



The Biofore Company

**UPM**

# ANNUAL REPORT

**UPM** FORESTAL ORIENTAL

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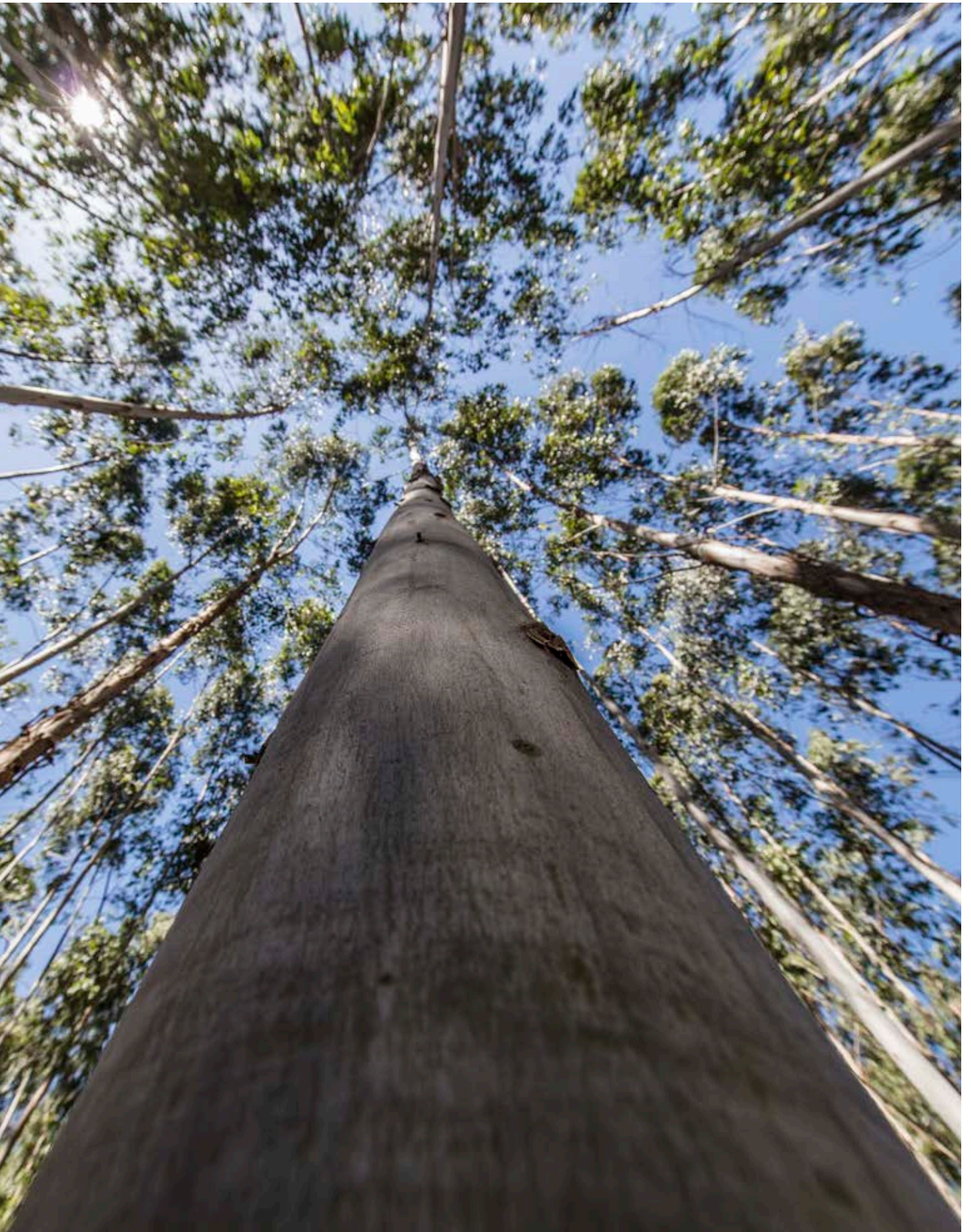
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# Introduction

This report is a summary of UPM Forestal Oriental's forestry management plan. It is made freely available to the public so that local, national, or international stakeholders can access the results of the monitoring carried out by the company.

The report is divided into the following chapters:

Introduction, Company, Production, People, Environment, Annual results, and Contact.

In the Introduction chapter, the reader will find general information about UPM on a global and local level, the history of the company in the country and, more specifically, the history of UPM Forestal Oriental.

In the following chapter, Company, the integrated management system, information concerning the surroundings where forestry operations are carried out, and the company's assets are described.

The Production, People, and Environment chapters describe, among other matters: the production process, the Fomento programme, community relations activities, and environmental management and monitoring programmes.

The Annual results chapter includes UPM Forestal Oriental figures, charts, tables, and annual milestones. In order to access the information, which can be found online, the reader should go to the website: [www.upm.uy](http://www.upm.uy), or use a smartphone to read the QR codes found throughout this report.

Contact information of the company and its respective offices/regions can be found in the final chapter.



The year 2017 marked the 30th anniversary of the approval of law 15.939 which established the basis for developing the forestry sector in Uruguay. In this short period of time, the country has successfully made progress in consolidating this sector, which has a positive impact on the whole production chain. Among other significant figures, the 25,000 jobs created by forestry are a testament to this<sup>1</sup>.

UPM Forestal Oriental is proud to have been part of this effort since its inception, working day-to-day with various forestry chain stakeholders in Uruguay with a view to ensuring the sector's sustainable development.

For UPM Forestal Oriental, 2017 was a year of good results. The production of high quality wood, and the logistical management of the supply to the pulp mill in Fray Bentos, was achieved as planned, with high standards of efficiency. With regard to forestry activities, we are continuing to develop the forestry base, reaching a record level of plantation during the year, with excellent quality standards. Thanks to the work and commitment of the whole UPM Forestal Oriental team, we are continuing to identify and implement initiatives that focus on the continuous improvement of our processes, the efficiency of our operations, and the development of our resources. At the same time, we are continuing to incorporate technology and new applications, which have allowed us to make a qualitative leap in information management.

Safety is a priority in our operations. In 2017, we remained focussed on training our own staff and the staff of contractor companies, with a view to continuing to strengthen the safe working culture. Implementation of the safety audit programme is another tool which we have incorporated in order to strengthen the professional management of the entire operation.

Our Fomento programme continues to grow with more rural Uruguayan producers, who continue to adhere to our proposal. Currently, more than 550 producers have found a trustworthy partner in forestry and in UPM

1. According to the Contribución de la Cadena Forestal a la Economía Uruguaya (Contribution of the Forestry Chain to the Uruguayan Economy) study, prepared for the Sociedad de Productores Forestales (Forest Producers Society) by CPA Ferrere (November, 2017).



Forestal Oriental in order to supplement their production. Moreover, this year we incorporated “Forest Synergy”, an activity which is operational during the livestock auction, with a view to generate synergies between the associated producers. Likewise, over the course of the year, we continued strengthening ties with the communities in which we operate, developing more than 230 activities, including actions which are open to the community, UPM Foundation projects, and meetings with local leaders, in addition to supporting the Pilot Certification Programme for honey produced in the company's fields.

Moreover, this year was marked by the signature of the Investment Agreement between UPM and the Uruguayan Government, which establishes local requirements for potential investment in a pulp mill in the centre of the country. After 30 years of forest industry development, here at UPM Forestal Oriental, we are still proud to be part of this journey. Uruguay has the potential required to drive this industry even further. With this current goal, along with new expectations, we wish to continue building a better future together.

**Alvaro Fitipaldo**

**Director of Operations at UPM Forestal Oriental**



# UPM The Biofore Company

UPM is steering the forest bioindustry to a sustainable future, focussed on innovation, through six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Communication Papers, and UPM Plywood.

UPM offers reliable, sustainable solutions to meet the growing global consumer demand. Our products are produced from renewable raw materials and are recyclable. The company employs approximately 19,100 people around the world, and its annual sales are of the order of € 10 billion. UPM's shares are listed on the Helsinki Stock Exchange (NASDAQ OMX). UPM – The Biofore Company – [www.upm.com](http://www.upm.com)

## UPM Uruguay

UPM's operations in Uruguay include the production of pulp at Fray Bentos, the forestry company, and the supply of UPM Forestal Oriental wood, with its two nurseries and the UPM Foundation.

Through the Fomento programme, UPM Forestal Oriental manages around 250,000 hectares of plantable land, including proprietary land and third-party land. All of UPM's forest plantations are certified.

The pulp mill in Fray Bentos began its operations in 2007 and continues to be one of the most modern, efficient pulp mills in the world. Its annual production capacity is 1.3 million tonnes of eucalyptus pulp.

In addition to producing pulp, the UPM Fray Bentos mill produces energy using biomass, and contributes 8% of the total energy produced in the country to Uruguay's power grid. The mill's raw materials come from local plantations managed in a sustainable manner.

Founded in 2006, the UPM Foundation works in coordination with local stakeholders to promote the development of rural communities through education, training, and entrepreneurship, developing a healthy lifestyle.

UPM employs 7,000 people in Uruguay, directly and indirectly, and its contribution to the national GDP is 1.4%.

# Our history in the country

The Forestry Law, no. 15.939, is approved.



The pulp mill at Fray Bentos begins its operations.



Botnia acquires Shell's capital stock and begins studies for the installation of a pulp mill (UPM held a 47% stake in Botnia's share capital).

1987

1990

2003

2005

2007

2009



The Fomento programme and the Botnia Foundation (now the UPM Foundation) are created.



UPM-Kymmene and Shell invest in the forestry sector's development in the country by creating Compañía Forestal Oriental S.A., a public limited company. They start plantations and the genetic improvement programme.



UPM acquires 91% of the mill and the whole Forestal Oriental company.





A nursery is inaugurated in Guichón, in addition to the Research and Development laboratory at the mill.

The Food and Agriculture Organization (FAO) of the United Nations recognizes UPM Forestal Oriental as an exemplary case in sustainability criteria applied to plantations.



UPM and the Uruguayan Government sign an investment agreement establishing local requirements for potential investment in a pulp mill in the centre of the country.

2012

2014

2015

2016

2017

The Ministerio de Industria, Energía y Minería (Uruguay Ministry of Industry, Energy, and Mining) presents UPM with national energy efficiency awards.



The Esteros y Algarrobales area on the Uruguay River is added to the Sistema Nacional de Áreas Protegidas (National System of Protected Areas).

## UPM Forestal Oriental

The main objective of the company's forest management is the production of wood to manufacture pulp, primarily meeting the demand of the Fray Bentos pulp mill, with 70% of the wood coming from proprietary land and 30% from third-party land.



# Company

## Mission

To ensure the sustainable supply of wood for pulp through good customer relationships at a competitive cost.

## Commitment

UPM Forestal Oriental respects people and the environment, and aims to build long-term, mutually-beneficial relationships with the communities of which it forms part. The company's philosophy is to manage its activities in a balanced and coherent manner. Social development forms part of all of its actions, aiming to contribute to the growth and development of the communities within its sphere of influence.

## Values

UPM Forestal Oriental's attitude towards work and people is defined by its values as a company:

- Trust and be trusted
- Achieve together
- Renew with courage.

# Integrated management system

The company's forestry operations are governed by three core processes:

- Management
- Wood availability
- Wood supply.

As such, the plans, methods, procedures, actions, and inspections of all of the company's operations are developed and implemented, ensuring compliance with the most demanding quality, occupational health, safety, and environmental standards.

UPM Forestal Oriental operates using an integrated management system (IMS), which makes it possible to organize internal processes and create a decision-making model based on records, measurements, and supplier integration.

In this way, a continuous improvement system can be implemented. In a single work flow, the IMS includes and consolidates the plans, methods, actions, and

inspections for the following systems:

- Quality Management Systems (ISO 9001:2008)
- Environmental Management Systems (ISO 14001:2004)
- Occupational Health and Safety Management Systems (OHSAS 18001:2007)
- Forest Management (FSC® and PEFC™)
- Chain of custody (FSC® and PEFC™).



# Environment



## BIOLOGICAL DATA

### Types of environment

The natural environments in a region or site are the result of the interaction of various factors, such as climate, geology, soil, flora, and vegetation, and vary according to these factors.

In order to classify the different types of environment, UPM Forestal Oriental uses methodology based on satellite images, information about soil groups, and digital terrain models. As such, it is able to generate basic units for analysis, and group and classify them based on their similarities.

This methodology classifies environments according to their degree of vulnerability, facilitating management and conservation. It also makes it possible to analyse the internal and external connectivity between environments with a greater degree of naturalness, as well as to reconsider the location and size of the company's reserve areas.

Distribution of types of environment in unplanted areas and bodies of water.



### Flora

Approximately half of all of the species that make up the country's flora are present in UPM Forestal Oriental fields.

The main types of natural vegetation that exist in the company's fields are: natural grasslands, sandbank vegetation, alkaline soils, general riparian forests, Chaco park forests, flat-topped hill forests, *Butia yatay* and *Trithrinax campestris* palm groves, scrubland, wetlands, and stubble.

Some of these types of vegetation are subject to special considerations, either because they represent species that are in decline or endangered, or because they are home to rare species or species with restricted distribution in Uruguay.

The species *Chloraea bella* (Orquidaceae), *Conyza lorentzii* (Asteraceae), *Leptochloa chloridiformis* (Poaceae), and *Ipheion tweedianum* (Alliaceae), recorded for

the first time in Uruguay, can be found on UPM Forestal Oriental land.

Species new to science were also recorded, such as *Cereus sp.* (Cactaceae), and the presence of rare, threatened, and endemic species was confirmed.

In main conservation areas, the presence of these uncommon species is periodically monitored and verified.

### Fauna

Using field surveys carried out in order to determine the composition of the wild fauna on the company's land, tetrapods in the following zoological classes were identified: amphibians, reptiles, birds, and mammals.

Tetrapod species detected.



## GEOCLIMATIC DATA

### Geology

UPM Forestal Oriental's plantations are located within a wide range of geological formations, although mainly in soils suitable for forestry.

Main geological formations: Guichón, Mercedes, Asencio, Fray Bentos, Alluvium, and Salto along the coast; as well as San Gregorio, Melo, Yaguari, Cuchilla del Ombú, Tacuarembó, Rivera, San Gregorio, Tres Islas, and Basamento Cristalino.

### Hydrology

According to the current classification for predominant use (Decree 253/79), the waterways that form part of the company's forestry management units correspond to Class 3: "Water intended for the preservation of fish in general and other water flora and fauna, or the irrigation of crops whose product is not consumed in natural form or, in cases where it is consumed in natural form, the irrigation system does not cause the product to become damp".

### Soil

The most commonly-used soil groups and types for the plantations are the following:

- 9.1 (Argisoles)
- 9.3 (Argisoles and Planosoles)
- 9.3 (Argisoles and Brunosoles)
- 7.32 (Luvisoles).

Watercourses on the company's properties.



#### TEMPERATURE

average daily temperature between **12°C and 25°C**



#### PRECIPITATION

annual average **1,300 mm**

**SOCIAL DATA**

UPM Forestal Oriental conducts its activities directly in five regions spread over the departments of Río Negro, Paysandú, Soriano, Salto, Colonia, Tacuarembó, Rivera, Durazno, Rocha, Treinta y Tres, Cerro Largo, Lavalleja, Flores, and Florida.

We work with communities within our sphere of influence in each region. In other words, we work with the communities that are related to

the company’s activities in some way, from operational aspects such as forestry, harvesting and loading, road construction, or transport, to environmental aspects such as landscape.

The communities are categorized according to their size (between 1 and 10,000 inhabitants). Type 1 refers to larger communities, and type 4 refers to smaller communities (fewer than 500 inhabitants).

Likewise, communities are classified as being permanent or temporary, taking into consideration the forestry activities carried out in the area.

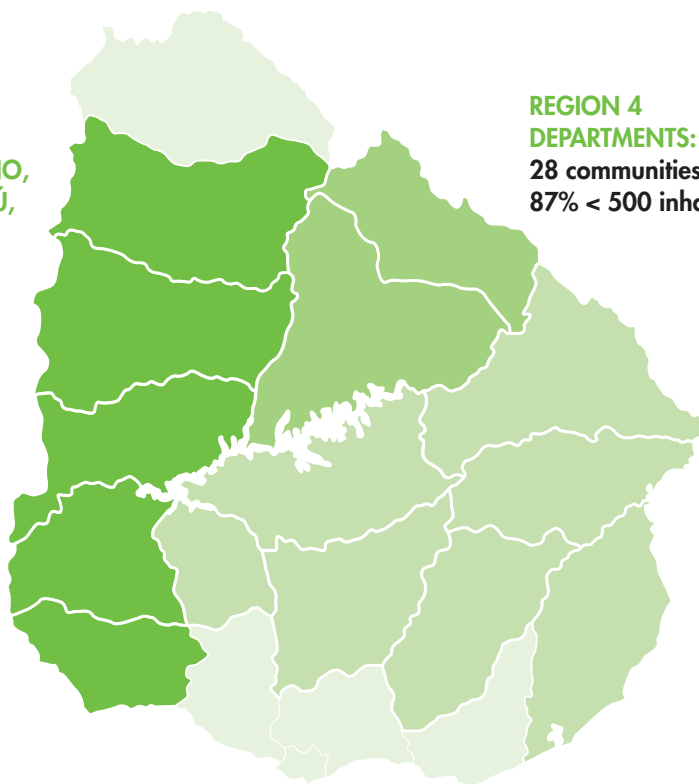
**Communities of influence**

Permanent	Temporary
Neighbouring a property with a forest mass of more than 500 hectares that UPM has owned or managed for over 15 years in a radius of less than 5 kilometres from the plantation, or which are affected by more than two activities at a time.	Affected by no more than two forestry activities at a time.

**85% of the communities have fewer than 500 inhabitants**

**Company regions**

**REGIONS 1, 2, AND 3**  
**DEPARTMENTS: SORIANO, RÍO NEGRO, PAYSANDÚ, SALTO, AND COLONIA**  
**78 communities**  
**85% < 500 inhabitants**



**REGION 4**  
**DEPARTMENTS: TACUAREMBÓ AND RIVERA**  
**28 communities**  
**87% < 500 inhabitants**

**REGION 5**  
**DEPARTMENTS: DURAZNO, ROCHA, CERRO LARGO, TREINTA Y TRES, LAVALLEJA, FLORES, AND FLORIDA**  
**38 communities**  
**79% < 500 inhabitants**

# Assets

*Forest assets form the basis for the sustainability and competitiveness of our activities, on which the supply strategy for the Fray Bentos pulp mill is planned.*



## Use of the land

The company is making significant efforts to identify the most appropriate use of the land, and to try and preserve biodiversity as well as soil and water quality, which are vital for the sustainability of long-term forestry activities.

Prior to each intervention, company specialists study the biophysical environment, as well as social and cultural resources in the direct surroundings in each case. In this way, they assess the effect that the intervention could cause and plan activities which respect and preserve environmental conditions.

As such, plantable areas are identified and distinguished from those intended for conservation.

## Plantable areas

These areas are defined based on their suitability for the growth of *eucalyptus* plantations and on land management criteria determined by regional and national legal regulations.

Asset figures.



Distribution of areas by usage.



## Unplantable areas

These are not suitable for forestation, either as a result of legal restrictions, the conservation of natural resources, or because they are not appropriate for *eucalyptus* species. They are characterized and categorized based on the types of environment, including natural drainage systems, low-lying areas or other riparian zones, ravines, escarpments, buffer zones, rocky ledges and flat-topped hills, as well as any area occupied by natural forests.

These areas are categorized according to their potential use, such as pasture, conservation, or biological corridors, among others.

Provided that the area is used in a productive manner, the same requirements for the responsible use of resources are maintained.





**Plantable areas intended for conservation**

Potentially plantable areas that the company decides not to forest because they have native ecosystems useful for the conservation of environments or species. For example, high-value natural fields such as palm groves, sandbanks, marshlands, and areas occupied by populations of endemic species (for example, the Río Negro tuco-tuco – *Ctenomys rionegrensis*), among others. This also includes quarries, sites of archaeological or historical-cultural value, visual basins, and highly erodible soils, among others.



**MAIN SPECIES FOR PLANTATIONS**

The main species cultivated are *Eucalyptus grandis* and *E. dunnii*, as they have demonstrated better and greater adaptability to local conditions. In turn, thanks to the company’s genetic improvement programme, which has been operational for more than 25 years in Uruguay, the yield of these species has been boosted.

There are also areas that are planted with the *Pinus*, *Salix*, and *Populus* species. For the most part, these are previous plantations belonging to the assets acquired by other owners. Although they are marginal species in terms of the area that they occupy, they are included in the company’s operational plans.

Distribution of areas by species planted.





**GENETIC IMPROVEMENT PROGRAMME**

Trees of faster growth that provide better cellulose fibre quality are rigorously tested in order to study their productivity in terms of volume, quality, rooting, and health. When comparing the pulp yield per hectare between initial plantations and current plantations, it can be observed that yield has doubled, thanks to the genetic improvement programme.



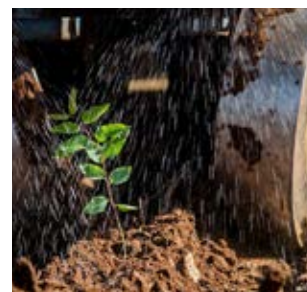
**NURSERIES**

Eucalyptus seedlings are produced in the nurseries, either through seeds or vegetative reproduction.



**PLANNING**

As a production support process, the planning department assesses the land to be forested through an environmental study. As such, the responsible use of natural resources is optimized.



**FORESTRY**

We return to the field, where we plant the seedlings produced in the nurseries on land assessed by the planning and environment departments.

# Production process



**MONITORING GROWTH**

The data obtained is used both to maintain wood stocks on the plantations up-to-date, and to evaluate the potential of species and genotypes.



**HARVESTING**

Trees can be harvested from nine to ten years old. Currently, the harvest is mechanized, in other words, machinery that cuts, trims, debarks, and slices the tree is used, and the trunks are stacked and left at the side of the road for transport.



**ROADS**

In order to ensure efficiency in loading and transport operations, improvements to both internal and neighbouring roads are made each year.



**TRANSPORT**

Following the harvest, companies specialized in forestry loading and transport transfer the wood to UPM Forestal Oriental's customers, mainly the Fray Bentos pulp mill, which receives approximately 4 million m<sup>3</sup> of wood annually.



# Genetic improvement programme

The purpose of this programme is to provide the company with the best trees, i.e., trees with a better wood yield, fibre quality, and adaptation to forest sites.

Basically, the best trees from each species are selected and controlled crossing is carried out.

In the micropropagation laboratory, the trees are multiplied using the vegetative propagation process, with a view to achieving mother plants from new clones. In this way, the most productive materials are obtained, with the best adaptation to the soil and climate, as well as the necessary characteristics to meet the demands of the pulp and paper industry.



## Nurseries

The process continues in the nurseries. The nurseries have the best technology available for the production of eucalyptus plants, such as the latest generation greenhouses, computerized environment control, and highly accurate irrigation systems. As such, the highest quality raw material is produced in a sustainable manner.

The San Francisco nurseries, on the outskirts of Paysandú and Santana in Guichón, have more than 9.5 ha of greenhouses and produce 35 million seedlings per year.



# Forestry

In order to achieve the proposed objectives, it is necessary to have a stable forest base to ensure a suitable site-species relationship. To do this, the company mainly uses the *Eucalyptus grandis*, *E. Dunnii*, and their hybrids.

As part of the continued improvement strategy, the company has incorporated the latest generation of machinery, which makes it possible to simplify operations and increase efficiency in the forestry process.

## Knowledge transfer

The completion of work by service providers (SPs) in an appropriate and timely manner is key for stable and reliable production. In order to achieve this, UPM Forestal Oriental is endeavouring to implement training for SPs, in order to professionalize and continue improving implementation of the company's brushwood control strategy.

In this context, the company has had a new Quality Process since 2017 which monitors this area throughout the production chain, from the nurseries up to harvesting.



## Growth monitoring

Growth is monitored through permanent land that are measured annually from their first year of age. Furthermore, plantations are evaluated twice throughout their lifespan, once after five years and then prior to harvesting.

The basic indicators obtained include trees/ha, average diameter, average height, dominant height, basal area, volume/ha, average annual increase, current annual increase, and average tree volume.



# Harvesting

In addition to the pulp mill's demand, when planning the harvest, the species, distance from the mill, age structure of the plantation, and growth curves are taken into account. The characteristics of the area to be harvested, the presence of flora and/or fauna species with special conservation status, and proximity to riverbanks or areas close to waterways are also considered.

## Harvesting techniques

With a view to guaranteeing safer working conditions, in addition to generating efficiencies that make it possible to ensure the competitiveness of the processes, 100% of the harvest is mechanized. In this way, the risk of accidents and the operating time are minimized.



## Forest harvester

The forest harvester carries out the cutting, trimming, debarking, and chopping of the trees, leaving the logs stacked on-site.

Yield: 70 trees/hour approximately, i.e., 21 m<sup>3</sup>/hour, depending on the average volume per tree of each stand in particular.

## Forest forwarder

The forwarder enters the area, loads the logs, and transports them to the roadside where they are loaded onto trucks.

Yield: 35 m<sup>3</sup>/hour approximately.



Operational results of each production process.



# Transport

In order to transport the wood, the company works with wood transport companies which, in addition to the conventional trucks, use road trains. These vehicles have a special configuration which makes it possible to transport a larger number of tonnes with a reduced impact on the roads.

Thanks to the technology used, it is possible to reduce the number of trips, which results in lower carbon emissions during wood transport.

## Road safety programme

UPM Forestal Oriental implements this programme in order to promote responsible driving, as well as knowledge of safety and traffic rules.

It is intended for all individuals who maintain relationships with the company, mainly forestry transport business owners and their drivers, but also rural communities and public and private institutions, as well as our own employees.

The actions that form part of this programme include:

- Transport units scoring system
- Unit checklist
- GPS tracking: speed control and traffic zones
- Inspections, accident rate reports, and monthly road safety recommendations of the Centro de Prevención de Accidentes (CEPA) (Centre for Accident Prevention)
- Quarterly road safety talks for drivers
- Psychometric exams (BTW driving courses and en-route tracking)
- Biannual meetings with transport companies
- Quarterly safety newsletters
- “How is my driving?” 24-hour telephone line (+598 4562 7710).



# Roads

Each year, the company carries out construction and maintenance works on internal roads, in addition to some neighbouring roads, in coordination with local authorities. The soil analysis laboratory is used to assess the quality of the materials with which the roads are built and refurbished, so as to construct safer roads and improve transport efficiency.



# Support processes

## Planning

The planning process evaluates the land to be forested and plans its use, optimizing natural resources. In turn, it prepares and coordinates the company's wood supply plans.



Support process results.





### Responsible fire management

Each year, UPM Forestal Oriental participates in the Plan Nacional contra Incendios Forestales de la Sociedad de Productores Forestales (SPF) (Uruguay Forestry Producers Society's National Forest Fire Prevention Plan), which includes the majority of forestry companies in the country. The plan is focused on fire detection and firefighting aspects, and is implemented during the high-risk period (December to March). The plan covers 760,000 ha owned by more than 50 partner companies, which represent 90% of all forest

plantations in the country.

This system has six aircraft that conduct regular rounds, thus making it possible to detect fire hotspots early. It also has three helicopters to mobilize a combat team for a rapid response. The helicopters are found at Tacuarembó airport, in the city of José Pedro Varela, and at the Paraje Andresito, road 3. Each unit has a 170 km radius of action, thus covering almost the entire country.

All of this is coordinated and monitored through three operation centres which are located at the aforementioned operational bases. Through an operator, all

administrative and operational information required to achieve optimization of the resources is consolidated.

With regard to prevention, a radio campaign on fire prevention is conducted throughout the whole forest fire season. This campaign involves broadcasts on national and local radio which promote preventative conduct among the population, emphasizing the ban on field burning, and reminding listeners of emergency telephone numbers.



# Fomento programme

The Fomento programme, which was created more than 10 years ago, offers the rural producer an alternative for diversifying their business, promoting integration among various agricultural sectors.

Member producers include both individuals and families, as well as investment institutions and funds. For example, the Caja de Jubilaciones y Pensiones de Profesionales Universitarios (Retirement and Pension Fund of University

Professionals), Caja de Jubilaciones y Pensiones Bancarias (Banking Retirement and Pension Fund), Asociación Rural de Soriano (Soriano Rural Association), Sociedad de Fomento de Flores (Flores Development Society), etc.

Through the plantations of our member producers, we endeavour to supply the Fray Bentos mill with 30% of wood from these forests in the medium term.

## Forest synergy

Implemented in 2017, this action endeavours to create synergies among member producers.

During livestock auctions, UPM Forestal Oriental participates as a sponsor of member producers' ranches. As such, an information flow between producers is created, in order to facilitate access to the best genetic pool available in animal production to improve surroundings, and help member producers' ranches to grow and develop by placing their production in that of their peers on the Fomento programme. As part of the benefits, any member producers who make purchases are given special access granted by the ranches.

In turn, with the Forest Synergy programme, the ranches, producers, and UPM Forestal Oriental gather together to contribute to local schools in the areas of influence of the auctions, with educational materials.



Access to  
Fomento  
figures.

**Benefits for producers**



**Improved yield**

Advances in genetic research, driven by UPM Forestal Oriental, have led to excellent results and made it possible to double the pulp wood yield at plantations. This has occurred thanks to the highly productive genetic material that the company offers to member producers when planting.



**Profitability**

Consolidation of the Fomento programme, alongside technical advice from the company's agents and their extensive experience in the forest industry, ensure that the producer is able to diversify their income and, therefore, achieve greater profitability.



**Stability**

Being an affiliate of the Fomento programme ensures that producers are able to purchase all of the wood produced at pre-established prices.



**Priority**

The option to allow livestock to graze in unplanted areas owned by UPM, in low-lying areas for example, which are highly suitable for livestock. This allows the producer to maintain the livestock and capitalize on the shade and shelter offered by the woods.



**Guarantee**

Producers receive assistance with certification of the wood under the FSC® (Forest Stewardship Council®) standards, ensuring responsible and sustainable management of their plantations.



**WOULD YOU LIKE TO KNOW MORE ABOUT THE FOMENTO PROGRAMME?**

**Contact us**

Tel.: (+598) 4724 8760  
 fomento@upm.com  
 www.upm.uy



# Human resources

Since its foundation, the company has been committed to the development of technical and human skills as a means of developing people and the organization in the long term, creating value in processes, and improving the efficiency and quality of its operations.

The development of people and their competencies form the basis for achieving continuous improvement. To do this, we have developed tools that enable us to identify competency development needs from a strategic perspective, strongly aligned with the company's objectives, and the economic and social sustainability of our operations.

These tools are focused on different levels of the organization: our own employees, contractors' employees, and residents of the communities within our sphere of influence.

At the same time, the Forest Academy, an internal training programme whose objective is to

transfer the knowledge acquired by the company in its more than 25 years of operations, in a formal and structured environment, is undergoing development. This gives new employees an overall view of the business and promotes a culture of work in progress, continued improvement, and innovation.

## Relationship with service providers (SPs)

UPM Forestal Oriental continues to work together with SPs through the implementation of systematic controls, in accordance with its quality standards.

In this way, self-governance is encouraged on key issues, such as medium and long-term planning, and the development of specific competencies for the tasks that are carried out.

The long-term relationship with these companies enables efficiency levels and the quality of operations to

be improved, as well as the development of competencies among communities within the sphere of influence.

## Internal audit

UPM Forestal Oriental has implemented an internal audit department which permanently monitors contractors. It verifies that they are all up-to-date in terms of employment, tax, and social security legislation, and that they have a valid occupational accident insurance policy.

Access to human resources figures



# People

# Safety as a core value

The company's strategic vision reaffirms the commitment to occupational health and safety in all operations.

Through senior management's leadership, participation, and visibility in safety matters, UPM is strengthening the principle of safety as a core value of each process.

The focus is on increasing the awareness of our own employees and of contractors' employees with regard to safety, creating a sense of belonging, encouraging team work and commitment, and acknowledging employees and companies for a noteworthy performance in terms of safety.

Health and safety at work is efficiently managed by strengthening communication and developing solid skills amongst UPM and its contractors, achieving noteworthy performance levels in all operations.

Continuous improvement is a fundamental pillar in all UPM processes. In this regard, the management system is kept up-to-date and constantly improved, developing preventive safety tools (operational standards, risk assessment, safety rounds, safety meetings, etc.) which make it possible to operate with the highest standards and results in terms of accident rate.

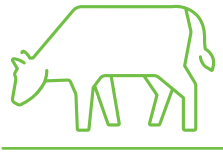
Safety performance results.



# Complementary forestry products

*With the objective of ensuring comprehensive use of the plantations, the company is developing a policy for multi-purpose use of resources that incorporates communities and local residents in complementary forest activities.*

Complementary forestry product results.



## Grazing

The grazing of third-party livestock was incorporated into the company in order to integrate traditional productive activities into forestry in the region.

In this way, the company reduces the presence of inflammable material, and therefore fire risk, as well as providing opportunities for productive use of the pastures to producers from the region.

## Mushroom collection

Increasingly, the residents of towns close to the company's plantations visit the area to collect mushrooms in a safe and orderly manner during autumn and spring.

For this reason, the company has designed and implemented a collector identification and activity registration system which has generated positive results, providing benefits to all stakeholders involved.

Mushrooms are collected by residents who have been trained in mushroom identification, comply with all established regulations, and request a permit from the area manager to carry out the activity.

Along the same lines, the company has implemented the following actions:



- Training in mushroom identification
- Dissemination of the regulations and laws that must be complied with
- Implementation of safety and good conduct rules between residents with regard to mushroom collection Registration of collectors, as well as harvest and its end use
- Systematization of information.



The system ensures that mushrooms are collected safely, allowing local producers to make extra income.

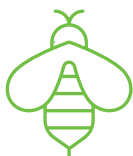
The company is able to reduce production risks, ensuring compliance with current regulations and laws in order to maintain the quality certification.

## DEVELOPMENT OF BEEKEEPING MANAGEMENT WITHIN THE COMPANY

2012 – A Framework Agreement was established for the operation of beekeepers in UPM Forestal Oriental forests between the Dirección General de la Granja (DIGEGRA) (General Farming Department), the Ministerio de Ganadería, Agricultura y Pesca (MGAP) (Livestock, Agriculture and Fishing Ministry), the Comisión Honoraria de Desarrollo Apícola (CHDA) (Honorary Beekeeping Development Commission), and the Sociedad Apícola Uruguaya (SAU) (Uruguay Beekeeping Society). For this purpose, the Comisión Administradora y Reguladora (CAR) (Administrative and Regulatory Commission) was created.

2017 – Renewal of the Framework Agreement, which maintains the guidelines of the prior Agreement and incorporates the requirement to apply the Buenas Prácticas Apícolas (BPA) (Good Beekeeping Practices) approved by the MGAP in 2016.

2017 – “Programa piloto de certificación PEFC™ de Buenas Prácticas Apícolas para miel producida en campos de UPM Forestal Oriental” (Pilot PEFC™ certification programme concerning Good Beekeeping Practices for honey produced in UPM Forestal Oriental fields), in accordance with the PEFC™ (Programme for the Endorsement of Forest Certification), the international quality certification label.



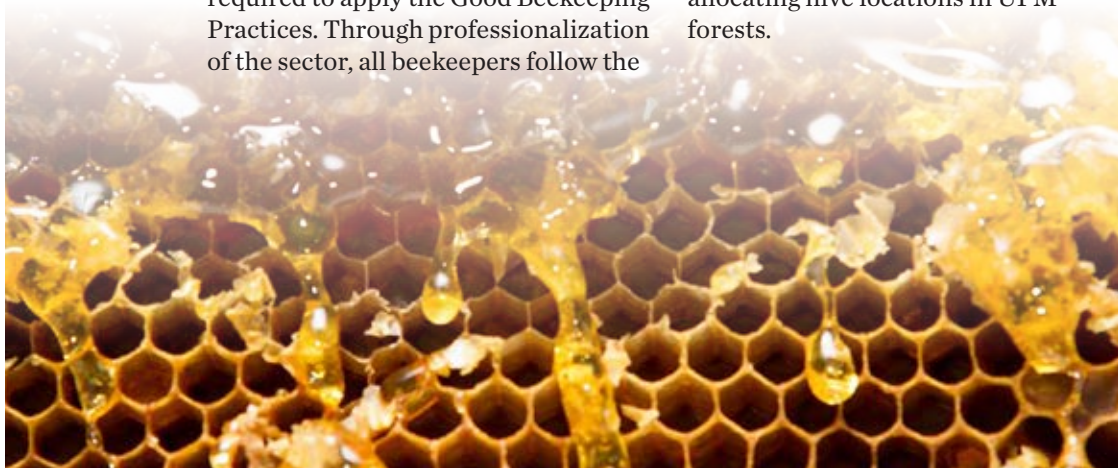
### Beekeeping

Honey is produced through the management of hives in certified environments, involving institutions and private beekeepers throughout the country. Among other benefits, the forest plantations constitute an ideal environment for this activity due to the eucalyptus flowering period.

All beekeepers who harvest honey in the company's fields are obliged and required to apply the Good Beekeeping Practices. Through professionalization of the sector, all beekeepers follow the

same protocols, are aligned with best beekeeping practices, and maximize use of the potential production area, thereby ensuring greater productivity.

This work method aims to drive community development and strengthen local institutions through active participation in honey production. These institutions are responsible for managing and allocating hive locations in UPM forests.



# Community relations

## Open days

These represent opportunities to meet local stakeholders where information about the company and its operations is provided, mainly in communities where UPM has begun new operations or where people are not yet familiar with the company.

## Meetings with stakeholders

The objective is to create working teams in order to consider the realities of the communities and to create possible projects to be carried out in each region.

## Informative technical talks

These are arranged in order to transfer knowledge based on specific concerns of the communities.

## Operational visits

These are held in order to familiarize people with the company's facilities and procedures, so that communities know how UPM operates.

## Social monitoring

A study was carried out that covers communities of influence in all of UPM's regions in order to update information concerning these communities, monitor impacts in the area, and establish how residents perceive the company's operations.

Community relations activities results.





# UPM Foundation

The UPM Foundation promotes the development of communities in rural areas of the country, fostering education and entrepreneurship through joint work with social organizations and community leaders.

The Foundation aims to strengthen the capacities of local communities and the people who form part of them through work with local leaders in each of them. Coordination with local stakeholders and joint work with each member enriches and nourishes this long-term project. The Foundation understands that the most significant social transformations are undertaken in this way.

The UPM Foundation considers education to be a key pillar for the most profound changes. This perception translates into activities that promote the development of capacities among people and organizations, in order for them to attain and strengthen the abilities and skills necessary to achieve their development goals in a sustainable way. The development of capabilities is understood in its broadest sense, from training to the potential to influence one's surroundings, intervene in community issues, and propose projects.



## PRESENTATION OF PROJECTS

If you have a project you would like to present to the Foundation, you can do so in the following ways. Send an application form to the **UPM Foundation office in Fray Bentos (25 de mayo 3339), by email to: [fundacion@upm.com](mailto:fundacion@upm.com)**, or by going to **the website: [www.upm.uy/fundacion](http://www.upm.uy/fundacion)** and completing the form online. You must prepare a proposal that is consistent with the projects that the Foundation supports. Projects including the following will be given special consideration:

- Coordination with other institutions
- Contribution from the organization carrying out the project
- Sustainability, once support from the Foundation has ended.

Noteworthy projects.



Follow us on Facebook/FundaciónUPM to find out about all of our activities.

Project preparation guidelines.



# Certifications

Achieving and maintaining certifications involves applying a series of policies, standards, and working procedures that enable the protection, monitoring, and maintenance of all of the company's resources, as well as the operations that it carries out.

UPM Forestal Oriental manages a group certification scheme (UPM Forestal Oriental Certification Group, SGS-FM/COC-002240) which includes small and medium-sized producers located in the Paysandú, Maldonado, Rocha, Lavalleja, Río Negro, Durazno, and Treinta y Tres departments.

Map of certified areas.



2001

FSC® certification and international acknowledgement of the products by the Manejo Forestal y Cadena de Custodia (Forest Management and Chain of Custody), being the first Uruguayan company to achieve this certification (SGS-FM/ COC-0006061).

2009

Integrated certification of all processes: quality (ISO 9001), environmental (ISO 14001), and occupational health and safety (OHSAS 18001).

2015

Third recertification for a new 5-year period, confirming the responsible management of natural resources.



The mark of responsible forestry

The *Forest Stewardship Council*® is an international organization whose aim is to promote responsible, socially beneficial, and economically viable environmental management of the world's forests by

establishing a global set of principles, and recognized, respected criteria.

Through its working methods and in accordance with FSC® principles and criteria, UPM Forestal Oriental favours the maintenance of ecosystem and biodiversity functions, contributes to the country's scientific expertise, and provides education on environmental conservation.



The *Programme for the Endorsement of Forest Certification* (PEFC™) is an international non-governmental organization dedicated to the promotion of sustainable forest management through independent certification of the implementation of stringent environmental, social, and ethical standards.

The PEFC™ is a certification scheme; instead of having a single standard for sustainable forest management which is applicable to all countries or regions, it recognizes and validates the standards developed by each country. To do this, it has a series of requirements on how the standard should be developed, the central aspects that must be taken into account, and the environmental, social, and legal compliance parameters that must be considered.

# Responsible environmental management

UPM Forestal Oriental constantly endeavours to operate with minimal environmental impact. In order to achieve this, firstly, any activities that may generate such impacts are identified, and the risks associated with these activities are assessed. Based on the evaluations, a series of measures are carried out aimed at safeguarding the key attributes of the environment and ensuring maximum productivity and efficiency of operations. The environmental requirements derived from legal regulations are also incorporated.

Environmental safeguards are established for the application of preventive, mitigation, and compensation measures, if applicable, in the working standards, guidelines, and best operational practice recommendations.

These documents are constantly updated and address issues such as soil tillage, the application of agrochemicals and weed control, as well as road construction, among others.

For higher-impact activities, site-level planning is conducted.



# Principal environmental protection measures

## Soil

In order to minimize erosion, various techniques are implemented:

- Tillage only in the plantation belt, on level curves or in straight lines by cutting the slope, or a combination of both
- In special situations (steeper slopes, for example) strips are left filled, cutting the slope
- The time between the harvest and reforestation is minimized in order to reduce exposure of the bare soil to rain
- During reforestation on land acquired which has already been planted, situations to be corrected are identified (generally, changes in the direction of tilling, correction of buffer distances, and increase in the non-planted area)
- The burning of forest waste as a management tool is restricted exclusively to special situations
- Roads are designed taking into consideration watersheds, and they avoid the direction of the slope.

Where necessary, mechanisms are used to reduce water energy and, therefore, the risk of drag and erosion formation

- Areas of erosion are identified, especially gullies, and management and monitoring plans are established for these areas.

In order to minimize compaction:

- During the plantation establishment phase, the tasks carried out for each machinery intervention are maximized, making it possible to reduce the number of interventions and generate less compaction
- During harvesting and extraction, forest waste is used as protection in order to reduce compaction and minimize the formation of footprints
- Vertical tilling mechanisms are used to reverse prior compaction.

Nutrient recycling:

- All forest waste remains distributed on the site, including

thin branches, bark, leaves, and stumps, which enables a high percentage of nutrients that were extracted by plants during growth to be recycled.

## Water resources

Block plantations are designed taking into account the protection of watercourses and riparian areas.

Buffer zones are added between these areas and the plantations so that forestry operations may be conducted without affecting them.

Low runoff areas and riparian areas are maintained in natural conditions. Natural drainage systems are not tilled or forested, and should remain covered to prevent erosion and favour water run-off toward low-lying areas.

Plantation percentages in sub-basins and micro-watersheds are maintained according to the stipulations of the Planes de Gestión Forestal de la Dirección Nacional de Medio Ambiente (Uruguay Forestry



Management Plans of the National Environmental Department).

The establishment of age varieties in the basins is encouraged, in order to avoid affecting the runoff toward watercourses.

Herbicide products and applications are prepared exclusively in the effective planting area, and strategies are implemented to minimize the use of herbicides.

All erosion reduction strategies lead to minimizing the risk of the surface water quality being affected.

**Observation points**

In order to minimize visual impact from a landscape perspective, especially on national and regional roads, the main points of interest are identified and respect observation points when block plantations are designed.

**Biodiversity**

By managing unplanted areas, a network of natural areas is maintained which contribute significantly to the conservation of biodiversity at all levels. Four categories of area dedicated to conservation were defined, based on their attributes:

- High Conservation Value Areas (HCVAs)
- Conservation Areas (CAs)
- Representative Sampling Areas (RSAs) for the various ecosystems
- Connectivity Areas (COAs) between the other areas.

HCVAs and CAs are managed as a network of conservation areas, in other words, each area individually contributes to achieving the goals defined for the whole system.

Network goals include landscape, ecosystem, and species biodiversity levels.

There are internal standards for the protection of native species and ecosystems, especially those that are threatened or at risk, and they are described in the working standards and manuals. If these areas are very valuable, they are conserved without being planted, following an expert assessment.

Exotic invasive woody species are monitored in order to avoid biodiversity being lost. Regenerations outside of production areas of planted species and the presence of other invasive species such as *Gleditsia triacanthos*, *Ligustrum lucidum*, *Melia azedarach*, etc., are prioritized in conservation areas or other sensitive areas.

**Other environmental protection measures**

- In order to minimize the impact on soil, vegetation, watercourses, and landscape, among others, activities such as quarries, cutwaters, bridges, fires, and roads are carefully planned in sensitive areas
- Travel through sensitive areas such as drainage systems, low-lying areas, glens, flood zones, and species' habitats is minimized at all times
- Native tree species that appear are always maintained and are not interfered with in the plantation (for example, in firebreaks, drainage networks, divisions of areas, low-lying land, and historical areas), and the need to conserve isolated individuals within plantable areas is promptly assessed (by size, age, species, presence of other specimens in the

vicinity, and perching tree function)

- Great efforts are made to prevent spills. In the event that a spill occurs, procedures to manage the affected area and record the event according to its magnitude have been developed
- Pesticides are only used in nurseries during the plantation phase (one at one and a half years, ten year rotation). The use of highly hazardous agrochemicals is prohibited by responsible management standards, such as those of the FSC®, and by internal standards. Furthermore, measures have been adopted to prevent agrochemicals from affecting sensitive areas such as waterways, native vegetation, surrounding properties, and crops, as well as to protect the staff who administer them
- Contaminated and non-biodegradable waste is managed. The cleaning of machinery, work clothes and other equipment is carried out in the established locations. Contaminated waste is managed through specialized companies and authorized by the relevant government agencies.

# Conservation of biodiversity

In order to fulfil the biodiversity conservation strategy, proper management of natural areas is essential, as they contribute to the environmental values defined by the company being maintained.

One of the core principles is the establishment and management of a network of conservation areas (including those of high conservation value).

All conservation areas (CAs) and high conservation value areas (HCVAs) have physical boundaries, defined conservation attributes, and management and monitoring plans.

Areas of other categories that are dedicated to conservation include connectivity areas (COAs) and representative sample areas (RSAs) where, in addition to conservation, other productive activities such as livestock farming can be conducted, in accordance with the defined management recommendations.

On a species level, the company works with the official categorization developed by SNAP for flora and tetrapod vertebrate groups (amphibians, reptiles, mammals and birds). In the event that experts consider this necessary, specific

conservation measures are implemented with regards to priority species, as is the case with the Río Negro tuco-tuco (*Ctenomys rionegrensis*), chestnut seedeater (*Sporophila cinnamomea*), straight-billed reedhaunter (*Limnoctites rectirostris*), and yatay palm (*Butia yatay*), among others.

Within CAs and HCVAs, biodiversity monitoring is conducted with a focus on the presence/absence

UPM Forestal Oriental network of conservation areas.



## INCORPORATION OF NEW AREAS INTO THE NETWORK



The territory occupied by the company is analyzed.



The company works together with experts from the Vida Silvestre Uruguay (Uruguay Wildlife) organization.



Representativeness and complementarity targets are defined for environments and species, both in areas in the company's network, and in areas in the Sistema Nacional de Áreas Protegidas (SNAP) (Uruguay National System of Protected Areas).



of priority species for SNAP and their environments.

**Legally protected areas**

In October 2016, through an agreement between UPM and the Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente (MVOTMA) (Ministry of Housing, Territorial Planning and Environment), UPM Forestal Oriental was designated as the administrator of the Esteros y Algarrobales del Río Uruguay (EARU) protected area, located in the

“Mafalda” plot (Río Negro department), which has formed part of the Sistema Nacional de Áreas Protegidas (SNAP) (Uruguay National System of Protected Areas) since December 2015 through an executive decree.

In this way, UPM became the first private company to manage an area of the Uruguay National System of Protected Areas.

In 2017, pursuant to a convention with the Organización Vida Silvestre Uruguay (Uruguay Wildlife Organization), work began to update the area’s management plan.

**High conservation value areas**

Forests of high conservation value areas (HCVAs) are defined according to Forest Stewardship Council® guidelines and requirements. In order to define these areas and their management, public consultations are carried out with experts and other local stakeholders.

Any UPM Forestal Oriental conservation areas that comply with these criteria are mapped as HCVA and monitored in accordance with the established management guidelines.

Map of protected areas and their contribution to the conservation of biodiversity.



List of HCVAs and management measures implemented.



# Environmental monitoring

## Results of the biodiversity monitoring programme

The assessment of biodiversity values and their monitoring is carried out based on the latest information available in the country regarding the presence and distribution of flora and tetrapod vertebrate species in the land managed by UPM Forestal Oriental.

Flora and/or fauna surveys are carried out in CAs and HCVAs, with an emphasis on monitoring the species included on the list of priority species for conservation by the SNAP.

These surveys make it possible to establish the presence of priority species in general, in addition to detecting others which have not been previously recorded. In particular, the *Trichomanes crispum* L. fern species was recorded for the first time in Uruguay, as well as a new tree species in Uruguay, *Ficus* sp. (*af. calyptroceras*).

In turn, the monitoring and tracking of the presence of environmental quality indicator species, rare species, or charismatic species continues.

Species recorded on UPM properties.



## Environmental quality indicator species, rare or charismatic species

### BIRDS

*Anhinga anhinga* – snakebird

*Lochmias nematura* – sharp-tailed streamcreeper

*Pseudoseisura lophotes* – brown cacholote

*Limnocittes rectirostris* – straight-billed reedhaunter

*Sporophila cinnamomea* – chestnut seedeater

*Sporophila ruficollis* – dark-throated seedeater

### MAMMALS

*Ctenomys rionegrensis* – Río Negro tuco-tuco

*Desmodus rotundus* – vampire bat

### VASCULAR PLANTS

*Butia yatay* – yatay palm

*Chloraea bella*





Other high conservation value area monitoring and management activities:

- Control of natural regeneration and plantations of pine on continental dunes in La Rinconada (region 5)
- Establishment of a new area for the conservation of chestnut seedeaters in El Retiro (region 3) and monitoring of the species' presence during mating season 2016–2017
- Monitoring of the conservation status of the Puente de las Cadenas, and maintenance and renovation actions in the Estancia Arteaga historical area

**Hydrological monitoring activities**

Hydrological monitoring activities respond to UPM Forestal Oriental's commitment to the long-term sustainability of its operations. They also constitute a requirement of the standards under which the company is certified. The common denominator of the different studies initiated is to assess and quantify the influence of forest plantations on water dynamics, evaluating the different components of the hydrological cycle and water quality, which helps adapt forest plantations to ensure the best use of this resource.

**Environmental impacts on operations**

The company constantly assesses and monitors the impacts generated by its operations, implementing the best management practices to the effects with a view to reducing them as much as possible. The lessons learned from these assessments translate into improvements in working procedures.

Compliance with these procedures is supervised through performance monitoring conducted by the managers or supervisors of each activity, either during the period in which they are conducted or subsequently.

Environmental accidents are reported by supervisors, and corresponding mitigation measures must be taken.

Summary of ongoing projects.



Frequency of deviations.



**Soil monitoring programme**

Through the monitoring of the physicochemical properties of soil in planted areas, the most frequently used soil productivity index (CONEAT) soil groups are covered, including the most representative soil types. The physicochemical properties are assessed over a period of five years (approximately twice per rotation) at the same site. At each point, samples are taken from a planted area and another adjacent non-planted area (control). Each year, new monitoring sites are incorporated in order to provide greater representativeness of the soil groups and types used.

Soil sampling sites.





# UPM Forestal Oriental annual results

As explained in the introduction to the public report, UPM Forestal Oriental's annual results are available online on UPM Uruguay's website.

To access the information, the reader must go to: [www.upm.uy](http://www.upm.uy), or use the QR codes found throughout this report.

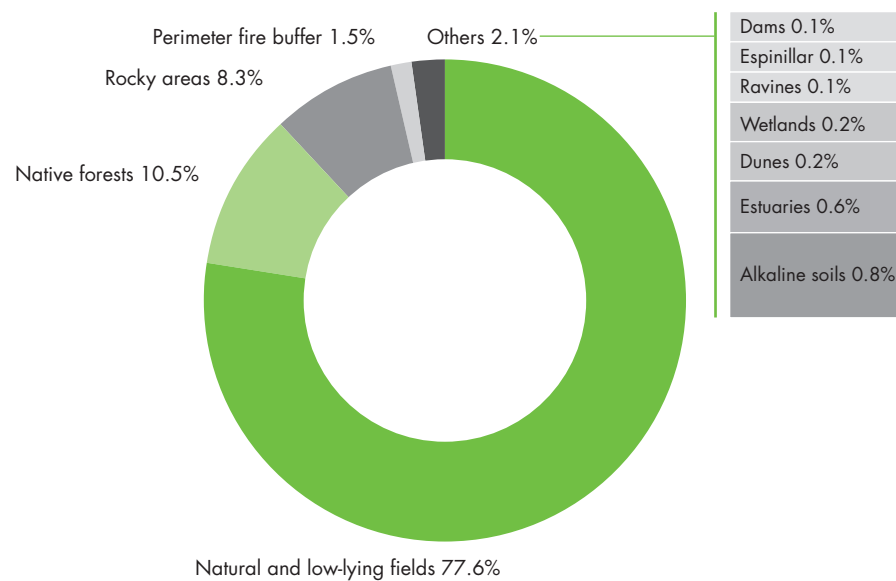


# Environment

## Biological data

### Types of environment

#### Distribution of types of environment in unplanted areas and bodies of water



## Flora

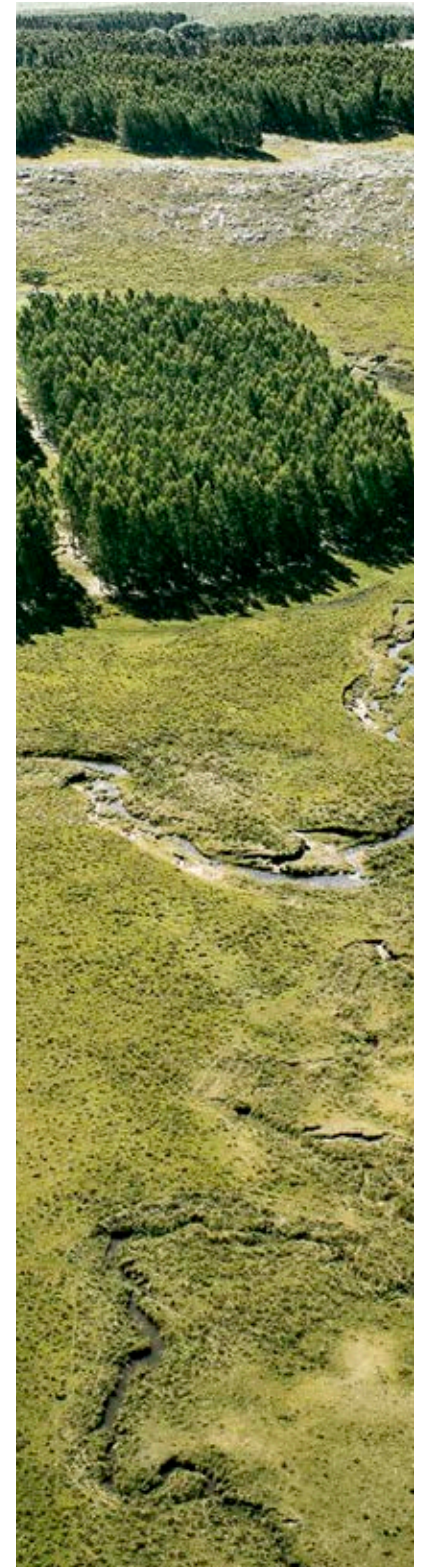
### Tetrapod species detected

#### Number of species by class, according to location and presence on UPM Forestal Oriental land

	THROUGHOUT THE COUNTRY	NORTH EAST		COAST	
		Total	UPM Forestal Oriental land	Total	UPM Forestal Oriental land
Amphibians	46	26	25	22	21
Reptiles	61*	43	43	43	26
Birds	367*	258	258	248	219
Mammals	70* (9 introduced)	49	45	44	39
<b>Total</b>	<b>544*</b>	<b>375</b>	<b>371</b>	<b>357</b>	<b>305</b>

Proportion on UPM Forestal Oriental land compared with the potential presence for each region (coast and north east)

\* Excluding marine species



## Geoclimatic data

### Hydrology

UPM Forestal Oriental assets cover



**1136 km**  
of natural  
waterways

**221**  
streams

**234**  
gullies

**10**  
rivers



# Assets

## Use of the land



Area by holdings (thousands of ha)

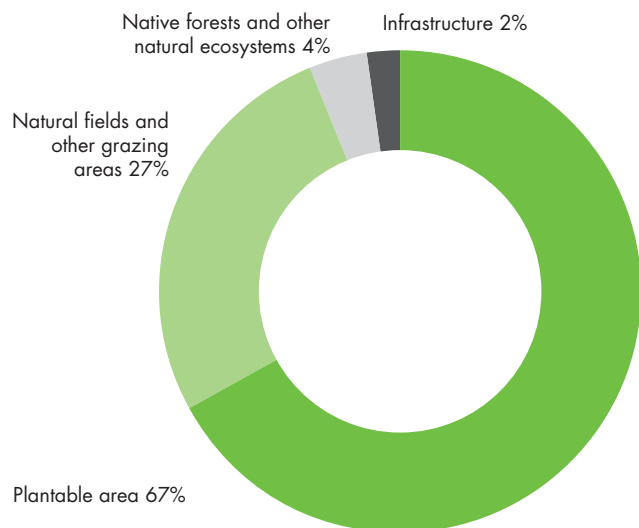
HOLDING TYPE	TOTAL AREA	PLANTABLE AREA
UPM Forestal Oriental	255	156
Lease*	110	88
Total	365	244

\* Includes total and partial.



Distribution of areas by usage (thousands of ha)

	AREA
Total area	365
Plantable area	244
Natural fields and other grazing areas	98
Infrastructure	8
Native forests and other natural ecosystems	15



Note: Includes UPM Forestal Oriental – Uruwood – Total and partial leases.  
Land use would be 61% if we exclude partial leases.

In UPM Forestal Oriental land



**61%** of the areas are plantable.



**39%** are dedicated to livestock activities, conservation of natural resources and infrastructure.

Main species for plantations  
Forested area by species (thousand ha)

	EUCALYPTUS	PINUS	SALICACEAE AND OTHERS	TOTAL
UPM Forestal Oriental	142	3	1	146
Leases	75	2	0	77
Total	217	5	1	223



# Production process

## Production process



### Forestry

**30.1 thousand hectares** planted

**89%** plantations  
(mainly reforestations)

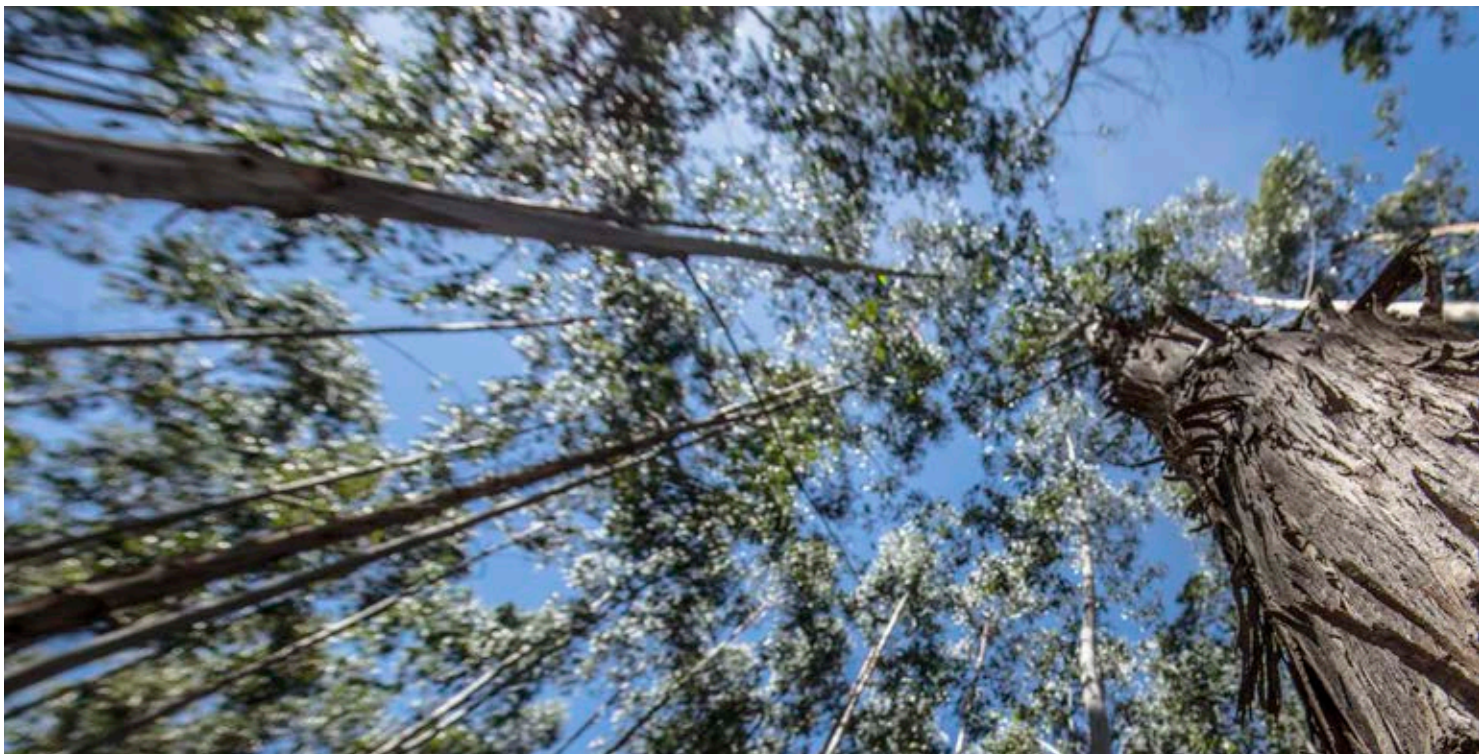
**11%** regrowth management

**2.4%** of the land corresponds  
to fallow land, with an annual  
average of 2.4%

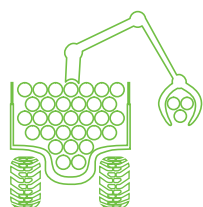
**75%** of operations  
are mechanized

### Main activities in 2017

- Courses were provided on the subject of the weed control strategy and use of agrochemicals, production aspects that are periodically audited.
- Training on ant control and temporary nursery maintenance was also initiated.
- We conducted 15 field trips for SP staff, together with UPM Forestal Oriental supervisors and park rangers.







## Harvesting

**4 million m<sup>3</sup>**  
of harvested wood

Harvesting rate: **7.6%**

Harvesting fronts  
**11 fronts** for the  
*eucalyptus* operation,  
including 8 contracted  
and 3 proprietary.

**2 fronts** for Pinus

## Total harvest (thousands of m<sup>3</sup>)

SPECIES	TOTAL
<i>E. grandis</i>	1.984
<i>E. dunnii</i>	1.413
<i>E. maidenii</i>	26.9
<i>E. globulus</i>	155
<i>E. benthamii</i>	96
<i>E. viminalis</i>	9.1
<i>P. elliotii</i>	158
<i>P. taeda</i>	149
Total	3.991



## Average output (m<sup>3</sup>/ha/year)

	COASTAL REGION	NORTHERN REGION	CENTRAL-SOUTHERN REGION
<i>E. grandis</i>	24–32	26–34	22–28
<i>E. dunnii</i>	20–28	24–30	22–26
<i>E. maidenii</i>	15–20	16–23	16–20
<i>E. globulus</i>	7–12	7–11	12–18
<i>E. viminalis</i>	15–20	15–20	18–24
<i>Pinus sp.</i>	12–16	15–20	12–16
<i>E. tereticornis/E. camaldulensis</i>	10–14	11–15	8–12
<i>E. benthamii</i>	22–30	25–32	22–27

## Transport



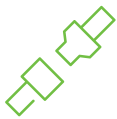
**31** forest transport companies contracted by UPM Forestal Oriental.

**211 trucks** operating over the course of the year.

**26 long combination vehicles** transported **21%** of the wood to the Fray Bentos pulp mill.

More than **320 trucks** entering the mill **each day**.

## Road safety programme



**460 people** attended courses on driving HGVs (heavy goods vehicles).

**1938 drivers** attended the series of safety talks.

**834 psychometric tests** taken.

**2051 en-route tracking procedures** for forestry transport units.

**1625 checklists** to assess the units' condition.

### **Fleet points system**

Every month, each unit begins with a maximum score that varies according to its compliance with traffic rules and UPM Forestal Oriental road safety standards applied to all units in the service of the company.



## Roads



### 428 km of roads

on our proprietary land and those of producers who are members of the Fomento Programme, representing an investment of **USD 7.9 million**.

Maintenance and improvements to **690 km of local roads** in coordination with Departmental Administration Offices.

### Main improvements during 2017:

- Reconstruction of 14 km of the Gumersiando local road in the department of Cerro Largo.
- Structural reinforcement of the bridge between the towns of Quebracho and Lorenzo Geyres.
- Preparation of granular base for asphaltting in the towns of Las Palmas and Cerrezuelo, carried out by the Durazno Department Administration Office.
- Construction of 14 km of roads stabilized with cement. These ensured the transport of 217,000 m<sup>3</sup> of solid wood through adverse weather conditions.
- Construction of strategic roads to help improve the availability of wood loads.
- Construction of roads of varying reliability to ensure proper removal of pine trees.



## Support processes

### Responsible Fire Management

#### Main training sessions during 2017

- Fire prevention course for beekeepers.
- Forest fire prevention and response course for our permanent and contract staff.
- Workshop on basic operational tools for managing forest fires directed at permanent forest supervisors and co-ordinators.

**580 participants** during the year.

## Fomento Programme



**More than 550  
associated  
rural producers**

### Institutions involved:

- Caja de Jubilaciones y Pensiones Bancarias (Banking Retirement and Pension Fund).
- Caja Notarial (Notarial Social Security Fund).
- Sociedad de Fomento de Flores (Flores Development Society).
- Asociación Rural de Soriano (Soriano Rural Association).
- Caja de Jubilaciones y Pensiones de Profesionales Universitarios (Retirement and Pension Fund of University Professionals).

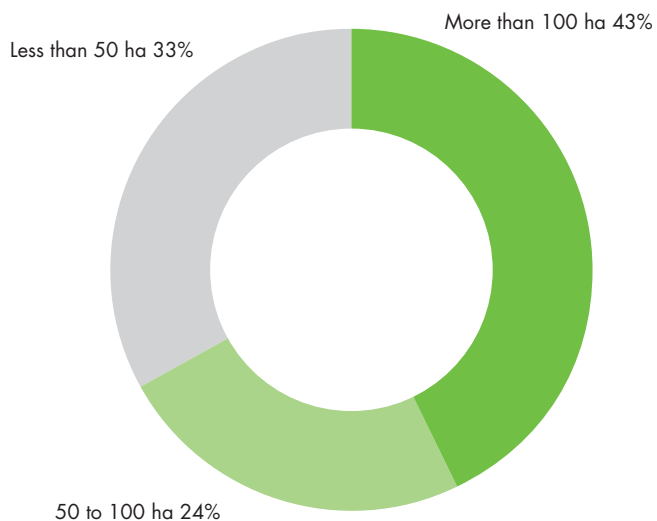
### Areas by type of holdings

TYPE OF HOLDINGS	AREA*
Lease	88
Fomento	19

\* in thousands of ha



**Agreements by area of the producer (%)**



**As part of the process to strengthen ties, as well as to share knowledge with producers and the agricultural community, several activities were carried out in 2017:**

- Visits to the El Carapé experimental establishment in Maldonado for the Programa de mejoramiento genético (Genetic improvement programme).
- Trips to the historical area of the Arteaga establishment and its Biofore Station in Florida.
- Participation in Expoactiva of Soriano, Expo Durazno, Expo Flores and Jornada UPIC (UPIC Day) in Paysandú.



**Social impact**

The Forest Synergy programme strengthens rural schools in areas of influence of the auctions, through donations of educational materials created by a combination of the ranches, producers and UPM Forestal Oriental.

Along this same line of commitment to rural communities, in 2017, the “Brotos” Project allowed for the improvement of the buildings of School No. 24 of Capilla Farruco in the department of Durazno. The project included the repair of damp in the classroom, kitchen, dining room and teacher’s bedroom, and a change in the flooring and interior and exterior paint of the entire building. In addition, the school was equipped with new furniture and tools for the classroom.

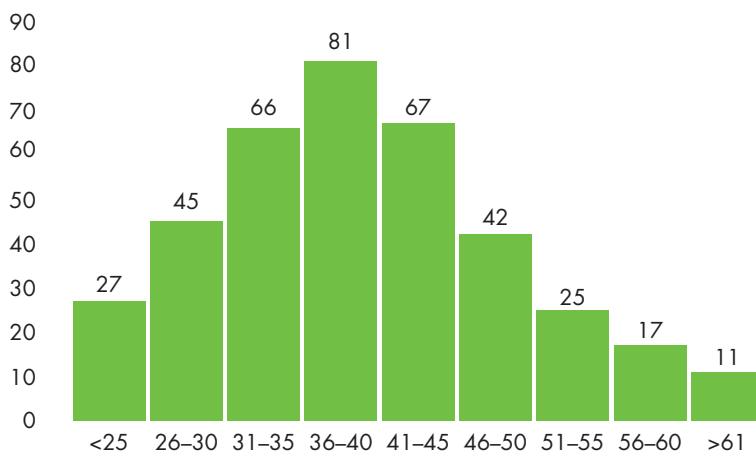
Associated producers, company staff and the community of Farruco actively participated during the day of work to restore the school.

# People

## Human resources

In line with the overall strategy of UPM to strengthen leadership skills in its teams, and in continuation of the Management Competency Fomento Programme implemented in 2016, in 2017 the Leadership Competency Development Programme was carried out, with participation from over 100 supervisors and specialists from different Competency Centres, with the aim of improving leadership, coaching, emotional intelligence, negotiation and conflict management skills, to in turn improve the implementation of the company's strategy.

### Staff by age

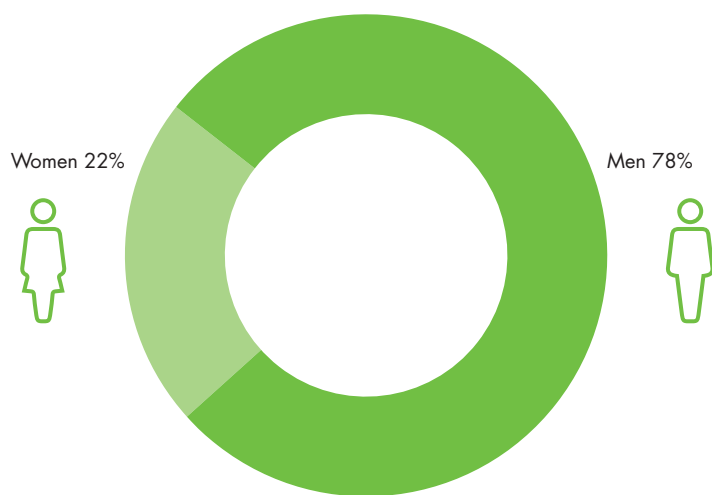


### In 2017, 406 internal audits were carried out

on contractors to verify labour, tax, prevention and social security aspects, as well as the accident policy



**Staff by gender**



**CONTRACTORS BY LOCATION**

San Francisco Nursery	15
Santana Nursery	12
Collection	2
Transport	37
Region 1	33
Region 2	23
Region 3	25
Region 4	26
Region 5	34
Others	3



**381** own employees  
**2467** employees from service providers  
**210** contractors

## Safety as a core value

### Activities conducted in 2017



#### Annual health and healthy habits plan

- Ergonomics for harvest operators and truck drivers.
- First aid training, vaccination plan, plan for visits to doctors and nutritionists for all regions, among other actions.
- Review of the implementation of standards for saving lives.
- Analysis gap and plan of action.
- New standards in lighting at work; high-visibility work clothing; and forest ladders and platforms.



Safety Audit System for contractors, with ranking and action plan according to results.

**+70 audits performed**

Audit of Road Safety Management Systems for wood transport companies based on ISO 39001.

**8 during the first cycle**

#### Training

Leadership in safety, aimed at UPM process managers, co-ordinators and forest supervisors.

**20 participants**

Best practices in safety rounds for supervisors and forest rangers.

Academy for supervisors of contractors in forestry and wood transport.

**60 participants**

Quarterly safety meetings for truck drivers.

**100 participants**

Training in first aid, active breaks, ergonomics and health, among others.

**400 participants per session**

Training the company's own staff on risks and safety standards in the workplace.







**Safety assessment and contractor awards**

Recognition of more than **1000** workers from 50 contractors.

**Gold level** companies based on safety performance.

**100 drivers and 5 wood transport companies** recognized.



**Meetings**

Safety Committee held with the UPM safety union delegates (General Committee and nurseries).

Quarterly briefings with contractors.

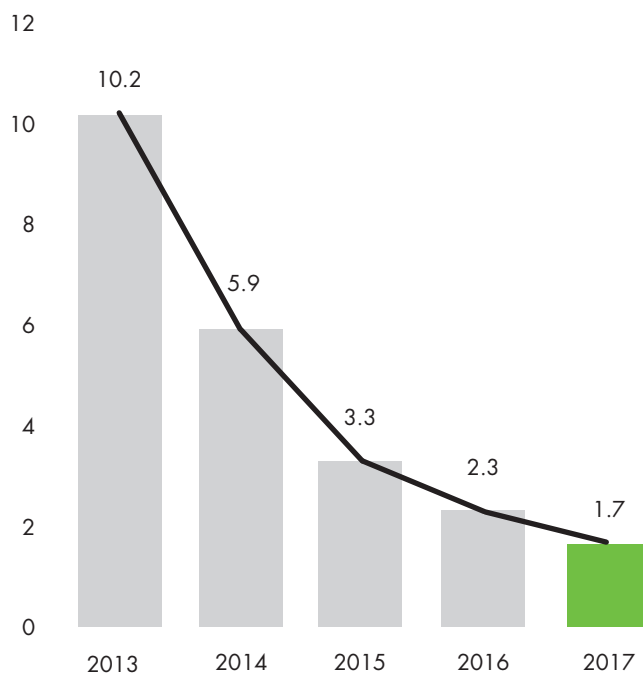
**+60 companies per meeting**

Informative meetings with transport companies. Assessments of safety plans and feedback.

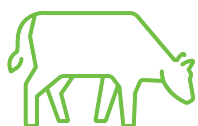
**38 companies**



**Lost time accident frequency rate (UPM Forestal Oriental and contractors)**



## Complementary forestry products



### Grazing

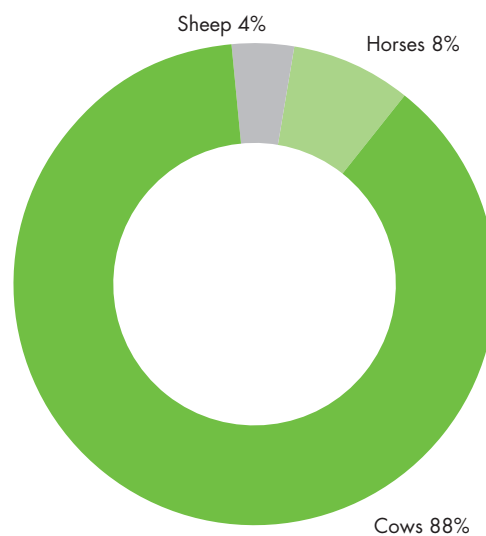
**69,889 ha**

used for grazing by third parties, of which 31,950 ha belong to **105 producers** that are members of the Fomento Programme

**Total number of producers:**  
**496 farmers**

**Average area per producer:**  
**129 ha**

Area by livestock type





## Mushroom collection

Currently, **15 towns from three departments** participate in the scheme

### IN PAYSANDÚ:

Gallinal, Cerro Chato, Quebracho, Piedras Coloradas, Orgoroso, Pandule and Guichón.

### IN RÍO NEGRO:

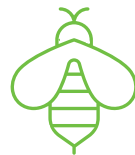
Algorta, Mellizos, Paso de la Cruz, Bellaco, San Javier and Greco.

### IN SORIANO:

Mercedes and Palmitas.

Regarding the end use of the mushrooms collected, it is estimated that

**99% are sold as raw material in Montevideo.**



## Beekeeping

Under the framework of the “Programa piloto de certificación PEFC™ de Buenas Prácticas Apícolas para miel producida en campos de UPM Forestal Oriental” (Pilot PEFC™ certification programme concerning Good Beekeeping Practices for honey produced in UPM Forestal Oriental fields), courses were given to all beekeepers who will enter the company’s fields in 2018.

### Training sessions carried out

- Application of Good Beekeeping Practices, under the responsibility of the Dirección General de la Granja (General Farming Department), and the DILAVE<sup>1</sup>.
- Key points for the certification and implementation of the Good Beekeeping Practices, under the responsibility of PEFC™.
- Prevention of forest fires, under the responsibility of UPM Forestal Oriental.

**180** producers

**51,561 ha** available (suitable for flowering)

**25,295** beehives in the company’s fields

**Average honey production: 8 kg per hive**

### Participating local institutions:

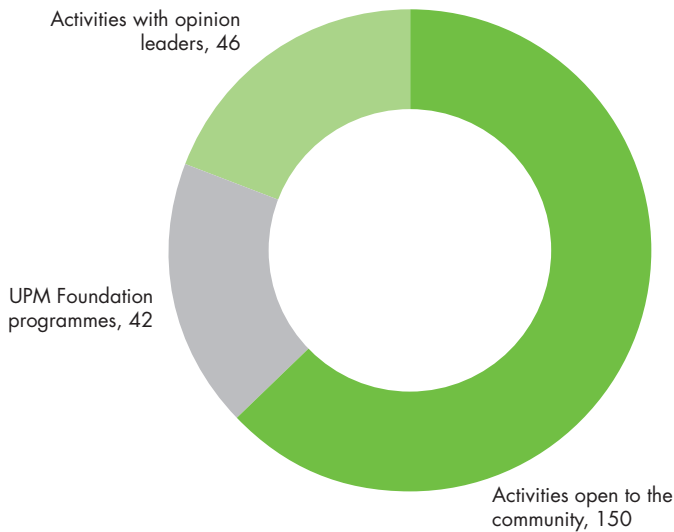
- Sociedad de Fomento Rural de Nuevo Berlín (Rural Development Society of Nuevo Berlín).
- CALAY (Young beekeepers’ group).
- Grupo Apicultores Algorta SRL (Algorta beekeepers’ group).
- CALGUI (Guichón beekeepers’ group).
- CALAPIS (Paysandú beekeepers’ group).
- Asociación Fomento Apícola de Tacuarembó (Association for the promotion of beekeeping in Tacuarembó).
- Asociación Rural de Paso de los Toros (Rural Association of Paso de los Toros).
- COAPIKOL (Kolping beekeepers’ group), Florida.
- Sociedad Agraria del Yí (Yí agrarian society), Durazno.
- Liga del Trabajo de Molles (Molles workers’ union), Carlos Reyles; Durazno.
- CARL Sierras del Olimar, Santa Clara de Olimar.

1. División de Laboratorios Veterinarios (Division of Veterinary Laboratories) of Dirección General de Servicios Ganaderos del Ministerio de Ganadería, Agricultura y Pesca (General Directorate of Livestock Services of the Ministry of Livestock, Agriculture and Fishery).

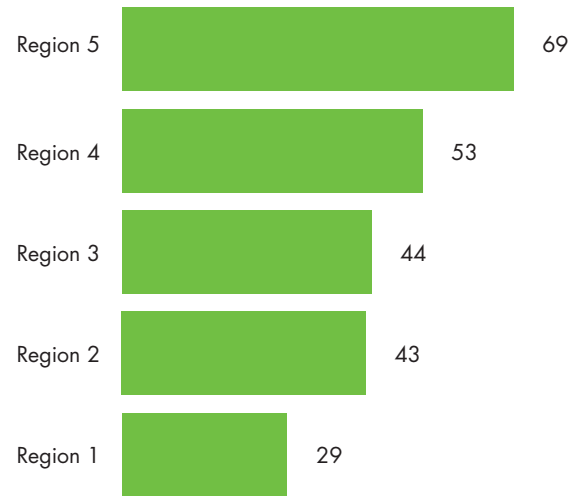


## Community relations

### Amount of activities carried out in 2017



### Amount of activities by Region



### UPM Foundation projects by Region

Region	1	2	3	4	5
"Haciendo caminos en comunidades rurales"	✓	✓	✓	✓	✓
"Sembrando mi futuro"	✓	✓	✓	✓	✓
"Cuenta quien cuenta"		✓	✓		✓
Postgraduate teacher training		✓			
"Psicología positiva para jóvenes más positivos"	✓	✓	✓		

### Results of social monitoring\*

**150** worker surveys

More than **700** residential surveys

**30** in-depth interviews related to the communities



\* The study was conducted in 2017, in the five regions of UPM Forestal Oriental and was under the responsibility of the company Cifra.

## UPM Foundation

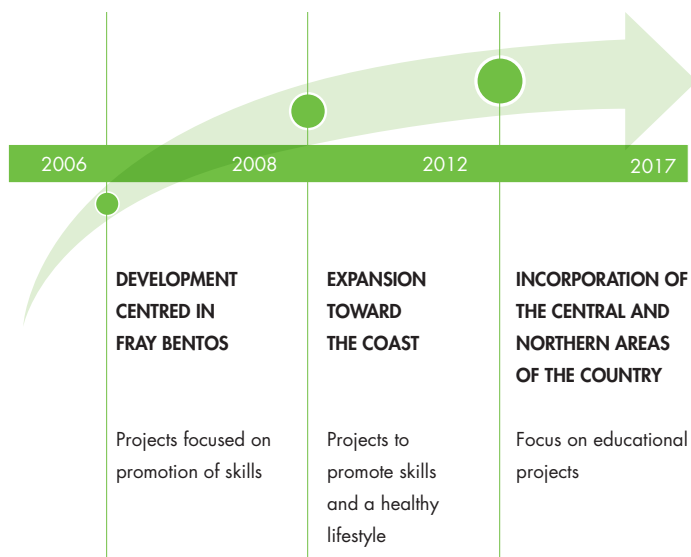
**57%** of projects focused on education  
**43%** on community development

**4000** participants  
**18 organisations** involved

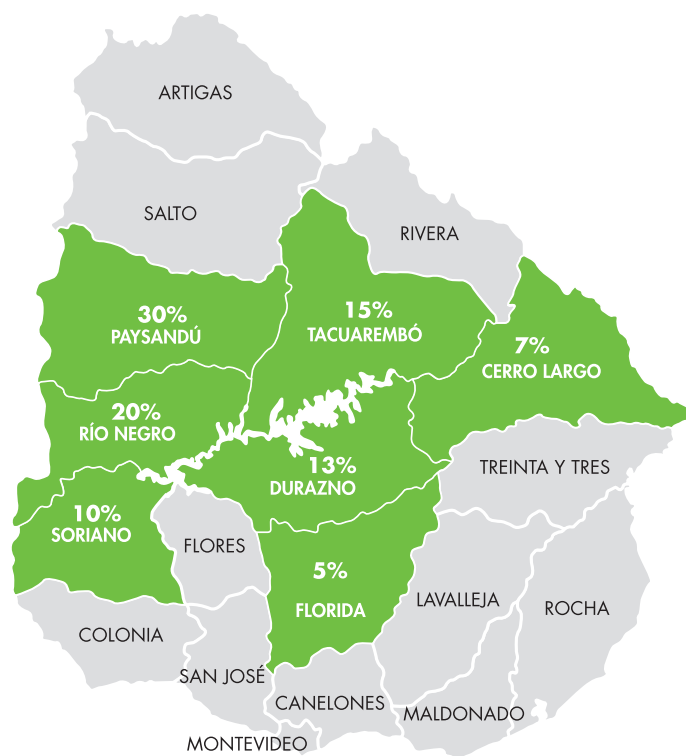
**23 projects** during 2017

**In 2017, the first meeting of partner organisations was held**

### Evolution of the Foundation



### Distribution of projects by department



## Noteworthy projects

### “Sembrando mi futuro”

Educational programme that promotes continuity of education for young people in rural areas. Aims to provide students from interior communities with a broader view of the educational and professional opportunities they can access in the future.

**240 students** from 12 educational centres, including rural schools, UTU (Universidad del Trabajo del Uruguay – Work University of Uruguay) and high schools.

Conducted in Río Negro, Paysandú, Durazno and Tacuarembó.

**40 UPM collaborators** involved.

In conjunction with DESEM Jóvenes Emprendedores (Young Entrepreneurs) and regional education authorities.

#### First workshop

Focuses on various aspects related to vocational guidance, with theoretical and dynamic content that allows students to reflect on the topics studied. Also introduces the educational offerings that exist in our country.

#### Second workshop

Resumes topics about vocational choice and introduces different jobs within the forest production chain and its industrial stages. UPM technicians and professionals participate to share their personal experience.



## “Haciendo caminos en comunidades rurales”

Road safety education programme adapted to the rural environment, with the primary objective of contributing to the training of responsible citizens through recreational activities and materials in which children learn about good practices for travelling on roadways.

More than **600 children** across all grades involved.

**39 rural schools** in 6 departments.

Held in Soriano, Cerro Largo, Paysandú, Florida, Río Negro and Tacuarembó.

In conjunction with DESEM Jóvenes Emprendedores, transport companies and Pre-School and Primary Education Departmental Inspection Offices.

### First workshop



### Second workshop

Focuses on theoretical aspects of the roads in rural communities, with practical slogans that encourage learning in children. Each student receives a handbook with the content told through a story between the characters Mateo and Paula, and their teacher.

Recreational day to put everything learned into practice. Each school receives a kit with items to perform traffic simulation activities throughout the year.

This project received “Innovación Educativa” (Educational Innovation) recognition from DESEM Jóvenes Emprendedores for being the first road safety education programme adapted to the environment.



## Postgraduate teacher training

This is an opportunity for teachers in the country's interior to update their academic training in a decentralized way. This postgraduate course aims to expand educators' tools for working in the classroom, improving planning and development of strategies capable of motivating and strengthening their students' learning

The first edition was attended by **27 secondary education teachers** from Río Negro.

It started in November 2015 and lasts for **two years**.

Held by instructors from the **Universidad Católica del Uruguay** (Catholic University of Uruguay).

### Working methods

It uses a hybrid learning format, with in-person training once a month.

### In the future

Almost half of the graduates of the first edition will become tutors and leaders for future programmes.





## “Cuenta quien cuenta”

Family literacy programme that seeks to strengthen literacy for children through sustained story reading at home. The programme focuses on highlighting the importance of reading in the learning process of children and in strengthening the family bond through reading. In parallel, rural teachers strengthen their relationship with the community in which they work.

### 120 participants

between the student teachers and rural teachers in the area.

### Conducted at 57 rural schools

in Durazno and Paysandú.

### 452 families

involved.

The programme was created by the MATE (Movimiento Alternativo de Transformación hacia la Equidad Social — Alternative Transformation Movement towards Social Equity), and its implementation was coordinated with Pre-School and Primary Education Departmental Inspection Offices and Teacher Training Institutes of the departments involved.



## “Psicología positiva para jóvenes más positivos”

Course designed for educators in the interior of the country. Positive psychology applied to education offers an innovative vision, a new way to respond to current conflicts and challenges in the classroom.

### 77 educators

participated in the programme.

### 8 modules

with participation from educators from Río Negro, Soriano and Paysandú.

Aimed at teachers, teaching assistants, psychologists and related leaders with a strong social commitment.

Conducted by the **Fundación Jóvenes Fuertes Uruguay**

(Strong Youth Foundation of Uruguay).

## Offerings

Theoretical and practical foundations about the different aspects of human well-being and character development for people who want to become agents of change in their community.



## Results

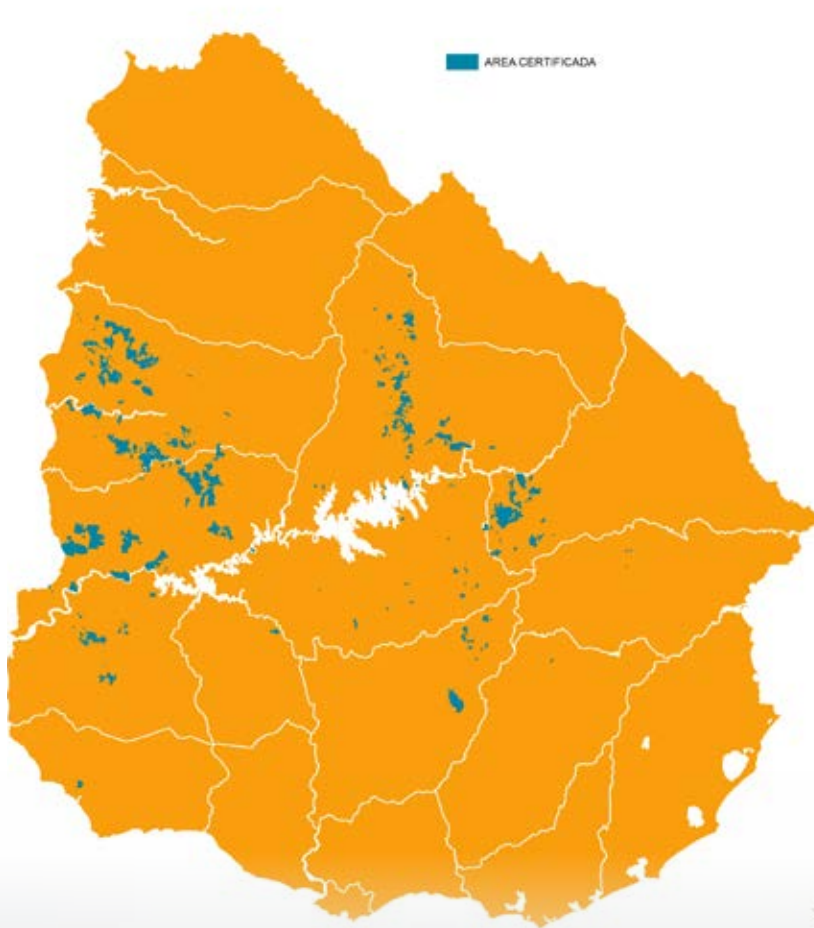
Tools for educators to implement strengths of character in the classroom and, thus, improve school performance and learning processes in young people.



# Environment

## Certifications

Map of certified areas



**Total area with certification**  
 FSC® (SGS-FM/COC-000606):  
**260,847 ha**

**Total area with certification**  
 PEFC™ (UY11/20080091):  
**260,847 ha**

**Total area with certification**  
 FSC® belonging to the  
 UPM Forestal Oriental  
 Certification Group  
 (SGS-FM/COC-002240):  
**17,601 ha**



## UPM Forestal Oriental network of conservation areas

## Responsible environmental management

## Biodiversity conservation

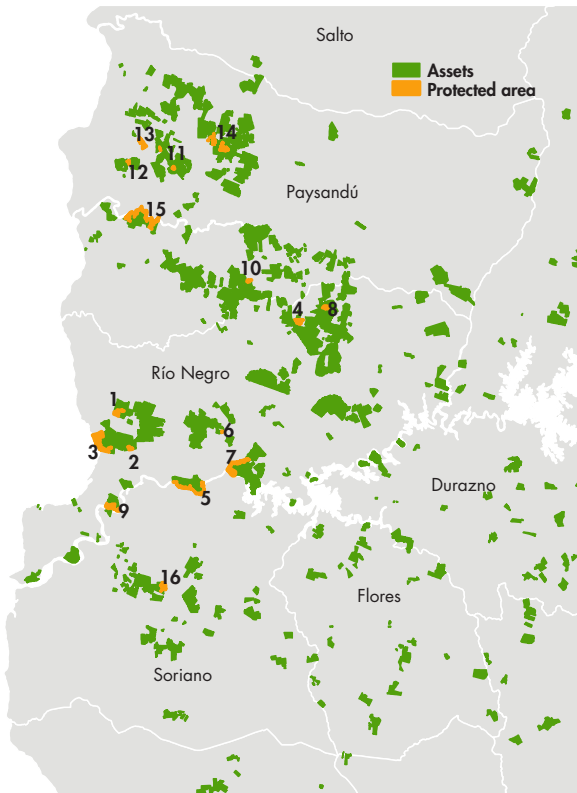
## Areas in assessment:

An area of 952 ha is being assessed for its incorporation into the network of conservation areas, as a type I HCVA. The area is located within the El Cerro plot, in the department of Río Negro.

DEPT.	NAME	AREA (ha)	OBSERVATIONS	HCVA TYPE*
Río Negro	El Rosario	290	Wetlands, native bush and grasslands. High biodiversity value.	
	Mafalda Este	119	Alkaline soils, improvement of degraded environments.	
	Esteros y Algarrobales del Río Uruguay (formerly Mafalda)	1550	Part of the Ramsar Esteros de Farrapos site (wetlands). Native forest (riparian) and Chaco park, alkaline soils. Abundance of flora and fauna species. High diversity of priority species for conservation.	I and II
	Las Tunas	178	New and rare species (herbaceous and cacti).	
	El Jabalí	641	Abundance of flora and fauna species. High diversity of priority species for conservation.	I
	Viraroes	29	Native bush with a permanent waterway.	
	La Trinidad	121	Species protected ( <i>Butia yatay</i> ) by law. Threatened pastures and grasslands, high scenic value.	
	El Ombú	227	Species protected ( <i>Butia yatay</i> ) by law (population with conservation issues). Threatened pastures and grasslands, high scenic value.	
	Barrancas Negras	589	Landscape conservation (Río Negro fluvial plains), important environments and ecosystems for birds and endemic rodents, as well as priority species for conservation.	III
	Paysandú	Cueva del Tigre – El Refugio	12	Native bush with a permanent waterway.
Santa Carolina		67	Site with palaeontological value (currently being studied); high scenic value.	
El Pucará – Carretón II		20	Special management sites for the conservation of seedeater species.	
Chasicó		279	Regeneration area for <i>Butia yatay</i> palm groves.	
San Pedro – Don Martín		256	Conservation area for <i>Butia yatay</i> palm groves, natural fields and native forests.	
El Retiro – Queguay		999	Ecosystems that are representative of other adjacent protected areas, or sites of interest for conservation on a national or regional level (native forests, natural fields, rocky ledges). Potential contribution to the conservation of seedeater species ( <i>Sporophila</i> spp.), as well as black-and-white monjita ( <i>Xolmis dominicanus</i> ) through tall grasslands.	II
Soriano	Coquimbo	227	Conservation area of natural fields, park forest associated with alkaline soils and scrubland.	
Tacuarembó	Arroyo Malo	569	Native forest, uliginosa and sandy fields, rare species	
	La Rinconada	649	Continental dunes and their environment	III
	Cerro Agudo	533	Marshland, priority species for conservation.	
Treinta y Tres	Queiebra Yugos	15	Straight-billed reedhaunter ( <i>Limnocittes rectirostris</i> ), endangered bird and its habitat.	III
Florida	CJPP-Arteaga	5	Area of historical interest and "Bridge of Chains"	IV
Cerro Largo	La Palma	252	Threatened pasture and grassland, native forest	
<b>Total ha</b>		<b>7627</b>		<b>4448</b>

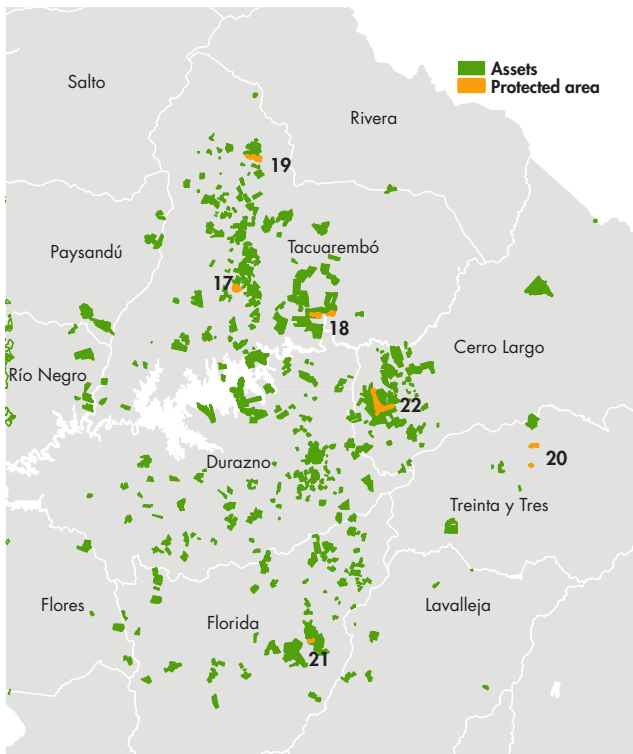
\*High conservation value areas. The type is only specified for those areas categorized as HCVAs according to the FSC® classification

## Protected areas



### West coast

1. El Rosario
2. Mafalda Este
3. Esteros y Algarrobales del Río Uruguay (formerly Mafalda)
4. Las Tunas
5. El Jabalí
6. Viraroes
7. La Trinidad
8. El Ombú
9. Barrancas Negras
10. Cueva del Tigre – El Refugio
11. Santa Carolina
12. El Pucará – Carretón
13. Chasicó
14. San Pedro – Don Martín
15. El Retiro – Queguay
16. Coquimbo



### South-center

17. Arroyo Malo
18. La Rinconada
19. Cerro Agudo
20. Quiebra Yugos
21. CJPP-Arteaga 5
22. La Palma

## Biodiversity conservation

### Contribution of the conservation areas to biodiversity in UPM Forestal Oriental land

BIODIVERSITY LEVEL		ELEMENTS
Landscapes		A representative sample of south-west coast, fluvial plains and north-west grassland <sup>1</sup> landscape units
Threatened ecosystems <sup>2</sup> : VU: Vulnerable EN: In danger of disappearing		A representative sample (more than 55 ha) of the following environments: Marshland (EN), Riparian forests (VU), Yatay palm groves with wooded grassland (park forest) (VU), Rolling grasslands (VU, EN) Flat grasslands (VU, EN)
Species of flora present in protected areas and included on the List of Priority Species for Conservation <sup>3</sup>	Not represented in any of the current SNAP areas  <b>TOTAL: 33</b>	<i>Adesmia punctata</i> , <i>Anmoselinum rosegurtii</i> , <i>Aristida echinulata</i> , <i>Aristida hackelii</i> , <i>Chloris berroi</i> , <i>Croton chamaepitys</i> , <i>Cuphea lysimachioides</i> , <i>Eleocharis nudipes</i> , <i>Eleocharis obtusetrigona</i> , <i>Eleocharis subarticulata</i> , <i>Eryngium dorae</i> , <i>Frailea castanea</i> , <i>Galium equisetoides</i> , <i>Grindelia linearifolia</i> , <i>Gymnopogon legrandii</i> , <i>Holcocheilus illustris</i> , <i>Macroptilium erythroloma</i> , <i>Matelea australis</i> , <i>Mimosa amphigena</i> , <i>Opuntia retrorsa</i> , <i>Opuntia sulphurea</i> , <i>Pappophorum philippianum</i> , <i>Paspalum falcatum</i> , <i>Pycreus uniolooides</i> , <i>Schinus fasciculata</i> , <i>Schizachyrium gracilipes</i> , <i>Scleria leptostachya</i> , <i>Senecio cisplatinus</i> , <i>Senecio tacuareboensis</i> , <i>Sommerfeltia spinulosa</i> , <i>Trichloris crinita</i> , <i>Utricularia laxa</i>
<b>TOTAL 67/688 (10%)</b>	Represented in any of the current SNAP areas  <b>TOTAL: 34</b>	<i>Acalypha senilis</i> , <i>Acicarpha procumbens</i> , <i>Arachis burkartii</i> , <i>Aristida uruguayensis</i> , <i>Atriplex montevidensis</i> , <i>Banara umbraticola</i> , <i>Bernardia sellowii</i> , <i>Capanemia micromera</i> , <i>Chloraea bella</i> , <i>Cypella coelestis</i> , <i>Festuca limbrata</i> , <i>Frailea schilinzkyana</i> , <i>Gymnocalycium schroederianum</i> , <i>Harrisia pomanensis</i> , <i>Holmbergia tweedii</i> , <i>Hyptis brevipes</i> , <i>Justicia tweediana</i> , <i>Linum burkartii</i> , <i>Lycium ciliatum</i> , <i>Maytenus vitis-idaea</i> , <i>Mimosa cruenta</i> , <i>Nierembergia calycina</i> , <i>Paspalum durifolium</i> , <i>Phragmites australis</i> , <i>Polygala aphylla</i> , <i>Prosopis affinis</i> , <i>Prosopis nigra</i> , <i>Schlechtendalia luzulaefolia</i> , <i>Senecio icoglossoides</i> , <i>Senna oblongifolia</i> , <i>Solanum platense</i> , <i>Sommerfeltia spinulosa</i> , <i>Vernonia pseudolinearifolia</i> , <i>Vigna hookeri</i>
Species of fauna present in protected areas and included on the List of Priority Species for Conservation <sup>3</sup>	Not represented in any of the current SNAP areas  <b>TOTAL: 13</b>	<i>Clelia rustica</i> (brown snake) <i>Anhinga anhinga</i> (snakebird), <i>Bartramia longicauda</i> (Upland sandpiper), <i>Cairina moschata</i> (Muscovy duck), <i>Cinclodes fuscus</i> (Buff-winged cinclodes), <i>Cranioloca sulphuriphera</i> (Sulphur-bearded spinetail), <i>Cyanocompsa brissonii</i> (Ultramarine grosbeak), <i>Mimus triurus</i> (White-banded mockingbird), <i>Pachyrhamphus viridis</i> (Green-backed becard), <i>Sterna hirundinacea</i> (South American tern), <i>Sturnella defilippii</i> (Pampas meadowlark), <i>Wilfredomys oenax</i> (Greater Wilfred's mouse), <i>Ctenomys rionegrensis</i> (Río Negro tuco-tuco)
<b>TOTAL 43/253 (17%)</b>	Represented in any of the current SNAP areas  <b>TOTAL: 30</b>	<i>Acanthochelys spixii</i> (black spine-neck swamp turtle) <i>Amblyramphus holosericeus</i> (Scarlet-headed blackbird), <i>Bartramia longicauda</i> (Upland sandpiper), <i>Buteogallus urubitinga</i> (Great black hawk), <i>Cacicus solitarius</i> (Solitary cacique), <i>Cistothorus platensis</i> (Sedge wren), <i>Coragyps atratus</i> (Black vulture), <i>Coryphistera alaudina</i> (Brushrunner), <i>Cygnus melancoryphus</i> (Black-necked swan), <i>Geranoaetus melanoleucus</i> (Black-chested buzzard eagle), <i>Gubernatrix cristata</i> (Yellow cardinal), <i>Limnocittes rectirostris</i> (Straight-billed reedhaunter), <i>Limnornis curvirostris</i> (Curve-billed reedhaunter), <i>Megascops sanctaecatarinae</i> (Long-tufted screech owl), <i>Picumnus nebulosus</i> (Mottled piculet), <i>Procacicus solitarius</i> (Solitary black cacique), <i>Rhea americana</i> (Greater rhea), <i>Rhynchotus rufescens</i> (Red-winged tinamou), <i>Saltator coeruleus</i> (Greyish saltator), <i>Sporophila cinnamomea</i> (Chestnut seedeater), <i>Sporophila palustris</i> (Marsh seedeater), <i>Veniliornis mixtus</i> (Checkered woodpecker), <i>Xolmis coronatus</i> (Black-crowned monjita), <i>Xolmis dominicana</i> (Black & white monjita) <i>Dasyops hybridus</i> (Southern long-nosed armadillo), <i>Dasyops novemcinctus</i> (Nine-banded armadillo), <i>Leopardus braccatus</i> (Pantanal cat), <i>Leopardus geoffroyi</i> (Geoffroy's cat), <i>Puma concolor</i> (Cougar), <i>Chrysocyon brachyurus</i> (Maned wolf)

1 According to Evia, G. & Gudynas, E. 2000. Ecología del paisaje del Uruguay. Aportes para la conservación de la diversidad biológica [Ecology of the Uruguayan landscape. Contributions toward the conservation of biological diversity]. MVOTMA, AECI. 173 pp.

2 According to the classification of types of environment of the Responsible Production Programme. PPR/MGAP

3 Clavijo, C.; Martínez-Lanfranco, Juan.; Soutullo, A. 2013. Especies Prioritarias para la Conservación en Uruguay. Vertebrados, moluscos continentales y plantas vasculares (Priority Species for Conservation in Uruguay. Vertebrates, continental molluscs and vascular plants). MVOTMA/SNAP/MEC.

## High conservation value areas and management measures implemented

### ESTEROS Y ALGARROBALES DEL RÍO URUGUAY (FORMERLY MAFALDA)

- Control of poaching and other illegal activities, including improving the perimeter fences.
- Recovery of degraded environments (grazing management, flora and fauna monitoring).
- Implementation of educational and recreational activities, including public use of the area (nature trail).
- Control of invasive alien woody species.
- Establishment of reasonable grazing in different environments.
- At the end of 2017, the process for reviewing the management plan began.

### EL JABALÍ

- Monitoring of flora and fauna.
- Control of invasive alien woody species.
- Publication and internal communication of the results of monitoring.
- Control of poaching.
- Grazing management.

### BARRANCAS NEGRAS

- Monitoring and control of invasive woody species (mainly gleditsia).
- Monitoring of flora and fauna.

### QUEGUAY

- Control of alien species.
- Monitoring of flora in pastures and native forests.

### QUIEBRAYUGOS

- Conservation of straight-billed reedhaunter (*Limnocites rectirostris*), an endangered bird species, and its specific habitat, the Caraguatá *Eryngium pandanifolium* scrubland.

### LA RINCONADA

- Control of alien species (mainly pine).  
CJPPU-Arteaga
- Infrastructure maintenance.



## Environmental monitoring

### Biodiversity monitoring programme

#### No. of species recorded on UPM land compared to the species that should be represented in the SNAP

CONSERVATION AREAS	VASCULAR PLANTS		AMPHIBIANS		REPTILES		BIRDS		MAMMALS	
	Total	SNAP	Total	SNAP	Total	SNAP	Total	SNAP	Total	SNAP
Esteros y Algarrobales del Río Uruguay	347	25								
El Rosario	259	3								
Barrancas Negras	109	4	10	0	9	0	124	4	18	7
El Cerro	89	7	9	0	5	0	116	1	15	4
Coquimbo	192	8	10	0						
Virarores	89	4	7	0	7	0	124	4	22	0
La Trinidad	303	11	7	0	5	0	111	0	16	0
El Jabalí	382	24	10	0	13	0	125	5	21	1
El Ombú	226	8	4	0	3	0	98	1	12	0
El Refugio	111	2	2	0	2	0	65	1	10	0
Las Tunas	233	15	2	0	2	0	70	0	7	0
La Palma	356	13	18	0	13	1	114	3	23	0
La Peñarrosa	375	21	6	0	2	2	108	2	12	0
Quebrayugos	412	21	11	0	8	0	115	4	17	0

The species defined by SNAP are those that national experts have identified as the highest conservation priority in the country, with their inclusion in SNAP official protected areas being considered necessary.

Their presence in the company's land demonstrates the importance of the conservation areas to achieving national biodiversity conservation objectives.





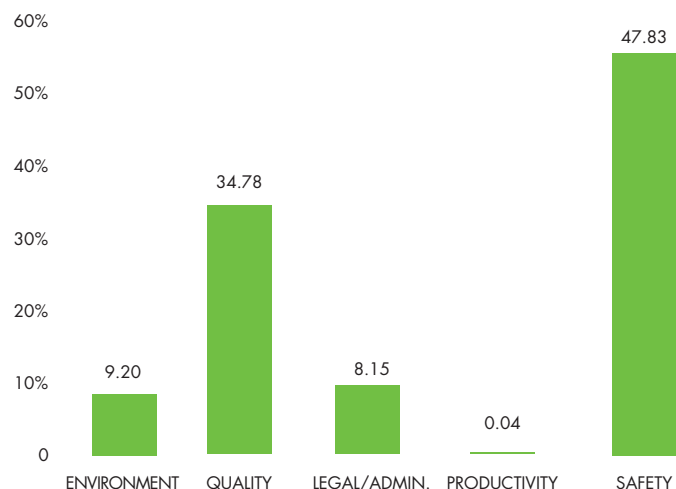
# Hydrological monitoring activities

## Summary of ongoing projects

PROJECT	OBJECTIVE	LOCATION	STAGE FOLLOWING INITIATION	DURATION
Study in paired basins	To examine the effect of eucalyptus plantations on the water balance at a local and regional level, as well as on the quality of surface water.	"La Nueva Esperanza" (LNE) establishment in the vicinity of the town Paso de los Mellizos (Río Negro). El Viraró (EV) establishment, close to the town of Los Cuadrados (Tacuarembó).	LNE: 2007-2010 Calibration 2011 Monitoring initiated EV: 2011-2014 Calibration initiated	Long-term (20 years)
Hydrological Monitoring land	To identify correlations between variations in groundwater deposit levels, rainfall and eucalyptus plantations.	We selected the most relevant geological formations (as potential aquifers): Asencio, Guichón and Salto (Coast), as well as Tacuarembó.	2010 Monitoring initiated at three plots along the coast. 2013 Monitoring initiated on the Tacuarembó plot. 2015 Final report	Medium-term (3-5 years)
Monitoring of the level of artesian wells	To evaluate fluctuations in the water level of shallow aquifers with different proximity to eucalyptus plantations through unused artesian wells.	No. of wells: 14 in the surroundings of the town Grecco, 7 in the surroundings of Paso de los Mellizos, 5 in Paso de la Cruz and 5 in Soriano.	2008 Initiated with wells in Soriano, and other locations being added over time. 2015 Review and Monitoring Assessment Report.	Long-term (10 years)
Groundwater flow quality monitoring	To evaluate variations over time in the physicochemical and biological properties of drainage basin courses within the sphere of influence of eucalyptus plantations.	Order 3 Streams (A.E Strahler classification) Arroyo Quebracho (Paysandú). Arroyo Sarandí (Soriano) Arroyo Coladeras (Río Negro) Arroyo Pablo Pérez (Cerro Largo) Arroyo Potrero (Florida)	2012 initiated in the first three basins. Two other basins included in 2013.	Long-term (10 years)
Monitoring of water quality and its suitability for different uses	To examine water quality in facilities in which there are wells for human supply, and classify it according to its suitability for use.	All wells in areas under the management of UPM Forestal Oriental.	2010 Initiated systematically. 2015 First results assessment.	Annual
Monitoring of water within sphere of influence of the Santana nursery	To establish a baseline for water quality prior to the installation of the nursery and monitor its evolution over the long term.	6 underground wells in vicinity of the nursery (adjacent) 2 sample collection sites at Arroyo Santana 2 monitoring wells on the nursery plot.	2011 Characterisation and definition of the base level 2011 Monitoring initiated at Arroyo Santana. 2012 Monitoring initiated in phreatimeter wells.	Medium to long term (5 to 10 years)

## Environmental impacts on operations

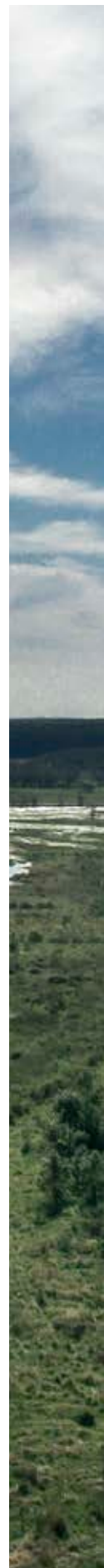
### Frequency of deviations recorded in internal monitoring



## Soil monitoring programme

### Soil sampling sites by group and year

REGION	ESTABLISHMENT	SPECIES	CONEAT GROUP	G.GROUP SOIL	YEAR					
					2010	2011	2012	2013	2014	2015
3	La Guarida	<i>E. grandis</i>	07.1	Arenosol			X			
1	La Maleva	<i>E. grandis</i>		Brunisol	X					X
1	Viraroes	<i>E. grandis</i>	09.3	Planosol	X					X
1	El Rosario	<i>E. grandis</i>		Argisol				X		
2	Chicharrón	<i>E. grandis</i>	10.2	Argisol	X					X
5	La Tribu	<i>E. grandis</i>		Brunisol			X			
5	Arteaga CJPP	<i>E. grandis</i>	2.1a	Argisol			X			
5	El Poncho	<i>E. grandis cl.</i>		Brunisol				X		
5	Arteaga CJPP	TUP		Argisol			X			
5	La Tribu	<i>E. grandis cl.</i>	2.12	Brunisol					X	
5	La Vertiente	<i>E. globulus</i>		Brunisol			X			
4	Los Higueros	<i>E. grandis</i>		Luvisol		X				X
4	Los Baguales IV	<i>E. dunnii</i>		Luvisol		X				
4	La Zulma	<i>E. grandis s.</i>	7.2	Inceptisol					X	
4	Cacique Sepe (Ur.)	<i>E. grandis</i>		Luvisol				X		
4	Higueros	<i>E. grandis</i>		Acrisol	X					
4	Cerro Agudo	<i>E. grandis</i>		Acrisol			X			
4	Los Charabones	<i>E. maidenii</i>	7.32	Luvisol					X	
4	El Refugio T	<i>E. grandis cl.</i>		Luvisol				X		
5	Peñarrosa II	<i>E. maidenii</i>		Luvisol			X			
5	El Ñandubay	<i>E. grandis s.</i>	8.1	Luvisol					X	
4	La Rinconada	<i>E. maidenii</i>		Luvisol		X				
4	El Algarrobo T	<i>E. grandis cl.</i>	8.14	Brunisol					X	
4	Valle Hermoso	<i>E. maidenii</i>		Luvisol				X		
3	La Palma	<i>E. grandis</i>	8.3	Luvisol		X				
5	Buena Vista	<i>E. grandis</i>		Luvisol		X				
5	Ñandubay CJPP	<i>E. grandis</i>	8.8	Luvisol			X			
2	La Perseverancia	<i>E. benthamii</i>		Brunisol	X					X
2	Santa Elena	<i>E. grandis s.</i>	9.1	Brunisol					X	
1	Santa Julia	<i>E. grandis</i>		Brunisol			X			
3	La Manea	<i>E. grandis</i>		Argisol		X				
3	El Palmar	<i>E. dunnii s.</i>	9.2	Argisol					X	
1	El Bizcocho	<i>E. grandis</i>		Planosol	X					X
2	Los Ideales	<i>E. grandis</i>		Brunisol		X				
1	San José	<i>E. grandis cl.</i>		Argisol					X	
2	Las Marías	<i>E. dunnii</i>	9.3	Planosol	X					X
2	La Toribia	<i>E. dunnii</i>		Argisol		X				
2	El Duraznal	<i>E. dunnii</i>		Brunisol			X			
1	Grito de Asencio I	<i>E. grandis</i>		Argisol				X		
1	El Molino	<i>E. grandis</i>	9.5	Brunisol		X				
3	El Carreton II	TUP		Brunisol					X	
3	Ibirabitá	<i>E. grandis</i>		Argisol	X					X
3	Tala	<i>E. grandis</i>		Argisol	X					X
2	Las Mareas	<i>E. grandis</i>	9.6	Argisol		X				
2	El Icuré	<i>E. grandis cl.</i>		Brunisol				X		
2	La Negra	<i>E. benthamii</i>		Brunisol					X	
4	La Bandurria	<i>E. grandis cl.</i>	12.21	Vertisol				X		
3	El Tembetari	<i>E. dunnii</i>	10.4	Brunisol				X		X
4	Fynn (F)	<i>E. grandis</i>	8.4	Luvisol						X
5	Gelós (F)	<i>E. grandis</i>	8.6	Argisol						X
5	F. Martínez (F)	<i>E. grandis</i>	8.12	Acrisol						X
5	G. López (F)	<i>E. grandis</i>	2.21	Litosol						X
5	Gelós (F)	<i>E. grandis</i>	G10.6b	Argisol						X







# CONTACT US

## **Paysandú**

18 de Julio 818  
60000 Paysandú  
Tel.: +598 472 24644  
Fax: +598 472 24655

## **Montevideo**

Av. Italia 7519 piso 2  
11500 Montevideo  
Tel.: +598 2604 6660  
Fax: +598 2604 5406

## **San Francisco Nursery**

No. 38 esq. Camino a la Autobalsa  
60000 San Francisco, Paysandú  
Tel.: +598 472 26022  
Fax: +598 472 25476

## **Santana Nursery**

Ruta 4, km 392  
60008 Guichón, Paysandú  
Tel./Fax: +598 474 402021

## **UPM Fray Bentos Mill**

Ruta Vladimir Roslik, km 307  
65000 Fray Bentos, Río Negro  
Tel./Fax: +598 4562 0100

## **Region 1 – Southern Coast**

Ruta 24, km 53.5  
65001 Tres Bocas, Río Negro  
Tel./Fax: +598 4560 9013  
region1@upm.com

## **Region 2 – Central Coast**

Ruta 4, km 392  
60008 Guichón, Paysandú  
Tel./Fax: +598 4740 2021  
region2@upm.com

## **Region 3 – Northern Coast**

Dr. Martini S/N  
60001 Quebracho, Paysandú  
Tel./Fax: +598 4754 2704  
region3@upm.com

## **Region 4 – Tacuarembó**

Soldado Eusebio Godoy S/N esq.  
Chiquito Saravia  
45000 Bo. Godoy, Tacuarembó  
Tel.: +598 4632 4432  
Fax: +598 4633 3579  
region4@upm.com

## **Region 5 – Central-South**

Baltasar Brum 470  
97000 Durazno  
Tel.: +598 4362 1062  
Fax: +598 4362 1058  
region5@upm.com

## **'How Is My Driving?' Line**

Tel.: +598 4562 7710

## **Fomento Programme**

Tel.: +598 4724 8760  
fomento@upm.com

## **UPM Foundation**

fundacion@upm.com  
Facebook: FundacionUPMUY

For any further queries relating to the content of this report, you can contact our communications department at the following email address: [comunicaciones@upm.com](mailto:comunicaciones@upm.com)



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