



**The
Generation
Forest**

2023

IMPACT REPORT

CLIMATE PROTECTION THROUGH NEW FORESTS

Climate change and species extinction are two of the greatest challenges of our time - and they are interrelated. With the concept of the generational forest, The Generation Forest offers a holistic approach to protecting and rebuilding nature. As a global community, we are committed to creating a healthy and livable planet - today and in the future.

Become part of the solution and invest as a member of our co-operative in the reforestation of permanent rainforests!

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1.5° – AND IT'S GETTING EVEN HOTTER!

2023 was the warmest year on record. At 1.48 degrees Celsius, last year was only just below the international community's target of 1.5° C compared to pre-industrial levels, according to the EU's Copernicus climate change service. The consequences of exceeding this temperature threshold were already presented in our last Impact Report: for example, an increase in extreme weather events, the loss of biodiversity, the melting of the polar ice caps and the rise in sea levels. All of this is already happening, while the scientific community largely agrees that the 1.5°C limit will inevitably be exceeded.

This means that we are not only facing an ecological turning point, but also a psychological one. The danger is great that if the 1.5° threshold is exceeded, global commitment to climate protection will significantly decline. We are already observing this trend. Why should I avoid emissions, why should I compensate, why should I live more sustainably if we are not going to achieve the target we have set ourselves? Quite simply: because it's never too late.

If global temperatures continue to rise, it is particularly important that we do everything possible to limit the increase and mitigate the consequences. An [international study](#) published in the scientific journal Nature Climate Change shows that humans are not only expect a stronger commitment to climate protection from their government but are also willing to do so themselves. The catch: respondents in the study believed that only 43 percent of their fellow citizens would be prepared to donate one percent of their income to climate protection. In reality, it would be as high as 69 percent. This shows that the will is there, but there's not always hope.

But there's hope: our generational forest gives hope, because it grows and grows and with it, its positive effect grows equally. We see this every day in our already reforested areas. There, the forest acts as a CO₂ sink, directly countering climate change. It provides also a safe home for animals and plants and creates fair jobs and long-term prospects for the local people. This triple impact is our motivation to remain hopeful and optimistic, even in difficult times. We hope that you will feel the same way when you read this!



Charline Joost & Dr. Mathias Hein
Board of
The Generation Forest

THE FORESTS OF THE FUTURE

In times of climate and species crisis, generational forests are exactly what we need now: valuable for nature and people and adapted to the challenges of tomorrow.

The fact that today more than 7,500 cooperative members, including over 100 companies, have invested more than 30 million euros in the reforestation of generation forests in Panama was not something Andreas Eke expected. The geography graduate came to Panama from Hamburg at the end of the 1980s, met the forest engineer Iliana Armién, and, together with her and in collaboration with universities, the Smithsonian Tropical Research Institute, the United Nations Environment Programme, and indigenous communities, developed the concept of the generation forest. Initially, the question was how the ecological aspects of the rainforest – such as its function as a CO₂ sink or as a habitat for animals and plants – could be combined with the economic aspects of a forestry plantation. Can a custom-designed forest be both economically profitable and valuable for nature and the environment at the same time?

Forests, from which everyone benefits

Today, the answer is clear and compelling: The reforested areas of The Generation Forest now cover more than 1,200 hectares, have absorbed approximately 7,800 tons of CO₂ by the end of 2023, are home to numerous endangered and threatened animal species, and are a crucial factor for water and soil quality in the surrounding area.

Our Generation Forests vividly demonstrate the ecosystem services of natural forests while also being financially lucrative for stakeholders due to their valuable timber: Cooperative members can later expect a return on their investment in the Generation Forest through the sale of FSC®-certified wood, while ensuring that only as much wood is harvested as can be replenished by new growth. Additionally, reforestation in Panama provides fair jobs with long-term prospects for local people, including many indigenous individuals, from collecting seeds to planting seedlings. "Climate protection is essential," says cooperative founder Andreas Eke, "but only if the people in Panama benefit from the forest can the holistic concept succeed, as the Generation Forest remains protected due to its ongoing economic value."



The mark of responsible forestry
FSC® C151703

The Forest Stewardship Council® (FSC®) certifies our sustainable forest management. The sustainability standard ensures

through regular independent audits that forests are used in accordance with the social, economic and ecological needs of current and future generations.

Adapted to future challenges

The generational forests are intended to last forever – this is stated in the charter. Unlike tree plantations, which are managed by regular clear-cutting, the impact on the climate and environment in the generational forest should be long-term and increase continuously as the forest grows. For the generational forests to survive in the long term, they must also be able to withstand future climatic challenges. In Panama, the weather phenomena El Niño and La Niña alternate between periods of extreme drought and periods of intense rainfall. By selecting tree seeds adapted to the respective local conditions, we lay the foundation for a tailored and resilient forest that is adapted to the climate of today and tomorrow. Unfortunately, as we can observe worldwide, many forests do not meet these criteria.

Generational forests are diverse, robust and resilient, actively countering the climate crisis and the biodiversity crisis, and creating economic value from which all participants can benefit.

It is crucial for the success of the concept that everyone can participate in the generational forest. „In Panama people see that a permanent forest is economically more viable than clear-cutting or deforestation for agriculture or livestock," says Andreas Eke. „The generational forest is transferable as an open-source concept," he emphasizes. „I explicitly hope that the concept will be copied. Our goal is to create as much forest as possible, as quickly as possible." Not only copying but also participating is encouraged: „As a cooperative member, you can directly and actively contribute to the reforestation of Generation Forests," says Eke. This way, everyone can become part of the solution that is urgently needed now!

Weitere Arten 9,5 %

- 2.6 % mixed native tree species
- 2.2 % tiger wood
- 1.5 % Laurel
- 3.2 % Other

Andiroba 3,0 %

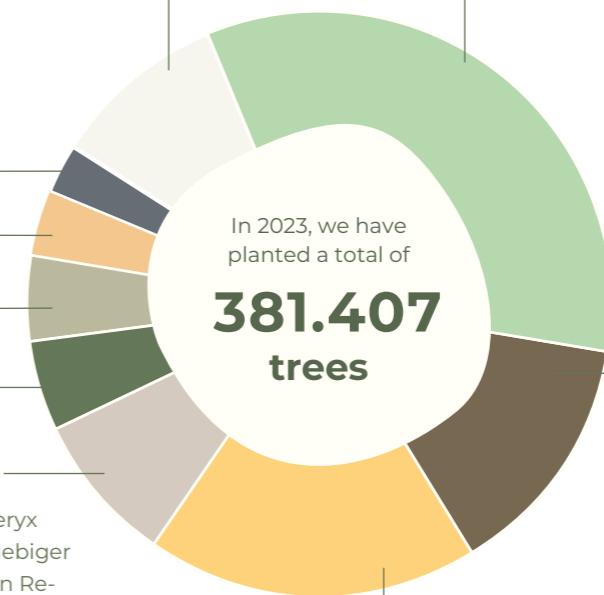
Ipe 3,5 %

Mahogany 4,8 %

Spanish cedar 4,8 %

Mountain almond 8,3 %

Der Almendro-Baum (Dipteryx oleifera) ist ein großer, langlebiger Baum, der in den tropischen Regenwäldern Mittel- und Südamerikas vorkommt. Er kann bis zu 50 Meter hoch werden und zeichnet sich durch seine dichten, harten Holzstämmen und die Produktion von ölreichen Samen aus.



Cocobolo 33,9 %

Cocobolo (*Dalbergia retusa*) grows on loamy-sandy and well-drained moist soils, needs plenty of sunlight and grows relatively slowly. If the tree is planted early, it provides shade for the following plants. As a popular wood for craftsmanship, its population is now considered endangered according to the International Union for Conservation of Nature (IUCN).

Golden cedar 13,7 %

Der Amarillo-Baum (*Terminalia amazonia*) wächst in Mittel- und Südamerika. Das Holz ist bekannt für seine Festigkeit, Haltbarkeit und Widerstandsfähigkeit gegen Schädlinge, weshalb es häufig im Möbelbau, für Fußböden und im Schiffbau verwendet wird.

Savannah oak 18,5 %

BETWEEN DEFORESTATION AND REFORESTATION

Rainforests are not only found in the tropics, but they are particularly essential for the global climate - and therefore an important tool in the fight against climate change.

The rainforest in Panama is a place of infinite diversity - as you can see from the trees that Iliana Armién introduces on a walk through the forest. As a forestry engineer and co-founder of The Generation Forest, she is familiar with the forest and its trees. Some, like the prickly cedar with its spiky bark, are easy to recognize. Others, on the other hand, are inconspicuous or very rare at first glance. Up to 10,000 different plant species, including [over 1,500 tree species](#), grow in Panama. Most people are familiar with only a fraction of them. „The more diverse the flora in a forest, the more diverse the fauna,” explains Armién. And the greatest diversity can be found in the rainforest.



Co-founder of The Generation Forest Iliana Armién.

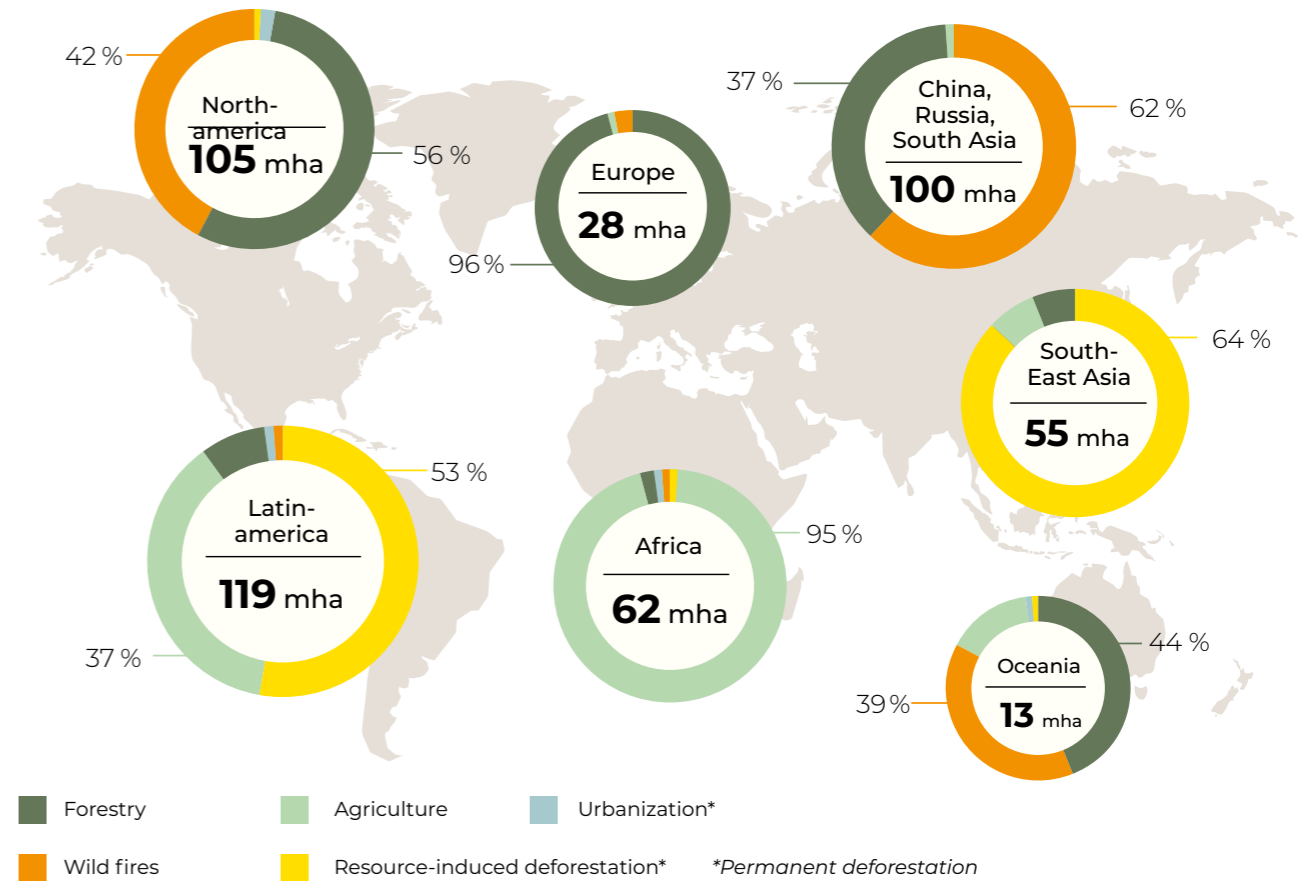
What is a rainforest?

A rainforest is an area characterized by high levels of precipitation and vegetation with tall, predominantly evergreen trees. This primarily applies to forests in the tropics, but also includes [Swiss forests in mountainous regions](#) or even Swiss forests in mountainous regions. They have existed in their present form for around [80 million years](#). Rainforests are home to more than [half of the world's plant and animal species](#), although they only cover around six percent of the earth's surface.

The great biodiversity of the rainforests plays a crucial role in the health of our planet, as the forests make a significant contribution to climate regulation and are also a habitat and livelihood for many people.

The forest is disappearing everywhere

„As a child, I grew up with old forests around me and had to watch them being cleared and disappearing,” says co-founder Iliana Armién. „In the area where we are planting generational forests, there were still forests 30 years ago. They were cut down and burned to make pastures for cattle.” This is not only happening in Panama, but almost everywhere in the world. Forests are being cleared for agriculture, mining, infrastructure, or timber production. Forest fires also contribute to some of the forest loss.



The drivers of deforestation: This is how much forest in mega hectares (mha) the world's regions have lost due to forestry, agriculture, urbanization, forest fires and resource-related deforestation in 2023. Source: World Resources Institute.

Reforestation is our answer

In the tropics in particular, forest loss is immense. Yet forests can counteract human-caused climate change, as they absorb and store CO₂ from the atmosphere in the long term - and much more than previously assumed: according to a [recent study](#), the storage potential of the world's forests is 226 billion tons of CO₂. This could offset the total CO₂ emissions of about five years - at least in theory. This is because natural causes such as forest fires, storms or pest infestations are increasingly leading to the destruction of large areas of forest. According to the study, degraded forests must be restored, and new forests reforested in order to achieve the maximum potential.

The fact that some countries have already taken the right path is shown by reports such as this one from Kenya: Last year, the government announced a [nation-wide initiative](#) to plant 100 million trees. In Panama too, national and private reforestation projects have added

more forest than has been lost in recent years. It is all the more important that all stakeholders - whether governmental, commercial, or private - continue on the path of reforestation. Only then can we manage to preserve the rainforests and their biodiversity - and thus the basis of our livelihood. „The forest is my passion, and the reforestation of rainforests has become my life's mission,” says Iliana Armién. Every participation in our cooperative in the form of forest shares makes it possible for the generational forest in Panama to continue to grow, benefiting both people and the environment locally and globally.

Become a member or increase your shares now! →

CAN DEFORESTATION IN PANAMA BE STOPPED?

Forests are disappearing all over the world. Only in Panama has more been added than lost in recent years. In this interview, Francisco Cadavid, who was the head of the environmental authority in Panama until the end of 2023, explains how this has been achieved and the goal behind it.

The Generation Forest: The Ministry of Environment in Panama published figures in 2023 showing that in some years more forest has been added than lost. How do you evaluate this development in the context of climate change?

Francisco Cadavid: That's correct. We have increased the forest area in Panama by three percent from 2020 to 2022, which corresponds to more than 170,000 hectares. It's not just about future developments, but about doing something together now to combat climate change directly and indirectly. This is not achieved in government buildings or at conferences but only on the ground, where trees and forests play a key role in our climate.

How and when did the mission of the research begin?

For me personally, reforestation has been an important concern since my childhood. I have always wanted to see a greener country. The basis for this is the National Forest Restoration Program, which is one of the government's priorities.

What challenges were associated with this project?

The program started shortly before the pandemic and our plans were dependent on the state budget, which then went towards health protection and combating the pandemic. We then adapted our strategy and addressed the entire population with the message „It's not about quantity, it's about quality“ in order to get them involved.



Francisco Cadavid, head of the environmental authority in Panama.

So, it wasn't about planting as many trees as possible, but about working together to care for the trees we plant to make a sustainable impact.

How can you imagine the reforestation process?

Reforestation is not an easy process. We have noticed that where reforestation is taken lightly, it usually fails. It requires knowledge, planning and a lot of commitment. We initially divided the land into zones. Depending on the amount and frequency of rainfall in Panama, trees were planted in each month of the year and in each area. We also decided to plant larger trees from tree nurseries that are suitable for the respective areas to maximize their chances of survival, and minimize the effort required. We have succeeded in bringing together indigenous peoples, academia, civil society, private companies, the government and international organizations.

Do you feel that the people in Panama support the goal of reforestation?

Today I can say that the majority of the population is committed to the restoration, conservation and protection of the forest. This was not always the case. And especially with farmers, it was difficult to convince them to participate in our program. Today, the neighboring farms and other provinces are asking us when the next phase will begin because they have realized that the trees on their land have benefits for their livestock, crops or groundwater.

In 2023, forest loss was again higher than reforestation figures. What are your goals for the coming years?

The goal is clear: We need to maintain what has been achieved and work with our available tools towards positive development. However, in order for the forests to have a long-term impact and achieve tangible results, they need structural and economic strengthening. Additionally, the weather conditions caused by El Niño were not favorable. But as the saying in the bible goes:

“There is a time for everything”. Due to the drought, we are therefore focusing not on new projects but on the preservation of existing forest areas.

How do you view the work of The Generation Forest in this context?

I know the concept of The Generation Forest and I think it's brilliant. It ensures that the forest is managed and restored in an optimal, efficient way, while the profit from timber extraction does not damage the environment or the forest ecosystem itself. It is important that there are such projects that act on their own initiative and develop innovative concepts to preserve the forest.

What does nature in Panama mean to you?

In Panama, we are blessed with the nature that surrounds us. I think of the forests with ancient trees, the diverse fauna, the fertile soils, fresh water and countless waterfalls that are fed and protected by the trees. The fruit trees of different flavors and the rich colors of the flowers. It is not only a great responsibility to protect this nature, but also an honor and a blessing.

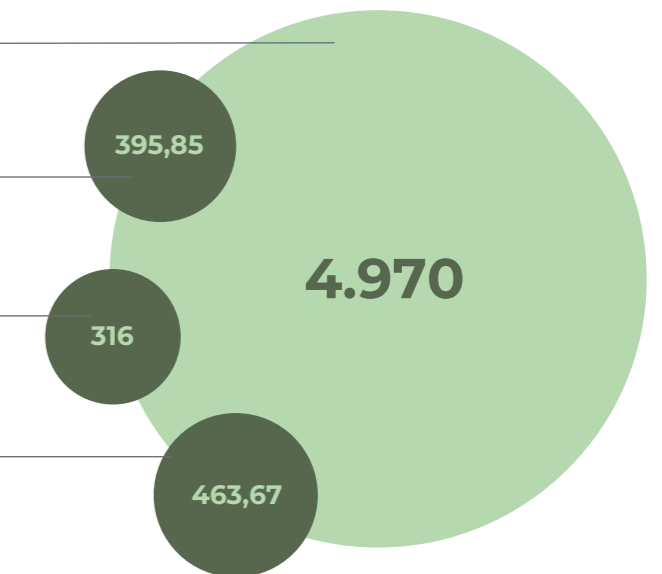
Loss and reforestation of forests in Panama

Loss of primeval forest in Panama in 2023
(As a percentage of the total forest area: 0.17 %)

Reforestation of primeval forest (in ha) by the Panamanian Ministry of the Environment in 2023

Reforestation of primeval forest (in ha) by the non-profit organization ANARAP in 2023

Reforestation of Generation Forest (in ha) by The Generation Forest in 2023
(2022: 505 hectares)



Quelle: Ministerio di Ambiente de Panama, Global Forest Watch

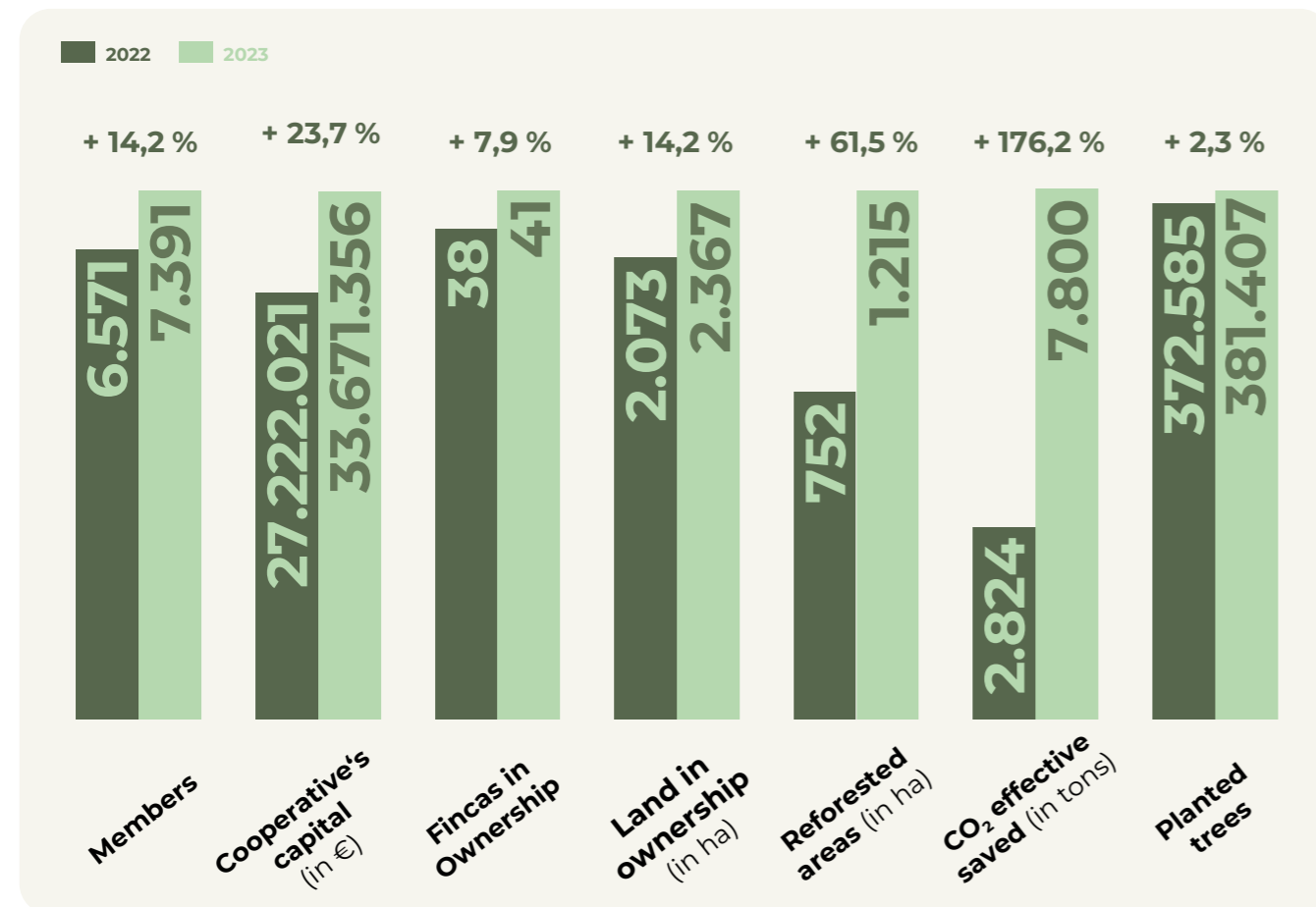
OUR GROWTH

We are proud of what we have achieved so far – and we still have a lot to do! Thanks to our dedicated members, we have grown enormously in just a few years.

Iliana Armién from Panama and Andreas Eke from Hamburg co-founded The Generation Forest in 2016. Today, the cooperative has more than 7,500 members who have contributed over 30 million euros in capital. By the end of last year, 2,367 hectares of land, divided into 41 project areas, had been protected and maintained and a total of 1,215 hectares reforested and cared for. The chart below (as at 31.12.2023) provides an overview of the development.

This positive development should not, however, distract from the difficulties in our work. Last year, the weather

phenomenon El Niño led to excessive drought and little precipitation – extremely unfavorable conditions for reforestation. As a result, our resources and manpower on site in Panama had to be concentrated on ensuring that the seedlings we planted in the ground were healthy, and actually survive. Fortunately, we were able to keep the number high. Due to the more difficult conditions, we will probably not be able to match the reforestation figures of previous years in 2024 but will have to continue to put a lot of effort into continuing to care for the young plants if the drought persists and, if they die, to replant them immediately.



OUR IMPACT

With our Generation Forests, we create measurable impact. The positive impact in the areas of climate protection, biodiversity and social justice is the basis of our actions and the confirmation of our success.

We constantly monitor and analyze our actions and impact using selected key impact indicators. This includes, in the area of „Climate protection“, evaluating data from our forestry partner in Panama, Futuro Forestal, regarding the reforested area and its certified performance as a CO₂ sink, which is confirmed by the VERRA VCS Verification Report.

In the area of “Biodiversity”, in 2022, we conducted a comprehensive biodiversity monitoring for the first time in collaboration with the local conservation NGO Ancon.

We have expanded the figures from 2022 with new discoveries using camera traps to provide a revealing picture of the animal and plant species native to our forests over the years. The species identified include numerous endangered or critically endangered species according to the IUCN Red List of Threatened Species.

In the area of social impact, we work with the figures from Futuro Forestal on employment in 2023. Using the FTE (Full-Time Equivalent) metric, we convert seasonal and part-time positions to a full-time equivalent value.

Regularly evaluating our data and reviewing our work enables us to continuously adapt our working practices to maximize the impact of the cooperative's capital.

IN GOOD NEIGHBORHOOD

Our customized and resilient generational forests have a multifaceted impact on the climate and the immediate environment.

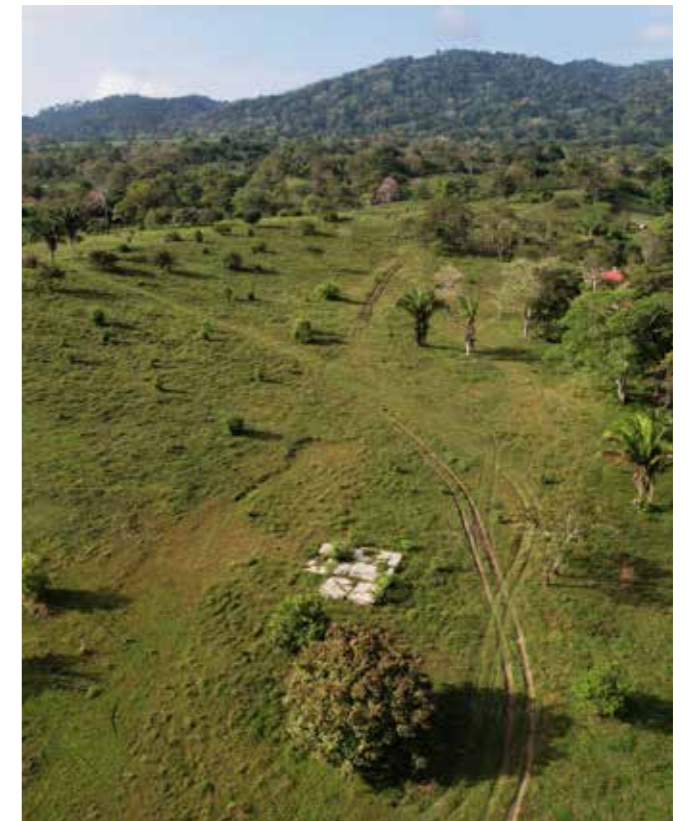


Just a few decades ago, the land of our project area, [Filo del Tallo](#), in the Darién region was completely forested. Today, the original nature has long since disappeared due to livestock farming. What remains is barren pastureland - almost worthless for people and nature and typical of the landscape in many places in Panama. For us, Filo del Tallo is one of our most beautiful reforestation projects, as it clearly demonstrates the positive effect our forests have on the environment.

Effect on soil & water

In the immediate vicinity are the remaining forests of the water protection area in the mountains. These springs provide water to over 6,000 people in the neighboring communities. To secure the water supply and to ecologically and economically restore the area, we acquired the Filo del Tallo region in 2023. Gradually, we plan to reforest 190 hectares with Generation Forests and connect the remaining isolated forest areas.

These forests have a decisive influence on the water supply and soil quality in the surrounding area. Depleted soils quickly become fertile again. Tree roots penetrate the soil, creating space for improved aeration and drainage. At the same time, they promote the increase of organic matter in the soil and attract a variety of microorganisms that are responsible for the nutrient cycle in the soil. In this way, the reforestation of our generational forests contributes to improving soil fertility and increases the soil's ability to retain water. As natural water filters, trees also improve water quality, benefiting the people living near Filo del Tallo.



An aerial photo of our project area, Filo del Tallo, shows the potential area for reforestation. Since 2023, new Generation Forest is being established here, which will soon benefit the environment and the climate.



Water Cycles

Forests store and filter water, release water vapor and thus regulate the water cycle and precipitation by slowing down the rate of runoff and protecting the soil from heavy rainfall and erosion with the help of their roots.



Soil restoration

Forests increase the organic matter in the soil and attract a variety of microorganisms that ensure nutrient cycling in the soil. In this way, reforestation improves soil fertility and enhances the soil's ability to store water.

Effect on climate & air

Another crucial role forests play is in the fight against climate change. With rising global temperatures, they are often referred to as the world's „climate system.“By absorbing the greenhouse gas CO₂ from the atmosphere, permanently storing the carbon in their biomass and releasing oxygen back into the air, they have a cooling effect on the global climate. It is therefore clear to us humans that the more forests we reforest and the faster these forests grow, the greater their positive impact on the climate.

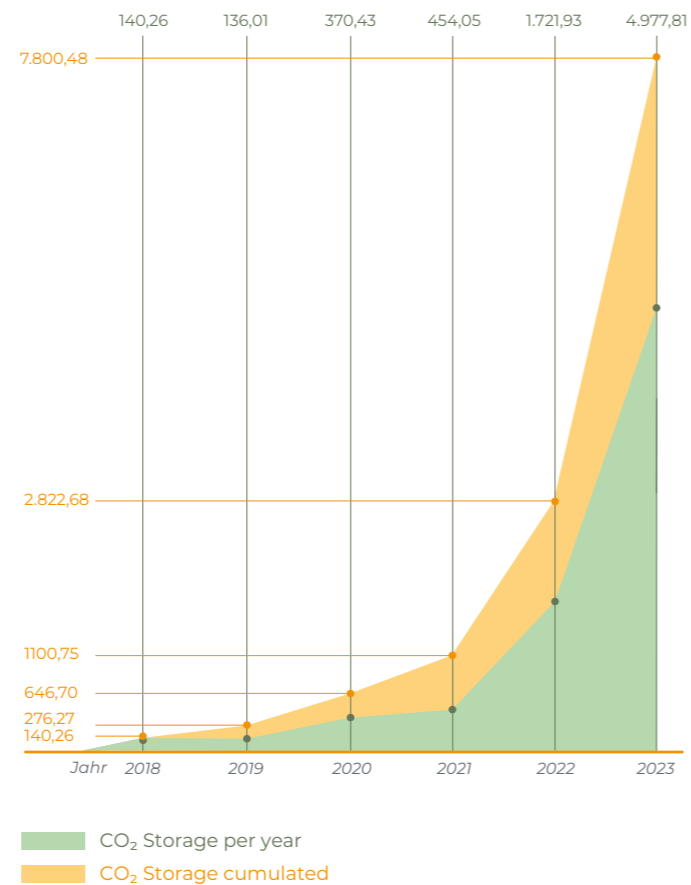
When selecting our tree mix for reforestation, we focus on fast-growing and resilient species that can withstand the climatic conditions in Panama and absorb as much CO₂ as possible as quickly as possible. For example, the Spanish Cedar is a fast-growing species that reaches maturity in just 25 years. This is a short time compared to forest growth in Germany, where trees take around four times as long to reach growth. An oak, for instance, takes up to 160 years to reach full growth.



Until our generational forest are fully grown, it stores an average of around one ton of CO₂ per

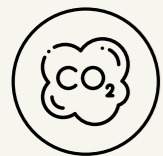
year per cooperative share (500 m²) – a fact confirmed by our certification under the Verified Carbon Standard (VCS) over a calculation period of 44 years. However, it naturally takes time for the forest to develop its full storage capacity. By the end of 2023, our areas will have effectively offset 7,800 CO₂. Later, the 1,215 hectares will have an output of 24,300 tons of CO₂ per year. The forested area of Filo del Tallo alone would then contribute 3,800 tons.

CO₂ storage through our forests



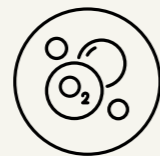
That's how much CO₂ our forests have stored over the years.

You can find more up-to-date information about our projects on our [website!](#)



CO₂ storage

Our forests absorb the greenhouse gas CO₂ from the atmosphere and store the carbon in their biomass over the long term - on average one ton per year per 500 m² of rainforest. This makes them an important ally in offsetting emissions.



Air filter

Forests absorb CO₂ from the air and release oxygen again. The trees clean the air in their surroundings and can filter up to a ton of pollutants, dust, bacterial and fungal spores from the air, which has a direct effect on the quality of the air.

THE TRIP TO PANAMA

Together with Janosch's Little Tiger and Little Bear, we are reforesting the "Tigerenten-Wald" in Panama – and everyone can join in.

Little Tiger and Little Bear - the two main characters from Janosch's classic children's book „The Trip to Panama“ - are passionate climate protectors. Panama is the land of their dreams, so richly scented with bananas, and is still close to their hearts. To ensure that Panama remains as beautiful as they dreamed it would be, the two are taking action as ambassadors for the generational forest: In times of climate change and species extinction, a joint reforestation project by The Generation Forest and Janosch Film & Medien AG aims to give hope – and everyone can join in!

Specifically, Little Tiger, Little Bear and The Stripy Tiger Duck help as ambassadors on advertising motifs, a dedicated website or as displays at trade shows to garner support for the Generation Forest and hopefully many supporters we will be able to create a new home for many endangered species". Animals such as

the jaguar and the toucan will find a new home in the forest, and plants will be able to thrive undisturbed. Entire ecosystems are being created – and sustained for the long term.

To do this, Little Tiger and Little Bear need support - whether from private individuals or companies!

As a lighthouse project for climate protection, "Tigerenten-Wald" is intended to demonstrate the long-term impact that can arise from a partnership of equals – always with the aim of creating as much forest as possible.

Help Little Tiger & Little Bear reforest the **Stripy Tiger Duck Forest** now!



A PIECE OF THE BIG PUZZLE

The biodiversity in the forest and its health are interdependent. This is not the only reason why it is important to us to promote diversity in our generational forests. Regular monitoring provides information about provides insights into the various species that inhabit these areas.



As an environmental biologist, Yolani Holmes is used to the sight of wild animals. Panama's rainforests are home to amazing and rare species, such as the sloth and the jaguar. But even Yolani doesn't get to see most of these animals in the wild: „Some animals are nocturnal, others are extremely shy, and more and more are now simply very rare,“ explains Yolani, who works for the Panamanian nature conservation organization Ancon. This is why she sets up camera traps to study the biodiversity in the areas under investigation using the photos.

Yolani installs the cameras on forest paths or small clearings together with the farmers who own the forest areas. From then onward, the farmers will collect the memory cards from the cameras every 20 to 30 days and send the contents to Yolani. The cameras will be marked by GPS so that they can be found even in the most remote locations. When Yolani receives the data from the fincas, the most exciting part of her work begins: „Imagining which animal species I might encounter when installing the cameras is already thrilling. However, the real reward comes when I review the data and discover something interesting, especially when I find that the farm has a high potential for protecting species often endangered or threatened by deforestation.“

Caught on Camera

Yolani and the organization [Ancon](#) carry out this biodiversity monitoring on several of our fincas. We already presented the extensive results in the last Impact Report, and in 2023 we added a few new species: we were able to identify 21 different mammals, 73 birds and one reptile using the photo traps on our lands. These numbers vividly show that our generational forests are being embraced as habitats by various species. This in turn also benefits our forests: the greater the biodiversity, the healthier the ecosystem.

„I find it exciting to imagine what kinds of animals I might encounter when installing the cameras.“

Yolani Holmes

Our generational forests are home to birds with exotic names such as the Great curassow or the red-bellied motmot. They eat the fruit from trees, carry it on and excrete the seeds elsewhere, playing a crucial role in the natural regeneration of forests. However, with forest loss and the fragmentation of forest areas, biodiversity declines. Large birds, such as the toucan, are particularly affected. According to a recent study published in the journal *Nature Climate Change* by [ETH Zurich](#), these birds are reluctant to travel long distances between forest patches.

Species Extinction Exacerbates Climate Change

According to the ETH researchers, 130 meters can already be too great of a distance for the birds. Yet large birds are crucial for the natural regeneration of forests: the larger a tree, the more carbon it can store. As a rule, large trees also have large fruits, which in turn are only eaten by large birds or some species of monkey. If these species disappear, the trees cannot spread their seeds effectively. And this has consequences for climate change: according to the study's findings, the limited freedom of movement of large birds means that 38 percent of potentially storable carbon is lost compared to less fragmented landscapes.



1. Ocelot (*Leopardus pardalis*)
2. Tayra (*Eira barbara*)
3. Turkey vulture (*Cathartes aura*)
4. Nine-banded armadillo (*Dasypus novemcinctus*)



Environmental biologist Yolani Holmes from the NGO Ancon.

Reforestation is therefore not only about creating new forest areas, but also about reconnecting existing ones. In this way, intact ecosystems can be restored and animal habitats can be expanded. This approach has been an important part of the reforestation of our generational forests from the very beginning. Through continuous and detailed biodiversity monitoring, we gather valuable information that helps promote sustainable forestry practices.

We have it in our own hands

„During my work in biology and nature conservation, I was able to see first-hand how all the elements of an ecosystem are interconnected and interdependent - even we humans are only a piece of the puzzle,“ says Yolani Holmes. Undoubtedly, humans have the biggest impact on natural ecosystems often with disastrous consequences for the environment. The loss of forests and the decline in biodiversity are a direct result of human expansion.

And this in turn has consequences on us humans: the loss of natural ecosystems such as forests and moors is essential in the fight against climate change. The loss of biodiversity compromises the ecological, economic, and health foundations of human life, thereby threatening our long-term well-being and survival.

But we also have it in our own hands to stop and reverse this trend. People like Yolani work every day to better understand our environment and the creatures around us so that we can better protect it: Yolani says, „With these studies, I aim not only to understand how ecosystems function but also to provide valuable data and recommendations that can help other organizations and individuals advocate for their protection. I believe my work serves a higher purpose, as it contributes to the preservation and conservation of nature.“

ANCON (ASOCIACIÓN NACIONAL PARA LA CONSERVACIÓN DE LA NATURALEZA)

is a nature conservation organization in Panama that has been dedicated to the protection of biodiversity and the sustainable use of natural resources since 1985. They work through scientific research, environmental education and the promotion of community projects to support the conservation of ecosystems and sustainable development in Panama. Since 2016, our forestry partner Futuro Forgestal has been working with Ancon to gather knowledge about the protection of species in reforested forests. Ancon also emphasizes community involvement by engaging forest owners, educating them on the importance of conservation, and giving them an active role in monitoring efforts.



Create valuable living space with us by becoming a member or increasing your shares.

KNOWLEDGE AND VALUES FROM THE NURSERY

At the tree nursery in Piriati, seedlings for our generational forests are cultivated. Two of the women employed there, Cecia and Nereida, share their experiences about their work and how it benefits them and their families.



Cecia Ortega, employed at the Futuro Forestal tree nursery.

With quick, precise movements, Nereida and Cecia prune the leaves of the young plants, which are packed closely together in long rows on tables at the Piriati nursery. This is where they grow until they are big enough to be planted in the ground. „Pruning is my favorite part,” says Cecia in the shade of the rows of plants. Initially, it felt strange to prune the leaves, but they learned its benefits and that it strengthens the plants.

Outside, the midday sun blazes down; it's the dry season, and the weather phenomenon El Niño is causing it to be particularly severe in Central America. The days are hotter and there is even less rain than usual. This is not only a problem for the nursery workers, but also for the seedlings. They are dependent on rain after they are planted in the ground. That's why Nereida and Cecia prune the plants: By reducing the surface area of the leaves, the plants' water needs are reduced, and they are more resistant to the heat.

Independence through work

It is mainly women from the Emberá community who work in the tree nursery in Piriati. This employment offers them an alternative to the traditional role of housewife and gives them greater independence through a fair salary and training. Nereida, mother of two, and Cecia, mother of four, have secure employment in a region where jobs are scarce and poverty is correspondingly high. As in many Central American countries, the gap between poverty in the countryside and prosperity in the city is growing in Panama.

About 100 kilometers away from the nursery, the skyline of Panama City is dominated by skyscrapers, housing luxury hotels and offices of global companies. The capital of Panama is an internationally important banking and financial center and tourist magnet. Not far away, around 20 ships pass through the Panama Canal locks between the Atlantic and Pacific oceans every day. In Panama - so it seems - the economy is booming. And at first glance, the figures seem to bear this out: according to the [National Institute of Statistics and Census](#) in Panama, the economy grew by 7.3 percent in 2023 compared to the previous year.



Nereida Garabato, employed at the Futuro Forestal tree nursery.

Poverty despite economic growth

However, the truth is that poverty in the country is becoming increasingly severe. According to the initiative „[Panama without Poverty](#)”, a quarter of the population lives in poverty, which corresponds to 1.1 million people. The rural population in Panama is particularly affected by extreme poverty: according to [World Bank data](#), the poverty rate in rural Panama has risen from 29.3 percent in 2022 to 32.3 percent. On the one hand, there is economic growth in and around Panama City, and on the other, poverty in rural regions.

Indigenous women like Nereida and Cecia are particularly affected by this. „There are hardly any jobs around here, almost only in the cities,” says Cecia. „To work there, we would have to leave our children at home - or move away from our community altogether.” For many people in rural areas, leaving home to find work in the city is the only option. However, migration threatens the indigenous peoples with the loss of cultural identity and traditions. In addition, the jobs available in the cities are often poorly paid and rarely secure, meaning that rural refugees remain economically disadvantaged.

No choice between work and family

Cecia's partner also works in the city and only comes home to the family every eight days. Nereida lives with her husband, who works in agriculture and often travels for temporary jobs. To support their families and send their children to school, Cecia and Nereida rely on their incomes but must simultaneously manage household and family responsibilities. The women take their children with them to the tree nursery or leave the eldest children to look after the others during the day. In Cecia's case, her 18-year-old daughter Yuranis takes on this task.

Many daughters who accompany their mothers to the nursery later start working there as well. Initially, there is a one-month training period, explains Nereida. She learned various pruning techniques, the proper use of fertilizers, and the characteristics of different tree species: „Some species are weaker, others are stronger; some can tolerate shade, while others cannot, and their leaves fall off if they don't get sunlight. Then there are fertilizers specifically for each plant. When we apply them, you can quickly see from the leaves that the plant is thriving. This knowledge is essential when working with the plants here,” Nereida explains.

„I feel like I've grown personally since I've been working here. I learn something new every day and see the success of my work.“

Nereida Garabato



These young plants will soon grow into entire forests.



Knowledge leads to self-efficacy

For the women, however, working in the tree nursery is not just about the knowledge they gain, but also about values such as self-efficacy, independence and security. By earning their own income, which is higher than the average wage in Panama, the women are no longer solely dependent on their husband's income. Additionally, employees at the nursery, as well as in other areas, such as field reforestation, benefit from family social insurance. „I feel like I've grown personally since I've been here. Every day I learn more and see the results of my work,“ says Nereida.

women with pride: „Our work also encourages other people to reforest their homes,“ says Cecilia. She has seen many landowners and farmers who have started to reforest their fields themselves. Cecilia, Nereida and the other women at the tree nursery are leading by example in their homeland. They have the knowledge needed to gradually reforest the deforested areas. This is a task that unites the entire country, as [the government](#) aims to stop deforestation completely by 20304 . Cecilia and Nereida make their contribution every day when they prune, fertilize and care for plants in the tree nursery and pass on their knowledge to their daughters.



For the working conditions in the tree nursery, our forestry partner Futuro Forestal was awarded the CCB (Climate, Community and Biodiversity Standard) certificate, which ensures that land management projects are carried out in accordance with best practices for involving the local population and have a positive impact on the local population and the conservation of biodiversity.

Learning and passing on reforestation practices

Ultimately, the nursery run by Futuro Forestal is a crucial component of the reforestation process. Here, seedlings are nurtured to eventually become dense, permanent forests. This is where the foundation for the generational forest is laid. The women at the nursery and the men working in the fields are actively involved in reforesting their homeland. „I have witnessed the deforestation of our homeland for as long as I can remember,“ Cecilia reflects. „There used to be much more forest, many more animals,“ Nereida adds.

„I have witnessed the deforestation of our homeland. Our work also encourages other people to reforest their homeland.“

Stopping and reversing this development fills the two

FOUNDATION FUNDACIÓN BOSQUE DE GENERACIONES AND EJWĀ WĀDRĀ

The Generation Forest and Futuro Forestal work together in local projects with the Fundación Bosque de Generaciones foundation and the youth organization Ekwā Wādrā from the Emberá community in Piriati to create and protect forests and their biodiversity. The Emberá see the loss of their forest as a cause for the loss of their culture and want to restore it by reforesting forests. Therefore, these projects have focused on training 36 community members in reforestation, nursery management, and forest management, including 16 women and 20 men. Some of those trained were subsequently employed for forest inventory and monitoring. In close cooperation with the Emberá, a tree nursery was opened in Piriati in 2022. With a large number of reforestation projects in the Darién, the cooperative is the largest buyer of seedlings from this tree nursery. The Generation Forest also works with other indigenous communities such as the Wounaan, the Ngäbe Bugle and the Guna.

A SUSTAINABLE AND A FAIR FUTURE

In 2015, the global community adopted the 2030 Agenda, which includes 17 Sustainable Development Goals (SDGs) that outline a roadmap towards a sustainable future. Here we show our contribution to the United Nations' Sustainable Development Goals.

10 REDUCED INEQUALITIES
By providing fair and secure employment opportunities in rural areas, we help reduce the inequality between rural regions and urban centers. We encourage entrepreneurial spirit by offering interest-free micro-loans and supporting our employees' own projects with savings plans, following the generational forest principle.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION
The concept of the generational forest represents a commitment to responsible consumption and production of forest products. By applying sustainable forestry practices, we maximize the productivity of our forests while minimizing environmental damage and resource depletion.

1 NO POVERTY
We pay both seasonal and permanent employees wages that are above the legal minimum wage. In Panama, where the minimum wage is \$1.91 per hour, amounting to \$15.28 per day, The Generation Forest pays a daily wage of \$18.32.

6 CLEAN WATER AND SANITATION
Forests play a crucial role in securing water supply. In regions like Panama, where the dry season can last up to six months, the presence of forests is especially important. Acting as natural sponges, forests absorb rainwater and gradually release it, which helps to mitigate the effects of droughts and maintain a steady water flow.

13 CLIMATE ACTION
Through their growth, our generational forests measurably remove CO₂ from the atmosphere. Our reforestation efforts directly counteract deforestation and have a long-term positive impact on the climate. The concept of the generational forest is intended to serve as a model for successfully integrating the ecology and economy of the rainforest.

3 GOOD HEALTH AND WELL-BEING
The safety and health of our employees are our top priority. They regularly participate in safety training sessions and first aid courses. We provide health and social insurance, which is unfortunately not standard practice in Panama's agricultural sector. Additionally, in coordination with the Ministry of Health, we offer free vaccination services.

8 DECENT WORK AND ECONOMIC GROWTH
By providing long-term and secure jobs, we not only ensure the financial independence of our employees but also contribute to the economic stability of the region. We are committed to promoting sustainable economic growth through the production and sale of FSC®-certified tropical wood.

5 GENDER EQUALITY
The establishment and preservation of Generation Forests are crucial measures for creating and protecting habitats for endangered animal and plant species in Panama. The development of global biodiversity is directly linked to climate change. Our Generation Forests counteract both crises simultaneously.

4 QUALITY EDUCATION
We place great importance on the continued education and qualification of our seasonal and permanent staff. In training sessions, we provide knowledge on forestry practices, fire-fighting techniques, and workplace safety, aiming to not only enhance professional skills but also to promote safety and environmental awareness.

494 

Employees in Panama in fixed-term and non-fixed-term employment contracts in 2023.




 **172,7**
FTE (Full-Time Equivalent)



381.407

Trees planted in total in 2023.

18 Different species in total
14 of native origins in Panama
10 of which are endangered

 **21** mammals
 **73** birds
 **1** reptile


Spotted in our generational forests.


49 species of least concern with decreasing numbers, 2 near-threatened species, 2 vulnerable species, 2 critically endangered species (according to the IUCN Red List)

 **1.215**

hectares of forest will be reforested between 2017 and the end of 2023. Of which **463,67** hectares in the last year.

7.800,48

 tons of CO₂ were effectively removed from the atmosphere and carbon was sequestered. (from 2017 to the end of 2023).

 **60%**

298
employees (60%) from indigenous Communities

CHALLENGES FOR OUR WORK

Too much or too little rain, or natural disasters such as forest fires, can pose a threat to the young plants. Additionally, social developments that have led to strikes and protests in Panama also influence our work on the ground. Here's an overview of current challenges and how we are addressing them.

Forest fires

During El Niño events, extreme drought periods are common, making fallen leaves and branches highly flammable. This increases the risk of forest fires, which can be caused either naturally or by burning weeds on neighboring farms. In 2023, a fire occurred on our „Gatún 2“ finca, affecting an area of four hectares. Despite the absence of reforestation, we observed that up to 80% of the plants on other fincas regrew after the fire. Nevertheless, we promptly reforested the area on Gatún 2 within the same year. It is important to note that it is impossible to completely prevent forest fires during the dry season. Our generational forest concept includes a calculated mortality rate of up to 10% for young plants, including those that fall victim to fires.

→ Solution:

To minimize the damage caused by fires, we monitor both the fincas and the forests closely, including using drones. Close cooperation with our immediate neighbors is also important. We involve them in fire safety training and joint action plans in the event of a fire and provide them with an emergency hotline that they can use to report fires on their farms so that we can send help immediately. We also set up firebreaks in afforested forest areas to prevent or slow down the spread of fire in the event of a fire.



Strikes & protests

Last year, Panama experienced significant protests triggered by the extension of a mining concession granted to a Canadian company for the operation of a copper mine. The protesters demanded the closure of the mining operation, which is located in a nature reserve in the middle of the rainforest. They were concerned about the environmental impact of copper extraction and protested against what they perceived as unfavorable contract terms for Panama, as well as the exploitation of nature and local communities.

Every day, thousands of people took to the streets across the country, setting up roadblocks in some areas. The nationwide protests were further fueled by rising living costs and increasing inequality in Panama, issues that had also led to demonstrations the previous year. By the end of 2023, Panama's Supreme Court declared the controversial mining law unconstitutional, much to the protesters' satisfaction. Following this ruling, protests in many parts of the country subsided, and roadblocks were dismantled. However, some protesters continue to demand the complete revocation of the [controversial mining contract](#).

→ Solution:

We monitor social and political developments and take measures to ensure the safety of our employees on their way to work. Due to the road blockades, important traffic routes were partially impassable. We strategically positioned vehicles on both sides of the blocked main road so that our employees could cross the road safely on foot and continue their journey to the fincas.



El Niño & La Niña

The climate in Panama and Central America is heavily influenced by the weather phenomena El Niño and La Niña. While El Niño, Spanish for „The Boy,“ brings heat and dryness to Central America, leading to less frequent but more intense rainfall, La Niña, Spanish for „The Girl,“ is associated with increased precipitation and heightened hurricane activity. These phenomena occur every [three to seven years](#) due to warming or cooling ocean waters in the Atlantic. Both weather extremes pose challenges for reforestation efforts, as both drought and excessive rainfall can hinder the growth of young plants.

→ Solution:

To protect seedlings from drought, mulch is spread on the soil surface around the plants to retain moisture. Additionally, the mulch blocks sunlight from reaching weed seeds, preventing their germination. For extreme rainfall, drainage channels are used, and heavy machinery is avoided to prevent disturbing the nutrient layer of the soil, which could lead to erosion from the rain. Depending on the weather phase and location, we also select tree species suited to the specific conditions for reforestation. For example, species that tolerate high moisture or waterlogging include the Gold Cedar or the Mountain Almond, while Cocobolo and Teak are better suited to dry conditions.



REFORESTATION BASED ON SCIENTIFIC KNOWLEDGE

Scientific partnerships enhance our understanding of our work environment, forestry concepts, and impact. In this way, we can improve our practices in order to reforest as effectively as possible.

In Panama, our generational forests are not only visited by our staff during their tasks of planting, thinning, or monitoring, but also increasingly by individuals with their own missions. Our reforestation concept of the generational forest is attracting scientists from all over the world - because what is already growing here is something that could play an important role in the future. Research projects help us and others understand and maximize the benefits of Generation Forests.

Natural regeneration vs. afforestation

Together with the renowned [Crowther Lab](#) at ETH Zurich, we are investigating how the results of natural regeneration differ from the active restoration of nature through reforestation. The Crowther Lab describes itself as an „interdisciplinary team of scientists studying ecosystems on a global scale to understand the links between biodiversity and climate change“.

The researchers are measuring the recovery of the vegetation structure and plant diversity over an area of around three hectares. For this purpose, squares measuring 32 x 32 meters are marked out in both terrains and plants are counted, categorized and documented. Our forestry partner Futuro Forestal has set up the sites and carried out a basic data collection.

„On the lands of The Generation Forest, we can test our scientific theories to to improve ecological restoration practices.“

Leland Werden, Crowther Lab

Once we have the results, we will examine how other aspects of the ecosystem recover (e.g. soil dynamics, soil microbiomes). This will allow us to draw important conclusions about the generational forest principle and further forestry measures.

Reforestation in detail

Our Finca Filo del Tallo is the setting for a new research project in collaboration with the Albert Ludwig University of Freiburg. The project is being supervised by Prof. Dr. Marc Hanewinkel, who holds the Chair of Forest Economics and Forest Planning at the Faculty of Environment and Natural Resources. From July 2024, two students will gather scientific findings on a ten-hectare area on Filo del Tallo through the ASA exchange program. They will investigate questions such as: How closely should seedlings be planted, and how should fertilization be managed to ensure rapid and early growth? How often should thinning occur? How much competition is beneficial for different tree species? With these results, we will ensure that our practices are guided not only by experience but also by the latest scientific findings.



Prominent visit

In September 2023, we had a prominent visitor at our Finca Filo del Tallo. For a TV segment on the weather phenomenon El Niño, ARD weather expert Sven Plöger traveled to Panama. He spoke not only with scientists from the Max Planck Institute and the Smithsonian Tropical Research Institute but also with our founders, Iliana Armién and Andreas Eke.

The TV report vividly illustrates the connections between climate change drivers, such as deforestation, and weather phenomena like El Niño. It highlights the importance of our work, as reforestation is a response to the two greatest crises facing humanity: the climate crisis and the biodiversity crisis. This was underscored by Sven Plöger during his visit to our Finca Filo del Tallo.

Watch the whole documentary with Sven Plöger in the media library [here!](#)

CORPORATE RESPONSIBILITY AND IMPACT

Companies have a special role to play in the fight against climate change, due to their immense impact potential. Our company members set a good example.

We are firmly convinced that the major challenges of our time can only be overcome by all stakeholders working together. As a cooperative, we aim to contribute to a better future alongside our members. We offer companies a nature-based solution that addresses both the climate and biodiversity crisis while improving the living conditions of people in Panama.

Corporate Social Responsibility (CSR) offers small and medium-sized companies the opportunity to align their ecological, social and economic goals on a voluntary basis. Many companies are already having to collect data on their carbon footprint. According to a recent Bertelsmann study, two-thirds of the companies surveyed see this as an opportunity to further develop their organization¹.

However, many companies still have a gap between their climate protection targets and the associated achievable climate protection - according to a study by the Corpo-

rate Climate Responsibility Monitor 2023². On the road to climate neutrality, which the German government aims to achieve by 2045, the economy is particularly called upon to reduce emissions, compensate for them, and adapt business models and supply chains to be climate-friendly.

Our approach provides impact-oriented, holistic solutions on three levels of corporate action: economic, ecological and social. This enables companies to implement their CSR measures effectively and measurably and make responsibility a key component of their success.

Would you like your company to make a contribution to a healthy planet? [Click here](#) visit our website for companies.

104

Companies with **1,116 shares** have created **55.8 ha** of forest (as at 31.12.23)



Then book a **personal appointment** with Boris from our account team now.

THANK YOU!



These are difficult times for the climate and for climate protection projects. As global temperatures continue to rise, public acceptance of climate protection measures is paradoxically declining. We face these difficulties too: on one hand, the climatic impacts in Panama make our reforestation efforts more difficult; on the other hand, issues like inflation and global conflicts are more prominent concerns for people here.

Despite the rising cost of living, despite war and displacement, despite all the crises, The Generation Forest continues to grow. Week after week we welcome new members, manage increasing investments and plan

projects with partners of the cooperative. We are incredibly grateful that you - our members and partners - are so supportive of us and our vision. Many of you have been with us for years, many have already increased their shares or recommended us to others - because you believe in us! And because you are committed to a future worth living on this planet! We want to thank you for your continued support—without you, simply put, neither we nor the Generational Forest would exist.

Even in difficult times, we remain optimistic that we will continue to grow in the future - with you!

Not yet a member? Then you can join our cooperative [here](#) and invest in the Generational Forest.

Support the Generations Forest by telling others about us. If you [recruit a new member](#) for us, you will even receive a bonus!

The Generation Forest eG

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Our cooperative is audited annually by the Auditing Association of German Transport, Service and Consumer Cooperatives (Prüfungsverband der Deutschen Verkehrs-, Dienstleistungs- und Konsum- genossenschaften e.V.).

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