plantation can be reached by road from Jicaral-Coyote.
- The plantation “Moravia” measures 335 ha and is situated in the valley east of Palo Arco. The nearest village is Moravia (also called Zapote).

The previous land use of the properties purchased, was almost exclusively extensive cattle ranching on the slopes and hills. In the flat areas of Palo Arco and Moravia the land was used for cattle ranching and to a lesser extent for the cultivation of maize, sorghum and rice.

Approximately 2895 hectares of the properties were planted by Bosque Puerto Carrillo in the 1980’s and 90’s with teak (*Tectona grandis*) and the native species pochote (*Pachira quinata*). Bosque Puerto Carrillo made significant investments in local infrastructure including among others bridges, houses, a landing strip and a 16.000 m<sup>2</sup> flooring factory “Bosque Puerto Carrillo Industry S.A.”. These developments resulted in positive impacts to the surrounding communities in the form of vast labour opportunities, public infrastructure and local services contracted.

However, during this starting up phase, negative impacts were also observed such as the large-scale felling of trees in pastures and (small) areas of secondary forest were converted in plantations. These actions, although they must be observed taking into account the common practices of the time with deforestation in Guanacaste reaching its peak level due to cattle ranching, were regrettable.

Controlling interest of the company came in the year 1998 in the hands of the Dutch 'Nederlandse Internationale Bosbouw Onderneming' (NIBO) N.V. and this led to major changes in the company.

The name of the company was changed into PanAmerican Woods in order to mark this important turning point in the company. The new course of the company was set by a completely new management team at sustainable forest management at both an environmental as well as a social level.

Thanks to these changes, the company received in 1999 its first FSC® certificate and maintained the same ever since. Annual FSC® audits, fulfilled by independent auditors, check the company’s compliance with the FSC® set of rules and principles which aim at ensuring sustainable forest management.

## **Policy statement PanAmerican Woods S.A.**

- *PanAmerican Woods S.A. aims at the sustainable production of high-quality teak (Tectona grandis L.f.) hardwood. The property of PanAmerican Woods S.A. will produce a constant quantity of teak timber that mainly will be exported in the form of logs or Rough squares.*
- *PAW will protect the long term social and economic well being of its workers and local communities, through the provision of safe working conditions, acknowledging the right of workers to negotiate terms and conditions of living and of work in accordance with Costa Rican policies and regulations, complying with all other applicable laws and regulations related to worker's rights and privileges, providing appropriate training, and encouraging worker's commitment and productivity.*
- *PAW will respect all applicable laws and regulations and keep close contact with government bodies in Costa Rica.*
- *PAW will only operate on land to which it has clearly defined and documented legal rights.*
- *PAW aims at operating a commercially viable tree plantation to produce high quality teak timber, in such a way as to complement the remaining natural forests and surrounding eco-systems, and to provide benefits to local communities.*
- *PAW will also aim at adding shareholder value i.e. creating a healthy financial return. By making this third and last step after acting ecologically and socially sound, PAW aims at being a truly sustainable company, able to be self financing and thus serving the needs of all.*
- *PAW will incorporate in its management operations the protection of watersheds, natural forest remnants, wildlife and other forms of biological diversity, within the boundaries of its properties.*
- *The areas where ecological values are preserved or restored and maximized will be spatially arranged by PAW in such a way as to form a lasting, interlinked ecological network within the plantation and also serve to restore and to preserve ecological corridors for the environment of the plantations. These ecological areas will be legally secured for future generations.*

- *PAW will conduct appropriate and reliable monitoring of its operations, including its social and environmental impacts, in order to continuously improve the nature and scope of its activities.*
- *PAW will sponsor the independent monitoring of its operations, in order to ensure compliance with internationally accepted criteria for the establishment and management of plantations in the tropics, such as the principles and criteria proposed by the Forest Stewardship Council® [FSC®] for plantations anywhere in the world.*
- *PAW will implement, and periodically review and update, its Management Plan, in order to meet the objectives of the company, to maintain full compliance with national regulations, and to continuously improve its financial, social and environmental performance.*

## **Tree crop specie planted**

Pochote (*Pachira quinata*) is a native specie that grows well in the area and produces a good quality wood in the very long term. Thirty-nine hectares of pochote have been planted in the Carrillo plantation during the ninety eighties.

In 1986 the main specie planted in the plantations of the company changed into *Tectona grandis* (teak), since that year 2861 hectares been planted with this specie until 1994. The selection for teak as the major specie to plant is directly related to the overall objective of the enterprise: the production of high quality wood. Teak wood is used for a wide variety of applications and is excellently suited for structures of all kinds, both in and out of the water, as well as for interior finishing and furniture.

Teak is native from India, Burma, Thailand and Laos and grows best in a warm tropical climate with a dry season of 3-5 months, rainfall of about 1500 to 2000 or more millimetres per year, and a mean annual temperature of 22-27 °C. (Keogh, 1987). Teak is a deciduous tree what implies it sheds its leaves during the dry season when dormant, very similar to species of Guanacaste such as ceiba, Guanacaste trees, roble de sabana, etc. Teak attains heights of 25-35 meters and diameters of 100 centimetres or more. The root system of teak remains shallow and responds sensitively to oxygen deprivation and does not tolerate waterlogging.

## **Natural forest areas, Protection zones and ecological upgrading**

Transects of natural forest are mainly located alongside streams, valley bottoms, around wells and in the more inclined areas. The larger part of the natural forest can be classified as *Bosque Húmedo Tropical con asociación atmosférica seca*.

Since 1999 tropical biologists conduct on a regular basis extensive inventories of the local flora and fauna inside the protection zones and the teak production areas. Based on the findings of these inventories and recommendations made by the biologists, 8 connecting ecological corridors have been installed in which the teak trees have been removed and native tree species planted which are developing satisfactory. An annual average of 1000 seedlings of native tree species, most of them in danger of extinction and all native to the local area such as Cristobal (*Platymiscium parviflorum*) and Cocobolo (*Dalbergia retusa*), have been planted by the company since 2000. These plantings took mainly place in protection areas as well as along roadsides and drainage channels.

Biological inventories have identified 55 tree species, 122 bird species and 30 species of mammals. These sightings were mainly made in protection zones as the same provide ample benefits such as food and water sources, shelter and reproduction areas. However, several fauna species make use of teak plantations as an alternative habitat. Teak plantations do provide animals forested transit options between protection zones and do provide protection, shelter and resting areas (for example deer, felines, boar). Furthermore, teak plantations provide food sources (for example, termite nest in teak trees are very common and are frequented on a large scale by anteaters and squirrels do love teak seeds). Teak trees provide well used nesting options for a wide variety of birds (among others raptors, warblers, fly catchers, parakeets).

Since the year 2000 the total area of protection zones in the 3 farms have increased, in line with the policy of the company, with 333,1 hectares and now cover 1204,9 hectares which represent 31% of the total area of PanAmerican Woods. It is strictly forbidden to hunt, burn, graze or collect flora and fauna in these protection zones.

## **Environmental impact assessment**

An environmental impact assessment has been carried out. The compensatory recommendations of this study have been incorporated in the operational forest management plans of the company. These compensatory and corrective measures are thought to diminish or compensate negative impact, as well as to improve the general environmental quality of the properties.

- In the garages sawdust and special oil baths are used to avoid oil spills.
- Fuel and oil residues should be handled and stored with care in a designated location awaiting proper waste treatment by licensed entities all in accordance with regulations and national laws.
- Used oil and fuel filters from cars, tractors, saw-machines, etc. are recycled thanks to the collaboration with CEPESA and ECOWAY.
- Education on *environmental awareness* is continued to be given to the people working in the field and garages. Discussion about this issue is encouraged in group meetings.
- The environmental education includes the identification of threatened or endangered species in order to be able to protect them better.
- Agrochemicals will always be used with extreme precautions, minimized where possible, respecting national regulations and with the outmost care for the safety of our workers and the environment (ECOWAY).
- Protection gear used in the application of agrochemicals is transported at the end of its usage to authorized kilns for proper destruction (ECOWAY)
- The use of heavy machinery will be restricted to the roads and temporary log tracks in order to minimize the damage on the soils in the field and diminish the risk of erosion. Skyline systems and winches will continue to be used to extract wood from inclined sites and harvesting operations are only carried out during the dry season when the soil is firm.
- It is important to consider the important biological balancing role of the natural protection zones in the plantations that are preserved, protected and increased in size on a yearly basis
- Planting of native trees in the protection zones of the plantation and along public roads in order to improve the status of the local ecosystem.
- Increase the presence of a native vegetation layer in the tree plantation by means of a better management of the light. This implies stronger thinning's when possible, in order to allow more vegetation to develop under the tree canopy layer. This will be taken into account during the thinnings schedule planning.
- Unwanted expansion of teak outside the plantation is monitored and controlled if necessary.
- Improving and following a fire-fight strategy in all the plantations as well as provide assistance in neighbouring properties in case of wildfire
- Monitor any illegal activities such as hunting, grazing or collection of flora and fauna inside the plantations and protection zones. In case the same is detected assistance of officials of SINAC will be requested.

- Participate actively in the ecological corridor organization “Corredor Biológico Hojanca-Nandayure through BOD membership.

## **Health and Safety Programs**

PanAmerican Woods S.A. aims to offer its workers with the safest and healthiest working conditions available. Therefore, PAW has developed a complete Health and Safety Policy. The company is executing this Policy through the development of “*Health and Safety Programs*” according to the Costa Rican laws and procedures. The process includes the development and Implementation of:

- "Health and Safety Regulations" (Reglamento de Seguridad e Higiene Ocupacional)
- "Health at Work Program" (Programa de Salud Ocupacional)
- "Emergency Plan" (Plan de atención de Emergencias).
- “Health and Safety Supervision: Department” (Departamento de Seguridad y Salud Ocupacional)

All these programs and documents have been revised and approved by the ministry of Law and the National Insurance Company of Costa Rica, and its implementation is being carried out with the help of a full-time office of health and safety which has been installed in 2008. The documents have been explained and are available to all employees. The compliance of all requisites is periodically checked by inspectors of the government, independent auditors as well as by an on-going supervision system carried out by the officers of PAW’s health and safety department.

The Health and Safety Regulations present all rights and duties of the company and for employees to be accomplished in relation with safety matters. It includes rights and duties compulsory by Law, but also other commitments from the company itself. An example is the obligation for the company providing to employees with all the required safety equipment, and the obligation for the employees of wearing the safety equipment, etc.

The Health at Work Program is where the safety policy of the enterprise is transformed into an operational plan. It includes schedules, and organisation of Training activities.

The health and safety office carries out an on-going continuous system of control of the implementation of all former explained activities, and of the Health and Safety situation of the company. It is carried out by a specialist in "Ciencias de Salud Ocupacional y Seguridad Laboral" who has been hired in 2008 on full time basis in order to supervise all operations related with the programs and control. This supervision is also in charge of all training activities related with Safety, Health, Labour Laws, Fire fighting, Emergencies, Management of Safety Equipments, etc. This office will last for as long as the company itself.

## **Social Impact**

PAW provides a year-round stable source of income in a region with limited economic activities. PAW applies preference in contracting people from the local region and trains them for their specific job and supplies the necessary safety equipment. PAW complies with all Costa Rican legislations and laws regarding social security and wages paid.

PAW aims at maintaining good, open relations with the local communities. Neighbours of these communities are given the opportunity to participate in training and educational programs by the company. The company provides for its neighbour's free access to the recreational and sporting facilities, loans machinery, provides free fuel and construction wood, assists in the case of the occurrence of natural disasters. Financial donations are made to local non-profit organisations in order to assist in realizing programs and projects that benefit the local communities and the surrounding natural environment.

Furthermore, PAW collaborates in the maintenance of public roads and infrastructure. PAW has good and stable relationships with local and regional government, research institutes and universities and will maintain these relationships, sharing information and providing free access and lodging to visitors.

A social impact study was fulfilled in 2014 by an independent group of Costa Rican consultants. The following text contains the conclusions of this report:

- A significant advance has been made with regards to communal development. The same can be determined when taking into account the financial investments made in public spending in infrastructures, housing, education as well as the development of job openings.
- The participation of communal organizations is fundamental for the development of the region and the work done has improved the overall quality of life for the inhabitants of the region what indicates the importance of assisting these types of organizations.
- Education in the region requires important impulses, significant steps have been taken. However, poverty prevails as the largest obstacle for the possible gain to be made. Education is not being enjoyed by all habitants of the region and is not entirely promoting conditions for young people to prepare themselves for the job opportunities in the region.
- The unemployment problem is clearly visible in the region, reflected in the migratory search for stable, good employment in accordance with national laws and regulations which locally is quite scarce with the exceptions of reforestation companies, tourist operators and some real estate developers.

- There seems to be a lack of information with regards to the cultivation of teak. This results in a negative profile in the communities in despite of the mayor impulse the company has had on the overall development of the region being one of the mayor employers in the zone with benefits not only reaching its employees but the local communities as a whole.
- The different peaks in productivity of the plantations have caused considerable amounts of jobs resulting in the positive and fast moving positive trends in local development. However, from time to time the amounts of jobs have fluctuated affecting the household economy of families.
- The management of water is very important. The overall objective is always to prevent unnecessary water usage, share water with the local communities, protect natural vegetation in protection zones.
- Pan American Woods S.A, has provided materials for local development projects which are directly benefit the inhabitants of the region. However, the social policy should always aim at diversification and anticipate material requests with proactive action plan proposals. The social approval of the communities of the region is always positive for future projects that aim to impulse a better coexistence and improved relations.
- Continue with the assistance to national policies regarding sustainable development and the protection of biogenetic resources.
- Inform the local communities about steps and actions taken for the protection of natural resources and water management.
- Promote the development of public infrastructure through negotiations with municipalities and searching for alternative resources for the realization of better transport and communication in the region
- The company has assisted universities and their students who are conducting forestry related research, facilitating transport and lodging as well as providing information and internal research results.

In the same social impact study report a social plan was presented which can summarize with the following table and which have been incorporated in the long term and operational Forest Management Plans of the company:

| Área                          | PAW activities   |
|-------------------------------|--|
| Local community development   | <p>Periodic social consultations: participate in meetings which permit communication with the local community leaders and development groups</p> <p>Continue with the cooperation with local, organized, community groups</p> <p>The company's social policies will continue to be respected</p> <p>Occupational health and safety programs will continue as well as the emergency plan provided by the company being in this way a model example for the region</p> <p>Assistance and financial donations will continue to be provided to local community development groups which request the same (schools, colleges, churches, nature conservation groups, etc)</p>            |
| Natural resources             | <p>The company will continue to participate in community activities related to environmental education organized in the region</p> <p>The water catchment areas within the company's estates will continue to be protected</p> <p>The natural resources and ecosystems present in the estates will continue to be monitored and the scientific results will continue to available to research institutes, schools and colleges.</p> <p>The company will maintain contact with MINAE for the protection of natural resources</p> <p>The company will maintain contact with MINAE and emergency commissions in order to prevent and combat natural wild fires whenever necessary</p> |
| Social economic               | <p>Local people will have preference when hiring workers</p> <p>The company's installations will continue to be available for training by for example public an private organization in order to contribute to the local social and economic development</p>   |
| Education                     | <p>The natural resources and ecosystems present in the estates will continue to be monitored and the scientific results will continue to available to research institutes, schools and colleges.</p> <p>Students and universities will be assisted in their research by providing access and lodging</p> <p>The company will continue to be active in the local activities related to the environmental education in the region</p>  |
| Training                      | <p>Training programs will continue to be provided to the company's workers and neighbors who might be interested</p> <p>The public version of the FMP will be available for the public as well as ecological inventory reports</p> <p>Refreshment courses will be given to the company's workers and neighbors</p>   |
| Recreation, sport and culture | <p>Local initiatives for the stimulation of culture, recreation and sport for will be promoted</p>   |

## **Monitoring and field research**

In order to be able to estimate standing timber volumes, annual increment and harvesting volumes to be expected an annual silvicultural inventory has been carried out during the last decade. The following tables provide a summary on mean diameter at breast height and mean commercial volume per hectare as well as total commercial volume per plantation area as for the first and second cycle concerned. All results have been calculated on the basis of the inventory conducted in 2017.

### **PALO ARCO 1st cycle**

| Area (ha) | Stand density (trees/ha) | DBH (cm) | Basal Area (m <sup>2</sup> /ha) | Commercial volume (m <sup>3</sup> /ha) | Commercial Volume Palo Arco (m <sup>3</sup> ) |
|-----------|--------------------------|----------|---------------------------------|--|---|
| 111,6     | 185                      | 36,5     | 19,35                           | 121,7                                  | 13582   |

### **PALO ARCO 2nd cycle**

| Area (ha) | Stand density (trees/ha) | DBH (cm) |
|-----------|--------------------------|----------|
| 1374,4    | 458                      | 19,1     |

### **CARRILLO Pochote**

| Area (ha) | Stand density (trees/ha) | DBH (cm) | Basal Area (m <sup>2</sup> /ha) | Commercial volume (m <sup>3</sup> /ha) | Commercial Volume Carrillo (m <sup>3</sup> ) |
|-----------|--------------------------|----------|---------------------------------|--|--|
| 16,9      | 234                      | 30,5     | 16,32                           | 73,2                                   | 1237   |

### **CARRILLO 2nd cycle**

| Area (ha) | Stand density (trees/ha) | DBH (cm) |
|-----------|--------------------------|----------|
| 947,7     | 635                      | 13,7     |

### **MORAVIA 2nd cycle**

| Area (ha) | Stand density (trees/ha) | DBH (cm) |
|-----------|--------------------------|----------|
| 199,2     | 497                      | 19,8     |

Until this date no major damage caused by pests and/or has occurred in the PAW plantation estate. A Costa Rican specialist, of the ITCR (Instituto Tecnológico de Costa Rica) and CIPROC (Centro de Investigaciones en Protección de Cultivos), visits the PAW plantations on a regular basis in order to evaluate the health conditions of the different plantation areas of Palo Arco, Moravia and Carrillo. Data and results of the monitoring system are available for scientific research purposes.

## Planned thinnings and final harvests

The plantations are thinned on an individual management unit basis. These units vary in size from 2 to 99 hectares. For each unit the standing wood stock and growth rates are known as a result from the annual inventories. Based on a long term growth and financial valuation model for each unit the exact moments and volumes involved of thinning and final harvest are being projected and calculated.

The following tables summarize the commercial volume that will be harvested in each of the three plantation units during the period 2018-2022.

| <b>MORAVIA 2018-2022</b> |  |                  |
|--------------------------|--|------------------|
| <b>Year</b>              | <b>Industrial Harvest Volume (m<sup>3</sup>)</b> | <b>Area (Ha)</b> |
| 2018                     | 1470   | 132,4            |
| 2019                     | 0  | 38,7             |
| 2020                     | 1446   | 70,4             |
| 2021                     | 0  | 73,9             |
| 2022                     | 453  | 49,6             |
| <b>2018/22</b>           | <b>3369</b>                                      | <b>365,0</b>     |

| <b>PALO ARCO 2018-2022</b> |  |                  |
|----------------------------|--|------------------|
| <b>Year</b>                | <b>Industrial Harvest Volume (m<sup>3</sup>)</b> | <b>Area (Ha)</b> |
| 2018                       | 14900  | 59,4             |
| 2019                       | 8691   | 296,9            |
| 2020                       | 3792   | 387,9            |
| 2021                       | 4190   | 449,0            |
| 2022                       | 17505  | 401,3            |
| <b>2018/22</b>             | <b>49078</b>                                     | <b>1594,5</b>    |

| <b>CARRILLO 2018-2022</b> |  |                  |
|---------------------------|--|------------------|
| <b>Year</b>               | <b>Industrial Harvest Volume (m<sup>3</sup>)</b> | <b>Area (Ha)</b> |
| 2018                      | 263  | 10,2             |
| 2019                      | 1615   | 236,6            |
| 2020                      | 546  | 46,4             |
| 2021                      | 1577   | 74,7             |
| 2022                      | 5125   | 335,9            |
| <b>2018/22</b>            | <b>9126</b>                                      | <b>703,7</b>     |

## Second rotation

After a production stand which was planted before the year 2000 receives final harvest the same will be prepared for planting of the second cycle. All applicable laws and regulations will be respected. The utmost care will be taken to protect the neighbouring protection zones, fire will not be used as a management tool for clearing harvest debris and log tracks will be covered with harvest debris in order to minimize erosion. As an innovative company the rooted cuttings of plus trees identified in 2004 in the PAW plantation area are being used as planting material for the second rotation.

## **Closing Words**

PanAmerican Woods is a company on the move. Since 2000, strong changes have been implemented. The board of directors has changed, new managers were put in place, a complete new management style has been introduced, policies have been altered benefiting the company, local communities and natural environmental, and results have become more and more visible. The company is confident that these positive trends will continue in the years to come.

The company has become important supplier of large diameter plantation teakwood on the international market and in 2003 for the first time in the company's history financial dividends have been paid to its shareholders.

Anybody that would like to propose improvements for the company or wants to familiarize themselves with the PAW way of working is invited to do so.

We thank you for your attention,

The management staff of PanAmerican Woods Plantations S.A.



### **PanAmerican Woods (Plantations) S.A.**

P.O. Box 7842-1000, San José, Costa Rica  
Telephones (+506) 4010-0607 Fax (+506) 2290-5526/2655-1150  
E-mail: pawplant@pawcr.com