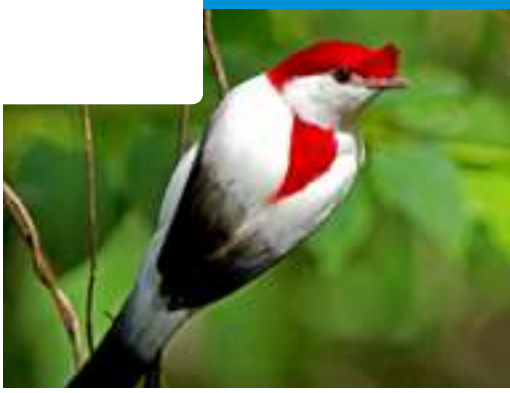
IUCN | National Committee of The Netherlands

TWO DECADES OF **LAND ACQUISITION FOR CONSERVATION**






CELEBRATING THE 20TH ANNIVERSARY OF THE IUCN NL LAND ACQUISITION FUND



Barba Azul Nature Reserve, Forest islands in Barba Azul East - credit: Christiaan Spencer

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INTRODUCTION

The year 2020 marks the 20th anniversary of the IUCN NL Land Acquisition Fund, which provides small grants to local NGOs to acquire threatened patches of wilderness in order to protect the biodiversity they harness. Since its foundation in 2001, the Land Acquisition Fund has enabled and facilitated the acquisition of over 40,000 hectares of nature, thereby creating a foundation for species to survive and thrive. For more than 100 NGOs, the fund proved to be crucial in pursuing their conservation objectives. The support provided allowed these NGOs to grow, both institutionally and in hectares under sustainable management.

This report is a tribute to the men and women in the frontline of nature conservation.

All this would not have been possible without the generous support of the Dutch Postcode Lottery. The anniversary of the Land Acquisition Fund also marks 20 years of collaboration between IUCN NL and the Dutch Postcode Lottery.

To celebrate what has been achieved during two decades of land acquisition for conservation across the world, all 108 NGOs that were funded through the Land Acquisition Fund were contacted and consulted in the first half of 2020.

This report highlights their stories and portrays the evidence of their conservation efforts, their lessons learned and their successes. In addition, we included important messages on how a diverse range of threats and challenges can disrupt even the most promising conservation efforts, as a testimony to the difficulties that NGOs experience as they work to protect biodiversity.

Conservation is never a straightforward process. It includes a wide range of activities and requires a holistic approach. Conservation NGOs have to negotiate the deals, patrol the reserves, put out forest fires, work with local communities, hire and train local staff, raise funds, and protect the established reserves.

By capturing and sharing the stories of the conservation heroes within its worldwide network, IUCN NL stands for the continuation of these conservation projects and aims to stimulate others to get actively involved.

This report is a tribute to all those men and women in the frontline of conservation. A homage to those who are protecting the beauty of our planet, for the benefit of wild plants and animals, and in the end for all of us.

Colophon

AUTHORS

This report was written by Lucia Guaita (MSc International Development, Wageningen University & Research) and Christiaan Spencer (MSc Forest and Nature Conservation, Wageningen University & Research), who carried out a four-month internship at IUCN NL under the supervision of Marc Hoogeslag, Frederique Holle, Doris Schyns and Caspar Verwer and for the purpose of the 20th anniversary of the IUCN NL Land Acquisition Fund.

Graphic design: Margo Vlamings
Editor: Sarah Bevis

ACKNOWLEDGMENTS

IUCN NL wants to thank all the partners that invested their precious time in submitting the questionnaires and talking to Lucia Guaita and Christiaan Spencer about their challenges and successes.

A special thanks to Lucia Guaita and Christiaan Spencer, who did an amazing job analysing all the proposals ever funded, all the questionnaires submitted and all the photos and videos submitted by the partners. An immense task, resulting in the stories you are about to read.

The interaction between them and the partners was invaluable, a generation apart but with the same dedication and passion for nature. Nicolas Locke from partner organisation REGUA in Brazil said: *"I had an hour conversation with Chris and Lucia answering their questions on how important was the grant for REGUA. If any of you have a chance to talk to these young (24 years old) working at IUCN NL, I strongly recommend it. I think the young generation is as inspirational as perhaps we are to them!"*

DISCLAIMER

The case studies are compiled based on interviews with local partner organisations. The interviews were carried out by Lucia Guaita and Christiaan Spencer.

ABOUT IUCN NL

IUCN NL is the Dutch national committee of the International Union for Conservation of Nature, the world's largest and most diverse environmental network. IUCN harnesses the experience, resources and reach of its more than 1,400 member organisations, composed of both government and civil society organisations, and the input of more than 15,000 experts. IUCN is the global authority on the status of the natural world and the measures needed to safeguard it. IUCN is headquartered in Gland, Switzerland. Visit IUCN.org to learn more about IUCN's work.

In the Netherlands, IUCN NL forms the platform of the 38 Dutch IUCN member organisations, including large and small nature and environmental organisations, the Dutch Government and knowledge institutions.

IUCN NL collaborates with and supports local organisations in Africa, Asia and Latin America, together with IUCN member organisations and other parts of IUCN, to safeguard important nature and biodiversity in these regions. Together we develop international collaborative programs and acquire funds from different donors.

IUCN NL LAND ACQUISITION FUND

Since 2001, with the support of the Dutch Postcode Lottery, IUCN NL has been providing small grants to local NGOs to allow them to acquire threatened patches of wilderness in order to protect the biodiversity they harness.

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Coenraad Krijger

In a world where landowners tend to exploit rather than protect natural ecosystems, land acquisition by local civil society organisations is among the most effective ways of securing biodiversity. Locally rooted protected areas are expected to form an integral part of sustainable development across the world. Twenty years of land acquisition for conservation demonstrate the potential of strategic land acquisition as an answer to fragmentation of habitats and degradation of ecosystems.

The results speak for themselves. IUCN NL is proud to host such an effective mechanism for supporting many locally rooted initiatives to secure threatened ecosystems and species, with the generous and high trust support by the Dutch Postcode Lottery. In addition, funding from the Land Acquisition program has proven to be taken as a positive signal by large donors to engage and scale up funding. In this way, various projects funded by the Land Acquisition Fund have grown into international showcases of successful nature conservation.

After 20 years, this founding concept of the Land Acquisition program is still valid, and perhaps more needed than ever. The outcomes highlight the resilience of species and ecosystems given the right conditions, notably when management is in the hands of passionate, talented people. Moreover, the various showcases learn that, across cultures and continents, people are committed to their living environment and care to act to safeguard it. Combined, these powerful forces in nature and local people constitute a source of hope, hope for a beautiful world in which biodiversity is valued and conserved as a basis for all life. Going into the crucial next 20 years, the Land Acquisition Fund will continue to deliver its part.

> “Land acquisition by local civil society organisations is among the most effective ways of securing biodiversity.”

Coenraad Krijger is the director of IUCN NL.

Marc Hoogeslag

Since 1995 IUCN NL has been implementing small grants programs with funding from the Dutch government's Overseas Development programs. With these grants we have been able to support projects of local civil society organisations (CSOs) on the interlinkage between conservation and sustainable development. From the beginning, we were often approached by NGOs who were faced with situations where the acquisition of threatened nature was the only solid, quick solution to an imminent threat: if not secured, a valuable part of an ecosystem would be lost forever. Unfortunately, we were unable to support these projects within the strict requirements of government funding.

The Dutch Postcode Lottery offered the solution. When we became their beneficiary in 2001, they made a dream come true: a small grants program specifically dedicated to supporting local conservation NGOs in the strategic acquisition of nature, in order to connect and protect the habitats of endangered species.

Now we are celebrating the 20th anniversary of our Land Acquisition Fund. To me it was and still is an absolute privilege to have been involved from the start. This anniversary is an excellent opportunity to look back on what we have achieved. For me personally, it is still as exciting as it was back in 2001. It is intensely rewarding to be able to meet and support so many people from all over the world, with a dedication that is sometimes hard to imagine, in situations where the future looks grim and bleak.

Sir David Attenborough once said "You can form all the committees, all the societies, all the working groups, all the charities you like but you know that in the end, it is that one individual, that one individual that has passion, that one individual that has fire in the belly, that one individual that is determined that something should be done."

Since the inception of the program in 2001, I've seen thousands of proposals from all over the globe. The big challenge still is to find the real gems in that stack of proposals, to scout out the projects and people that can make a real difference on the frontline of conservation.

> "The challenge is to scout out the projects and people that can make a real difference on the frontline of conservation. Finding the people with this 'fire in the belly' is key in our line of work."

Finding the people with this 'fire in the belly' is key in our line of work. Once these conservation heroes are found and supported, results follow almost automatically: they create safe reserves allowing the recovery of endangered species such as the blue-throated macaw, cotton-top tamarin and Araripe manakin.

Marc Hoogeslag is program manager for the IUCN NL Land Acquisition Fund. He has been involved since the very beginning with all the projects supported through the fund.

Margriet Schreuders

THE DUTCH POSTCODE LOTTERY

The Dutch Postcode Lottery believes in the power of civil society organisations to make the world a greener and fairer place. Therefore, one of the organisations that is supported by the Postcode Lottery is IUCN NL. IUCN NL brings green organisations together and connects its members with the business community, governments or civil society organisations in the South. A large part of the lottery's contribution to IUCN NL is used to finance the Land Acquisition Fund. The fund helps local conservationists to purchase crucial areas of nature, often directly protecting an endangered species. Over the past 20 years, partly due to the Dutch Postcode Lottery contribution, IUCN NL has supported 135 projects in 36 countries and facilitated the acquisition of over 42,000 hectares of land to protect various species. Because the ownership and responsibility of the established nature reserves is placed in the hands of local nature organisations, it ensures the inclusion of local communities, which is the best way to achieve long-term nature conservation. We are proud to have been able to support such inspiring conservation projects thanks to the participants of the Postcode Lottery.

> "The Dutch Postcode Lottery believes in the power of civil society organisations to make the world a greener and fairer place."

IUCN NL has been a beneficiary of the Dutch Postcode Lottery since 2001. Thanks to their participants, the Dutch Postcode Lottery has donated over €6.2 billion to charities since its creation in 1989.

Margriet Schreuders is head of charities at the Dutch Postcode Lottery
www.postcodeloterij.nl

Willem Ferwerda

Times have changed since we started the IUCN NL Land Acquisition Fund 20 years ago. The environment is on the agenda more than ever before. We have a Climate Agreement and carbon sequestration is likely to pay for nature restoration. Even big businesses are talking about halting biodiversity loss. So yes, we should be optimistic.

But I am also a realist. Despite the great work of many conservationist's worldwide, the extinction of species is the saddest thing in history that 'civilised' people have brought upon themselves.

> "By securing habitats, we were able to protect beautiful vulnerable animals and plants for eternity."

The primary habitats of tropical rainforests, cloud forests, wetlands, grasslands, mountain habitats, like páramo's and isolated valleys, are disappearing rapidly. And many vulnerable species cannot 'migrate' to man-made restored agro-ecosystems. How can we protect these areas from ignorance and greed?

Twenty years ago, my dream was to use 'land purchase' as the ultimate tool to save species from extinction. By securing these habitats, we were able to protect beautiful vulnerable animals and plants for eternity. This was only possible through working with a network of committed and trustworthy people and organisations. I'm still grateful to the Dutch Postcode Lottery, especially Leo van Grunsven, Head of Charities, who embraced this dream 20 years ago.

Proud of being part of this journey with wonderful colleagues like Marc Hoogeslag, John Burton, Stuart Pimm and all those working in 36 countries making this possible. It reminds of what a tiny salamander 'said' to me when I was a kid helping it to climb out of a hole: "if you help us, one day we will help you".

I wish that the Land Acquisition Fund will continue to help them as in the end they will help us to become better humans.

Willem Ferwerda is CEO and co-founder of Commonland. He is the 'founding father' of the Small Grants for the Purchase of Nature program, now named the Land Acquisition Fund. From 2000 to 2012, Ferwerda was director of IUCN NL.












- Reserva Jama Coaque - credit: Third Millenium Alliance
- Emerald glass frog - credit: TMA
- Cotton-top tamarin - credit: Joao Marcos Rosa
- Brazilian Three-banded Armadillo - credit: Samuel Portela

- Choco Toucan - credit: Third Millenium Alliance
- *Meriania aurata* - credit: Lou Jost
- Mountains and ranger - credit: Association of Nature Conservation Organizations of Tajikistan
- Brown Vinesnake - credit: Johann Chretien

- Mountains with herder - credit: Association of Nature Conservation Organizations of Tajikistan
- Ridgway's Pygmy Owl - credit: Colum Muccio
- Eyelash-pitviper - credit: Third Millenium Alliance
- Volcán Tungurahua - credit: Lou Jost

INTRODUCING LAND ACQUISITION AS A CONSERVATION STRATEGY

Conserving biodiversity is essential: not only because plants and animals have a right to survive, but also because conservation supports the well-being of people. After all, nature is our foundation. Yet increasing pressure on our natural environment is threatening the survival of species on a global scale.

The human population is expected to reach eight billion people in the next few years. As this number grows, so does the pressure we put on our environment. The great acceleration of human kind has not gone without leaving its mark on our natural environment: habitat loss and fragmentation, pollution of our natural spheres, illegal wildlife trafficking, overexploitation and climate change are threatening the survival of species on a global scale. Conserving biodiversity is essential: not only because plants and animals have a right to survive, but also because conservation supports the well-being of people. However, as biodiversity continues to decline, it seems more unlikely than ever before that we will manage to sustain ourselves if we continue on this path. How can we effectively protect nature?

STRATEGIC ACQUISITION OF LAND

IUCN NL has adopted a range of strategies to conserve biodiversity. The strategic acquisition of land is seen as one of the most direct strategies allowing for significant and immediate wins for nature. Land acquisition, if strategically implemented, is a targeted and cost effective conservation strategy that creates privately protected areas and saves species.

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The Land Acquisition Fund provides financial support for local NGOs to acquire - through purchase or lease – the property or management rights for natural areas otherwise vulnerable to unsustainable use of natural resources, deforestation and habitat fragmentation. The management of these plots by local conservation NGOs enables the creation of safe reserves and reconnects wildlife habitats for endangered species. Sometimes the acquisition of a relatively small area can create a corridor between two isolated forests, thereby greatly increasing the living space for wide ranging species such as parrots, elephants, monkeys and jaguars.

METICULOUS SELECTION

IUCN NL does not own these lands, but facilitates the process of land acquisition by financially supporting and working together with its local partners. A meticulous selection of partnering NGOs ensures that the funded projects have the potential, resources and motivation to achieve their conservation objectives while consolidating the wishes and needs of local stakeholders. With its land acquisition approach, IUCN NL has acquired two decades of experience in how to best place the ownership and management responsibility of natural resources in the hands of local and in-country organisations with a clear conservation objective and eye for the needs of local communities.

WELL-BEING OF LOCAL STAKEHOLDERS

Securing land through land acquisition and creating privately protected areas raises concerns regarding the wellbeing of local stakeholders, who depend on these lands for their livelihoods. The question of 'green colonialism' or 'green grabbing' has emerged as a hot topic of current conservation debates. These terms refer to the act of 'fortress conservation', where natural lands are privatised and local communities deprived from their ancestral lands. IUCN NL refrains from this type of conservation work.

During the project selection procedure we look for NGOs that are well-embedded in local communities, whose projects harmonise with the needs, views, expertise and experience of local stakeholders and take into account local participation in conservation and management of the area to be acquired.

IUCN NL believes that empowering local dedicated professionals is the best way to achieve long-term sustainable conservation while simultaneously guaranteeing the wellbeing of local stakeholders.

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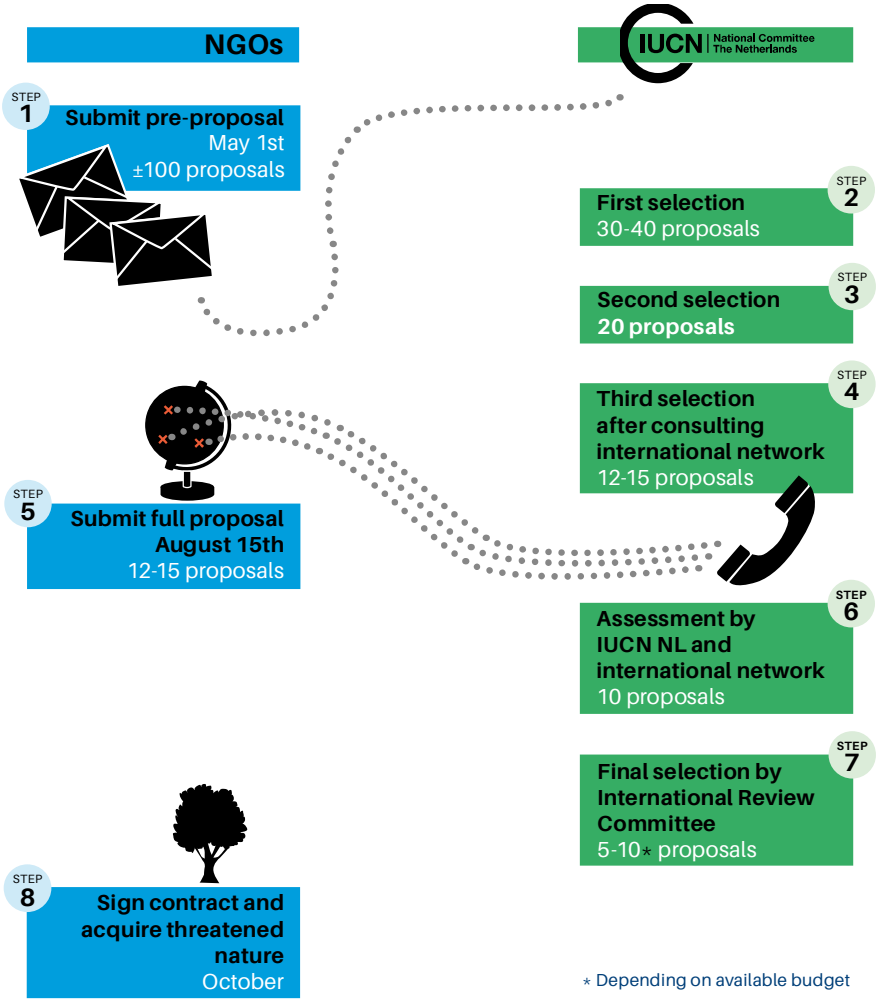
FROM PROJECT PROPOSAL TO PROTECTED AREA

Once a year, we welcome project proposals by strong local conservation NGOs to secure, connect and efficiently protect habitat of endangered species. Each year, we receive an overwhelming number of proposals. How do we make a selection?

Funding priority is given to:

- Areas with endangered species
- Ecosystems underrepresented in the public protected areas system
- Areas with a strategic importance for the protection of the hinterland (buffer zones) or which connect important areas (corridors)



FACTS AND FIGURES

1058 Total number of submitted proposals since 2001

108 Number of NGOs supported

135 Total number of projects funded since 2001

Number of projects funded per continent

- Central America: 27
- South America: 67
- Europe: 18
- Africa: 9
- Asia: 14

Amount of fund given
US$ 9,784,938.2

42,000 hectares Amount of hectares secured (only purchase)

Largest purchase project
5200 hectares

7 hectares Smallest Acquisition Project

Largest lease project
24,000 hectares

Highest price paid per hectare
US$ 10,961

US$ 21 Lowest price paid per hectare

OVERVIEW OF PROJECTS FUNDED

Since 2001, we have funded 135 projects in 36 countries.

Countries

Argentina, Armenia, Belize, Bolivia, Brazil, Cambodia, Chili, Colombia, Costa Rica, Dominican Rep., Ecuador, Guatemala, Honduras, India, Indonesia, Iraq, Iran, Kenya, Madagascar, Malaysia, Mexico, Nicaragua, Uganda, Panama, Paraguay, Peru, Tajikistan, Tanzania, Vietnam.

Belarus, Bulgaria, Hongaria, Poland, Romania, Slovakia, Ukraine

The vast majority of local NGOs supported by IUCN NL through the Land Acquisition Fund are located in Central and South America followed by Asia and East Africa. Regions such as the South Pacific, eastern and northern Africa and South-East Asia - apart from some striking exceptions -, remain unrepresented. There are multiple factors that explain this uneven geographical distribution of projects funded, these factors may be cultural or legal, in some regions land acquisition as a conservation strategy is more suitable than in others.

During the first years of the Land Acquisition Fund program, until 2009, projects in Europe were funded indirectly through a partnership with the Econet Action Fund. These are indicated on the map but not included in this report.

A few words from Professor Stuart Pimm

PROFESSOR STUART PIMM

How well are we protecting Earth's biodiversity?

The answer to my question must surely be "not very well!" Species are becoming extinct one thousand times faster than speciation creates them. Death rates exceed birth rates. Furthermore, efforts to protect more of the planet are struggling to reach a target of 17% of the land surface set a decade ago. The places we have protected tend to be cold or dry, almost always with few people. They often aren't brimming with species!

Yet the answer is really much better than these gloomy statistics. The global extent of protected areas has increased dramatically over the last few decades. Moreover, all species are not equal. In particular, those with the smallest geographical ranges are by far the most vulnerable. It's easier to destroy the whole habitat of a species that lives on a single mountain than one that occurs from Norway to Kamchatka.

> "Local conservation groups are selecting the key places to protect efficiently."

For species with the smallest geographical ranges, conservation efforts are doing very much better than one would expect. Local conservation groups are selecting the key places to protect efficiently. They are looking after their local — but internationally important — biodiversity. Of course, these are the passionate, competent, hard-working groups that the Land Acquisition Fund supports.

Conservation is always a local affair. Conservation has to protect biodiversity in ways that empower local communities. The Land Acquisition Fund works with them — and I'm proud to say with the non-profit I direct, Saving Nature — to aid, mentor and fund them. In doing so, we've made a measurable difference to protecting Earth's biological heritage.

Professor Stuart Pimm is Doris Duke Chair of Conservation at Duke University and President of Saving Nature. He is member of the international review committee for the Land Acquisition Fund.
www.savingnature.earth

A few words from John Burton

In 1989 I founded the World Land Trust, and in 2004 I came across the Land Acquisition Fund of IUCN NL. Soon I realised that there was an enormous synergy and lots of advantages in us working closely together. We had already funded some of the same projects, but our strategies and funding criteria were slightly different, which enabled both our organisations to expand our work, and build upon the successes of the other.

One of the great advantages of the Land Acquisition Fund was that it helped strengthen small NGOs, by giving them responsibility for managing funds, and usually led to long-term programs. The Land Acquisition Fund has shown how small, often struggling NGOs, can blossom when they acquire a nature reserve.

“One of the great advantages of the Land Acquisition Fund was that it helped strengthen small NGOs, by giving them responsibility for managing funds, and usually led to long-term programs.”

It is a remarkable testament to the dedication of the Land Acquisition Fund team that, as is evident from this report, all the projects funded have had a remarkable success rate, and the proof is there on the ground for everyone to see. It is concrete and tangible.

There is often talk of scaling up such projects, but one of the beauties of the small-scale of these projects is that it helps the NGOs build institutional resilience for the future. I have seen the skeletons of too many dead large-scale projects left to rot in the field, and realise that it is essential to build the NGO community in a way that they can become independent and financially secure. It is my sincere hope that the Land Acquisition program will grow, but retain its essential ethos.

John Burton is the founder of World Land Trust (WLT) and was its CEO till 2019. WLT is a close Partner of IUCN NL and together they have supported many projects all over the world. Burton is also member of the international review committee for the Land Acquisition Fund.

CHAPTER 1 BIODIVERSITY CONSERVATION

The urgency of conserving and restoring nature is evident from numerous alarming reports coming from the scientific community and conservation organisations. The efforts of dedicated individuals and organisations offer hope.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) reported in their latest Global Assessment Report that around 1 million animal and plant species are now threatened with extinction (IPBES, 2019). In 2018, the World Wide Fund for Nature's (WWF) raised their concerns with the Living Planet publication and the IUCN Red List states that 31,000 species are currently threatened with extinction.

These are just a few of the many reports that all have the same message. The prospects do not seem promising for the future of the planet's biodiversity.

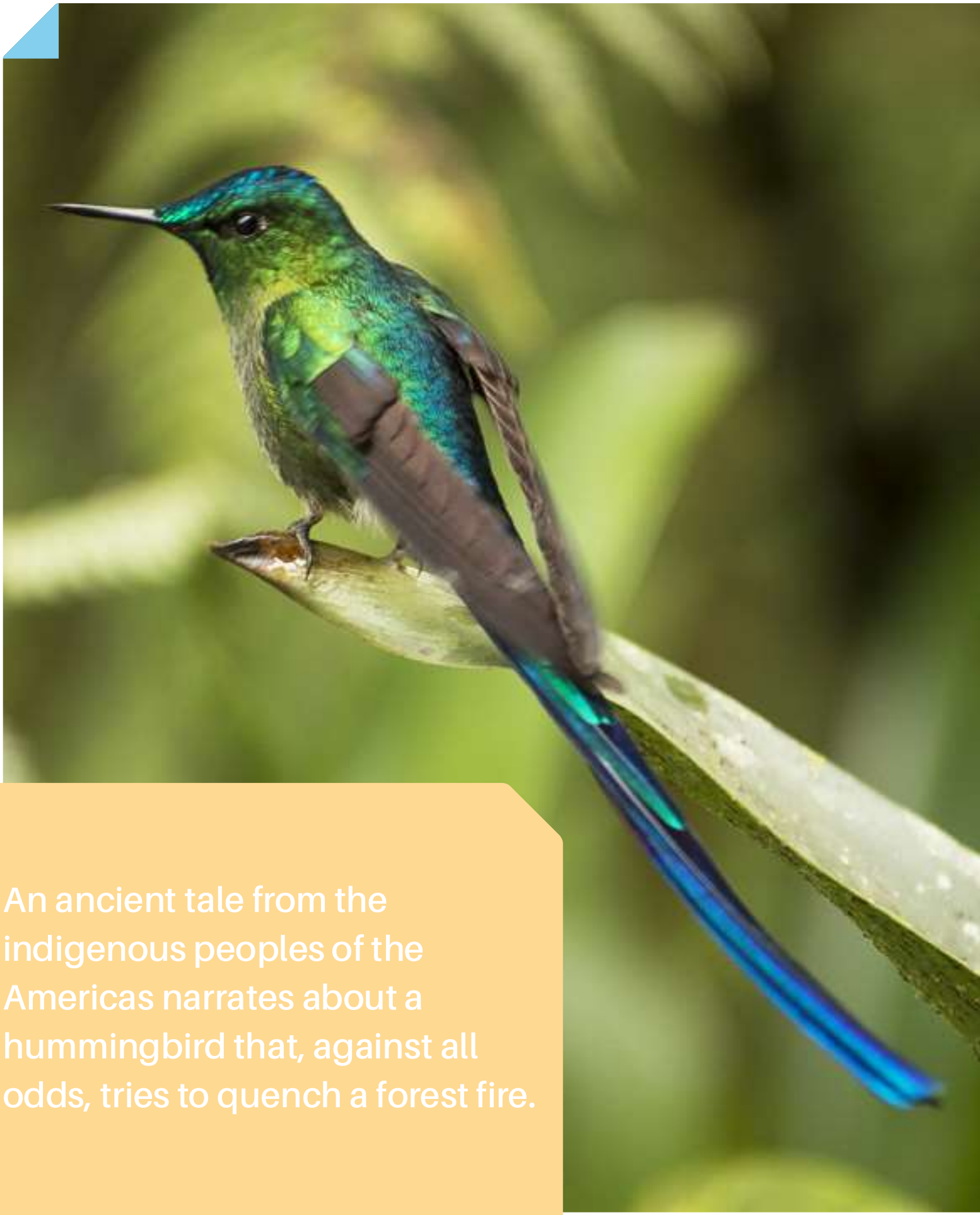
An ancient tale from the indigenous peoples of the Americas narrates about a hummingbird that, against all odds, tries to quench a forest fire. As the fire grew bigger and threatened the entire forest all the animals stood by and watched while their homes turned into ashes. Only the small hummingbird tried to quench the fire by picking up drops of water in her beak from the stream nearby. She flew back and forth, each time carrying just a single drop of water. Helpless and overwhelmed the other animals remained in silence until one of them called out to the hummingbird: "What are you doing?" Without wasting a single drop, she responded: "I am doing the best I can". The nine case studies presented in this chapter can be regarded as such drops of water.

STORIES OF HOPE

This chapter highlights nine case studies that, despite the current trends, demonstrate that there are still stories of hope. These are the stories of inspirational individuals and organisations working at the frontline of conservation. They have saved species from extinction, established wildlife corridors, reconnected habitats, and created safe reserves. These projects are not just 'drops in the ocean' they are the drops that sparkle, the drops that make a difference.

The chapter focuses on the following topics with three corresponding case studies per topic:

- Saving species
- Connecting habitats
- Creating safe reserves



An ancient tale from the indigenous peoples of the Americas narrates about a hummingbird that, against all odds, tries to quench a forest fire.

Long-tailed Sylph - credit: Fabian Rodas

1.1 SAVING SPECIES

According to the IUCN Red List of Threatened Species™, the world's most comprehensive information source on the global conservation status of animal, fungi and plant species, 31,000 species out of some 100,000 that have been assessed, are threatened with extinction. The IUCN Red List shows where urgent conservation actions are needed and functions as a guideline for the selection of projects funded through the Land Acquisition Fund: priority is given to projects that aim to safeguard and recover Critically Endangered species.

The following three case studies are examples of local NGOs that were supported through the Land Acquisition Fund, and have successfully contributed to preventing the extinction of endangered species.

LINK:
https://www.iucnredlist.org/species/2993/17927228

Southern Muriqui - credit: Camilla Koch / Institute Pró-Muriqui

Saving Bolivia's natural heritage species: **the blue-throated macaw**

NGO:	Asociación Armonía
Location:	Bolivia
Hectares acquired:	11,000 ha Barba Azul Nature Reserve (co-funded by IUCN NL), 681 ha Laney Rickman Blue-throated Macaw Reserve
Year of support:	2008 and 2014 (Barba Azul), 2018 (Laney Rickman)
Amount of support:	US$ 92,000 (Barba Azul), US$ 49,100 (Laney Rickman)
Main threats:	Unsustainable cattle ranging and fire
Focal species:	Blue-throated Macaw *(Ara glaucogularis)* (CR)
Website:	http://armoniabolivia.org/

Blue-throated Macaw - credit: Tjalle Boorsma

The Critically Endangered blue-throated macaw, the most endangered macaw species in the world, is endemic to the Beni Savanna in Bolivia. Thought to be extinct in the wild, it was rediscovered in the early nineties. Over the years that followed, the blue-throated macaw (locally known as Barba Azul) went to natural heritage of Bolivia and became a token of the conservation effort of our local partner NGO Asociación Armonía.

The Beni Savanna of Bolivia is a forest-savannah mosaic consisting of seasonally flooded savannah grasslands, isolated forest islands, and gallery forests bordering rivers that break up the landscape. Due to its heterogeneous nature, the Beni-savannah supports a large diversity of plant and animal species.

Yet anthropogenic disturbances in the area, principally cattle ranging, have increased and become problematic due to unsustainable practices and their destructive consequences for the environment.

THREATS TO THE SURVIVAL OF THE BLUE-THROATED MACAW

The cattle ranches in the area threaten the savannah and forest islands through unplanned yearly burning of their pastures, unmanaged hunting and intensive cattle pressure. Extensive cattle ranging also results in overgrazing, hampered regeneration of native trees and, ultimately, deforestation on forest islands, which are crucial habitat components for roosting, foraging and nesting behaviour of many animals, including the blue-throated macaw.

Additionally, trapping of macaws for the illegal pet trade remains problematic.

PROTECTING THIS FLAGSHIP SPECIES

Armonía strives to conserve and protect the blue-throated macaw and its habitat through outreach programs, facilitating ecological research and the creation of private reserves. The blue-throated macaw is the flagship species and was the main driver for the establishment of the Barba Azul Nature Reserve in 2008, which was partly funded through the IUCN NL Land Acquisition Fund.

Considering the total estimated population size of maximum 455 macaws, these two small reserves and the nest box program of Asociación Armonía are crucial for the survival of the blue-throated macaw.

"A small protected area can ensure landscape-scale conservation."
Tjalle Boorsma – Asociación Armonía

BARBA AZUL NATURE RESERVE

The reserve covers an area of 11,000 hectares and consists of multiple habitat types i.e., 82% of old grown savannah, 5% of large patches of pristine gallery forests and several small forest islands, and the remaining cover consists of river and swamp habitat.

SAFE HAVEN

The reserve forms a safe haven for the last stronghold of the wild blue-throated macaw population. The highest count during frequent monitoring sessions was 155 individuals in September 2017, which is 34 percent of the maximum estimated global population size.

SUCCESSFUL NEST BOX PROGRAM

Through the collaboration of multiple funders, including IUCN NL, Armonía was also able to acquire another area of 681 hectares, named the Laney Rickman Blue-throated Macaw Reserve (Laney Rickman Reserve). The organisation has been running a successful nest box program since 2005. In 2020, a total of 93 chicks are expected to fledge from these nest boxes.

NATURAL BREEDING GROUNDS DISCOVERED

Until recently, it remained a mystery were the macaws naturally breed. At the end of the dry season, all macaws leave the Barba Azul Nature Reserve until the start of the next dry season, normally around March-April. In August 2019, for the first time, Armonía captured four blue-throated macaws and provided three of them with satellite transmitters to monitor their movement. As a result, during their latest field expedition Armoniá discovered a total of 15 new natural nests, which is the largest number of natural nests ever discovered.

Due to this recent discovery, Armonía will expand their work-range and engage with local ranchers on sustainable ranching practices to ensure that the blue-throated macaws are able to breed and thrive in their natural habitat.

Because of the persistence and commitment of Asociación Armonía and their dedicated field staff, the tale of the blue-throated macaw is far from over. It resembles the resilience of a species and shows that even the smallest protected areas, when properly managed, can ensure species conservation.

Saving the maleo bird on Sulawesi: **combining land acquisition and local outreach**

NGO:	Alliance for Tompotika Conservation
Location:	Indonesia
Hectares acquired:	15 ha (purchased) 35 ha (leased)
Year of support:	2010
Amount of support	US$ 41,500
Main threats:	Poaching and habitat loss
Focal Species:	Maleo (Macrocephalon maleo) (EN)
Website:	www.tompotika.org

Maleo Bird - credit: Noval Suling

The Indonesian island of Sulawesi harbours numerous rare and endangered species, among which the maleo bird. Once common all over Sulawesi, its numbers dropped significantly as people poached its unusually large and nutritious eggs, which are locally considered a delicacy. Thanks to the conservation efforts of our local partner NGO Alliance for Tompotika Conservation (ALTO), the population is recovering.

Sulawesi is the fourth largest island of the Indonesian archipelago. It harbours numerous rare and endangered endemic species, such as the anoa *(Bubalus depressicornis),* the babirusa *(Babyrousa babyrussa),* which translates to "pig deer", referring to its odd looking facial ornaments, and the iconic maleo bird.

LOCAL DELICACY

As in most of Indonesia, biodiversity on Sulawesi is threatened. Generally by loss and fragmentation of natural native forests due to illegal and uncontrolled logging, conversion of natural land to agriculture, production plantations (principally coconut or oil palm), and mining (mostly nickel). For the maleo, another principle threat to their existence is poaching of their unusually large and nutritious eggs, which are considered a delicacy.

FROM 'BLACK BEACHES' TO NEARLY EXTINCT

This mysterious looking bird was once common all over Sulawesi: historical anecdotes spoke of beaches that appeared black because of the countless maleo couples that were nesting. Yet with people stealing the eggs, the number of maleos dropped significantly over the years and the species were threatened by extinction.

REMARKABLE BREEDING HABITS

Unlike most birds, the maleo relies on solar or geothermal heated sites to incubate their eggs. They use communal nesting grounds, normally located on the beach, where breeding pairs aggregate and dig deep holes in which they lay their eggs. Afterwards, the maleo pairs leave the nest, never to return again.

The maleo is now considered a local hero in Tompotika and surrounding villages.

These remarkable breeding habits are part of the reason why the maleo is so special. Unfortunately, their sexual strategy is not well adapted against human predators: as soon as the communal breeding grounds are discovered, the eggs stand no chance and are easily excavated and sold at local markets.

LOCAL OUTREACH AND EDUCATION

In 2006, at the invitation of local communities, the local NGO ALTO started working in the area of and around Mount Tompotika. ALTO has a long history in the area and invested greatly in educating the younger generations.

Immediately after establishing the organisation, the team started with an outreach program at the local school, teaching the young generations about the natural wonders in their area and the importance of conserving species. As a result of the successful campaigns, educational activities and festivals aimed at raising awareness on the importance of preserving this bird, the maleo is now considered a local hero in Tompotika and surrounding villages.

"We must do all that we can, and, with smart targeting, we can make our small areas count for a lot more."
Marcy Summers – ALTO

PROTECTING CRUCIAL BREEDING SITES

The fact that maleos rely on specific and small breeding sites gives conservationists an opportunity to protect these crucial areas. With the help of the Land Acquisition Fund, ALTO was able to safeguard two crucial breeding grounds that are now fully protected.

The maximum numbers of maleos seen at once at the protected nesting ground quadrupled: from 26 in 2006 to 108 in 2019. Since 2006, the maleos in Tompotika have been successfully protected and form the healthiest, fastest-growing population of maleo anywhere. Thanks to the conservation effort of ALTO, the future of the maleo now seems considerably more hopeful.

"There is always an economic aspect to getting people interested in conservation. We need to make sure that they can get more money by being rangers than egg poachers. But it is also important to not just talk about it in economic terms, because there will be a point in which the economics will not add up for everyone. You need to remind people why people love the maleo. Why it is something important for them, regardless of whether that gives them money in their pockets or not. Love is much more powerful than money. But people need to be awakened. They are so used to thinking of nature as something that you exploit. So you need to remind them that this is not an object, it's a living being and you can empathise with it. In every place we go, we find people who are already in love with animals and nature, and they become our greatest advocates. These are the types of people you look for to expand the conservation effort and awaken others"
Marcy Summers – ALTO

Saving the red-hooded Araripe manakin in Brazil:
Araripe's most celebrated resident

NGO:	Aquasis
Location:	Brazil
Hectares Aquired:	69 ha
Year of support:	2016
Amount of support:	US$ 54,300
Main threats:	Habitat loss and fragmentation
Focal Species:	Araripe Manakin *(Antilophia bokermanni)* (CR)
Website:	www.aquasis.org

Araripe Manakin - credit: Ciro Albano

In 1998 ornithologists discovered the Araripe manakin. This Critically Endangered red-hooded bird is endemic to tropical moist forests on the slopes of the Chapada do Araripe in Northeast Brazil and has very peculiar breeding preferences. Our local partner organisation Aquasis adopts a combination of land purchase, outreach programs and education to ensure the survival of the Araripe manakin.

Through land purchase, outreach programs, education and above all, commitment and persistence, Aquasis is ensuring the survival of the Araripe manakin.

The Oasis Araripe Reserve is a unique Tropical Moist Forest ecosystem located in the midst of the dry and thorny Caatinga Biome. The reserve is located along the slopes of the Chapada do Araripe: a plateau in the deep south of the state of Ceará, in Northeast Brazil.

The Chapada rises from the surrounding lowlands to an altitude of between 700 and 1000 meters. The increase in altitude combined with the hydrology of the plateau allows for this unique Atlantic Forest enclave to take place. Not surprisingly, these exceptional forests host rare and endangered species. The most famous is, without out doubt, the Araripe manakin: a red-hooded bird of exceptional appeal and beauty.

MOST CELEBRATED RESIDENT AT RISK

It was only in 1998 that ornithologists described the Araripe manakin as new to science. It quickly captured the hearts of bird watchers around the world and became the most celebrated resident.

PICKY IN SELECTING NESTING GROUNDS

There is often something particular about the ecology or behaviour of Critically Endangered species that makes them extra susceptible to threats. Breeding manakin couples are quite picky in selecting their nesting grounds and it is this curious breeding habit that restricts them to limited sites.

Adult manakins only nest above running water and rely on vegetated streams and creeks to reproduce. It is not completely understood why this is the case but nesting territories of breeding couples are nearly linear and correspond with the water flow of streams.

LACK OF APPROPRIATE NESTING TERRITORIES

These streams are also commonly used as walking trails and cleared from vegetation on one or both sides, making them unsuitable for breeding manakin couples. Lack of appropriate nesting territories due to destructive land use, habitat fragmentation and piping of the natural water sources for recreational use are extremely problematic for this small ranged, water dependent endemic.

ENSURING SURVIVAL

Our local partner NGO Aquasis made it their responsibility that this endangered endemic will not go extinct. In 2004, they started with a successful awareness campaign. In Crato, which is the nearest

town from the Araripe Reserve, the Araripe manakin is a local celebrity. Through land purchase, outreach programs, education and above all, commitment and persistence, Aquasis is ensuring the survival of the Araripe manakin.

With the help of the IUCN NL Land Acquisition Fund, Aquasis extended the Oasis Araripe Reserve with an additional 69 hectares to its current total of nearly 150 hectares. These forests are possibly the most endangered remnants of Atlantic forest in Brazil and the 150 hectares of privately protected areas form a safe retreat for the Araripe manakin.

PROTECTION IN PERPETUITY

The Oasis Araripe Reserve has RPPN status, i.e., Reserva Particular do Patrimônio Natural or, Natural Heritage Private Reserve which is a formal status that ensures the protection of natural land in perpetuity.

It is only within the reserve that nesting pairs are increasing, reflecting the importance of safe and protected water rich habitat. Through yearly monitoring, Aquasis observed an increase in nesting pairs from 9 to 13 couples over the course of two years.

"The philosophy of Aquasis is putting up teams for long term conservation processes, so ideally, these are forever, because conservation projects are like having a child: it takes about twenty years before you can release it into the world"
Alberto Campos – Aquasis

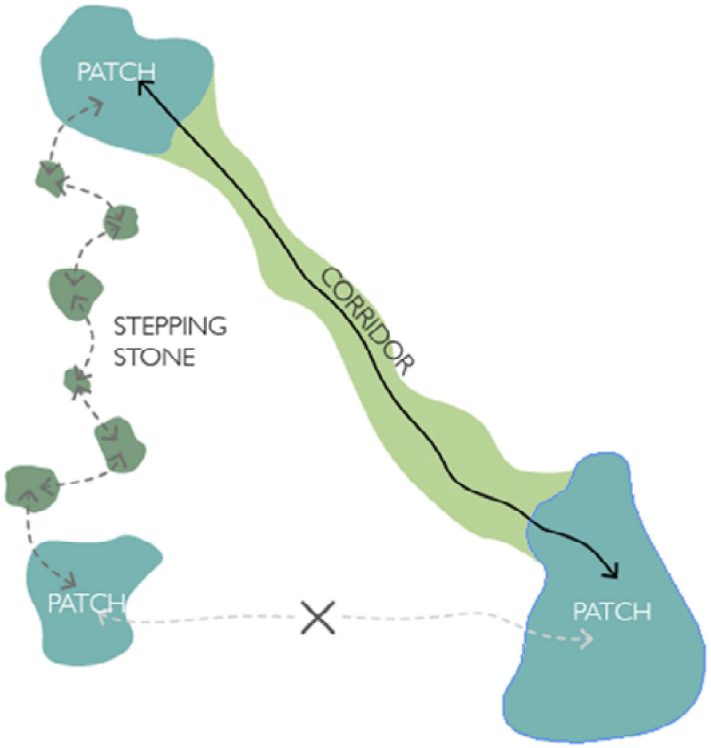
Just 150 hectares can make the difference between survival and extinction for small ranged endemics like the Araripe manakin.

1.2 CONNECTING HABITATS

The 'great human expansion' driven by population growth and ever increasing consumption has not gone without leaving its mark. Natural habitat degradation and fragmentation have altered the planets' ecosystems at scales and rates unprecedented in the short but significant human history.

Habitat loss acts as the primary cause of species extinction. Ancient migration routes are obstructed, feeding and breeding grounds disappear and pristine forests are broken down into smaller fragments. The remaining forests are often too small to sustain a healthy population of wide-ranging species, such as elephants or jaguars, and the large gaps between the fragments make it difficult for species to reconnect with their former habitats, find sufficient food or a mate.

This is what drives conservation NGOs to establish ecological corridors to link existing natural vegetation fragments and bridge roads, thereby creating a more resilient natural ecosystem. Even a relatively small piece of land can be enough to ensure landscape 'connectivity', and function as a corridor or stepping stone for species to move from one forest to another. The following subchapter highlights three case studies that show how the strategic acquisition of relatively small areas and the establishment of ecological corridors can ensue landscape scale conservation.

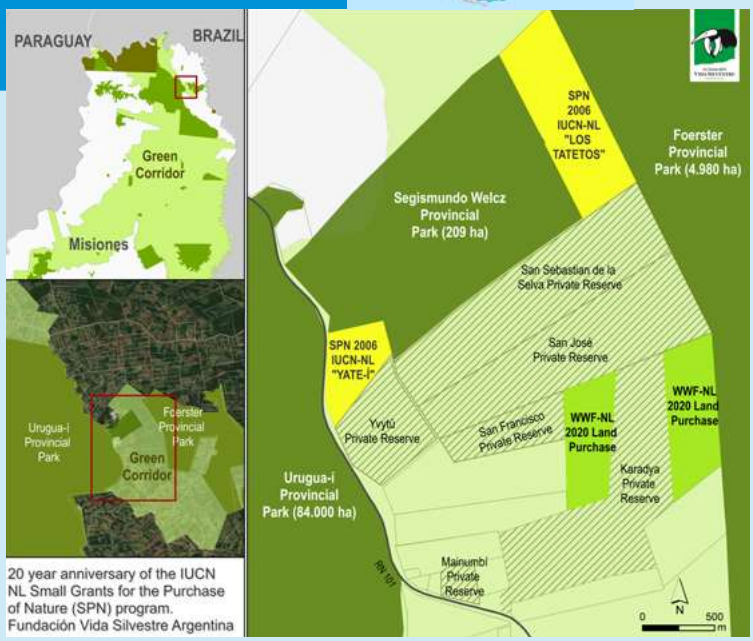


Corridors and stepping stones for species to move from one forest to another.

Moist lowland evergreen forest - credit: Viet Nature Conservation Centre

Connecting habitats:
South America's Atlantic Forest

NGO:	Fundación Vida Silvestre Argentina
Location:	Argentina
Hectares acquired:	76 ha
Year of support:	2006
Amount of support:	US$ 89,000
Main threats:	Non sustainable logging and agro commodities
Focal species:	Jaguar *(Panthera onca)* (NT), White-lipped Peccary *(Tayassu pecari)* (VU) and the Juçara Palm *(Euterpe edulis)* (NE)
Website:	https://www.vidasilvestre.org.ar/



Map of the Biodiversity Corridor Urugua-í–Foerster - credit: Fundación Vida Silvestre Argentina

The Atlantic Forest is one of the most endangered tropical forests in the world. Merely 17 percent of the original 134,530,000 hectares that once comprised a continuous forest cover, remains intact. The forest is now scattered into smaller fragments that are distributed over North-East Argentina, East Paraguay and South-East Brazil. Our local partner NGO Fundación Vida Silvestre Argentina focuses on forest connectivity. By strategically integrating small plots of land into the existing forest network, they reconnect larger forest relics and create a more resilient Atlantic Forest.

The corridor was extended as multiple adjacent private landowners joined the biodiversity corridor and created private reserves.

The Atlantic Forest is home to a vast range of species with estimates of up to 8,000 endemic plant species and 600 endemic species of terrestrial vertebrates. It is considered to be one of the most biologically diverse ecoregions in the world. But 83% of the original 134,530,000 hectares that once comprised a continuous forest cover is scattered into a mosaic of forest fragments that continue to shrink.

The main threats are non-sustainable selective logging and slash-and-burn practices associated with extensive cattle ranching and small-scale agriculture. Other threats include illegal land occupation and poaching. The area continues to be at high risk due to on-going degradation and fragmentation of the forest cover, stressing the urgency of the development of sustainable practices and immediate conservation initiatives.

RECONNECTING THE ATLANTIC FOREST

Our partner NGO Fundación Vida Silvestre Argentina (FVS) works at national and regional level, and aims to reforest and reconnect the Atlantic Forest. Their vision focuses on forest connectivity and by strategically integrating small plots of land into the existing forest network, they reconnect larger forest relics and create a more resilient Atlantic Forest.

A stunning example is the creation of a green corridor in the province Misiones. The project started in 2006 and aimed to bridge the gap between two of the larger Atlantic Forest remains in Misiones: the Urugua-í (84,000 ha) and the Foerster (4,980 ha) provincial parks.

LAND ACQUISITION INITIATED BIODIVERSITY CORRIDOR

FVS started with an initial land acquisition project, facilitated by IUCN NL, to purchase two plots of just 76 hectares. These two plots initiated the formation of the “Biodiversity Corridor Urugua-í–Foerster” between the two provincial parks.

Not long after this initial acquisition, a joint effort between FVS, Conservación Argentina and the provincial government, realised the formation of the biodiversity corridor though the creation of the Segismundo Welcz provincial park (209 ha). Over the following years, the corridor was extended as multiple adjacent private landowners joined the biodiversity corridor and created private reserves, thereby significantly improving the connectivity between the two formerly isolated provincial parks. However, there was another obstacle that needed to be bridged.

FIRST ECODUCT OF LATIN AMERICA

During the same period, while on one hand connectivity improved because of the corridor, on the other hand, the two parks faced further isolation from one another, due to the construction of a highway. The previously unpaved road would soon separate the corridor from the Urugua-í provincial park and formed a threat to the functionality of the corridor.

To overcome this challenge, the first ecoduct of Latin America was created, together with two additional underground wildlife crossings, thereby bridging the highway and allowing wildlife to pass freely. FVS supported the negotiation process between the local authorities and their colleague NGO Conservación Argentina, who realised the ecoduct.

SIGNIFICANT IMPACT

This project illustrates how securing a relatively small area, when located strategically, can have a significant impact. Not only did the initial acquisition of only 76 hectares trigger the formation of the Biodiversity Corridor Urugua-í–Foerster, but also additional conservation efforts as well as motivating local people to team up in protecting biodiversity.

"It is about making strategic choices: Where are you going to buy your land? And how are you consolidating the existing forest structure? This is the key to successfully connecting habitats."
Mayra Milkovic - Fundación Vida Silvestre Argentina

First ecoduct of Latin America - credit: Jonatan Villalbla

Connecting habitats:
A corridor for the golden lion tamarin in Brazil

NGO:	Associação Mico-Leão-Dourado
Location:	Brazil
Hectares acquired:	140 ha
Year of support:	2007
Amount of support:	US$ 92,000
Main threats:	Conversion of forested areas for agriculture and urban development and the yellow fever virus
Focal Species:	Golden Lion Tamarin *(Leontopithecus rosalia)* (EN)
Website:	https://www.micoleao.org.br/

Golden Lion Tamarin - credit: Luciano Candisani

Golden lion tamarins are silky coated golden monkeys endemic to the lowland Atlantic forests of the state Rio de Janeiro in Brazil. They spent their days roaming the tree cover and rarely travel by ground. But since most, if not all, suitable forest fragments are separated by cultivated fields, or pastures, it has become nearly impossible for the tamarins to find a territory. Local partner NGO Associação Mico-Leão-Dourado (AMLD) successfully reconnected two large forests comprising crucial tamarin habitat.

During the 1970s, golden lion tamarins nearly went extinct in the wild: their population size was estimated at just a couple of hundred individuals, mainly due to the illegal pet trade and habitat loss and fragmentation.

FINDING A TERRITORY

These silky coated golden monkeys are territorial beings and live in groups consisting of a dominant breeding couple and their offspring. During their adolescence, maturing males can be expelled from the group or leave voluntarily. They leave their families in search of a territory of their own, but, because their habitat is severely fragmented, finding a territory is a challenging task.

NEARLY IMPOSSIBLE TO CROSS

Golden lion tamarins spend their days roaming the tree cover and rarely travel by ground. Most, if not all, suitable forest fragments are separated by cultivated fields, or pastures, making it nearly impossible for the tamarins to cross. Habitat fragmentation continues to be a serious threat for the survival of the species.

RECONNECTING CRUCIAL TAMARIN HABITAT

Our local partner NGO Associação Mico-Leão-Dourado (AMLD) recognised the importance of connecting habitats and successfully executed a corridor project that reconnected two large forests comprising crucial tamarin habitat. By purchasing a former cattle range in 2007, the NGO extended the União Biological Reserve and connected it to a larger adjacent forests towards the west.

The União Biological Reserve is a strictly protected nature reserve that was created in 1998 through a joint effort of several organisations, including AMLD. Part of the area that was purchased, about 40 hectares, needed reforestation as it mainly comprised pastures and wastelands. After the corridor was established, the bordering forests in the west were added to the União Biological Reserve and extended the protected area with more than 5000 hectares. The corridor is now completely reforested and the results are beyond expectations. Proof of its functionality is evident, as golden lion tamarins have settled in the newly added forests, thus using the corridor in search of new territories.

Thanks to their strategic location, corridors have significant impact and greatly improve the habitat of species. This successful conservation campaign

Situation 2006

Situation 2016

combined with reintroduction and translocation projects lifted the number of golden lion tamarin from just a couple of hundred individuals at the historic low of the 1970s back to 3700 in 2014. For a while, the efforts were paying off and the population seemed stable.

YELLOW FEVER

This was disrupted in 2018, when a yellow fever epidemic decreased the population with a shocking 32 percent to its current estimate of 2500 tamarins left in the wild. For the first time since the 1970s, the population is decreasing.

Small isolated subpopulations, commonly resulting from habitat fragmentation, face the risk of inbreeding and loosing genetic diversity. This makes them more vulnerable to pathogens or disease outbreaks.

CREATING IMMUNITY

This stresses the importance of having continuous habitats where species can evolve naturally. For the golden lion tamarins, reconnecting their habitats seems more important than ever. AMLD is working hard on establishing a reintroduction program that focuses on releasing vaccinated golden tamarins into the small sub populations that have lost the majority of their numbers. This is crucial to save the smaller isolated subpopulations and to create immunity within the population.

PART OF A LARGER STRATEGY

The previously mentioned União corridor is just one example of a larger strategy. By 2025, AMLD aims to have achieved a minimum viable population of 2,000 wild golden lion tamarins naturally evolving on 25,000 hectares of protected and connected habitat.

In 2018, the NGO made a big step towards reaching that goal: after six years of negotiations with multiple stakeholders it completed another corridor project.

"These corridors are part of a larger conservation strategy: to create a landscape for the Golden Lion Tamarin connecting all the different blocks of forest."
Luis Paulo - Associação Mico-Leão-Dourado

In addition to land purchase and reforestation, this corridor required the establishment of the first wildlife ecoduct in Brazil to bridge the BR101 national highway.

The corridor connects the Poço das Antas Biological Reserve with the many forested private rural properties that comprise the São João River Basin, all crucial golden lion tamarin habitat.

RETURN TO FORMER HABITATS

Through the joint effort of several international funders, AMLD purchased another property directly bordering the newly established ecoduct. The property has already been planted with native tree species, and as they grow, habitat connectivity improves. In the near future, golden lion tamarins can cross the BR101 highway and occupy their former habitats once again.

AMLD will continue to improve connectivity and establish more corridors to create a natural habitat large enough for the tamarins to thrive.

Connecting habitats: **Ecuador's coastal forests**

NGO:	Third Millennium Alliance
Location:	Ecuador
Hectares acquired:	239 ha
Year of support:	2012, 2015 & 2019
Amount of support:	US$ 248,500
Main threats:	Deforestation and habitat fragmentation
Focal Species:	Ecuadorian white-fronted capuchin *(Cebus aequatorialis)* (CR)
Website:	https://tmalliance.org/
Facebook:	https://www.facebook.com/tmalliance
Instagram:	https://www.instagram.com/thirdmillenniumalliance/

Ecuadorian white-fronted capuchin - credit: Third Millenium Alliance

Coastal Ecuador is famous for fine ceviche, upscale resorts, beautiful beaches and, sadly, deforestation. Only 2% of the original native forest cover is still intact. Our local partner Third Millennium Alliance (TMA) aims to protect Ecuador's remaining coastal forests by creating and connecting protected areas, and developing programs that address the underlying socio-economic drivers of deforestation.

Coastal Ecuador hosts some of the wettest rainforests: the Chocó rainforests, as well as some of the last remnants of coastal dry forests of South America, all located within the Tumbes-Chocó-Magdalena Biodiversity Hotspot. The Critically Endangered Ecuadorian white-fronted capuchin and the Ecuadorian mantled howler monkey are just two examples amongst the thousands of species living here.

SEVERELY THREATENED ECOSYSTEM

Unfortunately, increased human activities and settlements have resulted in a dramatic decrease in native forest cover with only two percent of the original native cover still intact. Forest fragmentation and loss remain the driving force behind biological extinctions, making coastal Ecuador one of the most threatened ecosystems in the country.

CONSERVATION CORRIDOR

The Jama-Coaque Reserve, in memoriam of the Pre-Incan Jama-Coaque culture, is currently protecting close to 600 hectares of some of the last remaining relics of Pacific Ecuadorian Forest. Our local partner TMA is working on establishing a conservation corridor connecting the Jama-Coaque Reserve with a neighbouring private reserve: the Bosque Seco Lalo Loor reserve.

IUCN NL supported multiple acquisition projects of TMA and has been involved with the establishment of the corridor since 2012. The corridor stretches over approximately eight kilometres and consists of a continuous stretch of forest cover. This connectivity does not only link the two reserves, but also three distinct forest types - a rather unique example in this region.

ONE CONNECTED PROTECTED AREA

Establishing one connected protected area, rather than having two private reserves, has always represented an important goal for TMA. Apart from the conservation advantages of having one more resilient protected area, another driving force behind the establishment of the corridor is the ecological relevance. Due to the increase in height, the corridor consists of three mountainous forest types: tropical dry forest at the lower elevation, moist forest at higher altitudes and premontane cloud forest at the high end of the corridor. A continuous forest cover allows animals to move freely between the distinct forest types in search for food. Food availability varies between forest types and depends partly on seasonal changes, stressing the importance of creating corridors that cover the entire mountain range. This allows wider-ranged species, such as the Ecuadorian white-fronted capuchin, to forage in all forest types throughout the year.

This connectivity does not only link the two reserves, but also three distinct forest types - a rather unique example in this region.

NEGOTIATING LAND PRICES

TMA is close to finalising the corridor and linking the two private reserves, thereby creating one connected and protected area. The NGO is currently negotiating the last land purchases with local landowners.

The negotiation process has been delayed due to a consistent rise of land prices far beyond market values. Giving in to land prices above market standards will only further complicate conservation land purchase in the area. Therefore, TMA delayed the purchase but continued the negotiations.

REGIONAL-SCALE WILDLIFE MIGRATION

While holding onto these negotiations, TMA purchased a patch of land in another area outside of the corridor: the first stepping stone towards the establishment of a larger regional-scale corridor extending the existing corridor towards a national park up north.

Through spatial analysis and satellite imagery, TMA and IUCN NL have collaborated towards the identification of key areas functioning as migratory passes for wildlife. The path ahead is still long, but TMA has now the tools to back up their long-term vision.

Despite the small and local operational size of the NGO, the reserve and conservation efforts behind this organisation are of great significance. The Jama-Coaque Reserve protects more endangered bird species than any other, sometimes much larger, area in Ecuador.

"The most important lesson for any NGO interested in using land purchase as a conservation strategy is the fact that land purchase is only the first step in a long process to ensuring the conservation impact of the project into perpetuity."
Ryan Lynch – TMA

1.3 CREATING SAFE RESERVES

The impact of land acquisition projects is not restricted to the purchase and establishment of privately protected areas.

Being a landowner enables local NGOs to have a permanent presence in their area and become part of the neighbouring community. It provides a chance to show their competence and their long-term vision while earning the trust and respect of both local communities and authorities.

It's not only a nature reserve, but also a home base that functions as a gathering place where people visit and experience what nature conservation is all about. It is because of the establishment of privately protected areas, that local NGOs have a place to visualise their objectives and become leading figures for conservation.

A nature reserve functions as a gathering place where people visit and experience what nature conservation is all about.

Tropical Dry Forest, Forest and station - credit: Associação Caatinga

Creating safe reserves: **Guardians of the Middle Magdalena Valley in Colombia**

NGO:	**F**undación Biodiversa
Location:	Colombia
Hectares acquired:	595 ha (El Silencio 76 ha, Selva Verde 519 ha)
Year of support:	El Silencio: 2012; Selva Verde: 2018
Amount of support:	US$ 190,000
Main threats:	Habitat loss and fragmentation, human activities
Focal Species:	Variegated Spider Monkey *(Ateles hybridus)* (CR), Blue-billed Curassow *(Crax alberti)* (CR), Magdalena River Turtle *(Podocnemis lewyana)* (CR)
Website:	https://www.fundacionbiodiversa.org/

15th Anniversary Fundación Biodiversa: https://www.fundacionbiodiversa.org/wordpress/our-15th-anniversary-nuestro-aniversario-no-15/

Variegated Spider Monkey - credit: Freddy Gomez

The lands acquired through the Land Acquisition Fund are often small patches. Year by year some of these patches undergo a considerable expansion, both through strategic land management agreements and the establishment of successful partnerships. Fundación Biodiversa in Colombia provides one of the most emblematic examples: from a small purchase of 76 hectares, this local partner organisation will expand its reserve to nearly 1,600 ha in 2020.

Located between the Central and Eastern Ranges of the Andes, the Middle Magdalena valley is a site of focal importance due to the richness and diversity of species living here. In this area, our local partner NGO Fundación Biodiversa focuses on the protection of endangered species, such as the brown spider monkey, the silvery-brown tamarin, the Magdalena river turtle and the blue billed curassow.

Only 10 to 15 percent of this intermontane rainforest and wetland ecosystem remains intact and habitat loss and fragmentation continue to be problematic. The region hosts one of Colombia's oil reservoirs, which together with deforestation for cattle ranching and the increased farming of oil palm plantations with high chemical inputs, constitute the main threats for the Middle Magdalena valley.

COLLABORATION ON ECOSYSTEM PRESERVATION

The rampant deforestation in the region has brought Fundación Biodiversa, local landowners and communities, partner NGOs and environmental authorities together to closely collaborate on the preservation of these unique ecosystems.

VOLUNTARY CONSERVATION AGREEMENTS

Since 2016, Fundación Biodiversa has signed voluntary conservation agreements with local landowners to preserve the forest inside their private lands. The result has exceeded expectations: 58% of the Barbacoas forest is now voluntarily protected by these landowners. In addition, if the forest outside the protected area's borders is included, the landowners are protecting nearly 6,393 ha of forest.

REGIONAL PROTECTED AREA

Most voluntary conservation agreements were finalised before the area was declared a regional protected area in 2017: the first protected area in the lowlands of the Middle Magdalena valley. Fundación Biodiversa Colombia and its partners are now contributing to the management of this 32,000 hectares area.

INCREASED TREE COVER

The imminent threat of deforestation for expansion of cattle farming in these lands brought landowners and environmental authorities to rapidly take action and find solutions to secure the forest. Two techniques of reforestation – namely tree planting and natural regeneration – have increased tree cover in the deforested areas.

ALLY FOR LANDOWNERS

The landowners were not naturally inclined towards nature conservation when Fundación Biodiversa started to operate in the area in 2009. Raising environmental awareness and becoming a locally established partner in 2012 – when a 76 ha patch of land was purchased through IUCN NL's Land Acquisition Fund in the El Silencio reserve – allowed the organisation to become an ally for these landowners.

By starting sustainable cattle ranching and agroforestry activities in the El Silencio reserve, the organisation sought to arouse locals' curiosity on alternatives to their cattle ranching practices. The increased awareness on the potential positive outcomes from these production alternatives built confidence in landowners and allowed them to ask for guidance and support in facilitating pilot projects.

Currently, sustainability has become a frequent practice in local relations, especially in three particular forms:

- The team of Biodiversa continuously assists landowners in shifting to alternative practices and raising awareness on conservation.

- Landowners ensure their effort in conserving, restoring and connecting the forest inside their land.
- Environmental authorities enforce land use restrictions in the protected area.

500 HECTARES WITH A CRUCIAL ROLE

In 2018, the IUCN NL Land Acquisition Fund contributed to a second purchase for Selva Verde, a patch of more than 500 hectares with a crucial role: connecting the forest of El Silencio to the wetlands. The creation of this corridor allowed the organisation to work on the conservation of the Barbacoas wetlands.

To this end, Biodiversa engaged with the local community of fishermen and women living in a socio-environmentally challenging context. This community of about 80 families, seasonally migrates between the river banks in the productive fishing season to the town during the rainy season. Although the community is committed to maintaining and protecting the fishery resources, the fishing seasons systematically attract hundreds of fishermen from other areas that are harder to control, bringing negative consequences for the wetlands.

Due to overfishing and the blockage of routes of spawning fish with trammel nets, the ecosystem balance is put at stake. Additionally, food availability becomes scarce for fish-feeding animals such as reptiles, birds and mammals.

For these community members, fishing is the main source of income; they sell their fish through intermediaries for a low price and with this income they buy groceries in town. The organisation is designing strategies to ensure food security within this community through the engagement of women in agro-ecology, as well as supporting the process of identification of its members with the role of guardians of the Barbacoas wetlands.

In 2017, Fundación Biodiversa Colombia and its partners reached an important goal: the Barbacoas forest was declared a regional protected area.

"Fundación Biodiversa has long understood that long-term conservation is not possible if local communities are not involved and appropriated of the conservation actions, and if these do not help directly improve their livelihoods and well-being."
Fernando Arbelaez - Fundación Biodiversa Colombia

Creating safe reserves:
The Qara Dagh nature reserve in Iraq

NGO:	Nature Iraq
Location:	Iraq – Kurdistan region
Hectares acquired:	2250 ha
Year of support:	2019
Main threats:	Hunting and oil companies/extraction
Focal species:	Persian Leopard *(Panthera pardus saxicolor)* (EN)
Website:	www.natureiraq.org

Qara Dagh Landscape - credit: Nature Iraq

Qara Dagh is a mountain ridge with dense oak woodlands located in the Kurdistan region of Iraq. It is home to one of the most elusive predators on the planet: the Persian leopard. This extremely rare predator became the focus and flagship for the establishment of the first nature reserve in the entire region, the Qara Dagh Nature Reserve.

Qara Dagh is famous for many things, but until recently, nature conservation was not one of them. The local nature conservation NGO Nature Iraq listed Qara Dagh as a Key Biodiversity Area (KBA) and is responsible for the establishment and management of the reserve.

FIRST FORMALLY PROTECTED AREA OF KURDISTAN

Almost as rare as their flagship species is the legal framework that allowed for the establishment of the Qara Dagh Nature Reserve. Nature Iraq managed to consolidate an agreement with the Kurdistan Regional Government through a partnership with its Environmental Protection and Improvement Board that recognised Qara Dagh as the first formally protected area of Kurdistan.

Through the Land Acquisition Fund, IUCN NL was able to support Nature Iraq and their work concerning the Qara Dagh Nature Reserve. Instead of providing financial support for land purchase, which was not applicable as the land titles were not for sale, IUCN NL provided funds for urgent management activities, equipment, staff salaries and the construction of a sustainable eco-lodge.

The Qara Dagh Nature Reserve is nearly 2,300 hectares and comprises multiple ecosystems, i.e., mountain-forest, sub alpine thorn-cushion, and riverine woodlands. Dense oak and pistachio dominated forests make way for diverse steppe flora at higher altitudes. The area has close to a thousand plant species, over 180 different recorded bird species and through their camera trap monitoring, Nature Iraq was able to identify 15 different mammal species.

The Zagros Mountain Forest Steppe ecoregion is located in the Taurus-Zagros Mountain range that extends across northern Iraq, Iran and Turkey. This endangered ecoregion is considered one of the world's 25 biodiversity hotspots: the Irano-Anatolian Biodiversity Hotspot. Parts of it fall within the area of Qara Dagh.

THOUGHT TO BE EXTINCT

When Nature Iraq started working in the area in 2007, the Persian Leopard was thought to be extinct in the region as the latest encounter dated back to 1980. In 2011, when the first camera trap footage was analysed, the Persian leopard revealed itself.

Persian Leopard in Qara Dagh - credit: Nature Iraq

HISTORY OF STRIVE AND STRUGGLE

The presence of the Persian Leopard in Qara Dagh means more than just a conservation flagship and motive. The Kurdish people from this region relate to the leopard because of their history of strive and struggle that resembles that of the leopard. A famous Kurdish saying goes: "We have no friends but the mountains."

For the Persian leopard, and its preys, hunting remains a serious threat to their existence and the mountains provide some safety, especially with the establishment of the small protected area in Qara Dagh.

The project's results show that with incredibly limited personnel and resources, the project has made tremendous strides for the biodiversity in the region.
Hana Raza – Nature Iraq

Between 5 to 10 Persian leopards now use the Qara Dagh nature reserve.

A LARGER HABITAT

Over the years, multiple leopards were trapped on camera and estimates state that between 5-10 Persian leopards now use the Qara Dagh nature reserve. For the years to come, Nature Iraq aims to extend the protected area in Qara Dagh, covering more land to create a larger habitat were the Persian leopard can thrive once again.

SUSTAINABLE ECOTOURISM

Since its recognition as a protected area, the project's results have exceeded expectations with the amount of local and international support it received. Nature Iraq has finalised their sustainable eco-lodge, which is part of their wider sustainable ecotourism plan so that the beauty of the Kurdistan region can be promoted and shared with visitors. They extended their patrolling capacity by opening another ranger station, located centrally in the reserve so that their rangers can effectively control illegal hunting.

Creating safe reserves:
The Kinangop nature reserve in Kenya

NGO:	Nature Kenya
Location:	Kenya
Hectares acquired:	56 ha
Year of support:	2006 and 2010
Amount of support:	US$ 170,660
Main threats:	Conversion and fragmentation of natural grassland
Focal species:	Sharpe's Longclaw *(Macronyx sharpei)* (EN)
Website:	http://naturekenya.org/

Sharpe's Longclaw - credit: Peter Steward

The Kinangop plateau, located north of the city of Nairobi in southern Kenya, is an endangered Important Bird Area (IBA). Our local partner NGO Nature Kenya created two safe reserves for the Sharpe's longclaw, an endemic passerine bird that depends on the kingangop grasslands. In addition, the reserves also allow local children, farmers and researchers to learn about bird conservation and monitoring, as well as the sustainable management of livestock grazing on the tussock grasslands.

The Kinangop plateau covers some 77,000 hectares of Kinangop Highland Grasslands, averaging at an altitude of 2550 meters. The treeless vegetation, principally tussock grass, gives the plateau its distinctive appearance and hosts endangered avifauna, some endemic to this montane grassland ecosystem. Notably, the Sharpe's longclaw, a passerine bird which depends on these grasslands and has suffered greatly due to conversion of natural grassland for alternative land uses.

Many of the lands that fall within the IBA are privately owned by local (small-scale) farmers and the grasslands are giving way to cultivated field and woodlots at alarming rates.

NOT THE MOST ENIGMATIC OF SPECIES

Within the wildlife context of Kenya, longclaws are not the most enigmatic of flagship species and funds to support Nature Kenya and their objective to conserve the endangered bird have not come naturally.

The fact that Kenya is considered a middle-income country also created the expectation that international funding is less needed. This was not the case for Nature Kenya, working in Kinangop, and it did not simplify their search for sufficient funding.

TWO PRIVATELY PROTECTED AREAS

Nevertheless, Nature Kenya persisted and partly due to their extensive network of dedicated local community groups, called Site Support Groups, the NGO created two privately protected areas: the Kinangop Nature Reserve I and the Nature Reserve IV (Kipipiri). These properties are owned privately by Nature Kenya but are managed by the local conservation group Friends of Kinangop Plateau (FoKP).

Through the Land Acquisition Fund, IUCN NL was able to support Nature Kenya's acquisition strategy and facilitated it with the purchase of 56 hectares, now part of the two reserves. The reserves form a safe retreat for the Sharpe's longclaw and became a learning opportunity for local children, farmers and researchers on bird conservation and monitoring, as well as the sustainable management of livestock grazing on the tussock grasslands.

TIGHTLY REGULATED GRAZING SCHEME

Although overgrazing is problematic for the Sharpe's longclaw, who rely on tussock grass for breeding, a tightly regulated grazing scheme can benefit all parties involved. Medium grazed grass is preferred by Sharpe's longclaws, and thus created an opportunity for Nature Kenya and FoKP to engage with the surrounding community of small-scale farmers.

For a small fee, the farmers' cattle are allowed to graze periodically within the reserve, creating a small income to sustain the reserves as well as optimising the habitat for the Sharpe's longclaw. Simultaneously, the farmers understand the importance of sustaining a healthy grass cover for endemic birds and appreciate the conservation effort.

EDUCATIONAL TOOL

Although small in hectares, the impact of the nature reserves reaches far beyond their borders. Through the joint effort of Nature Kenya and FoKP, the lands are now not only protected, but provide an educational tool for school children to learn about conservation. The impact is clearly visible as many members of their Site Support Groups were introduced to conservation as a child, by visiting the reserves and participating in the learning activities.

MODEL TO BE REPLICATED

Nature Kenya aims to develop a model nature reserve that can be replicated at other sites across Kenya and beyond. Additionally, they wish to enhance their ecotourism practises and work towards establishing Kinangop as a preferred destination for birdwatchers and ecotourism.

"It is better to secure a small area than not having it at all. With the little resources available a small area with Critically Endangered species can be bought with possibility of expansion later. A journey of a thousand miles begins with a single step."

Joel Siele – Nature Kenya

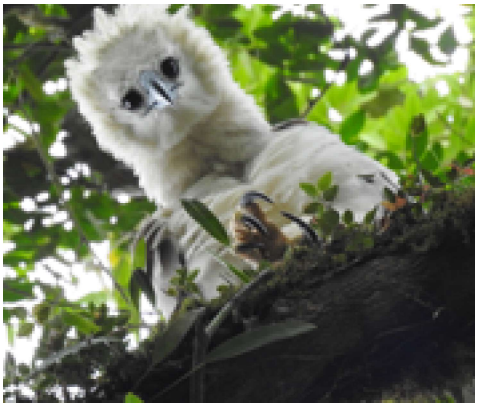
A tightly regulated grazing scheme can benefit all parties involved.












- *Nymphargus manduriacu* - credit: Scot Tregesar
- Red-shanked Douc Langur - credit: Bjorn Olesen/Viet Nature
- Seasonably Inundated Savannah Grassland - credit Christiaan Spencer
- Chinese Green Tree Viper & black-striped frog - credit: Ha Van Nghia/Viet Nature

- *Dracula Irmelinae* - credit: Luis Mazariegos
- Plate-billed Mountain-toucan - credit: Lou Jost
- Margay - credit: TMA
- Pacific pygmy owl - credit: TMA

- Howler monkey - credit: TMA
- Mountains, Tajikistan - credit: Association of Nature Conservation Organizations of Tajikistan
- Harpy eagle - credit: Michaël Moens
- Sign Caucasus Wildlife Refuge - credit: Marc Hoogeslag

Reserva Ecológica de Guapiaçu (Brazil) in 2006

Before and after pictures
show the resilience of nature

Reserva Ecológica de Guapiaçu (Brazil) in 2012

MEET THE INSPIRING PEOPLE AT THE CORE OF OUR LOCAL PARTNER NGOs

Amanda Shia

Amanda Shia is a young zoologist and member of the Wildlife Surveys & Protection Unit at Hutan, an organisation working for the conservation of Borneo's biodiversity in Sabah, Malaysia.

Amanda is a young and promising zoologist who has worked for the past three years in Hutan, a Malaysian conservation NGO partnered with the IUCN NL Land Acquisition Fund. Born and raised in Sabah, Borneo, Amanda embarked on an internship at Hutan which has led to a passionate conservation career.

Amanda first joined the organisation as an environmental educator, a function which, at first glance, was different from her background in Zoology.

"The Hutan team had two decades of scientific data gathered from the field. My task was to make this data into school-friendly educational material. At first, I felt I did not have the skillset to execute such a task. In a few months I learned design skills and all that was needed to produce the material. I am glad I was given this trust and the opportunity to learn and execute the education materials to be used for schools."

BEHAVIOURAL CHANGE

Amanda is currently enrolled in a MSc in Zoo Conservation where she has the opportunity to learn ways to disseminate and share educational information and study behavioural change from collaborators such as Chester Zoo in Manchester, United Kingdom. Amanda is equipping herself with an even broader skillset which she will use to assess the impact of the conservation work of Hutan on the community of Sukau. Data analysis, academic writing and networking with funding organisations are some of the tools she is learning from the current training – an opportunity which she was granted through the support of Hutan's founders Isabelle Lackman and Marc Ancrenaz, two inspiring figures for Amanda.

Amanda: "I started the internship by thinking that genetic studies are the most important, until Marc, on the first day, told me that the local communities are the drivers of successful conservation in the long term. I was very confused by this statement back then."

After a few months of internship at Hutan, Amanda found out how true this statement was. When working with critically endangered species like the orangutan, it is crucial to make sure that the community understands what activities constitute a threat to this species.

PATIENCE AND EMPATHY

It is a slow process which requires patience and empathy from the conservationists' side: one should first understand how different actors look at the world around them, and only then start to offer an alternative. Educational activities are one part of the equation, but the need to engage with more stakeholders, such as commercial companies is equally fundamental.

Amanda: "It is not by stopping other people's businesses that an organisation can go far, but by having a constructive dialogue from which advantageous collaborations can arise. In Borneo, there is a stigma around palm oil plantations: but how long is this battle going to last? We need to meet half-way and look for solutions suitable to our specific context."

LITTLE SISTER

After working in the Education Unit, Amanda joined the Wildlife Survey and Protection Unit, where she had the opportunity to join a team of nine motivated members who welcomed Amanda into the unit as a little sister and taught her crucial skills to advance her experience in this field. The unit coordinates multiple projects ranging from monitoring primates, elephants, reptiles, birds, small and large mammals as well as hornbill conservation.

All of the members are appointed Honorary Wildlife Wardens, experienced field staff which intervenes in human-wildlife conflict cases, and which collaborate with the local police and Sabah Wildlife Department to assist patrolling in detecting poaching and other illegal activities within the reserve.

Amanda: "As a conservationist, I dream of having an impact in the field. I am aware that this will take many years and effort. But I think that it is about counting each and every small daily effort that will take me there. Many times the world only sees the big changes and big achievements, neglecting the smaller achievements. For me, what counts is being fully engaged in everything I do at any time."

As Amanda points out, resilience and perseverance are two crucial qualities to develop on the path to become a better conservationist. Working with nature exposes one to a vast array of unexpected challenges, so being able to adapt to changing situations is a core skill and is key to ensuring an even more satisfactory taste of each and every daily achievement.

"As a conservationist, I dream of having an impact in the field."

MEET THE INSPIRING PEOPLE MAKING NATURE CONSERVATION WORK

Weber Andrade de Girao e Silva

Weber Andrade de Girao e Silva is coordinator of the Araripe manakin program at AQUASIS, an NGO protecting endangered species and their habitats in the Northeast of Brazil.

Behind the conservation success story of a rare bird – the Araripe manakin – there is the moving story of a young student and his personal commitment to save this species.

It was 1996 when Weber Andrade de Girao e Silva was invited by Professor Artur Galileu de Miranda Coelho to join a 5-days field course to observe birds in the Chapada do Araripe, in the Brazilian state of Ceara. At that time, Weber was a 21-year-old biology student and already an avid birdwatcher, but he never got many opportunities to travel such long distances from his home in Fortaleza.

Professor Galileu knew about Weber's passion for birds, so he told him about an unfamiliar bird species he encountered on previous expeditions but was not able to recognise. Weber remembers: "We went to a cave, the other students were inside, but we stayed outside. And in that moment, we saw this bird coming. The red-coloured cap on its head, hit by the rays of the sun, was something that left us with open mouths for some time. Even after more than 20 years, remembering this moment still gives me goosebumps."

This happened in the last hour of the field course, after which Weber had to take an overnight bus to go back to Fortaleza. The vivid image of the Araripe manakin kept him awake that night, so Weber made a drawing of the bird which he then sent to Prof. Galileu. This was when Galileu invited him to jointly describe the Araripe manakin, or 'Soldadinho-do-Araripe' as the bird is locally referred to due to its soldier-shape head cap.

IMMENSE HONOUR

Weber: "Galileu did not consider me as just a student, but as a blessed person. It was an immense honour for me to describe a species. And after all this time, I still wonder, when would I be worthy of this great honour? I still haven't found an answer to this dilemma. I feel in debt to this generous fate and I want to keep studying, researching and working for this great honour I received."

While doing historical research on this species, Weber discovered that this bird was documented in three different episodes: a scientific expedition by the Brazilian Emperor in 19th century, a German expedition in the 1930s, and by a doctor in the 20th century. All three attempts failed to provide durable documentation of the species: in the first case, a shipwreck sunk the collected birds. In the second case, the library where records were stored was bombed during World War II and lastly, in the third case, natural decomposition of a killed bird left it undocumented.

The species, discovered in 1996, was scientifically described in 1998. In 2000, the Araripe manakin was already listed by the IUCN Red List of Threatened Species™ as Critically Endangered.

EXTINCTION IS A REAL THREAT

Since 2003, Weber has been actively working for the conservation of the Araripe manakin. In 2004, when Weber started working for the NGO AQUASIS, he and his team published the first scientific report on the Araripe manakin. The establishment of protected areas with specific management plans to protect the endangered manakin and its habitat has built a solid conservation framework to protect this species.

Weber: "I could never bear this species disappearing. I have already lived this tragic moment twice in the past. I have worked with two bird species which were declared extinct. They do not exist anymore. This experience of extinction was a very important realisation for me. To know that it happens, for real. This experience is extremely painful."

Weber's special bond with the Soldadinho-do-Araripe resulted from his lifelong connection and study of the species. In his transcendental position of spokesman between the Araripe manakin and humans, Weber found his personal function.

> "Even after more than 20 years, remembering my first encounter with the Araripe manakin still gives me goosebumps."

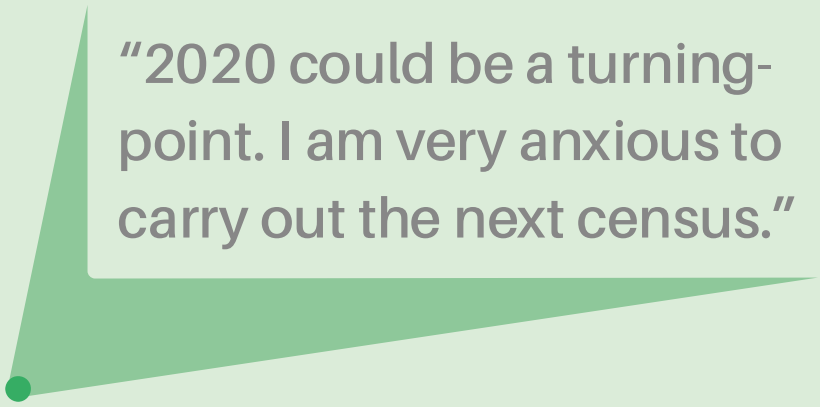
LONG-TERM COMMITMENT

Despite the privilege of being a mediator, this role does not come without responsibilities. Interpreting the manakin requires long-term commitment to studing its biology and ecology, but also to creating suitable socio-environmental conditions for it to thrive.

According to Weber, the major threat is water. The Araripe manakin needs constant running water since females create nests almost on the water surface of the streams of the Chapada. However, the Ceara' state – already known to be a dry region – was affected by a sequence of severe drought in the last five years. This severely impacted the Chapada do Araripe, where a dramatic decrease by 27% of the Araripe manakin population was recorded.

Weber: "2020 is the test year: until now, we received abundant rains. So, if it keeps being as rainy as this year, we could assist the increase in the population. I am very anxious to carry out the next census."

Weber is at the frontline of the conservation of the Araripe manakin, ensuring that the next generations of local youth will also have the privilege to connect with and discover the importance of sharing their lands and streams with this majestic bird.



CHAPTER 2 PEOPLE AND NATURE LIVING IN HARMONY

The relationship between biodiversity and sustainable development has been evolving and growing evidence suggests that diversity of life is vital for the provision of ecosystem services on which humans depend. The well-functioning of ecosystems is directly influenced by the equilibrated balance between environmental, social and economic sustainability in each particular context. However, as biodiversity is more and more threatened by human activities – such as deforestation, urbanisation, agricultural expansion and climate change – the reduced capacity in the provision of ecosystem services has direct consequences on human life.

Competing claims over natural resources - between for-profit corporations, (international) conservation NGOs and indigenous and local communities - are ever more frequent, often placing indigenous and local communities in the most vulnerable position. In the last decades, the management of planet's natural resources has growingly passed to the hands of large companies that have no emotional or cultural connection to the resource-rich lands they manage. The economic system under which these companies operate does not generate enough incentives and even make it impossible for indigenous and local communities to preserve ecosystems and conserve biodiversity. Similarly, fenced off and top-down nature conservation – aside from potential human rights violations – in general does not provide for inclusive community engagement.

The development of inclusive and more equitable management schemes should ensure mechanisms in which the interests and local wisdom of indigenous and local communities are key. Such management schemes should support communities in securing the sustainable use of natural resources and community-driven conservation, and should prevent conflicts among stakeholders. More than ever, tackling biodiversity loss requires engagement and inclusion of indigenous and local communities: co-creating sustainable and inclusive management and governance can protect biological and cultural diversity, while contributing to livelihoods.

Many of the local partner organisations of the IUCN NL Land Acquisition Fund have collaborated for decades with local communities to design and implement inclusive forms of development which seek to balance human and ecological needs.

The following chapter presents nine case studies depicting multiple approaches, contextualised to their unique social, political and economic circumstances, which have been successfully employed to collaborate with communities to enhance local biodiversity conservation. Three approaches are introduced:

- Safeguarding ecosystem services
- Working with communities
- Reconciling communities and nature

Shuar elders from Yacuambi valley, Zamora Chinchipe province in Ecuador - credit: Trotsky Riera-Vite, Naturaleza y Cultura Internacional

Nature conservation creates a win-win situation that benefits both nature and human well-being.

2.1 SAFEGUARDING ECOSYSTEM SERVICES

The majority of land acquisitions funded through the Land Acquisition Fund, have as primary objective to preserve habitats that are important for endangered species. Many of the projects however have the parallel objective to secure ecosystem services for indigenous and local communities that have their territories inside or adjacent to the acquired areas. In this way, nature conservation creates a win-win situation that benefits both nature and human well-being.

After all, protecting these ecosystems also implies protecting the services they provide on a local, and sometimes even global scale. Forests are needed to regulate and purify water sources, produce clean air, sequester carbon, influence local weather conditions and the global climate. By protecting forests we also safeguard the services they provide and ensure clean and fresh drinking water for local communities.

Atlantic Rainforest Reserve Serra Bonita - credit: Insituto Uiraçu

Safeguarding ecosystem services: **A water tax to protect and sustain forests in Ecuador**

NGO:	Naturaleza y Cultura Internacional
Location:	Ecuador
Hectares acquired:	387 ha
Year of support:	2009
Amount of support:	US$ 100,450
Main threats:	Unsustainable cattle ranching
Focal species:	Red-faced parrot *(Hapalopsittaca pyrrhops)* (VU), Fleshbelly frog *(Pristimantis balionotus)* (EN), Miconia dodsonii *(Miconia dodsonii)* (EN)
Website:	http://www.naturalezaycultura.org

Evergreen montane forest in the southern Cordillera Oriental of the Andes - credit: Gonzalo Pizarro

The forests surrounding Loja, the capital city of Loja Province in the south of Ecuador, are part of some of the last existing forest remnants of the Tumbesian region. Apart from the negative impact on biodiversity, the water provision and security of some 250,000 people living downstream of the watershed have been jeopardised due to forest clearance and degradation. The people of Loja were willing to pay a water tax for forest conservation and restoration to safeguard their water sources.

The Tumbesian region starts at the equator in Ecuador and stretches south along the Pacific Coast until it touches the northern parts of central Peru. Renowned for being one of the most important and threatened Endemic Bird Areas, the forests are home to over 600 bird species, many of which are restricted to this ecoregion.

BIODIVERSITY HOTSPOT

Other inhabitants include Amazonian icons such as the ocelot, the puma, the mountain tapir and the spectacled bear. A total of 3,500 different species have been identified, 40 percent of which are believed to be endemic to the area. The region is rightfully identified as a hotspot for biodiversity.

Like other natural places, the area around Loja has suffered from unsustainable practices that greatly reduced the forest cover to the estimated five percent that now remains. Apart from the negative impact on biodiversity, the water provision and security of some 250,000 people living downstream of the watershed have been jeopardised due to forest clearance and degradation.

CONSERVATION AND RESTORATION

Through the Land Acquisition Fund, IUCN NL supported the work of Naturaleza y Cultura Internacional by funding one of their acquisition projects. In 2009, the local NGO purchased an area of nearly 400 hectares and established the Shucos Nature Reserve. Naturaleza y Cultura also secured other key areas within the watershed for conservation and restoration purposes.

WATER TAX TO PROTECT AND SUSTAIN FORESTS

Management costs for these reserves are covered through a water tax. In 2006, Naturaleza y Cultura began working with the municipality of Loja to implement a water tax system. This system would integrate communities into a single conservation trust to collect water use fees, or a water tax. The water tax was meant to sustain and protect the forests that make up the watershed area. These forests provide key hydrological services by improving the water quality through sediment retention and regulate a consistent water flow.

The water tax system was widely accepted: a survey conducted by Naturaleza y Cultura revealed that 70 percent of the inhabitants of Loja were willing to pay an additional tax to safeguard their water sources. Hence, the partnership between Naturaleza y Cultura and the local municipality was sealed and the water tax established. The income generated through the tax is now used to manage, protect and restore the forests that provide the services people depend on.

CONSOLIDATING PEOPLE'S WISHES

The legal framework which allowed the local municipality to adapt their tax system was essential for successfully establishing the water tax in Loja. The legal structure in Ecuador is decentralised in the sense that municipalities can adapt their policy to consolidate the wishes of the people living in that municipality. In Loja, the people were willing to include a water tax to conserve their water sources, and the municipality had the agency alter their policy and establish certain taxes.

Attempts to replicate the model in other countries have failed mainly because of centralised regimes which require approval from the capital to alter policy at the local level.

REGIONAL WATER FUND

The water tax system in Loja is part of a larger, landscape-scale initiative from Naturaleza y Cultura and several municipalities that focuses on restoring degraded lands and conserving intact forests that comprise the watershed areas crucial for hydrological services in Ecuador.

This regional water fund (FORAGUA) was established in 2009 and is made up of 14 municipalities, including Loja. The funds generated are being used to purchase land within the watersheds to guarantee their protection in the long run, empower communities in implementing sustainable agricultural practices, rehabilitating damaged ecosystems, and creating new protected areas.

UNDERSTANDING THE IMPORTANCE OF ECOLOGICAL SERVICES

Safeguarding biodiversity is often the main objective when pursuing conservation goals and establishing nature reserves. However, in Loja, objectives include water security and provision. The people in Loja understand that by protecting their forests they secure vital ecosystem services. Their willingness to pay an additional tax reflects their understanding of the importance of ecological services provided by these ecosystems, and demonstrates the value they place on nature.

"The land purchase process can be the wick to trigger larger scale conservation mechanisms."
Renzo Paladines - Naturaleza y Cultura Internacional

The people in Loja understand that by protecting their forests they secure vital ecosystem services.

Safeguarding ecosystem services: **Ensuring water security through forest protection in Brazil**

NGO:	Reserva Ecológica de Guapiaçu
Location:	Brazil
Hectares acquired:	271 ha
Year of support:	2007
Amount of support:	**US$ 54,830**
Main threats:	Urbanisation, deforestation and hunting
Focal species:	Southern Muriqui *(Brachyteles arachnoides)* (CR), Crowned Solitary Eagle *(Buteogallus coronatus)* (EN), Parana Pine *(Araucaria angustifolia)* (CR)
Website:	http://regua.org/

Reserva Ecológica de Guapiaçu - credit: Nicholas Locke

The Atlantic Rainforest is a famous biodiversity hotspot, yet it is the most endangered rainforest on the planet. Our local partner NGO Reserva Ecológica de Guapiaçu (REGUA) manages a reserve of approximately 11,000 hectares and raises environmental awareness to guarantee the long-term conservation of the Atlantic Forest and its biodiversity in the Guapiaçu watershed in the state of Rio de Janeiro, Brazil.

Forest clearance for agriculture purposes (coffee in particular), pastures and urbanisation all contribute to the gradual loss of habitat and biodiversity in this important ecosystem.

REGUA currently manages approximately 11,000 hectares of seasonal, tropical wet cool transition- and pre-montane forests ecosystems. 485 different species of birds and more than 50 mammal species have been identified in the reserve.

WATERSHED PRESERVATION

The conservation of this endangered ecosystem not only assures habitat for species, it protects the forests that provide the services on which people depend. The water provision of 2,5 million people relies on the preservation and well-being of the watershed.

Apart from protecting natural habitat, REGUA therefore focuses on watershed preservation within the upper catchment area of the Guapi Assu River. The 11,000 hectares currently managed by REGUA form about 25 percent of the Guapiaçu watershed, which provides 2,5 million people living downstream with fresh and clean water.

SMALL BUT SIGNIFICANT

Through the Land Acquisition Fund, IUCN NL was able to support REGUA's work by providing financial support for one of their acquisition projects. The NGO was able to acquire 271 hectares within the watershed that was threatened due to housing development.

Land purchase is just one of many tools used by REGUA to secure the watershed area. The organisation facilitated and executed many reforestation projects and recovered major parts of the watershed area, thereby transforming wastelands to secondary forest, securing the water provision and improving forest connectivity.

ENVIRONMENTAL AWARENESS

Additionally, through their outreach projects, tree planting activities and the Young Ranger education program, REGUA invested heavily in creating environmental awareness within the local community and fostered the relationship they have with nature.

Pastures and housing projects do not generate much water, on the contrary, they consume water. Thanks to the commitment of REGUA, the people here now understand the link between protecting their forests and securing their water source.

SECURE AS MUCH LAND AS POSSIBLE

REGUA aims to secure as much land as possible within the Guapiaçu watershed that covers about 45,000 hectares. They have developed a conservation centre to further extend their programs focusing on protection, education, restoration, research and sustainable activities to ensure the ecosystem services we all depend on.

"A proverb says that every journey starts with a small step and the grant from the Land Acquisition Fund, even though small, gave us the courage to dream. The results here at REGUA speak for themselves."
Nicolas Locke – REGUA

Safeguarding ecosystem services: **Empowering communities in Honduras to safeguard their access to water**

NGO:	Asociación Ecológica de San Marcos de Ocotepeque
Location:	Honduras
Hectares acquired:	380 ha
Year of support:	2006 and 2010
Amount of support:	US$ 157,000
Main threats:	Deforestation
Focal species:	Cerro Pital Salamander (Bolitoglossa synoria (CR), Honduras White-lipped Frog *(Leptodactylus silvanimbus)* (CR), Geoffroy's Spider Monkey *(Ateles geoffroyi)* (EN), Highland Guan *(Penelopina nigra)* (VU)
Website:	http://www.aesmo.org

Asociación Ecológica de San Marcos de Ocotepeque - credit: Suyapa Bohorquez

Climate change, water mismanagement and pollution of waterways create an increasing threat to the availability of fresh and clean drinking water. In the Ocotepeque region in eastern Honduras, our local NGO partner Asociación Ecológica de San Marcos de Ocotepeque (AESMO) guaranteed ten communities their right to water.

The human right to have access to safe and clean water does not only ensure the provision of this basic resource, but it also builds opportunities for empowerment and inclusion of populations which have historically struggled for basic rights. AESMO shows how grassroots solutions can fill governance gaps while reinstalling values of pride and equity in rural communities.

Thirty years ago, AESMO identified that water constituted an issue for the local populations in the Ocotepeque region in eastern Honduras. By ensuring water availability through forest conservation, the organisation elaborated an innovative strategy to collaborate with multiple local actors to secure watersheds.

EMPOWERING LOCAL ACTORS

In 2006, the IUCN NL Land Acquisition Fund has contributed to the purchase of 380 ha of the Reserva Biológica Güisayote through a participative acquisition scheme. By teaming up with local municipalities, water management boards and cooperatives, AESMO designed a strategy leading to the empowerment of local actors as key players for the conservation of protected areas.

SOCIAL RESPONSIBILITY

By involving local actors and asking them to financially contribute to the purchase of new land, the NGO built a mechanism of social responsibility in getting people committed to safeguarding the acquired lands. In turn, the purchased lands – acquired as exploited agricultural lands and successively reforested – are strategically important to the rehabilitation of surrounding watersheds.

APPEALING NARRATIVE

AESMO realised that the narrative of conservation for restoring habitats did not appeal to the primary needs of local populations. But once local communities realised that the same concept could improve their water security, there was a strong motivation for contributing.

Six years after purchasing the land in the micro-watershed of the Ídolo River, at the core area of Güisayote Biological Reserve, the water supply improved in quality, quantity and consistency in all the 10 nearby rural communities and offered direct benefits to all the 5,625 inhabitants.

CO-MANAGEMENT

The watershed co-management strategy consists of assigning land titles under the pro-undivided legal scheme to the municipal government, water management boards, cooperatives, AESMO and other actors who contributed to the purchase of the land; mentioning the contributions made by each of them. Each contributing actor has the same rights and responsibilities in this agreement, regardless of how much they contributed in financial terms.

JOINT PROTECTION OF BIODIVERSITY, WATER AND SOILS

Due to other threats in the region, mining exploration and exploitation are explicitly mentioned as activities that cannot be carried out on these lands. The values of democracy, inclusion and tolerance are put on a pedestal in this collaborative alliance. The association between these actors has also led to the avoidance of common threats in the region, such as exposure to security threats or illegal activities, as well as political and technical decision-making for the joint protection of biodiversity, water and soils. This resulted in the strengthening of long-term governance of protected areas, avoiding the concentration of power in decision-making.

> The values of democracy, inclusion and tolerance are put on a pedestal in this collaborative alliance.

FAIR PRICING

An additional mechanism that AESMO spearheaded with this joint collaboration is the negotiation process. One of the limiting factors in land acquisition is the increase in land prices, which can often impede the acquisition of strategic land. The organisation has developed transparent and participatory negotiation mechanisms in which AESMO involves not only the owner, but also all the representatives of the municipality, the cooperatives, the water management boards and the neighbouring ones.

Based on cadastral databases and public deeds with their respective successive tracts of land tenure, complemented by a democratic process of negotiations, it ensures that no one takes advantage of each other but that they ask for and offer fair prices. This has ensured the successful purchase of strategic land patches.

WOMEN BENEFIT FROM SOCIAL CHANGES

Women in particular have benefitted from the social changes brought forth by this project. While they have historically taken up more marginal roles in the municipality and cooperatives, women are now actively taking part in the negotiation processes and make their own contribution for the purchase of land.

Defending the quality of water is crucial, especially to women: in their function of family caretakers, they have experienced how scarce and polluted water has a direct impact on the health of their families. Additionally, as water collection is a family task carried out mostly by women, many of them, and especially the younger ones, have often experienced sexual harassment on their long walks towards clean water collection points. Now water can easily be collected nearby their houses. Protecting the local watershed and harvesting water meant ensuring their personal security.

"The idea of land purchase in Güisayote did not raise from an expert or a top-university researcher, but from an illiterate farmer whom, along the years, we were able to sensitize."
Victor Saravia – AESMO

2.2 WORKING WITH COMMUNITIES

A key step in conserving biological diversity and improving local livelihoods lies in strengthening local capacities and institutions in sustainable governance and management of the territories.

Conservation NGOs have partnered up with indigenous and local communities, immigrant settlers, local and national governments and researchers to develop tailor-made solutions to protect biodiversity.

As highlighted in this report, a multitude of local actors – among which local citizens, indigenous and local communities, community-based organisations and civil society organisations – have taken up important roles in governing, managing and conserving their lands, waters and other essential resources. By standing as a point of reference and providing technical assistance, local NGOs have developed into more than a conservation NGO: they have become a trusted friend and ally of indigenous and local communities.

Local NGOs have become a trusted friend and ally of indigenous and local communities.

Associação Caatinga - credit: Renato Stockler

Associação Caatinga - credit: Renato Stockler

Working with communities: **Connecting with Uncontacted Peoples in Paraguay**

NGO:	Initiativa Amotocodie
Location:	Paraguay
Hectares acquired:	3,739 ha
Year of support:	2005
Amount of support:	US$ 84,510
Main threats:	Habitat loss and fragmentation, intensive farming
Focal species:	Chacoan pecari *(Catagonus wagneri)* (EN), Giant armadillo *(Priodontes maximus)* (VU), Chaco tortoise *(Chelonoidis chilensis)* (VU)
Website:	https://www.iniciativa-amotocodie.org/

Initiativa Amotocodie - credit: Initiativa Amotocodie

Most conservation projects ensure the preservation of ecosystems crucial for the thriving of animal and plant species. But what about the people who have not discerned themselves from 'nature'? Since the early 2000s, our partner organisation Initiativa Amotocodie has been working in the Paraguayan Gran Chaco with the Union of Native Ayoreo of Paraguay (UNAP) and relevant Ayoreo experts to preserve the ecosystem of the Ayoreo, an indigenous group living in voluntary isolation in one of the last intact forests of Paraguay.

Living across the border between Paraguay and Bolivia, in a total area of approximately 35,000,000 hectares, the Ayoreo people inhabit a dry forested area known as the Gran Chaco. In this vast territory, the population is divided into smaller nomadic groups.

Over 2000 Ayoreo people used to inhabit the northern Chaco region of Paraguay until the majority was sedentarised by missionaries in the 20th century. The number of remaining uncontacted Ayoreo is estimated to range between 180 and 300 people, and they are currently threatened by loss of territory and deforestation.

DRAMATIC SHRINKING OF ECOSYSTEM

In the last 20 years, the vast dry plains of the Paraguayan Chaco, with their favourable low population density, have been the scene of intensive economic growth by the purchase and conversion of land into cattle farms and soy plantations. As a consequence, the area has undergone one of the fastest processes of deforestation in the world. The Ayoreo people have witnessed the dramatic shrinking of their ecosystem, which has left only 12% of their traditional territory – qualitatively even less, when disturbance from agricultural activities is considered.

SANCTUARY FOR THE AYOREO PEOPLE, ANIMALS AND PLANTS

In 2004, Initiativa Amotocodie was able to secure a 4,000 ha forest patch named Punie Paesoi ("land protected by its owners") through the Land Acquisition Fund in a strategic spot for the uncontacted Ayoreo. The Punie Paesoi is a sanctuary for the Ayoreo people, animals and plants living in this area. Large numbers of tapirs, deer and wild boars are found – a biological indicator which reassures the presence of healthy populations of jaguars, pumas, giant anteaters and armadillos.

Since the Ayoreo are a nomadic population who seasonally migrate from one place to another following ancestral routes, the Punie Paesoi is located on one of these key migratory routes. Securing this land meant not only ensuring voluntarily isolation, but also enabling the continuation of Ayoreo's cultural practices, among which migratory movements.

Ecologically balanced use of resources
Since the Ayoreo are at the top of the food chain, the small size of groups guarantees their self-sustainability and the least disturbance for other species. As hunter-gatherers, the Ayoreo fulfil crucial functions for the forest. Food taboos and dependency on available plants, animals and seeds enable an ecologically balanced use of resources. One of their main food sources is the Chaco tortoise: Ayoreo seek for tortoises of around 19 years old but leave the young and elder tortoises unharmed, assuring the vitality of the population.

COMMUNICATION WITHOUT CONTACT

One of the most fascinating aspects of this project is the communication between contacted and uncontacted Ayoreo. Communicating with an isolated population is paradoxically not the easiest task to perform. The team developed a communication system capable of avoiding any type of contact with the uncontacted relatives. Looking for marks left on trees or on the ground, listening to shouts and assessing the degree of land management are some of the messages interpreted by the contacted relatives. This complex communication system enables the interpretation of the desire of uncontacted Ayoreo, which – as for now – is to live in isolation.

The contacted Ayoreo living in communities empathise with this decision. These people, who a few decades ago were forced out of the forest by missionaries and currently live in shantytowns, value the preservation of the traditional lifestyle.

The elder Ayoreo of these communities are the last survivors who had the possibility to live part of their lives in the forest. They are now the most eager advocates and educators transmitting the values, knowledge and Ayoreo language to the new generations.

"Ayoreo are equally important as all other species living in this territory. These humans, as the flora and fauna of the Chaco, are threatened by the rapid land conversion of their habitat into pastures."
Miguel Lovera – Initiativa Amotocodie

Chaco, indigenous territory - credit: Initiativa Amotocodie

The team developed a communication system capable of avoiding any type of contact with the uncontacted relatives.

Working with communities: **Sustainable alternatives help protect the Critically Endangered cotton-top tamarin in Colombia**

NGO:	Fundación Proyecto Tití
Location:	Colombia
Hectares acquired:	70 ha
Year of support:	2015
Amount of support:	US$ 92,900
Main threats:	Habitat loss and fragmentation
Focal species:	Cotton-top Tamarin *(Saguinus Oedipus)* (CR)
Website:	https://www.proyectotiti.com/en-us/

Fundación Proyecto Tití - credit: Mia Kennel

The cotton-top tamarin, a squirrel sized monkey that occurs only in the tropical forests of northern Colombia, is one of the most endangered primate species in the world. Our local partner NGO Fundación Proyecto Tití works with local communities and partners to protect the cotton-top tamarin and its habitat.

The cotton-top tamarin is Critically Endangered, mostly because of deforestation of its natural habitat, poaching and wildlife trafficking for the illegal pet trade. Habitat fragmentation is one of the major issues for the conservation of the cotton-top tamarin.

SUSTAINABLE INCOME ALTERNATIVES

The most important remaining forest fragments are isolated and surrounded by communities and economic activities such as farming and cattle ranching. Families in the surrounding rural communities live in poverty and depend on the forests to sustain their livelihoods. Our local partner Fundación Proyecto Tití started including local communities in their conservation plan which enabled them to develop an alternative sustainable income.

In 1985, Dr. Anne Savage founded the Proyecto Tití, a local initiative establishing field research and community projects around knowledge gathering and conservation of the cotton-top tamarin. Since 2004, the Proyecto Tití has been managed by the Colombian NGO Fundación Proyecto Tití, which works with local communities and partners to protect the cotton-top tamarin and its habitat. The organisation has a leading role in protecting and restoring the forest habitat, conducting field research, engaging in public education and youth leadership and creating community empowerment programs.

One of the initiatives is the arts and crafts project. Through the creation and sale of eco-bags made from recycled plastic bags, the organisation aimed at empowering women and creating a sufficient income for their families.

HANDCRAFTED TOYS

Additionally, as part of the awareness campaign against the illegal wildlife trade and the domestication of the tamarins, the artisan women handcraft small cotton-top tamarin soft toys, so that kids can play with these toys instead of desiring exotic pets to play with. These initiatives created an outstanding result: women achieved financial stability for their families and they developed confidence about themselves and their skills.

NEW ALTERNATIVES NEEDED

However, as the organisation evaluated the impact of its community programs over time, the team realised that market shifts for arts and crafts were affecting the ability to get more artisans involved in the eco-bags

> Women achieved financial stability for their families and they developed self-confidence.

and soft toys projects. Therefore, new alternatives were needed. This came with a further realisation: the importance of also targeting men in these community programs, as they were key figures engaging with extractive activities in the forest, which continued to be an issue in the area.

In 2015, the Land Acquisition Fund supported Fundación Proyecto Titi in the acquisition of an important 70 ha forest fragment for the conservation of the cotton-top tamarins, an area surrounded by small farmers' lands. This led to a further idea: engaging with male farmers in the production of sustainable products.

COMBINING FOREST CONSERVATION WITH SUSTAINABLE FARMING

This strategy allows for the combination of forest conservation with sustainable farming, thereby ensuring farmers' income. Since food products are items of first need and farmers already have their own networks, this initiative has gained great success. Fundación Proyecto Titi has been able to encourage 90 percent of the local farmers to participate in this initiative and comply with a conservation agreement for sustainable forest use and environmentally friendly practices.

Apart from building trust between farmers and the organisation, this agreement has taught people that their collaboration is not only about income and conservation: it is about creating strong values and vision to build a harmonious community.

"Buying land is something tangible, but this is different with community's actions. Social change cannot be measured, only evaluated. It needs a continuous process of reinventing and redesigning."

Rosamira Guillen - Fundación Proyecto Titi

Working with communities: **From ecological to social connectivity in Colombia**

NGO:	Corporación Serraniagua
Location:	Colombia
Hectares acquired:	470 ha
Year of support:	2008
Amount of support:	US$ 92,860
Main threats:	Habitat fragmentation, illegal hunting
Focal Species:	Spectacled bear *(Tremarctos ornatus)* (VU), Munchique wood wren *(Henicorhina negreti)* (CR), Chocó stubfoot toad *(Atelopus chocoensis)* (CR)
Website:	https://www.serraniagua.org/reserva-natural-cerro-el-ingles

Credit: Corporación Serraniagua

Connectivity is not only a concept to be found in environmental conservation. When ecological connectivity is integrated with social, cultural and economic connectivity, new models of community-based conservation take shape. Our local partner NGO Corporación Serraniagua pulled off an inclusive conservation strategy to protect the Chocó biogeographic region, one of Colombia's most biodiverse yet poorest regions.

Multiple threats affect the Chocó biogeographic region, principally land mining and illegal cultivations, both causing extensive deforestation. In the absence of any official patrolling and monitoring schemes, Corporación Serraniagua was able to promote community participation initiatives to control and prevent these activities in the area.

In 1996, Corporación Serraniagua started a collaboration between leaders of the rural communities and micro-basins in the Serranía de los Paraguas to discuss local problems while planning and implementing various initiatives to foster sustainable development of the area.

CONNECTIVITY STRATEGY

Since its conception, the organisation has used a connectivity strategy to strengthen the ecological corridor which runs through community protected areas, private lands, surrounding municipalities and areas protected within the Tatamá National Park.

The improved connectivity enhances the protection and sightings of a vast number of endangered species, among which spectacled bears and over 300 bird species, such as the black-and-chestnut eagle *(Spizaetus isidori)*.

SUSTAINABLE PRODUCTION NETWORKS

This connectivity also promotes sustainable production networks, thereby combining the respect for local culture with conservation practices.

About 200 families are directly involved in this community-based conservation program, ranging from landowners protecting the reserves, the network of women farmers, organic cacao and coffee producers and people engaged in the cultural valorisation of the Serranía de los Paraguas.

In addition, Corporación Serraniagua reaches out to people through educational videos broadcast on local radio and TV channels, educational and research programs in schools and universities, and involves families in ecotourism initiatives. This way, thousands of people with the most diverse professional backgrounds are involved in shaping this community program through a sustainable economic scheme allowing diversity to flourish in all its dimensions.

Thousands of people with the most diverse professional backgrounds are involved in shaping this community program.

SOLIDARITY FUND

Corporación Serraniagua has also established a Solidarity Productive Fund (Fondo Productivo Solidario), a microcredit mechanism created under the principles of solidarity economy. The fund can be accessed by those who need a helping hand to improve their livelihoods, e.g., by purchasing tools or starting rural businesses. The fund provides equal opportunities for all community members while simultaneously making sure that all resources are used to produce a positive environmental and social impact within the community.

SUSTAINABLE RURAL DEVELOPMENT PLAN

Corporación Serraniagua has also had an impact at the level of local governance by offering technical support and strengthening community participation in drafting sustainable rural development plans for the region. This process requires continuous awareness raising on the importance of communities being endorsed as guardians and protectors of their lands.

ENVIRONMENTAL LEADERSHIP

After more than two decades of community-based conservation, the organisation has successfully built a strong collaboration between scientists, local farmers and producers, and the local and national governments. Building on a multi-stakeholder model able to offer equitable territorial planning for all its inhabitants, the organisation has also turned into a remarkable example of environmental leadership in Colombia.

"The key is having people to understand and share the purpose of conservation, which is much larger and inclusive than just environmental conservation."
César A. Franco Laverde - Corporación Serraniagua

Corporación Serraniagua has turned into a remarkable example of environmental leadership in Colombia.

2.3 RECONCILING COMMUNITIES AND NATURE

Increased human population pressure and incursion into forested areas, often leads to human-wildlife conflicts. On one side, human livelihoods depend on the extraction and exploitation of resources present on the lands they inhabit. On the other side, numerous endangered species have difficulties to safely move around their habitat and to find shelter and food due to the fragmentation and degradation of their shrinking habitat. Based on the nature and degree of the conflict, a range of solutions have been designed and implemented by our local partner organisations to mitigate these situations.

Depending on the context, one of the strategies employed to contain, or even resolve human-wildlife conflicts is tailoring long-term programs to stimulate indigenous peoples and local communities (IPLCs) – and especially immigrant settlers – to change their perception and behaviour towards wildlife present in their region. Through the revival of traditional systems and institutions, adapted to modern challenges, it is possible to motivate people to set part of their land aside for conservation. Another strategy consists of negotiating voluntary resettlement of a community.

Voluntary resettlement is often perceived as a controversial measure by external observers. However, the cases presented by our partner organisations provide a multi-faceted overview of how voluntary resettlement can lead to unique win-win solutions which succeed to address the problem of population pressure.

Key to achieving advantageous outcomes for all involved parties is reaching genuine understanding of the local socio-cultural-historical, ontological and environmental contexts. Before proposing voluntary resettlement as the most suitable strategy, it is essential to embrace a patient, inclusive and respectful engagement, free prior informed consent (FPIC) and fair negotiations with IPLCs and other parties like recent immigrant settlers.

Credit: Edhkwehlynawd Botanical Refuge Centre Trust (EBR)

Reconciling communities and nature: **Voluntary land exchange in Madagascar benefits both farmers and biodiversity**

NGO:	Missouri Botanical Garden (MBG), Madagascar Research and Conservation Program
Location:	Madagascar
Hectares acquired:	85 ha
Year of support:	2013 – 2019
Amount of support:	US$ 150,700
Main threats:	Habitat loss and fragmentation
Focal species:	White-collared Lemur *(Eulemur cinereiceps)* (CR), Dypsis elegans *(Dypsis elegans)* (CR), Dypsis singularis *(Dypsis singularis)* (CR)
Website:	www.missouribotanicalgarden.org

Credit: Missouri Botanical Garden

In 2003 the Government of Madagascar decided to triple the country's protected area network in order to conserve some of the most biodiverse zones. However, the implementation to conflict with existing land users. In the Ankarabolava-Agnakatrika Forest reserve, our local partner Missouri Botanical Gardens initiated a bottom-up land exchange process involving local farmers living within the newly established protected area, traditional village chiefs and administrative authorities.

Known as one of the most biodiverse corners of our planet, Madagascar distinguishes itself from mainland Africa through its peculiar species of flora and fauna. The 2003 governmental decision to triple the country's protected area network in order to conserve some of the most biodiverse zones was beneficial for the protection of biological diversity, but implementation encountered various difficulties, especially conflict with existing land users.

LAST INTACT NATURAL FOREST

One of the newly designated protected areas is the Ankarabolava-Agnakatrika Forest, a reserve located in the south-eastern part of Madagascar and considered to be the last intact natural forest in the Vangaindrano district.

The reserve is known for its high plant endemism and diversity. It's a haven to hundreds of plant species, some of which are still in the process of being named scientifically for the first time. The forest also provides habitat for threatened animal species, most notably for the Critically Endangered white-collared brown lemur.

COMMUNITY-BASED CONSERVATION

Our local partner Missouri Botanical Gardens (MBG) has been in charge of surveying and identifying key endemic plant species in need for conservation across Madagascar. Due to the biological importance of the Ankarabolava-Agnakatrika Forest, MBG has supported community-based conservation of the reserve since 2009.

ACCOMMODATING THE NEEDS OF FARMERS

In the case of Ankarabolava-Agnakatrika, human presence at the interior of the protected area constituted a real threat to the integrity of biodiversity due to habitat loss by forest clearance. Therefore, one of the most crucial aspects of for MBG has been accommodating the needs of 80 farmers who cultivated plots within the newly established protected area whilst at the same conserving the forest.

One of the most crucial aspects of for MBG has been accommodating the needs of 80 farmers who cultivated plots within the newly established protected area.

DWINDLING FERTILITY

While these farmers were ethically and legally entitled to continue farming these plots since they were present in the forest prior to its designation as a new protected area, extension of agriculture into the adjacent forest in response to the declining fertility of the soil was forbidden. Thus, in a sense, the farmers had become trapped within the forest, on lands with dwindling fertility.

In an effort to seek an alternative to the conflict which arose between farmers and conservation managers of Ankarabolava-Agnakatrika, MGB worked with local stakeholders to conceive a win-win solution for all parties.

LEGAL OWNER OF MORE PRODUCTIVE LAND

The project that emerged from this process proposed that farmers within the forest would be offered the opportunity to exchange their plots for more productive land outside of the proposed reserve, therefore becoming the legal owners of those lands. The abandoned land within the forest would be classified as part of the new protected area and allowed to naturally regenerate.

OPPORTUNITY TO CHOOSE

In 2013, with the assignation of a grant by the IUCN NL Land Acquisition Fund, MBG initiated the land exchange project, a bottom-up process involving local farmers living within the newly established protected area, traditional village chiefs and administrative authorities. In this process, farmers had the opportunity to choose between staying in their ancestral lands or, as an alternative, to voluntarily cede these plots for titled land of equivalent value outside the project area.

FIVE STAGE PROCESS

The land exchange process was performed in five stages: the identification and location of farmers; the consultation and information process; the evaluation of specific plots using transparent and standardised protocols; the identification by the farmer of the land they would like to purchase using the compensation; the signature of the exchange agreement and purchase of the alternative land ensuring correct ownership documentation.

SENSITIVE TOPIC

One of the main challenges was the difficulty in communicating the idea of land exchange to the stakeholders. While MBG's site-based staff pride themselves on enjoying a reasonable level of trust among the local community, land ownership and acquisition is a sensitive topic in Madagascar, and farmers started to question the real intentions of the project and whether the promised alternative land would be forthcoming. Loss of land means loss of livelihoods and status for rural people who may also have a strong association with their plots.

The issue was also complicated since document-based land ownership is rare in rural Madagascar. However, as more land becomes commercially privatised, traditional ownership norms have often placed rural people on the losing end of legal disputes.

Credit: Missouri Botanical Garden

> "This was the first such project in the conservation history of Madagascar."

TAILORED COMMUNICATION STRATEGY

With almost all farmers being illiterate, one of the most challenging but crucial components of this project was using a tailored communication strategy for each stakeholder. This challenge was tackled by a one-year communication campaign explaining the main goals of the project though radio broadcasting, door-to-door visits and community meetings.

When the first 6 farmers relocated to the newly purchased lands, other farmers understood the sincerity and good intentions of MBG. This generated a snowball effect: a total of 63 farmers were voluntarily relocated, and 85 hectares of land have been abandoned and are now fully employed for the conservation of local endangered species.

RECOGNISED DOCUMENTATION

Many farmers decided to move in order to become legitimate land owners with documentation recognised by the local administrative authorities.

Although relocations ended in 2019, MBG remains an active partner with the farmers included in this project. The organisation continues to support the farmers by providing them with seedlings of fruit and spice plants to enhance the value of the newly acquired land.

SOCIAL CHANGE

From 2023 onwards, the relocated farmers will take their first harvests from their new plots. For now, MBG has not only contributed to a conservation project unique in its kind, but has also caused social change among local farmers who now recognise the value of written documents.

"Traditionally, Malagasy are much attached to their land because that is their heritage."
Jeannie Raharimampionona – Missouri Botanical Garden

Reconciling communities and nature: **Voluntary relocation benefits both people and elephants in rural India**

NGO:	Wildlife Trust of India
Location:	India
Hectares acquired:	6 ha
Year of support:	2006 - 2007
Amount of support:	US$ 94,300
Main threats:	Habitat loss and fragmentation
Focal species:	Asian elephant *(Elephas maximus)* (EN)
Website:	https://www.wti.org.in/

Wildlife Trust of India - credit: Pranav Capila

Protecting keystone species is one of the most common strategies adopted in conservation. By conserving the habitat of keystone species, protection of a whole range of different species of flora and fauna is equally ensured. This was the case in India, where our local partner Wildlife Trust of India (WTI) secured an elephant corridor.

The Wildlife Trust of India (WTI) identified the ecological need to unify two key areas for elephants through the securement of a connecting corridor: the Thirunelli-Kudrakote elephant corridor. In 2006, the IUCN NL Land Acquisition Fund enabled the organisation to purchase 10 hectares of land to restore elephants' connectivity. Once established, the corridor was accorded legal protection as part of the wider Wayanad Wildlife Sanctuary and Wayanad North Forest Division, an area inserted in an extensive protected area network in the state of Kerala.

HUMAN ELEPHANT CONFLICT

To reach this extraordinary result, WTI had to deal with both ecological and social problem-solving. The Thirunelli-Kudrakote corridor encompassed seven villages, of which four were strategically located at points that reduced the effective width of the corridor considerably, impeding elephant movement.

Human elephant conflict emerged as a major concern for the villagers. While days were spent on agricultural activities, at night they had to guard their crops. One idea that emerged to mitigate this was voluntary relocation of the inhabitants of four villages to another location outside the corridor.

COMMUNITY MOBILISATION

Relocation is a sensitive issue in India, especially in rural areas. Furthermore, the villagers belonged to a tribal community that was equipped with extensive legal rights ensuring the safeguard of their vulnerable livelihoods. Vast apprehension arose when the villagers were first exposed to this relocation project. However, the concerns were gradually flagged by a transparent process led by local WTI staff who, step by step, successfully mobilised the community.

The project was unique in its scale as the relocation was entirely voluntary in nature and gave the relocated families the choice of determining the desired benefits to accrue from the relocation offer.

NEED ASSESSMENT

After the identification of the corridor, four steps led to the creation of the elephant corridor. First, WTI allocated time to understand the landscape, including the socio-economic context of the communities. Once the background context was clear, WTI approached the community through local WTI staff and started to cooperate with locals to develop a need assessment to understand the needs, wishes and concerns of the community.

Negotiations with the families of each village took

> Most villagers showed a strong emotional drive in ensuring a better life for the forest animals and themselves.

place in parallel. Once a sufficient level of interest was established, WTI moved onto implementation planning with the collaboration of local authorities and communities.

TIME TO CREATE A SOLID BOND OF TRUST

The relocation of the four villages was a 7-year process: a slow and steady path which enabled the creation of a solid bond of trust and collaboration between villagers and WTI. A total of 32 families were relocated and five more families were provided with land benefits. The outcomes of the relocation from a remote region to a more accessible location showed a significant impact on the families as access to state services and market facilities was made easier.

"The strong respect that these communities have towards nature was one of the factors motivating them to resettle."
Upasana Ganguly – Wildlife Trust of India

BETTER LIVELIHOOD OPPORTUNITIES

The relocation package was designed in consultation with the beneficiary families and was transparent throughout the process. The families were provided with land for housing in an area not far from the forest with the added benefit of access to facilities like schools, healthcare systems, transport links, and better livelihood opportunities.

Each family was provided with an equal area of dry land for housing and wet land for agricultural activities, as well as a house with a toilet, common wells, access to a road, primary school, community hall, electricity and solar power fence at the relocation site. Care was taken to ensure that the agricultural land provided to the villagers had good irrigation facilities.

VILLAGE BY VILLAGE

The relocation happened village by village, each of which was a case by itself based on existing differences among villages. The first and the fourth villages required longer negotiations and understanding of mutual interests. For the first village, no previous tangible example could illustrate potential benefits or disadvantages of relocation; while the people of the fourth village lived deep into the forest and had a different lifestyle from the other villages.

STRONG EMOTIONAL DRIVE

In contrast, the negotiation with the other two villages was faster as they could see how their neighbours living conditions had been improved by the new relocation site. Alongside with their wish to improve their livelihood, villagers understood the necessity of protecting an elephant corridor and most villagers showed a strong emotional drive in ensuring a better life for the forest animals and themselves.

LARGER PROTECTED AREA NETWORK

In 2017, once the elephant corridor was established, this land was handed over to the Kerala Forest Department to enable its inclusion in a larger protected area network. Data on the corridor's use have shown a consistent utilisation of this area not only by elephants, but also by tigers, gaurs, spotted deer, and leopards.

One of the aspects that this project highlights is that people, when taught to value and respect nature, will keep caring for the environment where they coexisted. Giving space for nature to take over is sometimes the best compromise that humans, animals and plants can agree upon to ensure mutual wellbeing and a win-win scenario for both local communities and local NGOs.

Asian elephant - credit: Shajan MA/WTI

Reconciling communities and nature:
Year-round access to water thanks to watershed protection in Tanzania

NGO:	Tanzania Forest Conservation Group
Location:	Tanzania
Hectares acquired:	96 ha
Year of support:	2012
Amount of support:	US$ 94,300
Main threats:	Habitat loss and fragmentation
Website:	http://www.tfcg.org/

Credit: Tanzania Forest Conservation Group

As the forests of the East Usambara Mountains in north-east Tanzania become ever more fragmented, water availability is at risk. In exchange for year-round access to water, communities were willing to relocate, allowing the Tanzania Forest Conservation Group (TFCG) to create a 96.89-hectares ecological area in one of the key biodiversity areas in Tanzania in 2012.

The area is part of the Eastern Afromontane Biodiversity Hotspot and records a high number of endemic species, which has also made it a proposed World Heritage Site. However, the forests of East Usambara are also notably known for their high degree of land fragmentation.

Since the region has a high population density, most of the land has been converted into agricultural crops for cardamom, cinnamon, cloves, maize, beans, bananas and sugar cane. Due to the large human population and agricultural activity, a persistent issue has been water availability.

Due to the increasing human population across the world, preventing the emergence of conflicts over natural resources is crucial to guaranteeing the success of conservation efforts in the challenging decades ahead. In 2012, the Tanzania Forest Conservation Group (TFCG) successfully created the Misalai corridor, a 96.89-hectares ecological area in one of the key biodiversity areas in Tanzania establishing a tangible and essential incentive for the mutually advantageous partnership between the local community and TFCG.

IMPORTANT WATERSHED

Water is what triggered the negotiation for an extraordinary win-win solution for TFCG and the local community living in the Misalai corridor. This corridor connects the Nilo Nature Reserve and Derema Forest Reserve, which together form a watershed providing water to thousands of people living downstream.

CONFLICTS OVER WATER

Due to the impact of deforestation and climate change in the watershed area, dry seasons have become more intense, causing droughts and water conflicts in the region. As farmers upstream use the limited water sources, the farmers downstream have no access to water for personal use or for irrigation of their crops.

In addition to protecting the watershed, the corridor would broadly contribute to biodiversity conservation and ecological functioning of the fragmented East Usambara forests. Therefore, these tensions were mitigated by efforts of TFCG by implementing actions which would accelerate recovery of the forest structure, ecological functioning and biodiversity levels towards those typical of climax forest in a long run.

The corridor now guarantees water availability for the communities throughout the year implying promising progress in restoring forest cover.

ADVANTAGEOUS TRADE-OFFS

In order to protect this key area from any disturbance, TFCG – in collaboration with the local government – found that the best solution was compensating the farmers for moving to another plot of land, where they could cultivate their crops.

Relocation of people is often seen as a problematic approach, but it can result in a solution that creates advantageous trade-offs for all involved partners. By understanding the pressing need for water at the community-level and communicating how the conservation project would have contributed to restore the watershed on the short and long terms, TFCG – an already active partner in the area – succeeded in gaining the support of the community.

"Conservation is on the losing side, if the needs of a growing population are not discussed right away."
Charles Meshack - Tanzania Forest Conservation Group

YEAR-ROUND ACCESS TO WATER

The local community embraced this opportunity and agreed on keeping their land titles while delegating TFCG to protect the forests, with the promise that this trade-off would provide them with clean water downstream to their new farms. The communities have expressed their content in having year-round access to water and in shifting to lands which are easier to cultivate than the steep and rocky surface of the Misalai corridor.

Credit: Tanzania Forest Conservation Group

CO-MANAGEMENT OF RESERVES WITH INDIGENOUS COMMUNITIES

The realisation that 60 percent of the world's intact biodiversity lays within indigenous populations' territory, led conservationists and indigenous communities to seek sustainable forms of engagement. Establishing co-management mechanisms for sites which have an ecological and cultural significance, both for indigenous communities and conservationists, is one of the ways towards which the future of biodiversity conservation is evolving. However, since many conservation NGOs do not have indigenous representatives within their team, some of the partners of the IUCN NL Land Acquisition Fund stress how crucial it is to team up with organisations working on the self-determination of indigenous people.

Currently, movements for the representation of indigenous people are becoming stronger, especially in Latin America, where these communities advocate for recognition and protection at a national level to ensure their future. Safeguarding the well-being of indigenous communities and their living space triggers a call for inclusion of indigenous people and their institutions in the conservation structures.

INDIGENOUS NATIONS AND REDD+ IN PARAGUAY

Some projects that were supported under the Land Acquisition program developed into successful REDD+ projects in which communities and biodiversity benefitted mutually. The REDD+ project of the NGO Guyra Paraguay is a unique example with the creation of "Tobich" Heritage Reserve. Since its creation in 2010, Tobich has been the only REDD+ project of its kind in Paraguay. This reserve is a key place supporting the continuation of wisdom and livelihoods of the Yshir People, one of the 19 indigenous nations living across the Paraguayan territory.

Tobich, which in the Yshir language means 'cultural meeting place', plays also another function: supporting the unique biodiversity of the Pantanal-Chaco ecoregion. By developing an alliance between the Union of Indigenous Communities of the Yshir Nation (UCINY) and Guyra Paraguay, the two parties were able to secure the land for the Yshir communities by jointly drafting a management plan including the perspectives and knowledge systems of both groups.

CO2 compensation mechanisms

The establishment of the Tobich reserve was made possible through the development of the World Land Trust (WLT)-facilitated Paraguay Forest Conservation REDD+ project for the area. Using the REDD+ framework, Guyra Paraguay developed a CO_2 compensation mechanism for the protection of forests and livelihoods of the Yshir communities living within the Tobich reserve.

REDD+ was developed under the United Nations Framework Convention on Climate Change where it was designed to create incentives for reducing tropical deforestation and degradation. The idea is that payments for protection are generated through the sale of credits for avoided CO_2 emissions from deforestation and forest degradation.

Equal responsibility

The revenues gathered by the carbon sequestration activities were partially used to purchase the land; this was a milestone feeding into the creation of a newly proposed management category: the Socio-Environmental Condominium. Within this management system, Guyra shared equal responsibility with the Yshir people for the land: this responsibility cannot be split but is equally shared between both parties. In Paraguay, Guyra is working with other unions of indigenous communities to implement the Socio-Environmental Condominium, a management modality that has the potential to be adopted in a wider range of countries.

- Granular Glass Frog - credit: Michael Roy
- Seven-lined ameiva - credit: TMA
- Green vine snake - credit: TMA
- Southern Muriqui - credit: Camilla Koch / Institute Pró-Muriqui

- Brown-headed spider monkey - credit: Michaël Moens
- Cotton-top tamarin - credit: Hoffner
- Masked Tree Frog - credit: Johann Chretien
- Katydid - credit: Luis Mazariegos

- Buff-fronted Owl - credit: Associação Caatinga
- Trevoria orchid - credit: Ecominga
- Whooping motmot - credit: TMA
- Varied White-fronted Capuchin - credit: Freddy Gomez

MEET THE INSPIRING PEOPLE MAKING NATURE CONSERVATION WORK

Lou Jost

Lou Jost is director of EcoMinga, an Ecuadorian NGO dedicated to the conservation of the unique foothill forests, cloud forests, and alpine grasslands of the Andes.

Lou Jost is a mathematician and physicist by training and a conservationist by nature. In 2005 he was one of the founders of the local NGO EcoMinga and has dedicated himself fully to the discovery and protection of Ecuador's rare and unique hotspots of endemism.

Endemism in Ecuador occurs at such narrow and fine geographical ranges that it is often overlooked by the existing network of national protected areas. Lou and his team are specialised in identifying new local endemic hotspots and protecting them by acquiring the lands and adding them to their network of privately protected reserves.

Lou: "When we discover an area with high endemism that is not protected through the national system of protected areas, we look for funds to buy these special areas. It's very exciting and very fulfilling because we are not only discovering things, but we are protecting the things that we discover: it is a satisfying combination of science and conservation."

SPECIES NEW TO SCIENCE

EcoMinga currently manages 8000 hectares of privately protected areas consisting of 12 different reserves. The Rio Zuñac Reserve is part of the Rio Pastaza watershed located between Puyo and Baños. This region has turned out to be one of Ecuador's most diverse and under-appreciated biological hotspots. Lou and his colleagues frequently go on field expeditions and have encountered many species of plants and animals that are new to science. Lou specialises in orchids, and, over the years, he has discovered and described more than 50 new orchid species, reflecting his personal commitment and expertise.

Lou: “Most of the orchids are very tiny, many of the flowers are smaller than a fingernail, so you have to look very closely at the moss covering the trees. It’s complicated, but it’s very exciting.”

Discovering a new species is not an easy task, it requires a very intimate understanding of the bio-geography of the area where you are working. In fact, Baños has been a famous destination for many biologists, botanists and collectors that came to discover new species. Still, they did not discover any of the species described by Lou and his team, most likely because they weren’t looking in the right place. Additionally, field expeditions are difficult, especially in Baños, where the local weather conditions are optimal for abundant and consistent precipitation.

Lou: “You have to see through the common stuff to see the rare species that no one else is seeing.”

ZERO-IMPACT STATION

The Rio Zuñac Reserve now has a research station that was constructed without cutting any standing trees. Lou and his team build this zero-impact station by using driftwood and fallen trees which were cut manually on site.

Prior to the existence of this station, the remote parts of the reserve were only accessible after days of rugged camping in uncomfortable conditions. The research station and accompanying trail network opened up the remote interior for biological exploration, and lately, the station has been receiving an unexpected guest: a spectacled bear has discovered the research station and made it his favourite foraging sight.

Lou: “We have to bury our food in metal pots and then put heavy boards over the hole, so that, when we are away, the bear doesn’t come and eat our food. It causes us problems. It’s a nice story, we kind of like the bear but I do encourage our guards to chase it away when it comes.”

> “We are protecting the things that we discover: it is a satisfying combination of science and conservation.”

MEET THE INSPIRING PEOPLE MAKING NATURE CONSERVATION WORK

Luis Soto

Luis Soto is head field biologist at Fundación Proyecto Titi, a Colombian NGO which researches and protects the critically endangered cotton-top tamarin and its habitat.

Luis Soto (known as 'Soto' – 'Sotico' – 'Sotelo' by his colleagues) is the person who Rosamira Guillen (Executive Director of Fundación Proyecto Titi) refers to as the most appreciated colleague in the organisation for his life-long commitment to the study and conservation of the critically endangered cotton-top tamarins ('titis' in Spanish).

During his childhood, Luis used to play in his grandmother's backyard, observing ants and other small animals. It was during his elementary education, when he discovered a love for biology and spent many hours drawing animals and plants in his notebook.

Luis: "At the end of the year, the teacher kept my notebook because he loved all the drawings I made during the year!"

When Luis graduated in biology from the National University of Colombia, a friend contacted him about an open vacancy for a biologist studying cotton-top tamarins in the tropical forest of the Colombian Caribbean. Despite not being familiar with the tamarins, he accepted the offer and started his life-long career working with the titis.

TRAINING THE NEW GENERATION

In 1991, Soto started working with Fundación Proyecto Titi studying the cotton-top tamarins in their natural habitat. Luis is now a key figure in the organisation as he has trained the new generations of conservationists in the team.

His work contributed towards filling in a vast knowledge gap on this Critically Endangered species which was first commenced by the US biologist Dr. Anne Savage in the mid eighties.

Luis: "Something we discovered is that the titís play an important function for the forest: titís keep rejuvenating the forest by eating and dispersing the seeds of over 80 different types of fruits. The tití is a champion in the dispersion of seeds!"

INCREASED AWARENESS THROUGH CHILDREN

Despite the effort of Soto and his team in conserving the titís and educating the local communities about the great value of these tamarins, this iconic species is constantly threatened by loss of habitat, hunting and pet trade. Soto is fully engaged in educating children and youth on the importance of respecting and preserving nature. Children are extremely perceptive and emotionally engaged in loving nature if made aware of these feelings. Soto explains that children have the possibility to learn about what practices are harmful to the ecosystem and this leads to a general increase of awareness also in their families.

Luis: "The community has a direct impact on the health status of the forest. This is a big challenge. We can give people all the education in this world about why it is not good to hunt wildlife or cut down trees, but if people are hungry and they do not have the resources to get food, even the most educated person will give in to their survival instinct."

FACILITATING STABLE INCOMES

Soto highlights how education is crucial but not sufficient. For this reason, the team has actively looked for solutions on how to facilitate stable incomes for the community, as well as establishing long-lasting relations of trust that ensure the respect and protection for the forest and its animals.

After more than 30 years observing the cotton-top tamarins, Luis admits that every year he still looks forward the end of the rainy season: "During the rainy season, the forest is rich with food. This is the period in which titís have their babies. With all these available fruits, the titís feed themselves a lot, they grow and have loads of energy in their body. This is also the mating season. Six months later, the baby titis are born. Looking at these baby titís, reminds me of us humans when we are kids. They play with each other, pull their hair, play hide-and-seek, bite and push each other. Parents keep scolding them to instruct them on what not to do, but of course they do not always listen to them!"

"If people are hungry and they do not have the resources to get food, even the most educated person will give in to the survival instinct."

CHAPTER 3 TRENDS IN THREATS

The global conservation community has demonstrated a strong commitment to tackling biodiversity loss by focusing on some of the major threats, such as habitat loss, over-exploitation, illegal wildlife trade and climate change. While these drivers have a direct impact on the status of species, the interaction among a wider spectrum of direct and indirect threats augments the risk of species decline or even extinction. Growing pressure from market forces, infrastructure development and population growth, mixed with local drivers, shape different combinations of threats, making the driving forces behind biodiversity loss rather dynamic.

COMPLEX COMBINATION OF FACTORS

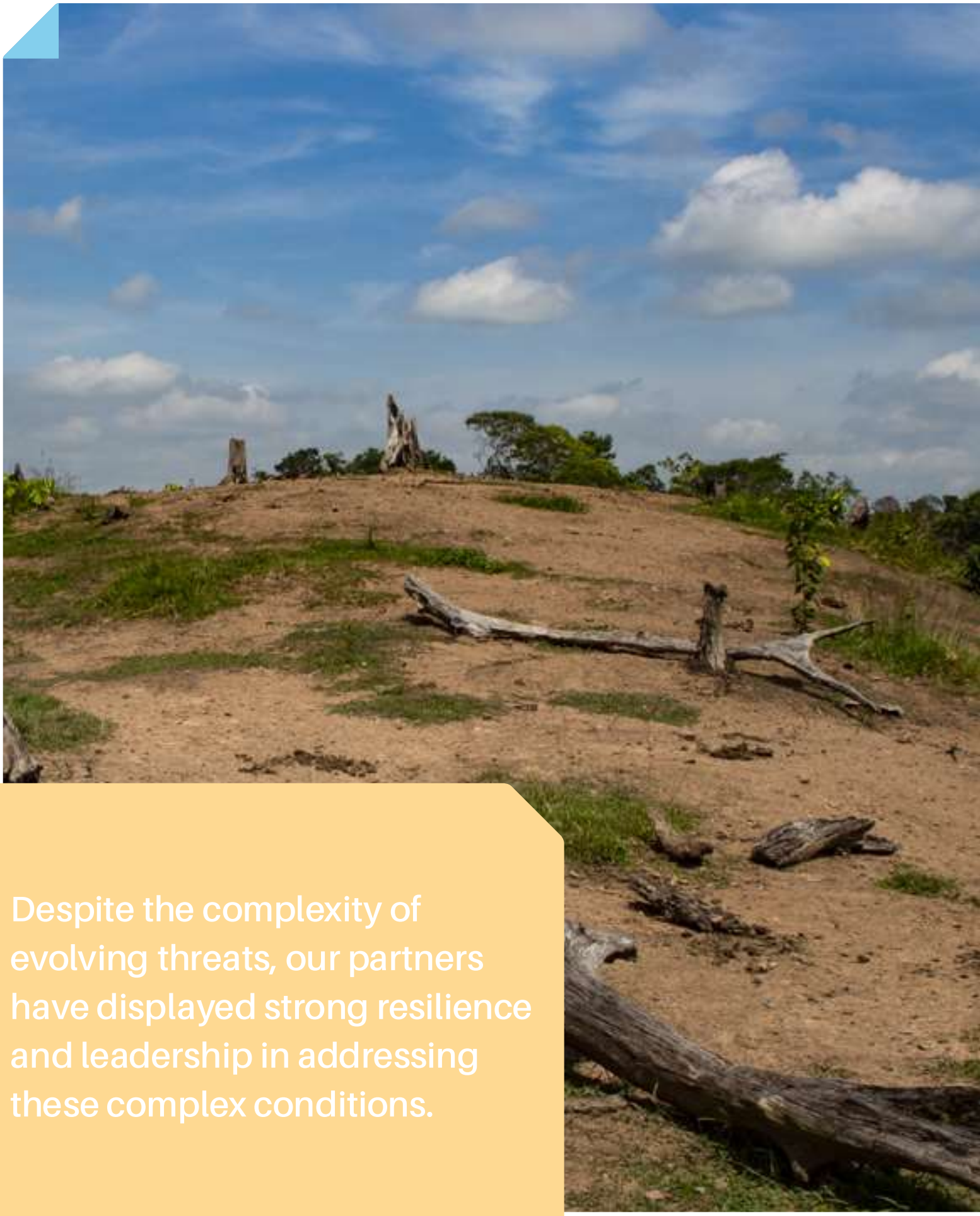
The combination of multiple factors adds complexity and forces conservationists to deal with the wider ecological, social, political and economic issues that threaten the survival of nature. Political instability, economic crises, intensive farming and natural hazards are circumstances to which some of the partner organisations of the Land Acquisition Fund have to address and adjust to. These factors are not driving forces of biodiversity loss in themselves, but they tend to merge with other factors and amplify the impact.

The lack of capacity or unwillingness of some governmental and institutional entities to enact and enforce legislation for nature conservation has direct and indirect consequences in reinforcing poverty and inequality. In turn, these mechanisms inevitably feed into quality of life, while making nature conservation fall down the list of national priorities. The ongoing COVID-19 pandemic is a concrete example, where reduced government priority in enforcement of laws aimed at conservation gives free way to illegal activities, resulting in the current spike in poaching and deforestation.

STRONG RESILIENCE

Despite the complexity of evolving threats, our partners have displayed strong resilience and leadership in addressing these complex conditions. Seeking new allies, developing preparedness schemes and altering the way of working or of strategising are some of the measures described in this chapter that illustrate how our local partners address new and old threats encountered in their conservation work.

This chapter presents three case studies addressing the topic of fires, an increasingly destructive threat to many reserves, and three further case studies sharing the stories of partner NGOs who have successfully dealt with a multitude of interlinked economic, institutional and political threats.



Despite the complexity of evolving threats, our partners have displayed strong resilience and leadership in addressing these complex conditions.

Deforestation and erosion - credit: Catalina Giraldo

3.1 FIRE RISK AND MANAGEMENT

The increased intensity and frequency of occurring fires is unlikely to have gone unnoticed. During the second half of 2019, Australia experienced perhaps the most intense forest fires the country had ever witnessed. Simultaneously, the headings of newspaper articles stated “the Amazon is burning”.

Climate change is only one of the driving forces behind the rise of fires. Numerous other factors enhance the risk of fires: inadequate prevention and enforcement measures, unregulated land clearance for farming and human-induced wildfires.

Therefore, fires are not exclusively induced by climate change, but emerge from a variety of political, social and cultural factors. For conservationists, it is of utmost importance to integrate fire management into the management plan of privately protected areas.

The stories from our partners in Armenia, Brazil and Mexico illustrate how fires can seriously jeopardise the conservation achievements matured over years of hard work. The incorporation of fire preventive measures is a fundamental step in increasing landscape sustainability.

Fire - credit: Foundation for the Preservation of Wildlife & Cultural Assets

Fire risk and management: **Mitigating fires in the Sierra Gorda Biosphere Reserve in Mexico**

NGO:	Grupo Ecológico Sierra Gorda
Location:	Mexico
Hectares acquired:	1002 ha
Year of support:	2008, 2010 and 2018
Amount of support:	US$ 184,000
Main threats:	Climate change and forest fires
Focal species:	Bigfoot Splayfoot Salamander (*Chiropterotriton magnipes)* (CR), Magnolia rzedowskiana *(Magnolia rzedowskiana)* (EN), Campeche *(Magnolia pedrazae)* (EN)
Website:	www.sierragorda.net

Bigfoot splayfoot salamander - credit: Roberto Pedraza Ruiz

The Sierra Gorda Biosphere Reserve is the most eco-diverse, and second-most biodiverse, protected natural area in Mexico. Over the last years, the Sierra Gorda has experienced an increased frequency and intensity of fires. Conservation organisations like Grupo Ecológico Sierra Gorda are now fighting fire instead of planting trees in order to protect the area.

> Most of the conservationists working here have gone from tree planters to fire fighters.

SAFE HAVEN FOR MEXICO'S WILD CATS

Despite the nationwide trend of deforestation and degradation, the Sierra Gorda Biosphere Reserve sustains its wilderness and functions as a safe haven for numerous animal species. Amongst the species living here are all six of Mexico's species of wild cats, including the jaguar. The reserve is also home to many endangered animal species, such as the military macaw and the Critically Endangered bigfoot splayfoot salamander.

Thanks to the joint effort of several funders, including the IUCN NL Land Acquisition Fund, Grupo Ecológico Sierra Gorda (GESG) privately owns and manages 8000 hectares, consisting of cloud- temperate- and tropical dry forest ecosystems, within the Sierra Gorda Biosphere Reserve. In these pristine grounds GESG does not allow any form of human activity to ensure the safety and survival of all the species thriving here.

NO NATURAL ADAPTATION TO FOREST FIRES

The Sierra Gorda is vulnerable to the increased frequency and intensity of fires. The cloud forest ecosystems have never coevolved with fire and therefore lack natural adaptations to cope with such intensifying forces.

Most, if not all, fires start because of traditional agricultural practices. Fire is used to open up forest, for corn plantations or cattle ranching. These slash and burn practices remain apparent, mainly due to weak law enforcement in the area aimed at prohibiting these practices.

FIRES GROW BIGGER, HOTTER AND SPREAD FASTER

As climate change intensifies, the spring seasonal period is becoming longer, drier and warmer, allowing the fires to grow bigger, hotter and spread faster. In 2019 a forested area of 3,500 hectares was lost due to fires, and this year, the fires are likely to return.

Protecting the reserve against fire is now the main concern of the Grupo Ecológico Sierra Gorda. Rather than planting trees, some of the management practices are now aimed at making 'fire breaks', long lines through the forest cleared of vegetation.

Military Macaw - credit: Roberto Pedraza Ruiz

STRICTER LAW ENFORCEMENT

These fire breaks are meant to stop, or at least slow down a spreading fire and hopefully mitigate some of the fire threat. The conservationists at the Grupo Ecológico Sierra Gorda hope that lobbying for stricter law enforcement and stronger campaigns, aimed at preventing slash and burn practices as well as educating people, will take control of this fire hazard before it is too late.

"For the first time this year, we will have our own fire brigade, in order to defend the reserves and surrounding forests in an effective way." Roberto Pedraza – GESG

Fire risk and management:
The Caucasus Wildlife Refuge in Armenia

NGO:	Foundation for the Preservation of Wildlife & Cultural Assets
Location:	Armenia
Hectares acquired:	370 ha (purchased); 30,000 ha (leased)
Year of support:	2011 – 2017
Amount of support:	US$ 120,000
Main threats:	Hunting, logging and fires
Focal species:	Caucasian leopard *(Panthera pardus saxicolor)* (EN), Armenian mouflon *(Ovis orientalis gmelini)* (EN), Egyptian vulture *(Neophron percnopterus)* (EN)
Website:	www.fpwc.org

Fire - credit: Foundation for the Preservation of Wildlife & Cultural Assets

Armenia is located centrally within the 'Caucasus Biodiversity Hotspot'. Species from Central and Northern Europe, Central Asia, the Middle East and North Africa come together there and mingle. Since 2018, the region has been affected by forest fires, burning an area of more than 3,000 hectares. The Foundation for the Preservation of Wildlife & Cultural Assets is adapting its conservation strategy to raise awareness among the local population to educate them on the effects of using fires.

The Caucasus Wildlife Refuge is a private reserve that is owned and managed by the Foundation for the Preservation of Wildlife & Cultural Assets (FPWC) of Armenia. This reserve falls within the borders of the larger Khosrov Reserve, which is one of the five state reserves of Armenia.

WHERE VARIOUS ECOSYSTEMS MEET

Together the reserves comprise of a range of mountainous ecosystems, i.e., steppe, alpine and sub-alpine landscapes. With such a variety of ecosystems comes a great diversity of species inhabiting the area. More than half of Armenia's flora, up to 1849 species of plants, are concentrated in the reserves, as well as over 280 species of vertebrate animals. Amongst species living here are the elusive Caucasian leopard and the enigmatic bearded vulture. The area functions as a safe retreat for species once common all over Armenia.

NOT PREPARED FOR FOREST FIRES

Illegal logging and poaching have been common threats to the reserves. FPWC has been mitigating these threats through patrolling guards and other technical devices for monitoring schemes. However they were not prepared for the 2018 forest fires.

These forest fires lasted for almost four days, and destroyed an area of more than 3000 hectares, including 200 hectares of 300 year old, old grown, juniper forests and more than 900 hectares of oak woods.

DEVASTATING IMPACT

Because the area affected is a biodiversity hotspot, the impact was devastating. The fire affected mainly reptiles, rodents and flying insects, but these forests also provided crucial habitat and breeding grounds for many bird species.

Although the summer of 2018 was unusually warm, with temperatures peaking at 45 degrees, human activity was certainly the source of the fire. Unfortunately, people still use fire to clear pastures. Even though there are high penalties set by law, enforcement and inspection in the area remain poor. During warm spring or summer months, when the pastures are dry, any small fire can easily spread and transform into uncontrollable wild fires, burning down forests rather than pastures.

The 2018 forest fires lasted for almost four days, and destroyed an area of more than 3000 hectares.

NEW EMERGENCY MANAGEMENT PLAN

After the 2018 fires, the team of conservationists at FPWC reviewed their emergency management plan. They started with an awareness campaign amongst locals, to educate them about the consequences of using fire to clear pastures. FPWC hosted eco-clubs in the surrounding villages, where FPWC staff worked with children, and, in a playful manner, educated the future generation about fire and the consequences of its misuse.

Moreover, the organisation purchased state-of-the-art firefighting equipment and all rangers underwent professional fire-fighting training. Other measurements included extending their patrolling routines, and using drone monitoring for areas where human activity is high and where fires are likely to start.

Although there is some natural regeneration observed in the areas affected, it will take decades before these forests are restored to their original state. As climate change intensifies, and the practice of burning pastures remains apparent, fires will continue to be a major threat for the reserves and all the species that depend on these lands.

"Small areas are often crucial in ensuring connectivity and corridors and might have diversity of flora and fauna not found elsewhere in the world. Every small land deserves to be battled for."
Vicky Mkrtchyan – FPWC

Fire - credit: Foundation for the Preservation of Wildlife & Cultural Assets

Fire risk and management:
Protecting the Cerrado in Brazil

NGO:	Instituto Araguaia
Location:	Brazil
Hectares acquired:	190 ha
Year of support:	2019
Amount of support:	US$ 39,660
Main threats:	Fires and intensive agriculture
Focal species:	Kaempfer's Woodpecker *(Celeus obrieni)* (EN), Giant otter *(Pteronura brasiliensis)* (EN), Araguaia river dolphin *(Inia araguaiaensis)* (DD)
Website:	http://www.araguaia.org/

Cerrado-Amazon ecotone, Cantão-Cerrado corridor - credit: Instituto Araguaia

The Araguaia River in Brazil divides two different ecosystems which seem worlds apart: the lush Amazonian forests versus dry shrub land Cerrado. Yet, despite their differences, these landscapes are immensely interdependent. The Cerrado landscape is rapidly being converted into soy plantations. Forest fires do not only threaten the Cerrado but also the neighbouring Amazonian forest. Instituto Araguaia is stepping up its conservation work to protect these ecosystems.

Bordering the extensive perimeter of the vast Amazon forest is the spectacular landscape of the Cantão ecotone. It is one of the gateways to the Amazon. Located in the south-eastern end of the forest, the Cantão ecotone offers an impressive visual demarcation between the densely forested Amazon forest and the dry and shrubby Cerrado.

INTERDEPENDENT ECOSYSTEMS

The Araguaia River is the only landscape feature dividing these two ecosystems which, although seeming worlds apart, are enormously interdependent. In the Cantão ecotone, animals belonging to two biomes are united: for six months of the year the Amazon is flooded, and animals retreat to the Cerrado side of the river. During the other six months, when the Cerrado is dry, the animals migrate back to the Amazon seeking water, food and shelter.

The Cantão State Park is among the most pristine Amazonian flooded forests in Brazil and the ecotone counts the largest population of endangered giant otters and Araguaia river dolphins anywhere in the world.

VITAL CO-OCCURRENCE OF ECOSYSTEMS

The co-occurrence of both ecosystems is vital for many species and therefore conservation efforts focus on protecting both ecosystems. The stark difference between these two ecosystems is also a metaphor for the incredible differences that these two worlds have developed in social, economic, and political terms.

On the Amazon side, the Cantão State Park is a state public protected area which, until 2019, was guarded by governmental rangers. On the other side, the Cerrado has undergone a drastic change starting from 2013: due to its high agricultural potential, 80% of the Cerrado has been converted into soy farms. The realisation that the protection of only the Amazon forest was not enough to protect the species living in this unique ecotone pushed Instituto Araguaia to take action.

AMAZON-CERRADO WILDLIFE CORRIDOR

Since 2010, Instituto Araguaia has been committed to creating a viable Amazon-Cerrado wildlife corridor adjacent to the Cantão State Park. Currently, the organisation manages 600 ha of protected Cerrado and has created a 15 km long corridor.

Due to the existence of an advantageous law in the state of Tocantins which requires private landowners to keep 35% of their property intact, Instituto Araguaia has strategically developed a win-win solution. The NGO purchases or leases these portions of intact Cerrado, and the landowner can get compensation for land which would otherwise be unutilised.

Instituto Araguaia managed to extinguish the fires after multiple days of uninterrupted firefighting work.

ENSURING LONG-TERM PROTECTION

As hunting and logging are not uncommon within these portions of lands, Instituto Araguaia ensures that acquired lands are converted into RPPNs (private protected reserve in perpetuity) to ensure their long-term protection.

In 2019, the organisation received support from the IUCN NL Land Acquisition Fund and other funding organisations to make a 10-year lease of Fazenda Guaira, an intact 190 ha patch of Cerrado forest. In the lease agreement, Instituto Araguaia is responsible for managing the newly established RPPN, and the landowner is building ecotourism facilities to host visitors and researchers who want to visit the Cantão ecotone.

"Because of the favourable conditions to grow soy, incentives towards conserving the Cerrado are so downgraded."
Silvana Campello and George Georgiadis – Instituto Araguaia

AWARENESS AGAINST ILLEGAL FISHING

Across the Araguaia River, Instituto Araguaia owns 560 ha of the Cantão State Park, which not only functions as a base for executing scientific research but also as a reference for their educative activities carried out in the nearby towns. One of the achievements resulting from ten years of educative work is increased awareness against illegal fishing within the park. Yet, illegal fishing remains problematic and bears additional consequences.

Since 2019, government rangers have not been patrolling the park and illegal fishing activities have increased. Fishermen target one particular endangered fish species, the Arapaima, which is a highly valued species on the local markets. Alongside its decimation, illegal fishing causes other issues: since fishermen believe that giant otters and Araguaia river dolphins are their competitors for fish, they poison or shoot them.

SIMPLE BONFIRES BECOME VAST WILD FIRES

Furthermore, since fishermen sometimes stay overnight and cook by using fire, there have been reported cases in which simple bonfires transformed into vast wild fires. In the dry season, the Cantão State Park is susceptible to fire hazard.

In August 2019, a sequence of fires burned down 3,500 ha of Amazon forest within the Cantão State Park. Instituto Araguaia managed to extinguish the fires after multiple days of uninterrupted firefighting work.

Law enforcement in the park is barely existent, the NGO was supported by IUCN NL and a pool of donors in the purchase of firefighting equipment which will be used by seasonal firefighters hired by the organisation.

Paramo Chingaza - credit: Marc Hoogeslag

SECURITY: A TREND IN THREATS

Security has constituted another crucial topic of discussion among IUCN NL's partners of the Land Acquisition Fund. Illegal activities – from logging, poaching, to drug trafficking – often take place in forested areas, hidden from human settlements. Directly faced with these issues, security threats are not only impacting the forests, but also the staff of our partner NGOs. Personal threats, attacks, abductions and even killings of park guards are some of the insecurities under which partners operate. Triggered by political instability, increasing power of agro- and logging industry, weak national law enforcement or economic crises, security threats are unfortunately going to persist into the future.

In Guatemala, our local partner FUNDAECO operates in territories which face conflict over resources for illegal high value timber logging, jade extraction and land grabbing by cattle ranchers linked to narco-trafficking. The NGO has developed two types of protocols: a contingency and risk management plan, and an emergency management protocol. While the first one deals with guideline measures for all types of risks, the second one deals with physical risks to one's security, explaining how to report the threat, how to react, whom to contact and what measures can be taken to mitigate the risk. Both protocols are updated every couple of years, in order to keep up to the evolution of techniques used to carry on illegal activities. Based on the degree of threat present in each reserve, the organisation differentiates amongst three different levels of guardianship: community guards (people from the community engaged in education and communication), institutional guards (who are in contact with the authorities), and national police and army (for exceptional circumstances).

3.2 HARVESTING IN THE STORM

The decline in numbers of species is often linked to shrinkage, fragmentation and degradation of habitat, however, interacting threats inflate the risk of biodiversity loss. Whether these contributing factors are a political crisis, economic interests or institutional difficulties, these challenging circumstances have the potential of mobilising innovative and surprising solutions.

The cases presented in this section display the stories of our conservation partners in Nicaragua, Iran and Malaysia, all bonded by one predominant common vision: they demonstrate that, even under difficult circumstances, conservation successes are possible. These stories reflect the passion of those organisations willing to go against the current status quo and find solutions to enable the continuation of their conservation work despite complexities linked to the context where they operate.

An underlying message shared by our partners is that everyone's contribution is crucial if we want to stand a chance at overcoming large-scale threats which, now more than ever, threaten the survival of some of the most endangered species found on our planet.

Harvesting in the storm: **The Mono Bayo reserve as a safe haven in Nicaragua**

NGO:	Paso Pacifico
Location:	Nicaragua
Hectares acquired:	65 ha
Year of support:	2017
Amount of support:	US$ 75,000
Main threats:	Habitat loss and fragmentation, illegal hunting
Focal species:	Black-handed Spider Monkey *(Ateles geoffroyi)* (EN), Yellow-naped Amazon Parrot *(Amazona auropalliata)* (EN), Great Curassow *(Crax rubra)* (VU)
Website:	http://www.pasopacifico.org

Paso Pacifico - credit: Adelayde Rivas

Central America is well known for its pristine forests. Some conservationists have, however, put great effort into conserving some of the most degraded and densely human-populated forest ecosystems. One of them is our partner organisation Paso Pacifico, who since 2005 has been working for the conservation of dry tropical forests in Nicaragua. This path was challenged by a prolonged period of political instability in the country, but the NGO handled the situation thanks to the strong trust it built with local communities.

The stable progress of this conservation project was interrupted by a long period of political unrest that started with severe nationwide protests in 2018.

Since 2005, Paso Pacifico has been working on the southern Pacific coast of Nicaragua to build landscapes that include core habitat areas whilst also supporting communities in the practice of more sustainable farming activities. After many years of spreading environmental awareness, the community has become a first-line ally in the conservation of two endangered endemic species: the Yellow-naped Amazon Parrot and the Black-handed Spider Monkey.

CONNECTING THE MONO BAYO RESERVE

Following biological studies on the Black-handed Spider Monkey, field researchers became aware of the problem of genetic isolation of these monkeys. To solve this problem, urgent action in reconnecting their habitat was required. After receiving a grant from the IUCN NL Land Acquisition Fund in 2017, Paso Pacifico was able to secure the Mono Bayo reserve, acquiring 65 hectares located in the middle of the forest that the organisation aims to reconnect. Since monitoring began in 2009, the sightings of these monkeys have increased six-fold. In the past, the monkeys were hunted for the pet trade. However, hunting has declined since Paso Pacifico deployed a team of community-based forest rangers to prevent hunting. As this human threat has declined, monkey behaviour has changed, and these intelligent primates are increasingly more at ease when encountering humans.

POLITICAL INSTABILITY

The stable progress of this conservation project was interrupted by a long period of political unrest that started with severe nationwide protests in 2018. Since then, the Nicaraguan government has tried to repress any type of political gathering, and has also imposed the closure of many environmental NGOs. Paso Pacifico was not immune to this challenging situation and the organisation had to say farewell to its country director due to security reasons. After a prolonged period of receiving personal threats, the director had to flee the country but, even working remotely, could not ensure total security for the organisation and the local community. In order to overcome this challenging phase, Paso Pacifico implemented a new horizontal management system in which five managers split different tasks and responsibilities, ranging from community

engagement to education and research. The team believes that this strategy will avoid having one person being excessively exposed to potential security threats.

INDIRECT CONSEQUENCES OF THE POLITICAL CRISIS

The political crisis was followed by an economic crisis, bringing along multiple adverse consequences. In an already critical period, multi-lateral funding agencies and some large donors decided to withdraw their funding stream to avoid investments that could indirectly benefit the government. On top of this, hunting has recently started to increase in the area as police and army officers are mostly being employed to repress anti-political activities rather than to monitor illegal wildlife trade. Despite this, Paso Pacifico has invested in effectively converting hunters into rangers, supporting farmers in forestry, as well as rewarding them in incentive payments for conserving parrot nests.

HARVESTING THE FRUITS OF COMMUNITY ENGAGEMENT

On a local scale, Paso Pacifico has received plenty of support. Thanks to years of community engagement and educational training, the municipal and village governments have supported the organisation through these turbulent times.

By owning a community house in Mono Bayo, the organisation was still able to engage with people, have smaller gatherings and proceed with some of the educational activities with the community. The stable presence in the field facilitated the building of trust with the army patrolling the nearby border with Costa Rica.

The Mono Bayo Reserve has been a stable point of reference for conservation in the area: it has served as a coordinating centre for wildlife monitoring and protection efforts at dozens of other private properties. These efforts include reforestation, camera trap wildlife monitoring, long-term primate and parrot monitoring, educational workshops and outreach for farmers. The property is also an important learning centre for the roughly 100 Junior Rangers each year – children who participate in Paso Pacifico's year-long environmental education program. The rangers, together with the Junior Ranger volunteers, frequently carry out clean-ups on the river to improve water quality in the area.

Paso Pacifico shares an important message with conservationists: even when political and economic circumstances build up to create a storm, some fruits can still be successfully harvested.

"Conservationists have moral imperative to ensure that biodiversity and humans coexist."
Sarah Otterstrom – Paso Pacifico

Harvesting in the storm:
Protecting Asiatic cheetahs in Iran

NGO:	Iranian Cheetah Society
Location:	Iran
Hectares acquired:	Ongoing
Year of support:	2013
Main threats:	Conflicts with local herders and road kills
Focal Species:	Asiatic Cheetah *(Acinonyx jubatus venaticus)* (CR)
Website:	www.wildlife.ir

Asiatic cheetah family - credit: ICS

The rocky and dry, desert landscape of the Turan Biosphere Reserve in Iran is habitat to the country's most famous conservation flagship species, the Critically Endangered Asiatic cheetah. The Asiatic cheetah was once well represented in the Middle East, Central Asia and across India but today is found only in Iran. Our local partner NGO Iranian Cheetah Society has worked in a complex context to create a protected area, to protect the Asian cheetahs.

Located in the Semnan province, Northern Iran, the Turan Biosphere Reserve is an important conservation spot for Asian cheetahs. Although exact estimates are difficult to predict due to the wide distribution size of the species within Iran, it is expected that there are less than 40 individuals left in the wild. The Asiatic cheetah is close to becoming extinct in the wild and the survival of this emblematic species is linked to the purchase of grazing permits. The Iranian Cheetah Society (ICS) is an Iranian based NGO that has dedicated itself entirely to the conservation of big carnivores but particularly, the Asiatic cheetah.

LIVESTOCK, LOCAL HERDERS AND CHEETAHS

IUCN NL and ICS partnered up in 2013 and started working together on the establishment of a 'livestock free' zone within the Turan Biosphere Reserve. Livestock and grazing remains apparent within the borders of the reserve and has caused many conflicts between local herders and cheetahs. Human-wildlife interactions often create a difficult situation for conservation and the encounters with local herders are a principle threat to the existence of the Asiatic cheetah. The herders kill cheetahs for fear of cheetahs killing their livestock, and, are normally accompanied by packs of dogs that attack cheetahs and kill their cubs. The establishment of a livestock free area would therefore be a great accomplishment for the conservation of the species.

GRAZING PERMITS

The biosphere reserve consists of three areas, Turan National Park, Turan Wildlife Refuge, and the Turan Protected Area. The main objective of the project was to purchase grazing permits that were valid within the Turan National Park. Grazing permits allow herders to enter the area, sometimes on a seasonal basis, and let their livestock graze on the pastures. Within the national park, grazing permits are no longer issued but some herders have historical permits dating back to before the establishment of the park. Therefore, livestock and grazing remains present within the borders of the park and purchasing these permits was the objective of the ICS. The project started positively but experienced a series of unfortunate setbacks along the way.

NEGOTIATIONS WITH LOCAL HERDERS

Based on information received from the Department of Environment (DoE), the ICS proposed a budget and started negotiating with the local herders. Soon the negotiations hit a dead end since the prices for individual permits turned out much higher than anticipated, and, as a result, the NGO could only purchase half of the existing permits. The ICS contacted the DoE and was advised to pause the negotiations while the DoE searched for sufficient funding to complete the project and purchase all the permits simultaneously. Several years passed while the ICS pressured the DoE to finalise the deal. The collaboration remained uncertain, and, ultimately, the ICS decided to relocate the project to another area up north, the Miandasht Wildlife Refuge.

The same strategy was applied in the Miandasht Wildlife Refuge and the ICS started negotiating with the local herders. They were very close to finalising a deal and purchasing permits for a good pasture that comprised crucial habitat for the cheetah. The department officials, without informing the NGO, started purchasing grazing permits in that same area while the ICS was still holding onto the negotiations. The DoE purchased permit for prices much higher than the ICS proposed or was able to pay. The resulting increase of permit prices in the entire area caused much disturbance for the NGO and once again the project was halted.

DIFFICULTIES OF ENSURING LIVESTOCK-FREE AREAS FOR CHEETAHS

The NGO persisted and continued looking for opportunities to create an area free of livestock where the cheetah could thrive. Currently, the ICS is considering both locations and has had successful negotiations with herders and the DoE for a pasture outside of the Turan National park. The only uncertainty is that, because these pastures lay outside of the national park area, new permits can still be issued by the Department of Agriculture (DoA). Purchasing permits in this particular area would have no effect if the DoA continues issuing additional permits for the location in question. Therefore, the NGO is waiting for the recognition of the DoA before they start purchasing. For now, the DoE is leading the negotiations with the DoA and is trying to reach an agreement, while the NGO can only hope for their cooperation.

WORKING IN COMPLEX REGIONAL CONTEXTS

The extensive delay resulting from the intricacy of these negotiations complicated the conservation project even further while the future of the Asiatic cheetah remains precarious. Although the project did not go according to the initial plan, the case of the Iran Cheetah Society illustrates the difficulty of working for conservation in complex regional contexts. The ICS persists in conserving the Asiatic cheetah and is attempting to set up a large monitoring study to better understand the needs and distribution of the species. Additionally, the NGO is involved in a captive breeding program that aims to bring the population back to viable numbers.

The story highlights the importance of partnering with local NGOs which are admirably working on the frontline of conservation in complex contexts. While success is a steep path of trial-and-error, enduring throughout this climb shows the unique commitment of such true conservationists.

Human-wildlife interactions often create a difficult situation for conservation.

"The Asiatic cheetah is not just a critically endangered species. It's proof of how our world's biodiversity is compromised."
Morteza Pourmizai

Harvesting in the storm:
Collaborating with the private sector in Malaysia

NGO:	Hutan
Location:	Malaysia
Hectares acquired:	104 ha
Year of support:	2010
Amount of support:	US$ 87,000
Main threat:	Habitat loss and fragmentation
Focal Species:	North-east Bornean orangutan *(Pongo pygmaeus morio)* (CR), Northern Gray Gibbon *(Hylobates funereus)* (EN), Proboscis Monkey *(Nasalis larvatus)* (EN)
Website:	https://www.facebook.com/Kinabatangan/

North-east Bornean orangutan - credit: Hutan

The Lower Kinabatangan Floodplain in Malaysia hosts a significant level of biodiversity, with the Bornean Pygmy elephant and the Bornean orangutan being two of its most iconic inhabitants. In recent decades, human activities have posed a severe threat to the biodiversity of Borneo. Our local partner NGO Hutan has committed to building a better future for many endangered species. Part of the NGO's success is due to its willingness to include all stakeholders in the conservation plan, including palm oil companies.

The third largest island of the planet is famous for having the world's oldest existing rain forests, and, of course, an impressive diversity of species. Most of the northern half of Borneo, apart from Brunei, falls within the boundaries of Malaysia and consists of Sarawak, in the north-west, and Sabah towards the north-eastern tip. Founded in 1996, the Sabah based NGO, Hutan, believes that conservation and local communities go hand in hand and this vision is central in all their work.

THE LOWER KINABATANGAN FLOODPLAIN

One of the areas where the NGO is working is the Lower Kinabatangan Floodplain. The floodplain consists of a mosaic of distinct habitats with seven different ecosystem types. Ranging from dry lowland dipterocarp forest to freshwater swamp and mangrove forests. Such diversity in ecosystem types sustains abundant and consistent food availability for species to thrive. Amongst several other strategies, Hutan uses land purchase to establish ecological corridors that link remaining forest patches and create a more resilient forest so that wide-ranging species, such as the Pygmy elephant, can roam the forests undisturbed.

DEVELOPMENT AND ENVIRONMENTAL DEGRADATION IN SABAH

Since the 1960s, increased land pressure resulting from human activities, infrastructure development and agriculture have drastically altered the lowland landscapes in and around Sabah. The consequences are forest conversion and fragmentation that unbalance the once so pristine forest ecosystems. Hutan has been working in Kinabatangan where nearly 80 percent of land cover has been converted into agricultural fields, principally palm oil, but also rubber plantations. This is true for most of Borneo, but in Kinabatangan, the tragedy took an unexpected turn.

REGULATING PALM OIL PRODUCTION

Deforestation in the Lower Kinabatangan Floodplain has been reduced to comply with the Malaysian Sustainable Palm Oil (MSPO) certification scheme standards. A certification scheme that strengthens the restriction guidelines and sets the standards for sustainable palm oil production in the absence of further deforestation. Under the scrutiny of NGOs, such as Hutan, local communities and

Hutan uses land purchase to establish ecological corridors that link remaining forest patches and create a more resilient forest so that wide-ranging species.

communication networks, the implementation of regulations are monitored and more likely to be enforced. Together, these events have reduced deforestation in Kinabatangan back to nearly zero, but the road ahead is still long.

COLLABORATING TO SECURE LANDS

Neighbouring private giants, such as the palm oil and tourism industries, have made it increasingly difficult for Hutan to compete in buying land. The large industries can pay high prices for single hectares because their turnovers are even higher. This competition mechanism pushes land prices far above market standards, while making conservation land purchase an increasingly expensive matter. In Sabah, land purchase is only feasible if executed with great precision for strategic locations, nonetheless, much of the land is already out of reach. Adapting to such difficult local conditions can result in unexpected but very valuable collaborations. Hutan has been engaging the palm oil corporations into conservation of the forests that once existed on their lands.

JOINT CREATION OF ECOLOGICAL CORRIDORS

A neighbouring palm oil company designated 44.5 hectares of their land for reforestation and added it, through a conservation lease, to an existing corridor created by Hutan. Another company approached Hutan with the idea of establishing a network of conservation corridors through their plantation, allowing species to cross from one existing forest patch to another more easily. The latter is utilised by Pygmy elephants, which often resort to crossing farmers' land to get access to other patches of forest. That same company is experimenting with organic pest control: by establishing artificial hornbill nest boxes in and around their plantation, they aim to decrease beetle populations that cause severe damage to immature palms. The hornbills feed on the beetles, and, depending on how well the experiment goes, this could be incorporated on a larger scale. In many ways, this collaboration is a win-win situation.

LESSONS FROM WORKING WITH THE PRIVATE SECTOR

Certainly, engaging with the private sector is never without risk, therefore, when working with large palm oil companies, Hutan has a clearly defined policy that resulted from their years of experience, and they are well aware of the difficulties involved. All work conducted for or with palm oil companies is done free of charge. Additionally, the companies are not allowed to market the good intentions of the NGO, and cannot use their logo unwarrantedly or modify any results obtained from their studies. In some cases, engaging with the private sector is the only way to ensure that there will be something left to conserve.

The story of Hutan depicts two worlds, coming from opposite sides of the fence, working together on joint solutions. While ideological conflicts could eternally persist between conservation and the agricultural sector, the need to meet half-way and negotiate a win-win solution is essential to mitigate the current global challenges.

"Securing strategic connectivity between fragmented protected areas, even if the size is relatively small, can have huge impact on biodiversity and on reducing human-wildlife conflicts in nearby communities."
Isabelle Lackman – Hutan

CHALLENGE: LAND TENURE

In many countries in South-East Asia, land purchase as a conservation strategy is difficult to implement because of the existing legal framework and land-use planning objectives. As a result, conservation lease has become an alternative strategy employed by some partners funded through the Land Acquisition Fund in Vietnam, Myanmar, Cambodia, and Indonesia.

Example: Establishing Sustainable Fisheries in Myanmar

IUCN NL collaborated with Friends of Wildlife (FOW), a Myanmar registered NGO, with the objective to establish sustainable fisheries through a conservation lease in the Upper Nan-tain Wetland, a wetland of high conservation value in Indawgyi Lake, Myanmar. The NGO aimed to establish a protected area as well as to give local communities the co-management rights to establish community fisheries. Historically, fishing rights were auctioned to the highest bidder who would then sub-auction and promote exploitative practices functioning as a big revenue generator for the profits of the few, at the costs of the many. The arrival of co-management schemes and fishing free zones was, not surprisingly, met with hostility by the Department of Fisheries. For them, any attempt to remove important wetlands from their control was a threat to their business model. Ultimately, the national park agency blocked the lease agreement, which was never signed. According to some of our local partners in South-East Asia, this is a commonly observed response from agencies that often lack the capacity to manage certain areas in a sustainable way, and, whom could benefit greatly from certain co-management agreements.

Conservation lease or co-management agreements with local authorities partially rely on government performance. NGOs have no reassurance that their lease will be respected and have limited resources to impose measures if anthropogenic pressure rises. Another obstacle with conservation lease is the finite nature of any lease agreement, many NGOs seek long-term (10-30 years) lease agreement and that does not always allow for the long-term planning – a crucial aspect for any conservation objective. However, an advantage of conservation lease is that it can be relatively cheap compared to land purchase since land prices are rising consistently in many countries.

CHALLENGE: BOOMING LAND PRICES

In regions where land purchase is a feasible conservation strategy, one of the main bottlenecks NGOs are currently experiencing are increasing land prices.

Across the world, the immense population growth has greatly increased the pressure on lands, which are more and more being used for the development of tourism, agriculture, urbanisation and infrastructure. As a result, land prices are increasing rapidly, making land purchase for nature conservation a less viable conservation strategy. Many, if not all, of our partners experience a steep increase of land prices in the areas where they operate.

In Paraguay, our partner Guyra Paraguay purchased land for just under 40 US dollars per hectare in 2007; now, the same hectare would sell for roughly 350 US dollars. The Pró-Muriqui Institute in Brazil, purchased land for about 550 US dollars in 2009, and currently has local land prices that are ranging between 7000 – 13000 US dollars. Depending on the region, location, available infrastructure and accessibility, prices of land may increase faster; overall, the trend has been consistent in most countries and land purchase for conservation is becoming an increasingly expensive matter.

For small-ranged, endemic species, conservation land purchase is still a feasible strategy, but for wider ranged species, it is becoming increasing difficult to acquire enough land at affordable prices. As a result, land purchase for nature conservation needs to be executed strategically and with great precision, and is often realised through partnership with governmental authorities and the private sector. Partnering with the private sector provides possibilities to extend the existing network of privately protected areas, and the implementation of Other Effective area-based Conservation Measures (OECMs) provide an interesting framework for the future of conservation.

Other effective area-based conservation measures (OECMs)

A promising strategy to further strengthen and extend the existing protected area network is to work together with large landowners and private businesses that want to contribute to biodiversity conservation. One way of doing so is by recognising and working with Other Effective area-based Conservation Measures (OECMs). OECMs recognise areas located outside of the existing network of privately protected areas that are managed in ways that contribute to long-term and effective conservation of biodiversity. The concept is defined by the Convention of Biological Diversity (CBD) as: "A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values (CBD, 2018)." These areas, belonging to relevant organisations or groups, may be managed for several objectives and can still be considered as an OECM, as long as they sustain effective conservation.

There are several advantages to working with OECMs and private business. Firstly, OECMs do not require the acquisition of new protected areas, they recognise areas that are already privately owned and fairly well protected. Landowners and private business that already own land can set aside parts of their property for conservation purposes and establish an OECM. Additionally, large businesses interested in setting up OECMs, normally have a degree of management capacity that far exceeds that of any local government, community or NGO. The bigger objective is to work towards a strategy that links OECMs, and integrates them into the existing network of privately protected areas. On the down side, OECMs can also open the door for vested interests and green washing activities were large industries use the concept for branding and marketing purposes to cover up their destructive impact on the environment. Surely, engaging with the private sector is never without uncertainties and the strategy still requires some fine tuning. Nonetheless, the concept of OECMs offers a concrete opportunity for conservation in a world were land is becoming increasingly scarce and costly.

EXCHANGE OF KNOWLEDGE AND IDEAS

The exchange of information is a crucial aspect in conservation. The partners of IUCN NL's Land Acquisition Fund hold a wealth of experiences and learnings, and an equally remarkable willingness to share their knowledge. Looking for approaches to best distribute the stored information, IUCN NL has regularly organised seminars and exchange visits for and between partner organisations. What started as a first meeting in 2006 in Holten, the Netherlands, led IUCN NL to organise and support a series of inspirational events on a variety of key topics within the conservation world jointly with the World Land Trust.

"I greatly value the diversity of the participating organisations and the real life experience of several organisations which are already very successful in securing land. I am grateful for the opportunity given to me."

Pham Tuan Anh from Viet Nature Conservation Centre after visiting the 2012 symposium

2006 Netherlands, Land purchase as an intervention strategy for biodiversity conservation
2008 Belize, Financial sustainability of private protected areas
2009 Brazil, Payments for ecological services and strengthening memberships
2010 Netherlands, Charity Giving
2012 Singapore, Securing land for conservation in Asia: Opportunities, pitfalls and alternatives
2016 Mexico, Symposium of the Alliance
2018 United Kingdom, Financial Sustainability, Monitoring for Conservation and the importance of local support

By visiting peer projects, the partners of the Land Acquisition Fund have the opportunity to compare and share experiences for mutual benefit. During exchange visits, networks are created, ideas evolve and inspiration is found by observing and discussing the work of dedicated fellow-conservationists. Over and over, visits turned out to be eye-opening experiences promoting a feeling of camaraderie and friendliness among partners' staff.

Rangers' exchange

The Honduran AESMO and Guatemalan FUNDAECO share their views on the rangers' exchange initiative conducted in 2018 in FUNDAECO's reserve in Izabal, Guatemala, and funded by IUCN NL and the World Land Trust (WLT).

During the exchange week, the AESMO rangers participated in various activities together with the rangers and technical team of FUNDAECO. Patrolling,

Reserva natural Serra das Almas - credit: Fabio Arruda

bird watching, plant collection, maintenance of trails, care of tourists who arrived in Cruise to Puerto Barrios, are some of the activities in which the four young Honduran rangers took part.

From her side, Suyapa Bohorquez, one of the two AESMO ranger girls said, "I had a great time, everyone is very attentive and friendly, I have several ideas that I plan to implement in my work; the truth is that we all came here very motivated." She had the opportunity to participate in the process of attending foreign tourists who came to enjoy the beauty of the Guatemalan Caribbean region.

The four Honduran rangers are responsible for carrying out actions of biological monitoring, environmental education, purchase of land for conservation, management of micro-basins and protection of a corridor formed within the reserve. Erlin Santamaría who, together with Bairon Vargas, spent a week in the Cerro San Gil Mineral Water Reserve considers that "acquiring knowledge about business initiatives and conservation work in protected areas, as well as being immersed in nature, among people from the communities and guardians who possess great humility and passion for their work contributed to make this exchange a unique experience."

AESMO and FUNDAECO have maintained - for several years now - valuable and strategic cooperative relationships for the conservation of biodiversity and water. The rangers of FUNDAECO and those of AESMO are in frequent communication by phone and by social networks, sharing experiences and keeping an eye on the extraordinary and valuable work that they all carry out in a biological corridor that extends from the Caribbean coast of Guatemala to the mountains of western Honduras.

Ranger exchange - credit: Asociación Ecológica de San Marcos de Ocotepeque

LESSONS LEARNED FROM OUR PARTNERS

This section provides an overview of the lessons learned by our partners during the past 20 years, in different categories.

ACQUISITION PROCESS

- Know the range of land titles and ownership arrangements in your region: acquiring properties with clear legal titles should be favoured.
- A favourable policy environment is very important: National policies can act in favour or against forestland purchase.
- Information about interest in land purchase spreads rapidly within local communities, generating prices' rise in properties. Giving in to higher prices is not always the best solution because it will set a new market value.
- Administrative procedures can prolong beyond expected terms. Consider including a larger budget segment allocated to pay staff and for extra costs.
- Trusting the landowner is key when making a lease agreement.
- Purchasing everything in one go, instead of in instalments, prevents people from raising the price of land. This spares both time and money.
- In countries with unstable economies, NGOs should wait with exchanging the money to their currency until all aspects of the deal are certain.
- The participation of an independent entity in the negotiation of the land is fundamental. This makes the negotiation more agile and efficient, reducing land speculation.
- The participation of the local government in the protection of the acquired sites is fundamental to guarantee the long-term sustainability of the reserve.

ENVIRONMENTAL AWARENESS AND EDUCATION

- Raising awareness on biodiversity conservation is an opportunity to make people re-assess the relationship they have with nature.
- Becoming a locally established partner and raising environmental awareness allows the organisation to gradually become an ally for local landowners.
- Including educational activities and youth leadership programs within conservation objectives is key to raising future local leaders who can turn into trusted allies.

MANAGEMENT OF THE RESERVE

- Plan for the long term (10-20 years) and have a dedicated fundraiser in your organisation, someone capable to cultivate long-term donors.
- In the case of small NGOs creating private reserves, develop a formally recognised safety strategy to make sure the land will continue its objectives in the case that the organisation is dissolved.
- The constant presence of researchers, interns and school children within the protected area can be a patrolling-like strategy to keep away poachers and illegal loggers.

INTERNAL MANAGEMENT

- Building a close team within the NGO plays a key role also for the achievement of conservation goals.
- During times of political instability, opting for a horizontal organisational structure can prevent staff from being targeted.

ECONOMIC SUSTAINABILITY OF RESERVES

- Diversify income streams. Focus on multiple sustainable income sources to guarantee the financial resilience of the project.

DONORS' RELATIONS & FUNDRAISING

- Develop a locally sustainable business model within these protected areas to ensure proper income sources to sustain long-term management.
- Be aware of donor fatigue: always have a wide pool of donors.

COMMUNITY ENGAGEMENT

- Ensure trust of the community before proposing conservation strategies.
- Involving everyone in the community - women, men, the elderly and youth - is of utmost importance for long-term social, environmental and economic objectives.
- The best way to engage and mobilise local communities is to create opportunities for generating direct or potential revenues through activities; for example, ecotourism, patrolling reserves, agroforestry, and low impact agriculture.
- Having a clear picture of the socio-environmental landscape of a community is crucial to identify solid trade-off mechanisms.
- People like to be active actors in effective conservation processes.
- Account for the knowledge of elders; they have a visual memory of historical changes in the landscape that are great benchmarks for conservationists.
- Keep promises at whatever cost.
- In community conservation management, everyone should be included in the ownership of land; this brings pride in the community, enhancing commitment towards safeguarding the land.
- Income-generating activities started by the NGO and run by the community (handcrafts, food commodities, etc) need to have easy access to the market. Products of basic need, such as food, can generate longer term revenues.
- Ecotourism should offer the opportunity for the whole community to independently join with a service they can provide to tourists.

COMMUNICATION & ENGAGEMENT WITH STAKEHOLDERS

- Select the appropriate communication strategies to give a voice to all participants in the dialogue and enable them to effectively share their desires, fears and personal priorities.
- While transparency is imperative, too many details can confuse the dialogue.
- Cultivate a trust relationship with neighbouring landowners
- Voluntary resettlement negotiations require patience and respect for all parties involved, at all stages of the process; free prior informed consent (FPIC) and fair negotiations are indispensable.
- Creating a high-level state government committee to closely supervise and support the project is useful to limit the red tape at local government level.

DEALING WITH HAZARDS AND THREATS

- To ensure effective management against natural hazards, build a multi-level strategy, have a strong presence in the reserves, and a good relationship with local authorities and neighbours.
- To prevent and mitigate fire hazards, cultivate a sense of ownership in local people and establish a network with all state bodies.
- Building strong bonds of trust and inclusiveness with the community can help navigate difficult economic and political circumstances together.

FROM A DONOR'S PERSPECTIVE

- Be flexible as a donor: Negotiations and finalising paperwork can be time consuming. Donors' pressure can result in rushed acquisitions at overpriced rates.
- Even the most brilliant field conservationists can have difficulties putting things on paper. If you see potential, get references on the NGO.
- Look for the people and NGOs that have an emotional bond with the land or the species they want to protect.
- NGOs should have a track record in the area where they want to secure land. Creating privately protected areas only works when you have the trust and support of the communities.
- For NGOs, try and meet your donors in person. Personal relations make a huge difference!

Puma - credit: FELCA Colombia

MEET THE INSPIRING PEOPLE MAKING NATURE CONSERVATION WORK

Andreia Fonseca Martins

Andreia Fonseca Martins is coordinator of the metapopulation program in Associação Mico-Leão-Dourado (AMLD), an organisation which focuses on the protection of golden lion tamarin in the state of Rio de Janeiro, Brazil.

Trained as a biologist, Andreia would have never imagined to be working with a species only found roughly 20 kilometers away from her home. She had her first encounter with the golden lion tamarins in 1983, when she joined a group of biologists and environmental educators led by James and Lou Ann Dietz. What started as a volunteer position, soon developed into a life-long commitment to studying and protecting the tamarins.

"People say that the tamarins are my second family. I spend more time with them than in my own home. I have been working with tamarins for 37 years, and no day is the same. I sometimes have to spend one day in the office throughout the week. That day at the desk is for me the day of 'punishment': what makes me truly happy and free is being with the tamarins in the forest."

The tamarins also recognise Andreia due to her constant presence in their habitat. Andreia: "Every time I leave, the tamarins follow me. These golden coated monkeys are part of my daily routine."

In the last two decades, Andreia has been coordinating a field research group consisting of field assistants, interns and volunteers, and collaborating in multiple research projects of other biologists and ecologists.

> "The tamarins are my second family. I spend more time with them than in my own home."

TRANSFER KNOWLEDGE TO NEW GENERATIONS

Part of her work is to ensure that valuable knowledge on this species is transferred to new generations of researchers. After having spent 21 years studying the behaviour of golden lion tamarins, the team has become the leading figure for understanding their behavioural ecology.

More recent studies focus on how tamarins utilise their habitat and their role within the forest ecosystem. These monkeys live in family groups, each of which consists of an average of 7 to 8 individuals and which occupies a distinct patch within the Atlantic forest. These animals are territorial and the forest habitat that AMLD has secured is a crucial component for the thriving of the species.

LOCAL AWARENESS

Throughout all these years, Andreia has noticed how NGOs such as AMLD generated a positive impact on increasing local awareness on the conservation of this charismatic species. Currently, the golden lion tamarin has become a real star in the state of Rio de Janeiro.

"The communities are supporting us in our work. They truly like the tamarins, it is a symbolic animal for them. Whatever happens to the tamarins, the news will rapidly reach the local communities."

TRAGIC PERIOD

Despite the inspiring work of Andreia and the AMLD team, the last two years have marked a tragic period for the health of the golden lion tamarins. Since 2018, their population has dramatically dropped by a 32% due to a yellow fever epidemic which was transferred to these small monkeys. This has been a painful story, not only for the health of this species, but also for the dedicated staff members that have been working with the species for many years.

Andreia: "These animals are so precious to us that makes it even harder for me and my colleagues to think they died."

Andreia's wish for the future is that the numbers will reach the previous minimum viable population to save this species from extinction, as well as saving a considerable amount of Atlantic forest. The richness of accumulated knowledge on processes such as translocation and reintroduction of tamarins in the wild will hopefully facilitate this challenging repopulation project.

MEET THE INSPIRING PEOPLE MAKING NATURE CONSERVATION WORK

Julio Marín

Julio Marín is field coordinator at Fundación Biodiversa Colombia.

Julio Marín is field coordinator at Fundación Biodiversa Colombia, a local NGO which protects the rainforest and wetland ecosystems of the Middle Magdalena Valley. In the last 10 years of engagement with Biodiversa, Julio has been a key figure for the organisation.

Even before the organisation established its field station in the Barbacoas area, Julio – a local of the Middle Magdalena Valley – was an essential figure for the team who could learn from him about the history of the region, its nature, its people and the existing socio-environmental conflicts.

Julio supervises the monitoring and surveillance activities conducted by rangers in the El Silencio reserve. In 2012, the IUCN NL Land Acquisition Fund funded a 76 ha land purchase, the first step in creating the reserve that will be soon expanded to 1,600 ha.

In 2017, after years of being a frontline advocate, Julio and the Biodiversa team saw one of their biggest dreams coming true: the regional environmental authority declared the Barbacoas area as the first public protected area in the Middle Magdalena Valley.

Despite his committed role in the conservation of nature, Julio's life took a variety of turns before landing in this field. He initially worked for a local livestock company before serving 16 years in the army. Upon return to his lands, he realised that he wanted to dedicate his life to the protection of nature, a new path that has enriched his knowledge and understanding of these lands.

CONSTRUCTIVE DIALOGUE

The biodiversity of the Barbacoas protected area is threatened by deforestation to clear lands for cattle ranching and farming. Julio has worked extensively with farmers and cattle ranchers to talk about the impact of deforestation on local biodiversity, as well as understanding the farmers' points of view. Although building a constructive dialogue between conservationists and local communities was difficult, having a personality like Julio was what made all the difference.

When Julio first started to work with Biodiversa, he already had a network of farmers and cattle ranchers. Being a trusted and respected person, Julio has been a perfect fit in his role of mediator between Biodiversa, local communities, land owners and farm workers. With the support of the team, he was able to initiate and successfully carry out the engagement with farmers to preserve and connect their forests and establish sustainable cattle ranching in the Barbacoas area.

RESPECT

From his experience, Julio highlights another important component in this partnership with local communities: respect, even for those who damage nature. Although some people engage in activities which have a negative impact on ecosystems, it is crucial to always remember that these people should still be respected and treated as allies.

Julio: "My mission is to train those people who have made mistakes on how to treat nature. Learning to listen to farmers is key. I am not an enemy to farmers, I do not want to be their enemy. We also need to understand these people."

EDUCATION IS KEY

Julio explains that those mistakes are consolidated by lack of knowledge about how nature works, as well as lack of knowledge on environmental laws. Many farmers are illiterate and are not aware of these norms. For this reason, education plays a key role.

Fundación Biodiversa is working on establishing a local school where kids of farmers can learn the basics of environmental awareness of the ecosystem they live in alongside their school curriculum. Julio shares his thoughts on how to tackle this problem: "A crucial value is knowing the geography of your land and its richness. The protection of this richness depends on the responsibility of the network. And creating this network is the crucial role of our organisation."

HELPING ANIMALS

Looking to the future, Julio also has a very clear plan on how to become a better conservationist. "My future goal is to train as a veterinarian. I encounter many injured or sick animals in the forest, and most of the time I am clueless on how to help them."

After 16 years in the army, Julio realised that he wanted to dedicate his life to the protection of nature.

CHAPTER 4 MONITORING SPECIES AND TECHNOLOGY

Conservation NGOs working with endangered species are sometimes criticised because many have limited resources available to assess the impact of their work. The monitoring of focal species is a challenging and difficult task for multiple reasons.

Firstly, monitoring species requires financial resources and it is difficult to find funding that supports this; monitoring equipment, such as camera traps or audio recorders are costly and should therefore be included in the original budget proposal. Secondly, monitoring schemes require intensive field work since the data collection needs to be continued over a long period of time. Thirdly, certain monitoring schemes require scientific expertise to design and execute it well so that the data can be utilised for scientific publications and to discover the results of implemented measures. Monitoring focal species is not only important to assess population numbers but it is also a crucial component of self-evaluation, which is indispensable when working with endangered species. The application of long-term monitoring schemes reveals the implications and results of implemented measures aimed at improving population numbers. Therefore, monitoring focal species is an essential part of the learning cycle of any conservation NGO. Nevertheless, monitoring schemes and self-evaluation are two aspects of conservation that are sometimes overlooked or simply not possible due to the financial struggle to manage privately protected areas.

In the last years, technology has become a key ally in conservation efforts, enabling many of the Land Acquisition Fund's partner organisations to build long-term monitoring schemes in their reserves. The advancement and increasing affordability of technological devices has contributed greatly to sustainable solutions to monitor species. Camera traps to monitor species, drones to discover deforestation and map large areas, acoustics monitoring to detect species or illegal activities, GPS tracking of animals and even computer models to plan long term conservation objectives. These tools offer nature conservationists new and exciting possibilities to reach their conservation objectives, monitor focal species and to better protect privately protected areas. The following stories are examples of technological applications from IUCN NL's partners, where technology makes a concrete difference not only for the monitoring of endangered species, but also to address environmental crimes, plan long-term management and better protects privately protected areas.

Species captured on camera

- Bezoar - credit: FPWC
- Maned Wolf - credit: Armonia Bolivia
- Tamandua - credit: Armonia

- Brown bear - credit: FPWC
- puma - credit: ARMONIA Bolivia
- Wild boar - credit: FPWC

- Harpy young - credit: Instituto Uiraçu
- jaguar - credit: GESG Mexico
- Tiger in corridor - credit: WTI

CAMERA TRAPS AND PERCHING TREES

The mountainous range of coastal Ecuador hosts multiple distinct forest types that change according to the altitudinal range. A continuous forest cover allows animals to move freely between the distinct forest types in search of food. Food availability varies between forest types and depends partly on seasonal changes, stressing the importance of creating corridors that cover the entire mountain range. TMA has placed 24 camera traps in the canopy layer of 24 different trees along a 12 kilometre stretch of corridor. From the low end of the corridor in the dry forest, through the moist forest all the way up to the higher premontane cloud forest. Additionally, all trees have audio recorders that record ten minutes of each hour on all days. This exciting monitoring design not only enables TMA to estimate populations' numbers, but also to analyse species movement, e.g. of the Critically Endangered Ecuadorian white-fronted capuchin, across distinct forest types and link it to seasonal fluctuations. When utilised, the results can have strong implications on how TMA operates its reserves and how the NGO expands in the future. Another technological application TMA uses for its long-term planning is the application of spatial analysis through Geographic Information System (GIS). IUCN NL and TMA developed a model that predicts key areas most likely to function as wildlife migratory passes. The model provides conservation NGOs, interested in land purchase and establishing corridors, with a plug and play tool that can be used on location. TMA helped optimise the model and functioned as the first, real-life, case study. The NGO provided their expertise and included specific species variables, e.g., their ability to move across varying landscapes as well as ecological parameters about conservation priorities and deforestation risks. This set of variables was complimented with several other layers, e.g., predicted climate models that together formed the basis of the model. The results from this study revealed a 100 km long, wildlife migration corridor in the Manabí province of Ecuador. The land cover maps resulting from the model enable TMA to strategise and plan their long-term conservation objectives. It is still early days, but TMA now has the tools to visualise its long-term planning and the data to back up their vision.

LINK:
https://www.iucn.nl/projecten/satellietgegevens-tonen-beste-optie-voor-natuurbescherming

FLYING DRONES AND HELICOPTERS

To monitor the orangutan population in and around the Lower Kinabatangan Floodplain, in Sabah, Borneo, a local NGO named Hutan relies on a helicopter to get the job done. Direct monitoring of orangutans from the forest floor is complicated and inaccurate because of the low abundance of these primates and their elusive nature. Instead, researchers are counting orangutan nests. However, counting nests from the ground is laborious and time-consuming. Instead, Hutan has pioneered a new methodology to count nests from a helicopter flying at low altitude and slow speed over the forest canopy. Hutan has studied the ecology and behaviour of orangutans in Kinabatangan for about two decades. The staff knows how many nests are built daily by the orangutans and how long a nest typically stays visible after its construction. These two parameters need to be known to convert nest densities into actual orangutan densities. Although pricy, helicopter surveys are cost-effective considering the size of the area covered in a few hours of flight, compared to what would be needed from the ground. Monitoring trends in population abundance is crucial to understand the effectiveness of conservation measures that are implemented on the ground. Drones might be another way to count nests from above, but so far experiments have not been so successful. However, Hutan is using them to map and monitor deforestation in the area, another

North-east Bornean orangutan - credit: Hutan

helpful tool that mitigates some of the difficulties involved in conservation work and monitoring.

LINK:
https://www.facebook.com/Kinabatangan/

TRACKING WILDLIFE TRAFFICKING

Many coastal conservation projects face the issue of illegal turtle egg poaching. To uncover the routes of illegal trafficking of turtle eggs, the partner NGO Paso Pacifico has developed a technology called InvestEGGator. This technology consists of artificial sea turtle eggs that are deposited into freshly laid sea turtle nests and are fully camouflaged with the rest of the eggs. These eggs are equipped with GPS/GSM technology which provides geographic information about the movement of stolen sea turtle eggs, indicating both trade routes and potential points of sale. This is valuable information which can shift the criminal evidence towards the middle-men and kingpins, and away from the often impoverished local poachers. These GPS eggs were designed in 2016-2017 and custom-made using a 3D printer. The first implementation took place in Costa Rica: of the eggs that were taken by poachers, some of them transmitted their path from the beach to its destination, and one of them travelled nearly 200 km. To make this tool effective it is essential to partner up with government agencies and environmental NGOs; government agencies are crucial to provide the follow-up needed to map trade routes exposed by this tool, and to enforce environmental laws. On the other hand, NGOs and local communities often team up to patrol beaches and, thereby, have access and inside knowledge to the egg trade at the local level. They are in the best position to hide the GPS eggs in the sea turtle nests while contributing to the conservation of their precious biodiversity.

LINK:
https://investeggator.com/

Fake turtle egg with tracking device among real turtle eggs
credit: Phil Torres

TRACKING THE BLUE-THROATED MACAWS

In 2020, four blue-throated macaws were captured in the Barba Azul Nature Reserve and three of them received satellite transmitters to monitor their movement and discover the species' breeding grounds. The trackers provided crucial information and motivated the field team of Asociación Armonía to embark on another expedition beyond the borders of the reserve. In the field, the team encountered a total of ten new natural nests, which is the largest number of natural nests yet discovered. This expedition confirmed that blue-throated macaws rely on co-occurrence of two palm species for their survival. The Motacú palm *(Attalea princeps)* is essential for their foraging as the fruits of this palm are their main food source. Surprisingly, the newly discovered nests nearly all occurred (80%) in the trunk of dead Moriche Palm *(Mauritia flexuosa)*. Understanding the ecology of the blue-throated macaw allows Asociación Armonía to optimise their conservation work and better protect these emblematic macaws.

LINK:
http://armoniabolivia.org/2020/03/30/more-mysteries-of-blue-throated-macaw-revealed-through-tracking-study/

Blue-throated Macaw - credit: Tjalle Boorsma

Rainforest Connection installing their Guardians - credit: Humberto Castillo

BIOACOUSTICS MONITORING AGAINST DEFORESTATION

Using old locally recycled mobile phones, Rainforest Connection (RFCx) has created the world's first scalable, real-time bioacoustics monitoring system for studying and protecting forests. The RFCx technology relies on acoustic sensors (RFCx Guardians) collecting data on the forest's soundscapes surrounding the installation location, and are able to record sounds coming from one mile away. These devices are also used by one of IUCN NL's Land Acquisition Funds partners, Fundación Jocotoco, an Ecuadorian NGO protecting the last remaining large tract of Chocó rainforest through strategic land purchases. The Canandé Reserve is one of these strategic biodiversity hotspots, habitat of Critically Endangered brown-headed spider monkeys, endangered Baudo guans and great green macaws. Eight RFCx Guardians have been installed in key locations within the Canandé Reserve, where recording sounds of logging activities and gun shots can provide instant evidence for law enforcement against illegal logging and hunting. The devices are also used to acoustically monitor the presence of endangered species. The technology has revealed its importance by monitoring key properties within the reserve, which tend to be less patrolled by the park guards due to their remoteness but which are also more exposed to threats. This real-time vigilance monitoring system plays another relevant function: the potential reduction of rangers' exposure to illegal loggers and hunters, which can limit risky encounters which often compromise the safety of these key conservationist figures.

SNOWBALL EFFECT OF SMALL GRANTS

How the Land Acquisition Fund creates leverage:

The impact of land acquisition projects is not restricted to the purchase of pristine nature. Becoming a landowner enables local NGOs to establish a solid foothold in their region and provides a chance to show their competence while gaining the trust and respect of both local communities and authorities. This support, in turn, creates opportunities to develop joint projects with the local people, thereby involving them closely in the creation of a sustainable future for their region.

The backing from IUCN NL provides added value on an institutional level. For many of the beneficiaries, having been selected to receive a grant from an international donor allows them to participate more actively in the debates concerning environmental issues. It improves their reputation and they gain credibility with authorities and decision makers. In addition, the international support from IUCN NL is seen by many donors as a 'quality stamp', which helps our partners to raise additional funding from other local and international donors contributing to the long term sustainability of the reserves.

The international support from IUCN NL is seen by many donors as a 'quality stamp', which helps our partners to raise additional funding.

CHAPTER 5 HEADING TOWARDS THE FUTURE

In the last two decades, IUCN NL's Land Acquisition Fund has not only provided local partner organisations with grants, but also proved its significance in supporting capacity building activities, leveraging partnering donors' funds, and has created a vast conservation network across the world. The capacity to connect organisations inserted in different social, economic, cultural, environmental and political contexts is one of the biggest achievements of this program.

With ever-increasing land prices and pressure put on that land, we have to look for other context-based options to secure and connect land, in partnership with local communities, municipalities, private businesses and indigenous peoples. But the core of the program will remain the actual acquisition of the key areas. Experience shows that this is not only important to rescue species and secure ecosystem services, but also for local NGOs to establish a foothold in areas with a high biodiversity importance and high anthropogenic pressures.

The next generation of conservationists is facing an immense challenge. The enormous treasure chest of knowledge and experience contained within the network of partners of the IUCN NL Land Acquisition Fund needs to be shared with the rest of the conservation world, especially the younger generation. The program sees it as an obligation to find ways to make this knowledge accessible. We will look for ways to partner the experienced with the young and inexperienced, to share knowledge across borders and oceans and mentor young conservation talents.

All partners share the sentiment that purchasing the land is just the first step in establishing privately protected areas, and, only after that, the lifelong responsibility to manage and protect the properties starts. IUCN NL is often asked why the Land Acquisition Fund does not allocate a larger part of the budget to cover management costs of the properties, which is an indispensable component to ensuring long-term conservation successes. The main objective currently prioritises the securement of the land before it is sold for different purposes; currently, across the world, grants for securing lands are still limited. Nonetheless, IUCN NL recognises the challenges that many partners are facing while building and incorporating sustainable management schemes for the established privately protected reserves. Therefore, the organisation aims to look for strategic ways of teaming up with donors that can either cover core management costs, or the development of sustainable local funding mechanisms.

In 2019 IUCN NL started to reach out to private donors, to try to get them interested in supporting the work of our partners all over the world. When reaching out to private donors, it is important to stress the need for a solid, even modest, income stream to cover the basics: rangers salaries, fuel for their cars and a small financial buffer for unexpected setbacks like the COVID crisis, because when asked these issues are what keep our partners awake.

All of this is crucial to guarantee the long-term sustainability of privately protected areas and to become financially sustainable. A challenge and opportunity that IUCN NL embraces wholeheartedly.

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HOW TO CONTRIBUTE

HOW TO CONTRIBUTE?

There are several possibilities to help protect endangered species and their habitats through the Land Acquisition Fund. You can make a donation to the Land Acquisition Fund to support a specific project. Or you can sign a periodic donation agreement (for a minimum period of five years) with IUCN NL, to support the Fund. Another possibility includes bequeathing to the Land Acquisition Fund in your will. In all cases, your full donation will be used to support nature conservation and contribute to the protection of species and their habitats.
Donations are used as follows:

For questions and information on how to support the IUCN NL Land Acquisition Fund, please contact our Grants and Funding Manager: Hanneloes Weeda.
hanneloes.weeda@iucn.nl
020-3018246

Hanneloes Weeda

Donation < € 500,-

In your name, we place a trap-camera near to one of our projects

Donation € 500,- — € 2.000,-

We spend these donations on suitable equipment for the rangers who protect the reserves (e.g. gps, binoculars, fire prevention materials)

Donation € 2.000,- — € 5.000,-

We use these amounts to help our local partner organisations purchase land for their nature reserves

Donation > € 5.000,-

We use these amounts to help our local partner organisations purchase land for their nature reserves

AN INTERNS' PERSPECTIVE

In the second half of 2020, we, Lucia Guaita and Christiaan Spencer, entered the world of land acquisition and conservation and, soon after the offset of our internship, we realised that this was not just 'any' internship. Right from the start, we were engaged fully and allowed to utilise the full and vast international network of IUCN NL. We became part of the Land Acquisition Fund's anniversary, and got to celebrate its success with the full support and dedication of the many partner NGOs that were supported during two decades of land acquisition for conservation. Throughout our internship, we received a wealth of information and experiences that will guide us throughout our paths into the 'real' world of conservation.

These passionate and inspiring people shared their stories, achievements, struggles and life lessons and allowed us to understand what it means and implies to have a goal that is worth a life-long commitment. We were fascinated by the exceptional degree of humanity that all those conservationists shared, alongside values of empathy, respect, and above all patience. One important message that they all shared with us, and, through this report, with you, is that: no one life is less meaningful than another.

From Persian leopards in the Kurdistan region of Iraq to the securement of indigenous Ayoreo's lands in the Paraguayan Chaco, conservation is needed in all corners of our planet. There is not only the necessity to protect species, but also the possibility to do it. We have learned that conservation is not restricted to NGOs or governments, but that even one single person can move a mountain. We will do our part to work towards a future in which nature is valued and protected at the costs of few and for the benefits of many.

We are humbled by the opportunities granted to us by IUCN NL and its partners. Working with all these dedicated and passionate professionals has increased our hopes and motivation for building a better world, one where humans can live in harmony with nature.

Lucia Guaita

Christiaan Spencer

Plush-crested Jay - credit: Bernardo Lartigau

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