Markus Faschina and Sandrine Beauchamp

Chronicles of a Citizen Engagement

Everyday Heroes of Biodiversity

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Everyday Heroes
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To all those
who transform ideas
into concrete action

SUMMARY

Map of Ecofund-supported initiatives across Cape Verde, Senegal, Mauritania and Morocco

Diembéring, Casamance | Senegal
Project 1 "Casamance Ecoparc"

Noflaye | Senegal
Turtle Village

Ferlo | Senegal
Project 2 "Turtles for the Sahel"

Dakar | Senegal
Project 3 "Recovering Lost Nylon Nets"
Project 4 "On Your Marks… Study, Dive, Protect!"
Project 5 "The Prophecy"

Banc d'Arguin National Park (PNBA) | Mauritania
Project 6 "A Bird Observatory in the Banc d'Arguin National Park"
Project 7 "Protecting Spoonbill Nests"

Raso Island | Cape Verde
Project 8 "Protecting the Sea Turtles and Birds of Raso Island"

Tizi n'Oucheg | Morocco
Project 9 "Plant Your Tree in Tizi n'Oucheg!"
Project 10 "May There be Water in Tizi n'Oucheg!"

PROLOGUE

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Pink-backed Pelican, Sine-Saloum Delta, Senegal

OPPOSITE
Mangroves, Casamance, Senegal

NEXT PAGE
Atlantic puffin, Shetland Islands

It all began with Augustin.

The women and men of the rural community of Diembering in Casamance, Senegal, wanted to protect their forest. They wanted to stop poaching, uncontrolled woodcutting, and real estate exploitation. Although they had some personal resources, these were not enough. One of these people, Augustin, went out seeking additional funds to fence in this beautiful 32-hectare forest area, so precious to the village.

Did we want to help Augustin? Certainly! And this is what we did, promptly and on a personal basis. But how could we ensure that support for these committed residents would be sustainable in the long term?

This question inspired us to envision Ecofund: a web platform that would allow us to present initiatives like these to a wide audience, raise funds online, and enable these local and modest initiatives to make a lasting, positive impact. We launched the Ecofund platform by publishing Augustin's inspiring project online. After a few months, his story had convinced 39 individual donors. Moreover, two corporations, encouraged by the Ecofund community, made significant donations. Thanks to this support, Augustin was able to order a professional fence designed for nature reserves to protect the Diembering forest.

Though he would always say he was doing nothing special, we saw for ourselves how Augustin worked every day to protect this natural environment. To us, he was a modern-day hero.

Over time, we found other heroes as well. There was Lamine and his African spurred tortoise nursery, Sidi and his fight to protect the migratory birds of his native Banc d'Arguin in Mauritania, and José and Tommy: a father and son dedicated to preserving endangered species in Cape Verde. And then, of course, there was Rachid and his fruit tree plantations in the Moroccan Atlas Mountains. All of them shared an unwavering conviction, and thus we called them Ecofund "champions:" or, more affectionately, "our" champions.

We are proud to have been able to support these everyday heroes, encountered in Africa and elsewhere during our organization's fifteen wonderful years of adventure.

These are "our champions." The stories of their commitment are a testimony to their heroism.

PART 1

Ecofund: One Web Platform, Champions, One Method

ABOVE
Ecofund web platform

Birth of the Ecofund

The idea for Ecofund started in Senegal. It was born from a village community's urgent desire to protect a forest in Casamance, and it is thanks to an initial encounter, to the ties of friendship with Augustin, and to our own willingness to support his project. This was back in 2006.

AN IDEA, A FRIENDSHIP, A CONCEPT: ACCORDING TO MARKUS FASCHINA

I arrived in Senegal in August 2003 to open and manage the West African regional office of the German Development Bank. Driven by my professional obligations, I then travelled throughout Africa. In 2008, I joined the Investment Climate Facility for Africa: a multinational pan-African project financing fund. Traveling across the African continent, I realized that there were people like Augustin, Lamine, and Rachid everywhere: women and men who, through local initiatives and often below the radar, nevertheless managed to have a positive impact on protecting ecosystems.

Rich on new experiences, I came up with the idea of structuring a fund for non-profit projects aimed at highlighting these small, impactful initiatives and connecting them to donor networks. I also became the father of twins in 2009; our third child was born in 2012. Preserving our planet for future generations appeared to me as the utmost imperative. Back in Senegal with my family in 2010, my wife Sandrine and I decided to take action and create "Ecofund." We talked about it with a few friends with whom we shared the same passion for nature and adventures in Senegal and elsewhere in Africa. They joined us without hesitation.

We remember very well the first Ecofund meetings in Dakar, oftentimes around a quiche and a bissap (juice made from hibiscus flowers). We were very motivated by the idea of saving our planet! Our team grew quickly: we had to develop positioning, communication and launch strategies, design the visual identity of our organization, develop the coding of our web platform, take care of the administrative and legal aspects, and, above all, most importantly, carry out the inaugural Ecofund project in Senegal.

KINDNESS, COMMITMENT, AND ENERGY: ACCORDING TO SANDRINE BEAUCHAMP

In 2006, I was in Dakar, Senegal, with Markus. I was then in charge of international cooperation programs for the European Commission, specializing in private sector promotion and culture. My close relationships with cultural stakeholders undoubtedly allowed us to carry out some great projects later on, such as with the Senegalese graffiti artists on the highway, the legendary Senegalese hip-hop group Daara J, the Cape Verdean singer Mariana Ramos, and the photographer Fabrice Monteiro.

Coming from a mixed European-African background, I spent my childhood in Africa. Since then, I have always loved traveling and encountering new cultures, which has allowed me to discover Latin America, the Caribbean, and West Africa. Curiosity, passion for my job, and a desire for adventure are what brought me to Senegal. It was by living in less developed places, with less local awareness of environmental protection, that I realized the originality and the potential of an idea like Ecofund, nurtured on the ground.

I still vividly remember the birth of "our fourth child," as Markus and I would later call Ecofund. We were on vacation in Zanzibar, alone in the world on a wonderful and lonely beach, when Markus mentioned Augustin's case and suggested that we consider developing a more comprehensive approach. In these years, birthday and wedding fundraisers were all the rage, especially in English-speaking countries, and this inspired us quite a bit. By late afternoon, after some good sunburn, the vision of Ecofund was born! All what remained was to make it a reality.

I felt that in Dakar anything was possible so long as you had the energy and some resources. We were young and met a lot of particularly interesting and talented people, such as Assane: a young Senegalese computer scientist with great potential.

After two years of conceptual work and computer coding, more quiches and bissap, reflections and dreams, our Ecofund team officially launched its web platform in Dakar in 2011. Apart from the festive and benevolent spirit that reigned, especially during meetings and actions carried out in the field, it was astonishing to see our various contributors' capacity for commitment, since issues could often seem overwhelming. We were surrounded by plastic bags and trash everywhere we went: at the seaside, in the countryside, in the city. The important thing for me was to mobilize all our positive energy,

even if no one member of our team was a paragon of environmental virtue. This is why I wanted to contribute to making Ecofund a cool and uninhibited project, far from the moralizing speeches of certain ultra-militant associations.

Sandrine sums it up: Ecofund is a simple tool open to everyone: everyone can participate, and everyone can take action. Even a single, small contribution can have a positive effect on our ecosystems—so, imagine a way to unite them! This is why I immediately believed in Ecofund.

Official and Joyful: The Launch of Ecofund

Sandrine and Markus remember: Here we are, on July 2, 2011, invited to one of these Koulgraoul events organized by Oceanium: a leading Senegalese nature conservation association located on the Corniche in Dakar. The Oceanium Koulgraoul, derived from the expression "Cool Raoul," meaning "relax," is an institution, a concept, and a much-anticipated monthly get-together among friends by the sea, to the sound of a DJ's turntables. It's a positive state of mind open to the world: a philosophy.

More than 500 people gathered to dance, chat, and discover Ecofund together. Amidst the feel-good vibes of music and movement, on a cliff overlooking the ocean, our small team—Sandrine, our coordinator in Senegal Marième Kane, and Markus—presented the Ecofund web platform for jumpstarting simple local initiatives to protect our ecosystems. We explained how, thanks to Ecofund, champions could meet individuals eager to protect our biodiversity and to lend a helping hand to specific projects.

Apart from the fact that anyone can support projects and monitor their tangible results daily while these projects are being implemented, the best thing about Ecofund, we emphasized during the evening, is that the platform enables genuine eco-cultural exchanges between people who would otherwise never encounter each other.
With the conviction that good ideas spring up within communities, the adventure was started together with all our friends.

Our Team

ELISABETH BRYLOK, CHARLES CORDIER, DIRK FENTROSS, MATTHIAS GRUNER, FRANK HÖRIG, OLIVER KÖNIG, KLAUS-DIETER MÜLLER, NORA SELIG, MARTIN SELIG, AND OTMAR VEIT.
They didn't hesitate for a second! Many of our friends even sponsored Ecofund. They enabled its registration as an association and supported it from behind the scenes. Even today, they ensure its proper functioning with respect to German law. Friends, sponsors, guarantors, and advisors: this is who forms Ecofund's administrative board. Including the two of us, this board is composed of the following twelve founding members:
Ecofund's active team is made up of motivated entrepreneurs, development advocates, and nature lovers, all who want to highlight the initiatives of champions working to protect our ecosystems. We all want to contribute our professional expertise in project design, management, and evaluation, as well as our extensive experience in developing countries—all without counting the costs! Many joined our adventure over the course of our encounters and travels: here are some of their stories.

MARIÈME KANE, COUNTRY COORDINATOR
Between 2003 and 2007, I established and managed the German Development Bank's office in Senegal with Marième Kane, recalls Markus. In addition to her administrative responsibilities, Marième also worked on projects in microfinance and on the restructuring of slum areas, such as those in the suburbs of Dakar. As a mother, she wants future generations to be able to enjoy nature– and everything starts with its preservation. So, it was only natural that I asked her to join the Ecofund adventure. For Marième, "Ecofund allows everyone to give a boost to good, green ideas." Beyond her extensive network of contacts in Senegal, thanks to her diplomacy and perseverance Marième has enabled Ecofund to overcome the administrative and legal challenges faced by a start-up, despite its benefit to the public.

CARLOTA THÉVENOT, MARKETING STRATEGIST, AND WINNIE DUJEU-LOH, GRAPHIC DESIGNER
Returning to Senegal in 2010, after my long "professional journey" across the African continent, I met Carlota Thévenot and Winnie Dujeu-Loh in Dakar. They had just settled in Senegal.

Carlota was a Marketing Director for multinational natural cosmetics companies in New York. She immediately offered to develop our positioning and communication, as well as our launch strategy.

Carlota is our source of inspiration for Ecofund's marketing and communication. During her many travels, she saw first-hand the high level of environmental pollution, which is especially apparent in developing countries. For her, "Ecofund is the tool that allows everyone to get involved in environmental protection in a very simple and, above all, tangible way. I believe in local champions and their actions, which can have a significant impact on our communities."

Winnie, art director at multinational communications agencies, has always been deeply committed to creative and sustainable entrepreneurship. Her talent, dedication, and professionalism were instrumental in translating the Ecofund concept into the virtual realm. Winnie designed the visual identity and the timeless design of our web platform.

CHARLES CORDIER, CO-FOUNDER AND ECO-PROJECT MANAGER
We shared many nature outings together in Senegal and its surrounding region! Charles Cordier was already a member of an environmental association in Senegal, a diver, an ornithologist, and an amateur wildlife photographer. When we met him, he was very active in nature conservation. It was only natural that he became a founding member of Ecofund.

GUILLAUME BLANDIN, WEB DEVELOPER
Guillaume Blandin was introduced to me by friends in Senegal. He loves spearfishing and all aquatic sports. In fact, it's through these activities that he became aware of the challenges of preserving our marine ecosystems. Now, he's putting the expertise of his web design company at the service of Ecofund, which he sees as a modern tool for preserving our environment. He's our web development expert.

ASSANE SECK, WEB DEVELOPER
Assane Seck specialized in web and mobile application development when I met him at one of the hackathons organized in Dakar, Markus recalls. Assane participated in the development of numerous applications in Africa. Assane was convinced that "it would be fantastic to be able to mobilize people from diverse backgrounds around a common environmental goal at the local level." A member of the Ecofund team, gifted with great skill and humility, Assane was committed to the environmental cause, contributing his expertise to the development of our web platform.
He proudly represented the dynamism of young African entrepreneurs and received an award from the U.S. Secretary of State.

Assane has departed the planet Earth he loved so much. We lost a friend with exceptional human qualities. Rest in peace, Assane! We will continue our work in your memory.

HENNING DENCKS, DESIGNER

It was Otmar Veit, founding member of Ecofund, who put us in touch with Henning Dencks in Freiburg, Germany. Henning has extensive experience as a designer thanks to the numerous projects he has led in Hamburg, New York, and Berlin. He ensures that our ecological analyses and messages are presented beautifully on our web platform. “When I’m not working, I enjoy jogging, mountain biking, or simply relaxing in the Black Forest (in Germany) to contemplate its irresistible natural beauty. My involvement with Ecofund has allowed me to apply my inspiration to the service of nature.”

JULIEN CORDIER, ECOLOGY CONSULTANT

Charles, our founding member, did not hesitate to mobilize his brother Julien, an ecological engineer based in France, specializing in ecosystem protection and management. Julien led environmental assessments of development projects, assisted in defining and implementing environmental policies, and also worked on nature management and conservation projects. Julien became our ecology advisor. He evaluates the feasibility of eco-projects in relation to their expected environmental outcomes. For him, “Ecofund is a way to raise funds for local projects that address today’s environmental challenges.”

SANDRINE BEAUCHAMP, CO-FOUNDER AND HEAD OF COMMUNICATIONS

Thanks to her energy, Sandrine has maintained the family balance between our three young children and Ecofund, our fourth baby, says Markus. Without her, the Ecofund adventure would not have been able to continue for 15 years. I also vividly remember her participation in the World Parks Congress (WPC) in Sydney, Australia. Alongside crowdfunding giants like Indiegogo, Sandrine has positioned Ecofund as an environmentally focused alternative that prioritizes collaboration and tangible results.

MARKUS FASCHINA, CO-FOUNDER AND CHAIRMAN

Markus is a huge nature enthusiast. Ever since he was able to stand on his own two feet, he has been exploring forests and mountains on foot or by bike with his equally adventurous friends.
Without Markus, the project would never have been possible, says Sandrine. With his strength of conviction and unfailing

determination, he contributed greatly to surrounding ourselves with the right people to move forward, while sharing common values and a goal that was not yet a widespread priority at the time: protecting our environment. He naturally assumed the role of CEO of Ecofund: an organization he intended to be pragmatic and effective.

Thanks to Ecofund, we were able to boost our champions’ initiatives together.

Ecofund: A Positive Spirit First and Foremost

Preserving our planet is not an impossible task, but a worthwhile challenge within everyone's reach. This is what we believe. It's this spirit of positive action that we try to spread with Ecofund and the unique platform it provides.

→ INFORMATION

Our Ecoblog takes you on a journey to the most remote locations to learn about the challenges and opportunities of environmental protection. It teaches us how these local initiatives can matter to all of us. Protecting migratory birds in Mauritania's "Banc d'Arguin," for example, ensures that we in Europe can still hear the songs of birds in the spring after a cold and grey winter.

→ DIALOGUE

On Ecofund, global citizens can exchange stories and ideas about how to protect our planet's biodiversity. Our web platform is a virtual meeting point for all those who don't have time to wait for political decision makers to address the needs of environmental protection.

→ ACTION

We identify, promote, and encourage positive initiatives by connecting supporters with champions and their concrete projects. Our champions do extraordinary things every day to preserve our biodiversity. Ecofund closely follows each project, guaranteeing concrete and tangible results.

These three pillars are Ecofund's driving force for a sustainable, positive environmental change.

The Concept of Ecofund

We believe climate change conferences and government laws are important, but we need more local champions for green initiatives, and they need our help to preserve our shared ecosystems.

Ecofund is based on the following concept: **champions** develop **eco-projects**, thanks to **eco-partners**, relying on a **community approach**.

CHAMPIONS

Since we believe that everyone can be a champion, and that small efforts can produce a broader positive effect on our ecosystems we adopted the term "champion" to describe the local actors we meet and who we decide to support.
A "Champion" is the local person, group, team, or association that owns the project: meaning, whoever initiated it and will implement it. Determined, dynamic, and entrepreneurial: these are our true champions!

ECOPROJECTS

We believe it is more efficient and sustainable to preserve an ecosystem through small, locally motivated actions, rather than restoring an already damaged ecosystem through expensive taxpayer funded programs. Ecoprojects are classified in categories. The term "ecoprojects" designates thoroughly researched and selected projects, which will produce a positive impact on our ecosystems.

ECOPARTNER

We choose this term to describe the organization or individual(s) who are backing a given ecoproject. They monitor the project for Ecofund and build a partnership with the champion. Ecopartners are recognized for their professional know-how and track record of successfully managing ecoprojects.

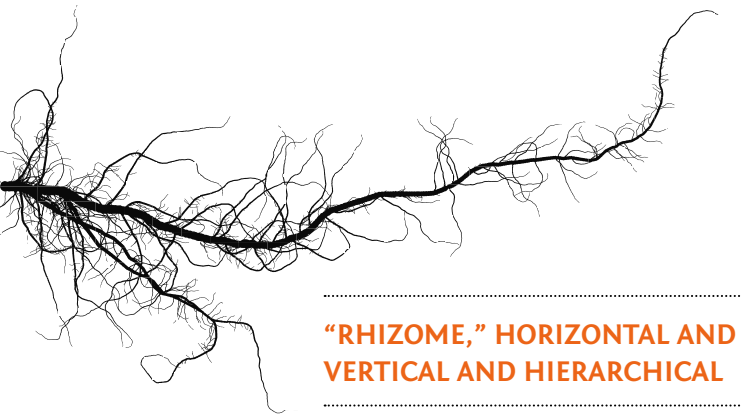
COMMUNITY APPROACH AS RHIZOME

The term rhizome was used at our founding meeting in 2010. Ecofund's approach should be structured around a "Lean" management structure (the so-called "Lean" structure allows for maximum value creation, while consuming minimal resources) and a around a nomadic, dynamic, and non-hierarchical community based on shared values and qualities. We envisioned using the internet

and social media to help multiple individual contributors interact with local initiatives, creating a positive impact on the environment together.

ECOFUNDERS

Financial and in-kind contributors make up the Ecofund Community. They are the “ecofunders” of the projects funded through our online platform.



“RHIZOME,” HORIZONTAL AND MUTUALIST, RATHER THAN VERTICAL AND HIERARCHICAL

*A **rhizome** is an underground, generally horizontal **root system** of certain perennial plants, such as bamboo, irises, or potatoes, which develop at the tips of a rhizome.*
*The rhizome is also a concept proposed by the philosopher Gilles Deleuze and the philosopher and psychoanalyst Félix Guattari. They used this term to describe theory and research that allows for **multiple, non-hierarchical entry and exit points** in the representation and interpretation of data.*
*Deleuze and Guattari contrasted the rhizome with a **tree-like conception of knowledge**, which operates via dualistic categories and binary choices. While a tree-like model operates by means of vertical, linear connections, a rhizome model instead works through horizontal, trans-species connections. These theories are particularly useful for understanding postmodern computer-mediated communication and the theory of cyberspace (Wikipedia, Facebook, and the Internet more generally).*

FOCUS

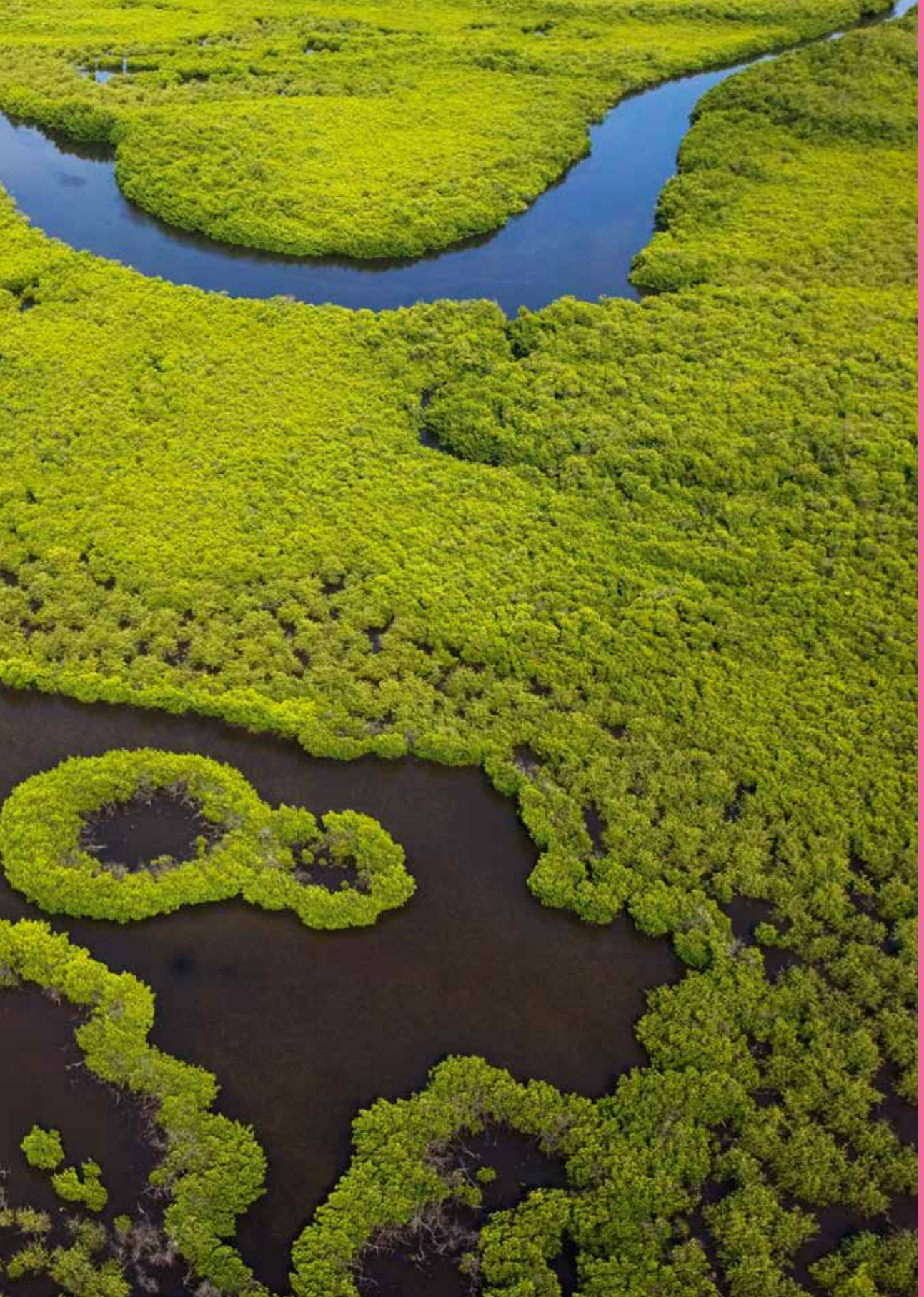
ENCOURAGEMENT FROM THE START

On December 7th in 2011 in Durban at the 17th international conference on climate change COP17, Ecofund was awarded the APPS 4 AFRICA prize for technological innovations by the United States Department of State. This award recognized our organization’s ability to better understand and respond to local environmental challenges.

APPS 4 AFRICA

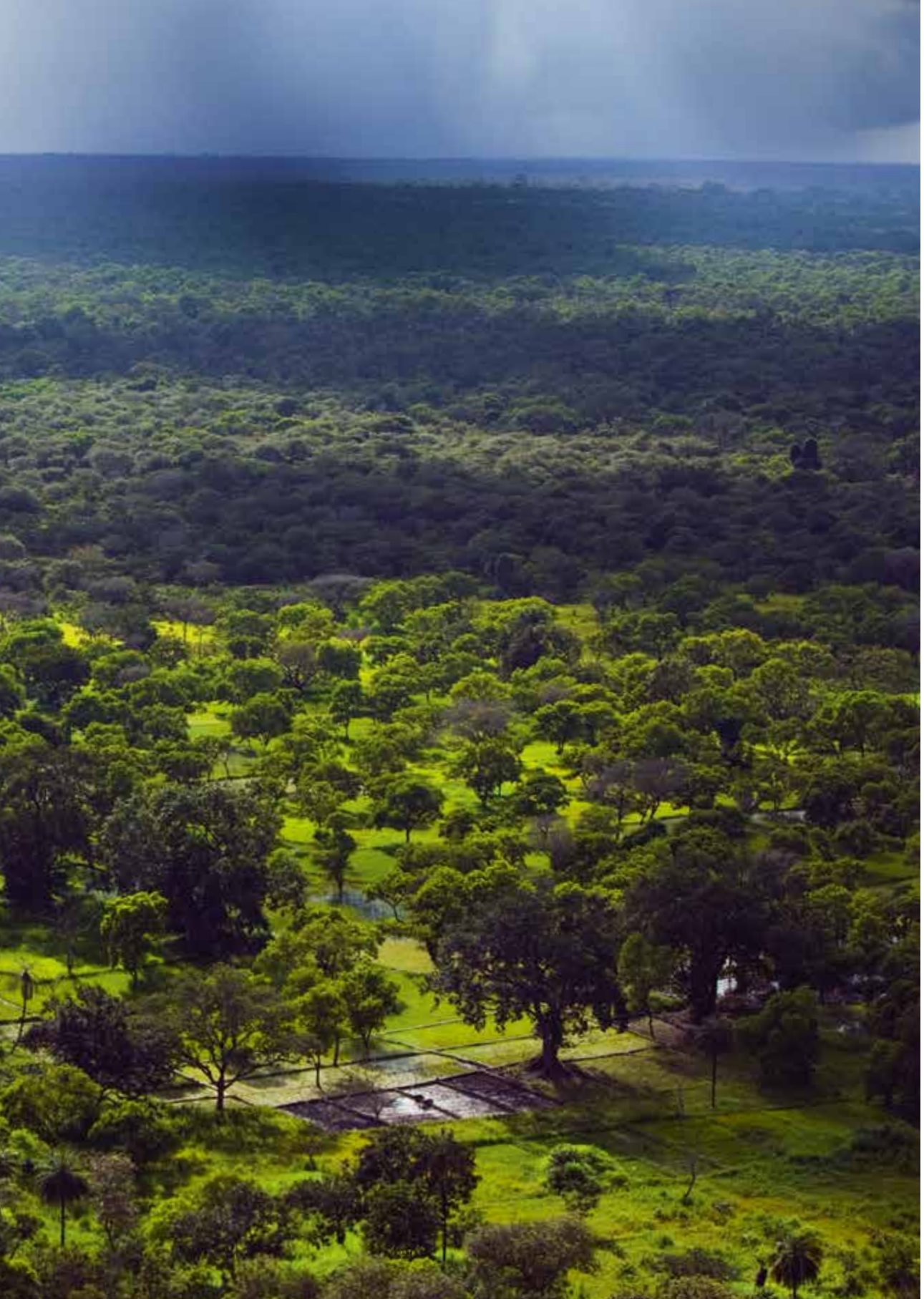
As part of its engagement with African partners to address the challenge of climate change, the U.S. Dept. of State launched a competition inviting software developers to create applications for mobile phones and computers to help communities cope with the impacts of global warming. The competition was sponsored by the Dept. of State in partnership with nongovernmental organizations and the private sector. It awarded African innovators for whom everyday challenges provide an opportunity to be creative.

One planet, shared ecosystems,
and one common future.
Welcome to Ecofund, a space where
good intentions meet good ideas.



PART 2

Ecofund's Ecoprojects



SENEGAL
A Country with Two Worlds

PAGE 24
Mangroves, Sine-Saloum Delta, Senegal

OPPOSITE
Tropical forest, Gambia – Senegal

The arid climate of the Sahel, dotted with wooded savannahs shaped by the hot and relentless desert wind, might make Senegal seem monotonous. But if you travel south from the sands of Mauritania to the lush forests of Guinea and Guinea-Bissau, or from the eroded banks of the Senegal River to the rolling Atlantic, the country begins to reveal its great diversity of ecosystems.

The dominant landscape remains the savannah: a grassy woodland that occupies 45% of the territory. Dry and tropical forests make up only 4% of the country. They are a rarity that must be preserved at all costs. Once you cross over the English-speaking enclave of Gambia, a lush idyll appears, amply irrigated during the rainy season from July to October. This is Casamance. But in tropical environments like this one, just as in the Sahel to the north, forests are plundered and poached into disappearance.

Forest Decline: An Alarming Observation

According to the FAO (Food and Agriculture Organization of the United Nations), terrestrial natural ecosystems are generally marked by regressive dynamics.
Indeed, forest formations have retreated in favour of agriculture, for example with the gradual establishment of the traditional peanut basin in Senegal. “Only a few examples of wooded savannahs exist in these areas and they are generally located in sites with difficult-to-cultivate substrate (hard topsoil crusts) and in sacred sites” (FAO)[1].
The problems of the forest are manifold. In addition to the natural scourge of drought, there are also threats linked to human action such as logging, which takes place in untouched forest areas, harvesting the wood for energy, building materials and heating. This exploitation has had devastating effects on endangered species of trees. The south of the country provides the wood fuels, which represent nearly 90% of household energy and more than 48% of national energy.[2] The forest is at risk of disappearing not only due to the overexploitation of its natural resources, but also as a consequence of fires, particularly bush fires, not to mention agricultural clearing, encroachment on protected areas, and animal poaching. Between November and May, every year more than 700,000 hectares of Senegalese forest areas and pastures are lost due to bush fires, representing an annual loss of around 30 billion CFA francs[3] (around 45 million euros).

Registered in 2008, protected areas covered 6.2 million hectares and include protected forests, parks, and reserves. Together, they form a network of six national parks, six reserves, 213 protected forests, two world heritage sites and three Biosphere reserves[4]. However, the mere fact of classifying a forest as protected has little impact on this natural heritage’s development or the protection of its biodiversity. Most protected forests do not benefit from any development: the fauna evolves and adapts with difficulty, while local human populations derive little benefit, as access is either prohibited or exceedingly difficult.

(1) 4th National Report on the Implementation of the Convention on Biological Diversity. Government of Senegal/UNDP
(2) Statistics from the Senegalese Ministry of Energy
(3) IMEM- Pr.Tidjani/Ecofund e.V. - The Prophecy Project 2014
(4) National Report on Sustainable Development CDD 16/17, May 2008, Senegal

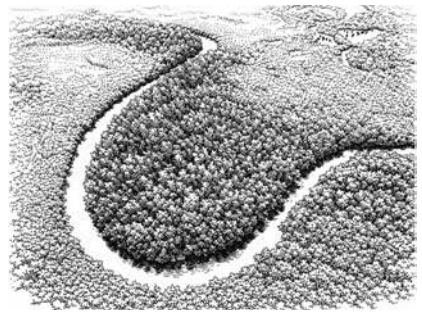
The Forests of Casamance: a “Green Lung” to Protect

All economic, cultural, and social life revolves around forests in Casamance.
Considered a “green bank” by the Senegalese population, the Casamance forests provide grains and nuts, various fruits, other food crops, valuable medicinal plants, fibers, and wood for carpentry, the forest is a treasure whose protection must take absolute priority.

FOREST PARADISE

Beaches and coconut palms, rivers and *bolongs*, palm groves and mangroves… the rainforest is multifarious. Among the most widespread tree species, the enormous kapoks, the potbellied baobabs, the plentiful coconut palms and mango trees, as well as precious woods such as mahogany and teak are true treasures.

THE BOLONG: AN ESSENTIAL ELEMENT OF THE SENEGALESE LANDSCAPE



*A **bolong** (the term is of Mandingo origin) is a winding channel where fresh water from rivers and their tributaries (like at Saloum, Casamance) mixes with seawater that rushes in with the rhythm of the tides. Often bordered by mangroves, bolongs are very **rich in biodiversity**, with the roots of mangrove trees providing spawning grounds for fish. In Casamance, many villages are built on the edge of a **bolong**.*

BENEFICIAL PROPERTIES

Palm trees produce palm oil and palm wine. *Kinkeliba* is a bush whose leaves heal wounds and, when chewed, relieve malaria attacks. It is also here in these forests, near the water, that numerous species of migratory birds and mammals live and breed, including buffalo, manatees, and monkeys.

SACRED PLACES

For the Diola people in Casamance, nature is sacred. As a community, they devote themselves to its preservation. Sacred forests are therefore the best-protected woods: campfires are prohibited, and access is reserved for the initiated. Forests often serve as ritual sites: rites of passage into adulthood all take place deep within the forest. During these initiations teenagers learn traditional mores, ancestral songs, and the codes of adult village life.

AN ECOSYSTEM UNDER THREAT

Efforts have been made to protect the tropical forests of Casamance: The National Park of Lower Casamance, represents one effort, and the Diantème protected forest, another. But these efforts remain seriously threatened by uncontrolled and often illegal logging. This "silent destruction" and medium-term catastrophe have long been denounced by scientists and activists like the Senegalese environmentalist Haidar el Ali.

At last, preventing forest degradation and mediating conflicts over access to resources has become a priority.

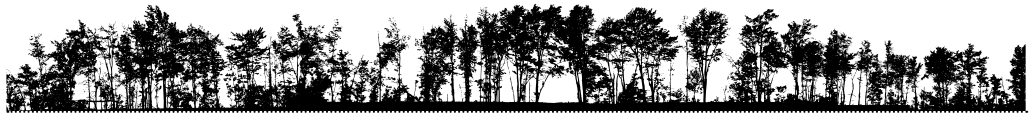
The project of sponsoring and protecting a primary forest took on its full urgency in consideration of this alarming context. Our aim was to protect a forest like the one belonging to the rural community of Diembéring, in Casamance.

Project 1 A NATURE RESERVE FOR CASAMANCE

Protecting the Forest from Overgrazing and Poaching

ABOVE
Casamance Ecoparc Forest, Diembering, Senegal

The Diembéring Forest is located less than 10 km from Cap Skirring, one of the country's main tourist centres. The forests of Casamance lie west of the regional capital of Ziguinchor and form part of the Zinguichor Region. Apart from a few coastal areas in Gambia, they are ecologically unique in the region: evergreen forests dependent on heavy rainfall and high humidity. These dense forests are home to trees including kapok and baobab, as well as teak trees, cashew, oil palms, mango trees, and kaya wood trees, often of exceptional size. The biome extending over the Guinean-Congolese forest is richly biodiverse. 278 bird species find their homes in this forest region, with a respectable 37 species found just in Casamance. And due to their stringent habitat requirements, these are some of Senegal's rarest bird



BIOME

*This is the term for a **vast geographical area, ecologically homogeneous and often expansive in its territory**. Biomes are defined by their **climates, flora, and fauna**. A desert, a tropical forest, a marsh, a savannah: all of these are examples of biomes. The Casamance forests lie at the northern edge of the Guineo-Congolese rainforest biome, a forest formation located on a geologic plain.*

species. They are also some of the least known. The *parc national de Basse Casamance*, where most can be found, has been closed since the early 1980s. None other of the forests seem to have been visited by ornithologists since then.
The 32-hectare forest land was allocated to Augustin's family in 1988 for the exploitation of its timber. In 2008, Augustin decided to save this forest. To this end, he created the Association for the Protection of the Environment in Senegal (APES).

An unrestricted forest can be very enticing to everybody, beginning with livestock—zebu, goats, and sheep—that regularly come to feed there, attracted by the abundance of foliage, branches, bark, and sometimes roots. Grazing pressures of livestock trampling on the forest floor strains the forest, leading to the disappearance of singular plant species and sometimes to the associated wildlife. This results in a gradual impoverishment of forest biodiversity.
Illegal harvesting regularly occurs in these forests for timber and firewood. This sort of plundering starkly accelerates the forest ecosystem's degradation, harming its capacity for natural regeneration. To protect the Diembéring forest in the long term, there was only one solution: fencing it in.

Augustin Diatta explained all of this to Markus in 2005, during the half-marathon they co-organized to introduce Casamance to the still few tourists in this region battered by years of separatist armed conflict. We were deeply touched and inspired by the commitment of Augustin and Diembéring's residents to protect a forest ecosystem vital to their community under the prevailing conditions. We supported them: at first, on a personal level. Thanks to our efforts, our new friend was able to purchase tools to clear the forest and a mattress for the future "ecolodge" he was already planning.

ABOVE
Augustin Diatta, champion of the project Casamance Ecoparc, Senegal

AUGUSTIN DIATTA: PORTRAIT OF A CHAMPION

A native of Casamance, father of a family, entrepreneur, and proprietor of a tourist camp near Diembéring, Augustin was already deeply committed to nature conservation when we met him. He had founded the Association for the Protection of the Environment in Senegal (APES). With the help of his family and friends, he was considering creating a nature reserve.

Augustin explains, "For us, the forest is sacred. Moreover, its fruits have provided us with significant nutritional and medicinal value for generations. The forest also allows us to attract ecological and responsible tourism, which helps the local economy prosper."

We vividly remember our walks together 15 years ago in the forest. It was his favourite place. He constantly stopped along the way to admire the plants and trees. He talked about their medicinal properties. He told stories about the forest to our children, surely stories he himself had heard from his ancestors when he was little. His eyes shone, his face radiant. He said that, if it were up to him, the forest should remain "untouchable." But this dream couldn't account for the growing population around the forest. It had to be protected, and this became a reality a few years later with the nature reserve.

From the Enclosure of a Community Forest to a Nature Reserve

Augustin's project was the first one to be featured on our brand-new participatory platform to be presented to the public. We were excited: his initiative was attractive. 39 sponsors from Spain, Germany, France, Luxembourg, Senegal, Ivory Coast, Australia, and the United States each donated between 5 and 250 euros, for a total of 2,500 euros. Convinced by Augustin's project and encouraged by the Ecofund community, Eiffage Senegal and the German Embassy made a significant donation and thus made it possible to close the total budget of 22,500 euros (or 14.76 million FCFA)

Thanks to this support, Augustin was able to order a fence in May 2012, designed specifically for nature reserves. This is a "Ferlo" fence, also used for Senegal's Bandia Nature Reserve.
The fence is intended to protect and dissuade through its robustness, its height (2m), and its implementation (the mesh sheet is buried 30 cm at ground level to avoid burrowing the creation of passages under fencing). Migration patterns are preserved by the size of the fence's meshing. Square openings 150mm wide allow small mammals, insects, amphibians, reptiles, and molluscs to pass unobstructed, all of them playing an important role in the dispersal of seeds and, therefore, in the regeneration of the forest. Small, local fauna can thus move freely into and out of the forest.
Augustin was delighted and didn't wait a day to start putting up the fence. Once the protection was completed, the forest's protection was confirmed by the signing in 2012 of an agreement among four parties: the Ziguinchor Regional Council, the Diembéring Rural Council, Augustin's family, his association APES, and Ecofund. This document formalizes the protection and sustainable management of the forest, which is now officially named "Casamance Ecoparc." It became the first privately managed protected forest reserve in Senegal.

On the one hand, the champion's unique abilities and leadership; on the other hand, the collaborative and participatory approach envisioned by the champion and encouraged by Ecofund: both are essential conditions for any project's success.

PRESERVING AND PROMOTING THE DIEMBÉRING FOREST

We had supported Augustin and his APES association from the start by highlighting and connecting the project to donors via our online platform. Following the completion of Phase I, our platform was ready to support Augustin in completing Phase II: the creation of an ecological trail and the development of an ecolodge: the Nature School (École Nature).
Indeed, the two phases were complementary. A fence would not be enough to sustainably protect the forest. Better access, accompanied by information about forest biodiversity, would help the villagers sustainably make use of the forest's resources, while ensuring that its new facilities stayed maintained.
On the one hand, the champion's unique abilities and leadership; on the other hand, the collaborative and participatory approach envisioned by the champion and encouraged by Ecofund: both are essential conditions for any project's success.

Proven Results

With APES and the support of the Ecofund community, including Eiffage Senegal and the German Embassy, Augustin Diatta was able to save 32 hectares of beautiful native forest on the southwest coast of Senegal, near Diembéring in Lower Casamance.

→ A PILOT EXPERIMENT

The Casamance Ecoparc was a pilot experiment in many ways.
First, it was a project led locally by the residents of the towns of Oudja and Diembéring, and not by donors or an NGO. This is rare enough in Senegal to be remarkable. Second, it was made possible thanks to the innovative approach of the Ecofund crowdfunding platform and its community of national and international contributors. Indeed, Ecofund brings together contributions of all kinds, both public and private, in addition to citizen support. All these contributions work toward the same public-interest objective: to preserve and protect the local forest.

→ A MODEL TO BE REPLICATED

Since the installation of the fence in May 2012, originally intended to prevent poaching, real estate exploitation, and livestock overgrazing and trampling, the protection of the forest has become a reality: a substantial area, 32 hectares, have been preserved for the benefits of local population and for the protection of its biodiversity. The

THE EURASIAN BULBUL (BLEDA CANICAPILLUS)

*The **Eurasian Bulbul** could be the emblem of the Casamance Ecoparc. Although quite common, this **small bird** is associated with the forests of West and Central Africa. However, it is only observed in a few forested areas in the southwest, in **Senegal** and **Gambia**. Our observations were the first to report the presence of the Eurasian Bulbul since 1979. We were therefore extremely excited! Bulbuls are more often heard than seen. We therefore have little knowledge of their biology. The fragmentation of West African forests poses a threat to many species that owe their survival to the maintenance of large forests. However, a recent study in Ghana showed that the **Eurasian Bulbul can tolerate smaller forests** with shorter trees, as evidenced by our observation. So, let's wish the Casamance Ecoparc a long life so that we can observe the Eurasian Bulbul for many years to come!*

flora and fauna are thriving and even recovering within the forest, as evidenced by the encouraging results recorded by Ecofund during various monitoring missions.

On July 5, 2013, the Casamance Ecoparc was inaugurated in Diembéring in the presence of Mr. Haidar el Ali: at the time, the Senegalese Minister of the Environment and Sustainable Development. The Minister announced his intention to create a "green lung" in each village of Casamance, following the example of this nature reserve.

→ THE FLOURISHING OF PLANT LIFE

According to an inventory conducted in August 2011 by students from the National Training Centre for Water and Forestry Technicians, the 32 hectares of the Casamance Ecopark are home to 22 botanical families, with 45 plant species in total. Among these, eight have been identified as protected or endangered (18%): cashew (*Anacardium occidentale*), mango (*Mangifera indica*), African mahogany (*Afzelia africana*), oil palm (*Elaeis guineensis*), African fan palm (*Borassus aethiopium*), white acacia (*Faidherbia albida*), African crabwood (*Carapa procera*), and cabbage tree (*Anthocleista nobilis*).

BELOW
The Ecolodge in the Casamance Ecoparc, Senegal

→ A PROMISING ORNITHOLOGICAL INVENTORY

Following two ornithological surveys, one by the Ecofund team in February 2012 and a second in 2013 by French ornithologists Jean-François Blanc and Simon Cavaillès, consecutive inventories of the birds in the nature reserve and its surroundings were carried out from the Oudja camp all the way the village of Diembéring. These are the first ornithological surveys to be conducted in this forest. They constitute an important scientific reference for monitoring the results of forest protection.

An ecolodge for the nature reserve

Designed by Augustin and the members of his association, the "École Nature" ecolodge was built in an environmentally responsible and traditional manner.
It consists of three simple Casamance-style huts, including a large impluvium hut (these constructions being characteristic of the region) with eight bedrooms for students, and two other buildings: two

TESTIMONIAL

First impressions of the Ecofund survey, February 2012

The first thing one notices, often observed in tropical forests, is the elusiveness of the birds. Most sightings are brief flights in the canopy, and it is only with practice that the unfamiliar calls, quickly reducing in intensity as the morning progresses, become recognisable. What a surprise to recognise the familiar, liquid song of a nightingale, a migrant from Europe!
While talking with two women who were searching in the forest for medicinal plants to soothe their children's stomach aches, we realized that the local population also has an excellent knowledge of the birdlife. As we search through the pages of our birdwatching guide, the two women point out the species we've caught in special nets set along the forest paths. What a pleasure to have their practical knowledge at our disposal! They also show us species we weren't able to see.
157 species were thus observed, among them several species endemic to Casamance: Sénégali, Ahanta Francolin, Green Crombec, Green-backed Camaroptera, Capuchin Babbler, Yellow-billed Malcoha, Green Hylia. A Golden Plover, a species native to North America, was also observed.

— PAUL ROBINSON & CÉLINE ROUX-VOLLON (ORNITHOLOGISTS)

bedrooms for teachers and a dining area. The ecolodge is equipped with solar panels for electricity, and its furnishings were crafted from natural, local materials: wood, bamboo, and earth. Augustin calls his ecolodge "École Nature" because he wants to offer a space for study and research on Casamance's flora and fauna in a natural environment in the heart of his forest. "École Nature" is also the name of the network of local schools with which he organizes "nature outings" and clean-ups of beaches and surrounding areas.

THE ECOLOGICAL TRAIL: A STRATEGIC ASSET FOR THE NATURE RESERVE

Once the forest was protected and the ecolodge built, Augustin and his association then considered creating an ecological trail. This new phase proved strategic for the entire project, providing better access to the forest and providing information on its biodiversity.
The concept of the ecological trail was developed in 2014 thanks to Ecofund's work for the nature reserve. Two trails (one 45 minutes long, the other 1.5 hours long) were equipped with 25 explanatory panels (22 about flora, two about birds, and another detailing a large termite mound) to make the visit informative and attractive for all types of visitors, particularly schoolchildren. According to the adage that we better take care of what we better know, the information panels are intended to be informative, to teach visitors about the different species that make up the richness of the forest, their characteristics, their usefulness, their virtues and, for some, the legends that surround them.
The development of the trail was made possible, on the one hand, by financial support from the Senegalese private sector through its corporate social and environmental responsibility program[5], and on the other hand, by Ecofund's crowdfunding campaign.

Information by All and for All

Because popular ownership can ensure the project's sustainability, the development of the ecological trail signs is an excellent example of a participatory approach. Scientists from the University of Ziguinchor, who regularly visit the Casamance Ecoparc and stay at the ecolodge as part of their studies, were keen to provide the information so that Ecofund could write the texts for the explanatory panels, making their knowledge accessible to all. Everyone is proud to have accomplished

(5) Eiffage Sénégal and Eiffage Groupe

OPPOSITE
Jean-Michel, guide at the Casamance Ecoparc, near the termite mound on the nature trail, Senegal

this teamwork while pursuing the same goals: promoting forest protection and making its riches known to tourists and local communities alike. A very valuable collaboration, in our estimation.
Today, many visitors come to explore this "green lung:" researchers, schoolchildren, students from the University of Ziguinchor's agroforestry department, ornithologists from Europe, residents of Diembéring and surrounding villages, and tourists spending their holidays at Cap Skirring. They all discover a space rich in still-little-known medicinal plants, fruit trees (lemon, mango, and weda), and animal biodiversity (birds, monkeys, warthogs, etc.).

BAOBAB INFORMATION PANEL

Legend says that God, on the last day of the creation of the world, remembering that he forgot to plant the baobab, threw it from the sky. The tree found itself with its head stuck in the ground and its roots in the air. This is one of the many legends attached to this tree: a symbol of strength, resilience and growth. On the coat of arms of Senegal, the baobab is, along with the lion, the emblem of the country because of its importance to the people.
Ancient and massive, with its wide trunk and soft wood, the baobab is aesthetically unique. Because of its many properties, it is also one of the most useful fruit trees in the Sahel:

→ FOOD SOURCE

All parts of the baobab can be used for food: the roots and leaves, often boiled, are rich in calcium, iron, magnesium and phosphorous. The highly nutritious seeds, when grilled, can be used to replace coffee. The fruit, also known as "monkey bread", contains twice the amount of calcium that milk does, and its pulp is a key ingredient for a popular local juice known as *bouye*. Most of all, the baobab's trunk can hold more than 100,000 litres of water, making the tree essential for the survival of many nomadic peoples.

→ THERAPEUTIC TREE

In traditional medicine, the baobab is used to fight against digestive problems. Bouye juice specifically is used to counteract diarrhoea. Moreover, the leaves are used in an infusion to help manage malaria fevers.

→ TREE OF ROPES

The bark's fibrous materials can be made into ropes, fabrics, fishing nets, and strings for musical instruments.

→ STRONG CULTURAL VALUE

A tree especially symbolic of West Africa, it is also an inexhaustible source of inspiration for painters, musicians, and poets: a magical space that represents both hopes and community superstitions. It has also been a tomb for *griots*: those bards and storytellers forbidden from being buried in the earth for fear of polluting its fecundity.

→ BUT ALSO, AN ENDANGERED TREE

everely threatened by intensive agricultural practices, particularly those that harvest its leaves and fruit, baobabs are also victims of real estate exploitation.

In Augustin's Ecoparc, baobabs are protected, and villagers can benefit from their numerous virtues.

TESTIMONIAL

Jean-Michel lived in New York in another life. Now he's back in Casamance. His new passion is accompanying people who come to visit the nature reserve and guiding them on the discovery trail. "I'm here all the time," says Augustin's trusted man. "Augustin's idea of being here for environmental protection really appealed to me," says this guide with a broad smile. Here at the Casamance Ecoparc, he works with the villagers, with the universities of Dakar and Ziguinchor, and with the local primary school. Jean-Michel's enthusiasm is palpable: "Thanks to Ecofund and Eiffage, the ecolodge is almost finished! It's a dream come true! The next step will be the eco-project for the eco-trail! Nature is another life!"

– JEAN-MICHEL, AUGUSTIN'S RIGHT-HAND MAN

In December 2022, we learned with great sadness of the passing of our friend Augustin Diatta.

You left us too soon, Augustin, and far too young. But in your short life, you also left us a precious legacy: a green lung for humanity, which we hope that future generations will continue to protect.

Project 2 TURTLES FOR THE SAHEL

ABOVE
African Spurred Tortoise in the Ferlo Reserve, Senegal

After hiking through the lush green humidity of the Casamance forests, we find ourselves in north-eastern Senegal, in the heart of the Sahel. This vast, arid region stretches 5,400 km from the Atlantic Ocean in the west to the Red Sea in the east, and from the Sahara Desert in the north to the Sudanese savannahs in the south. Its tropical, semi-arid climate entails long months without rainfall.

Over the past several years, droughts have become more severe, and temperatures have continued to rise. Weather conditions are further deteriorating under the influence of climate change. The populations of the Sahel are currently the most affected by this global upheaval. They are bearing the brunt of the desertification of their lands: once-fertile soils are reduced to dust, and herds are depleting the sparse vegetation. Overgrazing, deforestation, and unsustainable agricultural practices are further exacerbating desertification.

In north-eastern Senegal, desertification is apparent in the Ferlo. This region, which takes its name from the small, seasonal waterway that runs through the valley, is made up of shrub savannah too often subject to bushfires and overgrazing. It has long been roamed by nomadic Fulani herders. It is also the last place in Senegal where the African spurred tortoise lives in the wild. For this turtle (*Centrochelys sulcata*), which once occupied a vast territory stretching from Mauritania to Ethiopia, the Ferlo has become its only refuge.

A Decisive Meeting

During the long May 1st holiday weekend in 2012, we decided to leave Dakar to spend some family time on the Petite Côte, stretching along the Atlantic coast south of Dakar. The coastline is known for its sandy beaches, resorts, fishing villages, and natural beauty. Since our launch of Ecofund a year prior, all our energy had been focused on wildlife protection projects. We thought a trip would do us good. A friend told us about the Senegal Turtle Protection Centre, more simply known as the Turtle Village. What a coincidence! With our young twins, we decided to explore this centre dedicated to the protection and reproduction of turtles.

This is how we arrived at Keur Mbonatt Yi, the Turtle Village, 35 km north of Dakar, opened with the support of SOPTOM in 2001 in the Noflaye Special Botanical Reserve. The turtle enclosures are scattered throughout a large garden, where local medicinal plants are also cultivated. Several species of turtles are endemic to Senegal, including the forest tortoise (*Kinixys belliana*), native to Casamance, and the Senegal softshell turtle (*Cyclanorbis senegalensis*). We are especially impressed by the number of giant spurred tortoises!

During a second visit, we met Lamine Diagne. Lamine is Senegalese, a founding member and animal manager of the turtle village.
His role is to monitor his charges daily, ensuring the smooth running of the Noflaye Turtle Village and the good health and wellbeing of the residents. He manages the food and medicine supplies and is also in charge of relations with the authorities and with raising visitor awareness.
We were bombarding him with questions: How many turtles? How old can they live? How much do they weigh? And most importantly, how did they get here?

FOCUS

SOPTOM

Founded in 1986, SOPTOM (in English, the Observation and Protection Station for Turtles and their Habitats) aims to study and protect turtles in France and around the world through Turtle Villages and public information.

Bernard Devaux, its founder, recounts: "I found myself with 150 turtles, in improvised enclosures around my home, that had been given to me. An idea then emerged: find a site to house the turtles, eventually care for them, and raise them, but in a location that would also accommodate and therefore inform the public." The first turtle village was opened in Gonfaron, in the Var, in 1988, and another in Corsica in 1992. In an attempt to save the African spurred tortoise in Senegal, SOPTOM launched the SOS Sulcata program in 1993, which became a Senegalese non-profit association in 2000. The first stage of the program led to the creation of a study, protection and reproduction centre called "Turtle Village" in Noflaye, in 2001.

Lamine explained that people bring him turtles found injured in the wild or abandoned in the city. Sometimes turtles arrive by plane from France, from the Gonfaron turtle village founded by his friend and co-founder Bernard Devaux. He seizes the opportunity to invite us to attend an upcoming turtle reception at the Dakar airport.

Lamine won't ask us for money for his village. He has another idea in mind: to contribute to the survival of turtles in the Ferlo by raising awareness among the region's inhabitants, especially schoolchildren.

The Spurred Tortoise: A Major Ecological Role for the Ferlo

When it comes to talking about his passion, Lamine is inexhaustible. Thanks to him, we learned that the African spurred tortoise is the largest of the continental tortoises and can live for around a hundred years. It is the third largest land tortoise in the world, after the giant tortoises of the Seychelles and those of the Galapagos! It is also called the spurred tortoise because the male, much larger than the female, has a spur, or fork, on the front of its plastron (the underside of the shell). During the breeding season, it uses it to confront its rivals and try to flip them onto their backs.

Lamine Diagne teaches us something else: he explains the essential ecological role played by the African spurred tortoise in the Ferlo, this difficult and inhospitable region. To cope with the oppressive heat, which sometimes reaches 48°C in the shade, and to compensate for the lack of water during the 6 to 8 months of the dry season, the African spurred tortoise digs huge burrows to find shade, coolness, and humidity. Other animals in the bush, from butterflies to jackals, then take advantage of the holes abandoned by the tortoise to shelter during the hottest hours. The spurred tortoise also participates in seed dispersal. As an opportunistic herbivore, it consumes a large quantity of varied plants and excretes undigested seeds, which will germinate far from the mother plant.

ABOVE
Lamine Ndiaye, Sulcata Tortoise Project Champion at the Noflaye Tortoise Village, Senegal

But the species is threatened. Collected for sale, victims of desertification, habitat destruction, and the proliferation of herds, its numbers have declined dramatically over the past 50 years. Its populations are too small, and they live too far apart to have a chance of interbreeding and perpetuating the species. The ever-increasing impact of human activities on the Sahel is exacerbating the already fragile situation of the turtles: desertification, overgrazing, habitat destruction, and collection for the illegal sale of exotic animals.

Reintroducing Turtles into Ferlo: A Dream Come True

Since his working at the turtle village and living alongside these turtles, whose behaviour he knows so well, Lamine Diagne has nurtured a dream: to release African spurred tortoises into their natural habitat in the Ferlo region.

TWO FIRST WAVES OF REINTRODUCTION

Since 2006, through the SOS Sulcata program, Lamine Diagne has overseen the birth and rearing of 24 tortoises. The protocol is strict: selection and quarantine for several months at the Noflaye turtle village, genetic and health tests, feeding, water supply, and strictly controlled visits. Everything is done to ensure these tortoises are ready to "go on an adventure."
Each equipped with a transmitter attached to its shell, the tortoises could leave the enclosure where they were born, be transported in crates along the northern road, and be released into the sandy plains of Ferlo, in an already protected site: the 1,200-hectare Katané Wildlife Reserve.
But there was no question of abandoning them immediately to their newfound freedom. For more than two years (from July 2006 to October 2008), a team of French volunteer scientists and Senegalese scientists roamed the bush daily to observe the behaviour and general health of each released animal, an opportunity to better understand their environment. Thanks to their transmitters, regular monitoring continues to be carried out as the team monitors each individual turtle's adaptation.

MONITORING THE RELEASED TURTLES IN THE FIELD

To increase the first group of 24 released turtles, a second group, born and raised in the Noflaye Turtle Village, was reintroduced to the same site in June 2011. These twelve newcomers, in turn, learned about the challenges of life in the wild. The same scientific protocol used in 2006 was applied once again: the turtles were also equipped with a transmitter and observed daily. It was during one of these monitoring sessions that baby turtles borne from the first group were discovered. This excellent news once again confirmed the value of the actions launched by Lamine Diagne and SOPTOM in the conservation strategy for the African spurred tortoise.
After 6 years in the Sahel, 80% of the released turtles are still alive and showing the same behaviours as wild animals!

IMPACTS OF REINTRODUCTIONS

The successive reintroductions of African spurred tortoises have provided a rapid response to the alarming decline in wild populations of these tortoises in this Sahel region by strengthening their numbers. The discovery of several hatchlings is a concrete and extremely promising result.

FOCUS

KATANÉ: AN ENCLOSURE IN A WILDLIFE RESERVE

To stop the growing threats to the biodiversity of the Senegalese Sahel, the government decided in 2001 to protect an area of 1,200 hectares from the appetites of herds and human activities. This "enclosure" is located near the small village of Katané, in the Ferlo Nord Wildlife Reserve. The positive results of this enclosure were quickly visible. The flora rapidly regenerated, and the wildlife was able to find the respite necessary for its survival. Many species that had disappeared from the area were successfully reintroduced: scimitar-horned oryx, dama gazelle, dorcas gazelle, and of course, the African spurred tortoise.

The turtle releases have also raised awareness among the local population about biodiversity conservation. Indeed, the team lives on site and works daily with the local population, which is increasingly involved in this project.
At the reintroduction site, Lamine Diagne plays the role of key negotiator. In Ranérou, the commune in the heart of Ferlo where the reintroductions took place, Lamine is now recognized for his knowledge of tortoises and his communicative enthusiasm. He acts as the intermediary between the turtle village of Noflaye, near Dakar, and the reintroduction site, 600 km from the Senegalese capital.

Turtle Friends' House: A New Boost for Conservation

We headed to the Turtle Friends' House. Lamine told us about this hut, built in 2005, about an hour's drive from the reintroduction site, which was intended to become a meeting place for the local population and an environmental awareness centre.
While it also serves as a living and resupply space for the project team based there, the house is seriously lacking in materials and equipment, and, above all, there is no electricity yet.
Equipping this meeting place: this is how we could help the team of these champions who have been involved for years in the Noflaye Turtle Village and in the Ferlo region. We had no trouble making the decision: Lamine's passion for African spurred tortoises, their reintroductions in Ferlo, and the actions carried out through the Turtle Friends House would be showcased on our Ecofund platform.
Turtles are naturally slow movers, but the results of our project arrived quickly. In just a few weeks, Ecofund raised €2,000. This new micro-initiative has helped to equip the Turtle Friends House with a solar charger and solar lamps, as well as a camera, a GPS, and a laptop to process all the data collected during field surveys.
Supporting the project team, improving their living conditions, and providing basic work equipment: these sorts of improvements bring new life into the conservation of the species and enable further initiatives to raise awareness.

Protect, and—Above All—Raise Awareness!

Three projects, each initiated by a local champion, continued to raise awareness of efforts to protect the African spurred tortoise in Senegal. These were: “Nature Outings,” a “Budding Genius Competition,” and a board game called the “Turtle Game.” These three initiatives, while apparently small, have significantly and directly contributed to the understanding and protection of the tortoise and its environment in the Senegalese Sahel.
Impressed once again by the motivation of these new champions and the positive impact of their projects, Ecofund is pleased to support them.

NATURE OUTINGS: ON THE TRAIL OF THE FERLO TURTLES

There are many emblematic, highly endangered species in the Sahel region. These include mammals like the red-fronted gazelle, the red-necked ostrich, and the great Arabian bustard, or certain plants, such as the jujube or the baobab: trees whose bark, leaves, wood, fruits, and even roots are so useful to humans, but whose numbers are in sharp decline throughout Africa. The nature reserve is also particularly rich in rare birds, such as the ground hornbill. But most children in Senegal know about tortoises thanks to the many tales circulating in Africa about this curious animal. However, most children have never seen them! So, who better than the African spurred tortoise to act as the ambassador for the rare species of the Sahel, and particularly of the Ferlo region?
In Ranérou, the town located at the gateway to the Katané Wildlife Reserve, children were unfamiliar with turtles or the wildlife of their region. But thanks to their geographic proximity, these young students were among the first to be involved in awareness-raising activities about biodiversity protection. Together with their school, we decided to take action and organize several activities, starting with nature outings for these students who, in a few years, would in turn be making important decisions for their region and its preservation.

The principle of this activity is simple: an experienced tracker, a park officer, and a nature guide lead a group of young people for a full day in the Katané wildlife reserve. The students then had the chance to learn about rare animal and plant species, their specific characteristics, and their threats. Each theme is reviewed, explained, and explored in greater depth with the help of the high school biology teachers and national park officers before and after the field trips.
Nature outings are without a doubt the ideal opportunity to search

ABOVE
Abu Beidi Bâ, champion of the African spurred tortoise project in the Ferlo Reserve, Senegal

for and finally see African spurred tortoises in their natural habitat. They offer a chance to spot the individuals reintroduced in 2006, or perhaps their descendants, and to better understand their daily lives and behaviours. To involve the entire village community in nature outings, the Ranérou community radio station accompanies and allows parents to follow their children’s adventures later in the evening. They then hear the young people on air recounting their day in the field, their discoveries, and their emotions.
Ecofund facilitated transportation and food for the children during the nature outings, as well as the organization and broadcasting of the programs on community radio stations.

Our Champions

MOUHAMMADOU LAMINE DIAGNE

Lamine is still in charge of the Noflaye Turtle Village. But these days, he has also become its director.

ABU BEIDI BÂ

Abu is an experienced tracker. He knows “his bush” like no one else. Born in Ferlo, he often heard his father tell him stories of lions and elephants roaming the Ferlo during the wet season. His father, too,

knew the region, rich in wildlife. As a result, Abu is aware of the rapid loss of his region's only wealth, its biodiversity, and the rapid advance of the desert. A lifelong nature lover, Abu wants to share his experience of the bush with young people of the Ferlo. His mission is "to warn them of the danger posed by the decline in biodiversity." This is why he decided to organize and lead nature outings for children in the bush.

NEXT PAGE
Immersion in the Ferlo, Senegal: the sulcata tortoise board game

HENRI SAGNA
Mr. Sagna, as everyone calls him, is the head of the middle school community centre. He is involved in all the school's cultural and environmental activities. Concerned about the future of his country's biodiversity, he is committed to raising awareness among his young compatriots to help them protect their natural heritage. Because he is so close to them, he fights every day to ensure that the biodiversity of the Ferlo region does not disappear and that students can discover, understand, and love it. Naturally he became a strong supporter for all the students who wanted to organize the "Budding Genius Competition", which you can discover in Chapter III of this book.

AWA SYLLA
A champion of the Turtle Game, Awa is a primary school teacher in Katané. She was the first to introduce this game to her young students. She knows how to convey her own enthusiasm for protecting the environment and the African spurred tortoise in particular.

Our Champions Never Rest!

It is the summer of 2014, and Abu and the "Spurred Tortoise" project team are monitoring the weights and sizes of the tortoises at the start of the rainy season. The first rains have filled the pond, which had been dry since January. Not having to travel very far from their burrows, the tortoises come to drink and bathe. A lush, green carpet of grass has replaced the dry and dusty savannah of Ferlo. After six months of deprivation, the first grasses are a delight for the tortoises. The team's discovery of tortoise eggs is welcomed with joy. It suggests that the reintroduced tortoises have adapted well and are beginning to reproduce.
Abu was pleased to discover two separate juveniles just two days apart. He estimates they are 3 or 4 years old. Their presence is evidence of the survival of young turtles in the wild despite the presence of numerous predators, such as jackals, mongooses, and birds.

FOCUS

THE TURTLE GAME

Inspired by the rules of the famous Game of the Goose, the Turtle Game was designed as a fun way to raise children's awareness about the environmental threats facing the African spurred tortoise and the Ferlo region more broadly.

The Turtle Game was imagined in 2013 by Anneline Grenouilloux and Anne Emmanuelle Landes, two SOPTOM volunteers, and designed by the animal illustrator Jean Grosson. During the 2014 school year, students at Ranérou Elementary School played this game after school with the SOPTOM volunteers at the Turtles' Friends House.

The game was then distributed to teachers from the Katané, Wendou, and Makam schools. These teachers had already participated in awareness-raising activities and were therefore able to supervise the games and provide the students with the necessary information.

Assessments were conducted following the game sessions to monitor the students' assimilation of new knowledge and evaluate the game's effectiveness.

GAME RULES

Players throw two dice to advance along a pathway of tiles depicting the lifecycle of turtles and their conservation. The goal of the game is to help a turtle survive an entire wintering season while avoiding threats (bushfires, poachers, etc.) and predators (such as egg-eating mongooses and jackals that feast on young turtles). The first to reach the end of the game path wins, provided they land on the last square, otherwise they'll go back! Be careful not to land on square 18, which indicates, for example, that the turtle has been "picked up by someone." Being picked up is the greatest threat. The unlucky person will have to return to square one!

Beyond the play, the intergenerational interaction, and the fun factor, the game facilitates the transfer of knowledge about African spurred tortoises. This was prepared in advance in collaboration with the Education and Training Inspectorate (IEF), the reserve's teachers, and the support of a facilitator who visited each school. This volunteer turtle expert explained the concepts covered, such as the loss of feeding and resting areas for the tortoise and other wildlife, the disruption of the African spurred tortoise's life cycle, the negative and positive impact of herders, and more.

The Turtle Game and a corresponding animation help raise awareness about the African spurred tortoise and conservation issues among students, their parents, and even out-of-school children. At the same time, it teaches the importance of saving an iconic species that has become rare, instilling the lesson that this animal's ecosystem must be preserved in the long term.

Ecofund contributed to finance, design, and manufacture of the turtle game (printing, production of the pieces, dice, delivery) as well as the training of teachers.

ABOVE
Ferlo Immersion: Ranerou schoolchildren exploring the reserve, Senegal

A Class from Ranérou Elementary School Enjoys a Nature Outing

"At 7:30 a.m., all the students gathered in front of the school gate to wait for the departure. The cars arrived a few minutes later, and we divided into two groups to get in. It was time to leave for Katané! We arrived around 9:00 a.m. The Katané station chief welcomed us with greetings. Mrs. Manue, our teacher, and Abdou explained to us how the animals (turtles, oryx, gazelles) live, where they live, what they eat, and who their predators are. Then, we took the cars to visit the inside of the enclosure. We then looked for a turtle with the antenna and receiver and found it in its burrow. With binoculars, we were also able to observe Dorcas gazelles and oryx drinking. There was a pregnant oryx and two young. Then we left the enclosure. After the visit, Madame Manue gave a presentation about the turtle and the station chief about the other animals. We wrote a lot of things. We were served sweets and drinks. And we got back in the cars to return to Ranérou."

Project 3 RECOVERING LOST NYLON NETS

Senegal opens out onto the Atlantic Ocean. Its 530 kilometres of coastline are bathed in sea spray to the rhythm of the tides. The ocean has been generous to this country. The vast, shallow continental shelf that extends from its coasts has been recognized as one of the richest ecosystems in the world for fish. Flowing from north to south, the Canary Current stirs and brings up cold waters from a deep ocean trench, rich in nutrients favourable to the proliferation of plankton.

Thanks to this well-documented oceanic upwelling, the richness of the aquatic fauna is impressive. Lebous, Serer and other fishing peoples have dotted their ports along this nourishing coastline: Guet'Ndar in Saint-Louis, Lompoul, Fass Boye, Kayar, as far as Soumbédioune in the heart of Dakar, all the way to M'bour and Joal on the Petite Côte, south of Dakar. Each village tells the same story: that of a generous sea and the lives it sustains.

ABOVE
An Oceanium diver in action against "Ghost Nets", Senegal

More than a profession, fishing is here an ancient tradition and a cornerstone of the national economy. Long the country's leading foreign exchange generator until the 2010s, it remains essential today for employment and food security. The fisheries sector directly or indirectly provide livelihood for around 600,000 Senegalese, representing nearly 15 to 17% of the active population. Each year, 440,000 to 450,000 tonnes of fish are caught, almost half of which is exported. Artisanal fishing, with its colourful pirogues and skills passed down through generations, accounts for 80% of the total catch.

But the sea is no longer the same. Trips are longer, catches are smaller, and pressure on resources is increasing. Since the early 2000s, stocks have fallen by up to 40% for certain species: the victims of overfishing, illegal practices, and competition between artisanal and industrial fleets. Yet fish remains the primary source of animal protein for Senegalese people. Its scarcity threatens not only the livelihoods of thousands of fishers and processors, but also the country's entire food security and social balance.

As we write these lines, images of our very first visit to Kayar reappear. Hundreds of *pirogues* are lined up on the beach as far as the eye can see. These traditional artisanal boats, painted in the colours of Senegal, all facing out to the sea, seem to be waiting for the start of a race. This will be a race for fish: fishing being as much a sport as it is essential to daily survival. Kayar is what one would call Senegal's "fish granary." Every evening, the waves deposit the pirogues at the beach. Every evening, the fishermen unload tons of fish, of which the women immediately take charge. Kayar's fish fill the market stalls in the Dakar region, where four million people live: a quarter of Senegal's population. The beach is an exciting place: shimmering colours, powerful smells, the comings and goings of men unloading the fish and then lining up the canoes for the night, fish traders, wholesalers who drove with their vans filled with ice to transport the fish to the interior of the country, women and children selling the small catches on the sand… everyone has a place. Everyone plays their role.

While we still observe the spectacle of multicoloured wooden pirogues adorned with gri-gris returning from the high seas, surfing the crests of waves before finally landing on the beaches, we notice today their holds are rarely full. Fishermen are forced to venture further and further out to sea with their small boats. Many of these pirogues have already fled Senegal with young people on board, who the country can no longer feed.

Lost Nets, Ruined Fish

A polluted ocean where thousands of fish die without feeding anybody: this nightmare has become reality for the marine ecosystem here. This is a result of fishing techniques and particularly the widespread use of nylon nets. These nets are often lost by fishermen, tossed about by currents and waves that continue to trap and kill fish. A real catastrophe for the marine ecosystem.

Once suspended in the water, these nylon nets, called monofilaments, become lightweight and diaphanous veils, sometimes almost invisible. However, they are indestructible, rot-proof prisons that will keep killing fish for a long time: their lifespan is estimated at 400 to 500 years. For centuries to come they can continue to blindly ensnare fish. Monofilament is so cheap to buy that fishermen don't worry about losing it. Stuck on rocky bottoms, these monofilaments keep trapping fish uselessly. Spread out over dozens of meters, they capture all species of fish and engender a vicious cycle. Once caught in the mesh, the fish become easy prey for predators, who are themselves caught in turn. By also suffocating organisms that reside on the bottom—such as soft corals and sea fans—these nets can singlehandedly wipe out an entire ecosystem.

Despite the ban on these nylon nets by Senegalese law since 1998, fishing communities struggle to change their habits. That same year, Senegalese legislation also banned nets smaller than 24 millimetres in diameter for artisanal fishing. But nothing has changed. Added to this are the delinquent practices of some fishermen and their bosses, not to mention a general lack of awareness and lack of cooperation between public authorities (customs, fisheries services) and fishing communities.

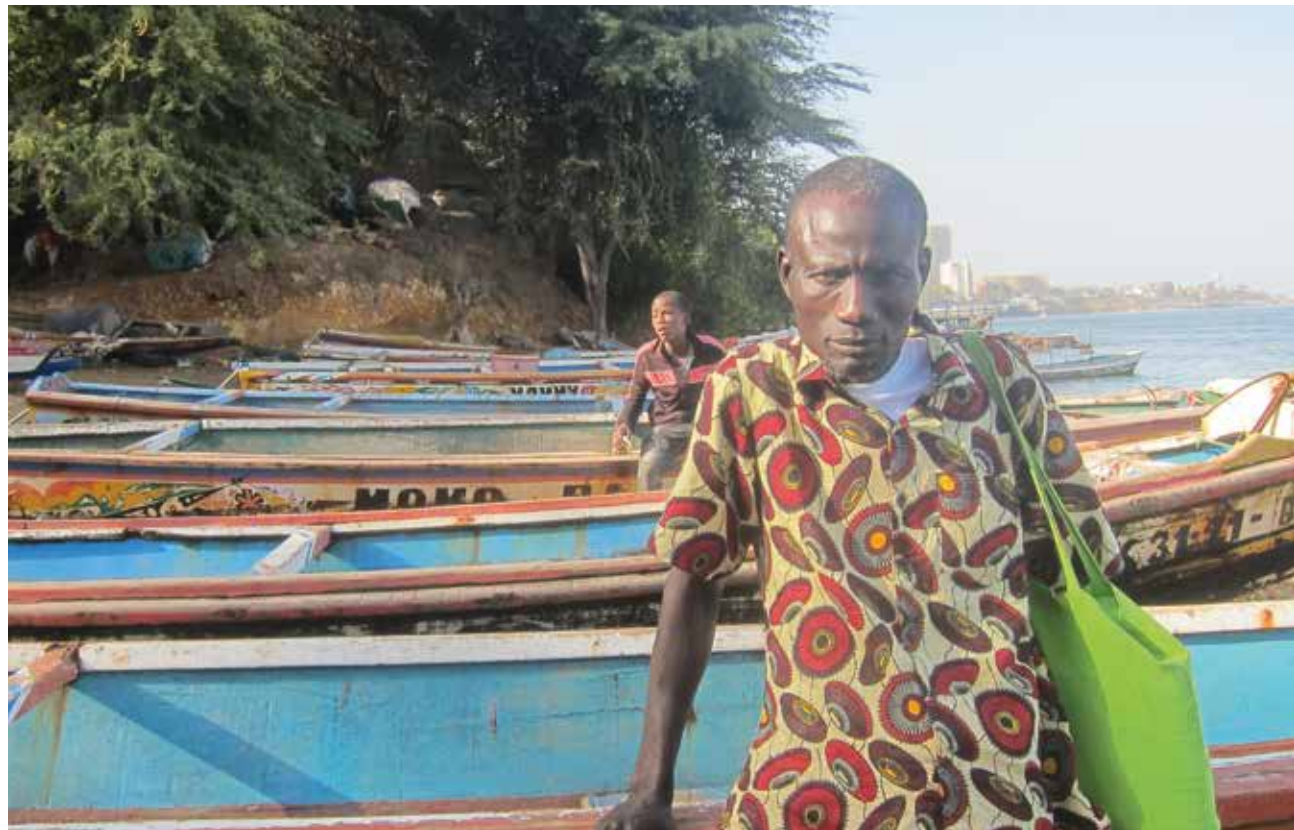
Badou Kane: Fisherman and Champion

By the see, we got into the habit of meeting up with Haidar El Ali in the garden of Oceanium, a Senegalese diving club and environmental protection association. Amid the incessant cries of kites, over a glass of bissap, we would discuss our contribution to his third campaign to clean up nets lost on the seabed. The very first campaign took place

BELOW
Badou Kane, champion of the "Recovering Lost Nylon Nets" project, Senegal

in April 2011. Haidar El Ali invited his diving friends, and everybody trained by his diving club, Oceanium. They came from Senegal and Europe, especially from France.
This environmentalist and professional diver, along with Oceanium, were the initiators and the "engines," of the campaign. But we convinced Haidar that we needed to highlight a "champion," according to Ecofund's approach. We needed a fisherman capable of raising awareness among his colleagues about the dangers of monofilament fishing, who could convince them to use cotton nets. Without hesitation, Haidar grabbed his cell phone to call Badou Kane. This is how we had our first conversations with our new champion.

Badou Kane fishes in Dakar, but he is one of the fishermen of the Mbour community, where he lives. A highly respected man in the Mbour fishing community and beyond, Kane has known the prosperous years fishing, the pirogues laden with fish, the simple and joyful life by the ocean. He has the dry body and gaunt face of a man who has spent his life in the open air, without ever stopping, and the shining eyes of a rebel and a man of honour, always ready to fight for his community and to defend the sea.



Badou Kane used nylon nets for a long time. But becoming aware of their disastrous consequences for marine ecosystems and the survival of artisanal fishing, he has abandoned this practice in favour of cotton nets. Together with his family, he has also fought to protect the riches of the sea from industrial fishing boats from the north. Thanks to Badou Kane, the fishermen of the port of Kayar have imposed non-destructive techniques. They thereby imposed real sacrifices on themselves, banning nylon nets and anchored nets, and adopting an interdiction on going out for fishing more than once a day.

And above all, Badou Kane refused to surrender against the ghost fishing of lost nets. This is how he came to the Oceanium, where he met Haidar el Ali. Ecofund couldn't let Badou Kane fight these ghosts alone. We were so impressed by his commitment and his strength of character. Recovering lost nets, Badou Kane became our champion. Haidar el Ali put it best: "It is with courageous men like them, rebels committed to their own cause, that we can move forward."

FOCUS

COLLECTING NYLON NETS: A HIGH-RISK TASK

Around the islands and in Dakar Bay, visibility is very limited due to the turbid water. With knives strapped to their arms, divers jump from canoes. To descend, they follow the boats' anchor chains: these make for a guiding thread in water obscured by algae, sediments, and garbage. Once the net is located, it must be unhooked from rocks or wrecks before the deadly ball of netting can be untied. With precise movements, the divers cut the rope and spread the mesh. Once the net is torn free, it is securely attached to underwater parachutes: that is, empty canisters, which pull it to the surface. The divers ascend in its wake, taking great care that the net, stretched taut by its weight, does not strike or trap one of them, or break loose again.

Recovering Ghost Nets

It is the spring of 2013. Badou Kane and the Oceanium association decide to organize sea trips to collect the nylon nets lost in the seabed in the Dakar region: around Gorée Island, in the Madeleine Islands National Park, in the Bay of Dakar, M'bao, Hann, Rufisque, Kayar, Ngor Island, and M'bour.

Recovering lost nets is a good start, but it's not enough. Badou Kane is now working to change habits and practices within his community. He's fighting to get fishermen to use biodegradable cotton nets.

"It is with courageous men like them, rebels committed to their own cause, that we can move forward."

— HAIDAR EL ALI

RAISING AWARENESS AMONG FISHERMEN THROUGH IMAGES

Alongside the clean-up days, Badou Kane and the Oceanium team organize film-debates in neighbourhoods and fishing villages: film screenings followed by discussions with the public.

Over many years spent as an accomplished diver and filmmaker, Haidar el Ali has come to understand that, as he puts it, "the image is proof." Gradually gaining the fishermen's trust, Haidar has filmed all the particularly devastating fishing techniques, such as monofilament fishing or explosive fishing. Once the films are edited, the Oceanium teams visit the fishing communities and project the images, sometimes right on the beach.

"What you see here, is it normal?" ask Badou, Haidar el Ali, or his associate Jean Goepp. The screenings always provoke a debate. As facilitators, Haidar, Badou, and Jean acknowledge that "it's important, to spend all this time with the fishermen," and that "the process must be long, so that the villagers, who are the actors of the degradation, take ownership of the project."

DIVE TO CLEAN UP

Ecofund helped clean the M'bour area of lost nets. The coastline here is comprised of a sandy, muddy oceanic plateau. However, the rare rocky reefs are home to abundant wildlife, including benthic invertebrates and numerous fish, such as dorado and sea bream, which find rest and refuge there.

Ecofund helped finance the divers' logistical costs (food, accommodation, transportation) as well as the transport of the recovered lost nets.
The overall objective was to relaunch the debate about the uncontrolled use of nylon nets and to find common solutions to promote responsible fishing in Senegal and the surrounding region. Alongside the Senegalese Ministry of Environment and Sustainable Development, the clean-up campaign was supported by Sea Shepherd, PADI Foundation, FIBA, and Surfrider Foundation.

AN UNSOLVED PROBLEM, BUT POSITIVE RESULTS

We haven't solved the problem of lost nets... But, true to our policy of supporting small, high-impact initiatives, we participated and achieved tangible and encouraging results!

At the closing of the 2013 edition of "Stop Nylon Fishing Nets!" the ocean cleaning operation, we concluded that there were less nylon fishing nets found that during last years' cleaning campaigns, suggesting that their use is decreasing.
The population, particularly in Mbour, actively participated. This was a sign of success, albeit a small one, given the scale of the problem and the broader ecological disaster, which extends far beyond Senegal. But this was also a visible of success growing out of our champion Badou Kane's ongoing clean-up and awareness-raising operations.

When progress, however small, is visible, it becomes a real encouragement for our local champions and their communities, as well as institutions like Oceanium, and, of course, for the Ecofund community.
Many more such operations will be necessary. Oceanium is committed to this. But the most urgent task remains, above all, the strict enforcement of the legislation banning the commercialization of nylon nets.

OPPOSITE
Porcupinefish trapped in a ghost net, Senegal

FOCUS

A "COTTON" PARTNERSHIP FOR ENVIRONMENTAL PROTECTION

**The West African textile company, COTOA, was the first Senegalese company to support the "Stop Nylon Fishing Nets!" project.
COTOA specializes, among other things, in the distribution of equipment for industrial and artisanal fishing. As soon as it learned of the ecological disaster caused by nylon nets, the company stopped selling them and supported the legislation (fishing code) prohibiting their use and sale. However, when we presented the eco-project "Stop Nylon Fishing Nets" to COTOA's CEO, Mr. Theron, he wasn't 100% convinced of the operation. "Cleaning the sea of nylon nets is good but ensuring that fishermen will now use biodegradable cotton nets is better," he told us. He was ultimately convinced by Ecofund's approach, based on the concrete action carried out by our local champion: Mbour fisherman Badou Kane.**

Project 4 ON YOUR MARKS... STUDY, DIVE, PROTECT!

The Unknown Ocean

What do Senegalese people really know about the Atlantic Ocean, whose waves lap the endless beaches of the Grande Côte, north of Dakar, or those of the Petite Côte south of the capital, whose currents break against the rocky reefs of the islands and the Cap Vert peninsula, and whose saltwater rushes into the muddy river deltas?

While fishermen venture daily to the crest of its waves to fill their canoes with fish and feed the country, young people who no longer see any hope in their homeland look to clandestine sea migration, risking their lives to get out of the country. Only a few tourists, oxygen bottles on their backs, dive to explore the seabed.

As for oceanography or aquaculture students, they lack the resources and the training required to discover the ocean and see with their

ABOVE
Students training for scuba diving with the Barracuda Club, Dakar, Senegal

own eyes what they learn about in lectures and books. Unimaginable! This is even more inconceivable given that these are underwater environmental specialists who have never scuba dived. It's like learning a language you'll never speak, or an instrument you won't play. Knowledge of the sea and immersion in its rich and diverse ecosystems go hand in hand.

Our Champions of the Ocean

The meeting with our future champion was, as always, the result of our rhizomatic approach. We exchanged and collaborated with our friends from the Banc d'Arguin International Foundation (FIBA), including Nathalie Cadot, Monitoring and Evaluation Officer. Nathalie was attracted by Ecofund's approach of strengthening small, local initiatives by partnering them with projects led by international foundations and institutions. One Sunday in April 2017, Nathalie introduced us to Malick Diouf, with whom she had been working since 2011 on implementing shellfish monitoring programs involving communities in Senegal, Gambia, Guinea-Bissau, and Guinea.

Well-versed in applied research and adept at hands-on training, Malick knows how to provide local communities with knowledge to help them manage their natural resources. He has been working for several years with villagers in the Saloum Delta, as well as in Niodor, Fadiouth, Dionewar, Falia, and Joal, on shellfish management, for example.

Malick Diouf is a professor, researcher, and director of the IUPA (University Institute of Fisheries and Aquaculture) in Dakar. When we met him, he was supervising fifteen students enrolled in the master's program in the Ecology and Management of Aquatic Ecosystems.

An enthusiast for applied research using traditional knowledge, Malick strives to enable students to experiment and put their acquired knowledge into practice. According to him, "underwater ecosystem management cannot be learned solely from books and in a classroom... it must be experienced!"

TEACHING UNDERWATER ENVIRONMENT STUDENTS TO DIVE

Malik Diouf and Nathalie Cadot had an idea: adding an optional module to the IUPA training curriculum to train students in scuba diving. We immediately liked the idea. On our advice, they selected three students who would become champions of their master's

program and spokespersons for ocean protection, for instance at the next World Oceans Day on June 8th, and on many other occasions to come.

Fatou Kiné Gueye, Amadou Sene, and Babacar Sané were chosen after a rigorous selection process, for their high motivation, their physical abilities, and their sense of a clear professional vocation. (Their research findings can be found in Part III of this book.)

The next step involved completing the curriculum of these three young, future African champions of marine ecosystem protection with scuba diving training, allowing them to further dive into their knowledge — no pun intended. But they lacked the personal means to do so, and the Institute lacked the budget to broaden the practice of scuba diving among its students.

Scuba Diving Training

Through its platform, Ecofund was raising the money needed to finance a scuba diving scholarship for each of the three Senegalese students. By helping these future professionals in the protection and sustainable management of aquatic environments truly “dive” into their subject of study, we hoped to contribute to training West African professionals and better equipping them to preserve the riches of the aquatic environment that they only know about from books.

Each scholarship funds PADI Open Water Diver training, consisting of nine sessions, theory lessons, and three exploration dives. This training, run by the North American scuba diving organization PADI (the Professional Association of Diving Instructors), is available at most dive centres and recognized worldwide.

The three students each contributed approximately 15% of the cost of the training and funded their own transportation to the dive centre in N’gor, a neighbourhood located in the far west of the Senegalese capital.

The Barracuda Diving Club Dakar likewise collaborated by offering discounts on introductory dives and training. It provided each student with a snorkelling kit. Finally, the IUPA covered the costs of supervising the training.

ABOVE
The champions of the “On your marks… study, dive, protect!” project: from right, Fatou Kiné Gueye, Babacar Sané and Amadou Sene, Senegal

AN ENRICHING IMMERSION

Thanks to this first diving training, the three students got to experience a unique moment for the first time. For some of them, it was also a true physical challenge. They were happy to share with us the emotions they felt during their diving sessions and to let us discover Senegal’s underwater world through their own words.

For us, it was a real pleasure to participate in a small way in enriching their curriculum with new skills, first by teaching them to dive and then by publishing articles and presentations.

Our collective goal—Ecofund, Fatou, Amadou, Babacar, and our champion Malik Diouf, not to mention the project’s sponsor, Nathalie Cadot, and the Barracuda Club Dakar diving club—was to make this first diving training course a success. We advocated for its inclusion in the university curriculum, so that other students could benefit from it, and the ocean would become familiar to them.
The more a scientist dives, the more he broadens his range of expertise. This was the goal of this pilot experiment.

FATOU KINÉ GUEYE, 25 YEARS OLD.

“It was a real physical challenge for me!”

After her secondary education focusing on life and earth sciences, Fatou followed the path indicated and obtained her bachelor’s degree from Cheikh Anta Diop University in Dakar. She enrolled in the IUPA master’s program because she had “always been passionate about discoveries, especially in the aquatic environment,” but also because she wanted to specialize in environmental protection, more specifically in marine protected areas.

“I’m one of the few women in the class. Knowing that I’m not a great swimmer, you’ll understand that I’m therefore very motivated for this diving training, a real physical feat for me! I had an extraordinary experience during the introductory dive: it was exactly like in the documentaries! I loved the diversity of shapes and colours of the algae, the way they stick to the rocks. I also discovered a very colourful species that I really liked, a nudibranch (sea slug)! It was an experience rich in discoveries. I can’t wait to do it again! I find it very motivating for my studies and I feel that, compared to the other students, I have the chance to “experience” the subject of my studies first hand.”

AMADOU SENE, 26.

“I was the most motivated in the group to dive!”

Even before earning his university degree, Amadou was fascinated by the natural sciences, including ecology: they allowed him to study all the relationships that can exist between different elements of the natural environment. When he learned in a zoology class that the vast majority of animals on Earth are aquatic organisms, something clicked. He decided to specialize in the ecology of marine systems. Amadou hopes that his expertise will one day be useful in this field, still lacking far too much information about the state of our coasts.

“Underwater was an extraordinary experience. My initial fear quickly dissipated as soon as we encountered different species we only knew about in our textbooks, such as sea anemones and puffer fish, which were also my research topic. But I was also impressed by the almost magical power of breathing underwater! Thank you for your support; it is of immense value to the success of our study projects. The health of the sea depends on the health of the fishing economy. We must avoid damaging our environment. This is a real challenge for Senegal.”

TESTIMONIAL

BABACAR SANÉ, 33 YEARS OLD.

“I thought, this is amazing! I can breathe underwater!”

Working in marine ecology has always been his dream. Babacar wanted to participate in the management of marine ecosystems, which is why the program he chose to pursue at IUPA allows him to deepen his scientific knowledge. He wants to learn more about the impacts of pollution on the marine environment, for example, which he believes must be well managed given its importance to the Senegalese economy, not only for fishing, but also for the well-being of all.

“I was born in a village in the Podor department, 200 km from the sea. That’s where I learned to swim. When I went into the water on the first day of my introductory dive, it was extraordinary and magnificent. I saw for the first time a real school of fish and rooted algae and so many other beautiful things!” It’s a change; I usually only see them on videos. I thought, this is amazing! I can breathe underwater! It’s an experience I won’t soon forget! As a child of the Podor River, I want to fight against the degradation of the aquatic environment.”

Project 5 *THE PROPHECY*: A CREATIVE PLEA FOR ENVIRONMENTAL PROTECTION

ABOVE
Public exhibition of the Ecofund project “The Prophecy” along Dakar’s Grande Corniche during Environment Day and the 11th Dakar Biennale of Contemporary African Art

Art in the Service of Environmental Awareness

Waste, ocean and soil pollution from industrial waste, lost nylon fishing nets drifting at sea, coastal erosion, road traffic, etc. Environmental damage is everywhere in Senegal. So visible that it could not escape the eye of photographer Fabrice Monteiro; so present that it could not escape the vigilance of Ecofund.

What if photographic art and creativity could be the basis for advocacy for the Senegalese environment?

A Collaborative Adventure

On July 4, 2013, surrounded by our supporters and partners, and in the presence of our Senegalese champions, Augustin Duatta and Haidar El Ali, we celebrated Ecofund's second anniversary in Dakar. The atmosphere, with the eclectic sounds of DJ Tchoub-Tchoub, was very festive. There were people from all horizons who shared the conviction that it is essential that we contribute to preserving our ecosystems and our planet. During the evening, we met Fabrice Monteiro. He told us about his work as an art photographer and a project he called *The Prophecy*. This was followed by a further conversation with Sandrine, who, at the time, was also involved in supporting local artists. The first seeds of our collaboration were sown.
More than just highlighting a "champion," what makes *The Prophecy* unique among our projects is its "tandem" reflection: on one hand, the creative approach of the artist, photographer Fabrice Monteiro, and on other, Ecofund's desire to raise awareness about environmental issues.

Fabrice Monteiro was born in Belgium to a Beninese father and a Belgian mother. His mixed cultural heritage is his primary inspiration. He lives and works in Senegal and has travelled to many countries. Fabrice takes a particular look at his environment: "I became aware of environmental issues through surfing, a sport I've been practicing in Africa since the age of eleven." When Fabrice Monteiro returned to Africa after several years away, he discovered the devastating pollution that had invaded the continent. The photographer then imagined a series based on environmental issues in Senegal, including forest fires, plastic waste, oil spills, etc.

During our meetings, Fabrice explained his artistic intention in more detail: he wanted to depict a Djinn (a genie or nature spirit represented by an earthly figure, very present in African cultures) in several sites where the ecological balance is seriously threatened in Senegal. Fabrice had already chosen the site for his first photograph: the spectacular open-air landfill of Mbeubeuss, in Dakar.

We were captivated by his artistic project. To align with our non-profit mission of environmental protection, we offered to finance the production costs in exchange for the use of his artistic photographs for information and awareness campaigns.

This is how Ecofund's collaboration on Fabrice Monteiro's *The Prophecy* was born. A unique project where art would serve the environmental

cause. This is by no means a typical commission from an association to an artist, but rather a collaboration: a new way for us to reach an even wider audience through Fabrice's art.

We brought on board the photographer Fabrice Monteiro, of course, whose photographs are the source of inspiration for our project, but also Senegalese stylist Jah Gal Doulsy, a researcher and activist from Cheikh Anta Diop University in Dakar, Professor Adams Tidjani, environmental activist Haidar el Ali, other citizens, and funders.

A Creative Approach to the Work of Raising Awareness

In this collaborative venture, which brings together scientific research, art, and corporate social and environmental responsibility, Ecofund stood behind the scientific advocacy that will accompany each photo. In addition to financing the production of the photos, Ecofund's contribution consisted of proposing the shooting sites for photos 2 to 10, conceiving informative captions on the environmental issues revealed by the photographs, and organizing public events to raise awareness.

CHOOSING THE SITES

The first step was finding locations representing the selected ecological threats that would serve as a framework for the photographer's work. These representative locations were places close to home, which Senegalese people visit daily and where they live: places whose crucial importance they unfortunately forget all too quickly for the water they drink and the fruits and vegetables they eat.

With our friend Haidar El Ali, a leading figure in African ecology and the Minister of the Environment (at that time), we identified the sites where the greatest environmental menaces were particularly prevalent. Thanks to his expertise, we selected the following shooting locations.

- **The Mbeubeuss landfill**, on the outskirts of the Senegalese capital, to evoke the negative impacts of a gigantic open-air landfill on the environment and human health. This sadly emblematic site had already been selected by Fabrice Monteiro.

- **The Madeleine Islands**, off the coast of Dakar, to highlight the pollution of marine ecosystems by the oil industry. These protected islands were the site of a Spanish ship that ran aground in August 2013 with 400,000 litres of fuel on board. Fuel that was fortunately pumped out by Senegalese authorities, avoiding a major ecological catastrophe.
- **Hann Bay**, in Dakar, to denounce the pollution of marine ecosystems by industry and households. Once the most beautiful beach in Dakar, Hann Bay is now one of the most polluted areas in Senegal.
- **The shoreline at Bargny**, 20 km from Dakar, to demonstrate coastal erosion, where this natural phenomenon, amplified by human activity, is particularly pronounced.
- **The avenues of Dakar**, to demonstrate the air pollution generated by urban traffic.
- **The Tambacounda region**, to highlight the devastating bushfires.
- **Pikine**, the second most populous city in Senegal, located on the Cap Vert peninsula, west of Dakar, which is too often prone to flooding.
- **Kayar** and its lost nylon fish nets.
- **The commune of Bandia**, with its protected forest where forest destruction to produce charcoal[6] is widespread.
- Finally, **the Great Barrier Reef** in Australia, the largest coral reef ecosystem, which was featured in the tenth photo.

Great Barrier Reef in Australia, why travelling so far? In February 2014, one of our partners, FIBA, the International Foundation for the Banc d'Arguin, suggested we exhibit *The Prophecy* project at the World Parks Congress in Australia, organized around the theme of "Inspiring a New Generation."

Together with Fabrice and FIBA, we came up with the idea of taking the tenth photo on-site, taking as a subject Australia's biggest ecological problem and exhibiting it at the Congress. We managed to mobilize young researchers from the ARC, Centre of Excellence for Coral Reef Studies at James Cook University, and the Australian Institute of Marine Science.

(6) Today, nothing remains because of the expansion of a cement factory in Bandia which exploits around twenty open-cast mines; Le Monde Afrique, published 30 October 2019

Their research would form the basis of the legend and, therefore, the advocacy for the tenth photo of *The Prophecy*.

ANIMISM AS INSPIRATION

The essence of each site's destruction is characterized by the fusion of a djinn with the environment.
Each theme is thus personified by beings inspired by West African masquerades and animism. Beautiful and disturbing, these creatures were imagined and designed in collaboration with Senegalese multidisciplinary designer Jah Gal Doulsy, who, true to his artistic approach, designed costumes from waste and natural materials.

DJINN, CREATURES OF THE EARTH

__Djinn__ are supernatural creatures that can take on various forms, plant, animal, or human. They live near watering holes, in the desert, in forests, hide in the skin of a snake, and are said to be capable of __spiritually influencing humans__. Djinn do not have access to the heavens. Their life is quite parallel to that of humans: like humans, they eat, reproduce, die, and will be resurrected by God. Conscious and responsible, they are involved in the preaching of the prophets, in religion, and in morality. It is quite possible that djinn originally came from pagan or Christian beliefs. One of these beings, the best known in Senegal, is the __Kankourang__. It appears in the villages of Casamance, covered in straw or bark fibres. Extremely feared, it roams the streets terrorizing the population to protect circumcised young people during their initiation.

WRITING THE CAPTIONS

We wanted the project to go beyond its visual and dramatic side in order to encourage concrete action (this is, after all, the DNA of Ecofund!). We had therefore created captions that were scientifically robust while remaining accessible to as many people as possible. Researchers, activists, artists, citizens, and policymakers are participating in *The Prophecy* series by developing these captions to accompany each photographic creation, all under the supervision of Ecofund and Professor Adams Tidjani, head of the Professional Master's in Environment (HQSE) at the Faculty of Science and

Technology at the University of Dakar (UCAD). It was then up to us to adapt this information for the public while presenting the locations, the problem, and its solution as each theme. It is precisely this participatory and scientific approach that has enabled art to serve ecology.

Thanks to Ecofund, The Prophecy *became more than an artistic project: it was an appeal for a change in behaviour toward nature and for concrete action.*

Production of the Photographic Series

Thanks to the collective potential offered by the internet, social media, and crowdfunding, Ecofund facilitated and financed the production of the ten photos of *The Prophecy*.

The production of the photographs was a participatory and educational process: each theme was presented on the Ecofund web platform for our community and to the public. Everyone could participate by "liking" the project, sharing a comment, or contributing financially to the production costs. Together, through *The Prophecy*, we wanted not only to raise public awareness about environmental issues affecting Senegal and neighbouring countries, but above all to propose solutions: our aim was to encourage the future generation to actively engage in nature protection.

CREATIVE PHOTOS, A STRONG MESSAGE, SUCCESSFUL AWARENESS-RAISING

Halfway through the *The Prophecy* project, after taking the first photos, we had the idea of taking advantage of the 11th Biennale of Contemporary African Art in Dakar in 2014 to present the project to the public. The Biennale, held every two years in Dakar, has been one of the major cultural events on the African continent since 1996. We imagined printing the first six photos and their captions on giant recyclable tarps to hang them in a busy location. To do this, we spotted the fence of a sports venue on the "Grande Corniche:" main road by the sea, just outside the entrance to downtown Dakar.

An ideal location, since every morning and evening during rush hour, hundreds of cars and buses meandered there, stuck in traffic. This could be a chance for drivers and passengers to admire the first exhibition of *The Prophecy*. What's more, hundreds of young people came by this location every evening to train on the beach nearby (jogging, yoga, football, or even traditional Senegalese wrestling). Young people would therefore also be there to see it.

After a real obstacle course, going from office to office for three months, we finally obtained permission from the Dakar city hall to hang the tarps from May 19 to June 9, 2014, just in time to take advantage of the Biennale and World Environment Day on June 5th. As usual, we mobilized our network of friends. The West African Textile Company, COTOA, with which we collaborated on the "Stop Nylon Fishing Nets!" project, and the Senegalese construction company EGB helped us make and hang the tarps in record time.

Thanks to all this support, the first exhibition of "The Prophecy" took place over 3 weeks, around the 2014 Dakar Biennale. Thousands of Dakar residents and visitors from all over the world, regulars who commute morning and evening, and young people who came to train on the corniche were challenged by the powerful images of *The Prophecy* and were made aware of these problems and solutions thanks to the photo captions.

When *The Prophecy* Ignites Pikine

June 5, 2014, was World Environment Day. Throughout the day in Dakar, urban artists and the audience of the Festa2H festival, organized by the Africulturban association, joined the Ecofund Community and shared their visions of the need to protect the environment.

→ GRAFFITI

Graffiti artists like Docta, Big Key, Madzoo, and many others, inspired by *The Prophecy*, created murals around the Pikine sociocultural centre. Through their talent, the graffiti collective depicted, in their own way, the ecological menaces that threaten nature in Senegal and raised awareness among local residents about the need to change their behaviour.

→ LIVELY DEBATES

A discussion led by Professor Tidjani, photographer Fabrice Monteiro, and Sandrine for Ecofund allowed young audiences and artists to learn about the environmental problems affecting their daily lives in Senegal. What followed were rich and friendly discussions about finding solutions that would change things.

→ A STORY

Storyteller Lamine Mbengue closed the day with an improvised story based on a film documenting the making of *The Prophecy* photos, shown by the Mobiciné team and greatly appreciated by the neighbourhood children. The young people learned a lot about the need to protect our natural environment, all thanks to a festive and joyful day.

→ SLAM POETRY

Slam poets such as Moustapha from Africulturban, Guis MC, and Sall Ngaary recited texts on the need to protect nature. The atmosphere heated up when an impromptu hip-hop dance session brought together Senegalese participants and the festival's Danish, French, and Spanish guests!

→ A TV PROMOTION

Fabrice and Sandrine participated in a Canal+ Afrique TV show to promote the project, an opportunity to discuss the many ambitions of our collaboration beyond Senegal.

The Prophecy Spoken Along a Highway

The Doxandem Squad association, led by professional graffiti artist DOCTA, gave free rein to its imagination by reinterpreting *The Prophecy* project. In support of this, SENAC SA (Eiffage company for the new highway concession) provided the graffiti artists with technical and safety tools. The team worked tirelessly during the month of Ramadan to spray the walls of the Thiaroye footbridge with their works. There, you can admire the panda by the artist Triga, the tiger by Beau Graff, the elephant by Graffixx, and the imposing hornbill by Diablos. All these artists wanted to raise awareness among young people about protecting nature, particularly animals that are an integral part of the balance of our ecosystems.

ABOVE
Whispering "The Prophecy" onto concrete: Graffiti artists unite along the highway, Dakar, Senegal

King Mow was inspired by the topic of desertification and coastal erosion and created a striking piece of graffiti to raise awareness of these menaces, while Docta wanted to send a message about urban pollution and—through a pirogue graffiti—the need to sustainably manage our resources, such as fish.

The artists sought this combination of striking messages, combining both the illustration of the disasters that human activities inflict on nature and their optimistic vision of a world capable of remaining healthy and beautiful if everyone takes care not to "dirty" or "plunder" it. Like the blue and green planet drawn by Madzoo, this world could be ours, provided we take care of it together. This is also what the strikingly original and very popular tree-man drawn by EL Memf invites us to do.

Ecofund is particularly pleased to have contributed to the dynamics of this artistic act because it revealed young artistic talents to the public and because it demonstrated the commitment of Senegalese youth to changing behaviours in favour of nature. This mural testimony was the result of a collaborative approach between the private sector and the associative sector who share the same responsibilities and the same desire to participate in the protection of nature.

IN MAURITANIA
Between Sand and Ocean

OPPOSITE
Low tide on the mudflats of Tidra and Kijji, at the PNBA, Mauritania

For the most part, Mauritania extends across the great Sahara Desert. It borders the Atlantic Ocean along 800 kilometres of shoreline, south of Algeria and north of Senegal. With the exception of the alluvial plain of the Senegal River, which forms its southern border, the country is made up of vast alignments of dunes. Its arid desert climate is generally dry and very hot.

Exacerbated by climate change, successive droughts have sharpened the process of desertification. The wind pushes the hot sand around inexorably, burying crops and even villages struggling to resist the encroaching desert. Nearly 85% of the country is affected by desertification. Land degradation exacerbates poverty, food insecurity, conflicts due to unequal access to resources, and consequently caused population migration. Only the coast benefits from a relatively temperate climate thanks to winds from the sea.

Project 6 A BIRD OBSERVATORY IN THE BANC D'ARGUIN NATIONAL PARK

The Banc d'Arguin, a Large African Park

THE INESTIMABLE WEALTH OF THE BANC D'ARGUIN

The Banc d'Arguin National Park covers an area of 12,000 km2, an area comparable to the territory of Gambia, or five times that of Luxembourg! Half of the park is terrestrial, the rest maritime. The national park was founded in 1976 at the request of French naturalist Théodore Monod (1902-2000), with the aim of protecting this extremely rich tangible and intangible heritage. Listed as a UNESCO World Heritage Site in 1989, it is one of the largest in West Africa. Dunes, mangroves, muddy environments, hills, and flat expanses of sand: the fascinating and varied landscapes of the Banc d'Arguin teem with animal life.

ABOVE
Lesser Flamingos at Banc d'Arguin National Park, Mauritania

Marine biodiversity is particularly rich. Several species of turtles and marine mammals are present, including the green turtle, the bottlenose dolphin, and the humpback dolphin. A good hundred monk seals constitute the last significant colony of this species, listed among the twelve most endangered mammal species in the world.
The waters of the Banc d'Arguin are among the richest in fish in the world, thanks to the phenomenon of upwelling: the prevailing easterly winds push warm waters out to sea. This movement causes the rise of deep, cold, and nutrient-rich waters, promoting an explosion of phytoplankton. The park's maritime area thus constitutes an important nursery, reproduction, and feeding area for fishery resources not only for Mauritania but also for the subregion.
The Park's challenge is to defend the integrity of its natural resources and its ecosystems, which threatened by overfishing, human development, and climate change.
Despite the protection of the reserve, fishing boats ignore the bans and continue to exploit the fishery resources of the Banc d'Arguin and disrupt the bird sanctuary.

THE IMRAGUEN: FISHERMEN AND GUARDIANS OF THE BANC D'ARGUIN NATIONAL PARK

It's not so easy to explain what *Imraguen* means. It's neither the name of a tribe nor the name of a language. Imraguen is an identity coupled with a distinct way of life and a unique fishing practice.
Being Imraguen means "belonging to this rich and fragile ecosystem that makes the Banc d'Arguin a jewel of nature," says Marie-Laure de Noray-Dardenne in *The Book of the Imraguen*[7]. Imraguen means living by the sea and fishing with respect for nature, without spoiling or wasting anything. The Imraguen are sea nomads.
There are barely more than a thousand of them, and they have lived in harmony with their natural environment for several centuries. They are the only ones authorized to live in the Banc d'Arguin National Park and to fish. The park is home to 9 villages, including Iwik, a popular birdwatching spot.

This fishing community is known for their traditional fishing ritual inspired by the specific natural conditions of the Banc d'Arguin. They practice sustainable fishing of yellow mullet, using a shoulder net. When one of them spots a school of these fish passing by from the shore, his companions enter the water with nets on their shoulders. By striking the surface with a stick, they attract the dolphins, which then

(7) The Book of the Imraguen, Marie-Laure de Noray-Dardenne, Editions Buchet-Chastel, 2006

form a barrier and prevent the fish from escaping out to sea. Driven back to the beach, the mullets are immediately surrounded by the men and captured in the nets. The fish is opened, cleaned, and dried by the women. The whole animal is valued. The ovaries of full females, lightly salted and dried, are used to make a dish called “bottarga”. The head and viscera are boiled to extract an oil rich in trace elements and vitamins, called “dhên”. These processing techniques represent unique, age-old know-how passed down from mothers to daughters.
The arrival of Canary Island fishermen in the Banc d’Aguin in the 1930s led the Imraguen people to evolve their fishing technique toward fishing from launches: unpowered sailing boats that allowed them to travel offshore in shallow waters. The launches are licenced by the park administration, and their number is limited. Today, only Imraguen people are authorized to use the hundred or so of these boats in the park.

According to *The Book of the Imraguen*, living within a protected area such as the Banc d’Aguin National Park means accepting the laws of nature and respecting the rules for its conservation. Aware of their privileges, particularly regarding fishing, the Imraguen people participate in monitoring the maritime portion of the park. Furthermore, their desire to respect the riches of the Banc d’Aguin has let them play a key role initiating projects such as the bird observatory.

The Imraguen are the guardians and guarantors of the future of the Banc d’Arguin National Park.

A MAJOR BIRD SANCTUARY

More than six million birds pass through the park during migration, and more than two million of them stay here throughout the winter! The Banc d’Arguin is a major breeding area for African birds and a perfect refuge for migrants from Europe.
Every year in the fall, millions of birds migrate over very long distances, crossing deserts and continents, to find refuge at the Banc d’Arguin before returning north in the spring. Throughout their journey, these migrant birds find resting spots, sustenance, and breeding areas. They are both the symbol and the most concrete expression of a world natural heritage that isn’t confined to any

ABOVE
Sailing with the Imraguen: Traditional Lanches and the Guardians of the Banc d’Arguin Sea, Mauritania

one country: an example of the global interdependence of our ecosystems. Bird migration is considered one of the great natural miracles. For example, the distance travelled between Europe and the Banc d’Arguin by the red knot (*Calidris canutus*), a species of large wader, is 4,500 kilometres!
Most birds migrate in groups, in a chevron formation. Each year, more than two million of them find refuge on the Banc d’Arguin, feeding and resting after their long journey. They are guaranteed peace and quiet here, as the 12,000 square kilometres of the national park are inhabited by only a thousand Imraguen fishermen. This isolation provides the birds with a true haven of peace, which our “champion,” Sidi Ely, intended to expand. On the Banc d’Arguin the birds find fish, crustaceans, molluscs, and worms to eat in abundance, as the upwelling phenomenon favours plankton, the base of the marine ecosystem’s food chains. Almost all migratory birds from northwest Europe winter there. The spoonbill, for example, recognizable by its long, broad, flat beak, comes from Europe, crossing sea and desert to breed on the Banc d’Arguin. Some of these spoonbills have even settled down, and a subspecies of spoonbill is now endemic to the area. Many waders, moreover, scour the mud for worms and small shellfish, helping to oxygenate the mudflats.
More generally, the islands of the Banc d’Arguin are a nursery for European birds. Flamingos, cormorants, pelicans, egrets, and gulls

FOCUS

BIRD MIGRATION: AN INGENIOUS STRATEGEM

Over short or very long distances, day or night, on the same outward and return routes or following different paths, alone or in groups, the phenomenon of migration still puzzles scientists, particularly the orientation mechanisms used. While we do not yet know precisely how birds navigate, we do know that they combine several skills: sight, to follow the reliefs, mountains, rivers, shores, orientation thanks to the stars, while taking into account the rotation of the Earth at night, smell, which certain species use, memory, of course, but also perception of the Earth's magnetic field: a capacity shared by all migrating birds, which allows them to orient themselves without visual landmarks. Finally, there are forms of "extra-optical" perception, such as focusing not on the path of the sun, but on the polarization of the variable light from sunrise to sunset.

OPPOSITE
A gathering of shorebirds as an Imraguen launch passes by, Nairoumi Island, Banc d'Arguin National Park, Mauritania

nest here, as do the pale grey heron and the spoonbill, which breed nowhere else.

The Banc d'Arguin is the last large unexploited natural area in West Africa. But this ornithological Eden is fragile and threatened. The discovery of nearby oil fields and human development, particularly related to tourism, threaten the site.
In 2011, Markus was on a mission in Mauritania to develop a foundation project to support the preservation of the PNBA: "During my visit to the Banc d'Arguin National Park, I stopped at the international ornithological station near the village of Iwik. There, in a traditional tent, I met Sidi Cheikh and Sidi Ely while drinking tea. When Sidi Ely began to tell his story and his dream of a bird observatory for the Imraguen children of his village, I immediately knew we had met a new champion!"

Our champions

IMRAGEN AND ECO-GUIDE SIDI ELY

"My name is Sidi Ely. I am Imraguen, ecoguide and Chairman of the Association of Friends of Banc d'Arguin in Maruritania. I live in Iwik, one of the park's nine villages. I am also manager of an ecotourist camp, where I have installed solar panels for lighting and solar water heaters." This is how Sidi introduced himself to us.
For years now, Sidi Ely, his Friends of the Park association, and the Imraguen community have been committed to the protection and sustainable management of this natural heritage.

"Together with the people of my village," he told us, "We regularly clean the beach of waste washed up by the sea. With my association, my family, my colleagues, and my friends, we try to promote the park and our natural and cultural heritage."
Sidi Ely was born under the burning sun of Iwik, but it was in the polar climate of Murmansk in Russia that he went to study oceanography. With his know-how and experience, he returned ten years later to his native village to devote himself to the environment, particularly to "the beauty and peacefulness of nature in the park," as he himself puts it, which is what is closest to his heart. Manager of the park's first eco-tourism camp, he is constantly looking for clean technologies to meet the demands of tourists. He tinkers with the camp's night lighting, for example, using headlamp diodes, empty cans,

and a few solar panels. Once a month, he organizes the removal of waste washed up on the beach by the sea: "At first, when they saw me cleaning the beach alone, my Imraguen brothers thought I was crazy. My stay in Murmansk had certainly blown my mind! But after a while, when they saw that tourists from my camp were coming to help me, they said to themselves that if cleaning the beach was important for people who came from so far away, it should be even more so for them living here in Iwik."

SIDI CHEIK, IMRAGUEN, GEOMATICS ENGINEER, AND SIDI'S ECO-PARTNER

Sidy Ely shares this love and commitment to Iwik's exceptional setting with Sidi Cheikh, a geomatic engineer at the PNBA observatory since 2007. Sidi Cheikh is full of praise for the beauty of the place: "The park is home to magnificent birds and breath-taking landscapes! It's the majesty of natural monuments forged over time by the wind and the changing seasons, through the days and nights," he tells us emphatically. His role is to assist park managers and their partners in managing and accessing spatial data collected in the field. In particular, he organizes missions to collect this data or facilitate research, always with the active participation of local residents.

Like Sidi Ely, he considers the birds to be one of the park's greatest assets: "I've always been fascinated by birds' way of life and their organization. You have to realize that millions of birds make each year journey from very distant areas to come here! I always wonder how these birds are guided and how they behave once they arrive at their destination." For Sidi Ely, "The young people of our village are the guardians of tomorrow's PNBA. I would like them to know more about their environment and the different bird species." This is a wish shared by Sidi Cheikh: "It's clear that today's children are less attached to their environment than their ancestors, who were more immersed in and close to their communities."

AN OBSERVATORY TO INTRODUCE YOUNG IMRAGUEN TO THE PARK'S BIRDS

Both are fathers, and as Sidi Ely says, they both consider "that all the children of Iwik are their own." So, naturally, they wanted to reach to the young people with their project. Together, they decided to join forces to install a bird observatory in their village to raise awareness among the local population about their exceptional environment. It would be located near the village primary school.

BELOW
Sidi Ely, an Imraguen eco-guide and champion of the "Bird Observatory" project at the Banc d'Arguin National Park, Mauritania

Thanks to the support of FIBA, a long-standing partner of the PNBA, a wooden observatory was built by Iwik's carpenter. It was being installed at a sufficient distance to avoid disturbing the birds.

Thanks to support from Ecofund, the observatory was equipped with information panels, a telescope, and three pairs of binoculars, to raise awareness among visitors and the public about their ornithological heritage. For this project, the two Sidis also benefited from technical support from the Banc d'Arguin National Park administration.
For Sidi Cheikh, "the construction of the observatory is important for defining protected areas, sanctuaries, and coastal and marine reserves necessary for protecting the biodiversity of the Banc d'Arguin. The observatory also serves as an essential reference point for the park's surveillance officers."

Project 7 PROTECTING SPOONBILL NESTS

When the sea demolishes spoonbill nests

The Banc d'Arguin National Park in Mauritania protects a rarity: a subspecies of spoonbill (*Platalea leucorodia balsaci*) found nowhere else except on Nair Island, known as the spoonbill island, located two hours by launch boat from the village of Iwik. The spoonbill is a large, heron-like wading bird with white plumage, recognizable by its unique beak: long and furrowed, flattening at the end like a spatula. This bird frequents open, shallow aquatic environments, coastal areas, marshes, reed beds, and lagoons.
On Nair Island, spoonbills prefer to build their nests on the vegetation that maintains the fragile shield wall: a natural barrier of sand dunes that protects the coast. Unfortunately, for several years now, the sea has been encroaching. Several of the sedimentary islands in the

ABOVE
White Spoonbills, Nair Island, Banc d'Arguin National Park, Mauritania

national park show significant changes. These islands are exposed to exceptional flooding: several of them, like Nair, are threatened by erosion. This process gradually destroys the vegetation along with any nests found there. "For the past ten years," says FIBA, the International Foundation of the Banc d'Arguin, "flooding has caused a decline in the spoonbill colonies' annual productivity. The future of this unique population remains uncertain."

Our Champion: Fisherman Ahmed Ould Meddou

In 2012, while back in Mauritania, Markus was introduced by our local partner Antonio Araujo, a FIBA member, to a fisherman named Ahmed Ould Meddou. Together, they boarded a launch, to visit the spoonbill colony. "During this full-day trip, sailing on muddy waters, Ahmed told me about his fight to preserve the spoonbill nests. At the end of the day, a new Ecofund project was born in Mauritania with a new champion, Ahmed Ould Meddou."

Mr. Yelli Diawara, who is part of the international scientific council of the Banc d'Arguin National Park, agreed to be his eco-partner.
Like Sidi—our Mauritanian champion of the Iwik bird observatory—Ahmed Ould Meddou is Imraguen and an eco-guide at the Banc d'Arguin National Park. He is also a founding member of the Association of Friends of the Banc d'Arguin.

"I was born in the village of Iwik, in the national park where I live with my wife and our three children. I'm a fisherman; I've always made my living from fishing. Thanks to training, I became an eco-guide of the Banc d'Arguin. It's more than a profession. It's a passion that I practice alongside fishing whenever there are tourists," says Ahmed.
When Ahmed, the project champion, contacted us about preserving the spoonbill nests on Nair Island, we didn't hesitate for a second! The *balsaci* subspecies exists nowhere else, and its survival was threatened!

SEALING THE DUNE BREACHES OPENED BY THE OCEAN

To preserve this now rare bird, with the support of FIBA, Natuurmonumenten[8], and the local NGO Nature Mauritanie,

(8) "This Dutch association contributed to the International Single Species Action Plan for the Conservation of the Eurasian Spoonbill". AEWA Technical Series No. 35, 2008

Ahmed and his Imraguen friends decided to begin sealing the breaches that had opened up in the dune barrier. They did this by simply installing biodegradable bags filled with sand. These barriers should reduce recurring flooding and facilitate the regeneration of vegetation essential to the spoonbills' reproductive success.

"Why are we investing in protecting the spoonbill nests on Nair Island? Because I would like my children's children to be able to admire this magnificent bird, which, like the Imraguen, only exists here. It is one of the symbols of our land. Its disappearance will bring sadness to all of us," Ahmed explains.

Thanks to the first operations carried out in 2012 and 2013, vegetation gradually began to return to the sandbags, which helped capture sediment and consolidate the dune ridge. The initial results were very encouraging but still insufficient to protect the birds' breeding grounds. So, to reinforce the efforts already made and thus continue the fight against the effects of climate change, the Association of Friends of Banc d'Arguin and the Iwik Youth Group wanted to repeat the first positive experience in March 2014, before the installation of the spoonbill colony.

ABOVE
From left, Ahmed Ould Meddou (Imraguen), Markus Faschina (Ecofund), and Antonio Araujo (FIBA) met on Nair Island, within the Banc d'Arguin National Park, Mauritania

COASTAL EROSION: WEST AFRICA PARTICULARLY VULNERABLE

The coastal erosion occuring on the coasts of West and North Africa is among the fastest in the world. Vast, low-lying deltas, population density, and lack of infrastructure make these shorelines especially sensitive to climate change. Without significant climate planning and adaptation efforts, more catastrophic impacts on populations are to be expected. It is therefore essential to implement effective yet inexpensive solutions, such as those inspired by nature[9].

"Resisting climate change is possible! Saving Nair Island is important for protecting the biodiversity of Banc d'Arguin. Various bird species of Afro-tropical origin nest on the island, but it is also coveted in winter by European spoonbills, which would no longer be able to join their African cousins if the island were to disappear."

— YELLI DIAWARA, ORNITHOLOGIST
AND PRESIDENT OF THE NGO NATURE MAURITANIE

(9) Global Centre on Adaptation - State and Trends in Adaptation 2022 Coastal-Erosion

PROVEN RESULTS

Thanks to Ecofund, Ahmed and his friends were able to reinforce existing dams and seal new breaches to ensure the future of the *m'boye*, the local name for the spoonbill.

In 2014, the team, composed of twelve members of the AABA (Association of Friends of the Banc d'Arguin) and eleven volunteers, placed 400 jute bags filled with sand in areas of the island's natural protective barrier that were particularly vulnerable and threatened by the tides. The work was completed in just two days: 220 bags were placed on March 7, followed by 180 the following day! Over the course of these actions, some 600 birds were observed on the island during high tide.

The PNBA, the FIBA and the Mauritanian NGO Nature Initiative had also planned a further series of interventions to restore the dune cordon on the island of Nair and to set up artificial nesting platforms for spoonbills.

BELOW
The AABA team and volunteers protecting Nair Island, Banc d'Arguin National Park, Mauritania

FOCUS

FIBA, AN INTERNATIONAL FOUNDATION FOR THE BANC D'ARGUIN

FIBA, a Swiss foundation, was created in 1986 on the initiative of Dr. Luc Hoffmann and several international organizations dedicated to research and nature conservation. Over its nearly 40 years of existence, FIBA has provided support to the Banc d'Arguin National Park (PNBA): a management model for the ecoregion. Drawing on this experience, FIBA has expanded its scope of intervention to the West African coast. It hosted and supported the Regional Network of Marine Protected Areas in West Africa (RAMPAO) and participated in strengthening marine protected areas in the sub-region.

FIBA's field partners included local and national organizations to which it provided financial support and technical expertise. It has contributed significantly to mobilizing new partners, networking, and capitalizing on experiences, favouring participatory approaches and methods for co-managing natural resources. Following the death of its founder, Dr. Luc Hoffmann, FIBA was dissolved. However, his expertise and experience were capitalized on in a young leaders' program supported by Luc Hoffmann's family trust, the MAVA foundation, which was also unfortunately closed in 2022.

"Conservation does not oppose nature protection to human development; it preserves the systems and processes that make life possible, as the foundation for sustainable development."

— LUC HOFFMANN

IN CAPE VERDE
Between Winds and Tides

OPPOSITE
A majestic redbilled tropicbird (Phaethon aethereus) in flight, Cape Verde

Off the coast of Senegal, a string of confetti-like islands glistens in the wind of the open ocean: the Cape Verde archipelago, often sung about and increasingly visited. Ten islands and five islets, all volcanic, form this archipelago. The opulence of nature and the lives of Cape Verdeans would have been quite different had the archipelago not emerged from the ocean right on a climactic conflict zone. At sixteen degrees north latitude, two rival winds oppose each other. From the northeast, a trade wind blows from the Azores High. This fresh wind travels part of the way with the ocean, pushing southward the cold Canary Current, which bathes the Cape Verde archipelago and picks up humidity along the way.

Disrupted by the first rocky walls of the islands, this wind unleashes what are known as orographic rains. Santo Antão, São Vicente, São Nicolao, Sal, and Boa Vista to the north are the windward islands. To the south, the leeward islands of Santiago, Brava, Fogo, and Maio are downwind. Between opulence and sweetness, eroded by the wind or bordered by long paradisical beaches, sometimes mountainous, dotted with small lost villages or uninhabited, lushly vegetated or dry and arid: these islands tell the story of Cape Verde's remarkably diversity.

Bem-vindo a Cabo Verde!

The population is the product of a mix of European (mainly Portuguese) and African ancestors. It reflects the history of the archipelago. Victims of numerous famines due to the aridity of the land, Cape Verdeans emigrated en masse to the United States, Europe, and a few African countries such as Senegal and Angola. Today, in a rather unprecedented development, the diaspora outnumbers the local population: approximately 700,000 nationals live abroad, while 500,000 remain in the country.

Like its population, Cape Verdean culture reflects a melting pot of influences united by a specifically festive art of living, combining carnival and music. Moma, the best known of Cape Verde's many musical styles, is a blend of Portuguese fado, African rhythms, and Argentinian tango. The star moma performer Cesària Evora, born in Mindelo, undoubtedly has something to do with it! But his saudade should not make us forget coladeira (Afro-Brazilian rhythms), nor funana (close to Caribbean zouk), nor the more traditional batuque, with its sung dialogues punctuated by African percussion.

But even the beauty of the islands, the grandeur of the landscapes, and the richness of the culture is not enough to mask the environmental issues that plague the archipelago: As an offshore extension of the Sahelian arid zone, Cape Verde faces a serious water shortage, constantly exacerbated by climate change. Moreover, the archipelago has a serious shortage of arable land. Its ecosystems are fragile and its natural resources scarce.
Ecofund therefore welcomed all initiatives to protect natural environments and biodiversity, especially if they are initiated by the locals themselves.

Project 8 PROTECTING THE SEA TURTLES AND BIRDS OF RASO ISLAND

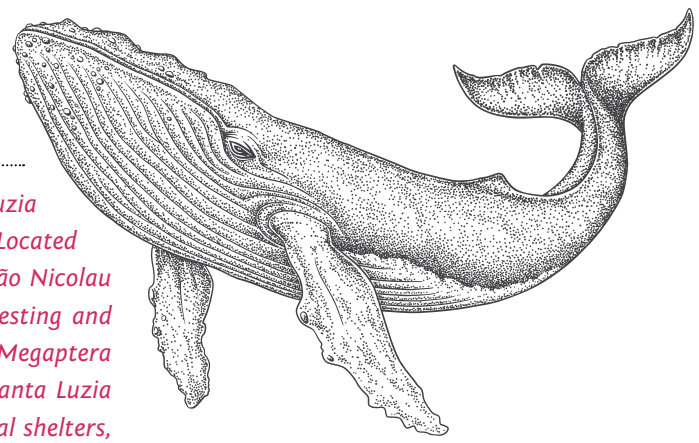
Endemic Species in Danger of Extinction

ABOVE
São Vicente Island: children participate in the release of young turtles for Turtle Day, Cape Verde

RASO ISLET: A SANCTUARY FOR ENDEMIC BIRDS

Raso, a small uninhabited volcanic island of less than six square kilometres, is located west of Sao Nicolau, in the Santa Luzia Marine Protected Area. The island is home to several endemic bird species, including Cape Verde shearwaters (*Calonectris edwardsii*), Bulwer's petrels (*Bulweria bulweri*), and Castro's storm petrels (*Oceanodroma castro*). The world population of Raso's larks (*Alauda razae*), a critically endangered species, is found nowhere else apart from Raso Islands! For these reasons, the island is internationally recognized as one of the eleven most important ornithological sites in Cape Verde

and as one of the 587 global sites of the Alliance for Zero Extinction (AZE), whose stated objective is to save the 920 most threatened species on earth.



THE SANTA LUZIA PROTECTED AREAS COMPLEX

The Santa Luzia Protected Areas Complex consists of the Santa Luzia Nature Reserve and the Branco and Raso Islands Strict Reserve. Located in the northwest of the archipelago approximately 16 km from São Nicolau Island, this site is an important place in the Atlantic for the nesting and reproduction of marine species, especially for the Bossa whale (Megaptera novaeangliae) and the loggerhead sea turtle (Caretta caretta). Santa Luzia Island and the islets are therefore considered important ecological shelters, additionally rich in marine molluscs endemic to Cape Verde.

For these birds, the uninhabited island of Raso is certainly a refuge, though not a paradise: the larks there are threatened with extinction. The presence of bones shows that, historically, the species must have been present on other Cape Verde islands before quickly disappearing following human colonization in the 15th century. On Raso, the lark population reached its lowest figure (20 pairs) in the late 1970s and early 1980s. As for the Cape Verde Shearwater, also in danger, each year, thousands of chicks are captured and killed by poachers: victims of a local gastronomic tradition.

LOGGERHEAD SEA TURTLES IN DANGER

A sad fate also awaits loggerhead sea turtles (*Caretta caretta*), often mistakenly caught in drift fishing nets when they are not mutilated or taken from their natural habitat for play.
Despite a strong legal framework to protect adult turtles and their eggs throughout the archipelago, poachers continue to hunt them for their meat, eggs, and shells, which are used in crafts and aphrodisiacs. The uncontrolled development of tourism on the beaches where the turtles breed is also a cause for concern. These practices are reducing the loggerhead sea turtle population. If left unchecked, this could have

disastrous effects on the balance of Cape Verde's ecosystems.
From June to September, lucky visitors can admire sea turtles laying their eggs on a beach. But far from these romantic scenes, summer is also the time of the turtle massacre: in the early morning, walkers may find bloody carcasses or nests looted of their eggs, less violent but equally alarming.

Coveted for its meat, a key ingredient in soups and traditional dishes, the sea turtle is the object of much attention during the three summer months: from those who hunt it to those who try to protect it.
A nocturnal game of cat and mouse plays out every summer. Although Cape Verdean law has banned the capture, possession, trade, and consumption of sea turtles since 2002, hunters and traders apparently have little to fear in practice. The meat is sometimes even sold openly, and persistent beliefs about the turtles, especially that their penises have aphrodisiac qualities, leads to a form of local quackery very good for business. This encourages fishermen to capture male turtles at sea.

Unlike other sea turtles, loggerhead turtles only lay their eggs every two years and are especially sensitive to noise, disturbance, and light. Capture during nesting directly threatens the species' existence. Other threats, more insidious and less brutal, probably weigh even more heavily on the future of sea turtles in Cape Verde. These include the proliferation of tourist and real estate complexes along the beaches, the pollution of the coasts despoiled by plastic or pieces of fishing nets, and the destruction of beaches through sand mining for concrete.

José and Tommy Melo: Our Father and Son Champions

Our partner Antonio Araujo from FIBA has become a fan of Ecofund's approach. This time, he put us in touch with José Melo and his son Tommy from the Biosfera association in Cape Verde. Antonio introduces them as champions, like Sidi Ely and other Ecofund champions, who lead small initiatives that have a strong positive impact on ecosystems—but are not (yet) supported by major donors or international institutions.
It is October 2011, and Markus has decided to travel to Cape Verde to the island of Sao Vincente, where Biosfera has its headquarters, to get

ABOVE
Tommy and José Melo, champions of the “Protecting Sea Turtles and Birds of Raso Islet” project, Cape Verde

to know José and Tommy and their work better. “After a tour of their premises, delighted by the good humour of the young volunteers, José and Tommy announced to me without delay that we were leaving the next day at dawn for a few days in the field, on the island of Raso in the Santa Lucia archipelago. I will never forget this trip: the three of us in a small zodiac in the pouring rain, without communication, without shelter in the middle of a storm, braving the already high waves amidst a total lack of visibility. Adrenaline guaranteed! I crossed my fingers the whole time… In two months, I was supposed to meet my future wife Sandrine for our wedding in Dakar!!”
José and his son Tommy had decided to take action to protect marine animals on Raso Island. In 2006, they founded Biosfera, an association whose goal is to ensure the conservation of coastal and marine species such as turtles, birds, sharks, reptiles, and others.

MONITORING ENDANGERED SPECIES AND RAISING AWARENESS AMONG FISHERMEN

Since then, they have been conducting surveillance and monitoring campaigns. This long-term monitoring is now helping to prevent the massacre of puffins. During these field campaigns, José and Tommy Melo conduct the surveillance missions most often at night, as this is the time when these seabirds return to the burrows where they nest. Their campaigns also raise awareness among fishermen about the negative impacts of their actions: They gradually stop collecting turtle

TESTIMONIAL

Why I decided to save the birds of Raso

I remember my first trips with my father to Santa Luzia and Raso when I was eleven years old. There were lots of birds, everywhere, over the sea and on the islands. It was 30 years later that I truly realized that the birds had disappeared. After the Second World War, Cape Verdeans started eating birds because there was a terrible famine in the archipelago. The problem is that after the war, the entire population continued to eat birds, purely out of habit. Yet birds are very important to the people, especially to fishermen. Without birds to point them in the right direction, fishermen don’t know where the fish are! More generally, birds are necessary for the balance of the entire ecosystem!
For several years, we have been monitoring all the young birds that are born. We put a numbered ring on them; we follow their development until they leave. But a bird that is born this year on the island will not return for eight or nine years to nest! The first birds we monitored will not return for a few years, and that is when we will really know if the birds are indeed numerous again on Raso. With Tommy, my son, we will continue our efforts until there is a change!

– JOSÉ MELO, FOUNDER OF THE BIOSFERA ASSOCIATION

eggs and even end up contributing to their protection! As Tommy says, the goal of these campaigns is to "protect the nests from human and natural threats in order to ensure the turtles' reproduction."

ABOVE
Raso Lark. This rare species lives exclusively on the deserted island from which it takes its name, Cape Verde

Supporting Field Missions: Equipping Nature Protectors

Ecofund provided the necessary equipment to strengthen bird and turtle monitoring and surveillance campaigns. This included a pair of binoculars, waterproof bags for transporting samples, and a portable seawater desalination unit.

Having followed José and Tommy on one of their missions in terrible weather conditions, we were convinced they were ready to do anything to achieve their goal of protecting the nature they love. This is why they appealed to us, and it's by such selfless dedication that we recognize champions. Far from superheroes, Ecofund champions are simply women and men determined to take action on their own scale and for the foreseeable future.

CAPE VERDE RALLIES AROUND OUR CHAMPIONS

As our rhizomatic approach explains, Ecofund's power and impact depend on its community. As with our collaboration with the famous Senegalese hip-hop group Daara J, Sandrine had the idea of engaging a Cape Verdean artist as an ambassador for Biosfera's work. Her role would be to raise awareness at her concerts about the major challenges involved in protecting Cape Verde's ecosystems. She would invite her fans to support Tommy and José's project on the Ecofund platform. To this end, a friend named Stan, who ran a hotel in Calhau on the island of Mindelo, introduced us to the singer Mariana Ramos.

Born in Dakar, it is in Cape Verde that Mariana Ramos found her inspiration. This is the homeland of her ancestors where she spent her childhood, and her singularly suave voice draws its energy from the tradition of this "Little Country." Between the funana and the batucu, rhythms inherited from the slaves of the island of Santiago, and the morna and the coladeira, melodies of an entire people, it is the joy of Cape Verde's rich cultural tapestry that Mariana shares at venues around the world.

Our offer to become the ambassador of Biosfera projects supported by Ecofund sounds convincing to Mariana. "I would be delighted to sing at an event of your association," she wrote to us. She also offered to donate 25 CDs to the largest donors, along with dedications and photos. Mariana committed herself to speaking about the importance of protecting Cape Verde's birds and turtles. She reached out to her closest community (5,000 contacts) to solicit donations. Markus met Mariana Ramos in Paris on June 23, 2012, to thank her. We were delighted with this collaboration and continue to follow Mariana's cultural news, as we have appreciated her support very much.

"Amizade e solidariedade. Beijinhos"*

** Friendship and solidarity. Hugs and kisses.*

— MARIANA

IN MOROCCO
On the Roof of North Africa

OPPOSITE
The Yagour Plateau above the village of Tizi n'Oucheg, in the Moroccan High Atlas

At the crossroads of Europe and Africa, between the Mediterranean and the Atlantic, Morocco unfolds a mosaic of highly diverse landscapes. From its coastlines to fertile plains, from the cedar forests of the Middle Atlas to the peaks of the High Atlas, down to the Sahara, the country offers a wealth of ecosystems. This diversity remains fragile. Subject to sharp climatic contrasts, Morocco faces growing pressure on its natural resources. Repeated droughts, worsened by climate change, are affecting agricultural lands and water resources.

In the south and east, desert zones are expanding, undermining arable lands and traditional ways of life. In forested regions, soil degradation, overexploitation of wood, and overgrazing threaten vulnerable ecosystems.

Throughout the country, initiatives are emerging to preserve resources and restore ecosystems. Morocco thus illustrates the environmental challenges of both the Mediterranean and Sahelian regions, as well as the capacity of local actors to respond with creativity and determination.

The High Atlas, Water and Resilience

Al-Atlas al-Kabir, the High Atlas, rises to 4,167 meters. This is the roof of Morocco—and of all North Africa, by extension—and its long barrier of sedimentary mountains stretches for 750 kilometres. It is often said that the Moroccan mountains are the water tower of the plains. Among other things, they contain large, constructed reservoir dams that irrigate agricultural land below.

The High Atlas valleys do not lack water, but they are currently facing a twofold problem. Depending on snow cover and rainfall this resource varies from one year to the next: this is no new phenomenon, but it has become more erratic by climate change. On the other hand, water needs are growing due to the modernization of villages and new lifestyles. Water stress or lack of water has repercussions on the vegetation cover already subject to increasing livestock herding. Following the repeated droughts that the region experienced over the last forty years, local populations have turned to the forest (or what remains of it) to access additional sustenance for survival. For a long time now, natural trees around the villages have been cut down to be replaced by fruit trees, almond trees, walnut trees, olive trees… But these trees, in turn, have also been cut down and sold for wood.

There's a saying: "In your lifetime, you should have built a house, founded a family, and planted a tree." Today, we must start by planting trees to provide our children with a natural environment in which they can build their future. So, we decided to plant trees with the residents of Tizi n'Oucheg!

In 2016, after twelve years in Senegal, our respective professional commitments (that is, Sandrine and Markus') brought us to Morocco, where we stayed for seven years.

Project 9 PLANT YOUR TREE IN TIZI N'OUCHEG!

ABOVE
Reforestation project on the slopes of Tizi n'Oucheg village, High Atlas, Morocco

As usual, we set out as a family to discover the country's landscape, nature, history, culture—and, of course, its people. This trip offered us a wonderful and inspiring encounter with new champions for Ecofund, particularly Rachid, the charismatic and committed leader of an autonomous village nestled in the wonders of the High Atlas Mountains.

Thanks to some friends, we set off on the weekend of May 1, 2018, to Tizi n'Oucheg. It was there that we met Rachid. A passionate mountain guide deeply rooted in his land, Rachid offered us a multi-day hike to the Yagour Plateau, at an altitude of 2,600 meters. There, surrounded by ancient rock carvings, we would admire the magnificent panoramas of the High Atlas.

Over the course of our walks and evenings, we learned about the history and traditions of his village, and Rachid shared with us his

plans for the future. One dream of his particularly touched us: to reforest the arid slopes of the mountain in the hopes of reviving his land.
A memorable encounter, imbued with humanity and vision, which continues to inspire our commitment.

Isolated Villages Determined to Retain Their Young People

Located 60 km from Marrakech, Tizi n'Oucheg is a Berber village of 600 inhabitants. Built of dry stone, the massive houses are huddled together. The same ochre colour as the peaks surrounding it, the village merges into its landscape with terraces overflowing with vegetation. It is located at an altitude of 1,600 meters in the High Atlas, in the Ourika Valley.
The Aït Oucheg territory comprises five villages, of which Tizi n'Oucheg is the most remote and isolated in the valley. This isolation was the catalyst for its inhabitants, determined to take their future into their own hands. They organized themselves and created the Tizi n'Oucheg Development Association (ATND).

Like many in the region, this village grew among walnut trees. But in the 1970s, most of these trees were cut down and their wood sold. Today, residents are very much aware of the importance of reforestation. They see how trees help protect the land from erosion and landslides. They also realize how processing and selling of fruit could strengthen the autonomy of the villagers of Tizi n'Oucheg in the long term. On a more global scale, they see how much the planted trees will contribute to mitigate climate change by providing shade, coolness, and humidity.

The villagers had committed themselves to improving village living conditions first and foremost to help young people imagine a future for themselves in the village and decide to stay. Their efforts brought several economic, social, and cultural projects to completion: a boarding school for students, improved access to drinking water, the construction of a road, the implementation of waste sorting, the construction of a wastewater treatment plant, and much more, all of it done in a spirit of solidarity. Everyone contributes his or her "stone" to the edifice.

Our Champion: Rachid El-Mandili, a Leading Figure in the Autonomous Development of Moroccan Villages.

ABOVE
Rachid El-Mandili, a key figure for community development in Tizi n'Oucheg, High Atlas, Morocco

Rachid El-Mandili was born in 1976 in the village of Tizi n'Oucheg in the commune of Setti Fatima. He has begun the renaissance of this village, which he once left, so early in his life and hopeless about being able to continue his studies due to his extreme poverty, the distant school, and the treacherous mountain roads between them.

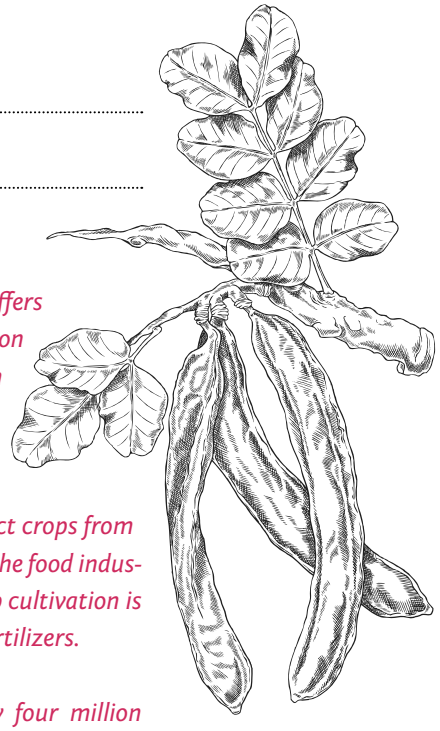
Rachid is not only the leader of this project but also a "frontman" of autonomous village development in Morocco. With his contagious passion and boundless optimism, this Berber, now in his forties, shares with his wife, children, neighbours, Tizi n'Oucheg community—really anybody who passes by—his vision of an autonomous village worth developing so that everyone can find a future there. Having understood early on that nobody else is going to improve the villagers' wellbeing and that they have to count on themselves, he proposed projects that would be useful to the community, supported by his energetic village council and the wise counsel of his friends at Open Village, among others. Both a mountain guide and the manager of a lodge where we can highly recommend a stop, Rachid is a "heart-

stopper" who knows how to pool positive energies around him and point them in the right direction: yesterday, a drinking water system; today, a new boarding school and a soccer field, always rented out by local youth; tomorrow, trees protecting the village from land erosion… Rachid is a vector of hope for many people. He is the champion of this project.

PLANTING FRUIT TREES, FRUIT TREES, AND MORE FRUIT TREES

Rachid, the members of his association, and village residents decided to plant cherry, walnut, almond, and carob trees—all trees traditionally grown in the village (except for cherry trees).
The planting areas were defined based on a study conducted by Charles Bonnin, a university researcher in agriculture who provided us with extensive data on rainfall patterns, land distribution, and irrigation in the area.

THE GENEROUS CAROB TREE



The carob tree is a tree with multiple benefits.

Environmental benefits

Its flowers provide food for pollinators, while its dense canopy offers shade for livestock. Its extensive root system helps prevent soil erosion and stabilize the land, while also promoting carbon sequestration and improving the soil's ability to retain water and absorb minerals.

Economic importance

Every part of the carob tree is valuable: its wood is used for construction, fuel, and charcoal; its branches serve as windbreaks and protect crops from hail; its leaves are used as animal fodder; its seeds are processed for the food industry; and its flowers support pollinators and honey production. Carob cultivation is also highly sustainable, requiring neither pesticides nor chemical fertilizers.

Social benefits

The carob tree supports the livelihoods and well-being of nearly four million Moroccans living in the High, Middle, and Anti-Atlas Mountains, at elevations from 200 to 1,600 metres. By providing shade and helping retain soil moisture in areas where rainfall has declined significantly, it mitigates the impacts of climate change. In doing so, it helps sustain rural communities and improve living conditions.

In 2017, following the study and the conclusions emphasizing to the urgency of reforestation, an initial phase of planting 1,000 trees was carried out successfully.
Rachid wanted to go further. Building on this experience, he hoped that each of the village's 110 families will own ten trees of each of the four species—forty trees per family—which would be that family's property and responsibility, thereby ensuring the plantations are in good condition. That would be a total of 4,400 trees!

We have vivid memories of our walk with Rachid around the village. Here, the carob trees with their thick, twisted trunks, capable of living for 500 years, he tells us, on poorly irrigated land; there, the walnut trees that need stones and water; and on the terraces, the almond trees where water is more often lacking. He explains to us the transparent and equitable way in which the 600 inhabitants of the village share the water stored in what are called *loutfia* in the Amazigh language. These large basins allow the storage of mountain spring water and its daily alternating distribution per family, measured using fingers; the water level can, for example, reach a height of 128 fingers. To cope with the vagaries of rainfall, the villagers are enlarging the water retention basin to double the storage to 600 m3 to irrigate all the trees.

A Multi-Impact Project

This is where Ecofund's contribution came into the picture. Thanks to donations collected on its platform, Ecofund helped purchase and transport the trees to the village of Tizi n'Oucheg. The villagers were to be responsible for planting, irrigating, protecting, and maintaining them.

VISIBLE ECONOMIC, SOCIAL, AND ENVIRONMENTAL IMPACTS

The project's positive economic, social, and environmental impacts were both rapid and significant.
The requirement to use traditional agricultural techniques both enhances a cultural heritage while making the agriculture more sustainable for the land. What's more, planting a substantial number of trees provided a solution to soil erosion in Tizi n'Oucheg, which faces a serious landslide problem.
This project promoted a natural heritage while preserving a traditional landscape. It became integrated into the Tizi n'Oucheg traditional

douar socioeconomic system. This way of perpetuating a future source of income is fully aligned with the village's development aims; relying on the know-how present on site, ensures and strengthens the village's autonomy. Also, the possibility of benefiting from a stable source of income (even if seasonal, and subject to climatic hazards) encourages families to remain in the village.
This is also a pilot project for the region, inspiring surrounding villages. The Open Village association coordinated all the plantings and monitored the results. Open Village is a private, non-profit organization whose primary objective is to promote self-sustaining, ecological, and inclusive development.

A POSITIVE OUTCOME ON ALL ACCOUNTS

The Tizi n'Oucheg Development Association received and planted a total of 10,000 trees, exceeding—more than doubling— the initial target of 4,400 trees! This achievement was made possible thanks to a joint contribution from the project partners: the associations "Reforestaction", "AAA", "Association Al Baytar", and of course Ecofund.
About 1,200 trees—or 70% of the trees that were financed by Ecofund—have survived, particularly the cherry trees on the irrigated land and the walnut trees near the river. This is immensely satisfying. These trees had already reached a certain size before planting, allowing them to withstand the harsh winters and recent periods of drought.
And they have produced their first fruits! As of 2021, the cherry and cashew trees have already produced good harvests, while the walnut trees were slowly beginning to produce.
For the small trees that were bare rooted before planting, the situation is different. These seedlings, while three times cheaper to acquire, were unable to develop roots dense and robust enough to survive the two consecutive droughts. As a result, nearly half of these trees died.

But the results, as Rachid confirms, remain very positive: reforestation has helped protect the village's surroundings from erosion and additionally reduced the rural exodus of young people, particularly young men. This project creating a new source of income for families as soon as the trees began to bear fruit.

OPPOSITE
Tizi n'Oucheg with its reforested terraces nestled in the High Atlas, Morocco

FOCUS

OPEN VILLAGE: MIND AND HEART WIDE OPEN

Open Village was founded by Karine and Ahmed Benabadji in 2015, driven by a desire to understand and experience how villages around the world function, and to discover the pioneers of better living and their responsible lifestyles. Their goal is to promote and support Moroccan rural communities in preserving their autonomy and development. Open Village was an eco-partner for the projects led by Rachid.

"What if the world's villages were already the places where more autonomous and sustainable solutions are built?"

— THE OPEN VILLAGE MOROCCO MANIFESTO

Project 10 MAY THERE BE WATER IN TIZI N'OUCHEG!

In 2022, after two years of quarantine and travel restrictions due to the COVID-19 pandemic, we returned to Tizi n'Oucheg with our family and members of Ecofund to visit Rachid and his association and to hear about the tree planting project.

Unfortunately, Morocco was experiencing yet another drought caused by insufficient snowpack combined with a lack of rain. In the open water channels of the village irrigation system, the water flowing down from the mountains evaporates continuously. That year, 45% of the land could not be cultivated due to the drought and consequent lack of irrigation. This jeopardized the efforts of the villagers of Tizi n'Oucheg to protect their environment and their livelihoods.

ABOVE
Village life and traditional architecture in Tizi n'Oucheg, High Atlas, Morocco

When Irrigation Water Evaporates

For many years now, extreme rainfall variability and increasingly severe droughts had affected Morocco. In addition to this, the country faces an ever-increasing demand for water. According to World Bank studies, the result has been a significant reduction in surface water (-20%) and groundwater (-25%) since 1980[10].

PIPES, SWEAT, AND GOOD HUMOUR

Giving up was always out of the question. With the planting barely finished, Rachid and his friends from the association were already thinking up another project. Their new idea involved bringing water back to the village to irrigate crops, while doing everything possible to limit its evaporation. For Ecofund, this sounded like the beginning of a new adventure with Rachid!

The villagers then decided to replace their system of open-air canals connecting three large natural water basins by introducing buried polyethylene pipes.

Thanks to the support of Ecofund and its partners in Morocco, polyethylene pipes were purchased and then transported by truck to the village of Tizi n'Oucheg. The villagers were responsible for transporting them along narrow paths carved into the mountainside. They were also responsible for digging, burying, and connecting the pipes (approximately 5 kilometres divided into three sections among the water basins). Around thirty men and young people from Tizi n'Oucheg participated in the work, while the women took care of the foods.

WATER ONCE AGAIN IRRIGATES THE LANDS OF TIZI N'OUCHEG

In November 2023, only one week after the start of the work, water flowed once again from the "Erzri Nouarioul" and "Oualfi" springs: the first phase of the project. If you can't hear the water's rush, that means enough of it is coursing down to irrigate lands left fallow due to lack of water during the dry season.

With the entire operation complete, residents estimated they could now recover up to 80% of the drought-blighted land.
Like the previous "Plant your tree in Tizi n'Oucheg!" project, this was also a pilot project for the region, inspiring surrounding villages.

(10) Sécheresse au Maroc : « Plus rien ne pousse ici », Le Monde Afrique, published 24 January 2024

AN EXTRA HELPING HAND

True to its rhizomatic approach, Ecofund presented Rachid and his projects to the German Embassy in Morocco. As a result, we were able to raise €13,500 for the water circulation improvement project to enable the completion of the two remaining phases: namely the replacement of the other two canals.

Latest News from Tizi n'Oucheg After the September 2023 Earthquakes

When learning of the impact of the powerful earthquake that struck Morocco on the night of September 8, 2023, we were deeply concerned for the residents of Tizi n'Oucheg. The village is located just a few kilometres from the epicentre. Fortunately, according to the ATND Association, the villagers suffered no human losses, only material damage. Neighbouring villages were less fortunate. They reported several deaths and considerable damage.
From the very beginning, the ATND Association and all the villagers of Tizi n'Oucheg provided relief to the villages of the Seti Fada community: food, tents, and mattresses. This was vital aid for families affected by the earthquake, helping them prepare for winter while waiting for their homes to be rebuilt with the aid of the Moroccan government.

OPPOSITE
A "targa", an open-air irrigation canal in Tizi n'Oucheg, High Atlas, Morocco,

PART 3

Ecofund, from Information to Creation

Connecting for Action

PAGE 120
Majestic flight of white pelicans, Banc d'Arguin National Park, Mauritania

OPPOSITE
Young Imraguen at the "Khaimaazrakh" (Blue Tent) photography camp, Banc d'Arguin National Park, Mauritania

Ecofund isn't just a fundraising web platform for environmental initiatives. It's a catalyst that helps structure and improve projects. A movement that brings together diverse groups (scientists, citizens, politicians, businesses, government agencies, schoolchildren, and artists), all of whom are important for protecting our environment. It's also a forum for exchange and information, curating scientifically validated thematic articles and making them accessible to all. It's at last also a space for promoting events related to eco-projects.

Through the Ecofund platform, we wanted to document the progress of the projects step by step, so that any ecofunder could follow the project(s) of their choice, and at their ease, taking advantage of these unique meetings with our champions to virtually wander through these places, which have impacted us all so much.

Ecofund is also a bet on the power of collective mobilization for concrete actions to protect ecosystems: like our collaborations with famous Senegalese hip-hop group Daara J, or with actress and darling of hit Senegalese tv series, Lissa—both of whom shot music videos for Ecofund's awareness campaign against small black plastic bags used in abundance throughout Senegal. Each of us can make a difference regardless of the nature and size of our contribution, or even our location. Every small contribution comes together to make a substantial positive impact on the conservation of our ecosystems.

INFORM

OPPOSITE
Underwater environment, São Vicente Island, Cape Verde

Through its blog, Ecofund allows you to travel to the most remote corners of the world, to better understand the environmental challenges and opportunities specific to each local context, and to know how we are directly involved. For example, protecting migratory birds in Banc d'Arguin in Mauritania means ensuring that the birds have the rest and the necessary food supply to reproduce and once again complete the long journey that will bring them back to our lands—for our utmost happiness, of course, but above all to maintain delicate ecological balances in and between Africa and Europe.
Here, we invite you to deep dive into the project called "On Your Marks… Study, Dive, Protect!", based on three articles written by Senegalese students on their first observations of the marine environment, thanks to undergoing scuba diving training.

These stories are among the many Ecofund articles that help us learn more about the nature around us. The diving lessons supported by Ecofund have literally "opened the ocean" for young scientists, ensuring that the information they have acquired during their studies is better applied.

Diving to Tell Better Stories

The three Senegalese students Ecofund helped to train in diving had the opportunity to observe the natural underwater environment for the first time. After collecting just the right number of samples and continuing their scientific observation work at the University Institute of Fisheries and Aquaculture at Cheikh Anta Diop University, they began writing. Their texts are proof that diving has allowed them to better transmit their scientific experiences.
These articles introduce us to three species, the virtues and flavour of which we did not know about previously– nor, their incredible usefulness for oceanography and medicine, neither!

Discovering the Hidden Oysters

By Fatou Kiné Gueye

A comedian wrote, "An oyster is a fish shaped like a nut." This oyster (Pteria spp.) is a bit like that...

When I was five or six years old, I was picking seashells on the shores of Dakar suburbs. I could never have imagined that there were living organisms inside these cockles.

It was after my diving "baptism" that I had the opportunity to observe them in their habitat (their biotope, as scientists call it). I have been fascinated by the way in which some bivalves (aquatic molluscs with two distinct and separated, but essentially symmetrical, parts), attach to rocks.

As a natural base to many other living things (Cnidaria aquatic invertebrates, such as sea anemones, jellyfish, corals, and other molluscs and algae), bivalves have developed a system of camouflage to escape their predators such as some piercing gastropods (Natica spp.) and non-borers (Murex spp.) This is what prompted me to choose the Pteria sp. oyster, related to the pearl oyster family. With its hiding system, the harvesting deserves special attention because for the uninitiated, it may go unnoticed... Diving has thus helped me tremendously in my scientific exercise!

DEFINITION

The Pteria spp. oyster belongs to the Pteria genus, and the Pteridae family, to which the pearl oyster Pinctada spp. also belongs. The Pteria shell is

remarkable: very thin and fragile, it can measure from 35 mm to 280 mm, exhibiting a very variable form oval, circular and sometimes very elongated on one of its sides, calling to mind the wings of a bird. Its hinge, which connects the two valves on the thickest side of the shell, has no tooth. The animal has no foot, either, but instead very developed adductor muscle running along the central part of the shell. It is this muscle that keeps the shell closed tight.

The specimens collected were found at a depth of twelve metres. They attached themselves to rocks via secreted bundles of filaments or threads called a byssus. These bivalves are biofilters. They feed on food particles (organic and inorganic) suspended in the water. The sexes are separated, but we have no precise information on their reproduction. Apart from the pearl oyster, the other Pteridae are not known to be regularly harvested, although many are edible.

IMPORTANCE

Pteria spp. can secrete pearls, like many bivalves in this family, but is not used for this purpose. Long confused with the oyster, and later with Saint James' shell (Pecten maximus), the Pteria is mostly sold by women on Soumbédioune beach in Dakar. This genus is eaten both fresh and grilled. Sellers even attribute aphrodisiac powers to its shells!

DID YOU KNOW THAT?

In Senegal, the empty shells of Pteria spp. are used for decorative purposes. However, some ethnic groups such as the Sérère use them for building Bankos (huts built with clay). Indeed, after burning, the calcium rich shells are used as a binder for whitewash.
Diving for them was a delightful experience for me and the next species that I would like to observe underwater is the African manatee (Trichechus senegalensis) because of the many myths surrounding it and recounted by fishermen from the Saloum islands. I therefore hope to master my diving to achieve this and give you the follow-ups to my discoveries.

Discovering Long-Spined Sea Urchins

By Amadou Sene

Living along Senegal's coastline, I eagerly awaited the harvesting season for these spiny balls with their exotic taste. During our introduction to diving, I was struck by the diversity of urchins in the Bay of Ngor in Dakar. In fact, it was my first time of seeing Diadematidae, a family that's totally different

from those we're used to seeing. For this reason, I have chosen to share this wonderful discovery with the Ecofund community. However, I remember vividly harvesting these beautiful "tiaras" and haven't forgotten their painful spines yet!

DEFINITION

Urchins are marine invertebrates belonging to the phylum Echinodermata, which also includes as sea stars and sea cucumbers. In Wolof, these small balls covered with spines are called "Saukhaure." We know about the rock boring urchin (Echinometra lucunter) species because we pick and roast them often right on the rocks bordering the sea. However, the species that I dissected in the laboratory was harvested from a depth of between ten meters and sixteen meters on the north of Ngor island. This was only possible through practicing diving, and I am very proud of myself!
Echinometra lucunter and Eucidaris tribuloides are the most common species. They are characterized by short spines, which are thicker for E. tribuloides and thinner for E. lucunter. Unlike these species, diadems (Diadema africanum and D. antillarum) are the least known sea urchins in Senegal. They are characterized by long and thin spines, which can measure over ten cm in length. Diadematidae derive their name from their beautiful shapes and their preference for warm waters: this is why they often can be found in the eastern part of the Mediterranean, where they are a protected species. They are also abundant in the shallow depths of the eastern Atlantic, such as off the coasts of Senegal and Cape Verde.
They feed by scrapping and shredding plants lining the seabed with the help of their mouths' jaw structure, unique among marine animals. A sea urchin's mouth has five hollow teeth with a tongue in the middle: this architectural structure sometimes called "Aristotle's lantern."[11]

The sexes are separated, and fertilization occurs externally through the simultaneous release of gametes into seawater. To the naked eye, the male and female are indistinguishable.
As for the spines, which I personally tested, the shortest are filled with a venom fairly weak to humans. However, broken spines are more di cult to pull out and can infect a wound.

IMPORTANCE

Today, there are only 800 species of sea urchins identified worldwide at different sea depths. It is important to conserve sea urchins as they are used as an important "biological indicator" for humankind. In fact, the larvae of sea urchins may carry deformities due to pollution, which

(11) Aristotle's Lantern: Redefining a Controversial Ancient Term, Silvergrass Institute 12 February 2021

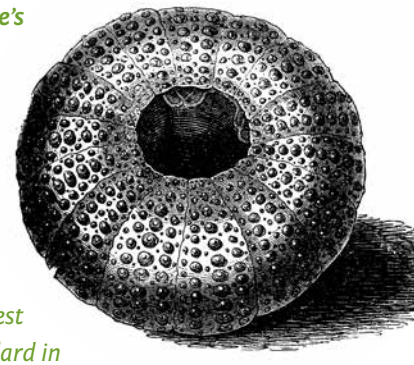
will prevent them from reproducing, thus causing a decrease in local populations. What's more, research on the genetic composition of sea urchins is being carried out for the treatment of cancer. The sea urchin is a perfect laboratory specimen because its cells multiply in less than two hours (versus 24 hours in humans) and with 70% of its genome being similar to the human genome. Studies at the Roscoff Biology Station, in France, have also helped to highlight the A1 peptide, which helps in fighting leukaemia.

Some species of sea urchins are edible as seafood. The edible ones are harvested by hand, using a hook or a simple knife. The edible parts are the five reproductive organs (gonads). To reach these organs, the mouth and the digestive apparatus are removed. In Senegal, they are eaten grilled on almost all the beaches and remain a flourishing business managed in general by Lebou women.

DID YOU KNOW THAT?

The tests (or round shells) of dead sea urchins usually have a star design, which can be visually striking in some species. Irregular or malformed urchins, in particular, whose shell takes the form of a flower, have become aesthetic objects sought by certain collectors or used by other people decoratively, or as ritual objects, or amulets. They are also used in the decoration of tombs or religious monuments, indicating the tests' broad symbolic diversity among to the community.

ARISTOTLE'S LANTERN: A HISTORICAL PUZZLE



***Sea urchins** possess a complex feeding apparatus known as **"Aristotle's lantern"**, named after the Greek philosopher who described it in his History of Animals. For centuries, the term has been accepted without question. Recent research, however, suggests that Aristotle may not have been referring to the sea urchin's mouth, but rather to its entire shell, or test, which he compared to a lantern. The ancient texts remain ambiguous, particularly regarding terms such as stoma and soma. Moreover, the lanterns of Aristotle's time were fixed, perforated oil lamps, making the comparison with the sea urchin's test entirely plausible. Although the term Aristotle's lantern remains standard in biology, this debate illustrates how the history of science and classical scholarship can shed new light on long-established concepts, revealing unexpected layers of meaning.*

Discovering Hairy Triton Snail

By Babacar Sané

Thanks to diving, I was able to discover marine habitats with high biodiversity. Among all the species, my attention was drawn to a snail largely found in warm waters and temperate regions of the world. Called Monoplex parthenopeus. this latter has a very nice colour, and though it is comestible, it is still not well-known in Senegal. At first sight, I thought I was looking at a rock as its shell was covered by other sea organisms that helped it to blend into the decor. But once "unmasked," it was di cult to detach it from its base, since it was stuck to it extremely well!

DEFINITION

Also known as "Hairy Triton" or "hairy monoplex" in reference to the hairy periostracum the most external part of the shell. The Monoplex parthenopeus belongs to the Cymatiidae family. The shell is large and brown, with thick, wide edges. My catch measured 116.60 mm high and 59.70 mm wide. The perimeters are barely segmented and angular, with fine longitudinal stripes. The columella (the edge of the shell inside the opening) is folded. The outer lip (exterior edge opposite the columella) is jagged.

The off-white body of the animal is spotted with large black dots, making it aesthetically pleasing. Once it retreats into its shell, we can only see its operculum: a corneous or calcareous "trapdoor" by which the snail can shut its shell, shielding itself from predators.
My specimen was caught fourteen metres deep on the rocks, but the species is found on all types of sea depths, from tidal current areas to areas as deep as 150 metres.

The Hairy Triton is a nocturnal predator, feeding mainly on bivalves, other gastropods, and echinoderms (sea urchins, sea stars, etc.) If I can master my diving skills, then I may get lucky enough to observe them at night!
Fertilization occurs internally. The female lays eggs for four to six days in a capsule in the form of cup and incubates them for 16–18 days. Larval development lasts half a year (175 days).
Spread out over a broad geographic marine area, the Hairy Triton is not a threatened species but its total biomass in Senegal remains unknown because the species hasn't been su ciently well observed. This is why there must be more studies of the aquatic fauna of Senegal: to learn, discover, and follow up on these animals' evolution. There remains much to be done in the field of malacology (the study of molluscs) in Senegal, all for a better management of our environment. This really motivates me!

ABOVE
A giant Hairy Triton in the waters of Senegal

IMPORTANCE

The shell of the magnificent Hairy Triton is used as a decorative object, but the species is also edible and especially tasty when grilled and spiced up, or simply boiled!
Some studies on this species have shown its use as a bio-indicator of marine pollutants, such as tributyltin (TBT). This biocidal substance contains tin and comes primarily from anti-fouling paints applied on the hulls of ships. They were totally banned from use in 2008 (fortunately, because they were far too harmful to aquatic life).

DID YOU KNOW THAT?

Commonly used in art as a decorative object, our gastropod appears on some paintings because of its beautiful shell. This species is considered in some regions as harmful due to its predatory activity in oyster parks. So far, its harvesting in the West African sub-region has not been particularly developed.

REFLECTING AND DEBATING

OPPOSITE
Inside the mangrove, the green lung of the Saloum and Casamance deltas, Senegal

Over the course of our journeys through Senegal, Cape Verde, Mauritania, and Morocco we were captivated by the actions of our citizen-champions. These champions, in turn, were fascinated by the findings of the researchers we also met along the way. Or else, they were convinced by the initiatives led by our entrepreneurial friends from the private sector. But no one really spoke to each other. What's worse, the different groups were opposed, and sometimes clashed: on one side, NGOs and civil society, fighting an economy they perceived as the cause of environmental problems; on the other, the regulatory state, itself torn between the populations socioeconomic and environmental protection; and on yet another side, the private sector providing jobs and tax revenue but frequently isolated, poorly informed, and poorly supported. And yet all of them could and should act together to find solutions for environmental problems.

It became clear to us that environmental protection would be best carried out by communities capable of talking to and understanding one another, driven by a common interest to act together. This is how, during a lunch with Professor A. Tidjani in Dakar, we conceived the as-yet unprecedented "Green Talks."

Green Talks

Green Talks were developed and launched jointly by Ecofund and the Institute of Environmental and Metrology Professions (IMEM) in Dakar, Senegal. The idea? To give all parties a voice, without taboos, and to encourage debate to foster solutions to urgent and current problems that involved the private sector, local communities, and public authorities.
Plastic waste, the pollution of Hann Bay, and coastal erosion: all these environmental problems affecting Senegal. But are solutions within reach? The Green Talks were hosted by Professor A. Tidjani, head of the Professional Master's in Environment (HQSE) at the Faculty of Science and Technology at the University of Dakar (UCAD). He is a founding member of IMEM in Dakar.

In keeping with the idea animating Ecofund, these meetings were a call to reflection and action as well as a collaborative venture in citizen engagement, scientific research, art, corporate social and environmental responsibility, not to mention the collective potential of the internet, social media, and crowdfunding. We remain convinced that preserving our planet is not an impossible mission, but a challenge within everyone's reach.
Here are a few examples of Green Talks organized by Ecofund. The first took place on February 25, 2015. The public responded to our appeal. Nearly 60 people gathered that day at the Institute of Environmental and Metrology Professions (IMEM). Industry stakeholders, government representatives, and civil society representatives all joined us.
For this very first Green Talk, we chose to discuss the issue of plastic bags: a widespread plague on the African continent, particularly in Senegal, where they constitute a clear source of visual pollution.

Plastic or paper bag? An easy choice?

February 25, 2015.

FINDINGS

Prof. A. Tijani opened the discussion by evoking the advantages of plastic—its adaptability, safety, low energy consumption, low cost of sale and often free distribution. This has led to its extensive use in all sectors, becoming an environmental problem through its inability to naturally decompose. In addition to being an eyesore, plastic waste has disastrous impact on both health and biodiversity.

ABOVE
Facing coastal erosion: the "Green Talks" co-organized by Ecofund and Professor Adams Tidjani (IMEM), Dakar, Senegal

DISCUSSION

For Hawili Ibrahima, the Chief Executive Officer (CEO) of SIMPA—a company founded in 1958 specializing in the manufacture of plastic packaging, the issue is often presented as a conflict between manufacturers and the environment. He believes it is important to "determine responsibility while promoting dialogue." Mr. Hawili condemned that he was being "stigmatized" as a plastic manufacturer while the plastic waste in Senegal consists of black bags with straps manufactured outside Senegal, imported without official regulation. He also pointed out that plastic manufacturers are job creators, as the industry alone accounts for over 300 billion FCFA/annum, in Senegal: nearly 450 million euros/annum.

For Yves Cremieux, CEO of RUFSAC (founded in 1978 in Rufisque) which specializes in paper bag manufacturing, paper bag production from natural and biodegradable materials is an asset. Paper bags can, indeed, be recycled after use for wrapping and burning. However, this industry requires huge investments and relies on the availability of water and wood. The audience immediately responded by questioning the quality of the wastewater from the manufacturing process and evoking the devastating consequences of such an industry on forests. Mr. Cremieux, responded by calling for regulation to enable forest owners to obtain the Forest Stewardship Council (FSC) label, which ensures that timber processing follows procedures for sustainable forest management.

This "Green Talk" theme "Plastic or paper bag," seemed to argue for a choice between paper and plastic, but there is no conflict between the two sectors. Paper is an alternative, but not a true substitute for plastic. Paper bags could nevertheless reduce the proliferation of plastic bags in Senegalese cities and villages.

Coincidentally, during the "Green Talk" debate, the Council of Ministers approved the draft bill banning the manufacture, sale and distribution of plastic bags of less than 30 microns (black bags). According to Messrs. Hawili and Ba, Secretary General of UPIC (the Senegalese National Employers Association (CNP), bringing together Industrialists), the bill was drafted with the support of plastic manufacturers.

The private sector also contributes towards reducing plastic waste. For example, SIMPA conducts research to produce biodegradable plastics and recycled 3,200 tons of plastic in 2014. Recently, SIMPA invested 3.5 million Euros to launch Recuplast, a recycling network, at Sicap Mbao. Other initiatives include the Proplast network, in Thies, involving more than 1,800 collectors. This is important to remember!

Meanwhile, what can we as citizens and plastic users do? Towards the end of the debate, it was clear to the participants that the plastic problem was neither a problem of over production nor merely a problem of plastic versus paper. Litter generally, including water bottles and the infamous Touba coffee cups, were being carelessly thrown everywhere. Beyond the degradation of the environment, this behaviour renders plastic collection difficult and costly, thereby limiting plastic waste recycling.

It was agreed that there must be a change in behaviour: that teaching ecology, or at least basic attitudes about protecting the environment, was necessary: specifically, discouraging throwing garbage in the streets by ameliorating people's ignorance of the of the inconveniences caused—visual pollution, obstruction of rainwater evacuation drains, poisoning of the land, and animals eating plastic.

CONCLUSIONS

- All actors, industrialists, government authorities and civil society groups **welcomed the ban on lightweight plastic bags**;
- **Free plastic bags should be banned** in order to internalize the costs of collection and recycling, based on the "polluter pays" principle (PPP)

- This will help in recycling plastic waste **to develop a green economy and create jobs**;
- Above all, **consumers should be encouraged to throw garbage in the trash bin** and not in the nature.

This debate provided a better understanding for participants about the plastic waste problem, and a better context for the draft bill on plastic bags. The bill was adopted the same day by the Council of Ministers and was later remained to be ratified by Parliament. Most importantly, it was accepted by the general public.

Hann Bay—an Asset, not a Sewer

Wednesday, March 25, 2015

This second session of our Green Talks was attended by representatives of The National Office for Sewage water management in Senegal (ONAS), representatives of the Hann Bel Air municipality, the Office charged with the promotion of Small and Medium Enterprises (BMN), the Directorate of Environment and Classified Establishments (DEEC), the "Hann Bay keeper" civil association, and the Senegalese music group "Les Frères Guissé," initiators of The Hann Bay Environment and Culture Festival.
The speakers explained the challenges of cleaning up Hann Bay to the audience.

FINDINGS

The Bay, once known as one of the most beautiful beaches of Senegal, is now among the most polluted in West Africa. Hann Bay extends along a thirteen-kilometre strip of land from the Dakar Port (PAD), home to a local population of about 500,000 inhabitants from Mbao, Diamaguene, Sicap Mbao, Dalifort Ferail. Today, it is the foremost industrial zone in West Africa and location to about 70 - 80% of Senegal's industries.
Hann Bay's pollution is caused by industries and residents discharging solid and liquid waste on its shores, while the marine pollution is caused by derivative waste and rotting seaweed borne by ocean currents from the coastlines to the Bay.

DISCUSSION

The ONAS has been questioned by Dakar's local authorities about the non-provision of a differentiating sanitation system for Hann Bay.

Rain and wastewater are mixed into ONAS-managed channels, though responsibility for water channel management falls to the municipality. The discussions highlighted the lack of responsibility from the often-inactive local authorities.

Contributions by panellists showed that the Bay's clean-up project could be successful.

- **pollution sources** in the Bay have been **identified and understood** by national experts, particularly from the academic community,
- **polluting industries have been listed** (five identified companies in the zone are responsible for 70% of the pollution), and the necessary studies on ocean currents, dispersion, and characterization of Hann Bay's industrial waste, as well as analysis of applicable pricing systems have been carried out.

However, problems likely to delay the project were mentioned and include the following.

- **lack of communication** and involvement on the part of residents and authorities, as well as public technical departments and associations working to solve the pollution problem in the Bay,
- **absence of sharing and dissemination** of scientific research results presented to technicians and policy makers, together with a **reliance on foreign expertise** to the detriment of strengthening local expertise in the project.
- **use of non-differentiated water drainage channels** and the problem of unauthorized channels used by locals (inappropriate behaviour); for example, the remediation project targets only liquid waste, leaving the solid waste problem unaddressed!

CONCLUSIONS

- **involvement of all stakeholders namely**, the Senegalese Government (departments concerned), industries, riverine populations, local authorities, associations, working together through participatory approach, and, finally funding partners to support these actions,
- **empowerment of neighbouring residents** who, through inappropriate behaviour, contribute to the Bay's unchecked pollution. They should be made aware of the degree of damage caused by their polluting acts, especially the unrestrained disposal of solid waste,
- **encouraging industries to join the Bay's clean-up project** using technical advice and financial support such as offered by the Program for the Small and Medium Enterprises. Companies can thus set up their own wastewater pre-treatment system before connecting to the main collecting station—planned in the project,—linking to a future wastewater treatment plant discharging into the sea through a three-kilometre-long pipe,
- **complying with applicable standards** in Senegal's Environmental Code (especially the NS 05/61 standard on liquid effluents), and monitoring, semi-annually at the industry level, a pollution parameter called the Wastewater Polluting Charge. A tax on pollution load will be imposed to contribute to operating costs of the future wastewater treatment plant under this project. Sanctions should be effectively applied,
- **promoting the wide dissemination of research results** carried out by national experts,
- **establishing an environmental Information, Education and Communication** (IEC) programme within local communities and schools, encouraging local populations (especially future generations) toward positive changes in behaviour,
- **informing people of the project's progress** and providing information about the benefits and risks of the pipe, just three kilometres out in the sea.

The debate led to a better understanding of the Bay's pollution problem and its clean-up project which would, after years of delay, start in September 2020.

Coastal Erosion: Natural or Manmade Phenomenon?

Wednesday, April 29, 2015

Representatives from the tourism sector, including two hotel owners and operators of the Saly tourism resort (a balenological sanatorium), called the representatives from the Ministry of the Environment to action.

FINDINGS

The situation described by the two hotel owners in Saly offered striking examples of the socioeconomic consequences of coastal erosion, not only for the tourism sector but also for local populations.

In the last ten years, the Espadon hotel lost its beach and was forced to close its doors. Today, its 39 permanent and 40 seasonal workers are unemployed. The owner of the Teranga hotel remembered when its beach was larger than a football field back in 2002. This beach even served the Senegalese national football team as training field for the famous 2002 World Cup, in which Senegal defeated France and qualified for the quarterfinals. Today, twelve years later, these glory days are over: there exists zero centimetres of beach space—not even enough for a single person to work out!

DISCUSSION

According to Senegalese geology expert and representative of the Experimental Centre for Research and Studies on Equipment. CEREEQ, Mr. Lô, the consequences of costal erosion are reversible, but they are above all preventable. He offered examples of solutions found in the Netherlands and Japan, but also the Big Mosque in Casablanca in Morocco, which was built on an artificial coast. Mr. Lo confirmed that coastal erosion is a natural phenomenon being amplified by humans: the first dam built into the Saly port brough this destructive process to the Senegalese coast.

Representatives from the tourism industry confirmed that in absence of a holistic country vision and a long-term program to deal with coastal erosion, they were each forced to invest in individual solutions aimed at saving their own businesses and maintaining staff. Unfortunately, these individual solutions together become self-defeating, triggering erosion further down the coast.

The representative of the Ministry for Environment, Mr. Bâ, attempted to reassure both the private sector and the general audience: the Senegalese government was currently developing a 22 million USD project, financed by the World Bank, aimed at the restoration and protection of the beaches in the Saly tourist resort. The objective was to construct nine wave breakers to protect 1500 metres of coastline. The Ministry had also drafted new laws on coastal management, banning the extraction of beach sand for construction, among other measures.

However, Mr. Bâ confirmed that the needs remain substantial—and urgent. According to the Senegalese Minister of Environment, several cities in Senegal were condemned to disappear into the sea.
Panel participants and audience members agreed that the phenomenon of coastal erosion in Senegal has been both researched

and documented for the last ten years and that adaptation was possible. Action was needed with clearly defined responsibilities for various stakeholders. This action had to begin with the elaboration of a holistic vision developed and elaborated by government, scientists, civil society, and private sector.

CONCLUSIONS

This third edition of our Green Talks offered a good basis for sustainable solutions.

Legal and regulatory:

- We can't stick our heads in the proverbial sand: the few metres of beach protected by the Senegalese government represent only the beginning of a response to the challenge. **We need a holistic solution that promotes a long-term vision**;
- Any holistic solution should necessarily be based on **recognized land right and settlement policies** and address the consequences of the phenomenon of coastal erosion in its natural and human aspects;
- In line with the above, the draft law on coastal management needs a **multi-sectorial approach**, meaning, it must go **beyond the environmental sector**; the law needs to **integrate the social and economic dimension** of land usage and rights;
- All future tourism projects on the Senegalese coastline, in particular the new tourism resort at the Point Sarène, which forms part of the Presidential Investment Plan, need to **integrate the lessons learned** from the coastal erosion in Saly;

Practical actions:

- With the financial support received from the World Bank, and after approval by scientists, the Senegalese government should **immediately start the construction of wave breakers**;
- Land planning should **allow for development of the coastline** with the participation of users and the private sector, for instance, through the creation public green recreation spots open to the public;
- **Reforestation of the coastline will also help** to fix dunes and secure the coast; furthermore, reforestation also helps to develop the coast line;

The debate led to a better understanding of the coastal erosion phenomenon in Senegal and the elaboration of practical solutions. Furthermore, the audience gained a better understanding about the

current efforts by the Senegalese government and those of the private sector. We need to ensure that laws promote the solutions listed above will continue to be enforced.

Household Waste Management

Wednesday, May 27, 2015.

This Green Talks session drew a large audience, bringing together representatives of Entente CADAK'CA and the National Waste Management Program, as well as a designated expert to talk about the problem of household waste management.

FINDINGS

The discussions started off with a general observation on the poor management of household waste, as demonstrated by garbage dumps, illegal dumping grounds and non-existent garbage collection throughout cities and local communities across Senegal and around Dakar in particular. Poor waste management raises the risks associated with increasingly negative consequences for the environment, public health, and quality of life.

Senegal's poor waste management is largely due to instability of the sector. This instability is multidimensional, consisting of the following factors.

- **institutional** – for ten years, personnel changes at the Ministry in charge of waste management have hindered the elaboration of a strategy on a medium- and long-term basis and prevented meaningful partnerships with local communities. Agencies are therefore unable to sufficiently capitalize on their gains;
- **technical** – waste management is limited solely to collection, transportation, and disposal at temporary dumpsites. Due to a lack of infrastructure and accompanying mechanisms, household waste isn't recycled;
- **financial** - the Government subsidy system for local communities through the Tax on Household Waste is unsustainable for Dakar (which is granted a special status). As a result, municipalities lack the financial capacity and technical means to sustain such initiatives. These difficulties reveal the immensity of the household waste tax recovery problem. Because the tax system has not yet devolved to local community levels, inadequate revenue collection systems and unequal distribution of government subsidies for waste management lead to only 1.9 billion CFA Francs, (3.5 million Euros) being collected through this tax scheme in Senegal, by far not enough;
- **managerial** - the absence of legal frameworks has allowed for recurrent strikes in the sector. Today, there exists a collective agreement that makes it possible to give field technicians job security through a comprehensive benefits package that health insurance, a retirement plan, and social security;
- **behavioural** - due to poor citizen attitudes by citizens regarding waste management.

At the end of the discussions, suggestions and proposed solutions included the following.

- **the urgent need to reform legal frameworks** for better household waste management. Relevant laws regarding regulation date back to 1974 and must be reviewed;
- **re-thinking the current Tax on Household Waste scheme**;
- establishment of a sustainable self-funding system for the management of household waste;
- **establishment and regulation of a more advantageous fee structure** (for which there is currently no legal basis);
- **establishment of durable, effective and reliable fee calculation systems** that can be legalized and adapted by local communities to encourage citizen accountability;
- **feasibility study for putting in place of an ecological tax** (ecotax) for waste recycling;
- **support by the Senegalese government** for the development of infrastructure in local communities and neighbourhoods;
- **establishment of a waste sorting chain model** through the creation of receptive buffer zones to avoid illegal dumping;
- **technical support to local communities** through training (such as waste handling jobs) in collaboration with stakeholders;
- **information and awareness campaigns** encouraging citizens to review their manner of producing waste (and to see consumption patterns) and to adopt simple and basic waste solutions (reusing and recycling);
- **the reinforcement of public health services** aimed at supporting better citizen waste management;
- **valorisation of the garbage collectors' work** through better contracts.

CONCLUSIONS

- It is imperative for the Ministry of Environment, relevant technical departments, local communities, and citizen and neighbourhood associations to work in synergy. Citizen participation through local political representatives is critical for demanding the review of outdated and weak legal frameworks, that have led to an increase in waste and a decrease in treatment options;
- It is also important to adapt tax incentives to promote efficient sorting, reusing, and recycling waste, in the best possible manner.

In this way, the discussions allowed the participants to have a better understanding of the waste management problem in Senegal.

OPPOSITE
A Senegal thick-knee in the heart of the Banc d'Arguin National Park, Mauritania

RAISING AWARENESS

OPPOSITE
Young Imraguen at the "Khaimaazrakh" (Blue Tent) photography camp, Banc d'Arguin National Park, Mauritania

At Ecofund, we wanted to make the most of our network and the knowledge we were accumulating to raise awareness among the public, especially among young people. We are convinced that the citizens of today and tomorrow would be able to better manage our environment if they were aware of its threats and able to contribute to solutions. We believe that we protect better what we know best. Raising awareness has therefore been one of the cornerstones of our approach.

The “Nature Genius” competition: supporting the reintroduction of the African Spurred Tortoise in the Ferlo

On June 5th and 8th, 2013, students from Ranérou Middle School carried out a project they had been passionate about for several years: organizing a competition called le Génie en Herbe, on the theme of nature. They were keen to share their knowledge and passion for protecting their environment with the people of Ranérou.

Le Génie en Herbe is a television gameshow broadcast in West Africa. Two teams from different schools compete against each other, answering general knowledge questions as quickly as possible. This gameshow is very popular in Senegal: the winners become real celebrities in the country. Like many students across Senegal, those from the small town of Ranérou watch these shows and dream of participating one day. So, by reproducing the Génie en Herbe competition in their own way and at their own scale, the students became actors raising awareness, protecting their environment, and drawing attention to the threats facing it.

Deforestation, bushfires, poaching and wood collection, as well as overgrazing and the extinction of species such as turtles, ostriches, and gazelles were the topics of focus. Interactions between animals were also discussed, so that children could understand the importance of a rich ecosystem.

Everyone was eagerly awaiting the big day! This excitement was shared by all the inhabitants of Ranérou, wondering what their children have been up to. The date was announced a few days prior by Ranérou’s community radio station, as well as with three banners displayed in the town, for maximum visibility.

From 8 a.m., the various participants in the competition were busy. To avoid the intense heat, the game could finally begin at 5 p.m. The players were very excited. The game began with four elimination matches among eight teams. From whistles, quick answers whose lucidity was each time applauded by the enthusiastic audience, the students’ concentration and cheerfulness, to the seriousness of the jury: everything was in place to make this day a real success. Everyone would leave with a turtle protection T-shirt, pens, notebooks, while the winning team also won a full day in Katané (the turtle reintroduction site) with the turtle monitoring team. This prize included radio-tracking of turtles in the morning, a meal with the national park agents, and a chance to learn about their daily work (including surveillance and environmental awareness); then, in the afternoon and evening, an encounter with the wild fauna and flora of the protected area.

ABOVE
Young Imraguen at the “Khaimaazrakh” (Blue Tent) photography camp, Banc d’Arguin National Park, Mauritania

The Eco-Champions Game: dive into a virtual world to save the real world

After seven years spent supporting ecological projects in West Africa and seeking funding for their implementation, we wanted to translate our experience into a quick game aimed at highlighting the importance of protecting the global climate and the natural environment.

It was only natural that we turned once again to our partner and friend Professor Jens Müller, who teaches Interactive Media at the Technische Hochschule Augsburg in Germany. We had already collaborated with Prof. Müller and his students on several occasions,

notably in the creation of animated films designed to promote the eco-project Casamance Ecoparc: a final project for master's students required to obtain their degrees.

Professor Müller advocates for applied thinking about the opportunities offered by animated and informative films, particularly in intercultural dialogue. He seized the chance to collaborate with Ecofund to help students experiment and put into practice the knowledge they acquired, all for the benefit of a good cause, before becoming experts in communication and media. The "Eco-Champions" game was his fourth collaboration with Ecofund.

The game's implementation was assigned to eight students from the Technische Hochschule Augsburg: Julia Seidl, Corinna Reithmeier, Konstantin Dautfest, Christian Sing, Niklas Höger, Daniela Flechsig, Laura Löffler, and Hannah Albrecht.

The basic idea was to design a video game about environmental protection for children set in the urban world of industrialized countries, like Germany.

After stimulating discussions, the conversation turned to a sadly universal topic, that of waste, along with a key idea: if we hardly see waste anymore in the urban setting of industrialized countries, since it is stored in landfills far from living areas, it is nevertheless visible everywhere to travellers in developing countries, like in Africa, due to the lack of collection and recycling systems. There, waste is an inevitable part of the landscape. Plastic bottles, packaging cardboard, used shoes, bags, caps, etc., all litter the streets. They are tossed by the waves and deposited on the beaches, hung in tree branches or on fences, filling rivers...

FUN FACT: OUR CHILDREN PARTICIPATED!

We wanted to place the players of the eco-champions game at the heart of the action so they would understand how their attitudes concerning waste can significantly affect the environment we all live in and, consequently, improve our visual and olfactory well-being: we must reclaim the value of waste to encourage recycling.

Finally, since children are supposed to be at the center of the game, we wanted to genuinely involve them in the creative process. Our own children got their classmates in Morocco involved in designing

OPPOSITE
Shared smiles: the "Khaimaazrakh" camp group photo, PNBA, Mauritania

FOCUS

KHAIMAAZRAKH, OR THE BLUE TENT

The Imraguen people want to pass on their traditional values and know-how to their children, so that they, in turn, become guardians of the park, just as their ancestors have held this role for centuries.
Ecofund partnered with the Imraguen people to organize, for the first time, a summer camp for children called The Blue Tent—Khaimaazrakh," owing its name to the colour of the photography workshop tent, to allow them to discover the coastline. For ten days, through games and workshops, they discovered the flora and fauna as they had never seen it before. The originality of this summer camp was the creation of a photojournalism training workshop led by French nature photographer Jean-François Hellio. This workshop was a key and innovative activity for the children, combining know-how and traditional Imraguen values with an introduction to modern photography tools. Thanks to this workshop the children became reporters of their daily life in a protected area: they were able to wonderfully illustrate the biodiversity of the park and the challenges of its preservation in their own way—and to better know how to defend it.

the character and the environment. Then, they all tested and provided their feedback on the very first versions.

Everyone was able to give their opinion and make recommendations about the character's appearance, the type of waste they might encounter, and the possible impact on nature once they properly collected and recycled this waste.

The eco-champions game could have been further improved, of course, but we thought it was a very good start, as well as a good topic for students. Although it calls for virtual action, it helps raise children's awareness about pollution, and especially about the value of waste in terms of recycling.

"We created 'The Eco-Champions' game with the class! We imagined the hero and the waste surrounding them. While testing the game, we understood that even our small actions against waste can protect nature."

— KELEA, LEO AND KEZIAH

OPPOSITE
Learning through play: Ecofund's 'The Eco-Champions' video game

PAGES 162-163
Aerial view of the mangroves and mudflats of the Saloum and Casamance deltas, Senegal

FOCUS

WHY CHOOSE THE THEME OF WASTE?

In short, because the world is suffocating under the mass of waste. If nothing is done to reduce its production or to treat it properly, it will increase by 70% by 2050 according to the World Bank's What a Waste 2.0 report. This trend is also affecting sub-Saharan Africa (foreseen to produce three times the waste by 2050 than it had 2016!) and Asia (two times more)[12]. As for the nature of this waste, the figures are unbelievable: in 2024, nearly 400 million tons of plastic waste have been produced worldwide. Today, this figure may remain abstract, but it becomes very specific once you want to swim in the Atlantic Ocean or the Mediterranean Sea. Plastic pollution is the main source of solid waste. Its origin is highly concentrated in five product families: plastic bottles, fishing ropes and nets, lollipop sticks and cotton swabs, and finally, plastic bags and packaging.

(12) What a Waste: An Updated Look into the Future of Solid Waste Management, World Bank report 20 September 2018

EPILOGUE
Ecofund, Its glories, and Its challenges

Launching Ecofund fifteen years ago was our spontaneous, natural response to the needs and opportunities to protect the environment that we found around us in Senegal. At the time, various anonymous champions were working on the ground tirelessly, but with insufficient resources. Small, local, and concrete actions were only beginning to generate enthusiasm. It seemed to us like everything was still to be built: awareness, knowledge, and community investment in environmental protection.

Ecofund was therefore conceived as a springboard for ideas, an incubator, and an accelerator. Ecofund was intended to serve as a bridge to facilitate a triangular collaboration between the government, civil society, and the private sector.

Augustin's project is the perfect example of Ecofund's DNA: after an amical encounter during a half-marathon in Casamance, his idea to protect the forest near his home village met our personal support. The project gained momentum rapidly thanks to Ecofund's support, culminating in the creation of a nature reserve along with an ecolodge and ecological trails

Then, Ecofund took off internationally as our nomadic family traveled. For fifteen years, from Senegal to Morocco, from Mauritania to Cape Verde, our association has promoted around fifteen projects, raising over €120,000 from hundreds of donors around the world.

In this way, Ecofund has become our fourth baby! We've experienced sleepless nights, moments of rare intensity, evenings spent rethinking the world, ups and downs, fits of laughter, and tears shed at the loss of our dear friends Augustin and Assane, along with suitcases full of memories, many mistakes, to be sure, and actions that could be improved certainly… but regrets—never!!

Some projects continue to bear fruit. The Casamance Ecoparc still protects 32 hectares of magnificent native forest along Senegal's southwest coast. Water from mountain springs purrs in Rachid's home village of Tizi n'Oucheg in the high Moroccan Atlas Mountains. Fruit

trees planted by villagers rustle in the wind and protect the area from erosion: simple actions that have had a major role in combating rural exodus.

Other, more specific initiatives, however, have deepened knowledge, ours and others, such as the scuba dives for marine ecology students, the Sulcata turtle game, nature outings in the Ferlo in Senegal, the photography workshop Khaimaazrakh for children in the Banc d'Arguin National Park in Mauritania.

Still others have stimulated exchanges between political and economic decision makers and civil society actors, such as the Green Talks launched in Senegal, or else raised awareness, such as the Stop Nylon Nets operation, or *The Prophecy* photography and story project. These stories document the commitment of the everyday heroes we encountered in Senegal, Mauritania, Cape Verde, Morocco,… Throughout these pages, we wanted to demonstrate that everyone can be a hero and that an initiative, even if modest or temporary, can have a positive and lasting impact on ecosystems. It's possible!

We Want to Bear Witness to it Today

Augustin said he wasn't doing anything extraordinary. Neither have we. We haven't changed the world. But we have faced challenges. We are happy and proud to have contributed our time and effort to these positive, concrete, and valuable initiatives for the protection of our ecosystems.

Here we are, nomads again. As we write the very last lines, we have just settled down in Tunisia, where environmental challenges are felt with particular acuity. We will continue our civic engagement. We remain attentive and open to exciting encounters that bring about change.

This book is a tribute, but also a lasting call to vibrant civic engagement.

ACKNOWLEDGEMENTS AND THANKS

The small gestures, the quiet support, and the generous contributions of our community—friends, colleagues, and partners, not to mention the champions of Ecofund—have had a decisive impact on the design, management, and results of Ecofund. Without their commitment, this adventure could never have taken shape. To all of them, we wish to express our deepest gratitude.

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Carlota Thévenot, for having so skillfully crafted our positioning, communication, and launch strategy, giving Ecofund a coherent, bold voice that remains deeply true to its spirit.

Winnie Dujeu-Loh, your keen eye and creativity shaped a visual identity that is clear, inspiring, and true to our values. Your choice of a timeless design offers our web platform elegance and consistency. Marième Kane, coordinator in Senegal, your diplomacy, perseverance, and extensive network of contacts in Senegal enabled Ecofund to overcome the administrative and legal challenges that every startup faces, even if it has a public service mission. Your contribution was invaluable, discreet, and decisive!

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Haidar El Ali, itinéraire d'un écologiste au Sénégal (an ecologist's journey in Senegal), by Bernadette Gilbertas (Terre Vivante), *Mami Wata, mère des eaux. Nature et communautés du littoral ouest-africain (Mami Wata, Mother of the Waters: Nature and Communities of the West African Coast)*, by Pierre Campredon, accompanied by photographs by Jean-François Hellio and Nicolas Van Ingen (Actes Sud), and *Le Livre des Imraguen, pêcheurs du Banc d'Arguin en Mauritanie* (*The Book of the Imraguen, Fishermen of the Banc d'Arguin in Mauritania)*, by Marie-Laure de Noray-Dardenne (Buchet-Chastel), have allowed Ecofund to enrich itself with essential voices, stories, and images.

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Professor Jens Müller, lecturer in interactive media at the Technische Hochschule Augsburg, who works tirelessly to promote applied thinking about the possibilities offered by animated and informational films, particularly from the perspective of intercultural dialogue. Your collaboration with Ecofund has facilitated the practical application of your students' knowledge while also raising their awareness of "a worthy cause" before they become experts in communication and media in turn.

Daara J, the famous Senegalese hip-hop group, and Lissa, Senegalese actress and model: you have been wholeheartedly committed to our awareness campaign against plastic bags in Senegal.

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Thank you all for believing that commitment,
together with collective action, can change the world a little.

GLOSSARY

AAA	Action Autonomie Avenir Association (Morocco)
AZE	Alliance for Zero Extinction
AABA	Association of Friends of the Banc d'Arguin (Mauritania)
APES	Association for the Protection of the Environment in Senegal (Senegal)
ATND	Tizi n'Oucheg Development Association (Morocco)
BMN	Office for promotion of Small and Medium Enterprises (Senegal)
CEREEQ	Experimental Research and Study Centre for Equipment (Senegal)
COTOA	West African Textile Company (Senegal)
DEEC	Directorate of Environmental Protection and Licensed Establishments (Senegal)
FAO	Food and Agriculture Organization of the United Nations
FCFA	CFA Franc
FIBA	International Foundation for the Banc d'Arguin (Mauritania)
FSC	Forest Stewardship Council
HQSE	Master in Quality Hygiene, Safety and Environment (Senegal)
IMEM	Institute of Environmental and Metrology Professions (Senegal)
IUPA	University Institute of Fisheries and Aquaculture (Senegal)
MAVA	Swiss foundation founded by Dr. Luc Hoffman
ONAS	National Sanitation Office (Senegal)
PAD	Autonomous Port of Dakar (Senegal)
PADI	Professional Association of Diving Instructors
PNBA	The Banc d'Arguin National Park (Mauritania)
RAMPAO	Regional Network of Marine Protected Areas in West Africa
SOPTOM	Turtle and Habitat Observation and Protection Station (France)
UCAD	University of Dakar (Senegal)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPIC	Senegalese employers' organization (Senegal)
WPC	World Parks Congress

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Whispering “The Prophecy” onto concrete along the highway: Graffiti by BREEZE, Dakar, Senegal,
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This publication has been produced within a non-commercial framework dedicated to citizen engagement and environmental awareness.

The stories, testimonies and projects presented in this book are based on field experiences across West Africa and beyond. As a whole, they record a shared endeavour at the intersection of science, civic engagement and cultural creation.

Sandrine Beauchamp is a development economist. With over 20 years of experience in international cooperation, particularly across Cuba, West Africa, and North Africa, she focuses on private sector growth, artistic projects, and the green transition. She advocates for a pragmatic approach to environmental commitment, firmly believing that small, local initiatives often spark the most lasting transformations.

Markus Faschina is a development banker, start-up investor, and nature enthusiast. With over 20 years of professional experience in Africa working with international financial institutions, he specializes in analyzing and financing development projects. He is convinced that sustainable practices can go hand in hand with economic performance.

Together, Sandrine and Markus are the cofounders and managers of the green network and crowdfunding web platform www.ecofund.org, which they use to support and highlight local initiatives making a tangible positive impact on the environment.

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