

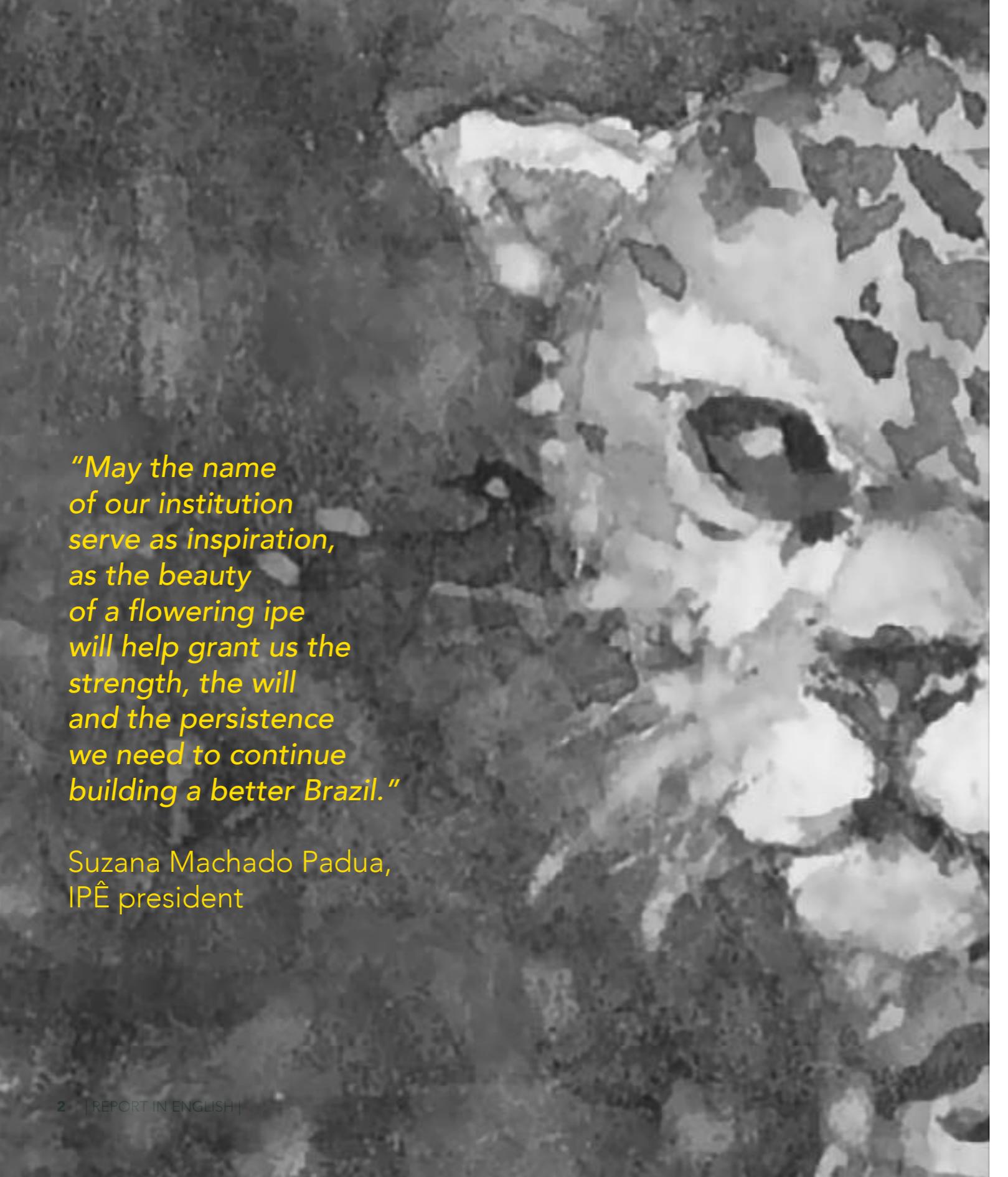


REPORT IN ENGLISH



INSTITUTE
FOR ECOLOGICAL
RESEARCH

2018



*"May the name
of our institution
serve as inspiration,
as the beauty
of a flowering ipe
will help grant us the
strength, the will
and the persistence
we need to continue
building a better Brazil."*

Suzana Machado Padua,
IPÊ president





.REPORT IN ENGLISH

SUMMARY

1. IPÊ IN 2018

1.1 Letter from the President **6**

1.2 Introduction **6**

1.3 Impact: IPÊ in numbers **7**

1.4 Highlights **8**

2. PROJECTS BY LOCATION

2.1 Pontal Do Paranapanema **10**

2.2 Nazaré Paulista:

Cantareira System **14**

2.3 Pantanal and Cerrado **17**

3. THEME PROJECT

3.1 Integrates Solutions for the Amazon region **20**

3.1.1 Participative Monitoring of Biodiversity **21**

3.1.2 Motivation and Success in the Management of Protected Areas **23**

3.2 Research & Development

3.2.1 Monitoring of Ecological Corridors **25**

4. PARTNERSHIPS AND

SUSTAINABLE BUSINESS **26**

5. EDUCATION **28**

CONNECT WITH IPÊ **33**

1. IPÊ IN 2018

1.1 Letter from the President

Life is always in constant movement, often seeming faster at some moments and slower at others. Things are no different for IPÊ. We lived a challenging 2018, but, above all, it was a promising year and provided much acceleration in certain areas that give us a strong sense of purpose once accomplished.

We graduated nine new Master's from ESCAS/IPÊ, and now they are taking this knowledge and applying it to their areas of work, both in Brazil and throughout Latin America. There are currently over 110 Master's spreading our seeds. In the Amazon, we implemented integrated programs for conservation in partnership with local communities, joining traditional and scientific knowledge in protected areas. That means that we are helping protect some 35 million hectares, 350,000 square kilometers, which is equal to the area of some European countries.

In 2018, we continued celebrating important results for conservation of the black lion tamarin, the tapir and the Giant Armadillo, despite the continued pressure on their natural habitats and lives. The largest Atlantic Forest reforestation corridor continues growing and generating good results for many species, including humans. Finally, we ended the year with approval of a great program to benefit indigenous reservations and other protected areas in the Amazon: LIRA - Legado Integrado da Região Amazônica (Integrated Legacy of the Amazon Region).

Did we face challenges? Many! But when you have a clear plan of where you want to get, hardships shrink or become learning opportunities to improve what you do. That is why the difficulties we face are seen as valuable lessons that, when accompanied by reflection throughout the execution processes, bring maturity and the desire to dare or to do better. Overcoming each of the challenges is only possible due to the quality of the IPÊ team, which works with passion

and desire to innovate, dare and to do the best they can within each context presented by life. The support network we have from partners, governmental organizations, business and the civil society is valuable for all of this to take place. The same may be said about our Board, which is becoming more and more active, and about the hundreds of people and communities that follow our work and grant us meaning for continuation. We thank each one of them.

I hope you will appreciate this report, will celebrate our victories with us and will learn about the challenges we still face so that we can enjoy this planet in a more balanced way, making it a place with greater harmony between all its inhabitants.

1.2 Introduction

A project that began over 30 years ago to save a primate species from extinction has triggered a set of actions and the establishment of a multidisciplinary team that was highly engaged in sustainability and conservation of socio-environmental resources. This is the IPÊ team, which currently operates in several regions in Brazil, developing and disseminating innovative models for conservation of biodiversity, as announced in our mission. The following pages of this report describe our main activities and the main results in 2018. To better understand the strategies that support these activities, we can start with the following question: "What transformations do we want to generate through our actions?" In a recent effort by our team to answer this question, eight strategic objectives arose:

Guide biodiversity conservation in Brazil. This objective reflects the understanding that conservation of biodiversity has the same level of importance as other themes that are already broadly known to society, including economics, health and education.

Influence public conservation policies. For such, we seek dialogue, communication and articulation with decision-makers, so that they may make use

of knowledge and information generated through our activities.

Black lion tamarin listed as vulnerable in the IUCN list. We have followed this objective since the birth of our organization. When we reach it, it will mean that the species that is a symbol of the State of São Paulo and of the biodiversity associated to it has received due attention in terms of scientific research, management, education, community involvement, planning and public policy actions, to the extent that the IUCN and researchers recognize that its level of threats has improved.

Consolidating Protected Areas. Currently, an expressive number of Protected Areas are far from playing their part in conservation of biodiversity and its associated resources, be it due to management challenges or to the lack of integration with other players and landscape elements.

Infect all sectors with the principles of sustainability and conservation. An objective that is part of all IPÊ initiatives. We still have some projects and environmental education programs that are designed exclusively for this purpose.

Promote sustainable landscapes. This is evident in the several ways we seek intervention in landscapes, like the restoration of forestry, the establishment of corridors, management of mosaics, and protected areas, among others.

Have transformation agents throughout Brazil. For this purpose, ESCAS, our school, has been playing a prominent part, with its several forms of training and knowledge multiplication in the areas of environmental conservation and sustainability.

Conserving biodiversity is our broadest strategic objective, and the one that contemplates all those mentioned above.

None of the strategic objectives mentioned may be reached by activities that are exclusive to our organization. An integrated effort

is necessary, and it must involve the civil society, governments and the private sector. The objectives cannot be reached unless all these sectors participate.

We hope that this report not only informs about the accomplishments of this organization, but also helps readers and the society to recognize that there are civil society organizations that work seriously, competently, representatively, and are capable of demonstrating the results reached and showing how resources are used for a socio-environmental agenda for Brazil and the planet. At the end of the report, you will also find the balance sheets and financial statements reviewed and approved by an independent auditor.

I wish you a good read!

1.3 Impact: IPÊ in numbers

2018,
IPÊ WORK DIRECTLY REACHED 14,695 PEOPLE,
BENEFITING THEM IN SEVERAL MANNERS,
LIKE TRAINING, RURAL TECHNICAL ASSISTANCE,
ACTIVITIES FOR INCOME GENERATION AND
ENVIRONMENTAL EDUCATION.

THESE ACTIVITIES JOIN SOCIETY
AND ENVIRONMENTAL INTERESTS,
COLLABORATING TO EXPAND
THE POTENTIAL OF CONSERVATION
OF BRAZILIAN BIODIVERSITY.

ACTIVITY...NUMBER OF PEOPLE BENEFITED

RURAL
TECHNICAL ASSISTANCE..... 421

SUSTAINABLE
ALTERNATIVES
FOR INCOME 367

INTEGRATED
SOLUTIONS
FOR CONSERVATION
OF PROTECTED AREAS
IN THE AMAZON..... 1,989

TRAINING
AND EDUCATION
FOR SUSTAINABILITY..... 2,586

ENVIRONMENTAL
EDUCATION..... 11,488

1.4 Highlights

Environment Ministry and IPÊ update map of priority areas in the Atlantic Forest
The second Update of Priority Areas in the Atlantic Forest, which began in November 2017, and ended in 2018, was coordinated by the Ecosystem Conservation Department (DECO) at the Environment Ministry's Biodiversity Secretariat. The performance of all phases of the project was led by the IPÊ team.

The process or creation of this new priority-area map for conservation of the biome was performed in a participative manner. The civil society, universities, research centers, government representatives, companies and citizens were able to participate in at least one of the five phases of this great study: Public Inquiry to evaluate the latest update of Priority Areas; Definition of goals and targets for conservation; Definition of the cost surface; Definition of the opportunity surface; and Definition of priority areas and activities for conservation, sustainable use and sharing of benefits of the biodiversity of the Atlantic Forest.

The selection of priority areas for conservation is a public policy instrument to support objective and participative decision making in the planning and implementation of activities for conservation of Brazilian biodiversity, like the creation of Protected Areas, licensing, inspection and the fostering of sustainable use.

The work for creation of the new map was developed in the scope of the Biodiversity and Climate Change Program for the Atlantic Forest, coordinated by the Environment Ministry in the context of Brazil-Germany Cooperation for Sustainable Development, part of the International Climate Initiative (IKI) of the German Federal

Ministry for Environment, Protection of Nature and Nuclear Safety (BMU). The project also counts on the technical support of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and has the financial support of the German Development Bank (KfW), through the Brazilian Fund for Biodiversity (Funbio).

Specialists plot National Action Plan for primate conservation in the Atlantic Forest

Brazil is the country with the greatest primate diversity in the world, concentrating 20% of all existing species. In the Atlantic Forest alone, there are approximately 24 species, including all the lion tamarins (*Leontopithecus*) and mico monkeys (*Brachyteles*). However, 70% of this wealth is under threat, contributing to make the Atlantic Forest one of the main global priorities for primate conservation.

In 2018, 45 specialists, among them environmental managers, researchers and conservationists, representing 33 institutions in Brazil and abroad (including IPÊ), met to elaborate the National Action Plan (PAN) for Conservation of Primates and the Maned Sloth in the Atlantic Forest. The PAN targets 13 primates and the maned sloth, in the Atlantic Forest, as they are threatened with extinction. Of these, the most threatened are primates classified as "critically endangered": the northern mico monkey (*Brachyteles hypoxanthus*) and the brown howler (*Alouatta guariba* *guariba*). There are also eight species considered "endangered", among them the black lion tamarin (*Leontopithecus chrysopygus*), a species broadly studied by the IPÊ. The objective of the plan is to increase the habitat and reduce the decline of these populations over the next five years.

IPÊ to expand work in the Amazon with the LIRA project in 2019

In 2019, IPÊ is scheduled to start the LIRA project - Integrated Legacy of the Amazon Region, approved in 2018, by the Brazilian Development Bank (BNDES), with R\$ 45 million from the Amazon Fund. The resources will be turned to the management of the initiative and to the public call for projects to promote work for the strengthening and consolidation of management of 83 protected areas in the Legal Amazon, which also develop sustainable alternatives for production for the populations of these territories. The proposal is directly related to IPÊ activities in the biome, which aims to conserve biodiversity, promoting sustainable landscapes, supporting the consolidation of protected areas and involving several socio-economic segments to operate in conjunction.

LIRA will select and support up to 12 projects in an area of around 80 million hectares, comprising 41 Native Indian Land Areas, 20 Federal Protected Areas and 22 State Protected Areas. This area includes six regional blocks (Xingu, Calha Norte, Higher Rio Negro, Lower Rio Negro, Madeira and Rondônia/Purus), and it is possible for selection of up to two blocks, to receive between R\$ 1.5 million and R\$ 6 million to implement activities that may help consolidate protected areas. With the project, IPÊ and partners should also promote courses, technical visits and exchanges for integration and diffusion of knowledge, as well as elaboration of a "Socio-environmental Promotion Plan" (PPS) for each one of the six blocks. For execution, LIRA should also count on the support of R\$ 16.35 million from the Gordon and Betty Moore Foundation.

IPÊ and partners participated in the IX Brazilian Protected Area Congress with the "Amazon Space"

Knowing, understanding and representing the Amazon is an enormous challenge. To discuss this

biome that is so multicultural and diverse, IPÊ and several scientific and environmental NGOs that operate in this region created the "Amazon Space: forests and communities", during the ninth edition of the Brazilian Protected Area Congress (CBUC). The space directly attracted over 500 people throughout the event, in Florianópolis (SC), Brazil.

Partner NGOs
(Funbio, FVA, IDESAM, IDSM, IEB, Imazon, Imaflora, IPAM, ISA, Kanindé, WCS Brasil, WHRC and WWF Brasil) are part of the so-called Andes-Amazon Initiative, released in 2003 by the Gordon and Betty Moore Foundation.

International partnership trained 40 residents in rural areas

A partnership between the ESCAS - Faculty for Environmental Conservation and Sustainability, the Semeando Água (Sowing Water) project and the ELTI - Environmental Leadership & Training Initiative, of Yale University's School for Forestry and Environmental Studies (USA), promoted two field studies (each lasting a week) with 40 residents in rural areas in the state of São Paulo.

The first, for rural settlements in the Pontal do Paranapanema, in the far west of São Paulo state, presented the principles of agroecology and ecological restoration in a practical way, through Agroforestry Systems (SAFs), Silvopastoral systems and forestry restoration principles. The second, in the cities of Piracaia, Nazaré Paulista and Joanópolis (São Paulo), in the Cantareira System watershed. There, the participants had access to lessons on Ecological Restoration in Silvopastoral Systems.

Engaged in the protection of tropical forests through initiatives for conservation and restoration, the ELTI program (created with the support of ARCADIA fund) seeks to support viable projects by people and organization with proposals to recover landscapes that have already become degraded by human actions, as is the case with the Atlantic Forest, one of the most threatened biomes in the world.

ARTICLES PUBLISHED

Dams in the Andes seriously threaten water biodiversity in the Amazon

<http://advances.sciencemag.org/content/4/1/eaao1642>

Research indicates "limited access" as a new perspective for conservation

<https://onlinelibrary.wiley.com/doi/10.1111/conl.12616>

<https://www.pnas.org/content/115/51/12859>

Protection of biodiversity must consider the quality and not just the quantity of areas to be preserved

<http://advances.sciencemag.org/content/4/8/eaat2616>

IPÊ in Research Gate

https://www.researchgate.net/institution/Instituto_de_Pesquisas_Ecologicas

AWARDS

Florida University awards IPÊ president with Lifetime Achievement Award

Suzana Padua, IPÊ president, was awarded the 2018 Lifetime Achievement Award by the Council of Former Students of the Latin America Study (LAS) Center of the University of Florida (UF). The award recognizes former students at the university whose accomplishments over time had a significant regional, state or national impact.

Having completed a master's degree at the University of Florida (UF), in 1991, focused on

environmental education and, later, a doctorate at the University of Brasília, in 2004, Suzana has published over 50 articles and has counselled over 30 master's students throughout her career, up to the moment. Due to actions that influence the socio-environmental transformation and the life of many students, professionals and members of the rural community, especially women, she was recognized with 17 national and international awards. Her work, alongside her husband, Claudio Padua, developing pioneering post-graduate programs at ESCAS, was inspired by the UF.

"The Center for Latin American Studies and TCD greatly influenced us. When we were setting up the short-term course curriculum at IPÊ, the Master's and even the MBA, we used our UF interdisciplinary experience as the basis for what we wanted to offer. This is how social and environmental themes become inseparable, granting life a greater meaning and value," said Suzana.

Protection of wildlife

In September 2018, Patrícia Medici, through the National Initiative for Conservation of the Lowland Tapir (LTCI) received the William G. Conway International Conservation Significant Achievement Award, granted by AZA, delivered at the Yearly Conference of the American Zoological and Aquarium Association (Association of Zoos and Aquariums). The award highlights important projects for conservation and protection of wildlife around the world and is a coalition of five North American zoos that have been supporting the project for decades - Columbus, Disney, Houston, Jacksonville and Nashville.

2. PROJECTS BY LOCATION

2.1 Pontal Do Paranapanema

Biome: Atlantic Forest

No. of people benefited: 1,910

Challenge: Develop systems and methodology for management of landscapes, balancing

socio-economic gains with the maintenance of ecosystem services and conservation of threatened species.

Main accomplishments: Plantation of the largest reforestation corridor in Brazil, with 1.2 million hectares and 20 kilometers in length, linking the main local Protected Areas and assisting in the transit and survival of species. Protection of the black lion tamarin with research and generation of information for the creation of public policies. Contribution to the improvement in classification in the red list (IUCN), going from critically endangered to endangered. Sustainable Businesses benefitting more than 200 people based on Agroforestry System practices. The institute has consolidated environmental education alongside the community and the department of education, causing the theme to become part of the city's curriculum.

Environmental Education: activities involved over 1,500 students and 70 teachers in the public network in Pontal do Paranapanema

Environmental Education Program "A Good Pontal For All" develops strategies to take environmental information to a greater and greater number of people in a priority region for conservation of the Atlantic Forest, in Pontal do Paranapanema.

With support from Disney Conservation Fund for the Black Lion Tamarin Conservation Program in 2018, the IPÊ team took environmental information to over 1,500 students in the cities of Teodoro Sampaio, Euclides da Cunha Paulista, Marabá, Presidente Epitácio, Primavera and Rosana, located close to fragments in the Black Lion Tamarin Ecological Station, one of the most important Protected Areas in the interior of the state of São Paulo.

One of the activities most awaited by the students this year was the Trilha do Morro hike, in Morro do Diabo State Park, with over 100 secondary school students from João Pinheiro Correia State School,

in the city of Rosana (SP). *"IPÊ brought the hilly region into our school with music, workshops and several activities. But it also resulted in something that many students didn't even dream they could do one day, hike in a State Park. Few students knew the wealth we had here,"* said director Vera Lucia Corge.

Throughout the year, IPÊ also promoted training with public school teachers on how to apply socio-environmental content in the classroom and bring the students closer to the local biodiversity. Vera was one of the 70 teaching managers in the region who participated in these courses.

Two thousand trees planted

In 2018, IPÊ promoted the plantation of 2000 trees in the Atlantic Forest in Black Lion Tamarin Ecological Reservation (ESEC), located in the cities of Teodoro Sampaio and Euclides da Cunha Paulista (SP). Reforestation in the ecological park is part of a project for climate change called Climate Crowd. In 2017, IPÊ promoted a study in the region, interviewing 33 residents and workers in the rural area about their perception on the climate. In the research, interviewees associated climate change to the last two decades of their lives, considering the changes identified in nature, like the lack of seasons, the disappearance and the mortality of species and the progression of pests. Based on this diagnosis, some local strategies for mitigation and adaptation to climate change were plotted, including the plantation of trees. The event had the support of Chico Mendes Biodiversity Conservation Institute (ICMBio) and the international WWF.

BLACK LION TAMARIN (*Leontopithecus chrysopygus*)

The oldest IPÊ conservation project, the Program for Conservation of the Black Lion Tamarin, has as its long-term objective guaranteeing at least two viable and self-sufficient populations of the species in their entire area of occurrence, living in

a broader, more protected and connected habitat. There are many strategies for this to happen. One of the most relevant ones is the scientific research project. Over the years, IPÊ has developed a series of innovative studies and experiments to help understand the behavior of the species and map the routes for conservation. One of them was the use of GPS radio-collars, used for the first time in Brazil in animals of this size.

Another innovative action has been taking place since 2017, with the installation of nest boxes for the tamarins. Despite research in the area of the corridor already showing that there is feeding available for tamarins, including fruit and insects, the forest does not yet have an essential component for the survival of the species, hollows in trees, used by the animals as housing and bedding. As trees don't offer hollows, as they were planted recently, wooden boxes perform this activity and help monitor the behavior of the species. In 2018, 12 artificial hollows (wooden boxes) were set up, installed in the area of life of both groups of tamarins for efficiency testing. In all, there are currently 17.

To define the shape of the hollows, different box design tests were made with animals in captivity and, in nature, a study was performed to evaluate the hollows chosen for sleeping by the tamarins, considering the effects of predators, temperature regulation, distribution of resources and the need for species to defend their territory. The monitoring of the use of this tool is continuous and performed with camera traps installed in front of each hollow.

The project resulted in over 200 records of animals coming close to or using the artificial hollows. At least 12 species (3 birds, 5 marsupials, 2 rodents and 2 primates) used the wooden boxes and 20 of these records showed tamarin exploration or entry into the boxes. This preliminary analysis of the use of boxes for tamarins in Santa Maria fragment was presented at the 27th International Primatological Society Congresses in Nairobi (Kenya), in August.

The work with artificial hollows is performed in partnership with the Durrell Wildlife Conservation

Fund and the UNESP Primatology Laboratory (LaP), at UNESP Rio Claro (SP), and has the support of the Disney Conservation Fund and The Sustainable Lush Fund.

Training

Throughout the year, the researchers also continued monitoring three groups of tamarins: one in the Santa Maria fragment and two in the Morro do Diabo State Park. Two groups had figures collected for research in the area of life and dormitory selection and one group for studies on seed dispersal. The figures on selection of dormitories by the two groups of tamarins were analyzed in partnership with professor Mark Boyce, of the University of Alberta (Canada), and a manuscript is being finalized for publication.

So as to multiply knowledge on the species, the project also trained two students in the Primatology Laboratory of the São Paulo State University (UNESP Rio Claro). Laurence Culot, professor and counselor of UNESP students, said that the field work is fundamental for the education of biologists or ecologists and that the partnership between academia and the third sector, as is the case with IPÊ and UNESP, is a win-win, as they are different yet complementary. "In academia, many students and researchers are prepared to become involved in projects, collecting and analyzing figures. There is incredible potential. Often, the problem is that not only professors, but also researchers and students, have little contact with more applied projects. On working with the third sector, this desire may come true and benefit both sides. Furthermore, for research, money is needed. Collaboration between sectors permits access to more diverse financing sources. Some aid is exclusively for academia, while other aid can only be granted to NGOs," he finished off.

Atlantic Forest Corridor

The fruit of over 20 years' of IPÊ work, the Atlantic Forest Corridor, located in Pontal do Paranapanema is the largest ever reforestation project in Brazil. It currently includes over 2.7 million trees in a 20-kilometer stretch, connecting the two main Atlantic Forest Conservation Units in the interior: Morro do Diabo State Park and Black Lion Tamarin Ecological Station. The connection of the two areas helps in conservation of local biodiversity and of species that are threatened with extinction, like the black lion tamarin and the jaguar. The initiative answers to the challenge of forestry fragmentation, which is the result of occupation of the Pontal do Paranapanema with no criteria, and the consequence is that it now covers only 1.85% of its original area. In 2019, expansion of the North corridor is forecasted.

Apart from the restructuring component, the corridor includes a social front. Since it was established, the IPÊ has sought integration with the community, to bring socio-economic benefits. "The dynamics of occupation have resulted in a regional landscape in which several water courses and forestry fragments are being surrounded and pressured by rural settlements, with small and large properties. All this occupation, if not done with agro-environmental concerns, puts the remaining soil, waters and forests at risk. That is why it is necessary to establish sustainable rural development based on agroecology, fostering the generation of income to support environmental conservation, as is the case in the community nurseries," said Laury Cullen Jr, project coordinator.

The community nurseries aim at socio-economic and environmental development of family farmers who live in land reform settlements in the region. The idea is to support the diversification of agricultural activities that are traditionally developed by local farmers, through production and trade of native and exotic saplings, aiming at reforestation while developing environmental education work and technical training with the farmers. In 2018, eight community nurseries installed in different settlements in the region produced some 800,000 saplings and directly benefited 40 people.

Agroforestry Systems: shade, forest and food

With the AFSs, IPÊ bets on the great potential of development and strengthening sustainable family farming, with the implementation of a functional and ecologically productive system that is viable for small-scale farmers. The proposal is to cultivate long-term and varied annual crops, like fruit, among trees that are native to the Atlantic Forest.

The diversity in cultivation brings health and ecological benefits, promotes the recovery of the soil and productive diversification, and collaborates with the generation of income for producers. More than that, it generates benefits to biodiversity, as areas with these systems serve as stepping stones, facilitating transit of the fauna and vegetable dispersion among forestry fragments and helping in reconnection of the biome.

Francisco de Assis Bella da Silva is one of the settlers benefited by the project. He has been living in the region for 20 years, translating with enchantment the function of the stepping stones on his property, in Euclides da Cunha Paulista (São Paulo). "In the beginning, there was nothing here. My relatives once came to visit me and there were no trees to sit under. Today I have no idea of how many trees I have. My trees are already generating fruit for the animals, and water has also come. We already have nine-banded armadillos that come from the swamp up to the heights here. All sorts of birds come here for the trees on my land. To me, it is a great joy to have reforested all of this, as it is beautiful to hear the animals singing in the early morning. The animals have nowhere to stay, because of the city. I want to take greater and greater care of this," he says.

Francisco is one of the 51 farmers who have been participating in the AFS expansion phase since 2015, when IPÊ invested in the implementation of fruits and leguminous plants for the enriching of the properties. Each farmer reserved one hectare of his land to test out the novelty.

In 2018, after the phases of training and implementation, IPÊ continued with the technical assistance work and rural extension for the participants.

The Agroforestry Systems are generating short-term economic gains that are directly related to the sale of agricultural products. In the medium and long term, economic gains may be observed with the ecosystem services like pollination, pest and disease control, as well as soil improvement, making the productive system more balanced over time. The potential for sale of products is great, but the challenge is making it possible for producer families to transfer their produce at a fair price. Their produce not only contributes to nature, but it is also produced free of pesticides. Another challenge is the attraction of youths to boost local businesses in the countryside.

Valdomiro de Castro das Mercês, from the Ribeirão Bonito settlement, shares the work on the AFS property with his daughter. There, he cultivates coffee, bananas, oranges, maize, cassava, beans and soursop. Miro has been living at the settlement for 36 years and planted his first Coffee and Forest saplings ten years ago. Delighted with the process, he sees advantages in the savings brought to him and his family by the AFS. "I agreed because the project brings significant advantages to me. I only had to invest in labor - IPÊ was responsible for everything from the soil treatment to the saplings. After 20 years, I have had excellent results. We grow all sorts of things. I don't buy coffee, maize or bananas anymore. Whatever we produce here is used here, and I don't spend money buying it at the market. I don't spend my own money. And I share the surplus with my neighbors," he explains.

Videos

To increase knowledge about this production model, IPÊ has a series of video lessons on its YouTube channel about how to implement AFSs. The lessons have already been viewed 27,000 times. www.ipe.org.br/saf

2.2 Nazaré Paulista: Cantareira System

Biome: Atlantic Forest

Region: Southeast of the State of São Paulo and Minas Gerais.

No. of people benefited: 1,093

Challenge: Conserving the ecosystem services of this priority region for protection of the Atlantic Forest, with expansion of scientific research and involvement of the community. The actions propose new models for use of soil, cultivation practices and environmental education, favoring the water resources and remaining forests in the region.

Main Accomplishments: Cultivation of over 300,000 native trees in the Atlantic Forest in watershed areas. Greater and more detailed mapping of the socio-environmental situation of the Cantareira System, whose data serves to establish strategies for protection of water resources. Promotion of Environmental Education in 100% of the state schools in Nazaré Paulista and in eight cities in the Cantareira System.

Semeando Água (Sowing Water) involves communities and framers in favor of the Cantareira System

Sponsored by Petrobras, through the Petrobras Socio-Environmental Program, "Sowing Water" focuses on recovery of ecosystem services with the adequate management of pasture and conservation and restoration of forests on springs and rivers in an area that is a priority for the Atlantic Forest, the region of the Cantareira Supply System. It is a significant challenge, as this area, which produces and conserves the water that supplies 7.6 million people, as well as serving industry and agricultural production, does not have sufficient environmental balance to guarantee water safety. Over half the Permanent Preservation Areas (PPAs) for water - forests and riparian forests which, by law, should be untouched on the banks of rivers, springs and at the tops of hills - no longer

exist. The deficit is 35 million trees in the areas of influence for the Cantareira System.

To overcome this problem, IPÊ has been betting on methodologies that involve rural training, environmental education and communication, in eight cities in the Cantareira System: Mairiporã, Nazaré Paulista, Joanópolis, Piracaia, Bragança Paulista, in the state of São Paulo, and Extrema, Itapeva and Camanducaia, in the state of Minas Gerais.

In the first edition of the project (2013 - 2015), 15 hectares, with 10 low-cost models for forestry restoration, and 34.8 hectares of management of ecological grazing grounds were implemented, and training was performed for generation of awareness regarding water conservation. In the second edition, the project stimulates the use of ecological pasture management among farmers, performs forestry restructuring in watershed PPAs, and develops environmental education and technical training.

Meeting of leaders results in engagement letter and action plan for the Cantareira System

Among the activities for social mobilization in the project, 2018 was marked by a great initiative: the I Meeting for Water Safety in Cantareira System. The event represented a key moment in the project, with strengthening of articulation between farmers, researchers, representatives of the private initiative and of the government. For a day, the participants debated the following themes: Challenges for the Cantareira System, Measures implemented and dearth of knowledge, and Strategies for conservation of water resources. As a result, the meeting generated a letter of intentions for the Cantareira System, considering the contribution of all those present, and also generated an action plan to influence public policies in favor of a common objective - safety of the Cantareira System.

Training spread sustainable practices

On disseminating sustainable practices, the project contributed to the increase in income of small-scale farmers, while expanding the conservation of water resources. Such practices are based on scientific knowledge, but reached farmers in accessible language, so that they may implement the concepts on their land. With the support of the project, 35 hectares of Pasture Management were implemented in 2018, at Santa Cruz (Joanópolis), Cravorana (Piracaia) and Serrinha (Bragança Paulista) farms, and they serve as an example for those who want to do the same at their properties.

Rural extension is among IPÊ's most important expertise, and it believes in education as a basis for socio-environmental transformation for sustainability. In the region of the Cantareira System, training courses turned to farmers play a central part in conservation of the soil and of water. In 2018, two courses benefitted 35 people.

In course *Ecological Restructuring and Silvopastoral Systems*, in partnership with Elti - Environmental Leadership & Training Initiative, the participants watched a series of presentations on Management of Ecological Pasture, Types of Foraging Plants, Trees, Silvopastoral Systems and Environmental Legislation and even visited the project Demonstration Units, located in Piracaia, Joanópolis and Nazaré Paulista, all in the state of São Paulo. In another course, 15 professionals, including farmers and representatives of the Environment Secretariat of Mairiporã and of the Rural Development Council, participated in lessons about Agroecology and Sustainable Production in the Cantareira System, with Karin Hanzi, of the Dalva Epicenter.

Expanded Access

In 2018, the IPÊ training activities on sustainable production and water resources had their reach increased with the start of video-lessons.

Learn about it all at:

<http://bit.ly/SemeandoAguaVideoaulas>

Forestry restoration is another form of fighting lack of water

Sowing Water also bets on reforestation of watershed Permanent Preservation Areas (PPAs) located at springs, tops of hills and banks of rivers and dams. In 2018, 15 hectares were restored with the plantation of 25,000 saplings and there was also maintenance of 10.39 hectares.

Environmental education and communication actions take water and sustainable production knowledge to the society

With Environmental Education and information campaigns, the Sowing Water project has attracted the population's attention to effective participation in the fight to water scarcity. Be it participating in events related to agriculture and livestock farming in the cities involved in the project, be it through informative and educational material or events for distribution of saplings, the central idea is to take information to the largest possible number of people and for them to be able to reflect about water resources. In 2018, the project was present in 14 events, working on the distribution of 920 native saplings as a form for sensitization.

New forms of production for conservation of water in the World Forum

Apart from the presence of the booth at the main initiative for discussion of the water situation in the world, the Sowing Water team also participated in the Arena Petrobras program, sponsored by the oil company, during the 8th World Water Forum, in Brasília.

IPÊ School Nursery: reforestation and education

The IPÊ School Nursery has a story of over 15 years in the city of Nazaré Paulista. In an area granted by the city hall, it produces saplings of native species for reforestation. The nursery is also an important area for the region, as it provides a means of contact with socio-environmental matters and restoration, which is very important, as the city is strategic to the Atlantic Forest and to the water resources of the Cantareira System. In 2018 alone, 40,000 saplings, of 30 species, were produced, with 1680 saplings being distributed to the community. With sales at the nursery and at events, 10,987 plants were sold and R\$ 23,015 were raised. These funds were reinvested in the project community.

Project renews collection with embroiderers in Nazaré Paulista

Project Costurando o Futuro (Sewing for the Future) has been taking place since 2002 and is one of the proposals to minimize the pressure exerted on natural resources in the Nazaré Paulista region, expand the knowledge those participating have of the local environmental reality and disclose information about Brazilian biodiversity.

The initiative creates an alternative for generation of income with a low environmental impact for a group of women in the rural area. Over the years, a series of training programs have been developed for the members, from knowledge regarding embroidery and sewing to pricing, sales techniques and participation in events. Apart from contributing to the complementation of family income for those women, the handicraft shows the biodiversity of the Atlantic Forest and takes to consumers information about Brazilian nature. In 2018, with the volunteer support of designer Simone Nunes, a workshop was promoted for the creation of new items for the IPÊ collection. The products are traded at the IPÊ shop (www.lojadoipe.org.br) and at events. In 2018, the project generated R\$ 11,869.80 in extra annual

income to five families of embroiderers. In all, the project has a turnover that directly benefits 35 people.

2.3 Pantanal and Cerrado

Biome: Pantanal and Cerrado

Region: Mato Grosso do Sul

No. of people benefited: 4,195

Challenge: Develop actions for conservation of the lowland tapir (*Tapirus terrestris*), the giant armadillo (*Priodontes maximus*) and the giant anteater (*Myrmecophaga tridactyla*), mainly in the Pantanal and Cerrado in Mato Grosso do Sul (MS) state.

Main Accomplishments: The Lowland Tapir Conservation Initiative (LTCI) has established the world's most complete data bank with information on the lowland tapir. The giant armadillo project has new figures about the behavior of the species and the Bandeiras e Rodovias project is evaluating the threat that highways present to the giant anteater. They are all searching for information that may be applied to public policies in favor of species, reducing the impacts that threaten their survival. In 2018, they all supported the elaboration of National Plans for conservation of the species researched.

LOWLAND TAPIR (*Tapirus terrestris*)

The Lowland Tapir Conservation Initiative (LTCI) is the largest study on tapirs in the world. Since 1996, the team has captured 156 tapirs, including 35 in the Atlantic Forest (captures finalized, data processed), 86 in the Pantanal (in progress, collection of data about social organization and reproduction) and 35 in the Cerrado (captures finalized, data processed). 100 tapirs were equipped with telemetry collars and monitored for long periods (25 in the Atlantic Forest, 52 in the Pantanal, and 23 in the Cerrado). The long-term work originated the largest data bank on the tapir.

The lowland tapir is the largest land mammal in South America and plays a relevant part in

conservation of the ecosystems it resides in. The LTCI currently focusses its efforts on the Pantanal and the Cerrado in Mato Grosso do Sul (MS). In the Pantanal, the research completed 10 years in 2018.

In 2018, 12 capture expeditions took place, including three in the Pantanal - with the capture of 12 new individuals and 20 recaptures (tapir that had already been monitored before) - and nine in the Cerrado, with four recaptures using darts for recovery of the collars. During the expeditions, the researchers map the spatial ecology, intraspecific iterations and the dispersion of animals, using tools like GPS collars. At these occasions, an analysis of the health and genetics of the tapirs also takes place. The news this year was the start of analysis of the age of the tapirs sampled over the years of study, through their dental records.

Also in the Pantanal, apart from collars, LTCI has been using a grid of 50 camera traps to study their social organization and reproduction. Since 2010, the camera traps have already recorded 18,000 pictures and videos of tapirs. The work has also helped collect figures for Population Viability Analysis (PVA), which will provide parameters for the life chart of free tapirs, for the first time in the research of these animals.

For genetic studies, samples of tissues are collected. They are then analyzed at the Animal Evolution and Genetics Laboratory of the Federal University of Amazonas (UFAM). In all, over 400 samples have already been collected, including 30 in the Atlantic Forest, 106 in the Pantanal and 370 in the Cerrado.

Data applied to conservation

In 2018, figures in the LTCI research fed two important conservation processes in Brazil: The Red List of Brazilian Endangered Species and the National Action Plan for Endangered Ungulates (including tapirs, peccaries and deer). Patricia Medici, whose brainchild LTCI is, coordinated both processes for creation of the list and of the plan, in partnership with the ICMBio. That was great victory, fruit of several years of efforts in research.

2018: the year for evaluation of figures and actions for public policies

In the year, LTCI finalized the data collection work in the Cerrado and worked intensely on the evaluation of this and other information raised throughout long years of work. Throughout 2019, for example, figures of a research on the conflict between humans and tapirs will be analyzed, in an attempt to understand the effect of illegal hunting and create actions for reduction of this conflict. Data in studies about roadkill on highways and the effects of pesticides, the main threats to the tapir in the biome, are already used in debates and establishment of public policies.

Pesticides: A sentinel species, the lowland tapir suffers in the Cerrado

An LTCI research disclosed in 2018 has revealed that tapirs are facing serious health risks in the Cerrado region in Mato Grosso do Sul. The result of the study boosted a "week of accusations" in the IPÊ and Initiative social media, with information on the risks posed by pesticides to the health of wildlife and humans. Brazil is the global leader in pesticide consumption and many chemical agents used in Brazilian crops are banned in other countries due to their risks to human health.

Environmental Education took information to over 1000 students

The LTCI also has an environmental education component as part of its work. In 2018, educational activities reached over 1000 students (children, adolescents and youths) in rural and urban schools, 25 farmers and 800 small-scale farmers in six land reform settlements. The activities includes presentations, distribution of educational leaflets and events. The educational curriculum created by the project, in partnership with Tapir Specialist Group SSC/IUCN was translated to Portuguese

and will be presented to the State Education Secretariat in Mato Grosso do Sul, for inclusion as part of the formal curriculum in primary schools.

The work with the tapir also reached around 2,000 undergraduate students and 300 graduate students in conservation programs, through talks and presentations at national and international universities. Furthermore, the LTCI has developed a complete Program for Veterinary Training focused on Brazilian students and professionals. In 2018, eight professionals participated. This year, the project also developed the exchange/training professional program sponsored by the Tapir Specialist Group SSC/IUCN. In four years, this program has received 17 scholarship students from nine countries.

"Participating in the TSG Fellowship allowed us to learn research protocols developed in over 20 years of LTCI work. Our experience during the field expeditions was fundamental to start our research project on the ecology of the movement and the use of lowland tapir habitat in the Colombian region of Orinoquia. It also helped us think about the importance of conducting work in a multidisciplinary manner, including the use of veterinary medicine in the development of evaluations on tapir health in the wild," explained Juliana Velez, a 2016 participant.

Scientific Tourism

In 2018, LTCI promoted talks to 45 visitors of the Baía das Pedras farm, where the Pantanal research takes place, and it also received volunteers from several zoos in the Netherlands, the United Kingdom and the United States for the Scientific Tourism program.

Communications

In Brazil, the word "anta" (tapir) is used to represent a less intelligent being. To fight this stereotype that is negative for the species, the LTCI released campaign #ANTAELOGIO (#TapirlsPraise) Follow it! [@incab_brasil](#)

GIANT ARMADILLO (*Priodontes maximus*)

The Giant Armadillo project, in the Pantanal and Cerrado in Mato Grosso do Sul (MS), aims to investigate the ecology and biology of the species and to understand its working in the ecosystem to propose actions that may contribute to its conservation. It is the largest species of armadillo - reaching up to 150 cm and weighing up to 50 kilograms - and is currently classified as Vulnerable in the IUCN/SSC Red List of Threatened Species. In Brazil, the giant armadillo is present in the Amazon, the Pantanal, the Cerrado and the Atlantic Forest. For its protection, the project operates on different integrated fronts: scientific research, environmental education, training and communication.

Scientific Research in the Pantanal and Cerrado

In 2018, one of the project's main objectives was accomplished: participation in the national red list and the creation of a National Action Plan for giant armadillos. This had been the target since the beginning of the project, in 2010. The action plan is composed of eight new objectives and 31 actions, and it should be ready for implementation in March 2019.

In the Pantanal, the work is executed at Baía das Pedras farm. There, in 2018, the target was to recapture the 7 giant armadillos that are currently under study. A total of 11 procedures were performed for GPS placement. Since 2010, 29 armadillos have been captured and monitored. Studies were also executed on the reproduction of the species, and they already show that male sexual maturity takes place between 7 and 9 years of age. This figure is relevant to understand more about the cycles of the species, as this is a rare animal that is extinct in some areas.

In the Cerrado, in 2018, six campaigns were performed in the field in the area of highway MS-040, to evaluate the density of giant armadillos

in the region. The work took place at 30 farms, in a total of 69 landscapes, with 180 camera traps and a total effort of approximately 5,400 days of sampling through cameras. The study resulted in 23 records (38%) in the 60 areas sampled, close to the highway.

At Cisalpina Reservation, another study area in the Cerrado, the field work to monitor the armadillo population continued. There, the giant armadillo has become a symbol. The work in the area will be expanded to new areas for monitoring in 2019.

Project has advanced to Atlantic Forest areas in Espírito Santo

The giant armadillo (*Priodontes maximus*) is restricted to few areas in Southeast Brazil. Less than 10 years ago, records of armadillos were found in the Sooretama Biological Reservation (RBS) and in the Vale Natural Reservation (RN), both in Espírito Santo, as well as in the Rio Doce State Park (PERD), in Minas Gerais. As it is a rare animal, there is a chance that such areas may be the final refuges for the species in the Atlantic Forest. After a study at RBS, which confirmed the occurrence of giant armadillo dens in the area, as well as their use by other animals, the Giant Armadillo project extended its studies to the two reservations. Together, they cover 50,858 hectares and make up a continuous block with one of the largest and most important remaining forests in Espírito Santo.

The project objective was to learn more about the populations living in the Atlantic Forest, what their behavior is, and what their current state of conservation is. In the region, the team trained five students, 18 forestry guards in the reservations, two park directors and six firemen.

During the field work, 21 dens were found, and 18 of them started being monitored with camera traps. In all, 28 species were documented using the dens. However, only two giant armadillos were recorded. In 2019, the Atlantic Forest project will be expanded to other areas.

Scientific tourism with the armadillo

Baía das Pedras, Pantanal, is one of the only places where the giant armadillo may be seen in nature. For this reason, the project has established a partnership with the farm for development of a Scientific Tourism Program. Seven small groups were received in 2018.

Communication and Education

Taking information to a broad audience through several medias is part of the project strategy to popularize the giant armadillo and have more people supporting its protection. Thus, in 2018, the project produced a strategic plan for Communication and Education, with the support of the Houston and Chester Zoos. Specialists from universities, NGOs, zoos and private businesses participated. The idea is to expand the work that has already been under development over the years, now with environmental educators. In 2018, the project took environmental information to 20 schools in the city of Campo Grande, in partnership with ICAS (Instituto de Conservação de Animais Silvestres).

American zoo to have area dedicated to the Pantanal

The centenarian Houston Zoo (Texas, United States) will have a series of celebrations and novelties in 2022. One of them will be the restoration of the zoo, with the inauguration of several new areas, including one dedicated exclusively to the Pantanal biome. And this is greatly due to the IPÊ and to the Tapir and Giant Armadillo projects, in Mato Grosso do Sul. Houston Zoo has been supporting the Lowland Tapir Conservation Initiative (LTCI) for 18 years and the Giant Armadillo project since 2013. The project teams are involved in the design and development of the new area.

GIANT ANTEATER (*Myrmecophaga tridactyla*)

Through the Bandeiras e Rodovias project, IPÊ and ICAS researchers are trying to understand and quantify the impacts of roads on the survival, population structure and health of giant anteaters and, thus, to define strategies for management of landscapes and roads to prevent potential extinction. In 2018, a total of 1,337 kilometers of roads were researched every two weeks, totaling 61,688 km covered. A total of 6,775 records of roadkill were recorded. This includes 1,060 six-banded armadillos, 484 nine-banded armadillo, 271 lesser anteaters, 44 naked-tailed armadillos and six giant armadillos. Blood and tissue samples were also collected from 911 animals and 95 necropsies were performed.

In six field expeditions, 44 giant anteaters were captured for radio-collar monitoring. Over 100 interviews with rural residents and truck drivers were performed to measure the perception people have of the giant anteater.

3. THEME PROJECTS

3.1 Integrated Solutions for the Amazon Region

Protected Areas are instruments for protection of Brazilian biodiversity. The environmental services they provide, like the supply of water and food, regulation of the climate, fertilization of soil, as well as green spaces for leisure, education and culture are essential for the entire society. There are currently 324 federal protected areas that cover all Brazilian biomes: Atlantic Forest, Amazon, Cerrado, Pantanal, Pampa, Caatinga and Coastal Marine. IPÊ has been developing integrated solutions, through partnerships, social participation and innovative models alongside the Protected Areas in the Amazon, aiming at collaborating to implementation and effectiveness.

3.1.1 Participative Monitoring of Biodiversity

Biome: Amazon

Area of operation: 17 Federal Protected Areas (11,970,762.04 hectares)

No. of people benefited: 1,864

In the Participative Monitoring of Biodiversity (MPB), the community plays a fundamental part. The project, developed in partnership with the Chico Mendes Institute for Biodiversity Conservation (ICMBio), proposes the generation of information and the exchange of knowledge with researchers, managers, and populations of federal Protected Areas in the Amazon and their surrounding areas regarding the importance of the local biodiversity for its effective protection, including the participation of all sectors.

The work covers several fronts: including integrated activities, technical meetings for presentation and generation of social awareness, mobilization and articulation of local players, as well as promotion of meetings and workshops for training using playful and didactic methods, collection of samples, and analysis and interpretation of data. As a result, data about biodiversity is generated. This data supports the elaboration of proposals for management of natural resources and helps in decision making processes. The project is part of a greater initiative, ICMBio's National Program for Biodiversity Monitoring (Programa Monitora), which had its fifth anniversary in 2018.

In all, 17 Protected Areas currently count on this participative monitoring, which is promoted by some 100 monitors each year. For this task, IPÊ and ICMBio have developed methodological routes with the community and researchers, developing models to be applied in the evaluation of the fauna and flora. In 2018, with the implementation of regional monitoring of Brazil Nuts, four new Protected Areas (including state ones) were incorporated into the project: Resex do Rio Cautário - Federal, Resex do Rio Cautário - Estadual, Resex do Lago Cuniã and Resex Rio Ouro Preto, all in the state of Rondônia.

In the year, the events promoted included 18 events for initial mobilization with local institutions and communities, 16 courses for monitors, 5 returns to the community, 8 events, 20 meetings and workshops for identification of targets and establishment of protocols for local monitoring, 12 collections of data for forestry monitoring and 5 collections for complementary monitoring.

Communities, IPÊ and ICMBio develop and share knowledge in favor of biodiversity

The MPB project has already generated much information in the areas monitored from 2014 to 2018. The figures are being discussed and used in scientific research of species, in the improvement of knowledge on biodiversity and in sustainable management of forestry assets. They provide subsidies for the planning and improvement of the management of these protected areas, as well as directly contributing to the fight against climate change, the extinction of species, deforestation and poverty.

On expanding the participative processes, the project promotes the configuration of management agreements for sustainable use of natural resources, which are relevant to local residents. Today, they can count on broader and more real mapping of biodiversity conditions and of natural resources on which they directly or indirectly depend, and they add that into a way that adds income, becoming monitors after participating in training events. In 2018, 16 were promoted.

"The studies are very important, but the work goes beyond the knowledge collected, as it also includes participation of the local population for the management of Protected Areas. Therefore, it is fundamental to reach the Brazilian targets in the Biological Diversity Convention and the Aichi Biodiversity Targets," says Cristina Tófoli, project coordinator.

Some figures:
3,579 records of birds and mammals
20,551 records of butterflies
775 water turtles
1,756 lumber plants
777 trees
23,095 Brazil nuts
1,720 records of mammals in forestry management areas
1,351 records of game for the subsistence of local populations

2018 was also marked by the start of work for Collective Construction of Learning and Knowledge (CCAC), a moment developed in partnership with the ICMBio for exchanges between those involved in monitoring.

Mobilization of the society and partnerships for concrete solutions in conservation

One of the examples of how articulation between the community, managers of Protected Area and IPÊ takes place in the MPB project is promotion of monitoring of chelonii. In the Biological Reservation (Rebio) on Trombetas River (Pará state), for example, the 2018 season of release of the Giant Amazon River Turtle (*Podocnemis expansa*) ended with the release of 5,050 turtles. In all, 27,862 Giant Amazon River Turtles were released, due to the efforts of 27 families who live in the Rebio and monitor biodiversity in this Protected Area.

Rebio Trombetas, covering over 4,000 square kilometers, was established in 1979, to guarantee the protection of the Giant Amazon River Turtle, as it is the area with most records of this turtle in the biome. However, ICMBio figures show that the population of baby turtles has dropped since then, from 600,000 to 30,000.

ICMBio has been working for protection of chelonii in the region for 40 years, through the Trombetas River Chelonii Project (PQT). In 2017, IPÊ became one of the PQT partners, promoting training and

mobilization of communities for conservation of the fauna and flora in the biome, as well as providing technical and financial support to the release of hatchlings. With the PQT, IPÊ operates as a fundraiser and promoter, aiming to improve and simplify family monitoring of turtles. As is the case in other Protected Areas, the studies on biodiversity are performed by the communities, following a methodological plan established by ICMBio, researchers, the civil society, and the community, so that the figures may be used efficiently, focusing on conservation.

Communities move home to monitor

Every year, 27 families move voluntarily out of their homes in their community to closely follow the chelonii laying period. The function of the monitors is to verify the safety of the nests at the site of laying and if they need to be moved to an area with lower survival risk (hatcheries). Risks to the eggs are elevated by the level of the river, which may bar the development of the young, but mostly due to predators, be they natural, by the local fauna, or human. At their temporary homes, between August and December, the monitors guarantee inspection until the young hatch and are transferred to a shelter until their day of release into the river.

"In the past, many young died. We improved as we gained experience," said monitor Raimundo Barbosa. He says that, although the annual average of nests has been around 520 over the last three years, there has been an improvement in the number of turtles seen. "We can see that there has been an improvement. We can now see them in the river, which we were no longer doing. But we are fighting to have greater production. If we let them, they will all disappear," said Barbosa, who shares the work with his wife, Dulcinea. "We work for love, taking care so they will not disappear. Because if we just let them be (with no monitoring and protection) they will disappear. That is why we are here," she explains.

Each family receives from the ICMBio all the material necessary to perform this monitoring, including fuel and volunteer jackets. Even the school boats are turned to the temporary housing at the time of laying, guaranteeing the transport of the entire family so that the routine activities are not affected. Despite the work being volunteer, the families also receive food baskets, donated as the result of a partnership between ICMBio and a local mining company.

Project Participative Monitoring of Biodiversity is a partnership between ICMBio, Gordon and Betty Moore Foundation and the USAID.

Learn about the project
https://youtu.be/5eqUFzd_nW8

3.1.2 Motivation and Success in Management of Protected Areas

Biome: Amazon

Area of operation: 30 Federal Protected Areas (28,701,983 hectares)

No. of people benefited: 125

The partnership between IPÊ and ICMBio for the project for Motivation and Success in the Management of Protected Areas (MOSUC) has been taken place since 2012. The initiative supports the management of federal Protected Areas in Brazil, providing incentives to entrepreneurship of managers with regard to good management practices, expanding the involvement of the society and fostering arrangements that expand the number of people operating directly alongside the managers (partnerships and volunteer work), and building platforms that promote information and knowledge. It has the support of the Gordon and Betty Moore Foundation.

Innovative experience strengthens network partnerships benefiting Protected Areas in the Amazon

In 2018, the MOSUC project supported the strengthening of management of Protected Areas in the Amazon based on a pilot project of network partnership. Socio-environmental organizations operating in the biome signed agreements to help in the implementation of action plans in support of the strategic objectives of the Protected Areas, alongside the ICMBio. The pioneering strategy was adopted to make up for the personnel needs for execution of the activities in large protected areas, as is the reality in the Amazon.

Through 12 local institutions in the biome, 54 collaborators were hired to operate in the Protected Areas, in the states of Roraima, Rondônia, Amapá, Amazonas, Mato Grosso, Pará and Acre. The initiative covers 14 territories, including Protected Areas and integrated management nuclei (NGIs) in the Amazon.

Strengthening institutions and causes

To stimulate the development of the organizations so that they participate in the Protected Areas and support their management, the project developed a series of workshops for 12 institutions, throughout 2018. From the newest to the most experienced, all brought some useful knowledge to their evolution in the challenges of establishment of partnerships for conservation of the Amazon.

Established in 1996, the Almerinda Malaquias Foundation (FAM) is one of the participants in the MOSUC. The organization provides environmental education to around 150 children and youths during the school breaks, as well as generating income for 70 people in the Amazon. It is present in an area that involves three Protected Areas: those of national parks Anavilhas and Jaú, and the Extractive Reservation on Unini river.

The NGO has a good partnership with the managers of these areas, but it did not yet operate more effectively in Protected Areas. With the workshops, the vision of possibilities for joint operation grew.

"Although there was already good partnership with the managers, our activities were not related to the management of Protected Areas or practices in the field. With the MOSUC workshops, we became better prepared to further improve institutional companionship ties with the management of these protected areas. In 2019, we plan to take our team to the areas to develop environmental education work within the parks, and organize talks and workshops," said the administrative assistant at the foundation, Paulo Henrique Queiroz da Silva.

Paulo participated in three workshops in 2018, and, according to him, that was a thunderbolt moment for the organization's method of operation.

"We are no longer the same after these workshops in support of institutional development. They brought us valuable information, like techniques that are more turned to the administrative and institutional safety areas. We are putting some of the administrative actions in practice and they are already making a difference." However, according to him, the moment of exchange with other participating institutions at the workshop was inspiring for FAM to progress in its mission. "We got to know about each institution and learnt about the difficulties we have in common, like logistics matters, communication, administration, technical knowledge. But the life lessons and lessons in overcoming for the cause were surprising. We could see that it is really worth it to take on a cause we defend. With each workshop I was strengthened by hearing about each institution," he added.

Circuit

To evaluate the result of the training, IPÊ promotes the MOSUC Circuit, an expedition with individual visits to project partner organizations to support their institutional development and the activity plan developed over the days of training.

Volunteer Program has new system

Originally from Ipatinga, Minas Gerais, Lucas Soares made use of his holidays in his Environmental Engineering course to travel to a different beach, far from the traditional tourist destinations. He chose to be a volunteer on the beaches of the Amazon, following the Chelonii Project on Trombetas river (PQT), responsible for conservation of the Giant Amazon River Turtles, in the Trombetas River Biological Reservation (Rebio). To get there, Lucas used the new ICMBio Volunteer System platform, showing his interest in being part of the activities of the Protected Area. Developed by IPÊ, in partnership with ICMBio, the digital system links information from Protected Areas that need volunteers with the information of those available. There, the volunteers can fill out their records, and also control the frequency.

"Use of the platform was very easy. Registration is very didactic, and the information is very well explained in the calls to action. I thought it was very easy and accessible to find the information I needed to volunteer," explained Lucas.

Participation of volunteers in protected areas has been growing exponentially. In Brazil, volunteer work in federal Protected Areas takes place through the ICMBio (Chico Mendes Institute for Biodiversity Conservation) Volunteer Program. Currently, 168 Protected Areas and research centers participate in the program. In 2017, a study recorded over 2,200 participants and around 103,000 hours of volunteer work. The number of volunteers has also been rising and the potential is immense. Between July 2018 and February 2019, almost 10,000 people registered in the ICMBio Volunteer Registry.

Research shows the main contributions of volunteers in the management of Protected Areas

An IPÊ study complements the research promoted with volunteers, published in 2017, and shows important similarities between the perception of volunteers and the managers of Protected Areas.

<https://eventos.fundacaogrupoboticario.org.br/Anais/Anais/TrabalhosTecnicos?ids=4686>

Third edition of the magazine brings examples of Protected Area management

Magazine Boas Práticas na Gestão de Unidades de Conservação (Good Practices in the Management of Protected Areas) is a partnership between IPÊ and the Brazilian Municipal Management Institute (IBAM). The magazine brings 76 practices used in federal Protected Areas that were successful in overcoming the most varied of daily challenges, like fires, illegal hunting, territory demarcation, communication and community participation. It counted on the partnership of USAID, Forest Service Department of Agriculture, GIZ, IDB, Caixa Socio-Environmental Fund and the Ministry of Environment.

www.ipe.org.br/boaspraticas

3.2 Research & Development

3.2.1 Monitoring of Ecological Corridors

Natural capital of the corridor has its analysis finalized

In 2015, IPÊ started analyzing the natural capital of the Rosanelia Farm Ecological Corridor, the

largest reforested corridor in Brazil, in the Atlantic Forest in Pontal do Paranapanema (state of São Paulo). The corridor currently includes over 2.7 million trees and connects the main Atlantic Forest Conservation Units in the interior: Morro do Diabo State Park and Black Lion Tamarin Ecological Station.

To form this corridor, IPÊ counted on several partners, including some in the private initiative, like CTG Brasil, in its revegetation programs. The company went beyond restoration and supported the Institute's project for development of a methodology for appreciation of the ecosystem services promoted by these restored areas, using innovative technology. The final results of this process were presented in 2018.

Including technicians and specialists from the IPÊ, as well as scholars from the Faculty for Environmental Conservation and Sustainability, UNESP and ESALQ - USP, the project team used advanced methods, like LiDAR (Light Detection and Ranging), Audio recorders and Automated Remote Biodiversity Monitoring (ARBIMON), DNA analysis and Camera Traps to evaluate the following ecosystem services: Water Resources, Sound Landscapes and Biodiversity (birds, amphibians and mammals), Soil and Ecology of the Ecosystems, Forestry Carbon and Flower Studies.

It was discovered, for example, that 17 species of trees that were not planted in the corridor are present now. *"This shows that trees were introduced naturally, for example, through dispersing birds. With audio recorders, the project identified the presence of these species of birds in the corridor. The presence of fauna shows that the forest is doing its part for the local biodiversity. Apart from trees, the use of camera traps is also showing that medium and large mammals are already using the area of the corridor for movement," says Laury Cullen Jr, project coordinator for the IPÊ.*

Project "Developing Technologies for Appreciation of Ecosystem Services and Natural Capital in Environmental Programs" was one of

the 16 cases selected by Getúlio Vargas Foundation and Página 22 Magazine for the special edition of the magazine on Business Management of Natural Capital.

<http://www.p22on.com.br/en/2018/10/02/mensurar-para-conservar/>

4. PARTNERSHIPS AND SUSTAINABLE BUSINESS

IPÊ's Sustainable Business Unit (UNS) performs projects and campaigns to contribute for dissemination of the socio-environmental cause among the most varied of audiences. Through the UNS, IPÊ stimulates the creation of sustainable alternatives for income for communities residing in priority areas for environmental conservation, and it works in partnership with the private sector and other organizations in the civil society, with initiatives that transmit to the society the importance of conservation of biodiversity and sustainability in the Country.

SOCIAL PARTICIPATION

Sports and Conservation of Nature in Ecoswim

The union between swimming and the environment is what moves the participants of Ecoswim. In the 2018 edition, in the city of São Caetano do Sul, the 41 teams who participated each swam for an hour, in a competition in which the true winner is the Atlantic Forest. That is because the value of registration is donated to the school nursery that IPÊ maintains in Nazaré Paulista (São Paulo).

The 11th edition brought together over 600 people and raised R\$ 13,000, turned to maintenance of the sapling nursery that serves as the source for new trees for reforestation in the Cantareira System and also as a space for environmental education for the community, students and teachers of local public schools.

With the resources raised last year, alongside the complementary support of other partners, IPÊ managed to improve the infrastructure of the nursery, produce over 40,000 saplings, retain a nursery carer, promote visits by teachers to the area and donate saplings in events, like the Ecoswim itself.

Environment and fashion go together with Havaianas-IPÊ

The new 2018/2019 Havaianas-IPÊ collection was designed by artist Arlin Graff, Brazilian, from Tatuí (São Paulo), who won the world with his art on walls, and now lives in New York (USA). His style brings back the memories of his experiments in his father's carpentry workshop, creating shapes and objects with small offcuts and pieces of wood that remained. The creations influenced his abstract art and, after some time, also influenced his drawing of animals.

The marking style of his geometric forms and bright colors were used to show the stars of this collection: The Red-and-green Macaw (*Ara chloropterus*), the Jaguar (*Panthera onca*) and the Black Lion Tamarin (*Leontopithecus crysopygus*). This is the 15th collection resulting from the Cause Related Marketing partnership between the flip-flop brand and the Institute. Apart from promoting the wealth and the beauty of Brazilian biodiversity to brand consumers, Havaianas-IPÊ support the conservation of the fauna and flora in the country: 7% of the sales revenues with the flip-flops are turned to IPÊ for its institutional development. The funds grant the necessary support for the research, education, reforestation, sustainable business and influence in public policies may take place.

In 14 years, over 14 million pairs of flip-flops have already been sold, and they have generated around R\$ 8 million, turned to the cause. In 2018, sales totaled 692,580 pairs of flip-flops, resulting in R\$ 665,157.41. The product may be found at the Havaianas stores, and also at the IPÊ shop (www.lojadoipe.org.br)

Socio-environmental information and the culture of donation with Arredondar

The Movimento Arredondar (Rounding Up Movement) bets on micro-collection to support causes of great relevance to the society, like the socio-environmental cause. At partner establishments, clients are invited to round up the value of their purchase and donate the "rounded up" cents to Brazilian NGOs. The fifth year of IPÊ participation in the Rounding Up project was marked by a series of talks by the team at five Havaianas shops and in 16 Luigi Bertolli shops, which round up exclusively for the Institute. In all, 287 people participated in the talks.

Patrícia Esperidião de Lima, manager at Luigi Bertolli, in Shopping Patio Paulista, in São Paulo, confirms that the training by the teams is of great importance. *"There is always news about how the evolution of the projects is going, how much has been raised and how influential we were for that to happen,"* she explains.

The event with the managers is also of great relevance to motivate the teams. To Patrícia, participating in the project has a sentimental value. *"I was born and raised close to Cantareira (one of the places in which IPÊ operates). When there was the water crisis, I was very concerned because what I used to see in abundance when I was a little girl was running out, and I saw the rivers, the springs, and even the animals suffering. Therefore, being able to help IPÊ through Arredondar is very gratifying to me, knowing that they are there, operating in that region, for the water."*

Apart from Luigi Bertolli, Megashop also rounds up exclusively for IPÊ, thus supporting the projects for conservation of biodiversity. Throughout the year, in 43 partner establishments, IPÊ received R\$ 74,789.79 based on individual donations that do not exceed R\$ 0.99 with each purchase.

Since the beginning of the movement, Movimento Arredondar (Rounding Up Movement) has already had 8,134,934 donors and has raised R\$ 2,236,206.93 for organizations in the civil society.

Innovation in rounding up

In 2018, IPÊ, Arredondar and Tricard (Sistema Integrado Martins) joined forces in a pioneer initiative in the microdonation sector. Since last year, card clients have been granted the option of rounding up their monthly bill, turning the cents to IPÊ. The novelty of the mechanism is the ease, as the client decides to round up just once, through the Tricard site or app, and it is valid continually. Thus, as is the case with the rounding up system at the cashiers of partner shops, the rounding up of the invoice will never exceed R\$ 0.99, guaranteeing safety for clients interested in participating.

Tricard (Tribanco) has been an IPÊ partner since 2006, through donations connected to some of its financial products, as well as the Rounding Up movement. This institutional partnership is of significant importance due to the unrestricted funds, fundamental to the sustainability of not for profit organizations. Each operation with the Crédito Certo Tribanco product generates 10 cents in donations to IPÊ projects and 1 cent in each invoice paid at Tricard is also turned to the strengthening of the Institute. In 2018, donations totaled R\$ 66,519.95 through this kind of support.

Other initiatives that simplify donations

Initiatives that stimulate donations to socio-environmental causes have grown in recent years. This is the case with the Turista+ project, an initiative of Atibaia & Região Convention Visitors Bureau (AR&CVB), which celebrated two years in 2018. With Turista+, 20% of the "room tax" (a volunteer donation by the guest) is turned to IPÊ. Apart from contributing to research, studies and to the environmental actions of the Institute, those who decide to make the small contribution are also covered by a special insurance against personal accidents during their stay. In the year, 16,739 people decided to pay the "room tax" and R\$ 7,339.83 were turned to IPÊ. The initiative includes hotels Tauá, Atibaia Residence and Pousada Paiol.

Institutional Strengthening

For six years, the IPÊ has counted on a partnership with Crescimentum Consultoria in support of improvement of the Institute's staff. The company is specialized in training people for leadership. With the partnership, 35 IPÊ professionals have already undergone important training processes.

Flower and Strawberry Festival

For the third year running, IPÊ participated in the Flower and Strawberry Festival in Atibaia (São Paulo). The festival celebrated its 38th anniversary and is the fourth largest cultural festival in the state of São Paulo, in terms of attraction of public. This traditional festival celebrates the Japanese culture through several attractions and products for flower and strawberry cultivation, which are typically local.

Some 4,000 people visited IPÊ's two booths at the event. There, visitors were able to participate in environmental education activities and had their doubts clarified about environmental conservation and sustainability. At another booth, IPÊ traded the shop products (www.lojadoipe.org.br), which contribute to the conservation of Brazilian biodiversity and to the revenues of local communities participating in socio-environmental projects.

5. Education

Education is in the IPÊ's DNA. With ESCAS, the Faculty for Environmental Conservation and Sustainability, the Institute has taken education turned to transformation of the socio-environmental reality in Brazil and worldwide to a larger and larger number of people. The institution offers short courses, Professional Masters and MBAs, with a multidisciplinary outlook, seeking to engage more and more professionals in social segments with the principles of sustainability and conservation.

ESCAS

6,713 students since 1996,
280 in 2018
300 students served for free and mostly free since 1996
133 Masters graduated since 1996

ESCAS starts campaign for scholarship fund

Seeking to provide leverage and more opportunities for students and professionals in conservation, in 2018, ESCAS inaugurated the Scholarship Fund. The proposal is to raise funds to make it possible for new students interested in training and education in conservation and sustainability to have a chance to study in a school that is a reference in the area. The campaign is taking place through Global Giving. In 2018, donations reached US\$ 8,000. The campaign continues in 2019.

<https://goto.gq/35036>

ESCAS has already trained over 6,700 people in over 20 years, more than 300 of them with full or partial scholarships.

International Partnerships

Partnership trains students and farmers

The partnership between ESCAS and the School of Forestry and Environmental Studies at Yale University's ELTI - Environmental Leadership & Training Initiative (USA) promoted two courses in 2018 - one about Sustainable Productive Systems and Forestry Restoration for 20 high school students undergoing technical education in rural settlements in the Pontal do Paranapanema, and the second, in partnership with IPÊ's Sowing Water Project, turned to farmers in the watershed of the Cantareira System. In both, the proposal was to promote interaction and demonstrate solutions for the construction of productive and sustainable landscapes.

Eighth year of partnerships with the University of Colorado Boulder

2018 was the eighth year running of the "Conservation Biology in Brazil's Atlantic Forest Global Seminar" - a partnership between ESCAS and the University of Colorado. The course included the participation of 14 Biology and Ecology students, with professor Timothy Kittel, from the University, and assistant professor Rafael Chiaravalloti, an IPÊ researcher. The program included learning about the main IPÊ projects in the Pontal do Paranapanema and in the Iguaçu National Park (Paraná).

Earth Institute Center for Environmental Sustainability (Columbia University/USA)

In June 2018, eight undergraduate students from Columbia University entered the summer program for practical and theoretical lessons on the theme of the Brazilian ecosystem. This program is led by the Earth Institute, in partnership with ESCAS, in a collaboration that has already lasted 18 years. Students have lessons at the IPÊ headquarters in Nazaré Paulista and, for part of the course, around 10 days, they go on a technical visit to another region. This time they visited the Atlantic Forest in the south of Bahia, where they visited Veracel Station, Pau Brasil National Park and an Agricultural Settlement.

Construction of Platforms for International Courses

Since 2017, ESCAS has been working on establishing an online platform with information about courses turned to foreign schools and students. This activity has the support of Steven Carlson - an MBA student at ESCAS -, and also of Professor LaDawn Haglund, from Arizona State University/USA (with support of the Fulbright Brazil Commission).

SHORT COURSES

NUMBER OF STUDENTS TRAINED (PRESENTIAL COURSES): 44

NUMBER OF STUDENTS TRAINED (DISTANCE LEARNING): 208

NUMBER OF PEOPLE ON FREE ONLINE EVENTS: 6.755

Objectives of Sustainable Development were a great novelty

To help companies and organizations to implement the Sustainable Development Objectives (SDOs) in their practices, ESCAS promoted its first course on the matter for professionals interested in establishing, implementing and monitoring SDOs agendas in their organizations.

"Companies are being pressured more and more by society regarding their socio-environmental impact and the SDOs are in the center of this discussion as they are part of a great international agreement, sanctioned by all the countries that are members of the UN and that will be the focus of the socio-environmental agenda in coming years. Thus, being aligned with the SDOs, specially locally, is a way to prepare yourself for the agenda that is under implementation. This proactive attitude may generate fruit in terms of the brand, but it is also essential for the management of risk that the company may face," said Carol Ayres, one of the course trainers.

In 2018, ESCAS also promoted the Landscape Ecology and R Program traditional courses, at its headquarters in Nazaré Paulista (São Paulo).

Online education expands the reach of ESCAS content

The Online Education platform boosts the actions for promotion of ESCAS knowledge.

In 2018, 6,547 people were assisted in free online education events (webinars, workshops and talks).

The R Program Course for Conservation Biology, developed in partnership with Bocaina Conservação, has reached a total of 528 students since its release, in 2015. In 2018 alone, there were 208 students.

Social-Environmental Business MBA

NUMBER OF STUDENTS TRAINED: 15

In 2018, 15 students participated in the Socio-Environmental Business Management MBA. Promoted by ESCAS, at its headquarters in Nazaré Paulista (São Paulo), the course has pedagogical support of ARTEMISIA Negócios Sociais and CEATS-USP (the Center for Entrepreneurship and Administration in the Third Sector) and attracts several professionals, who seek development in the areas of sustainability and socio-environmental education based on inclusive business and shared value.

Ana Luiza Reis Rosa da Silva was one of the MBA students in 2018. A Biologist, she saw in the course an opportunity to improve in themes that helped her in the daily life in her work in the area of Sustainability at Suzano Papel e Celulose, and even in her professional growth within the company. "Through what I learnt at IPÊ I managed to participate in an internal selection process in the company to boost my career. The knowledge that I got in the MBA was a great differential in this process," she said.

The content was also fundamental for Ana Luiza to manage to develop another project with 31 bee keepers in Paraíba Valley, contributing to the improvement of the cooperative in which they are members, Coapvale (Cooperativa Agropecuária do Vale do Paraíba). "The bee keepers were living economic problems at their cooperative. Through the course, I used several disciplines to help structure a management plan and socio-economic development for the cooperative, with recommendations for governance, marketing, communication, management structure and personnel management. I am going to present the project to them and, in case they accept it, to implement the plan," she added.

PROFESSIONAL MASTER'S

With professors operating in the socio-environmental conservation market and lessons turned to practical sustainability questions, the Professional Master's in Conservation and Sustainable Development has a grade 4 at CAPES (with the maximum grade being 5) and is turned to the most varied of professional profiles. Over 11 years, the course has been showing itself to be a divider of waters in the careers of those who undergo the training. ESCAS trained 113 masters and, according to studies by the School, 41% of masters graduated currently operate in governmental institutions, 32% in the private sector, 25% in Civil Society Organizations, and 2% in universities. Almost 40% of the students who underwent the masters managed to enter the work market in conservation or sustainability through the network of contacts made in the course.

In 2018, ESCAS had two groups, one at the Nazaré Paulista (São Paulo) campus, and another in Serra Grande (Bahia). In São Paulo, through awards, agreements and projects, the organization provided scholarships (WWF-EFN) to five students. In the far south of Bahia, in partnership with Veracel, Instituto Arapyaú, Instituto Cargill and Fibria, full scholarship were granted to all nine students. In both places, ESCAS provides an environment for the sharing of learning in conservation and sustainability, and in construction of innovative knowledge to transform realities.

"We are more tree than cellular"

Some scientific studies about the relation of nature and human well-being and the improvement of people's health have reported the several benefits that contact with natural environments may generate. Despite growing, research is still timid when compared to the potential of the theme. To contribute to this question, ESCAS master Juliana Gatti brought this subject to light as the final paper of her master's, focusing on a very specific area, children's oncology.

What if this feeling of well-being that contact with nature brings could be expanded to those living delicate health conditions? The question generated in Juliana a desire to develop a research project to start measuring the effects that contact with nature can have on patients in hospital environments, to those accompanying these patients, and to hospital staff. For this, she counted on a partnership with ITACI, the Institute for Treatment of Children's Cancer, a public hospital connected to the Children's Institute at the Clinical Hospital of the USP School of Medicine. "Many patients spend much time in the hospital, sometimes long periods, in environments that do not favor this kind of contact for a series of reasons. Some even have no windows due to health conditions. How can we take nature and its benefits to an environment like this?" When faced with this challenge, some initiatives were developed in the hospital environment, from modifications to the physical environment, to playful activities that she started calling TAN (Therapy for Appreciation of Nature) in her studies.

The tree coverage in the hospital surroundings was expanded, with exotic species, and the number of trees planted on the sidewalk rose from five to 21. In the hospital yard, flowers were planted to attract fauna. In some areas of the building, pots were placed with fruit and vegetables, for interactive activities, and in the hospital reception, native flower and fruit trees are displayed. "With these changes, we developed some focused observation to identify the interaction of people with this biodiversity. Parents and children playing amidst flowers on the sidewalk, staff eating and chatting under jabuticaba trees in pots..."

In a second phase, we performed 30 interviews with staff members and parents or those responsible for the patients, bringing a view of how the relation with nature took place there. And, in the third phase, with the implementation of the TANs, it was possible to perform interaction with the patients themselves. For each patient, a different form of approach was used, in accordance with their stage of treatment.

For those in isolation, images of animals and forests were used, in plasticized material, and sounds of nature were played, equalized through an app. Others were able to have a greater sensorial perception, touching leaves of different plants, for example.

The research is in its early phase, but the first results show that the humanization of the hospital environment have given positive signs in interactions between people and provided a greater sense of well-being. What started as a master's research has now become a department in the Integrative Therapy Unit at ITACI, and Juliana is now the coordinator of Nature Appreciation Therapies at the hospital. The research work is now continuing through the department and through her doctoral studies, which she will take at the Clinical Hospital itself.

"In my ESCAS Master's, I gained the space necessary to put my idea into practice. It was the bridge for connection of the environment and health, and that was only possible due to the model the course provides. Furthermore, I found my professional space. My life purpose is now to provide this kind of link between patients in hospitals and nature, as a way to recover their health and expand human well-being. I hope that I can make my contribution to the world alongside other research that also shows the benefit of these relations between humans and nature," finishes off Juliana.

A painting of a river scene. In the foreground, there are several small wooden boats, one red and one blue, partially hidden by dense green foliage and vines. The water is a light, misty green color. In the background, there are more trees and a rocky shoreline.

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