'LUMIN/EUCAPINE' FOREST PLANTATIONS ON DEGRADED GRASSLANDS UNDER EXTENSIVE GRAZING

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Project Title	'Lumin/Eucapine' Forest Plantations on degraded grasslands under extensive grazing
Version	Version 1
Date of Issue	20 February-2021
Project Location	Uruguay, Center-East Region
Project Proponent(s)	Address: Roque Graseras 694, 11300 Montevideo-Uruguay Contact person: Ricardo.inciarte@lumin.com / isabel.lozabalbuena@lumin.com Tel: +598 2623 4470
Validation Body	SCS Global Services
Project Lifetime	22 February-2006 – 22-February-2106
GHG Accounting Period	22 February 2006 - 22 February 2066
History of CCB Status	N/A
Gold Level Criteria	N/A
Expected Verification Schedule	01 May 2021

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1 GENERAL

1.1 Project Proponent (G1.1)

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1.2 Project Objectives (G1.2)

The main objectives of the project activity are the responsible wood production, conservation of natural resources, land restoration and carbon sequestration through afforestation. All practices follow FSC® forest management standard for responsible forest management, while enhancing biodiversity conservation by increasing the connectivity of forests and different ecosystems, generating income and job opportunities for local communities in rural areas of the centre-east region of Uruguay.

1.3 Project Zone Map (G1.4-7, G1.13, CM1.2, B1.2)

The following map (***Figure 1***) shows the exact location of the project, and the cadastral units owned by Lumin/Eucapine, where the project will be located.

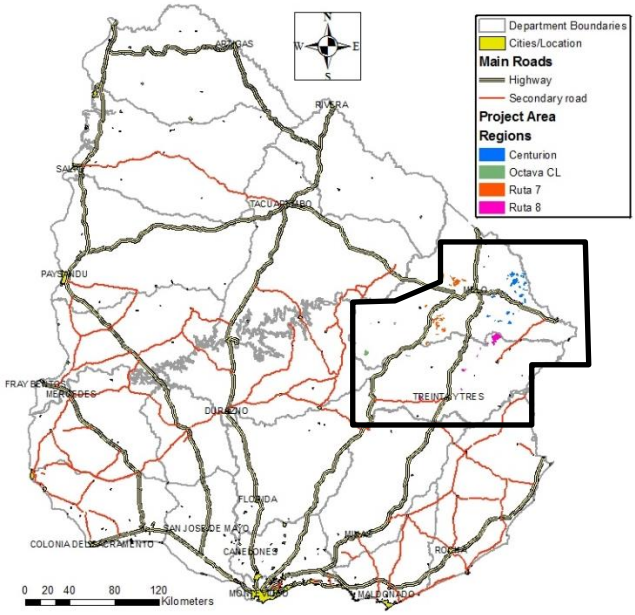

Figure 1. *Map of Uruguay showing the location of the areas included in the proposed project activity (black frame).*

For the purpose of defining the strata, the project area has been divided into four regions, which are shown from **Figure 2** to **Figure 5** The areas are homogeneous in terms of soil types, climate, land use history and socio-economic conditions. The division into three regions is entirely based on geographic location.

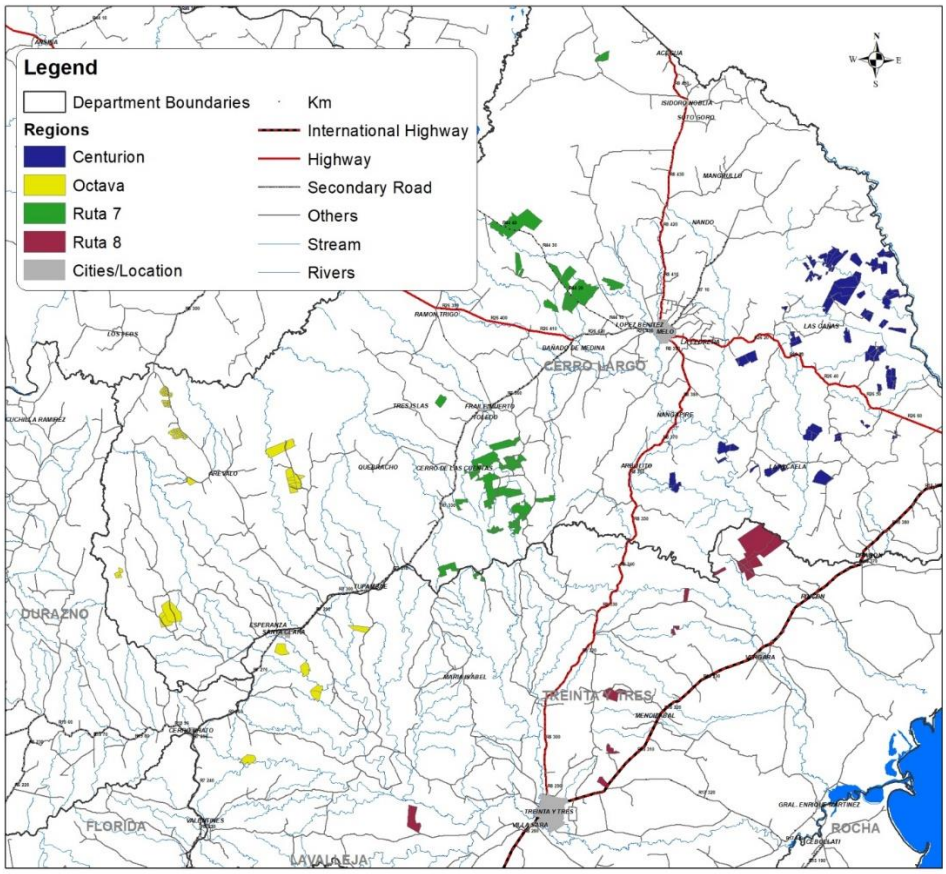

Figure 2. *Map indicating the three project regions divided in three different colors.*

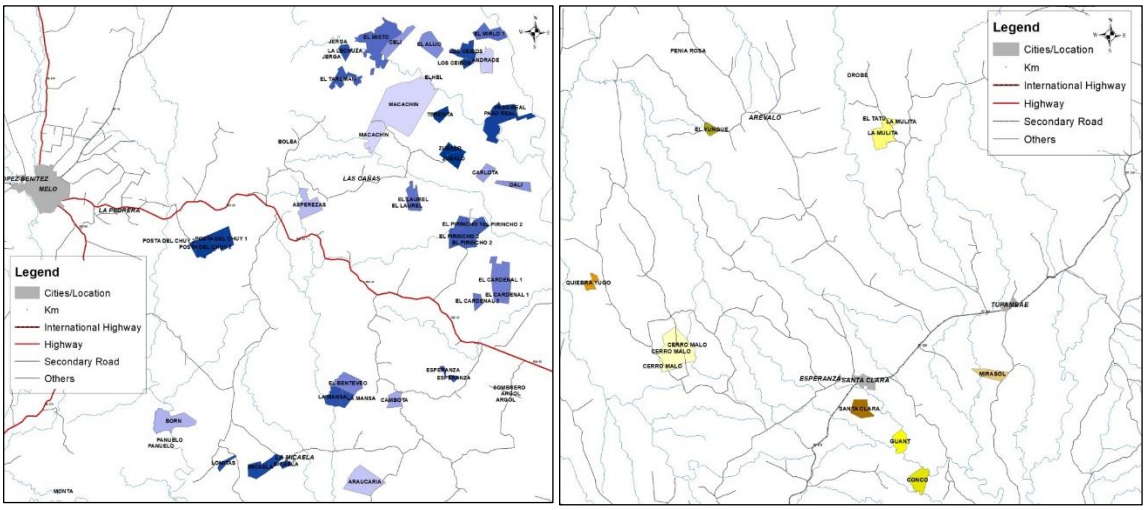

Figure 3. *Location of properties which make up the region Centurión and location of properties which make up the region Octava CL*

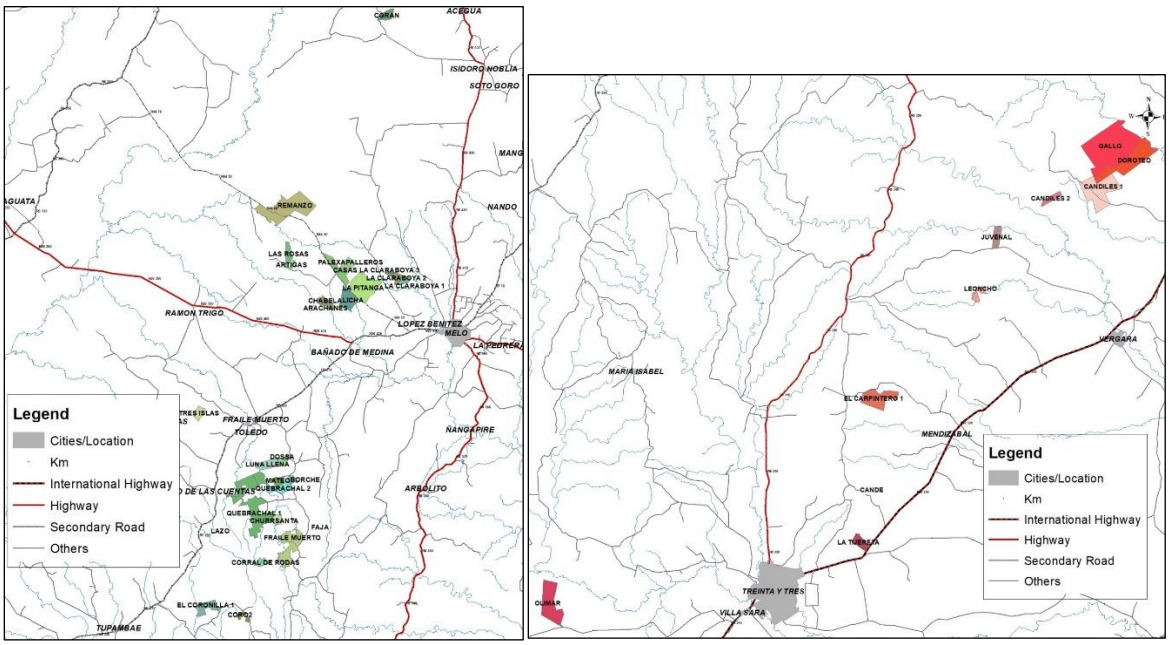

Figure 4. *Location of properties which make up the region Ruta 8 and location of properties which make up the region Ruta 7*

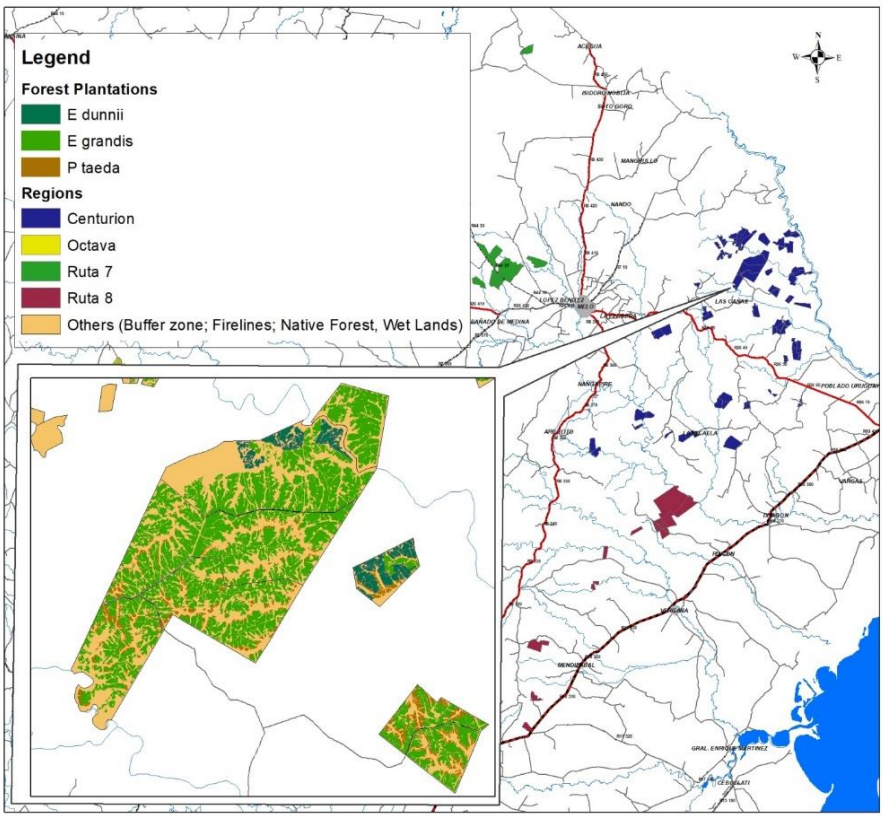

Figure 5. Lumin/Eucapine Project Land Use

Location of communities

Communities in the project area or local communities are understood as those of any size that are adjacent to the project management unit (farm), and also those that are close enough to have a significant impact on the economy or environmental values of the management unit or to their economies, rights or environments are significantly affected by positive or negative management activities or by the biophysical aspects of the management unit (Source: FSC-STD-01-001 V5-0, adapted).

In Uruguay there are no indigenous communities, neither any type of communities living exclusively in the forest and its services. Communities reside in rural areas, towns, villages or even cities in the project area of influence. Capital cities are considered as part of the community analysis since the impact on the population, although not direct, all the services and activities related to the project end up affecting. All other communities that are within Treinta y Tres and Cerro Largo and close enough to be affected by the project, is part of the analysis. The project is in a rural area with very low population density.

Table 1. *Demographic Indicators from the project area*

Town	Department	Population					
				Age class (years)			
		Male	Female	<20	20-64	>64	Total
Arevalo	Cerro Largo	43	39	43	34	5	82
Bañado de Medina	Cerro Largo	144	110	109	114	31	254
Cerro Chato	Treinta y Tres	810	851	674	859	128	1.661
Fraile Muerto	Cerro Largo	1.563	1.666	1.204	1.568	457	3.229
Isla Patrulla	Treinta y Tres	119	117	83	121	32	236
Maria Albina	Treinta y Tres	38	36	25	37	12	74
Melo	Cerro Largo	23.880	26.698	18.063	26.484	6.031	50.578
Mendizabal	Treinta y Tres	42	42	40	35	9	84
Placido Rosas	Cerro Largo	237	222	163	242	54	459
Quebracho	Cerro Largo	S/D	S/D	S/D	S/D	S/D	S/D
Rincon	Treinta y Tres	363	379	302	384	56	742
Rio Branco	Cerro Largo	6.541	6.915	4.686	7.333	1.437	13.456
Santa Clara de Olimar	Treinta y Tres	1.135	1.170	852	1.163	290	2.305
Treinta y Tres	Treinta y Tres	12.018	13.693	8.535	13.508	3.668	25.711
Tres Islas	Cerro Largo	113	98	91	109	11	211
Tupambae	Cerro Largo	608	561	451	586	132	1.169
Valentines	Treinta y Tres	87	91	64	95	19	178
Vergara	Treinta y Tres	1.983	2.003	1.435	2.068	483	3.986
Total		**49.724**	**54.691**	**36.820**	**54.740**	**12.855**	**104.415**
%		**48%**	**52%**	**35%**	**52%**	**12%**	**100%**

Demarcation of the area of influence is done using a subjective but efficient method. Almost every community in Treinta y Tres and Cerro Largo is part of the analysis when the limit is put at 15km south to the southernmost farm, 15 km east to the eastern most farm, 15 km north to the northern most farm and 15km west to the western most farm. National route N° 7, N° 8, N°18 and N° 26 forms the structure of the area of influence and connects most of the communities identified below.

The city of Melo, with 50,578 inhabitants, is the biggest city in the area. The population density in the area is 2.0 inhabitants / km^2 (including the rural population), lower than the national average (18 hab / km^2).

In the affected departments, according to the 2004 National Population and Housing Census, life expectancy at birth is 71.3 years for men and 79.0 years for women, similar figures for the national average. The urban population is 88% and the growth rate of the population is on average 0.1% per year. The birth and mortality rates are 1.6% and 1.0% per year, respectively, which evidences, in comparison with the rate of change of the population, the occurrence of an important emigration process.

The area in which the project focuses presents high poverty rates. The average income of the households of the affected departments was $ 9,900 / month in 2004, 30% lower than the national average. As shown in ***Figure 6***, in the census sections located around the project site, between 5 and 30% of households are below the poverty line.

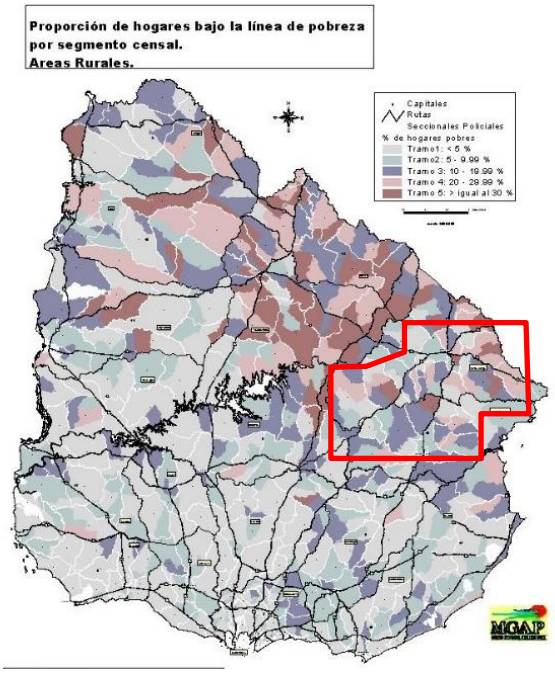

Figure 6. Proportion of households under poverty line in rural areas

2 CLIMATE

According to VCS version 3.1 AFOLU requirements, the amount of carbon credits must not exceed the long term GHG benefit of the project. The period over which the long-term average GHG benefit is calculated is 116 years (to include the harvest in the last rotation cycle started before the end of the crediting period). The total GHG benefit, calculated as the sum of stock changes along the 116-year period, is 6,439,196 t CO_2 (**Table 2**).

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Table 2. Estimated net GHG removals

Years	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)
Total	**0**	**6.439.196**	**0**	**6.439.196**

3 COMMUNITY

Creation of employment

Creation of employment is one of the main social benefits of the project. Typically, a traditional extensive livestock production system employs 1.4-4.4 persons every 1,000 ha. Lumin/Eucapine project is expected to increase that figure by more than 8-10 times.

Beyond an increased number of direct and indirect jobs, the project is expected to contribute to the development of the region and the country pursuant the priorities defined by Uruguayan government (promotion of small family businesses, increase in exports, eradication of rural poverty, incorporation of technology, increased nationally added value, development of new productive chains and geographic decentralization of development) as follows:

Promotion of small family businesses and creation of several job opportunities

As it was mentioned above, 'Lumin/Eucapine' project activity will generate several job opportunities, creating nearly 230 job positions when the sustainable production be reached. The vast majority of employees will be hired by outsourced contractor companies. The majority of the outsourced contractor companies currently working with Lumin/Eucapine, are registered in Uruguay as "PYMES" (small and medium sized enterprises - SME), mostly family companies.

Also, it is expected that most of the small and medium enterprises meanwhile providing services for the forestry sector, will continue their own development, increasing capital, acquiring machinery and technology, and generating new jobs in the region.

Another positive aspect that is expected in the development of the productive chain associated with the forestry sector is the generation of a work culture that allows greater formalization of companies and also greater stability in jobs. At the same time, it is expected that the aspects related to the culture of occupational safety will increase considerably.

Lumin / Eucapine has been playing since 2018 a leadership role in the implementation of measures that address and improve the gender and equity perspective in the workplace inside and outside the organization, actively participating in UN women and getting involved in improvement processes proposed by UN Women.

Internationally tradable products

The entire production of Lumin/Eucapine project (wood and carbon credits) will have the national and international market as main final destination. Livestock meat and beekeeping is produced within Lumin/Eucapine property by local cattle breeders and their products are also internationally tradable.

Reduction of rural poverty

The main contribution of Lumin/Eucapine project activity to reduce rural poverty will be through employment formalization and the generation of high quality and stable employment, in a region of Uruguay with elevated levels of poverty. A study by Carámbula and Piñeiro (2006)[1], demonstrate that forestry projects oriented to the production of high value timber, generates high positive impacts in the eradication of poverty in rural areas and reverting the process of internal migration to big cities.

[1] Carámbula, M. y Piñeiro, D. La Forestación En Uruguay: Cambio Demográfico y Empleo en Tres Localidades

It may also allow settlement in small towns, with less dispersed and isolated rural territory, providing better access to services such as health and education.

More recent studies (see footnote 14) demonstrate the labor intensity in forest areas is higher than previous land use cattle grazing.

Incorporation of technology

The project incorporates the best available and affordable technology for optimizing wood productivity and quality through the selection of seeds, site preparation, plantation, weed and pest control, forest management and wood harvesting and logistics, and achieving sustainability objectives. Lumin/Eucapine has a program for applied research, continuously testing various practices in order to achieve continuous improvement over time and collaborates with other companies and public institutions in this regard.

It is also identified as a plus, the importance of generating local capacities over the years, most of the local enterprises will acquire and learn work methodology and international reference procedures, incorporating know-how and experiences in various topics associated with forestry production.

Increased nationally added value to forestry products

Lumin/Eucapine project will produce timber that can be used for high-value products. As discussed above, currently there are no wood industries located within a reachable distance from the project site. However, the presence of Lumin/Eucapine and of other similar initiatives in the area are also seeking carbon finance (GFP, Guanaré and others) may induce in the future the establishment of industries in the region. And even in the case that no industries are developed, the saw logs and veneer logs produced by Lumin/Eucapine in the East region can be transported to its plywood mill in Tacuarembó or could be exported through Montevideo harbour at prices which will be higher than those that could be obtained by selling pulpwood, which is the traditional wood product exported from Uruguay.

These sustainable high quality wood, is a substitute of native forests logs that are illegally harvested in others parts of the world.

In addition, the forest management adopted by Lumin/Eucapine would increase the amount of carbon sequestered by trees, thus increasing the carbon embedded value in wood products.

Development of new productive value chains

Even though Lumin/Eucapine owns a plywood mill in the North region of Uruguay (City of Tacuarembó), as of December 2020 the company has no plans to invest in a new industry in the east region. Nevertheless, as mentioned above, the presence in the region of Lumin/Eucapine and its forest plantations, may contribute to promote the establishment of industrial investments in the area.

Geographic decentralization of development

As it was mentioned above, Lumin/Eucapine project will bring about a number of socio-economic benefits that will mostly impact on its surrounding area, which is currently one of the less developed ones in the country. This would create a development pole away from Montevideo and other areas which concentrate most of the economic activity in the country

Improve of local community's well-being.

Lumin/Eucapine has several programs in place to support and assist local communities in the project´s area of influence. Public schools, social organizations, public institutions, such as local governments,

firefighters, ministries, are fundamental strategic partners to implement lines of work and support projects in the long term.

Lumin/Eucapine is committed to promoting and improving the well-being of the community, often contributing material goods (firewood, tools, school supplies), staff time (educational presentations in schools, visits to places of value) and fundamentally collaboration in the search for programs that create local development opportunities. A complete and detailed list of programs, activities and supports is available to the audit team. In addition, LUMIN is actively participating in UN Women and getting involved in the improvement processes regarding gender issues proposed by UN Women.

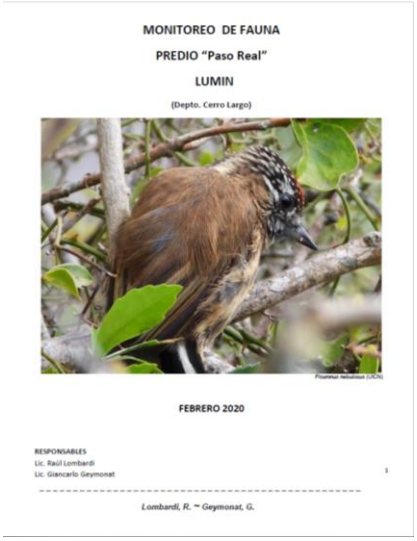
4 BIODIVERSITY

After the afforestation project is fully launched, there will be an increase in plant species, and the project will implement afforestation activities through scientific and rational allocation methods, without burning and cutting or harvesting native forests, all of them protected by the company.

Ecotones and buffer areas are very important areas from the point of view of biodiversity and its conservation. In them, and during annual monitoring, the biggest number of fauna species are registered in relation inside each farm. At the same time, they act as biological corridors, avoiding isolation or genetic drift. The implementation and maintenance of buffer zones between forest plantations and native forests of more than 20 meters, allow the development and, in some cases, the improvement of pastures. These pastures, connected with other environments are habitat and generate biological corridors for many RAE fauna species.

In all the biodiversity surveys conducted by Lumin/Eucapine, strict pasture species have been detected in forest lands, coinciding with the forest plantation lands that present protected areas and buffer areas correctly established and managed.

The following figures show the fauna monitoring reports, which are carried out once a year in representative farms:



Due to previous land use (long-term extensive livestock production), ecological structure of most project sites was relatively homogenous, with low biodiversity. Lumin/Eucapine implemented afforestation activities

with scientific and reasonable configuration method, with no burning and slash. The row site preparation will protect the existing vegetation as much as possible. Therefore, the implementation of this project will not decrease biodiversity of project sites.

Scientific and rational afforestation projects can adjust the hydrological cycle, reduce drought and flood risk; promote soil nutrient cycle, improve local micro-climate and others ecological environments.

A wide range of ecosystems can be found in several parts of the project area, from different types of native forests, wetlands, grasslands, stony fields, among others. Lumin/Eucapine carries out a characterization of the environment in each of the facilities locations and assesses the environmental features, flora and fauna, and defines the conservation areas and the necessary measures for their protection. Lumin/Eucapine has identified the following sites as High Conservation Value (HCV), Paso Real, Macachin and Gallo Doroteo.

Lumin/Eucapine Project is certified by the responsible forest management FSC® (Forest Stewardship Council®), so it has a commitment with FSC values. One of them is the prohibition of introduction of genetically modified organisms in forestry operations.

Lumin has within its health and safety policies, the commitment to managing the hazards associated with the operation and are an essential requirement to operate. It also implements specific standards for the management and handling of pesticides, for example, the standard No. 24 Handling, Transportation, and deposits of Agrochemicals, which regulates the conditions and the way to manage pesticides, this standard is available in the Operations Manual that is used by all those linked to the activity.

At the same time, Based on FSC Principle 6, Environmental Impact, management systems should promote the development and adoption of non-chemical methods for pest management, in order not to harm the environment. The use of chemical pesticides should be avoided or minimize use as possible.

Since 2020 the new FSC pesticide policy implies for those who use pesticides for weed control, the implementation of an Environmental and Social Risk Assessment, which represents an improvement for the proper and responsible handling of pesticides.