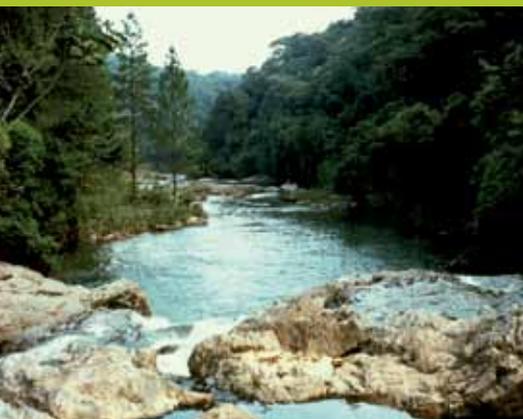
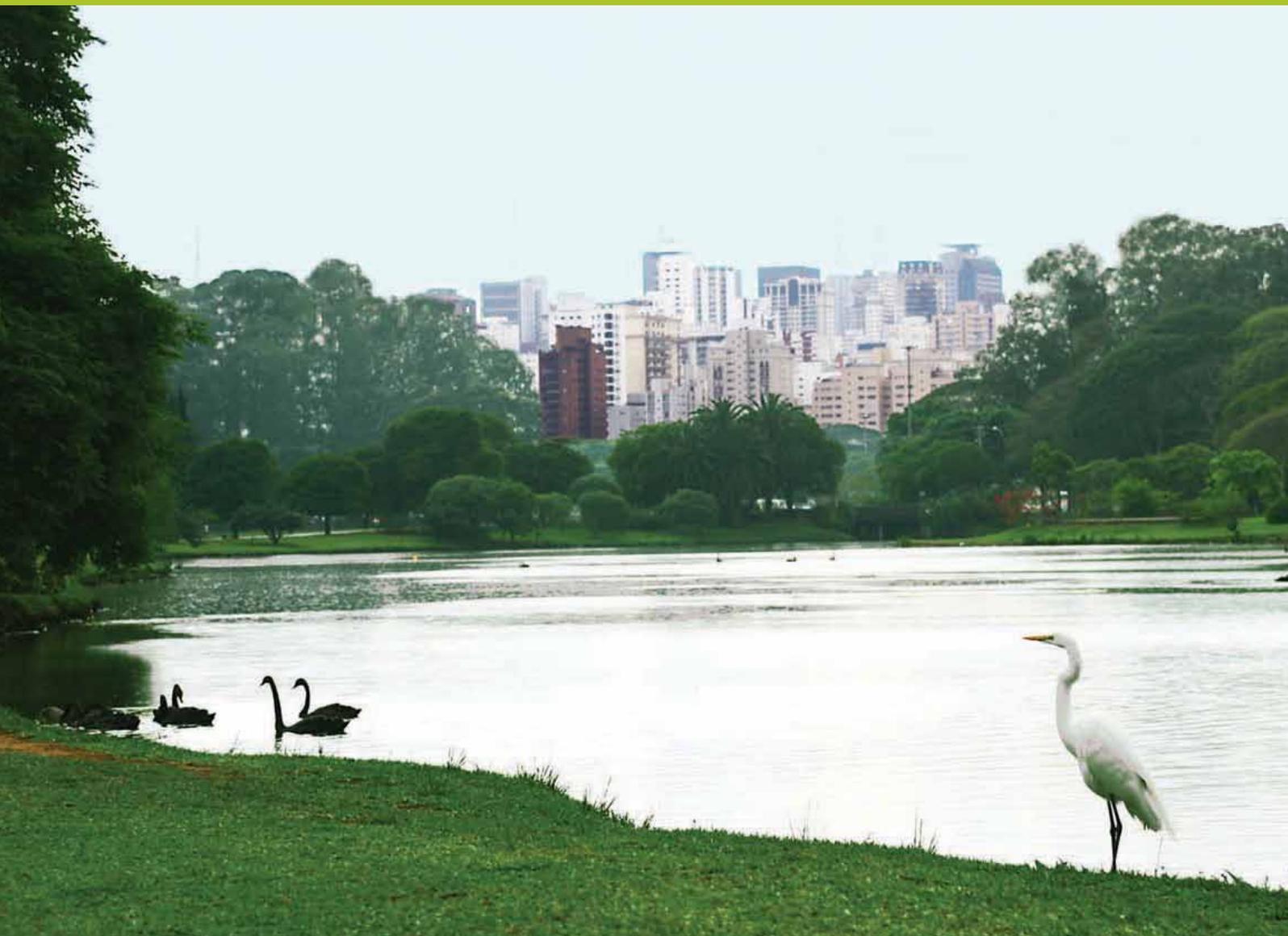




SÃO PAULO BIODIVERSITY REPORT | 2008



ENHANCING URBAN NATURE THROUGH A GLOBAL NETWORK OF LOCAL GOVERNMENTS



The Local Action for Biodiversity (LAB) Project is a 3 year project which was initiated by the City of Cape Town, supported by the eThekweni Municipality (Durban), and developed in conjunction with ICLEI – Local Governments for Sustainability and partners. ICLEI is an international association of local governments and national and regional local government organisations that have made a commitment to sustainable development. LAB is a project within ICLEI's biodiversity programme, which aims to assist local governments in their efforts to conserve and sustainably manage biodiversity.

Local Action for Biodiversity involves a select number of cities worldwide and focuses on exploring the best ways for local governments to engage in urban biodiversity conservation, enhancement, utilisation and management. The Project aims to facilitate understanding, communication and support among decision-makers, citizens and other stakeholders regarding urban biodiversity issues and the need for local action. It emphasises integration of biodiversity considerations into planning and decision-making processes. Some of the specific goals of the Project include demonstrating best practice urban biodiversity management; provision of documentation and development of biodiversity management and implementation tools; sourcing funding from national and international agencies for biodiversity-related development projects; and increasing global awareness of the importance of biodiversity at the local level.

The Local Action for Biodiversity Project is hosted within the ICLEI Africa Secretariat at the City of Cape Town, South Africa and partners with ICLEI, IUCN, Countdown 2010, the South African National Biodiversity Institute (SANBI), and RomaNatura. For more information, please visit www.iclei.org/lab

In this Report about Local Actions for Biodiversity, we present the São Paulo City, a metropolis that still has a significant part of its territory covered by Atlantic Forest and water producing areas that contribute to the water supply of the Metropolitan Region of São Paulo State.

The preparation of the Report was based on the structure existing in the São Paulo City Hall and intended specifically for addressing the city's environmental issues. All the data about the biodiversity of São Paulo was provided by the staff that comprise the Municipal Secretariat for Environment.

Emphasis was placed on work that focused on the research and protection of flora and fauna. Part of the aim of this work is to complement the areas of planning and of public policies with respect to biodiversity, furnishing information that contributes to the creation of parks of different categories and conservation units, besides the expansion of green areas.

The government of São Paulo City is working to increase the number of parks and protected spaces, to duplicate the volume of green areas in the municipal territory in the period between 2005 and 2009 and to triplicate the number of parks in the city.

Besides research, the government has also driven efforts in the pursuit of solutions to problems that directly affect the fauna and flora seriously threatened by the advance of the urban ecosystem over the natural ecosystem. The richness of the biodiversity that exists in the city is illustrated by the presence of the Puma (*Puma concolor*), the second largest species of feline in Brazil, endangered according to the Brazilian official list.

Finally, the effort made to strengthen the participation of civil society in decisions related to the environment, going from the creation of decentralized Management Councils of Parks and Conservation Units that operate together with the Municipal Council of the Environment and Sustainable Development of the City, deserves special emphasis.

Eduardo Jorge Martins Alves Sobrinho
Municipal Secretary
Municipal Secretariat for Environment

TABLE OF CONTENTS

05		1. INTRODUCTION
06		2. THE SÃO PAULO CITY
11		3. BIODIVERSITY MANAGEMENT STRUCTURE
11		3.1 SECRETARIAT OF GREEN AREAS AND ENVIRONMENT
11		3.1.1 Budget
12		3.1.2 Structure of SVMA
12		3.1.2.1 Department of Parks and Green Areas (DEPAVE)
12		3.1.2.2 Department of Control on Environmental Quality (DECONT)
12		3.1.2.3 Coordinating Office of Environmental Planning and Decentralized Actions (COPLAN)
12		3.1.2.4 Coordinating Office of Environmental Education (CEA)
12		3.1.2.5 Municipal Council on the Environmental and Sustainable Development (CADES)
13		4. MANAGEMENT AND CONSERVATION OF GREEN AREAS
13		4.1 URBAN PARKS
15		4.2 ENVIRONMENTAL PROTECTION AREA- APA
16		4.2.1 APA Capivari-Monos
16		4.2.2 APA Bororé-Colônia
16		4.3 MUNICIPAL NATURAL PARK OF CRATERA DE COLÔNIA
18		4.4 STATE PARKS AND CONSERVATION UNITS
19		5. URBAN FORESTRY PROGRAM
20		6. MUNICIPAL HERBARIUM
21		7. MANAGEMENT OF WILD FAUNA
24		8. RESULTS
24		8.1 FLORA DESCRIPTION
24		8.2 FAUNA DESCRIPTION
26		8.2.1 Mammals
26		8.2.2 Birds
27		8.2.3 Reptiles
27		8.2.4 Amphibians
28		9. THREATS TO BIODIVERSITY
29		9.1 ILLEGAL TRADE OF WILD ANIMALS
29		9.2 INVASIVE SPECIES AN UNDESIRABLE ANIMALS
30		10. MANAGEMENT OF BIODIVERSITY
30		10.1 MASTER PLAN OF THE CITY
30		10.2 FRESH WATER PROTECTION PROGRAM
31		10.3 PROGRAMS AND PROJECTS
31		10.3.1 New Urban Parks
31		10.3.2 New Natural Parks
31		10.3.3 Program for Implementation of Riparian Parks

32	10.3.4 Green and Health Environments Project - PAVS
33	10.3.5 Urban Agriculture Program
34	10.3.6 New Veterinary Hospital and Plant Nursery
35	11. VALUATION
36	12. INTEGRATION
37	13. PUBLIC PARTICIPATION AND AWARENESS
37	13.1 MANAGEMENT COUNCILS
37	13.1.1 Management Councils of Urban Parks
37	13.1.2 Management Councils of APAs
37	13.2 INDIGENOUS COMMUNITIES
39	13.3 COURSES
39	13.4 PUBLICATIONS
41	14. ENVIRONMENTAL SERVICES
42	15. SUSTAINABLE PRODUCTION AN CONSUMPTION
43	16. PUBLIC POLICIES
44	17. LEARNED LESSONS
45	18. FINAL CONSIDERATIONS
46	19. REFERENCES

LIST OF ACRONYMS USED IN THIS PUBLICATION

- CADES** – Municipal Council on the Environmental and Sustainable Development -(Conselho Municipal do Meio Ambiente e Desenvolvimento Sustentável)
- CEA** – Coordinating Office of Environmental Education - (Coordenadoria de Educação Ambiental)
- CETAS** – Center for Triage of Wild Animals - (Centro de Triagem de Animais Silvestres)
- CITES** – Convention on International Trade in Endangered Species of Wild Fauna and Flora – (Convenção Internacional sobre o Comércio das Espécies da Fauna e da Flora Silvestres Ameaçadas de Extinção)
- CONFEMA** – Council of the Special Environment and Sustainable Development Fund (Conselho do Fundo Especial do Meio Ambiente e Desenvolvimento Sustentável)
- COPLAN** – Coordinating Office of Environmental Planning and Decentralized Actions - (Coordenadoria de Planejamento Ambiental e Ações Descentralizadas)
- CRAS** – Center for Rehabilitation of Wild Animals – (Centro de Reabilitação de Animais Silvestres)
- DEPAVE** – Department of Parks and Green Areas – (Departamento de Parques e Áreas Verdes)
- DEPAVE-1** – Landscape Technical Division – (Divisão Técnica de Paisagismo)
- DEPAVE-2** – Technical Division of Plant Production – (Divisão Técnica de Produção)
- DEPAVE-3** – Technical Division of Veterinarian Medicine and Management of the Wild Fauna – (Divisão Técnica de Medicina Veterinária e Manejo da Fauna Silvestre)
- DEPAVE-5** – Technical Division of Management and Conservation of Parks and Natural Resources – (Divisão Técnica de Manejo e Conservação de Parques e Recursos Naturais)
- DEPAVE-7** -Technical Division of Conservations Units – (Divisão Técnica de Unidades de Conservação)
- DECONT** – Department of Control on Environmental Quality – (Departamento de Controle da Qualidade Ambiental)
- FAPESP** – State Research Support Foundation – (Fundação de Amparo a Pesquisa do Estado de São Paulo)
- FEMA** – Special Environment and Sustainable Development Fund - (Fundo Especial do Meio Ambiente e Desenvolvimento Sustentável)
- IPT** - Institute of Technological Research of São Paulo State – (Instituto de Pesquisas Tecnológicas do Estado de São Paulo)
- IUCN** – World Conservation Union – (União Internacional para a Conservação)
- SNUC** – National System of Conservation Units – (Sistema Nacional de Unidades de Conservação)
- SVMA** – Municipal Secretariat for Environment – (Secretaria Municipal do Verde e do Meio Ambiente)
- PMSP** – São Paulo City Hall – (Prefeitura da Cidade de São Paulo)
- SISNAMA** – National Environmental System – (Sistema Nacional de Meio Ambiente)
- USP** – University of São Paulo – (Universidade de São Paulo)

1. INTRODUCTION

The Report on Local Actions for Biodiversity of the São Paulo City was drawn up by the executor body of the environmental policy of the Municipality, the Municipal Secretariat for Environment (SVMA) of the São Paulo City Hall (PMSP).

Although PMSP has a body in its structure created specially to deal with environmental issues of the city, it has the considerable challenge of promoting the internalization of environmental topics in the other secretariats that comprise municipal public administration.

In this report, SVMA endeavored to present its structure and its duties, through the work carried out by the departments and coordinating offices that operate directly with the flora and fauna of the São Paulo City.

The methodology employed for the report preparation was based only on the work carried out by SVMA, and therefore does not include all the interventions performed by PMSP in the urban and natural environment that reflect on biodiversity.

The Atlantic Forest natural areas remnants are highlighted in discussions due to the city grows in their direction. The concern with water production, environmental quality and biological diversity has been prompting the city government to create conservation units with different levels of human occupancy and usage restriction.

Matters that involve wild fauna are addressed with a focus on the diversity of species, animal health and its implications to public health, considering the proximity of human/animal coexistence in the urban environment. Wild animals are considered elements of the environment and receive assistance from the municipality, which assumes responsibility for their protection and surveillance.

The São Paulo City Hall has been working for the decentralization of services aiming to get public administration more involved in the specific problems of the city different regions and their citizens. The participation of different society sectors in environmental management decisions aims to guarantee more effectiveness and quality of services and greater transparency in local actions.

2. THE SÃO PAULO CITY

São Paulo is located in the Southeast Region of Brazil and it is the capital of São Paulo State. It is the most populous city in Brazil and in Southern Hemisphere with an estimated population of 11,000,000 inhabitants. São Paulo ranks as the third largest city in the world. The area of the municipality is 1,525 km² and its average altitude is 760 meters.

The city is dissected by Tietê River, the main tributaries of which are the rivers Pinheiros and Tamanduateí, and it is divided into 31 Borough Councils and 96 Districts.

São Paulo is a big cultural and entertainment center and the wealthiest city from South America. Accordingly, it faces problems, which are common to other metropolises such as intense traffic (average of one vehicle to every two inhabitants), which contributes to the city having the second largest fleet of helicopters in the world, just after New York.

The city is an important financial center and exhibits strong socioeconomic disparities; while the part of the city that is closest to the center is rich and developed the suburbs suffer from lack

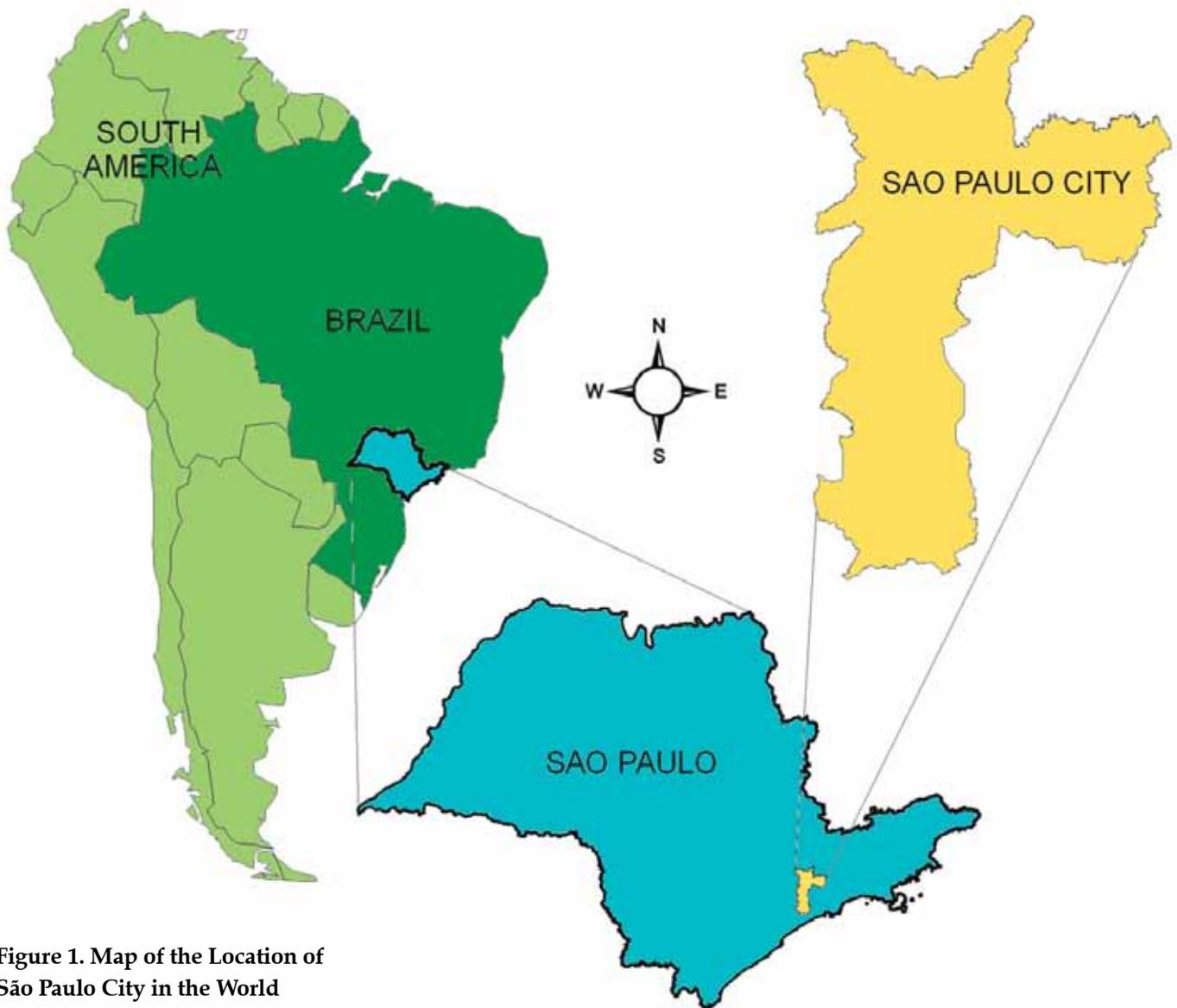


Figure 1. Map of the Location of São Paulo City in the World

of infrastructure, poverty and precarious housing. Due to its extensive urban area, the city is of a highly heterogeneous nature, varying from very dense and vertical regions to horizontal residential neighborhoods of extremely low density. The city also displays a vast cultural diversity, mainly due to the immigration process.

Besides being the largest production center and the biggest consumer market in the country, São Paulo is also a major highway junction, and is responsible for Brazil's North-South connection.

The City faces serious environmental degradation problems, as a result of urban expansion that throughout its history of promotion of development, has disregarded planning with an impact on environmental quality. The threats that compromise

the quality of urban life include excessive soil impermeability; development on flood plains, hillsides and springs; soil contamination; sanitary sewage; solid waste; soil contamination; and air and water pollution.

The vegetal cover that exists in the Municipality is comprised basically of fragments of the secondary natural vegetation of the Atlantic Forest in more preserved regions at the extreme south, in Serra do Mar, and to the north, in Serra da Cantareira, and also of planted areas such as parks, public squares and tree plantings alongside roads, besides private lands.

Massive native forests in more advanced stages of ecological succession are confined to the southern limit of the city, where formations designated dense ombrophylous forest and cloud forest, besides



2. THE SÃO PAULO CITY



natural meadows and flood plain formations can be observed. To the north, the Jaraguá and Cantareira State Parks, and Anhanguera Municipal Park are the remaining areas of montane ombrophylous forest and at the eastern zone there are the Environmental Protection Area - APA do Carmo.

The metropolis advances over remnants of the Atlantic Forest Biome that, in Brazil, despite accentuated devastation, still houses a significant portion of biological diversity, with extremely high levels of endemism, and more than 2,300 species of vertebrates. It is estimated that approximately 740 of these species are endemic. For some groups this

unity is even more accentuated. Around 80% of the 24 species of primates from the Atlantic Forest do not occur in any other place of the planet.

The level of diversity and endemism of plants from the Biome is even more impressive. An estimated 20,000 species exist, of which about 8,000 are endemic.

The high level of species richness and endemism, associated with the elevated human pressure on the biome, put the Brazilian Atlantic Forest among the five most threatened global biodiversity hotspots on the planet.

Growth of the Metropolis

The region where São Paulo City is included was originally covered by vegetation of flood plains, meadows and forests.

In the mid-19th century, with the expansion of coffee plantations, most of the forest cover was devastated, from Serra da Cantareira, to the north, up to the borders of Serra do Mar, to the south. In 1901, with the construction of Guarapiranga and Billings Dams in the southern region, extensive areas covered by native vegetation were permanently flooded.

With the decline of coffee cultivation, many areas were utilized for other agricultural activities and for stockbreeding. However, in places with lower demographic densities and of difficult access, the abandonment of the cultivation favored the establishment of secondary natural vegetation,

which today constitutes the majority of existing forest cover. These places would reflect the regeneration capacity of forests in wet regions.

The profile of São Paulo as an industrial metropolis has been consolidated since the 1940's when the city grows process towards the surroundings regions has begun. In the 1970's this occupancy process became particularly detrimental to the vegetal cover both in public and in private areas.

Nowadays, 48% of the territory of São Paulo exhibits a significant shortage of vegetal cover of any kind, whether in the form of significant dense clumps of vegetation, trees planted alongside roads, or green areas such as parks and squares. 21% of the Municipality is still covered by dense areas of forest in various stages of ecological succession, but this is highly threatened by the city's expansion.



2. THE SÃO PAULO CITY

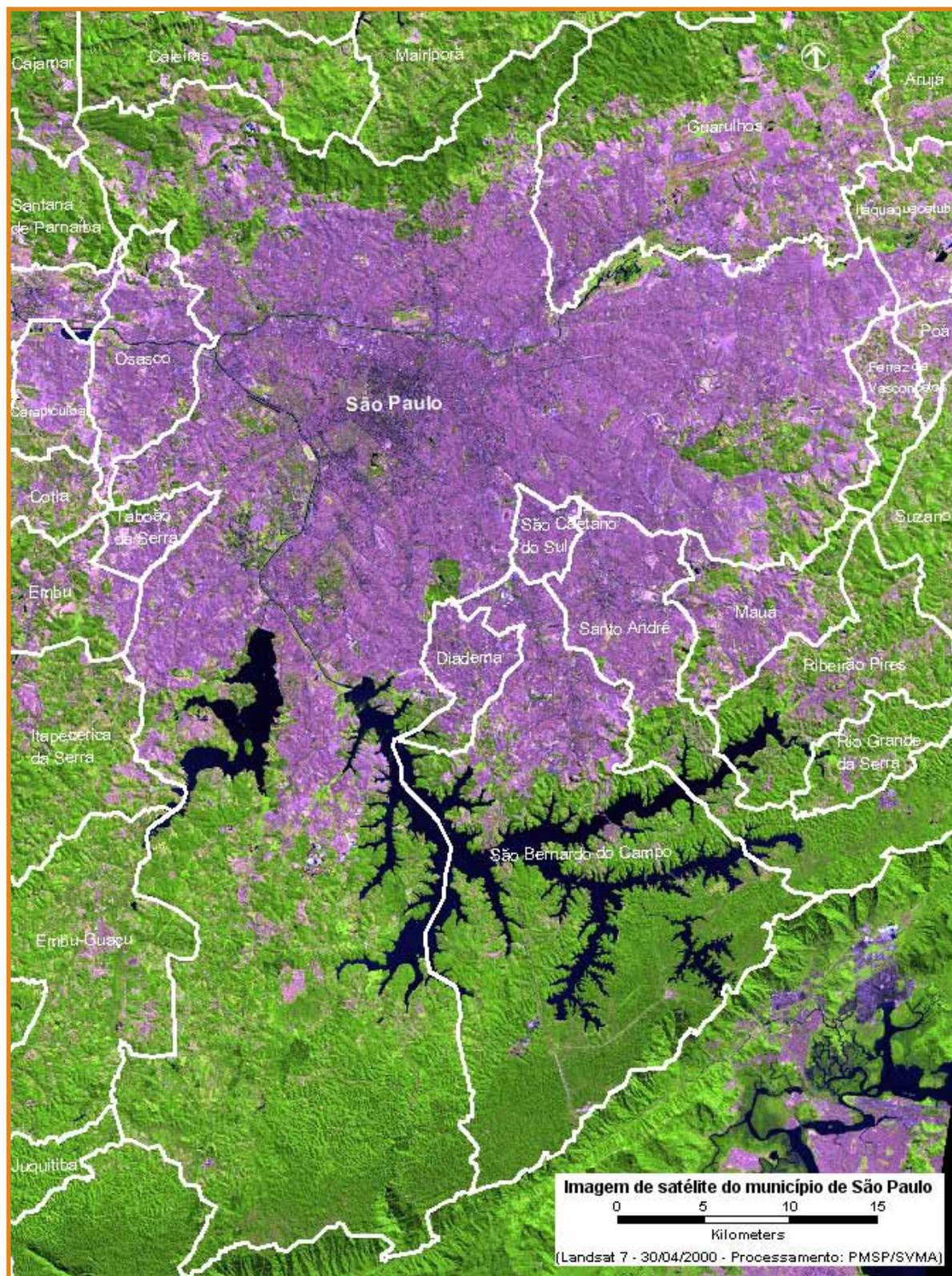


Figure 2. São Paulo City Satellite Image.

3. BIODIVERSITY MANAGEMENT STRUCTURE

The São Paulo City Hall adopts as a legal definition of biodiversity the concept of Federal Law 9985, of July 18, 2000: Biological diversity (biodiversity) is the variability of live organisms of all origins, including, among others, land and marine and other aquatic ecosystems and the ecological complexes that they are part of, also including diversity in species, among species, and of ecosystems.

The accelerated and unplanned growth of the city caused the deterioration of large areas where ecosystems and their biodiversity previously provided environmental services. Deforestation, erosion, floods and garbage are some of the challenges to be faced, besides the issue of water and atmospheric pollution. On account of this situation it was necessary to adopt new models in the public administration, traditionally separated from the consciousness of environmental preservation.

Hence 15 years ago São Paulo created a specific administrative framework to deal with environmental matters in the local sphere, integrating the municipality with the National Environmental System (SISNAMA).

In 1993 the Municipal Secretariat for Environment (SVMA) and the Municipal Council on the Environment and Sustainable Development (CADES) were created through the Municipal Law 11,426 in the framework of the São Paulo City Hall. These bodies have been working for environmental matters to be incorporated by the other bodies of direct and indirect administration, as environmental conservation and preservation and the improvement of quality of life of the population call for interdepartmental action, as well as the involvement of the state and federal government spheres.

3.1. MUNICIPAL SECRETARIAT FOR ENVIRONMENT (SVMA)

With the creation of this Secretariat, the city achieved more autonomy in the environmental management of its territory.

Over the last few years, the Secretariat has divided

environmental matters into thematic groups: water, air, biodiversity, eco-economy, ground and culture of peace. It has established the decentralization of its activities. Four Decentralized Management Centers were created, which together with the Borough Councils, carry out actions of environmental education and integrated supervision.

This *modus operandi* helps in the planning and development of activities, as it facilitates to balance the resources among the necessities of each region and the establishment of priorities.

3.1.1. Budget

SVMA's budget between the years of 2003 and 2007 ranged from 0.47% to 1.08% of the General Budget of the São Paulo City Hall. Whereas in 2007 the budget under execution came to US\$ 85,514,300.00 that proposed for the year 2008 is double this amount, due to a growth estimate of around 15% according to the primary surplus generated in the year 2007.

SVMA currently has 946 municipal civil servants on its staff. The services of cleaning, security, transport, planting and maintenance of municipal parks are executed by outsourced companies.

FEMA

The Special Environment and Sustainable Development Fund (FEMA) was created in 2001 by Municipal Law 13,155 and its purpose is to provide financial support to plans, programs and projects focused on the environmental area.

The Fund is governed by the Council of the Special Environment and Sustainable Development Fund – CONFEMA, comprised of representatives of Municipal Administration, of the Municipal Council on the Environment and Sustainable Development – CADES, and of Non-Governmental Organizations – NGO's active in the environmental area.

The resources of FEMA originate from payments of fines applied by the inspection area of SVMA itself, environmental compensation for acts harmful to the environment.

3. BIODIVERSITY MANAGEMENT STRUCTURE

3.1.2. Structure of SVMA

The structure of SVMA, directly responsible for topics related to the biodiversity of the city, is as follows:

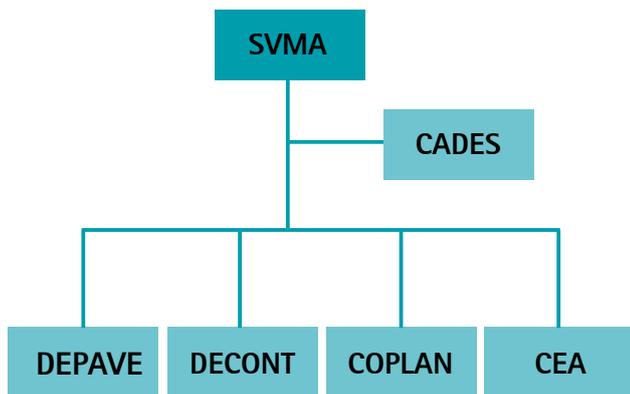


Figure 3. Organization chart of SVMA (Biodiversity).

3.1.2.1. Department of Parks and Green Areas (DEPAVE)

DEPAVE manages the municipal parks in São Paulo and it is accountable for the creation of new green areas and also for the assessment of the environmental impact of works in the municipality. Actions related to management of biodiversity carried out by the followings Technical Divisions: Management and Conservation of Parks and Natural Resources, Conservation Units, Municipal Herbarium, Plant Production and Veterinarian Medicine and Management of Wild Fauna.

3.1.2.2. Department of Control on Environmental Quality (DECONT)

DECONT is responsible for the supervision and control of air, water and ground pollution in the municipal sphere, and for this purpose, relies on the work and activity of the Environmental Control Agents. This Department also plans and coordinates the activities of monitoring and management of environmental quality, besides the analysis of licensing of undertakings that have the potential to cause environmental impacts in the municipality.

3.1.2.3. Coordinating Office of Environmental Planning and Decentralized Actions (COPLAN)

COPLAN draws up and executes programs with the objective of improving the quality of life of the population, such as the deployment of Riparian Parks Projects, targeting the revitalization of watercourses

3.1.2.4. Coordinating Office of Environmental Education (CEA)

CEA prepares studies and evaluations designed to incorporate environmental concern in public policies of transportation, traffic, education, culture, health and other areas. Open University of the Environment and of the Culture of Peace (UMAPAZ) and Municipal Gardening School are part of this Coordinating Office.

3.1.2.5. Municipal Council on the Environment and Sustainable Development (CADES)

CADES is an advisory and deliberative body in matters referring to the preservation, conservation, defense, recovery and improvement of the natural, constructed and work environment, in the territory of the municipality. The Council is formed by government representatives, private companies, universities and non-governmental organizations.



4. MANAGEMENT AND CONSERVATION OF GREEN AREAS

The distribution of vegetal cover in the city of São Paulo is highly unequal. While the extreme south has approximately 26,000 m² of green area by inhabitant, this figure can be practically zero in central neighborhoods, favored by the human concentration. The lack of vegetation provokes so-called heat islands, causing a temperature variation of around three or more degrees, depending on the region. In the attempt to reverse this situation, SVMA has been expanding the System of Green Areas of the City that constitutes Urban Parks, Conservation Units, Natural Parks and Riparian Parks, besides green areas of the city grid.

4.1. URBAN PARKS

Since their advent (end of the 19th century), the idea of the urban park has been closely related to its esthetic dimension and cultural utility. The Urban Park was seen as a “green area intended for community leisure and predominantly with permeable ground”, resulting from the city of the industrial era.

With the importance given to the environmental concern, and due to the agreements signed during the United Nations Conference on Environment and Development – Rio 92, all the issues involving natural environments, the preservation of resources and the increase of quality of life of the population were defined as support for a new relationship of concepts and values. Urban parks have therefore now begun to take on another function, that of contributing ecologically toward the improvement to the citizen's life, through their internal elements and the relations maintained with their surroundings.

According to the Environmental Atlas of the São Paulo City, of 2004, urban parks “thus fulfill a wide range of roles, constituting from important leisure areas to significant areas of preservation of the native vegetation, genetic bank and refuge for the urban fauna”. Federal Law 9,985/2000, which establishes the National System of Conservation Units - SNUC, defines Conservation Unit as “the



4. MANAGEMENT AND CONSERVATION OF GREEN AREAS

	Zone	Name	Area*
1	Downtown	Buenos Aires	2.50
2	Downtown	Luz	11.34
3	Downtown	Tenente Siqueira Campos	4.86
4	East	Carmo	150.00
5	East	Chácara das Flores	4.17
6	East	Chico Mendes	6.16
7	East	Colinas de São Francisco	4.91
8	East	Lydia Natalizio Diogo	6.00
9	East	Piqueri	9.72
10	East	Raul Seixas	3.30
11	East	Santa Amélia	3.40
12	East	Ermelino Matarazzo	1,69
13	North	Anhanguera	950,00
14	North	Cidade de Toronto	10.91
15	North	Jardim Felicidade	2.88
16	North	Lions Clube Tucuruvi	2.37
17	North	Rodrigo de Gasperi	3.90
18	North	São Domingos	8.00
19	North	Vila dos Remédios	10,98
20	North	Vila Guilherme	18,40
21	North	Jacinto Alberto	4,09
22	West	Alfredo Volpi	14.24
23	West	Cemucan	90.47
24	West	Luis Carlos Prestes	2.71
25	West	Previdência	9.15
26	West	Raposo Tavares	19.50
27	West	Sérgio Vieira de Mello	1,42
28	South	Aclimação	11.22
29	South	Burle Marx	13.83
30	South	Cordeiro	3.40
31	South	Eucaliptos	1.54
32	South	Guarapiranga	15.26
33	South	Ibirapuera	158.40
34	South	Independência	16.13
35	South	Lina e Paulo Raia	1.50
36	South	Nabuco	3.13
37	South	Santo Dias	13.40
38	South	Severo Gomes	3.49
			1,598.37

*hectares Source: Landscape Technical Division

Table 1. List of Urban Municipal Parks with their respective areas, distributed by region of the city.

territorial space and its environmental resources, including jurisdictional waters, with relevant natural characteristics, legally established by the Government, with defined conservation objectives, under a special administration regime, to which adequate guarantees of protection apply".

From the ecological viewpoint, urban parks are very similar to conservation units, as they are places with a high concentration of different vegetal species that provide habitat to several animal species, but cannot be classified in any of the categories provided for by the World Conservation Union (IUCN) and Brazilian legislation. The biodiversity in urban parks can be similar to that existing in remaining forest fragments, hence they fulfill an ecological role as green areas that contribute to the quality of life of people who visit these areas, as well as to the urban fauna.

The most striking difference between a conservation unit and an urban park is the region where it is located. A Conservation Unit is generally set in a very or slightly modified natural environment, located in rural or peri-urban zones, while urban parks are in the city grid formed by streets and buildings. Although the differences, the paths and infrastructures network often presents natural components such as planting of trees along avenues, public squares, gardens and green spaces, promoting the integration of these areas to the green corridors, allowing the flora dispersion and the fauna movement inside the urban forest.

Environmental education is also promoted in the urban parks of São Paulo City with a basis on the integration of joint actions with schools, universities and communities, permitting reconnection with nature through ecoliteracy actions.

Urban parks are essential in the construction of the System of Green Areas and SVMA has been preparing plans for parks management, following the guidelines of the Master Plan of the city for administration of these spaces, based on socioenvironmental benchmarks.

São Paulo has 38 urban parks spread around the city. The total area of urban municipal parks is 1,598.37 hectares, corresponding to 1.13% of the total area of the municipality. Of the 38 parks that exist, six were established in the last three years.

The area of the parks ranges from 1.5 hectare to 950 hectares. The frequency of public visitation to these parks is also very high, ranging from 10,000 to 16,000,000 visitors/year, depending on the park.

All the parks have a minimum infrastructure such as buildings for administration and public toilets, living areas and playground. The vast majority have sports and leisure equipment, such as multi-sports courts, soccer fields, kiosks and barbeque pits. Some have lakes, with decks and footbridges, an environmental education center, rooms for development of community activities, auditoriums, exhibition rooms, museums and restaurants.

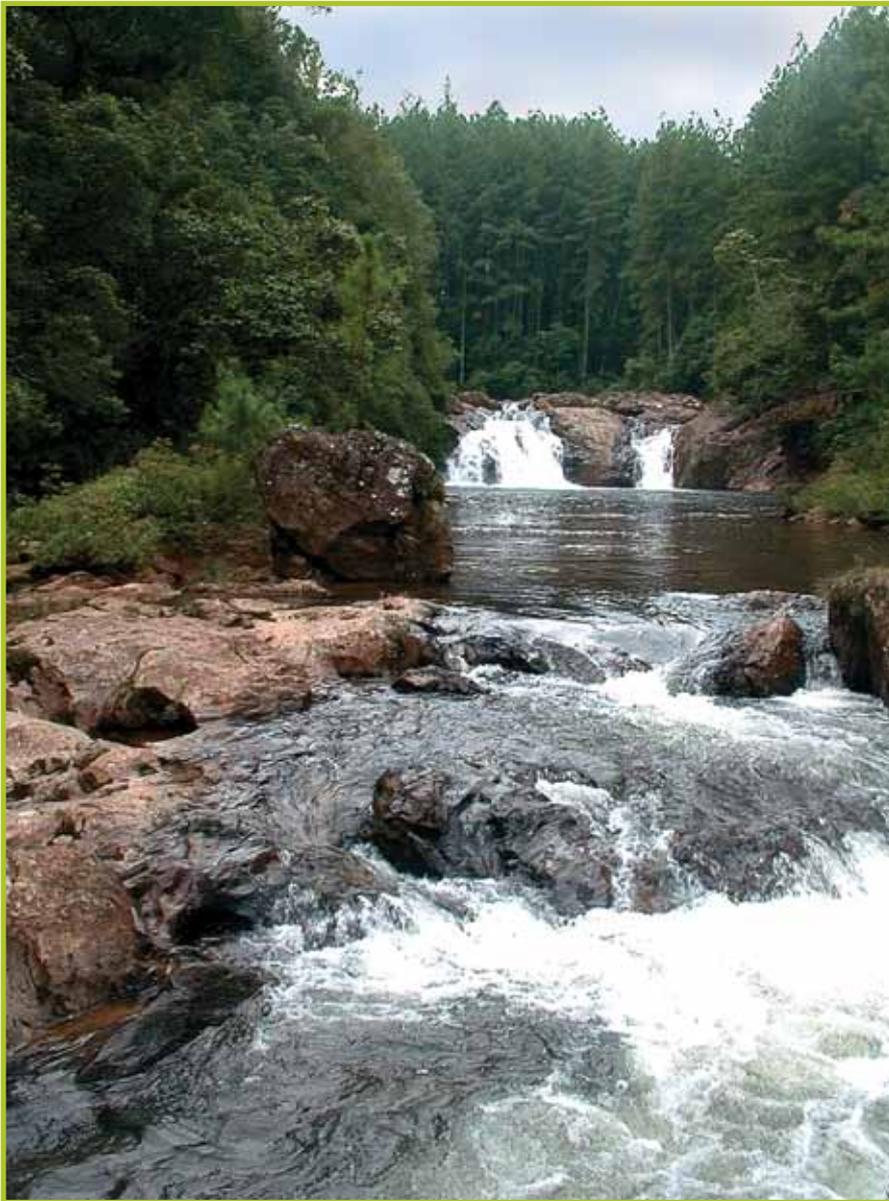
The maintenance of the parks is performed by the Technical Division of Management and Conservation of Parks and Natural Resources (DEPAVE-5), under the coordination of a park administrator, who has a support team. SVMA organizes and supports several educational and cultural activities in the parks, which encourage the participation of local communities. Park management is performed in a participative manner, through their Management Councils with Government and Civil Society representatives.

Municipal parks that deserve special emphasis are Ibirapuera (158 hectares), Anhanguera (950 hectares) and Carmo (150 hectares), respectively at the central region, and at the West and East edges of the city.

4.2. ENVIRONMENTAL PROTECTION AREA – APA

The City of São Paulo has two APAs under the management of SVMA by means of the Technical Division of Conservation Units (DEPAVE-7): Capivari-Monos and Bororé-Colônia. The APAs are classified in Category IV of IUCN – Protected Resource Management Area, as “Area that contains predominantly unmodified natural systems, managed to guarantee long-term protection and maintenance of biological diversity, although at the same time providing a sustainable flow of natural products and services to satisfy the needs of the community”. The APA differs from full protection conservation units, as the ownership of the land can be both public and private.

4. MANAGEMENT AND CONSERVATION OF GREEN AREAS



Municipality of São Paulo, inaugurating a new paradigm in the public policy for environmental protection in São Paulo: the creation of environmental protection strategies based not only on restrictions to the use of natural resources, but above all, on the involvement of the community in the management of these resources.

It occupies an area of 251 Km², equivalent to 1/6 of the municipal territory, and it is located at the south edge of the city. This APA houses expressive remnants of Atlantic Forest which is responsible for the protection of the main watercourses that supply the city.

4.2.2. APA Bororé-Colônia

Municipal APA Bororé-Colônia was created in 2006 by Municipal Law 14,162 as a Conservation Unit of Direct Use aimed at the maintenance of the rural nature and of the environmental quality of the region, through sustainable projects of economic exploration.

The APAs serve various purposes such as: protect biodiversity, water resources and remnants of the Atlantic Forest, the archeological and cultural heritage, promote the improvement of the quality of life of populations, maintain the rural nature of the region, and prevent the advance of urban occupancy into the protected area.

4.2.1. APA Capivari-Monos

Municipal APA of Capivari-Monos, created in 2001 by Municipal Law 13,136, was the first Conservation Unit of Direct Use created by the

Located in the south of the city, it covers an area of 90 Km² with remnants of the Atlantic Forest, protecting strategic water resources for the supply to the Metropolitan Region of São Paulo.

4.3. MUNICIPAL NATURAL PARK OF CRATERA DE COLÔNIA

SVMA has recently been making efforts for the establishment of natural parks, which are classified in Category II of IUCN: "Natural area of land, designed to: protect the ecological integrity of one or more ecosystems for the current and

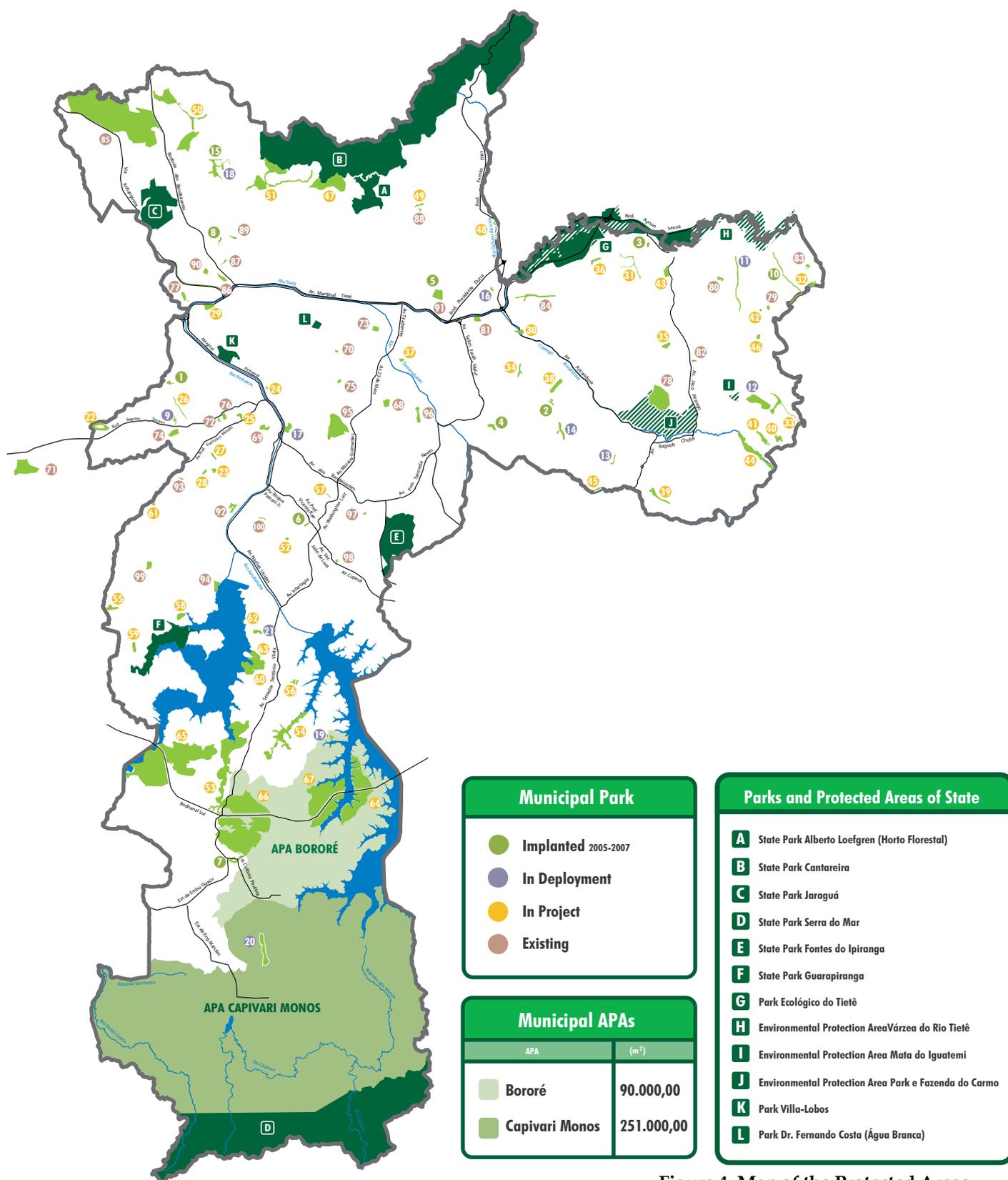


Figure 4. Map of the Protected Areas
Source: DEPAVE

4. MANAGEMENT AND CONSERVATION OF GREEN AREAS

future generations; provide a basis for spiritual, scientific, educational, recreational and visit opportunities, which should all be environmentally and culturally compatible”.

In 2006, Municipal Law 14,164 created the first Municipal Natural Park of Cratera de Colônia, with resources from an electric energy company, in compliance with a Conduct Adjustment Commitment (TAC).

The Park has an area of 53 hectares where remaining fragments of the Atlantic Forest can be observed, including hillside and flood plain ecosystems.

The Park is inside Cratera de Colônia, located in the Municipal Environmental Protection Area of Capivari-Monos, and it has a complex landscape comprised of natural peculiarities. It is a crater witness of astronomic phenomenon, possibly resulting from the impact of a celestial body, constituting a geological site of cultural and historical interest, protected by legislation.

The geomorphological situation of the crater, surrounded on the outside by hills covered by vegetation of a substantial size, results in a



microclimate and an internal drainage system. Its main watercourses and flood plain occupy expressive areas of the crater, and its typical vegetation plays an important purification role, protecting the water resources that supply the Metropolitan Region of São Paulo.

For the purpose of the preservation of its environmental heritage and of the crater, only scientific research and environmental education activities are permitted in this park.

4.4. STATE PARKS AND CONSERVATION UNITS

Besides the municipal parks and conservation units, the City of São Paulo also has other parks in its territory that are under the management of the São Paulo State Government: Natural Park of Serra da Cantareira, State Park of Serra do Mar, State Park of Jaraguá, State Park of the Fontes do Ipiranga, Ecological Park of Tietê and Ecological Park of Guarapiranga, plus another three urban parks.

These parks represent important biodiversity protection areas, forming an integral part of the System of Green Areas of the Municipality of São Paulo.



5. URBAN FORESTRY PROGRAM

The Technical Division of Plant Production (DEPAVE-2) is responsible for growing plants needed by the city's green areas. This division is divided in three sectors responsible for research, production, urban forestry and gardening. The aim of this division is to contribute on re-building the native vegetation by restoring biodiversity.

DEPAVE- 2 is responsible for coordinating the actions related to the Urban Forestry Program from the tree production to the planting among other responsibilities related to gardening in the city. These trees are used in public areas such as streets, parks, schools and hospitals. SVMA has been developing a large scale program to plant trees in the city, especially on areas with a lack of green. The program establishes a list of native species to be used, focusing on their capacity to feed and support fauna of the area.

The Cotia nursery, specialized in tree production, produces around 126 species from different collections of seeds around the city, trying to improve the biodiversity on the urban parks. The program also includes the creation of the Green Corridors, which favor the reproduction and circulation of the wild fauna in the city.

The planting of trees is done by contracted companies. From 2005 to 2008, 564,583 new trees were planted in the city.

Year	Planted
2005	37,855
2006	168,576
2007	172,988
2008	185,164
Total	564,583

Source: DEPAVE 2/SVMA

Table 2. Number of trees planted in São Paulo City.



6. MUNICIPAL HERBARIUM

The Herbarium is a section of DEPAVE that executes flora documentation in the Municipality of São Paulo, with a collection of plant samples from floristic surveys. It fulfills the demands of the SVMA for information about flora employed in environmental planning, management of parks and green areas and environmental education actions. It also renders a free-of-charge service of botanic identification to the citizens.

The Herbarium was created in 1984 to carry out the floristic survey of the municipal parks and it is headquartered in Ibirapuera Park. During the period of 1985-1988 it was responsible for the publication Know the Green Collection, with botanical roadmaps of the 17 municipal parks that existed at the time.

In 1993 the Municipal Herbarium was invited to join a floristic survey, called Phanerogamous Flora of São Paulo State Project sponsored by FAPESP, a big research foundation, with participation of several state herbariums, while it was the only one to belong to the municipal sphere. That project aimed to amplify the knowledge about the flora of the state, and then publishes several books containing botanic families' monographs. Up today 5 volumes have been published. In November of 1998 during a samples collecting to the south of the city, a new species of *Lauraceae* was found, and so described by the specialist, then named *Ocotea curucutuensis* Baitello.

This participation allowed the exchange of technical/scientific knowledge with other researchers and promoted a major transfer of material resources.



It is currently responsible for:

- Participation in technical committees aiming at the supply of data about flora and vegetation in the municipality of São Paulo to subsidize reports on environmental impact, creation of natural parks and other compensatory measures;

- Botanical identification and supply of data about vegetation aiming the selection of areas for reintroduction of the wild fauna rehabilitated into the nature;

- Botanical identification of plants samples in studies of nutritional preferences of the wild fauna, while in captivity and free life as well after releasing;

- Identification of arboreal specimens from urban and natural parks or remaining areas of Atlantic Forest of the municipality, chosen as main trees, aiming the seedling production for restoration of degraded forests, to urban forestry and ornamental purposes;

- Performance of floristic surveys for preparation of botanical roadmaps to subsidize environmental education activities;

- Up dating of the Environmental Information System of the Biota Project (www.biota.org.br);

- Courses and training programs in botanic taxonomy;

There are currently 10,900 samples included in the collection.



7. MANAGEMENT OF WILD FAUNA

The Technical Division of Veterinarian Medicine and Management of the Wild Fauna (DEPAVE-3) - Wild Fauna Division - which belongs to the Department of Parks and Green Areas (DEPAVE) takes care of the wild fauna from the Municipality of São Paulo and also from the Metropolitan Region of São Paulo. The service, implemented in 1991, was officially created in 1993 by Municipal Law 11,426. The main headquarters are in the Ibirapuera Park.



In 1996, its structure was enlarged with the deployment of the Center for Rehabilitation of Wild Animals (CRAS) and of the Center for Triage of Wild Animals (CETAS), both installed in the Anhanguera Park - Municipal Law 12,055.

The Wild Fauna Division provides veterinary medical care with biological supervision to wild animals that are victims of urban pressure or seized in illegal animal trade. It also carries out continuous fauna mapping work in the municipal parks and other protected areas, generating the Fauna Inventory of the Municipality of São Paulo. It is the only structure existing in the country in the municipal sphere that performs the management of wild fauna from its territory. It is currently responsible for:

- Clinical and surgical veterinary

- medical care, with laboratory support to injured animals in the city;
- Management of animals from the group of the municipal parks;
- Environmental and epidemiological surveillance in the municipal parks;
- Rehabilitation of fauna for reintroduction into the wild;
- Allocation of the wild animals received, for release or captivity;
- Faunistic survey in the municipal parks and significant green areas;
- Ringing of birds for monitoring of releases;
- Management of data about the fauna received;
- Production of georeferenced maps of the fauna inventory;
- Preparation of reports on environmental impact;
- Development of informative campaigns;
- Monitored technical visits, courses and publications;
- Responses to inquiries and orientation about incidents with the fauna.

The Wild Fauna Division has 59 employees, with: 26 upper level qualified employees (veterinarians and biologists), 13 support and 20 operating employees (handlers and cleaning assistants). Besides the permanent staff, it also offers



7. MANAGEMENT OF WILD FAUNA

remunerated internships to 14 students from the area of veterinary medicine and biology, covering a period of up to two years.

Care for fauna

One of the main activities of the Wild Fauna Division is the rehabilitation of wild fauna intended for their reintroduction in the wild, with the adoption of technical release criteria.

The importance of this work and the success of the behaviors adopted can be proved by the numbers. Between 1992 and 2006, the division received 24,692 animals, of 333 species, of which 12,579 were released in areas of origin or occurrence. In other words, 51% of the animals cared for were reintroduced in the natural environment. The animals that do not fulfill release requirements are sent to zoos and other legalized institutions.

From its creation until of December 2008 it has cared for 35,943 animals.

To this effect, the activities of the medical and surgical clinic are essential. All the animals received are recorded, identified, marked, weighed and receive veterinary medical care,

and biological materials are collected for laboratory tests. All the information is recorded in an individual file.

The animals are handled according to their biological specificities and are hospitalized until their final destination is allocated (release or captivity). Animals that die are submitted to necropsies and the biological material is sent to museums, when there is interest in receipt.

The laboratory tests carried out are intended to diagnose diseases, including those that are unapparent such as rabies, leptospirosis, toxoplasmosis and hantaviriosis, through partnerships with research institutes and universities. The objective is to obtain epidemiological data, aiming both at the health of the animals and the maintenance of public health, as the majority of animals seen lives in the urban environment, close to domestic animals and to the human population.

With a basis on the biological materials several surveys are carried out at institutes and universities that work with the diagnosis and control of parasitism and infectious diseases in the State of São Paulo, culminating in the publication of several scientific articles.



The fauna information system (SISFAUNA) that has been operating since 1993 stores all the data of received animals. That tool permits to control over the movement of animals, for purposes of management of the service and scientific research relating to wild fauna. This database contributed toward the creation of wild fauna indicators included in the GEO City of São Paulo, of 2004, driven by Project GEO - Global Environment Outlook of UNEP.

In relation to the release of birds, 1998 marked the start



of the bird-banding program of the National Center of Research for the Conservation of Wild Birds – CEMAVE. In this manner, it was possible to optimize the monitoring of releases for obtainment of bird survival data and to evaluate the rate of success of reintroductions in the natural environment.

Birds of known origin are reintroduced at the site or close to where they were rescued. Others, originating from seizures and prepared for reintroduction in the wild, and that do not present an origin, are released in areas of natural occurrence of the species, according to the fauna inventory lists and bibliographical consultations.

3,854 birds were banded and released between October 1998 and May 2005. The data recovery rate was 2.2%, of which 52.4% were birds of prey.

Other monitoring systems, such as the application of tattoos and microchips, are adopted for other classes of animals (mammals, reptiles and amphibians).

Animals from the native wild, exotic and domestic fauna, belonging to the groups of the municipal parks receive care geared towards their biological, nutritional and reproductive needs, with biological supervision and actions focused on control of diseases transmitted by animals.

8. RESULTS

8.1. FLORA DESCRIPTION

The production of lists of vascular plants (*Pteridophyta*, *Gymnospermae* and *Angiospermae*) from each area was performed with a basis on the consultation of card indexes from the Municipal Herbarium, which are updated as the materials are identified by the actual team or by specialists. For this report, the data from the card indexes of the selected areas was compared in terms of the species nomenclatural aspects with the database of Missouri Botanical Garden (www.tropicos.org).

Group	N° familie	N° genus	N° species
Angiosperms	163	815	1788
Gymnosperms	7	16	30
Pteridophytes	19	36	70
Bryophytes	15	16	19
Liquens	1	3	3
Total	202	886	1909

Source: Municipal Herbarium

Table 3: Number of plant families, genera and species, collected in the Municipality of São Paulo, distributed by group, belonging to the collection of the Municipal Herbarium.

8.2. FAUNA DESCRIPTION AND ENDANGERED SPECIES

Started in 1993, aiming to back up the management of fauna in the territory of the city, the Fauna Inventory of the Municipality of São Paulo had its last update published in June 2006. The occurrence of 435 animal species was discovered in 48 areas surveyed, with 73 species endemic to the Atlantic Forest, 25 species endangered and 14 probably endangered (according to IUCN, CITES and national and state official lists).

The fauna inventory, the pioneer of this kind in the country performed by the Municipal Government, contains various contributions: it supports the release of animals performed by the Wild Fauna Division; subsidizes the preparation of studies and reports on environmental impact; steers projects for management of green areas of the municipality; generates environmental indicators; orients public policies; is a source for publications and contributes to the cataloguing of the biodiversity of São Paulo State. Many animals' species of São Paulo City are included

in national and international lists according to their different threatened degrees. The framing of the species in the list is represented by numbers, as follows:

1. Threatened Species in the State of São Paulo (SÃO PAULO, 1998).

2. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Appendix II (CITES, 2006).

3. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Appendix I (CITES, 2006).

4. World Red List of World Conservation Union (IUCN, 2004).

5. Endangered Brazilian Fauna List (BRASIL, 2003).

One third of the species of birds registered is associated exclusively with forested areas. There are records of endangered species, like the

Solitary Tinamou (*Tinamus solitarius*)², the Dusky-Legged Guan (*Penelope obscura*)¹ in forest remnants, the White-Necked Hawk (*Leucopternis lacernulatus*)^{1,2} and of the Bare-throated Bellbird (*Procnias nudicollis*)¹ in central and extremely urbanized areas of the city.

According to Develey and Endrigo (2004), the forest reserves surroundings the city hide a large portion of the original fauna of the city, and explain the potential occurrence of some typically forest birds in the city. In the Municipality of São Paulo, the State Park of Cantareira located to the north of the city, represents one of the largest native tropical forests in urban areas in the world. Graham (1991) listed 215 bird species in Serra da Cantareira. Adding subsequent records, the number reaches 250 species. In relation to primates, a preliminary study carried out in 1981 estimated an average population of 4,369 Howler Monkeys (*Alouatta clamitans*)^{1,2} in Cantareira Park.

The woods on the shores of Billings and Guarapiranga reservoirs are linked to the forests that exist at the top of Serra do Mar, to the south of the municipality, which contain an extremely rich and diversified birds, with many endangered species endemic to the Atlantic Forest.

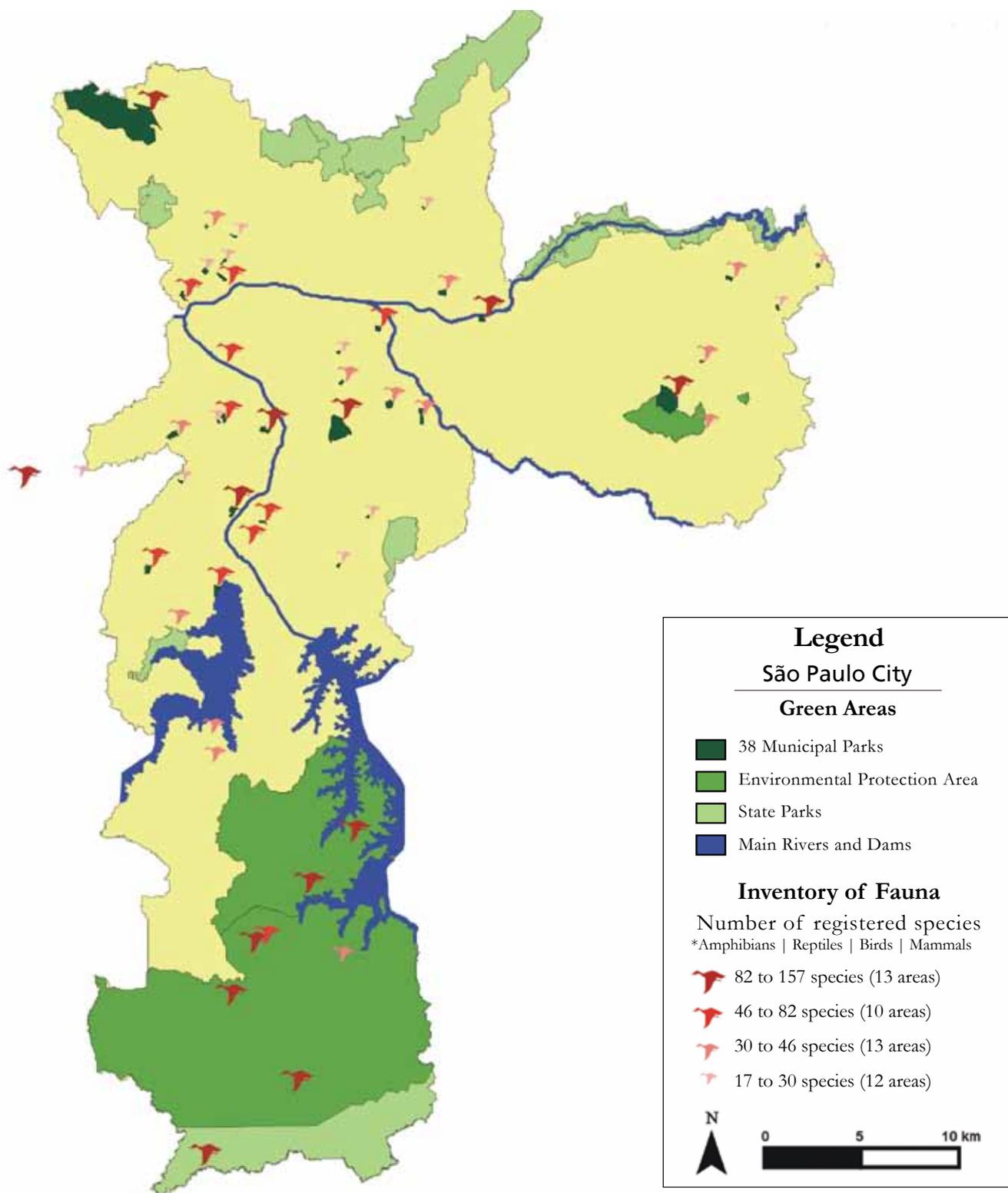


Figure 5. Map of the Location of the Inventoried Fauna
Source: DEPAVE-3

8. RESULTS

Some endangered species in the world⁴ were only found in this region, such as the Brown Tanager (*Orchesticus abeillei*) and the Hooded Berryeater (*Carpornis cucullata*)¹.

In the State Park of Serra do Mar (Núcleo Curucutu) endangered species such as the Blue-Bellied Parrot (*Triclaria malachitacea*)², and White-Bearded (*Biatas nigropectus*), a species endemic to the Atlantic Forest¹, were also recorded. At Curucutu visitors can find the *Paratelmatoobius cardosoi* frog, considered a species insufficiently known in the world⁴, the Puma (*Puma concolor*)^{1,2,4,5}, and the Yagouarondi (*Puma yagouarondi*)^{1,2,4,5} as well as the Tapir (*Tapirus terrestris*)².

Serra da Cantareira and the State Park of Serra do Mar (Núcleo Curucutu) are areas designated by the non-governmental organization BirdLife as Important Bird Areas – IBAs. Birds are effective biodiversity indicators of other groups of plants and animals. Their distribution has been used to identify areas of global importance not only to birds, but also to other forms of life.

In the field, species are identified by means of observation with the help of binoculars, records of vocalizations, vestiges and collections. During the thirteen years of study it has been proved possible to record 435 species of wild animals, with 2 from the Malacostraca Class (crustaceans), 4 of the Arachnidea Class (spiders), 9 from the Osteichthyes Class (fish), 40 from the Amphibia Class (frogs and toads), 37 from the Reptilia Class (snakes, lizards, tortoises and turtles), 285 from the Bird Class and 58 of the Mammalia Class (mammals).

8.2.1. Mammals

In the Municipality of São Paulo 58 mammal species were recorded, consisting of: 11 marsupials, 1 sloth, 2 armadillos, 5 primates, 14 bats, 1 canine, 3 felines, 3 mustelines, 2 procyonides, 1 cervid, 1 tapir, and 14 rodents.

Eight species recorded in the City of São Paulo belong to the group of endangered mammals in the State of São Paulo. These include the Black-Fronted Titi (*Callicebus nigrifrons*), Southern Brown Howler



Monkey (*Alouatta clamitans*)^{1,2}, Oncilla (*Leopardus tigrinus*)^{1,3,4}, Puma (*Puma concolor*)^{1,2,4,5} and New World River Otter (*Lontra longicaudis*)¹. Eight species are endemic and 12 are on the list of the CITES.

8.2.2. Birds

Identified bird species amounted to 285 belonging to 233 genera, 53 families and 19 orders. Of these, 44 species have distribution restricted to the biome of the Atlantic Forest, with the rate of endemism corresponding to 15% of the total species.

A further nineteen species recorded for the municipality only move around on the South American continent. The Aplomado Falcon (*Falco femoralis*) is one of them, and the Swallow Tanager (*Tersina viridis*) another, observed during the summer.

In relation to the degree of endangerment, 79 species are classified in at least one category of endangerment according to the lists compiled by the IUCN, and by the São Paulo State Secretariat for the Environment.



In relation to displacement, 35 species have migratory behavior, with 7 species from the North American Continent, such as the Peregrine Falcon (*Falco peregrinus*)². Eight species are migratory from the South American Continent, observed during the winter, such as the Vermilion Flycatcher (*Pyrocephalus rubinus*) and the Eastern Kingbird (*Tyrannus savannah*).

8.2.3. Reptiles

Thirty-seven species of reptiles were observed. These include 22 species of snakes, of which 2 are poisons, the Lancehead (*Bothrops jararaca*) and the South American Rattlesnake (*Crotalus terrificus*). In the places studied, the most common snake was the



Sleep Sankena (*Sibynomorphus mikanii*).

The reptiles also include 4 species of terrapin, 2 of caiman, 1 amphisbaenid, and 8 lizards. We can emphasize the Broad-Snouted Spectacled Caiman (*Caiman latirostris*)¹.

The turtles include the South American Snake-Necked Turtle (*Hydromedusa tectifera*) which is probably endangered¹. The Red-Eared Slider (*Trachemys scripta elegans*) is an exotic species introduced into Brazil, and can be found in rivers and lakes of public parks.

The Red-Footed Tortoise (*Geochelone carbonaria*) from northern Brazil is one of the species that frequently arrives at the Wild Fauna Division, mainly from illegal trade.

8.2.4. Amphibians

Brazil is the country with the greatest diversity of amphibians in the world, with 776 species. Roughly half of these species are concentrated in the Atlantic Forest, which is one of the most endangered biomes on the planet.

In São Paulo, 40 species of amphibians were observed, while more than half of these are endemic to the Atlantic Forest, and restricted to the environment of forests. The Glass Frog (*Hyalinobatrachium uranoscopum*)¹ and the another frog known as *Paratelmatobius cardosoi*, present on the IUCN list, deserve special emphasis.



9. THREATS TO BIODIVERSITY

The loss of biodiversity in the Municipality of São Paulo has a background that is concomitant with the history of occupancy of the Metropolitan Region. Nowadays, the urban expansion occupies the regions covered by Atlantic Forest and also poses a risk to the freshwater springs in the city.

Due to the loss of natural habitat and closeness of urbanized areas, some animals are victims of running over, electrocution, acts of vandalism and others.

Due to the urbanization pressure, native vegetation's fragments end up isolated, consequently suffering from the border effect and susceptibility to fires. Unconnected, the plants and animals gene flow among these fragments is hampered threatening the species survival.

The expansion of the city towards the north and south also causes an impact on the fauna in general. As an example, data from the Wild Fauna Division reveals that out of a total 138 Howler Monkeys (*Alouatta clamitans*) received for treatment in the period from

January 1992 to January 2006, 61.6% came from the northern region, while 27.5% came from the southern region. Many of these animals suffered injuries caused by electrocution on high voltage wires, attacks by dogs and road accidents, besides the arrival of young orphans (SUMMA et al., 2006).

The management of this species gave rise to the Experimental Howler Monkey Reintroduction Program. The importance of this species is due to the fact that it is a primate endemic to the Atlantic Forest and endangered in the State of São Paulo. So far the Wild Fauna Division has already reintroduced 10 groups of howler monkeys, with 27 animals, in 6 different areas in the southern part of the city. According to reports, 2 animals have already been born in the wild.

In 2006 FEMA approved the Howler Monkey Management and Conservation Project in the Metropolitan Region of São Paulo, refining the reintroduction program.



The first release of a Howler Monkey family with radio transmitters was carried out in February 2008, allocating the monitoring of their movements inside the forest, recording behavior, studying food habits and defining the area required for each reintroduced family. The post-release monitoring data provides support to the development of new methodologies that validate the procedures adopted and evidence the success of management and reintroduction.

In the areas chosen for the release of the howler monkeys, floristic and phytosociological surveys are conducted in partnership with the Municipal Herbarium to help in the

support capacity calculation of the chosen areas. Furthermore, the local population has been made aware of the biodiversity preservation importance and has become partners, furnishing reports about the presence of the animals, besides expressing interest in other species.



9.1. ILLEGAL TRADE OF WILD ANIMALS

The illegal trade of animals in Brazil removes around 38 million animals from nature, bringing in around 2 billion dollars per year. The majority of animals seized in the city of São Paulo come from the Northern, Midwest and mainly Northeastern regions of the country (RENCTAS, 2001).

The wild animals illegal trade threatens several wild species, particularly songbirds such as the Saffron Finch (*Sicalis flaveola*) and various species of *Sporophila*, like the Double-Collared Seedeater and Lined-Seedeater, Red-Owled Cardinal (*Paroaria dominicana*), and the Red-Crested Cardinal (*Paroaria coronata*), possibly threatened². All the Psittaciformes (macaws, parrots and parakeets), and all the Primates, especially the Marmosets (*Callithrix sp*), and the Brown Capuchins (*Cebus sp*) are endangered², due to illegal trade and habitat destruction. Reptiles arrive at the Wild Fauna Division in a

large number, mainly tortoises and turtles after being seized by environmental agents on roads, in depots and street fairs to fuel illegal trade.

9.2. INVASIVE SPECIES AND UNDESIRABLE ANIMALS

The fauna and the flora existing in the city are affected by countless ecological and historical factors that reflect on the decrease of species that existed prior to the urbanization processes, aggravated by the introduction of non-native species.

At the same time as urbanization causes several changes in the landscape and climate, it also creates new small ecosystems that favor the appearance of species that are not always welcome for coexistence with humans such as insects and rats.

In this manner, cities can be considered complex and dynamic ecological systems that deserve attention and care, as the species that constitute them can both bring problems and economic gain, landscaping and affective importance. This becomes easier when the composition, abundance and distribution of the flora and fauna of the city is known, allowing the creation of adequate public policies for the management of biodiversity.

The São Paulo City fauna inventory permits some species identification that were introduced from other state or country regions. The monitoring of these species is still performed only with records of occurrences, but steps for the management of these species can be implemented by the Technical Section of Preventive Veterinary Medicine, which exists in the Wild Fauna Division structure.



10. MANAGEMENT OF BIODIVERSITY

10.1. MASTER PLAN OF THE CITY

Since 2002 the São Paulo City has had a new Strategic Master Plan, published through Municipal Law 13,430/02. The Master Plan constitutes the legal document that regulates policies for urban, economic and social development, and it is the land use regulatory framework of the city, either in areas already urbanized or in free areas, where are biodiversity reserves essential for the metropolis sustainability.

The major progress of this law was the incorporation of the environmental dimension in addressing urban policies of the city, traditionally characterized by a predominantly urban view. The municipal territory is now divided into two Macrozones: Environmental Protection and Structuring and Urban Qualification.

The idea presented in the Environmental Protection Macrozone definition, which corresponds to around 1/3 of São Paulo territory, is the need to preserve, conserve or recover the natural environment, guarantee-

ing the rendering of environmental services that are essential for the city environmental quality. The deployment of residential uses and the development of any urban activity in this Macrozone should be based on this principle.

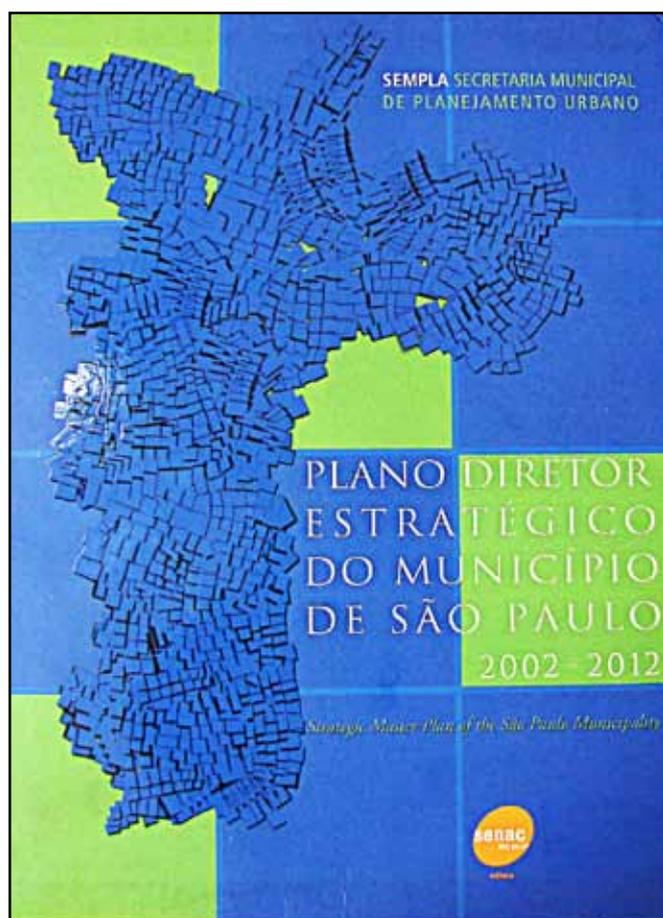
One Watercourses Environmental Recovery Program was created as a new structuring element of the city's landscape. The riparian parks establishment constitutes the program main intervention, incorporating the structural water network formed by rivers and streams. The interventions will be done at streams located in extensively urbanized areas, with significant deterioration of the water quality, riparian forest and biodiversity, characterized as an action of environmental and urban recovery.

10.2. FRESH WATER PROTECTION PROGRAM

The Fresh Water Protection Program consists of a set of measures that the São Paulo City Hall has been adopting to control, recover and urbanize the city freshwater spring areas and its surroundings, in partnership with the São Paulo State Government.

It is a program that provides for a series of integrated actions to implement measures of occupancy control and irregular urban expansion in a city water producing area where only Guarapiranga Dam supplies 14 thousand liters of water per second and provides water to 25% of the population of Greater São Paulo. The actions is under the coordination of the Municipal Government Secretariat and relies on the participation of SVMA, and of various agencies of the São Paulo State Government.

Some of the actions that are being implemented are: refinement of inspection and of control in the occupancy of the region, freezing of areas with irregular occupancy, mapping and registration of areas, removals of irregular housing, urbanization of shantytowns and neighborhoods, land ownership legalization, cleaning and collection of solid waste, revitalization of 22 streams, region economic and social development promotion. All the actions are widely discussed and divulged in the communities and they are geared toward compliance with the legislation of





Carmo Natural Park, with an area of 434 hectares, is in progress at the city east side.

10.3.3. Program for Implementation of Riparian Parks

The creation of riparian parks is part of the Watercourses Environmental Recovery Program and constitutes urban and environmental interventions aiming at the conservation and recovery of watercourses and respective bank protection belts.

As main contributions, riparian parks promote the progressive expansion of permeable green areas, as well as the integration of the city different

freshwater spring protection areas, the richest in biodiversity from the city of São Paulo.

significant vegetation areas, assuming the function of urban ecological corridors.

10.3. PROGRAMS AND PROJECTS

SVMA is implementing several new projects, both with its own resources and in partnership with other government agencies or national and international entities, with emphasis on:

10.3.1. New Urban Parks

To the effect of increasing vegetal cover, 21 new urban parks are currently being established and will be officially opened or will have their works started by the end of 2008.

Meetings are held with technical experts from the borough councils involved and from the population living in the vicinity of the park for the development of the projects.

10.3.2. New Natural Parks

The implementation of another five natural parks is scheduled for conclusion by the end of 2008. In the Southern part of the city, four of them will go to totalize an area of 1,300 hectares, while the implementation of

	Zone	Implementation	Area*
1	South	Alto da Boa Vista	3,10
2	East	Benemérito Brás	2,00
3	West	COHAB Raposo	19,50
4	East	Consciência Negra	10,78
5	East	Da Ciência	17,96
6	East	Das Águas	7,63
7	East	Das Flores	2,69
8	South	Guanhembú	5,00
9	South	Jacques Cousteau	6,73
10	South	Jardim Herculano	7,53
11	East	Jardim Primavera	12,18
12	East	Jardim Sapopemba	5,33
13	East	Lajeado	3,60
14	West	Mário Pimenta de Camargo	13,40
15	South	M'Boi Mirim	18,98
16	North	Pinheirinho D'água	25,03
17	North	Sena	2,17
18	South	Shangrilá	7,56
19	East	Ten. Brigadeiro Faria Lima	5,03
20	East	Vila do Rodeio	61,32
21	East	Vila Silvia	5,07
			242,58

*hectares Source: DEPAVE-1

Table 4: List of new urban parks under implementation in the city of São Paulo

10. MANAGEMENT OF BIODIVERSITY

The riparian parks should include the area of floodplain contained in the geotechnical map of the Municipality of São Paulo, respecting at least the “*non aedificandi*” strip of 15 meters in width on each side of the running water, in the Macrozone of Structuring and Urban Qualification and 30 meters in the Macrozone of Environmental Protection.

SVMA implements the Program through COPLAN, and 36 riparian parks are scheduled for implementation by 2008 totalizing an area of 856.5 hectares.

One of the main SVMA's purposes is to attain the goal of 100 parks, from different categories, in the city. Approximately 531 ha of public and private areas with implementation potential are currently being analyzed.

	Zone	Name	Area*	Year
1	North	Ribeirão Perus	171,2	2007
2	North	Bispo	126,1	2007
3	North	Cabuçu de Cima	1,0	2008
4	North	Canivete/Bananal	49,6	2008
5	North	Fogo	3,0	2007
6	South	Cocaia	95,0	2007
7	South	Caulim	249,5	2007
8	South	Feitiço da Vila	2,8	2007
9	South	Castelo/Dutra	12,0	2008
10	South	Parelheiros	3,0	2007
11	South	Jaboticabal	4,7	2007
12	South	Jaguarezinho	3,0	2007
13	South	São José	2,4	2007
14	South	Praia da Lola	0,5	2007
15	South	Guaravirutuba/Herculano	9,0	2007
16	South	Invernada	0,4	2007
17	South	Itapaiúna	3,0	2007
18	East	Mongaguá	12,0	2008
19	East	Rio Verde	5,0	2008
20	East	Itaim	10,0	2007
21	East	Ipiranguinha	1,0	Finished
22	East	Cipoaba	5,0	2007
23	East	Rapadura	5,5	2007
24	East	Guaratiba	3,0	2007
25	East	Água Vermelha	8,0	2007
26	East	Rodeio	14,0	2008
27	East	Aricanduva (nascente)	18,0	2008
28	East	Machados	15,0	2008
29	East	Aricanduva	4,0	2007
30	West	Sapé	3,0	2007
31	West	Pires	3,0	2007
32	West	Esmeralda (Água Podre)	4,0	2008
33	West	Caxingui	2,5	2008
34	West	Itararé	3,2	2008
35	West	Corveta Camapuã	3,7	2008
36	West	Ivar	0,4	2008
			856,5	

*hectares Source: Coplan

Besides the funds from SVMA itself, funds from the carbon credits sale of and environmental compensation obligations payment due to new ventures implementation in the city are also being utilized.

10.3.4. Green and Healthy Environments Project – PAVS

PAVS is an unprecedented project for the education and mobilization of agents of the “Family Health Program” in environmental topics, combining environmental preservation with the furtherance of health and with the social development of the community. The Project constitutes an integrated action of three municipal secretariats of São Paulo City and has the support of the Health Ministry and of the United Nations Environmental Program -UNEP. The amount of money that is being invested in this project is approximately US\$ 4,500,000.00.

A total of 5,700 community health agents and social protection agents from all the regions of the city are being coached simultaneously by groups of 1,800 Pedagogic Coordinators

Table 5. List of Linear Parks, distributed by region of the city with the respective areas, and year scheduled for start of implementation.



from the Education Municipal Secretariat and 82 Instructors, specially selected and trained for this purpose.

The objective of the project is to strengthen the work of local agents to enable them to identify and better understand the environmental troubles of their neighborhood, and their impact on the daily routine of families, mobilizing the community for the attainment of a greener and healthier environment. Six strategic topics are worked on: garbage; water and energy; biodiversity; healthy coexistence and diseases transmitted by animals; responsible consumption; culture of peace and non-violence.

10.3.5. Urban Agriculture Program

Food security is a modern issue. The environmental crisis, especially climatic changes and collapse in the use of non-renewable energies, presents the food local production as a strategy to be considered.

The Urban Agriculture Program is part of a strategy for sustainable local development combining training in agroecology, environmental education and economic opportunity, besides social reinclusion.

The Center of Reference of Urban Agriculture was constructed in the southern suburbs of the city, due to the predominantly rural characteristics and the existence of APAs in the region. The program involves the participation of rural producers and the community, and aims to transform them into multipliers of agroecological production experiences, besides generating jobs and income.

However, the development of partnership and the collective vegetable gardens in public and private areas, especially at schools, have been worked on all regions of the city. This action increases local biodiversity, besides allowing the rational use of land and reconnection with nature, a pathway for a better environmental understanding.

10. MANAGEMENT OF BIODIVERSITY

The methodology used in the program is divided into four lines of activity: sensitization the local community, qualification of those involved for farming and efficient and sustainable agroecological management, coordinating the producers into the process of social transformation for a solidary economics; and monitoring of the multiplication of knowledge generated.

10.3.6. New Veterinary Hospital and Plant Nursery

The construction of a new veterinary hospital, the Center for Management and Preservation of Wild Fauna, is currently being implemented in Anhanguera Park, west side of the city, to better satisfy the demand of the Fauna Division. Part of the resources for the deployment of the project originates from environmental compensation

for the construction of a segment of high-speed highway around the city – Metropolitan Ring Road, a work of the São Paulo State Government.

Furthermore, as compensation for the execution and operation of the road, the structure of the Technical Division of Plant Productions is being expanded, with the construction of another plant nursery at Anhanguera Park.

These compensations are decurrent of the licensing of workmanships that have negative impacts for the environment. The licensing process takes place in the state sphere, after discussions in the municipal scope.

The other part of the resources for the projects deployment comes from the carbon credits sale originating from the burning of methane gas, in a sanitary landfill located close to Anhanguera Park.



Figure 6. Center for Management and Preservation of Wild Fauna

11. VALUATION

The biodiversity value is a controversial subject in literature, but in spite of the difficulties in quantifying nature values, there are various national and international academic initiatives that seek to determine it.

Due to the complexity of the definition of potential values arising from bioprospecting, scholars of the topic have resorted to techniques that indicate the value attributed to the beneficiaries of the ecosystems, conservation of species or of services derived from nature.

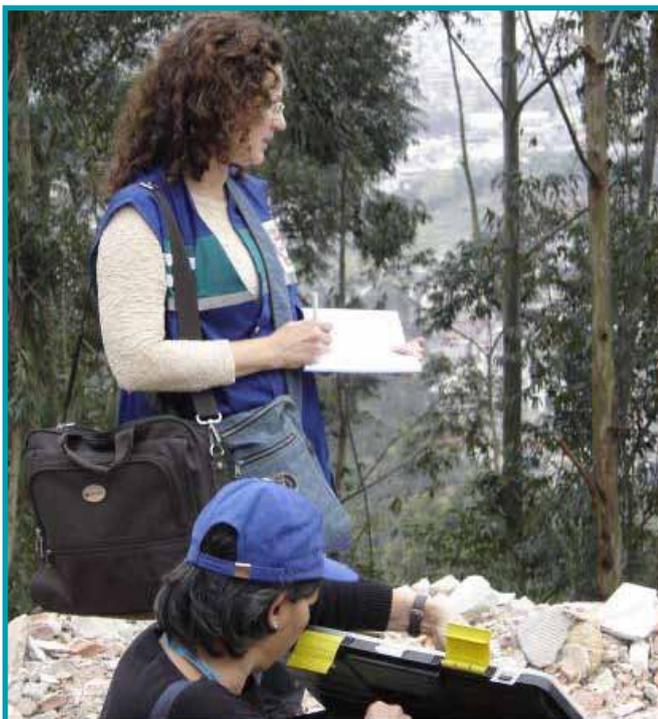
The Contingent Valuation Method (CVM) is one of the few widely applied tools that, in the absence of markets, makes use of the so-called “markets or recurrence” to estimate how much consumers would be willing to pay in monetary terms to maintain the flows of environmental assets and services. These methods have been applied to define the “existence value” attributed to tropical ecosystems and species (MAY et al., 1999).

In relation to the wild fauna, Federal Law 9,605/98, which alludes to environmental crimes, defines

wild fauna as that formed by “native or migratory species, or species that have all or part of their life cycle in the Brazilian territory”. It also describes acts against fauna and establishes penalties of detention and fines, with the seizure of the animals, performed by environmental agents and police forces, belonging to the state and federal institutions.

Biodiversity valuation calculation studies take into consideration the fines applicable in offenses against wild animals. The Decree that regulates the above mentioned Law of Environmental Crimes specifies the sanctions applicable to injurious conducts against fauna and according to the severity of the offense the fines can be very high, particularly if the animal appears on the Official List of Endangered Brazilian Fauna or in CITES. The amount can range from US\$ 210.00 to US\$ 4,200.00.

SVMA, through its Environmental Control Agents, employs this legal instrument to repress crimes committed against fauna and the environment.



12. INTEGRATION

The São Paulo City Hall, by means of SVMA, participates in projects and it is a partner of national and international institutions, as it is the case of the Reserve of the Biosphere Reserve Council from the São Paulo City Green Belt, entirely included in the Atlantic Forest Biosphere Reserve, which was officially recognized by UNESCO in 1993.

SVMA takes part in the Friends of the Amazon City Program, which is a Greenpeace program designed to create municipal legislation that eliminates timber of illegal origin, and obtained from criminal deforestations, from all municipal purchases.

In 1998, the Municipal Herbarium was registered with the acronym "PMSP" in Index Herbariorum, a publication of The New York Botanical Garden with data from selected herbariums from all over the world. In 2004, it was accredited at the Council for Management of the Genetic Patrimony (CGEN), of the Ministry of the Environment as a trustee institution of components of the genetic patrimony.

The Wild Fauna Division maintains communication with the National and International Committees of endangered species, coordinated in Brazil by IBAMA, to designate the destination of animals that have received care such as: Lion Tamarin (*Leontopithecus sp*), Tufted Capuchin Monkey (*Cebus apella*), Spix's Macaw (*Cyanopsitta spixii*), Lear's Macaw (*Anodorhynchus leari*) and the Golden Conure (*Aratinga guarouba*).



Partners

In the technical area, a large part of the results of the work attributed to the Municipal Herbarium and to the Wild Fauna Division is due to the various partnerships that exist in the municipal, state and federal spheres. Several research institutions and universities collaborate in a supplementary manner, toward the work performance that mainly requires specialized laboratories and technical experts.

For example, we can mention highly respected institutions in the country such as Adolfo Lutz Institute, Pasteur Institute, and University of São Paulo (USP) through their Faculties, Museums and Institutes. Likewise, SVMA collaborates by delivering materials to the researchers from these institutions. It also maintains a partnership with institutions and programs managed by institutions such as State Research Support Foundation (FAPESP), responsible for the Biota Program, designed to catalogue and integrate information about the biodiversity of the São Paulo State.



13. PUBLIC PARTICIPATION AND AWARENESS

Faced with the assumption that a decentralized State cannot do without channels of participation, the Brazilian Constitution of 1988 regulated popular participation as an element in the political process of the country.

Various mechanisms were introduced, allowing social representatives sectors to have access to the government and to make decisions about some public problems, indicating that the social dynamics can exercise significant influence on the experiences of formulation and implementation of local policies.

13.1. MANAGEMENT COUNCILS

The management councils configure a strategy of social control and appear as a form of political decentralization, with the objective of boosting the capacity of action of the government and bringing citizens closer to the administrative engine, favoring access by the population to political decision-making spaces. Hence management councils are, in constitutional terms, instruments of expression, representation and popular participation.

Management is based on a participative methodological approach. Decisions are agreed on collectively, privileging permanent dialogue between technical knowledge and popular knowledge.

To guarantee the participative and democratic management of the population in urban parks and in conservation units, SVMA is implementing the creation of management councils to orient their management.

13.1.1 Management Councils of Urban Parks

In the year 2003, Municipal Law 15,539/03 created the Management Councils of Municipal Parks which expand the participation of the population and of public administration, having their seat in several other municipal secretariats besides SVMA, such as: Culture, Sports, Leisure and Recreation and Health.

The Councils of the Parks are of tripartite composition and are formed by a minimum of 18 members and their respective substitutes, whereas their representatives are responsible for coordinating the population from the vicinity of the parks for the organization of debates and proposals referring to environmental matters.

In São Paulo, there are 22 Management Councils of municipal parks, formed by representatives of users, civil entities, representatives of park workers, and representatives of the government.

The Councils strive to find out the parks problems to discuss proposals and to submit them to which this council is directly linked to the SVMA.

The promotion of instrumentalization developed through courses and workshops, working with environmental issues and socioenvironmental issues, has facilitated the dialogue between and among the peers of these councils and increased the involvement of civil society in matters vital to the city existence

13.1.2. Management Councils of APAs

The Management Council of APA Capivari-Monos was created by Municipal Law 13,136 and its first management took up office in the middle of 2002.

The Management Council of APA Bororé-Colônia took up its duties in September 2006. Comprised of the government and civil society on the same level, there are 24 incumbent representatives and 24 alternate members. Government agencies and sectors/segments of civil society are represented in the Council.

In the Management Council of APA Capivari-Monos, the indigenous community is represented by the Guarani community.

13.2. INDIGENOUS COMMUNITIES

There are three Guarani indigenous villages inside the perimeter of APA Capivari-Monos: Barragem, Krucutu and Rio Branco, all predominantly

13. PUBLIC PARTICIPATION AND AWARENESS



formed by members of the M'bya Subgroup, the migratory process of which explains the presence of these groups in Serra do Mar.

The Guarani people has its history mixed up with the formation of São Paulo City, as the area traditionally inhabited by indigenous groups currently corresponds to the downtown region of the city. Living in Latin America for hundreds of years, the Guarani bravely resist in the struggle for the maintenance of their traditional customs allied with the biodiversity preservation.

The restriction of the territory and the growth of the population in remaining areas forced these people used to survive in small areas that rule out the possibility of the maintenance of activities that require exclusively natural resources, such as traditional agriculture, traditional handicrafts, and the hunting of wild animals that guaranteed the subsistence of families.

The Guarani People seek to develop projects aiming to contribute toward environmental recovery in the re-

gion of the villages, particularly concerning the maintenance of the native forest, promotion of culture, historic and artistic heritage of the indigenous people. They also seek to ensure the preservation of the natural resources traditionally used by these people for the survival of their families and reinforcement of their traditions

There are 800 people living in Barragem Village. This village has good infrastructure, counting on a state school, a Unified Center of Education of the City hall, a pharmacy, illumination in the residences that are served by extracted water of wells for electric bombs, beyond a private house to the rituals of cure and prophecies.

There are 130 Indians living in Krucutu Village. This village has schools, a health care clinic, lighting and a prayer house.

In the Village of Rio Branco lives approximately 160 individuals. It is the oldest village settlement located in Serra do Mar. Although it has a school and light-



ing, it is the most precarious in terms of its inhabitant's life quality.

The livelihood of the Guaranis in the Municipality of São Paulo is guaranteed by the sale of handicrafts in the center of town, subsistence agriculture that does not provide a good income, sporadic fishing and also donations made by entities and universities that are active in the villages.

13.3. COURSES

SVMA organizes courses targeting technical experts and citizens interested in obtaining qualifications or simply in learning about the flora and fauna, where subjects related to biodiversity are addressed with an interdisciplinary and interactive focus with the environment.

These courses are offered by Municipal Gardening School, the Municipal Herbarium and the Wild Fauna Division.



- Practical Gardening - Since 1994, 4,680 students have completed the course that exists for 32 years.

- Landscaping Resources - 4,807 students have taken this course since 1994.

- Morphology and Identification of Phanerogamous Plants - In the last ten years 215 people have taken the course.

- How to Make a Horticulture Garden - Since 2001, 1,560 students have taken the course.

- Orchids - Since its creation in 2006, 240 students have taken the course.

- Bird Watching - This course is geared towards biology students, professionals from the environmental area, government agents and any person that wishes to learn to identify birds in nature.

13.4. PUBLICATIONS

SVMA has a library with a collection of several types of research material, installed in UMAPAZ. The place is frequented by students, professionals and citizens that wish to consult materials on the environment area. Some of the publications are produced by the Secretariat itself, which contributes to the preparation of master's dissertations and thesis, besides others performed with the support of national and international institutions, such as:

Local Agenda 21

The São Paulo City formulated its own Agenda 21, approved by CADES in August 1996, as a tool for the municipal government in order to combine economic development, environmental protection and social justice. Qualified professionals from the direct and indirect administration and several civil society institutions gave contributions to this document that was launched after the United Nations Conference on Environment and Development – Rio 92.

13. PUBLIC PARTICIPATION AND AWARENESS

Environmental Atlas

The first Environmental Atlas of São Paulo City was published in 2002, as a result of an extensive survey about several physical, environmental and socioeconomic aspects. The publication was produced by SVMA, Secretariat of Urban Planning (SEMPA) and State Research Support Foundation (FAPESP).

It is a document of extreme relevance to the city as the information obtained serves to subsidize decision taken by the competent staff in the definition of public policies for the environment, and it forms an integral part of the project for creation of an Environmental Information Municipal System, which aims to become a source reference of data about the environment for public and private entities, educational institutions and the public in general.

GEO - City of São Paulo

The São Paulo City Hall through SVMA published in 2004, with technical support from IPT, the project entitled Environmental Indicators of Sao Paulo, employing the GEO - Global Environment Outlook methodology of UNEP. The project paved the way for the construction of an indicators environmental system that allows the evaluation of the state of the environment, the impacts on public health by environmental degradation, the quality of life, the evaluation of the effectiveness of public policies and the responses of civil society when facing environmental issues.

Wild Fauna: The species and habitats of animals in the Metropolis of Sao Paulo.

Published by SVMA in 2008, it is the result of the information collection about the São Paulo's fauna biodiversity, performed between 1993 and 2005.

Other Publications:

- Urban Arborization Guide;
- Timber Manual;
- Municipal Parks Guide;
- Fauna Inventory;
- Ibirapuera Park Bird Guidebook;
- São Paulo Municipality Fauna List (Published in 1996, 1998, 2000 and 2006);
- Biodiversity Notebook;
- APA Capivari-Monos Biodiversity;
- Pruning Technical Manual;

Through the site <http://www.prefeitura.sp.gov.br>, or SVMA http://portal.prefeitura.sp.gov.br/secretarias/meio_ambiente the population can access the documents and keep current on actions related to the city environmental management



14. ENVIRONMENTAL SERVICES

The green areas of São Paulo offer goods and services such as water maintenance and delivery, containment of erosion and stabilization steep slopes, biodiversity conservation, social use, Carbon Dioxide sequestration and pollutants plugging, among others.

Ecotourism

Tourism has been growing in recent decades in Brazil, and it has proved to be a strong economic alternative for regions privileged in natural areas, valued for rich historic/cultural heritages, characterizing the so-called ecological, environmental and sustainable tourism or ecotourism.

In São Paulo City, the encouragement of ecological tourism is being discussed as a practice for conservation of the natural ecosystem, particularly in conservation units, considering that the activity is stimulated in municipal parks, especially in those with high rates of visitors.

It is obvious that ecotourism is an activity on the rise that generates financial resources, but implies positive and negative impacts on the protected areas. Positive aspects include: the creation of new areas, the engagement of local communities, and the participation of environmentalists in ecological tourism programs. In relation to negative aspects, we emphasize: inadequate garbage disposal; contamination of water sources; noise pollution; depredation of the natural and cultural heritage; illegal hunting and fishing; landscape and customs de-characterization, people migration to the area.

Nevertheless, it is worth emphasizing that both the benefits and the problems resulting from ecotourism depend on how activity is planned, deployed and monitored, aiming at the conservation of natural as well as historical/cultural resources and the harmonization of the different interests and needs of the social players involved.



15. SUSTAINABLE PRODUCTION AND CONSUMPTION

The massive and inefficient production, the encouragement of inconsequential and continuous natural resources consumption have led to a known unsustainable situation that results in the extinction of species of fauna and flora, degradation of natural environments and historical heritages, contamination of the ground and water, as well as various problems for human health.

Stimulating responsible production – with quality, efficiency and effectiveness – as well as conscientious consumption and actions to combat wastage are, therefore, crucial, in order to resolve the significant environmental problems that exist at present.

In this manner, the São Paulo City Hall has led the society to reflect on and to adopt new values and habits of production and consumption, adopting as a strategy various projects that stimulate the adoption of environmental criteria in the acquisition of products and engagement of services, such as the “Legal Wood Program”. It also takes part in the “Habitat Quality and Productivity Brazilian Program” and in the Climatic Changes and Ecoeconomy Executive Group, besides stimulating the use of recycled products by public administration.



16. PUBLIC POLICIES

The Constitution of the Federative Republic of Brazil, of 1988, in Chapter VI – Environment, in its Article 225, mentions that “Everyone is entitled to an ecologically balanced environment, an asset of common use by the people and essential for a healthy quality of life, whereas the Government and the collective body have the duty to defend it and preserve it for present and future generations”.

The Organic Law of the Municipality of São Paulo of 1990, in its Chapter V – Environment, defines that:

Art. 180 - The Municipality, in cooperation with the State and the Republic, will promote the environment, preservation, conservation, defense, recovery and improvement.

Art. 186 - The Municipality should recover and promote the increase of public areas for establishment, preservation and expansion of green areas, including the planting of fruit trees and of trees for the furtherance of the fauna.

Art. 187 - The Government will stimulate the creation and maintenance of private environmental conservation units in territory of the Municipality, as established by law.

Art. 188 - The Municipality will repress the illegal trade of wild and exotic animals and their sub-products and their maintenance in inadequate places, and will protect the local and migratory fauna of the Municipality of São Paulo, including all the wild or domestic, native or exotic animals

Art. 189 - The Municipality will stimulate associations and environmental protection movements.

These are some articles of the Municipal Organic Law that illustrate how issues relating to the environment are being incorporated in the Municipal Public Policies, in a more restrictive manner than those of the Federation, demonstrating the necessity of protectionist intervention on the part of the State and a more ethical attitude by citizens.



17. LEARNED LESSONS

São Paulo is a city that has been preparing itself to face emerging environmental problems resulting from the intense urbanization process and incorporation of new technologies, which demand a large volume of natural resources at a pace never seen before.

The creation of a secretariat specially established to plan and implements an environmental policy in the local sphere, demonstrates that the government has the means of improving its relationship with other layers of society and of discussing issues that affect the city. In 2009, the SVMA will extend its administrative structure.

In this regard, SVMA advanced by including in its structure services that over time have proved to be true models of management for other locations, generating essential products for the planning and steering of actions, also creating public policies that are highly advanced from the ethical point of view.

The inclusion of environmental issues as infrastructure, sanitation, health, education is a process that has been incorporated in the public administration of the city.

As regards obstacles, part of these results from the considerable resistance to change in the public sector, both on the part of administration and of employees. The idea that the environment is a common asset, and that its protection should rank above individual interests, has not yet been assimilated in the different spheres of power, which also hinders decision making, even when legally supported.

São Paulo City can share with other cities the experience that it has been accumulating in environmental management, summarized in this report.



18. FINAL CONSIDERATIONS

The Municipal Government in partnership with private enterprises and the population effective participation, has been drawing up and executing actions oriented to the urban life quality improvement, the city economical efficiency, the magnifying of the social benefits, the protection of remaining forests, the green areas enlargement, the fauna protection, and the public and private sectors operating costs and investments reduction.

In the Strategic Master Plan which aims to orient territorial urban development and urban expansion of the municipality, the implementation of the following policies deserves special emphasis:

- Preservation and use of the city freshwater spring areas since the recovery of this region is an urgent requirement;
- Sustainable management of lakes and watersheds that exist in municipal parks, due to their important role for the population life quality;
- Promotion and implementation of measures to stop and particularly to revert the sealing process of the ground of the city;
- To propose interventions to reduce reuse and recycle solid waste produced in São Paulo City;
- To create mechanisms of Compensation for

Environmental Service for the owners of the areas rendering these services based on the conception of the protector-receiver relationship;

- To implement the program for control of vehicular emissions – Vehicle Inspection Program, considering the encouragement of the substitution of the collective transportation fleet by vehicles that utilize clean technology and fuels, as well as the inspection of privately-owned cars;
- To implement control mechanisms of undertakings and activities considered sources of emission of greenhouse gases and of contaminant gases that is harmful to public health;
- To develop policies and climatic changes mitigation programs, through greenhouse gas emissions control;

These interventions aim at the improvement of environmental quality and revert in protection of the city biodiversity. The São Paulo City Hall has been striving to act in an integrated manner, particularly with the São Paulo State Government, on account of the urbanization advance in the direction of more protected areas of the city and neighboring municipalities, which in spite of all the problems that exist in a large metropolis, still contain a rich biodiversity of the Atlantic Forest Biome.



19. REFERENCES

- BRAZIL. MINISTRY OF THE ENVIRONMENT. List of endangered species of Brazilian fauna, normative instruction) nº3, May 27, 2003. **Lex:** Official Federal Gazette, section 1, p. 88-97, May 28, 2003.
- CITES – **Convention on International Trade in Endangered Species of Wild Fauna and Flora**. Available at: <http://www.cites.org>. Access on Mar 07, 2007.
- DEVELEY, P. F. & ENDRIGO, E. **Birds of greater São Paulo**. Aves e Fotos Editora, São Paulo, 2004, 295 p.
- GRAHAM, D. J. The avifauna and the vegetation structure of a mature Araucaria plantation in S. Paulo, Brazil, **IF – Series Records** 6:1-79, 1991
- MAY, P. H et al. Economic valuation of biodiversity in Brazil: review of literature. **III Meeting Ecological Economy: Theory; Methodology and Case Analysis**, Recife, 1999.
- RENCTAS – Brazilian Network to Combat the Wild Animal Trafficking. **1st National report on wild animal trafficking**. 1 ed. Brasília: Dupligráfica, 2001.
- SÃO PAULO (State). Secretariat of the Environment; Municipal Secretariat of Planning. **Significant vegetation of the Municipality of São Paulo**. São Paulo, 1988.
- SÃO PAULO (State). Decree nº 42,838, of February 4, 1998. Declares endangered species of wild fauna in the State of São Paulo and establishes correlated provisions. **Lex:** Official Gazette of São Paulo State, v. 108. n. 25, 1 Sept. 1998.
- SÃO PAULO (Municipality). **Municipal Law 11,426, of 10.18.1993**. Refers to the creation of the Municipal Secretariat of Green Areas and Environment – SVMMA; creates the Municipal Council of the Environment and Sustainable Development – CADES; and establishes other provisions. São Paulo, Official Gazette of Municipality of São Paulo, p. 1-5, 23.10.1993.
- SÃO PAULO (Municipality). Municipal Secretariat for Environment. Inventory of the Fauna of the Municipality of São Paulo: preliminary results. **Official Gazette of the Municipality of São Paulo**, v. 44, n. 159, p. 41-56, 1999.
- SÃO PAULO (Municipality). Municipal Secretariat for Environment. Inventory of the fauna of the Municipality of São Paulo: preliminary results. **Official Gazette of the Municipality of São Paulo**, v. 45, n. 53, p. 42-60, March 21, 2000.
- SÃO PAULO (Municipality). Municipal Secretariat for Environment. **GEO City of São Paulo: panorama of the urban environment**. São Paulo: IPT, Brasília: PNUMA, 2004.
- SÃO PAULO (Municipality). Municipal Secretariat for Environment. Inventory of the Fauna of the Municipality of São Paulo in the period from 1993 to 2005. **Official Gazette of the City of São Paulo**, v. 51. n. 104, June 3, 2006.
- SÃO PAULO (Municipality). **Municipal Secretariat for Environment**. Available on: http://portal.prefeitura.sp.gov.br/secretarias/meio_ambiente. Access on: Aug. 3, 2007.

SUMMA, M. E. L et al. The Howler Monkey (*Alouatta guariba clamitans*) as an indicator of environment pressure in the Metropolitan Region of São Paulo. **VII International Congress of Management of Wild Fauna**, Ilhéus, 2006.

IUCN -International Union for Conservation of Nature. **Red list of endangered animals**. Available at: www.iucnredlist.org . Access on: Mar. 7, 2007.

PHOTOGRAPHS

REPORT

Page 07 | SVMA
Page 08 | Gepp Maia
Page 09 | Gepp Maia
Page 12 | SVMA
Page 13 | Vagner Renato de Paulo
Page 16 | SVMA
Page 18a | SVMA
Page 18b | Carlos Hansen
Page 19 | Jonny Gitti
Page 20a | Graça Maria Pinto Ferreira
Page 20b | Graça Maria Pinto Ferreira
Page 21a | Pedro Henrique N. da Cunha
Page 21b | Marcos Kawall
Page 22 | Marcos Kawall
Page 23 | Marcos Kawall
Page 26 | Glória Jafet
Page 27a | Marcos Kawall
Page 27b | Marcos Kawall
Page 27c | Marcos Kawall
Page 28 | Marcos Kawall
Page 29a | Marcos Kawall
Page 29b | Marcos Kawall
Page 31 | Gepp Maia

Page 33 | CEM
Page 35a | Mônica C. Ribeiro
Page 35b | Marcos Kawall
Page 36a | Paulo Daniel Namias Lewin
Page 36b | SVMA
Page 38a | Pedro Henrique N. da Cunha
Page 38b | Pedro Henrique N. da Cunha
Page 39 | SVMA
Page 41 | SVMA
Page 42 | BIOGÁS
Page 43 | Marcel Nascimento
Page 44 | Laura Ceneviva
Page 45a | SVMA
Page 45b | SVMA

COVER

SVMA
Marcos Kawall
Pedro Henrique N. da Cunha
Glória Jafet
Pedro Henrique N. da Cunha
Jefferson Pancieri
SVMA

April 2009

Report: Local Actions for the Biodiversity of the City of São Paulo

São Paulo City Hall

Mayor Gilberto Kassab

Municipal Secretariat for Environment

Secretary Eduardo Jorge Martins Alves Sobrinho

Coordination:

Helio Neves

Angela Maria Branco

Texts

Ana Maria Brischi

Angela Maria Branco

Anita Correia de Souza

Cyra Malta Olegário da Costa

Elaine Pereira da Silva

Graça Maria Pinto Ferreira

Linda Lacerda da Silva

Patrícia Marra Sepe

Ricardo José Francischetti Garcia

Vilma Clarice Geraldi

Proofreading

André Mader – Biodiversity Strategy Coordinator (LAB/ICLEI)

Diagramming

Pedro Henrique Nunes da Cunha

General Information

Name of City: São Paulo

Size of City: 1,525 Km²

Estimated Population: 11,016,703 inhabitants

Hélio Neves, Special Advisor.

helion@prefeitura.sp.gov.br

Angela Maria Branco, Veterinarian, Technical Advisory Service.

abranco@prefeitura.sp.gov.br

Municipal Secretariat for Environment of São Paulo City Hall

Rua do Paraíso, 387 CEP 04103-000, Brazil.

Phone 55 -11- 3396-3016, Fax 55 -11- 3283-2578

Local Action for Biodiversity São Paulo City Hall
PO Box 16548 Viaduto do Chá, 15, Downtown
Vlaeberg São Paulo
8018 01042-000
South Africa Brazil

LOCAL ACTION FOR BIODIVERSITY PARTNERS

