

**FSC PLANTED FOREST MANAGEMENT CERTIFICATION - 2009 ANNUAL  
ASSESSMENT REPORT FOR SOUZA CRUZ S.A. (BRAZIL) IN PANTANO GRANDE-RS,  
RIO NEGRINHBO-SC, AND ADDITION OF AN AREA IN PRATA-MG TO THE SCOPE OF  
CERTIFICATION**

**CONDUCTED ACCORDING TO THE PRECEPTS OF THE SCS FOREST  
CONSERVATION PROGRAM**

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Certificate Number: SCS-FM/COC-00116P

**SUBMITTED TO SOUZA CRUZ S.A.**

Cx. Postal 416, Pantano Grande, RS, Brasil 96690-000

**BY SCIENTIFIC CERTIFICATION SYSTEMS**

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The annual assessment of the certified forest management of SOUZA CRUZ S.A. in Brazil was performed at: 1) Fazenda Boa Vista, with 3,094.50 hectares containing 1,508.00 ha with eucalypt plantation, 1,163.13 ha in conservation areas as Legal Reserves (RL) and Permanent Preservation Areas (APP), and 423.37 ha with other uses in Pantano Grande, State of Rio Grande do Sul; 2) Fazenda Triângulo, with 2,189.74 ha of which 1,206.74 ha are eucalypt plantation, 907.00 ha with conservation areas (RL and APP), and 76.00 ha with other uses in Rio Negrinho, State of Santa Catarina; and 3) Fazenda Buriti do Prata with 2,823.34 ha of which 1,594.21 ha are eucalypt plantation, 978.52 ha are conservation areas (RL and APP), and 250.61 ha for other uses in Prata, State of Minas Gerais. The latter was assessed for addition to the scope of certification.



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# 1 GENERAL INFORMATION

## 1.1 Name and information on the contact of the certified company

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## 1.2 Background

SOUZA CRUZ S.A. is a private company of the British American Tobacco Co. Ltd. Group that processes tobacco and makes cigarettes. Its industrial units are located in Santa Cruz do Sul-RS, Blumenau-SC, and Rio Negro-PR (tobacco processing), and in Cachoeirinha-RS and Uberlândia-MG (cigarette factories). From 1981 on, the company sought an energy alternative in place of fuel oil. Because of both economic and environmental advantages, the choice was eucalyptus plantation for biomass production. Therefore, eucalyptus stands were managed from the beginning almost exclusively for fuel wood production. After 2001, however, the forest management was adjusted for the production of wood for multiple uses such as:

- 1) Fuel wood for its own use in tobacco processing, as well as to heat boilers and for selling;
- 2) Power line posts;
- 3) Logs for timber processing to supply furniture industries in the States of Paraná and Santa Catarina.

The company demands nearly 90,000 m<sup>3</sup> of wood a year. Wood harvesting on its own lands suffice to supply all its industrial needs. The planning of forest production at SOUZA CRUZ S.A. is defined according to its industrial needs. The company's forest resources are managed by its Forestry Sector under the responsibility of an agricultural technician and business administrator with supports from consulting foresters and technicians. This team is backed by technical supports from companies specialized in development and execution of the main programs related to forest production.

In addition to forest production, other activities such as cattle raising and agriculture (rice, corn, and fruit trees) are developed at Fazenda Boa Vista under land lease. A similar situation occurs at Fazenda Triângulo where eucalypt, cattle, and corn are produced. Fazenda Buriti do Prata, is managed exclusively for the production of eucalypt for fuel wood. All activities in forest production at SOUZA CRUZ S.A. are performed according to its policy that focuses on wood supply under a totally sustainable and self-sufficient regime.

## **1.2.1 Fazenda Boa Vista**

### **1.2.1.1 Geographic location**

Fazenda Boa Vista is located in Pantano Grande municipality in the Central Depression in the State of Rio Grande do Sul (Rio Pardo Valley) at 30° 07' 13" S; 52° 22' 35" W; and 86 m elevation above sea level. It is 120 km from Porto Alegre and confronts with the municipalities of Rio Pardo, Butiá, Dom Feliciano, and Encruzilhada do Sul. This is a region rich in minerals such as lime, kaolin, and coal.

### **1.2.1.2 Relief**

In Pantano Grande region, there are two forms of relief: rolling plains, and plateaus with some hills such as Cerro Azambuja and Cerro do Coronel. The Central Depression is characterized by a rather homogeneous relief with presence of knolls and mounds. It is common to find typical micro-relieves made up of small land uprisings with drainage valleys. There are more broken terrains to the north where the foothill of Serra Geral begins. In spite of the large number of knolls, the relief is predominantly flat.

### **1.2.1.3 Climate**

According to Koeppen's climate classification system, the region where SOUZA CRUZ S.A. forest operations take place, in the State of Rio Grande do Sul, belongs to the Subtropical Humid Climate (CFA) domain, which is characterized by plenty of rainfall. The mean annual temperature at Pantano Grande is 19.2° C. The mean annual rainfall reaches 1,594 mm with up to 159 mm rainfall in 24 hours. Frosts are very likely from April to October and the dry season spans from November to March. The temperature regime shows two distinct periods: a) a four- to five-month period in summer when temperatures reach 20° C or more; and b) a two- to three-month period in winter when mean temperature lower than 15° C. The absolute maximum temperature reaches 40° C and the absolute minimum temperature goes down to -4° C. In spite of the humid and warm climate, there are cold periods which restrict the growth of typically tropical forest species.

### **1.2.1.4 Geology**

The soil at Fazenda Boa Vista belongs to the Dark-red Podzol (Ultisol) group, with variations toward less prominent groups such as Red-yellow Latosol (Oxisol) and Dark-red Latosol (Ustox). These soils derive from different materials, except alkaline and ultra alkaline rocks, and contain from 5 % to 15 % iron. Their natural fertility is low, with low base saturation and high aluminum content. Soil liming and fertilization are essential to obtain good production. The agricultural potential of these soils vary from regular to strict for annual crops.

### **1.2.1.5 Hydrology**

The river system at Pantano Grande municipality is made up mainly by Jacuí river with a number of smaller streams and dams. Guabijú dam supplies water for the entire municipality as well as for crop irrigation. The major streams in the system are Capivarita, Dom Marcos,

Francisquinho, and Tabatingai. Fazenda Boa Vista is located on the left bank of Jacuí river. Nearly 500 hectares at Fazenda Boa Vista are prone to flood during part of the year.

### 1.2.1.6 Vegetation

The natural vegetation at the Pantano Grande region is typical of the Seasonal Deciduous Forest. In general, there is no dry season. Rainfall is regular and heavy most of the year. The predominant vegetation is made up of natural meadows known as “campos limpos”. These are areas covered nearly 60 % with grassy vegetation (grama-forquilha, grama-tapete, barba-de-bode, capim-caninha, and pega-pega) in more humid areas. Along water streams, there are riparian forests with tree species such as angico-vermelho (*Parapiptadenia rigida*), canafístula (*Peltophorum dubium*), louro-pardo (*Cordia trichotoma*), timbaúva (*Enterolobium contortisiliquum*), cedro (*Cedrela fissilis*), and canjerana (*Cabralea canjerana*). Other less prominent and evergreen species are canelas (*Nectandra* spp., *Ocotea* spp.), guajuvira (*Patagonula americana*), and others.

### 1.2.1.7 Wildlife

The wildlife in the region includes species of which most are common in both States (Rio Grande do Sul and Santa Catarina). Only a few species are specific to certain locations. Among carnivores, the most important is graxaim (*Pseudalopex gymnocercus*).

There are several meadow rodents such as rats and mice. Because of their high reproduction rates, they continuously fill up population gaps eventually caused by predators (cats, owls, wild dogs, snakes, and tarantulas). There are, also, rare species such as ouriço-caicheiro (*Coendou prehensilis*) and preá (*Cavia aperrea*). Among water rodents are ratão-do-banhado (*Myocastor coypus*) which has been hunted for its precious fur, similar to beaver, and capivara (*Hydrochoerus hydrochaeris*) which is the largest of all rodents.

A species of Mustelidae that is common on the meadow and in open forests on the hills is furão (*Mustela putorius furo*). Other species in the area are zorrilho (*Conepatus chinga*), veado-campeiro (*Ozotoceros bezoarticus*), tatu-mulita (*Dasypus hybridus*), tatu-galinha (*Dasypus novemcinctus*), and tatu-de-rabo-mole (*Cabassous* sp.).

In the native forests, there are several species of bats that spend the daytime in hollow tree trunks and hunt insects during the nights. One of the most common mammals in the woods at foothills and at river banks is gambá (*Didelphis aurita*). At the lowlands where tributaries of Jacuí river converge, there are lontras (*Lontra longicaudis*) that are water mustelides covered in a thick fur and are becoming rare in the Central Depression. A water marsupial known as cuíca-d'água (*Chironectes minimus*) can be found along marshy streams where they feed on fish, crabs, and other animals.

Among meadow birds, the most prominent are gavião-carrapateiro (*Milvago chimachima*), urubu (*Sarcoramphus papa*), coruja-do-campo (*Speotyto cunicularia*), pica-pau-do-campo (*Colaptes campestris*), anu-branco (*Colaptes campestris*), urutau (*Nyctibius griseus*), tico-tico (*Zonotrichia capensis*), cardeal (*Paroaria coronata*), bem-te-vi (*Pitangus sulphuratus*), João-de-barro (*Furnarius rufus*), perdiz (*Rhynchotus rufescens*), quero-quero (*Vanellus chilensis*), seriema (*Cariama cristata*), and ema (*Rhea americana*). Other birds, mostly at lowlands, are saracura (*Pardirallus sanguinolentus*), narceja (*Gallinago gallinago*), jaçanã (*Jacana jacana*), João-grande (*Ciconia maguari*), garça-branca (*Casmerodius albus*, sin. *Ardea alba*), colhereiro (*Platalea ajaja*), maçarico (*Tringa flavipes*), tarrã (*Chauna torquata*), wild ducks

(*Cairina moschata* and *Lustato tenterrara*), capororoca (*Coscoroba coscoroba*), pato-arminho (*Cygnus melanocoryphus*), swans (*Cygnus* spp.), and mergulhão (*Mergus octosetaceus*). The saurians are represented by lizards, several species of gecko, and the glass-snake. Among poisonous ophidians are urutu (*Bothrops alternatus*), cobra-coral (*Micrurus* spp.), boipeva (*Waglerophis meremii*), and jararaca-do-banhado (*Mastigodryas bifossatus*).

Lowland amphibians are represented by numerous species of toads and frogs. The water wildlife includes caiman (*Caiman* spp.), and land and water turtles (several species of Chelidae family). Among fresh water fish there are lambari (*Astyanax* spp.), piava (*Leporinus friderici*), pintado (*Pseudoplatystoma corruscans*), dourado (*Salminus maxillosus*), jundiá (*Rhamdia quelen*), joaninha (*Rhamdia quelen*), cará (*Geophagus brasiliensis*), and muçum (*Synbranchus marmoratus*).

### **1.2.1.8 Social and economic profiles**

Pantano Grande has a population of nearly 12,000 distributed roughly into 43 % in the urban and 57 % in the rural area. The main ethnic groups are Italian, German, Portuguese, Polish, Spanish, and African. The economic potential of Pantano Grande municipality is based on the extraction of minerals (lime, kaolin, quartz, bitumen shale, coal, and refractory earth among others). Cattle raising is also a very important economic activity in the region.

### **1.2.1.9 Education**

The education network in Pantano Grande is managed by the Municipal Secretary of Education and includes:

- 8 municipal elementary schools;
- 4 state elementary schools;
- 9 private elementary and secondary schools;
- 1 state secondary school;
- 5 nursery schools.

Fundação Gaia is the main cultural institution in the municipality, operating in a 29-hectare area. Its main objective is to promote regenerative agriculture and environmental education. Several courses are offered to technicians, farmers, and students. It attracts large numbers of visitors, mostly student groups who come to see a natural world free of pesticides.

## **1.2.2 Fazenda Triângulo**

### **1.2.2.1 Geographic location**

Fazenda Triângulo is located in the municipality of Rio Negrinho, State of Santa Catarina. Rio Negrinho is on the Santa Catarina Northern Plateau and distant 89 km from Joinville, 62 km from Jaraguá do Sul, and 250 km from Florianópolis. It is limited by the municipalities of Doutor Pedrinho, Rio dos Cedros, São Bento do Sul, Corupá, Mafra, and Itaiópolis. This region is rich in both native and planted forests. It is the center of Santa Catarina forest activities which involve several wood, furniture, pulp and paper industries. The main municipalities in the region are Rio Negrinho, São Bento do Sul, Canoinhas, Corupá, Mafra,

Três Barras, and Porto União. The geographic coordinates of Fazenda Triângulo are: 26° 28' 27" S; 49° 43' 26" W, and elevation from 792 m to 940 m above sea level.

#### **1.2.2.2 Relief**

Fazenda Triângulo is located within the Planalto das Araucárias Relief Unit. The geomorphologic characteristics are due to heterogeneous lithologic differentiations. The relief in the area is typical of the Paraná Basin Periferic Depression. It varies from flat to rolling topography. The mean slope is between 10 % and 30 %. In some areas it can be as high as 45 %.

#### **1.2.2.3 Climate**

Rio Negrinho region is inserted within the Temperate Climate domain where Winters are cold. The annual mean temperature is 18° C with absolute maximum of 36° C and absolute minimum of -8° C. The mean annual rainfall is over 2,000 mm.

#### **1.2.2.4 Geology**

The soils in the region belong to Cambisol (Inceptisol) and Red-yellow Podzol (Ultisol) groups, with minor extensions of Red-yellow Latosol (Oxisol), Lithosol (Entisol), Dark-red Latosol (Ustox), and Structured dark earth, intermediate to Structured red earth. These mineral soils present sequences of A, B, and C horizons. The potential of these soils for agricultural uses is limited due to low natural fertility, excess of exchangeable aluminum, small water shortage, and physical properties favoring erosion. Rational crop growing on these soils would require expensive conservation practices. Therefore, the best use of this natural resource would be with intensive silviculture.

#### **1.2.2.5 Hydrology**

The hydrology of the region is characterized by Rio da Lagoa and Rio Bonito basins. The landscape is cut through by several water streams with no specific denomination.

#### **1.2.2.6 Vegetation**

The vegetation in the region is typical of the highland mixed rain forest with mixture of species from the dense rain forest, since these formations are close to each other. *Araucaria angustifolia* dominates the upper stratum and is easily visible in the forest. The Santa Catarina Northern Plateau is rich in both native and planted forests. This region is the center of forest activities in the State and includes wood, furniture, pulp, paper, and cardboard industries.

#### **1.2.2.7 Wildlife**

The wildlife in the region is similar to that at Fazenda Boa Vista.

#### **1.2.2.8 Social and economic profiles**

The population in Rio Negrinho is approximately 30,000 of which 86.5 % live in the urban and 13.5 % in rural areas. The main ethnic groups are German, Italian, Portuguese, and Polish. The local economy is based on wood products. Furniture industry is the most important sector and generates the greatest income to the municipality. Industrial outputs are consumed by the local, regional and national markets. However, they are also sent to foreign markets, mainly in the United States, European, and other countries.

### **1.2.2.9 Education**

Rio Negrinho area was colonized by German, Portuguese, Polish, and Italian immigrants. Therefore, the local tradition is influenced by multicultural expressions in the form of brass bands and musical groups of different ethnical groups. There is a cultural foundation that offers courses in music, dance, and plastic arts for both adults and children. There is also a museum, a library, and a handcraft house. The education network in Rio Negrinho includes:

- 25 municipal elementary schools;
- 5 state elementary schools;
- 1 private elementary school;
- 17 municipal nursery schools;
- 3 private nursery schools;
- 2 state secondary schools;
- 1 private secondary school;
- 1 bookkeeping technical school;
- 1 nursing technical school;
- 1 labor safety technical school;
- 1 supplementary school;
- 1 college level school.

### **1.2.3 Fazenda Buriti do Prata**

#### **1.2.3.1 Geographic location**

Fazenda Buriti do Prata is located in the municipality of Prata, State of Minas Gerais. This is in the Minas Gerais Triangle region, on the highland of Paraná Sedimentary Basin, distant 621 km from Belo Horizonte. The municipality of Prata is limited to the north by the municipalities of Uberlândia, Monte Alegre de Minas, Ituiutaba, Campina Verde, Comendador Gomes, Campo Florido, Veríssimo, and Itapagipe. It is located at 794 m elevation above sea level. The extreme edges of Fazenda Buriti do Prata are at UTM coordinates 681,264.346 and 7,873,452.423 to the north, 683,434.865 and 7,865,220.960 to the south, 685,056.754 and 7,868,148.294 to the east, and 677,126.556 and 7,868,124.899 to the west.

### **1.2.3.2 Relief**

The relief in the region is predominantly flat, although a few sites show rolling and mountainous topographies. The highland of the Paraná Sedimentary Basin is particularly dissected into wide tabular shapes with steep slopes.

### **1.2.3.3 Climate**

The climate in the region is predominantly semi-humid tropical, with summer rain and winter droughts. High altitude tropical climate prevails along the ridges between Tejuco and Da Prata rivers at the eastern side of the municipality at higher elevations. The annual mean temperature is 21.9° C, with the mean of the minimums at 16.6° C and the mean of the maximums at 29.1° C. The mean annual rainfall is 1,589.4 mm.

### **1.2.3.4 Geology**

Prata is in the geologic formation of Bauru Group which is represented by Adamantina, Uberaba, and Marília formations. The lithology of these formations is characterized by sediments from the closing of the depositional phase of Upper Cretaceous at Paraná Sedimentary Basin with deposition of sediments of Marília Formation. Rocks from this group are in great extent covered by sediments from the Cenozoic era.

### **1.2.3.5 Hydrology**

A large part of the municipality of Prata is inserted into the Rio Parnaíba basin. Rio da Prata flows through its central region, as well as its tributaries such as Rio Cocal, Rio das Pedras, Ribeirão São José, and Ribeirão dos Peixotos. Cabaçal and Tejuco rivers flow along the border with the municipalities of Uberlândia, Monte Alegre, and Ituiutaba. Rio Verde flows along the border with Veríssimo, Campo Florido, Comendador Gomes, and Campina Verde.

### **1.2.3.6 Vegetation**

The vegetation in the municipality of Prata is typical of the Cerrado in its strict sense. The phytophysognomy is typical of Cerrado biome with stunted and crooked trees and shrubs. The woody plants present thick bark, and thick, leathery, and hairy leaves. The vegetation is structured into three strata: a higher, with sparse trees with approximately 6 m in height; an intermediate, with thick barked shrubs that survive frequent fires; and a lower, made up of scant grasses and many open spaces with exposed soil. The trees are stunted due to repeated burnings, insect attacks, nutrition deficiency, and seasonal droughts. In places, it is mixed with mesophytic formations, that are characteristic of areas with high humidity where conditions are favorable for the development of ferns, mosses, algae, and fungi. The trees reach 20 m in height and produce a complete canopy over the area. Therefore, at these spots, there is no herbaceous or grassy formation in the understorey.

Riparian forests with evergreen trees develop along stream valleys and water springs. In places at valley bottoms and steep slopes there are xeromorphic formations covering from 80 % to 90 % of the terrain known as “Cerradão” with trees reaching 10 m to 15 m in height and an intermediate stratum with a large number of shrubs of up to 5 m in height.

### **1.2.3.7 Wildlife**

Several species of the local wildlife have been recorded, especially within the largest remnants of the native forest. Among the most important mammals are lontra (*Lontra longicaudis*), veado (*Ozotoceros bezoarticus*), cateto (*Tayassu tajacu*), macaco-prego (*Cebus apella*), anta (*Tapirus terrestris*), lobo-guará (*Chrysocyon brachyurus*), onça-parda (*Puma concolor*), veado-mateiro (*Mazama americana*), gato-do-mato (*Leopardus tigrinus*), mico-estrela (*Callithrix penicillata*), quati (*Nasua nasua*), raposa (*Vulpes vulpes*), and tamanduá (*Myrmecophaga tridactyla*). Among the larger reptiles, jacaré (*Caiman* sp.) and lagarto-teiú (*Tupinambis* sp.) were recorded. Bird species are represented by arara-canindé (*Ara ararauna*), mutum (*Crax globulosa*), seriema (*Cariama cristata*), jacu (*Penelope* sp.), tucano-araçari (*Pteroglossus aracari*), jaó (*Crypturellus undulatus*), ema (*Rhea americana*), and pomba-do-bando (*Zenaida auriculata*).

### **1.2.3.8 Social and economic profiles**

The greatest economic potential of Prata is in agriculture because of the great land extension and only a few urban developments. The other outstanding sector is of services, especially in product supplies to the entire region.

The major agricultural products are orange, soy bean, and sugar cane. Cattle for both meat and milk production is an important component. Local producers are technically supported by the municipal department of rural assistance.

### **1.2.3.9 Education**

The education network in the municipality is made up of a combination of both municipal and state education networks. The education system is the responsibility of the municipal secretary of education, culture, sports, and leisure. Among educational institutions, Universidade de Prata (UniPrata) is the highlight.

## **2 ANNUAL ASSESSMENT PROCESS**

### **2.1 Standards used in the assessment process**

The standard used to evaluate SOUZA CRUZ S.A. forests was the SCS Interim Standard for Forest Management Plantations in Brazil, version 02, November 2008. This is mostly based on FSC Standard for Forest Plantations in Brazil (version 9.0), approved by FSC Brazil, conditioned to some major and minor corrective actions determined at the review by FSC International. The standard can be found at SCS website:

[http://www.scsertified.com/forestry/forest\\_programmat\\_fm.html](http://www.scsertified.com/forestry/forest_programmat_fm.html).

### **2.2 Dates of assessment**

- Certification audit: October 20-24, 2003 and April 5-7, 2004
- First annual audit: April 9-11, 2007

- Second annual audit: February 20-22, 2008
- Third annual audit: April 6-7, 2009; April 27, 2009; and May 18-19, 2009

### 2.3 Assessment team

**Dr. Marcelo Maisonette Duarte** is a biology graduate from the UFRGS (Universidade Federal do Rio Grande do Sul). He has more than 20 years of professional experience, with M.Sc. degree in biology from the UFRGS and Doctor in Science degree, with emphasis on ecology and natural resources from the UFSCar (Universidade Federal de São Carlos). He heads Conservation and Management Section of the Natural Science Museum, which is part of the Zoobotanic Museum of the State of Rio Grande do Sul. He has also been college teacher for more than 15 years and worked at several institutions such as UFRGS, UNISC, FUNDASUL, FACCAT ((Faculdades Integradas de Taquara) in teaching positions at undergraduate and graduate levels in ecology as well as in advising several graduate students in specialization and master programs. He teaches “Environmental management and social responsibility” and “Principles in ecology” at FACCAT, where he is also the coordinator of projects in environmental education. He is the editor of two scientific journals: *Iheringia*, Zoology Series (Qualis A – CAPES) and *Revista Colóquio-FACCAT*. He has acted as a member of CONSEMA-RS (State Environmental Council of Rio Grande do Sul) and of CECA-RS (State Chamber of Environmental Compensation of Rio Grande do Sul). He leads a research group in game animal in the State of Rio Grande do Sul and has coordinated several studies for the establishment of management plans for total protection conservation units. He has been also a consultant in environmental issues for agroforestry ventures in southern Brazil.

**Dr. Jarbas Yukio Shimizu** is a forestry graduate from the Universidade Federal de Viçosa with M.Sc. in Forest Sciences from the University of Florida (USA), Ph.D. in Forest Genetics from North Carolina State University (USA), and post-doctor in Population Genetics from Oregon State University (USA). Other trainings include Forest Gene Resources Conservation and Forest Tree Species Micro-propagation in Japan; Conservation and Use of Phylogenetic Resources in Spain and Environmental Management System Lead Auditor intensive course in Brazil. He has more than 30 years experience in activities such as development of forest research projects in cooperation with IBDF/PNUD-FAO, and subsequently as a researcher for Embrapa Florestas, where he worked in silvicultural area, tree improvement, forest genetics, and conservation of forest gene resources. He was also the leader of several conservation and genetic improvement projects and held the position of Technical Director of the National Forest Research Center. He has also worked as a consultant in silviculture and improvement of fast growing tree species for official forest research institutions and forest companies in Chile, Mexico, Mozambique, Uruguay and Brazil. He has offered intensive tree improvement courses at Universidad Nacional de Colombia and at Universidade Estadual do Centro-Oeste (UNICENTRO-Campus de Irati), PR. He has also acted as advisor and co-advisor to forestry graduate students at both master and doctor levels at Universidade Federal do Paraná.

## 2.4 Assessment procedure

Because of the great distances among farms, the assessments were performed in distinct periods. Auditor Marcelo M. Duarte visited Fazenda Boa Vista in the municipality of Pantano Grande, State of Rio Grande do Sul, during the period of 06-07/Apr./2009. He started the assessment with an opening meeting with the company officials and the technical staff. The state of previously issued corrective actions required (CAR) were revised. Documents and a pesticide storage system were checked. In field visits, he checked the condition of the roads, erosion control, the situation of the conservation areas (APP), and surveyed an area considered for HCVF. On the second day, he interviewed several workers from contractors in manual log harvesting and cattle management. At the end of that day, the auditor closed the assessment procedure with a brief meeting with the company officials.

Auditor Jarbas Y. Shimizu visited Fazenda Triângulo, in the municipality of Rio Negrinho, State of Santa Catarina, on 27/Apr./2009. He started the process with a brief opening meeting with the company officials. He visited the pesticide storage and inspected the farm to check the conditions of forest roads and native forest conservation areas (APP). It was not possible to inspect silviculture or harvesting procedures since none of these were in operation. This auditor visited also Fazenda Buriti do Prata in the municipality of Prata, State of Minas Gerais, during the period of 18-19/May/2009. The first day began with a brief opening meeting with the company officials and the technical staff. After organizing the schedule of visits to the farm, the essential documents were checked. The field visit included an inspection of the pesticide storage and stock control system and inspection of forest roads, conservation areas and manual harvesting operations. Although all Principles and Criteria were reviewed in general, Principles 3, 5, and 6 were checked in detail.

## 2.5 Status of the corrective actions required (CAR) and recommendations (REC)

### Minor CAR and REC from the 2008 annual assessment

<b>Justification:</b>	Some mandatory documents such as the bus driver qualification course certificate and chainsaw licenses were missing at workplaces in the field.
<b>CAR 2008-2</b>	Ensure that written documents are available for inspection, proving the completion of specific qualification courses for bus drivers and licenses of all chainsaws used at the work place.
<b>Deadline:</b>	2009 annual assessment.
<b>FSC P&amp;C:</b>	P1.c1.i4
<b>Company action:</b>	All pending documents were presented.
<b>Auditors' comment:</b>	CAR complied.

<b>Justification:</b>	The company did not formalize consultation with the makers of machine cabs for adjustment nor did it arrange reverse gear alarms on its machines.
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<b>CAR 2008-3</b>	Present evidence of formal consultation with machine cab makers regarding adjustments to their cabs and fixing of reverse gear alarms on its machines.
<b>Deadline:</b>	2009 annual assessment.
<b>FSC P&amp;C:</b>	P4.c2C.i2
<b>Company action:</b>	The company presented documents of formal consultation with cab makers for adjustments in their products and also of the reverse gear alarms that were installed on its machines.
<b>Auditors' comment:</b>	CAR complied.

<b>Justification:</b>	Inadequate safety conditions were detected in the field such as: chainsaw without chain holding mechanism and defective chain locking system; chainsaw operator IPE in poor conditions; people remaining close to rack loading operations.
<b>CAR 2008-4</b>	Verify the occurrence of cases such as mentioned above at the company's workplaces and establish corrective and preventive measures; present a written document containing descriptions of measures established and a timetable for the measures to be adopted.
<b>Deadline:</b>	2009 annual assessment.
<b>FSC P&amp;C:</b>	P4.c2C.i2, i3, i5
<b>Company action:</b>	At manual harvesting operation sites, all equipments were in adequate condition, including chainsaw operator IPE and all chainsaws with regard to chain holding mechanism and chain locking system.
<b>Auditors' comment:</b>	CAR complied.

<b>Justification:</b>	Although required according to the PPRA (Environmental Risk Prevention Program), the following IPE (individual protection equipment) were missing in the field: rough hide boots, long trousers for truck drivers and complete IPE for bus drivers.
<b>CAR 2008-5</b>	Require from contractor companies a revision of their PPRA and, then, monitor their compliance with the program.
<b>Deadline:</b>	2009 annual audit.
<b>FSC P&amp;C:</b>	P4.c2C.i5
<b>Company action:</b>	At workplaces that were inspected, all contractor workers were using mandatory IPE appropriate for each activity.
<b>Auditors' comment:</b>	CAR complied.

<b>Justification:</b>	The management plan, the PPRA, and sign boards in management areas contain specific instructions regarding mandatory use of IPE (hard hat, gaiters, boots, proper trousers etc.) by any person within the management area. However, non-compliances with these instructions were observed during the assessment. There were workers without hard hats or gaiters, and wearing shorts and slippers.
<b>CAR 2008-6</b>	The company should enforce compliance with the instructions as specified in the management plan, the PPRA, and sign boards by everyone within the management area and present documents with description of the measures taken.
<b>Deadline:</b>	2009 annual audit.
<b>FSC P&amp;C:</b>	P4.c2C.i5
<b>Company action:</b>	At workplaces that were inspected, all workers were using mandatory IPE appropriate for each activity.
<b>Auditors' comment:</b>	CAR complied.

<b>Justification:</b>	The company adopts a distinct production system combining cattle with tree farming. As a result, damage to APP (permanent preservation areas) was observed because the animals tend to wander into these conservation areas.
<b>CAR 2008-7</b>	The company needs to study and take measures to control the entrance of cattle into APP, and present a document describing the main measures taken.
<b>Deadline:</b>	2009 annual audit.
<b>FSC P&amp;C:</b>	P6.c4.i1
<b>Company action:</b>	The company presented an APP reclamation program that included fencing of those areas. The removal of exotic species from APP was planned to start in 2009 and to be finished after a period of 7 years, following the planned harvesting cycle. This program was approved by the Department of Forestry and Protected Areas of the State of Rio Grande do Sul.
<b>Auditors' comment:</b>	CAR complied.

<b>Justification:</b>	The company suffers from illegal hunting and fishing in its areas. However, it has no effective sentry service nor warning signs to discourage such practices.
<b>CAR 2008-8</b>	Identify and evaluate critical points and routes used by trespassers for illegal hunting and fishing in the FMU. On the basis of this survey, present and establish written procedures for sentry and monitoring of such activities in the FMU. Also, post signs to warn against these practices.

<b>Deadline:</b>	2009 annual audit.
<b>FSC P&amp;C:</b>	P6.c2.i7, i8
<b>Company action:</b>	The company maintains three workers in charge of the cattle within the FMU. They are also in charge of watching for trespassers and are required to file monthly reports. However, the critical points and likely routes were not identified, nor were warning sign posted.
<b>Auditors' comment:</b>	CAR complied, only partially; therefore, it was transformed into Major CAR 2009-1.

<b>Justification:</b>	The 2007 training records did not show important information such as content, work load, attendance, and participant roster.
<b>CAR 2008-10</b>	Formalize the training records, including content, work load, attendance, and participant roster.
<b>Deadline:</b>	2009 annual audit.
<b>FSC P&amp;C:</b>	P7.c3.i1
<b>Company action:</b>	Records of trainings offered in 2008 included their contents, work load, attendance, participant roster, and also the names of the instructors in charge.
<b>Auditors' comment:</b>	CAR complied.

<b>Justification:</b>	Wildlife and vegetation surveys are in process. However, it has not been defined the existence (or not) of high conservation value areas and the respective HCFV within the FMU.
<b>CAR 2008-12</b>	On the basis of wildlife and vegetation surveys, define the existence (or not) of high conservation value areas and the respective HCFV within the FMU.
<b>Deadline:</b>	2009 annual audit.
<b>FSC P&amp;C:</b>	P9.c1.i1
<b>Company action:</b>	The company hired a team of experts to evaluate the wildlife and vegetation surveys. However, no HCVF had been defined.
<b>Auditors' comment:</b>	CAR complied, only partially. Therefore, it was transformed into Major CAR 2009-2.

<b>Justification:</b>	Road construction and maintenance procedures described in the Management Plan did not have sufficient technical specifications to minimize environmental impacts during and after the road work. During the assessment, clogged drainpipes and water streams and reservoirs strewn with rubbish from road construction and maintenance works were observed.
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<b>CAR 2008-13</b>	Establish written procedures for the construction of road and passages over water streams and minimize the amount of construction rubbish in the water. Present, also, written procedures for road maintenance so that erosion and stream clogging is avoided.
<b>Deadline:</b>	2009 annual audit.
<b>FSC P&amp;C:</b>	P10.c6.i1
<b>Company action:</b>	The company presented a “Road construction and maintenance plan” in which all requested procedures are described.
<b>Auditors’ comment:</b>	CAR complied.

## 2.6 New corrective actions required (CAR) and recommendations (REC)

### Major CAR

<b>Justification:</b>	In spite of a minor CAR issued in 2008 (Minor CAR 2008-8), Souza Cruz S.A. did not identify critical points nor did it place warning signs along likely routes of illegal hunting and fishing indicating prohibition of such practices within the property.
<b>Major CAR 2009-1</b>	Indicate on maps critical points where illegal hunting and fishing occur and post warning signs along the most frequent routes indicating prohibition of such practices.
<b>Deadline:</b>	90 days.
<b>P&amp;C FSC</b>	P6.c2.i7, i8

<b>Justification:</b>	To comply with CAR 2008-12, the company performed some wildlife and vegetation surveys and identified an area very likely to become a HCVF. However, nothing had been formalized.
<b>Major CAR 2009-2</b>	The company must define, map, and formalize HCVF areas on the basis of public consultation and survey of existing natural resources, indicating the attributes to be conserved.
<b>Deadline:</b>	90 days.
<b>P&amp;C FSC</b>	P9.c2.i1

<b>Justification:</b>	Empty and full ant poison boxes as well as several vehicle servicing tools were found on the bus floor, without any protection or separation from the passengers. Also, passenger transportation permit and a mandatory and valid vehicle inspection certificate were lacking.
<b>Major CAR</b>	Provide arrangements so that all contractors vehicles comply with legal

<b>2009-3</b>	requirements to safely shuttle log harvesting workers to and from their workplaces.
<b>Deadline:</b>	90 days.
<b>P&amp;C FSC</b>	P1.c1.i2; P4.c2E.i1

### Minor CAR

<b>Justification:</b>	The trash is not being separated nor properly dispensed. Empty chainsaw motor oil bottles were found strewn on the floor at the workers barrack, although properly identified trash bins had been arranged.
<b>CAR 2009-4</b>	Review procedures, separate trash at the workers barrack in the field, and give proper destinations to different types of refuse.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P6.c6.i2; P6.c7.i2

<b>Justification:</b>	The workers involved in cattle management in combination with planted forest management are exposed to several risks, mainly due to the presence of branches, since this work is performed on horseback. This kind of activity requires the use of goggles.
<b>CAR 2009-5</b>	Enforce the use of individual protection equipment (goggles) by workers involved in cattle management in combination with planted forest management.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P4.c2C.i4

<b>Justification:</b>	Divergent programs of medical control and occupational health (PCMSO), and of environmental risk prevention (PPRA) among contractor companies and Souza Cruz S.A. were found with regard to the same activities.
<b>CAR 2009-6</b>	Standardize the PCMSO and PPRA of contractors with those of Souza Cruz S.A. so that workers involved in similar activities in the FMU be identified as being subjected to the same risks.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P4.c2C.i1

<b>Justification:</b>	During the assessment, straight ditches to drain rain water from the road bed were observed, with no sediment containment wells. These ditches conducted water loaded with sediments and suspensions directly into conservation areas and into the streams.
<b>CAR 2009-7</b>	Review the system for the drainage of excess water from the road bed so

	that no sediment or suspended matter is flushed directly into the conservation area and into the streams.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P6.c5.i1

<b>Justification:</b>	Several specimens of exotic species were observed invading the space set aside for the conservation of native ecosystem along the permanent preservation areas (APP).
<b>CAR 2009-8</b>	Remove exotic species (mainly eucalypts and pines) from the permanent preservation areas by following legal requirements in respect to this operation.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P6.c9.i1

<b>Justification:</b>	The company has done plant and wildlife surveys in native forest remnants. However, it still needs to define, among observed species, those that fit into the categories of endemic, rare, and/or threatened to extinction to the effect of formulating conservation initiatives.
<b>CAR 2009-9</b>	Prepare a list of plant and wildlife species present in the company's conservation areas that fit into the categories of endemic, rare and/or threatened to extinction.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P6.c2.i2

<b>Justification:</b>	In spite of some wildlife surveys within the native forest remnants, there is not yet a definition of areas for refuge, feeding, and reproduction of endemic, rare and/or threatened to extinction.
<b>CAR 2009-10</b>	Based on the wildlife survey, locate on maps company farm areas for refuge, feeding, and reproduction of species considered as endemic, rare and/or threatened to extinction present in the area.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P6.c2.i3

<b>Justification:</b>	The company has not sent information to the neighboring communities about pesticides applied in its forest operations.
<b>CAR 2009-11</b>	Inform neighboring communities about the types and forms of application of pesticides used in forest operations.
<b>Deadline:</b>	2010 Annual audit.

<b>P&amp;C FSC</b>	P6.c11.i1
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<b>Justification:</b>	The control of pesticide storage and use is recorded and kept in paper file in the deposit. However, updated information is not readily passed on to the office where stock control should be monitored. Also, file sheets were observed with unreadable notes due to soaking and stain caused by rain water leaking from the roof.
<b>CAR 2009-12</b>	Review and document the pesticide storage system, and reform the infrastructure so that damage to stored products and to the local control file is prevented. Also, review the stock control system so that the administration is immediately informed of all changes in the stock (entry and issue of products) in updated electronic files.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P6.c6.i2

<b>Justification:</b>	Although there are sparse records of forest fires, there is no systematic data about frequency, damage caused, and areas affected by fires in the FMU.
<b>CAR 2009-13</b>	Record, in a systematic manner, occurrences/frequencies of forest fires, with detail on the damage caused and the extension of areas affected, by farm, in the FMU.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P8.c2.i5

<b>Justification:</b>	No assessment of social and environmental impact of forest management throughout the years was observed.
<b>CAR 2009-14</b>	Record data and monitor environmental and social impacts caused by forest management operations throughout the years.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P8.c2.i6

<b>Justification:</b>	Spillage of chainsaw lubrication oil was detected in the field due to improper field storage system.
<b>CAR 2009-15</b>	Review the chainsaw refueling and servicing procedures and adopt measures to avoid spillage of fuel and lubricant oils in the field.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P6.c7.i2; P10.c6.i2

<b>Justification:</b>	In some workplaces in the field, no first-aid kit or a stretcher was available
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	to assist accident victims.
<b>CAR 2009-16</b>	Provide all workplaces in the field with first-aid kit and a stretcher to assist accident victims.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P4.c2A.i6

<b>Justification:</b>	The company presented a program to reclaim permanent preservation areas that includes fencing and the removal of exotic species. That program will be initiated in 2009 and to be finished after a 7-year period, following the planned harvesting cycles.
<b>CAR 2009-17</b>	At the 2010 assessment, present concrete results obtained to date, of the APP restoration program, according to the planned timetable.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC:</b>	P6.c4.i1

## RECOMMENDATIONS

<b>Justification:</b>	Forest workers of several categories, especially those involved in manual labor and machine operators working next the woods are directly exposed to insect stings (bees, wasps, and others) that can be deadly due to allergy, choking, and other reactions in especially sensitive persons.
<b>REC 2009-1</b>	Verify the possibility to include, among medical exams in field workers, evaluation of allergic susceptibility to insect stings and elaborate preventive and corrective measures for this type of accident.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P4.c2C.i11

<b>Justification:</b>	The company has a large amount of information regarding managed stand yield. However, these data are not organized in a systematic manner so that tendencies along the years can be followed, after changes in aspects of management such as fertilizer application, improved clones and seed, climatic changes, pest outbreak, and others.
<b>REC 2009-2</b>	Organize the data on stand productivity, costs, and yield of forest operations in a systematic manner along the years in order to make monitoring more efficient.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P8.c1.i1; P8.c5.i1

<b>Justificatioon:</b>	The company has procedures to deal with accidents involving chemical products affecting persons and the environment (soil). However, there is no
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	defined procedure to deal with environmental damage affecting water streams.
<b>REC 2009-3</b>	Elaborate preventive and corrective procedures for emergency cases of accidents with chemical products, including fuel, directly affecting water streams.
<b>Deadline:</b>	2010 Annual audit.
<b>P&amp;C FSC</b>	P6.c7.i3

### 3 DETAILED OBSERVATIONS

According to the new determination in the FSC Certification process, all Principles must be reassessed in detail in order to verify whether all Criteria are being complied with throughout the five-year certification period. Until 2004, these were assessed by using a method which included a scoring system followed by a pair-wise algorithm for the final decision about the conformance to the Principle. However, from 2005 on, the method changed to the assessment of each Criterion and its indicators. Each Criterion must be complied with (indicated by “C”); otherwise (indicated by “NC”), a major CAR must be issued to meet the requirement for Certification. If a Criterion or an indicator does not apply (indicated by “NA”) to the situation under analysis, then, such case is explained in the text.

#### 3.1 Performance assessment

The Principles assessed in 2009 (P3; P5 e P6) are shown in detail in the following tables.

Requirements	C/NC	Comments/CAR
<b>PRINCIPLE 3: INDIGENOUS PEOPLES' RIGHTS<sup>1</sup></b>		
<b>The legal and customary rights of indigenous peoples to own use and manage their lands, territories, and resources shall be recognized and respected.</b>		
<b>P3.c1 Indigenous people shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.</b>	NA	Not applicable. There is no indigenous or traditional population in the neighborhood or in adjacent areas to the FMU
P3.c1.i1 The existence of legal documents proving of related rights and the delegation	NA	Not applicable. There is no indigenous or traditional population

<sup>1</sup> For this document **Indigenous People** means Indigenous people and also those Traditional Communities (see the Glossary).

to control the forest activities to a third party.		in the region
P3.c1.i2 The existence of maps, drawings or other written documents which identify the areas and/or the customary rights and use of the land of the neighboring areas to the forest management unit.	NA	Not applicable. There is no indigenous or traditional population in the region
<b>P3.c2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.</b>	C	The management does not menace resources or rights of possession of indigenous or traditional populations, since there is no such population in the region.
P3.c2.i1 The agreements and negotiations will consider the economic and social sustainability of the indigenous and/or traditional communities and have the participation of their representatives.	NA	Not applicable. There is no need to negotiate with indigenous or traditional populations
P3.c2.i2 Negotiations with indigenous or traditional communities, which are related to management activities, will be done through representatives appointed by these communities and, preferably, supported by government institutions and NGO, which defend and safeguard the rights of those indigenous peoples and/or of those traditional communities.	NA	Not applicable. There is no need to negotiate with indigenous or traditional populations
P3.c2.i3 Forestry operational contracts of forest management, which involve indigenous reserves or areas belonging to traditional communities, and the responsibilities resulting from those long-term forest management activities related to these contracts, must be explicitly considered in the forest management plan.	NA	Not applicable. There is no indigenous or traditional population in the region
P3.c2.i4 The negotiations between involved parties will be documented in a written or audio-visual form.	NA	Not applicable. There is no need to negotiate with indigenous or traditional populations
P3.c2.i5 In cases where the forest management operation will occur in areas adjacent to an indigenous or traditional community area, the communities are called upon to discuss the socio-environmental impacts of the forest management plan. In this case, the forest manager will take the necessary mitigating steps to minimize the negative socio-environmental impacts.	NA	Not applicable. There is no indigenous or traditional population in the region

<b>P3.c3 Sites of special cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers.</b>	<b>C</b>	No site with special cultural, ecologic, economic, or religious significance to indigenous or traditional populations was identified within the areas to be certified.
P3.c3.i1 The existence of procedures to manage those areas of special cultural, ecological, economic or religious value will be identified and recognized.	<b>NA</b>	Not applicable. No area was identified.
P3.c3.i2 There will be maps, drawings or other written documentation available which will identify the location of those special areas. They must be considered into the plan of managing operations.	<b>NA</b>	Not applicable. No area was identified.
<b>P3.c4 Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.</b>	<b>NA</b>	Not applicable. The management at Souza Cruz is not based on traditional knowledge from indigenous populations. Instead, it is based on technology developed at research institutions.
P3.c4.i1 The existence of a registered agreement among those parties involved is available and in evidence.	<b>NA</b>	Not applicable. There is no need of agreements.
<b>P3.c5 Necessary and objective measures should be taken to avoid negative social impacts from the forest management activities in order to contribute to the enrichment of the cultural diversity of indigenous and traditional communities.</b>	<b>C</b>	Social and environmental impacts are taken into consideration in forest management at Souza Cruz, regardless of being or not indigenous/traditional populations.
P3.c5.i1 The workers involved in forest management activities will have health certificates and up-to-date vaccinations, and those workers that may have infectious diseases will not be in contact with the existing indigenous or traditional communities.	<b>C</b>	All workers are submitted to medical examinations, as required by law. Moreover, there is no indigenous or traditional populations in the region.
P3.c5.i2 The existence of measures to mitigate the negative impact, resulting from the presence and conduct of personnel involved in forest management, on the life of traditional and indigenous communities will be considered in the management plans.	<b>NA</b>	Not applicable. There is no indigenous or traditional population in the region

P3.c5.i3 Involvement of members of traditional or indigenous communities in forest management activities will not cause negative impacts on the social organization or institutions of those communities.	NA	Not applicable. There is no indigenous or traditional population in the region
<b>P3.c6 The forest manager must present information on the identification, location and population of all indigenous or traditional communities which live in or border the forest management area and/or which are claiming customary rights over such area.</b>	NA	Not applicable. There is no indigenous or traditional population living in the areas to be certified, nor any complaint on traditional rights.
P3.c6.i1 There are maps, drawings or written documentation available which identify the location of those areas of interest under this criterion.	NA	Not applicable. There is no indigenous or traditional population in the region
<b>P3.c7 The indigenous and/or traditional communities, which inhabit the area under forest management or areas adjacent, must control directly the use of their own natural resources and may establish contracts and/or partnerships for the planning and implementation of management plans in their territories.</b>	NA	Not applicable. There is no indigenous or traditional population in the region
P3.c7.i1 Indigenous and/or traditional communities will participate in the discussion of the practices and their implication for forest management, in cases where management implies a negative impact on these communities.	NA	Not applicable. There is no indigenous or traditional population in the region
P3.c7.i2 The management plan will contemplate the manners and forms of representation and negotiation of the indigenous and/or traditional communities and the differentiated use of each part of their territory for the implementation of the management plan.	NA	Not applicable. No management of native species is developed.
P3.c7.i3 There are activities, which will support indigenous and/or traditional communities in the forest management plan and the utilization of forest resources in their territories.	NA	Not applicable. There is no indigenous or traditional population in the region
<b>PRINCIPLE 5: BENEFITS FROM THE FOREST - PLANTED MAN MADE FOREST</b>		

<p><b>Forest management operations shall encourage the efficient use of the planted man made forest multiple products and services to ensure economic viability and a wide range of environmental and social benefits.</b></p>		
<p><b>P5.c1 Forest management should strive toward economic viability, while taking into account the full environmental, social, and operational costs of production, and ensuring the investments necessary to maintain the ecological productivity of the forest<sup>2</sup>.</b></p>	<p><b>C</b></p>	<p>Forest activity proved to be the most viable alternative for the production of raw-material as energy source at Souza Cruz S.A., in place of fossil fuels. For the production of fuel wood, all social, environmental, and financial costs are observed.</p>
<p>P5.c1.i1 Analysis of the company balance, demonstrating profitability of forest activities.</p>	<p><b>C</b></p>	<p>The social balance shows a positive performance of the company's activities as a whole in which forest activities to produce industrial supplies participate.</p>
<p><b>P5.c2 Forest management and marketing operations should encourage the optimal use and local processing of the forest's diversity of products.</b></p>	<p><b>C</b></p>	<p>The utilization of forest production is optimized. Most of it is sent to Souza Cruz S.A. for its industrial processing. Large sized logs, which demand higher prices in the market are sold to companies within the region for processing to obtain a higher added value.</p>
<p>P5.c2.i1 There is efforts to assure the possible multiple uses of the timber and the forest plantation.</p>	<p><b>C</b></p>	<p>The eucalypt wood is used mainly in energy production for the company's industrial processes. However, better quality trees are managed to be harvested at later ages for higher value logs (utility posts and timber). Moreover, eucalypt stands are managed in systems combining other production items such as yerba-maté, corn, beans, beekeeping, and cattle.</p>
<p>P5.c2.i2 There are actions to stimulate the processing of products in the local area or region.</p>	<p><b>C</b></p>	<p>All logs that are sold are processed in the local market, given the large sizes and the high transportation costs.</p>
<p>P5.c2.i3 Existence of the possibility for potential use of timber and non-timber products of the FMU.</p>	<p><b>C</b></p>	<p>Most part of the production (fuel-wood) is used in the company's industrial processes. The products generated in the combined systems</p>

<sup>2</sup> P5.c1 is considered to be self-explanatory and does not require indicators for its evaluation in the field.

		(honey, beef cattle, yerba-maté, and grains) are used by the community.
<b>P5.c3 Forest management should minimize waste associated with harvesting and on-site processing operations and avoid damage to other forest resources.</b>	<b>C</b>	The forest operations are performed in ways to minimize wastes.
P5.c3.i1 Practices are employed which optimize use of the forest resources and that minimize harm to the residual stand.	<b>C</b>	The forest management involves wood production, as well as other forest resources and activities such as yerba-maté and beekeeping with no risk of damage to the commercial eucalypt stands.
P5.c3.i2 Suitable practices are employed for the removal of slash and on-site processing.	<b>C</b>	The residues from log harvesting are minimum and are maintained on the site for nutrient recycling and soil conditioning.
<b>P5.c4 Forest management should strive to strengthen and diversify the local economy, avoiding dependence on a single forest product.</b>	<b>C</b>	In all regions where the company maintains forest operations, these involve relatively small areas in comparison to other activities in these regions such as cattle raising, fruit production, other forest companies, and agriculture in general. Therefore, the intensive silviculture at Souza Cruz S.A. represents just an item among the diverse economic activities in each region.
P5.c4.i1 Potential products and market opportunities are identified when applicable.	<b>C</b>	The company is diversifying its forest production; larger size logs are sold in the market for utility posts and timber in each region.
P5.c4.i2 Local initiatives for the use, processing and commercialization of forest products are stimulated.	<b>C</b>	Activities such as beekeeping and yerba-maté crops are initiatives of local communities which are supported by the company.
P5.c4.i3 Goods and services of local suppliers are used.	<b>C</b>	All products and services involved in forest operations are acquired or contracted locally.
<b>P5.c5 Forest management operations shall recognize, maintain, and, where appropriate, enhance the value of forest services and resources such as watersheds and fisheries.</b>	<b>C</b>	The company's forest management is committed to improve and maintain forest resources and services, mainly watersheds and the native biodiversity.
P5.c5.i1 Forests services, as ground and soil conservation, habitat for fauna etc, are	<b>C</b>	The company recognizes the services provided by the forest and is

identifiable in the FMU, and there is a plan to extend the value of forest resources and services.		increasing its investments in the formalization and monitoring of remnant native forests and the associated wildlife. One of the actions involve conversion of low yield eucalypt stands into native forest conservation areas by natural regeneration and planting of native species.
P5.c5.i2 There are initiatives to stimulate forest recovery, maintenance and enhancement of its services.	C	Among the company actions to stimulate restoration, maintenance, or extension of services provided by the forest are activities at public schools and the community in general regarding environmental education and commemoration days dedicated to the environment and trees
P5.c5.i3 Initiatives exist for evaluation and valuation of forest services related to the production of water and maintenance of the local and regional climate.	C	The company has contracted specialist from universities in each region for the assessment of forest resources.
<b>P5.c6 The rate of harvest of forest products shall not exceed levels that can be permanently sustained.</b>	C	The rate of wood harvesting does not exceed the rate of increase in wood stocks represented by the managed areas, additional plantings, and the annual volume increments.
P5.c6.i1 Existence of inventories, with information on productivity which justify the cutting rate and rotation and the intensity of extraction are available.	C	Forest inventories are performed, regularly, every other year.
P5.c6.i2 The projected intensity of the harvest and the information on long-term growth are compatible.	C	The planned levels of harvesting are compatible with long term growth data.
<b>PRINCIPLE 6: ENVIRONMENTAL IMPACT</b>		
<b>Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by doing so, maintain the ecological functions and the integrity of the forest.</b>		
<b>P6.c1 Assessment of environmental impacts shall be completed - appropriate to the scale, intensity of forest management and the uniqueness of the</b>	C	The assessments of possible environmental impacts, previous to forest operations, have contributed to the planning of forest roads and

<p><b>affected resources - and adequately integrated into management systems. Assessments shall include landscape level considerations as well as the impacts of on-site processing facilities. Environmental impacts shall be assessed prior to commencement of site-disturbing operations.</b></p>		harvesting systems.
P6.c1.i1 Evaluations contemplate studies of fauna flora, habitats, water resources, and sites of historical, archaeological, cultural, or speleological and scenic values.	C	The evaluations have contemplated surveys of wildlife, vegetation, water resources, and landscapes.
P6.c1.i2 There are maps or drawings available of the areas or sites identified in the studies.	C	There are maps showing the locations of the studied elements.
P6.c1.i3 There are records of the periods in which the studies were carried out.	C	All surveys performed are duly recorded.
P6.c1.i4 The management and operational plans will take into consideration the results of those studies.	C	Survey results are taken into consideration when drafting management and operational plans. For example, isolation of domestic animals and maintenance of ecologic corridors.
<p><b>P6.c2 Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, fishing, trapping and collecting shall be controlled.</b></p>	C	The habitat of local wildlife, including rare and endangered species and those threatened to extinction, are being protected in conservation areas which include legal reserves and permanent preservation areas. In all areas within the FMU, illegal hunting and fishing are prohibited.
P6.c2.i1 Habitats and natural protected areas are mapped.	C	All natural areas where local wildlife habitat is found are duly mapped.
P6.c2.i2 Endemic, rare or threatened species that occur in the forest management unit or neighboring areas is listed.	NC	The company has already surveyed the wildlife and vegetation in the remnants of native forests. However, it needs to define the species that fit into the categories of endemic, rare and/or threatened to extinction for the formulation of conservation initiatives. <b>CAR 2009-9.</b>
P6.c2.i3 Reserves for refuge, feeding and reproduction of rare or threatened species	NC	Although there are some surveys on wildlife in the remnant native forests,

and/or sites for nesting colonies are established and identified.		the areas for shelter, feeding, and reproduction of species that are endemic, rare, and/or threatened to extinction are not defined. <b>CAR 2009-10.</b>
P6.c2.i4 Complementary actions are taken for the maintenance or the promotion of the diversity of the native species.	<b>C</b>	The company has promoted natural regeneration, as well as planting with native species in native forest restoration areas. Moreover, it promotes beekeeping activities in order to enhance pollination and reproduction of native forest species.
P6.c2.i5 The layout of the managed area is favorable to the movement of fauna and flora.	<b>C</b>	There are ecologic corridors connecting the main remnants of the native forest
P6.c2.i6 There is an efficient system of controls that does not allows forest operations in areas that have been identified and established as areas of rest, reproduction, and corridors for wild animals.	<b>C</b>	There is a control system in order to restrict forest operations that could affect conservation areas (legal reserves, permanent preservation areas, and ecologic corridors).
P6.c2.i7 There is clear evidence of controls of hunting, fishing, timber harvesting and of other forest products.	<b>NC</b>	In spite of a corrective action required in the previous year ( <b>CAR 2008-8</b> ), Souza Cruz S.A. did not indicate critical sites, nor did it post signs along the most frequent routes in its properties to indicate prohibition of illegal hunting and fishing. Therefore, <b>Major CAR 2009-1</b> was issued.
P6.c2.i8 The workers and the surrounding communities are informed in relation to the conservation of biodiversity.	<b>NC</b>	Because the company has not indicated critical sites, nor has it posted signs of prohibition of illegal hunting and fishing along the most frequent routes, it was not evident to workers and to local communities that these activities were causing harm to the conservation of biodiversity. Since CAR 2008-8 was not complied with, a major corrective action required was issued ( <b>Major CAR 2009-1</b> ).
P6.c2.i9 Agreements exist with public or private agencies for inspection and/or research on the protection of these protected areas.	<b>C</b>	The company has maintained agreements with universities and research institutions to perform surveys and research on forest resources.
<b>P6.c3 Ecological functions and values</b>	<b>C</b>	Vital ecologic functions and values

<p><b>shall be maintained intact, enhanced, or restored, including:</b></p> <p><b>a) Forest regeneration and succession.</b></p> <p><b>b) Genetic, species, and ecosystem diversity.</b></p> <p><b>c) Natural cycles that affect the productivity of the forest ecosystem.</b></p>		<p>are being restored and maintained. For example, regeneration of native tree species at low productivity sites for eucalypts in order to increase native forest cover at the FMU.</p>
<p>P6.c3.i1 Large fragments of natural areas exist, they are compared with the surrounding areas and their integrity is verified.</p>	C	<p>There are large fragments of natural area and their integrity is protected by the company.</p>
<p><b>P6.c4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.</b></p>	C	<p>Representative samples of natural ecosystems are protected in their natural state and identified on maps.</p>
<p>P6.c4.i1 The conservation units or the areas of high conservation value, legal reserves, and permanent preservation areas representing naturally occurring ecosystems of the region are herein considered.</p>	C	<p>Some permanent preservation areas (APP) have suffered changes due to human actions. The company presented a program to restore APP, which included fencing and removal of exotic species from these areas. The proposal is to execute the program starting in 2009 and to be finished within a period of 7 years, following the harvesting cycle. <b>CAR 2009-17.</b></p>
<p>P6.c4.i2 Existence of management sub-plans for the representative samples in accordance with the size of the management unit or definition of one or more management systems.</p>	NA	<p>The representative samples of natural ecosystems that are maintained in the FMU are not subjected to any management procedure, except non-intervention, for which no management sub-plan is required.</p>
<p>P6.c4.i3 A plan exists for the prevention and fighting of forest fires.</p>	C	<p>There is a plan to prevent and fight forest fires in the farms of the FMU.</p>
<p>P6.c4.i4 The native forests in the FMU are characterized and mapped.</p>	C	<p>The remnants of natural ecosystems in conservations areas are duly characterized and mapped.</p>
<p><b>P6.c5 Written guidelines shall be prepared and implemented to: control erosion; minimize forest damage during harvesting, road construction and all other mechanical disturbances; and protect water resources.</b></p>	C	<p>All procedures and guidelines for the control of forest management activities that are potentially hazardous to the environment are duly documented.</p>

P6.c5.i1 In case of identification of possible impacts on forest operation or their infrastructure, which may cause mechanical disturbances there are means to avoid, mitigate and control them.	NC	The auditors observed drainage ditches sending excess water from road beds directly into conservations areas. This created conditions for flushing of sediments and suspensions into the conservation areas and into water streams. <b>CAR 2009-7.</b>
P6.c5.i2 Forest management takes into account potential environmental impacts for the selection and use of equipment for specific forest operations.	C	The minimization of environmental impacts is an essential aspect in choosing forest operation methods. For example, because of the small scale of production, harvesting is manual and bucking is done on the site, and no skidding is involved.
<b>P6.c6 Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks<sup>3</sup>.</b>	C	The use of chemical pesticides is limited to the minimum necessary to control the main plagues (leaf-cutting ants and weeds). Only pesticides that that are not banned by FSC are used, or, products although banned by FSC, for which the company has submitted application for derogation.
P6.c6.i1 There are records of all used chemical products or those currently in use, their respective application methods and volumes and their classification.	C	The company maintains a list of products in use, together with guidelines on their use and classification.
P6.c6.i2 The existence of procedures and practices for storage, transportation and use of the chemical products.	C	The control of storage and use of pesticides is recorded on a form in the storage area. However, updated information is not sent to the office
P6.c6.i3 The existence of a program of integrated management of forestry plagues and/or diseases.	C	The program includes measures such as application of ant poison at low intensity in order to prevent severe attacks and corrective actions, in which case, massive applications would be necessary.

<sup>3</sup> In accordance with FSC policy.

P6.c6.i4 The existence of a program of biological monitoring and controls.	C	Pest outbreaks in eucalypt stands are monitored. In the case of leaf-cutting ants, there is no effective means of biological control.
P6.c6.i5 Workers who may have contact with pesticides are given proper and previous training in procedures and the use of appropriate equipment, including storage, use and manipulation.	C	All workers involved in handling and application of pesticides are trained and receive adequate equipment for their protection.
P6.c6.i6 Existence of a program for monitoring the health of workers exposed to pesticides.	C	There is a program to monitor the health of workers.
P6.c6.i7 Existence of procedures for appropriate maintenance and storage of the used chemical application equipment.	C	All equipment used for the application of pesticides are maintained in good working condition.
P6.c6.i8 Existence of tests and experimentations are conducted often in partnership with other institutions, for the use of non-chemical weed control and plagues.	C	Tests conducted to control leaf-cutting ants involved the use of non-toxic alternative products derived from synthetic rubber. However, the results were not satisfactory because of the high cost of application and the short period of action.
P6.c6.i9 There is evidence of the chemical pesticides banished by FSC are not used.	C	Pesticides banned by FSC are not used in the FMU.
<b>P6.c7 Chemicals, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.</b>	C	Chemical products, containers, and non-organic residues are disposed of in an environmentally appropriate manner, outside the FMU. Pesticide containers are sent either back to the retailers or directly to INPEV (National Institute for Processing of Empty Containers) that gives them a proper destination.
P6.c7.i1 Existence of a plan for the management of wastes, including identification, classification, definition, transportation and final disposal of generated wastes residues and their containers.	C	There is a plan for the management of residues.
P6.c7.i2 Appropriate procedures and infrastructure exists for the handling, treatment and final disposal of wastes.	NC	The wastes are not being properly separated; although the company maintains well identified waste containers, the auditors observed chain-saw motor oil containers thrown on the floor at the workers

		barrack. Moreover, oil spillage was detected in the field. <b>CAR 2009-4</b> and <b>CAR 2009-15</b> .
P6.c7.i3 Emergency procedures do exist for the case of any type of accident with chemical products.	C	The company has emergency procedures for accidents with chemical products, except for cases in which these products could directly affect water streams. However, due to the small scale of the company's operation, the quantity of products involved is small and risks of such accidents are minimum. Nonetheless, the auditors recommended that the company prepare a procedure for that effect. <b>REC 2009-3</b> .
<b>P6.c8 Use of biological control agents shall be documented, minimized, monitored and strictly controlled in accordance with national laws and internationally accepted scientific protocols. Use of genetically modified organisms shall be prohibited<sup>4</sup>.</b>	C	No biological control agent is used, nor are genetically modified organisms (GMO).
P6.c8.i1 The FSC Guidelines, in accordance with not using of GMO's, are respected.	C	No genetically modified organism (GMO) is used.
P6.c8.i2 The use of biological control agents is only employed in cases where it is demonstrably necessary, and only in compliance with procedures prescribed in laws and regulations. Use should be documented, monitored, minimized, and strictly controlled.	NA	No biological control agent is used.
<b>P6.c9 The use of exotic forest species shall be carefully controlled and actively monitored to avoid adverse ecological impacts.</b>	C	<i>Eucalyptus</i> species (exotic) are planted and managed for commercial purposes. Therefore, they are carefully controlled and monitored in order to prevent adverse ecological impacts.
P6.c9.i1 Exotic species, which do not occur in the FMU, are only used in situation fully justified, observing the most restricted precautions to prevent adverse ecological	NC	Some exotic species were found within the boundaries set aside for the conservation of native ecosystems. <b>CAR 2009-8</b> .

<sup>4</sup> The GMO won't be used in commercial plantations until safeguards are developed for its security using.

impacts.		
P6.c9.i2 There is a plan to control and monitoring exotic species outside the commercial areas.	C	There is a plan to control and monitor exotic species outside the commercial areas. Periodically, the company sends in applications to state environmental agencies for licenses to remove these species from the permanent preservation areas.
<b>P6.c10 Forest conversion to plantations of non-forest land uses shall not occur, except in circumstances where conversion:</b>  a) Entails a very limited portion of the forest management unit; and  b) Does not occur on high conservation value forest areas; and  c) Will enable clear, substantial, additional, secure, long-term conservation benefits across the forest management unit.	NA	There has not been any conversion of areas to commercial plantations since November 1994.
P6.c10.i1 The forest conversion does not exceed 1% of the total area of the FMU.	NA	There has not been any conversion of areas to commercial plantations since November 1994.
P6.c10.i2 The conversion does not occur in high conservation value forests areas, nor in Areas of Permanent Preservation.	NA	There has not been any conversion of areas to commercial plantations since November 1994.
P6.c10.i3 It must be very clearly and technically justified that the conversion brings benefits for the conservation of the FMU.	NA	There has not been any conversion of areas to commercial plantations since November 1994.
<b>P6.c11 Information of the use of pesticides must be furnished to those potentially affected, and specially to nearby agricultural producers in the region surrounding the forest management unit in order to inform them about the possible negative impacts on their people, water resources, fauna, native reserves, crops and animals.</b>	C	Information about utilization of chemical pesticides and possible negative impacts are given at new workers integration sessions and at training sessions to those involved in handling and application of pesticides.
P6.c11.i1 Information materials do exist and are divulged.	NC	The company has not addressed information about pesticides used in its forest operations to adjacent communities. <b>CAR 2009-11.</b>

P6.c11.i2 There is evidence of the give-out and dissemination of appropriate information by management of the forest management unit.	C	The information about negative impacts are in the training schedule for workers involved with handling and application of pesticides.
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### 3.2 General discussion

The general assessment, including the analysis of documents, field visits, and interviews with company officials, employees, and contractor company workers were conducted with the objective to verify the company performance in regard to its forest management. The main aspect analyzed was on compliance with the FSC principles and criteria for forest management certification, by considering also the last (2008) verification audit performed by another certifier as the basis.

Three principles (P3, P5, and P6) were analyzed in detail and the others were verified only in the most relevant aspects observed in the field. By verifying the compliance with conditions issued in previous audits and the company performance in forest management, new corrective actions required were issued – three Major CAR with 90 days for compliance and 14 Minor CAR (or, simply CAR) to be verified at the 2010 annual audit – plus three recommendations for improvement of the company performance in forest management.

It is worth mentioning the company effort to convert low yield eucalypt areas to native forest conservation areas by means of natural regeneration and planting with native tree species. The location of these areas in relation to other remnants of the native forest constitute an important element to enhance connectivity among remnant forest fragments. In this aspect, it can be ensured that the management of planted forests for commercial purposes has contributed significantly to the improvement of natural ecosystems in these regions.

Overall, the company forest management operations are as expected for Certified areas. One important aspect that was observed is the diligence in collecting information on various items in forest management. However, large part of that information remains under-utilized due to lack of proper processing and systematization. This issue was brought up as a recommendation for improvement of data control and execution of forest management operations.

Fazenda Buriti do Prata, in the municipality of Prata, MG, was inspected as part of the evaluation of forest management for inclusion (or not) in the scope of FSC certification. After careful checking of the general conditions involving economic, environmental, and social issues, no aspect of forest management that could hinder inclusion of Fazenda Buriti do Prata in the scope of certification was detected.

## 4 GENERAL CONCLUSIONS OF THE 2009 ANNUAL AUDIT

Based on observations during the annual audit in April/May, 2009, that included field visits, interviews, and review of documents, SCS auditors concluded that SOUZA CRUZ S.A. has dedicated significant efforts to comply with corrective actions required (CAR) and

recommendations (REC) in order to maintain conformity with FSC certification standards for its forest operations in Pantano Grande (RS), Rio Negrinho (SC), and Prata (MG) regions. Therefore, the auditing team concluded that this forest operation is in conformity with FSC Principles. It recommends that SOUZA CRUZ S.A. maintains its certificate of “well managed forest” for planted forests in mentioned regions. However, the company must continue with its progress in order to comply with the new conditions (CAR) and recommendations (REC).

## **5 AGREEMENT**

I, Fernando José da Silva Rosa – Forest Manager, Business Administrator, and Agriculture Technician – confirm that have received the report of the 2009 audit and declare my agreement with its content. SOUZA CRUZ S.A. agrees to proceed with its commitment with good management of its planted forests in the regions of Pantano Grande (RS), Rio Negrinho (SC), and Prata (MG), according to standards defined by SCS – Scientific Certification Systems and by FSC – Forest Stewardship Council.

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Date: \_\_\_\_\_

Fernando José da Silva Rosa

SOUZA CRUZ S.A.