



espacios naturales
y desarrollo sustentable

2022 ANNUAL REPORT

Biodiversity loss and the decline of ecosystem services are developmental issues that disproportionately affect the most impoverished areas. Healthy ecosystems and the services they provide are essential for the growth of economic sectors such as agriculture, forestry, livestock, and fishing. Over half of the global GDP is generated in sectors heavily reliant on ecosystem services, such as pollination, water filtration, and raw materials. Three-quarters of the world's major food crops rely on animal pollination. In developing countries, forests, lakes, rivers, and oceans contribute significantly to food, fuels, and household incomes, particularly for the poorest rural communities.

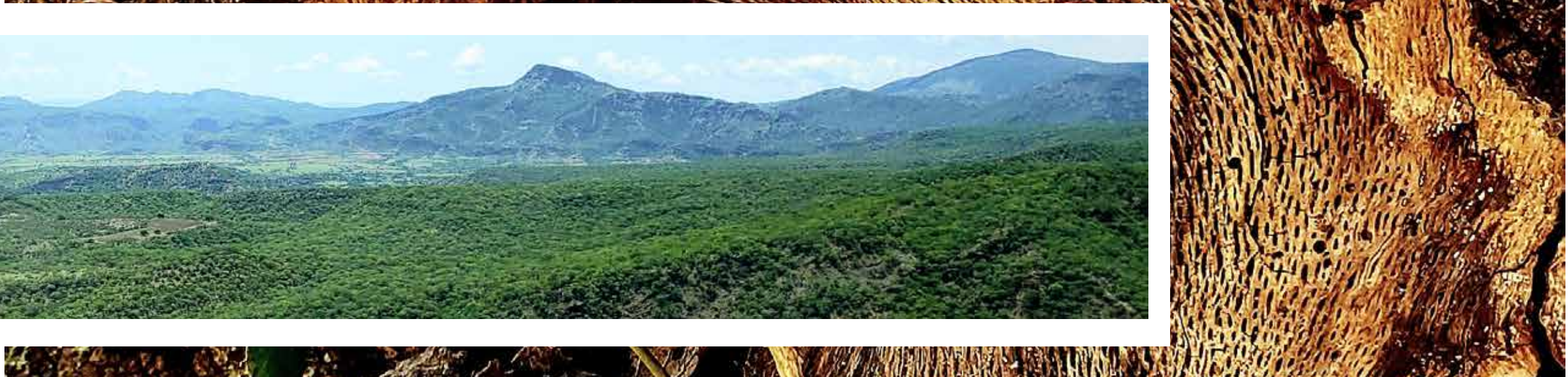
However, the integrity and functionality of these natural assets are increasingly compromised; in 2009, experts from various scientific fields introduced the concept of planetary boundaries, outlining nine key processes crucial for Earth's stability (biodiversity loss, pollution, ocean acidification, freshwater availability, nitrogen and phosphorus cycles, aerosols, soil, global warming, ozone layer). Even back in that year, studies raised concerns that we had exceeded five out of those nine boundaries. Fifteen years have passed since then, and the news continues to be grim. Recent studies indicate that we have crossed seven of the nine planetary boundaries and are on the brink of surpassing the eighth.

Therefore, at Natural Spaces and Sustainable Development (Endesu), we have undertaken an extensive strategic planning exercise that will, on one hand, strengthen the organization, and on the other hand, address the challenges arising from the country's environmental situation. Our efforts are directed towards five lines of action: ecosystem conservation and restoration, sustainable production in rural communities, endangered species and habitat management, environmental education and awareness, and climate change.

Furthermore, in order to enhance our Board of Directors and provide better direction to the execution of our strategic lines, an Advisory Committee of the Board of Directors will be formed in the first half of 2023. This committee will consist of recognized individuals with extensive experience in environmental and financing matters. 🌿




Felipe Ramírez Ruiz de Velasco
President of the Director Board



2022

Espacios Naturales y Desarrollo Sustentable

For our 2022 report, we will focus on three significant events for our organization during this year:

1. Strength of Endesu

The impact of Endesu on our society and natural resources can be measured from various standpoints: an environmental perspective, where we account for restored or conserved hectares and species; a social view, incorporating communities and producers benefiting from improved environmental practices in their quality of life; and an economic viewpoint, reflecting the extent of fulfilling our social mission. Various metrics and parameters gauge Endesu's influence on changing and improving our reality.

An important parameter in these metrics is the annual income of the organization. This number reveals our capacity to influence our environment. It doesn't reflect our results but rather our capacity to achieve them.

Although historically our revenues reflect a general context of sustained growth, in the period 2018-2021 they show a steep decline (35%). Several factors explain the downturn, notably the combined effects of the COVID pandemic and the environmental policy of the current administration; but we have overcome it. The financial results for the year 2022 show a 35% growth compared to 2021. Despite not receiving any income related to federal budget funds in the past three years, the 2022 revenues have recovered and are similar to those of 2018. Endesu has regained its growth capacity after the crisis.

2. Effects of Climate Change

The increasingly dramatic effects of climate change are inducing a growing shift in the paradigm of financing ecosystem conservation and restoration worldwide. The revaluation of environmental goods and services is now breaking into political and productive spheres. Reducing the carbon footprint in all societal activities seems to be an imperative now and for the future.

Endesu's activities have always been oriented towards developing "Nature-Based Solutions (NbS)," reducing the carbon footprint, and mitigating and adapting to the effects of climate change. In light of the new paradigm, these activities gain new value and open new avenues to seek funding for our projects. The challenge we now face is integrating our usual actions into the new dynamics of global change.



3. Our Strategic Planning

Similar to many other organizations, the post-pandemic world realities have led us to a deep reflection on the present and future of Endesu. In this reflection, we carried out an extensive strategic planning exercise that involved all of our staff, friends, donors, and beneficiaries.

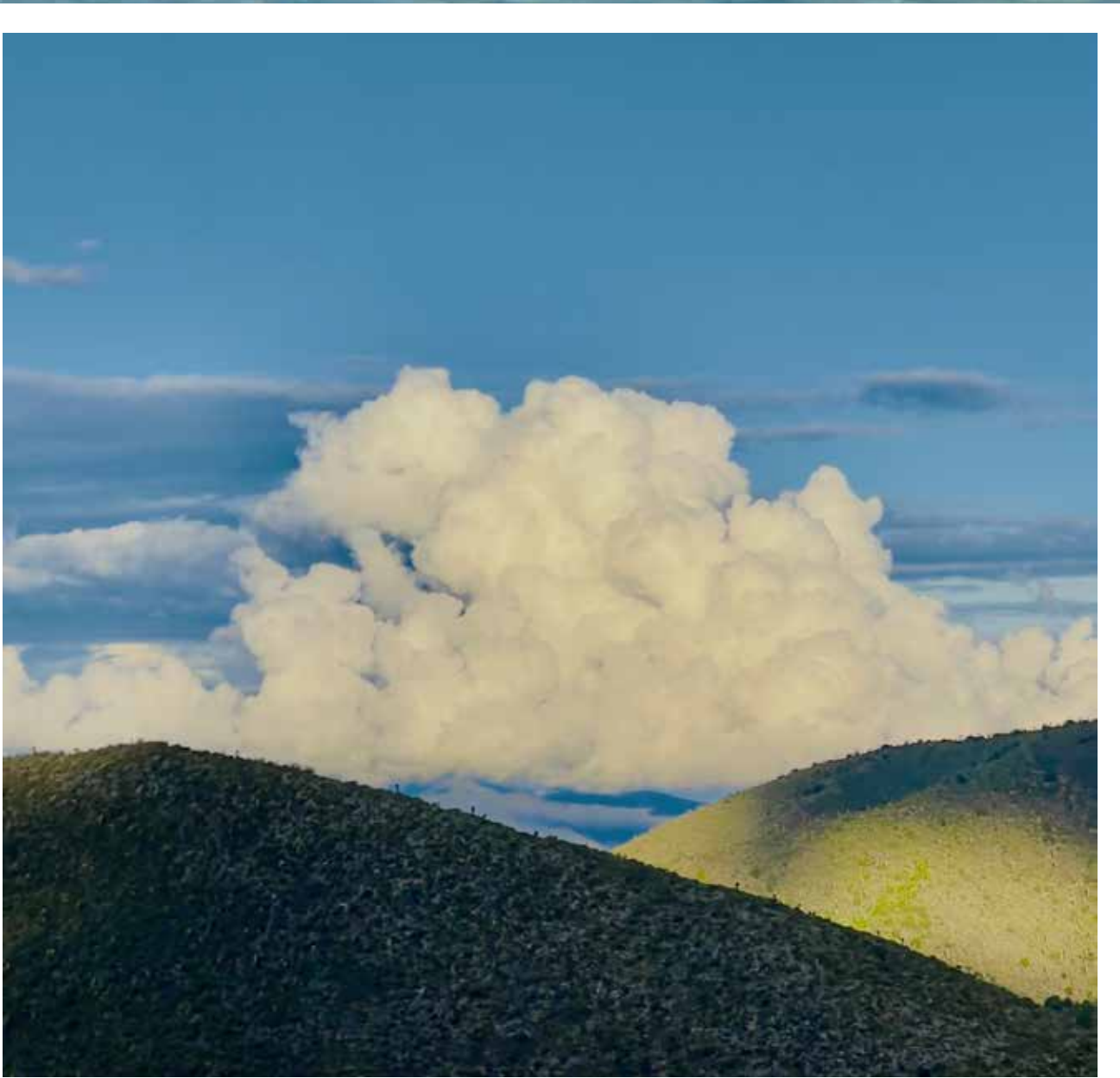
The process took several months during 2022, and its results set future strategic lines, as well as outcomes and goals to achieve in the coming years.

The actions stemming from this planning are oriented in two directions:

- Within Endesu
- Towards its sphere of influence

Internally, we are reorganizing without affecting our operation, with an emphasis on generational change and adaptation to new post-pandemic working conditions.

Externally, we have decided to align Endesu with the new realities of the environmental world, placing special emphasis on contesting the effects of climate change, both in its aspects of mitigation, sustainable production, and carbon footprint reduction, as well as its aspects of adaptation, incorporating the impacts on communities from environmental actions.



We will explore the new challenges arising from the changing environmental approaches worldwide and the new opportunities to finance restoration and sustainable development actions.

Our projects will incorporate the full experience of 27 years of work and will include the changes that the new realities offer us as challenges and opportunities. 🌱

Josef Warman
Josef Warman Gryj
Managing Director

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**WHERE WE
WORK
IN 2022**



SUSTAINABLE DEVELOPMENT and productive reconversion



In the second half of 2022, we initiated the operation of two regenerative ranching projects in the municipalities of Cotaxtla and Ixhuacán de los Reyes in Veracruz. These projects aim to transition from traditional management to sustainable use of natural resources in livestock and agroforestry production, as measures for climate change adaptation and riverbank restoration.



We identified properties for intervention and conducted experience exchanges

Through the implementation and promotion of sustainable livestock practices, we aim to build local capacities for land management involving men, women, and young leadership, with equity and respect among all participants. Our goal is to achieve low greenhouse gas emission dairy production, contribute to food security, and increase forested areas with sustainable management to aid in the recovery of ecosystem services.

The activities include subdividing areas using electric fences, afforestation of pastures, incorporating multi-layer live fences, and using non-traditional forage species. We also implement soil improvement practices to increase profitability from 1 to 1.5 animal units per hectare and 5000 liters of milk per hectare per year. We have also considered protecting areas with forest cover and riparian zones to conserve and preserve ecosystem services.

In the municipality of Cotaxtla, our proposal is to promote sustainable livestock practices for climate change adaptation, impacting 360 hectares of pasture over four years. Our work area encompasses five communities along the western side of the Jamapa River, ranging in altitude from 10 to 200 meters above sea level. Annual rainfall ranges between 1100 to 1300 mm, with average temperatures varying between 24.5 to 35.6°C.

In the municipality of Ixhuacán de los Reyes, we will work in the ejido (communal land) of the same name, situated at altitudes between 1,800 and 3,700 meters above sea level at the foothills of Cofre de Perote. According to the zoning of the La Antigua watershed, this municipality is situated in the upper part, with the ecological function of water catchment. The rivers and streams Tecomatla, Tolaxtla, Comalapa, Xixiczapan, Xalatla, Negro or Los Ajolotes, and Tecuanapa cross through the municipality, being tributaries of the Pescados River. In this area, our goal is to promote the transition to regenerative livestock practices, impacting 400 hectares of pasture over four years. During the first semester of project operation, the following activities were carried out:

We selected properties based on criteria such as vulnerability to climate change, soil degradation, properties with significant livestock and agroforestry importance, size of the property, number of cattle, property owner's production objectives, neighboring properties, and proximity to riparian areas.

REGENERATIVE RANCHING IN VERACRUZ



We signed a cooperation agreement with each participant. In Cotaxtla, we are working in six Livestock Production Units (UPP), each consisting of 20 hectares, totaling 120 hectares in the first year. In Ixhuacán, we are also working in six UPPs, intervening in 75 hectares with regenerative ranching practices and conserving 25 hectares, making a total of 100 hectares addressed in this first year.

We conducted a workshop on land planning, where livestock producers and their families jointly analyzed the previous social and environmental situation, current conditions, and future expectations. This aimed to create land use and natural resource management plans with a vision of medium and long-term sustainability. Through the “use of family time with a gender perspective” tool, we raised awareness about the importance of women’s participation in livestock activities and gender equity in society. A total of 27 people participated (16 men and 11 women).

We carried out an exchange of experiences among livestock producers, involving a total of 30 people who learned about regenerative livestock management and silvopastoral practices in Acayucan and Soteapan, where Endesu had previously worked.

We conducted a workshop on electric fence management and installation to train producers in its use as a tool for transitioning to regenerative livestock practices; 72 people were trained (55 men, 17 women), and installation began. We conducted a composting workshop with a total of 32 attendees, the majority being women.

In order to have indicators for measuring and comparing results, we created a database with current productive and reproductive parameters for each property.

Progress was made in establishing divisions. Each UPP has seven to twelve fixed divisions, and pasture rotation is being implemented with one day of occupation and 45 to 60 days of rest, using the established divisions and mobile fences with polywire.



Regarding plant production, a group of nine women in Ixhuacán was formed for this activity. We began collecting oak and macadamia seeds. Additionally, we established a vegetable garden with radish and cilantro and utilized the compost produced in the respective workshop.

In Cotaxtla, we obtained 4650 plants of 11 varieties from a nursery under the Veracruz State Environmental Secretariat.

Additionally, we participated with a presentation on “Silvopastoral Systems” in the town of Piedras Negras, Tlalixcoyan Municipality, invited by the group called Regenerative Ranching Veracruz. A total of 43 people was sensitized at the annual meeting of this group. 🌱

AGROFORESTRY PRODUCTION

IN THE BIOCULTURAL LANDSCAPE OF THE WESTERN SIERRA OF JALISCO

As part of our field consolidation in various conservation and sustainable production strategies within the Biocultural Landscape of the Western Sierra of Jalisco (PBSOJ), we initiated the operation of the Agroforestry Production Units Program (ProSAF) in July 2022. The program's activities are planned for a four-year period.

ProSAF is based on agroforestry, which combines perennial elements with agricultural crops or animals for food production with a focus on diversification. Agroforestry systems are emerging responses to diversified land management in territories, serving as adaptation strategies for forest cover loss and soil degradation, with high social participation. To achieve this, we will design the ProSAF program, strengthen a bioinput production unit, establish a production unit for species related to the program, and implement demonstration plots.

During the second half of 2022, we developed a questionnaire and interview structure for conducting a diagnosis of agricultural activities and the characteristics of agri-food production systems in the region, along with the elements that compose them. We initiated 38 interviews with individuals who have a general understanding of the productive systems in the area.

We conducted three diagnostic workshops to identify the main needs of maize production groups, coffee producers, and the bioinput factory (Biohorta), and organized a knowledge-sharing workshop on medicinal plants. We reached an agreement to use a half-hectare plot for the establishment of a demonstration orchard and began construction (on contour lines) of biointensive beds for horticultural production. Additionally, beekeeping activities will be integrated into the area.



We have implemented a gender mainstreaming approach to address the specific needs of women and promote equity in rural communities in the region.

We established agreements for the use, monitoring, and intervention of six demonstration plots within ProSAF for a four-year period. We selected two men and one woman who will serve as community trainers.

Furthermore, we conducted 11 training workshops for bioinput production, with the produced materials being used in the operation of the pilot orchard and the demonstration plots.



It's important to note that we are implementing a gender mainstreaming approach to address the specific needs of women and promote equity in rural communities of the region. We also seek to strengthen group organization and autonomy by encouraging participation and enhancing their governance systems. 🌱



STRENGTHENING BUSINESS STRATEGIES FOR SUSTAINABLE PRODUCTION

IN THE WESTERN SIERRA REGION OF JALISCO

Continuing our work in the Biocultural Landscape of the Western Sierra of Jalisco (PBSOJ), during the second half of 2022, we conducted a diagnosis of the current situation and options to strengthen productive activities for a group of regenerative ranching producers and agroforestry producers who have the PBSOJ seal, recognizing environmentally and socially responsible practices in the value chain.

Regenerative Livestock Producers in the Western Sierra Region of Jalisco

We collaborated with members of the “Integrated Systems of Sustainable Production in the Western Sierra and Coast” (SIPSSOC) group and learning community, with active participation from 10 women and 24 men in the municipalities of San Sebastián del Oeste, Talpa de Allende, and Mascota, who conduct their livestock activities across 952 hectares.

Currently, these livestock producers primarily sell weaned calves and to a lesser extent, milk and dairy products. They market through middlemen, who then sell to regional collection ranches operated by the company SuKarne. Their main distinguishing factor lies in the environmentally and socially responsible practices they implement in their production processes. However, formal links with specialized markets that value these characteristics are needed.



Agroforestry Producers in San Sebastián del Oeste

In this case, we worked with 29 individuals (17 women, 12 men) from five communities in the municipality of San Sebastián del Oeste. Among the participants, 12 women are part of a group of native maize processing producers with seven years of experience; 12 men and three women belong to the Sierra de San Sebastián Coffee Cooperative, with 23 years of experience; and two women are edible mushroom producers who have worked together for five years. Their activities cover a total of 92 hectares.

The value chain we addressed involves the marketing of food artisanal products produced in agroforestry systems: native maize derivatives (cookies, dough, traditional sweets), coffee (cherries, parchment, gold, roasted, and ground), and edible mushrooms. Currently, these products are sold on a small scale in local and



regional markets, regional product stores, groceries, restaurants, cafés, and directly to end consumers within their locality. Their primary distinguishing factors include production processes that prioritize environmental and social criteria, as well as the cultural and identity value of the region’s products.



Diagnosis

During this period, we focused on conducting a diagnosis related to administrative, legal, technical, environmental, and social management aspects, as well as financial training needs and knowledge management. It's important to note that the diagnosis considered gender analysis to recognize and value the work of women in productive activities.

We aim to generate scalable and replicable impacts, promoting landscape conservation and economic development in the region.

We conducted participatory sessions using the LINK methodology for developing inclusive business models. This methodology involves value chain analysis, business model templates, inclusion criteria evaluation, and prototype model generation. To assess the maturity level of productive initiatives, we administered questionnaires to characterize production units in terms of good environmental practices, organization, associations, management capacity, among other aspects. Additionally, we held meetings with key stakeholders within the groups and the value chain.

In both cases, we identified that the main constraints include weak business organization and associations, inadequate and intermittent technical assistance, high production costs, low production scale, and high market demands. Therefore, they need to strengthen their organization and participation, formalize their productive activities and maintain them over time, improve their participation in the value chain, and access better-paying markets.

To favorably change this situation in the short and medium term, we propose working on five action areas:

1. Design and evaluate associative companies aimed at reducing production costs and improving product marketing conditions.
2. Facilitate producers' involvement in inclusive and fair trade markets.
3. Consolidate spaces for knowledge exchange, experiences, and technical cooperation.
4. Strengthen mechanisms to ensure and monitor product traceability.
5. Enhance producers' self-management capabilities to reduce dependence on external agents for their development.

For the group of livestock producers, we propose creating two companies: one for supplying inputs to reduce production costs and improve product quality in terms of traceability, and another for short-term cattle collection and marketing, and medium-term meat and dairy derivatives, to ensure fair transactions for producers.

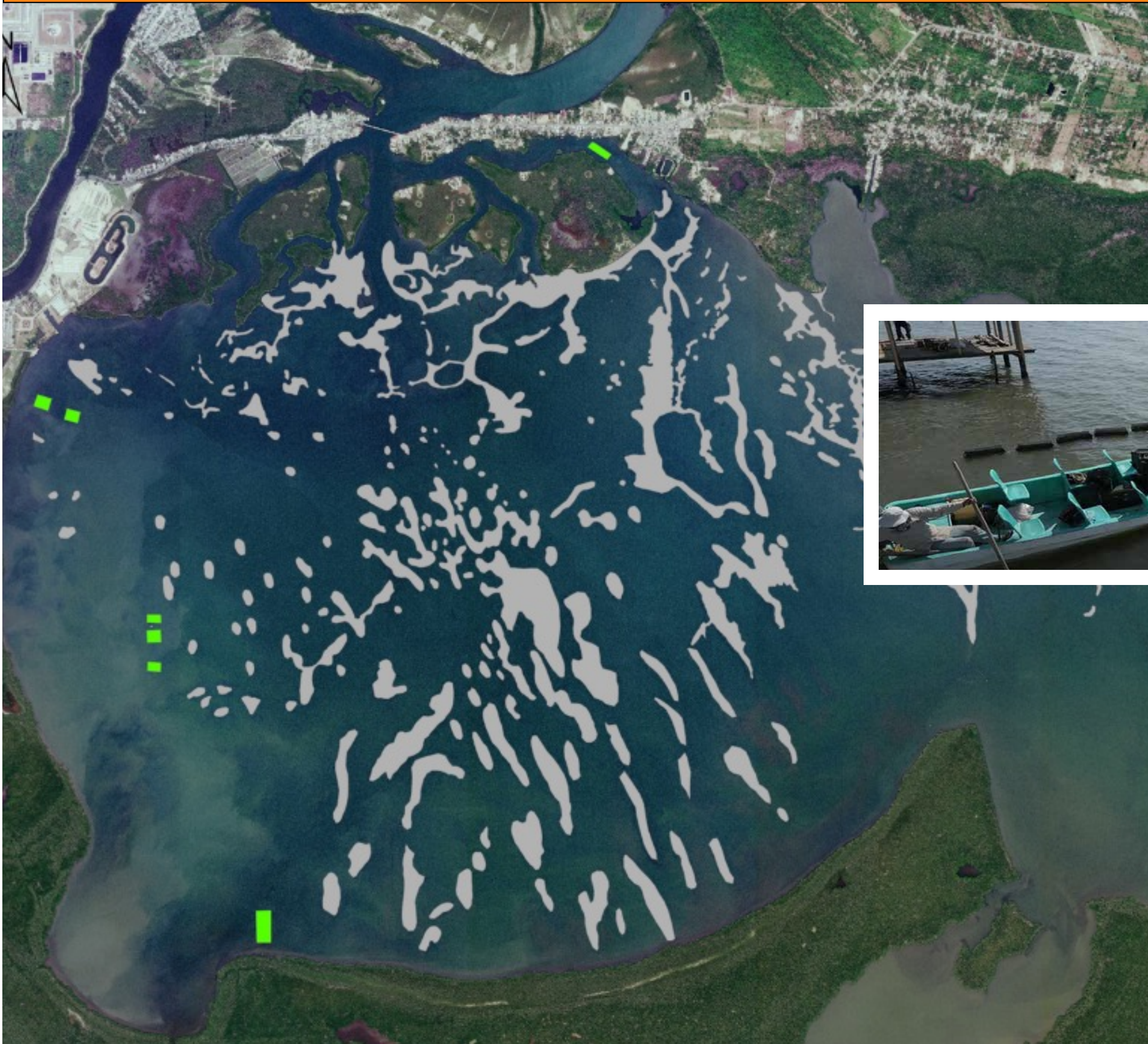
For the agroforestry producers, considering establishing a marketing company to facilitate organizational and associative processes for input supply and product marketing.

With the diagnosis results and the proposed measures, we hope to support these producer groups in presenting proposals for support and financing to create and operate companies that consolidate their activities with a vision of sustainable production. 🌱



CULTIVATION OF OYSTERS

IN FLOATING BASKETS IN MECOACÁN LAGOON



SUSTAINABLE DEVELOPMENT

In 2021, we initiated a pilot project using new oyster aquaculture technologies, specifically floating baskets, in Mecoacán Lagoon in Paraíso, Tabasco. The goal was to study and analyze the possibility of increasing oyster quality and production in the Gulf of Mexico region using this innovative method.

The production process using this technology starts with seeding the baskets with oyster spat that are just a few millimeters in size. A pair of baskets can initially hold thousands of oysters. As the oysters grow, they require more space, prompting them to be moved to new baskets every two months or so. As they continue to grow, the number of oysters per basket decreases. Based on prior experience, in the Mecoacán Lagoon, after about eight to ten months (depending on temperature and salinity conditions), the oysters reach a size greater than 10 cm and can be harvested for individual sale. This distinguishes them from other technologies used in the area. After harvest, the baskets are reused for growing smaller oysters.



Using baskets has the potential to replace concrete posts currently used in other technologies, contributing to the restoration of currents in the lagoon and the lagoon bottom.

Another important aspect is that oyster cultivation in baskets allows for the presence of a considerable number of protected adult breeders. During the reproductive season, these adults release a significant number of larvae into the environment, aiding in the establishment and/or recovery of natural oyster banks that are currently overexploited. Additionally, oyster colonies provide habitat for other organisms, creating a link between the food webs of species that inhabit the lagoon bottom and those in the surface zone. In the medium term, the use of baskets could eliminate the need for concrete posts used in other technologies, contributing to the restoration of currents in the lagoon and the lagoon bottom.

In 2022, we began the project's second phase, aiming to strengthen the technical capacities of cooperative societies in using floating basket technology, promote the value of intensive oyster cultivation, enhance the business capabilities of those interested in this technology, and document the project's process and outcomes.

Given the suboptimal quality of the baskets acquired in the first phase, we sourced similar materials from other parts of the world, selecting turning baskets of Spanish make that have been successfully used for up to three harvests. This time, we installed three production lines, each with 90 baskets. Simultaneously, we assessed the previously delivered equipment and provided maintenance and adjustments to ensure proper functioning of the baskets that could be reused.

We trained 20 producers, with four receiving intensive training. At the end of the training workshop, we provided them with 25,000 seed oysters from the Tabasco State Oyster Technology Center (COTET) to initiate the production process.

We then conducted monthly monitoring of the conditions in Mecoacán Lagoon and the oyster growth. This monitoring revealed that heavy rains in the last quarter of 2022 altered the lagoon's salinity, resulting in the loss of numerous oysters. Consequently, we requested COTET to produce additional seed oysters, which will be available in early 2023.

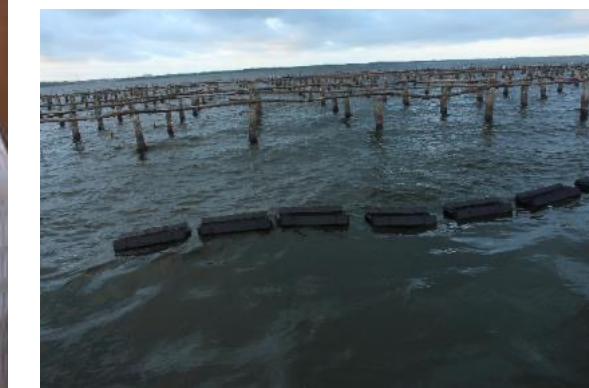


Furthermore, we delivered lectures to students from universities in the project's influence area who are studying aquaculture, agro-technology, and environmental engineering. These sessions covered techniques and best practices for using floating baskets.

We also held meetings with restaurant owners in the region to introduce the project and the characteristics of oysters grown in baskets as a menu option. We highlighted the benefits of this production method for the Mecoacán Lagoon ecosystem.

The upcoming harvest is planned for the Easter season, which is the period of highest demand for oysters in the region.

We have documented the entire production initiation and monitoring process, and this information will be available on our social media platforms. 🌿



SOCIAL MANAGEMENT

FOR SUSTAINABLE DEVELOPMENT IN THE COASTAL STRIP OF PARAÍSO, TABASCO

SUSTAINABLE DEVELOPMENT | CONSERVATION AND RESTORATION OF ECOSYSTEMS

The social management program for sustainable development in the coastal strip of Paraíso, Tabasco aims to promote environmental conservation and sustainable development in this region. Initiated in 2020, the program has achieved significant progress in three lines of action: improving oyster farming practices in the area, backyard gardening management, and fostering an environmental culture.

Regarding the improvement of oyster farming practices, in 2022 we worked with five cooperatives that hold valid fishing permits. In each cooperative, a responsible group (with a focus on involving young members) was selected to manage the production of Gulf or American oysters (*Crassostrea virginica*), which is the native species of the area. We employed the hanging lines culture technique and managed 60,000 lines.



Through these diverse actions, support for oyster farming, vegetable production, and the promotion of environmental culture among the coastal strip residents has been provided.

We provided continuous technical support and training to ensure that the fishermen adopt better oyster farming practices, which would increase productivity in intensive farms within the Mecoacán Lagoon. Monthly monitoring of physic-chemical parameters in the cultivation zones was conducted. Due to COVID-19 restrictions, the management was not as consistent in the first half of the year. In the second half, oyster detachment from the mother shell was observed due to temporal water level stratification and suboptimal salinity conditions in the lagoon. Despite these challenges, a harvest of 217 tons of oysters was achieved for commercialization.

We conducted a theoretical and practical workshop on oyster farming techniques in the estuarine systems of Tabasco, lasting 16 hours and involving 20 people from five communities, as well as students and teachers from local fishery schools. Participants were trained on the importance of coastal lagoons, cultivation techniques, diseases, and good farming practices, among other topics.

In coordination with the oyster cooperatives, we identified two new areas for oyster bank recovery and dispersed one million oyster seeds.

These initiatives have strengthened the capacities of young people and contributed to improved economy and family health in the area.

To promote differentiation and responsible consumption of farmed oysters compared to those harvested from natural banks, we conducted interviews with restaurant owners to understand their needs. We also worked on designing graphic material that encourages responsible oyster consumption. Additionally, we are developing a proposal for nature tourism related to oyster farming.

In terms of vegetable production, we operated 143 backyard gardens, providing technical support and bi-monthly training to each participating family. The majority of this production was intended for personal consumption. We also maintained an educational garden for teaching vegetable cultivation techniques and provided training to over 400 agro-technology students.

We distributed 300 copies of a backyard gardening manual specifically tailored for the Paraíso coastal strip and conducted four training workshops with 29 participants from three communities. These workshops focused on fruit and vegetable processing to add value to garden produce.

To instill a culture valuing the protection, restoration, and sustainable use of the natural heritage offered by Tabasco's coastal ecosystems, we organized 25 community workshops in open spaces. These workshops engaged 500 children and covered topics such as climate change, the importance of mangroves, socio-environmental values of Mecoacán, biodiversity, and children's rights.



We also developed a didactic support guide for environmental education in the Mecoacán Lagoon, enabling teachers to address environmental topics both inside and outside the classroom. Furthermore, three groups consisting of a total of 171 individuals, including students, teachers, and parents from two Paraíso schools, visited the "Casa del Agua," operated by Endesu, where they participated in a workshop on Tabasco's wetlands.

We organized the third children's drawing contest with the theme "My history in Mecoacán Lagoon from the Mayans to Today," which saw the participation of 158 children aged between eight and twelve.

We conducted the second social activation for Mecoacán Lagoon conservation, involving more than 150 participants. This time, the event focused on cleaning 150 meters of the lagoon's shoreline, collecting a ton of solid waste.

We hosted the environmental fair "Awareness for Mecoacán Lagoon," which was attended by approximately 500 people, including adults and children.

Finally, we produced four testimonial videos showcasing the program's overall results and are working on editing a digital book that compiles the participating and winning drawings from the children's drawing contests.



SUSTAINABLE LANDSCAPES ENTREPRENEURSHIP



In 2021, Endesu joined the Sustainable Landscapes Entrepreneurship (SVL) project, which aims to consolidate the partnership between small producers, investors, and buyers in Mexico, as well as develop sustainable and inclusive value chains.

Our participation focuses on consolidating the work of producers involved in the Sierra Occidental de Jalisco Biocultural Landscape (PBSOJ), with whom we have collaborated over the past five years. These producers hold the PBSOJ certification, which recognizes their products as originating from sustainable practices and allows them to evolve into collective enterprises.

SUSTAINABLE DEVELOPMENT

During the first quarter of 2022, despite restrictions stemming from the COVID-19 pandemic, we developed agreed-upon technical itineraries for livestock, coffee, and lechuguilla (an endemic agave of the region) production systems. We also conducted information gathering and generated financial flows for four initiatives within the artisanal products group and the bio-input factory for agroecology.

Furthermore, we organized four training workshops to strengthen financial capacities. We supported the creation of a solidarity savings fund within the artisanal products group and facilitated two experience-sharing sessions among producers to showcase the collaborative results of organized groups.

On another note, we established alliances with other institutions aiming to strengthen productive initiatives in the region. These partnerships were forged to align activities and maximize project impact and resources in the Sierra Occidental de Jalisco Biocultural Landscape.

These actions enabled us to gather information about initiatives and producer groups that have adopted environmentally recognized practices based on PBSOJ certification criteria, potentially transitioning into community enterprises. This collection of initiatives encompasses opportunities represented by the coffee, livestock, artisanal, non-timber forest products, and agricultural sectors in the region.

It's important to note that the participation of the PBSOJ region in the SVL project concluded in the second quarter of 2022. However, Endesu's work continues. Leveraging the achieved progress, we initiated a search for funding that resulted in three new projects during the second half of 2022, whose activities are included in this annual report. 🌱





We continued to provide guidance and technical assistance to the 67 producers in the Grullo region of Jalisco, helping them incorporate good agricultural practices.

In 2021, with the support of a group of specialists in the Campesino School model, Endesu provided guidance and technical assistance to 67 producers in the Grullo region of Jalisco, aiding them in adopting organic and ecological farming practices. The aim was to encourage soil regeneration, enhance the profitability and productivity of sugarcane cultivation, strengthen social networks among producers, and foster the exchange of successful experiences related to agroecological practices.

Building upon the achieved results, in 2022, as part of the Sustainable Landscapes Ventures (SLV) initiative, we worked towards consolidating a group of farmers interested in sustainable sugarcane production. During this phase, our focus shifted to proper management of organic matter after green harvest, which allows for the development of alternative products such as livestock feed. We also concentrated on identifying equipment, infrastructure, financing needs, and technical support required to develop value chains associated with green harvest.

We conducted the characterization and diagnosis of the sugarcane producer group to assess their maturity level in value chain development. We also created technical itineraries to compare conventional and alternative agricultural practices.

The development of technical itineraries for conventional agricultural practices involved gathering information from approved technological packages in the region. Due to the nature of the crop and the method of

calculating profitability, the information was divided into two documents: one for new crops and another for crops with multiple harvests.

For the development of the alternative technical itinerary, we engaged in a theoretical exercise based on the selection and integration of identified good practices. These practices were representative of management plans formulated with the interviewed producers. The management plans were collaboratively constructed with the producers using a standardized format designed for documenting practices carried out on individual plots.

The focus group of producers participating in the Sustainable Sugarcane Cultivation Strategy (ECSCA) expressed interest in forming a service cooperative responsible for managing the collection and commercialization of organic waste and providing necessary inputs for sustainable sugarcane cultivation. To address this need, we drafted a proposal for the cooperative's constitution, as it's a legal structure familiar to the producers.

Simultaneously, we conducted four training workshops and an experience-sharing session on the adoption of sustainable practices. 🌱

STRENGTHENING THE SUSTAINABLE SUGARCANE CULTIVATION STRATEGY

SUSTAINABLE BACKYARD

SYSTEMS IN COMMUNITIES OF HUASTECA, VERACRUZ

In 2014, we initiated the Sustainable Backyard Systems Project in the Huasteca Veracruzana region with the goal of improving the quality of life for participating communities through:

- Implementation of ecotechnologies and sustainable practices in family households.
- Conducting environmental awareness workshops.
- Promoting new sustainable productive options through pilot projects.
- Fostering community integration.

During 2022, we assisted 15 new families by installing rainwater harvesting systems and fuel-efficient wood stoves, directly benefiting 75 individuals of all ages. We conducted six workshops on school garden management, planting techniques, and composting for 100 students across five schools. Additionally, we held three family workshops emphasizing the importance of organic production in backyard gardens, with 24 participants of various ages in attendance.

After eight and a half years of operating this program, we concluded our activities in the region in June 2022, achieving the following cumulative results:

We addressed 145 family households and 15 schools, installing rainwater harvesting systems, fuel-efficient stoves, and backyard gardens, directly impacting 725 people and 2,300 students, and indirectly affecting around 10,000 individuals.

We conducted 76 training and follow-up workshops for school gardens.

We developed productive pilot projects, including two experimental organic tobacco plots, two silvopastoral plots, 10 vermicompost production modules, five solar dehydrators, and an energy-efficient wood-fired bread oven.

We organized 45 family workshops on agroecological techniques for ecotechnology construction, management, and operation, engaging 500 participants.



We hosted three community events with attendance from 1,200 people, including students, parents, school officials, and municipal authorities.

We trained six individuals in constructing ferrocement tanks and Patsari wood stoves, providing them with a new economic activity.

We produced 10 videos showcasing program activities and results, available on our YouTube channel.

Beyond the numbers, this program has a profound impact in the region. It grants families continuous access to water for basic hygiene and drinking, saving them from the need to purchase water or collect it from other sources. It prevents water pollution by reducing the practice of washing in rivers.

The Patsari wood stoves minimize indoor air pollution, resulting in cleaner kitchens and reducing the risk of respiratory and eye diseases, thus saving medical expenses. Backyard gardens provide families with fresh food for consumption, leading to savings and healthier eating habits.

We promote agroecological knowledge among students, offering them employment opportunities and productive practices related to agriculture, which strengthens local traditions and attachment to the region. It's important to highlight that women are the primary beneficiaries of this program, as it saves them time and money, enabling them to engage in other activities. 🌱



The Sustainable Backyards Systems Project in the Huasteca in Veracruz aimed to enhance the quality of life for participating communities.

CONSERVATION AND RESTORATION of ecosystems



LA PIMIENTA

CONSERVATION AREA

In May 2022, with a medium-term vision, we initiated activities for the restoration of 450 hectares in the conservation area of La Pimienta property located in Palizada, Campeche.

Environmental restoration processes are inherently complex, involving various interdependent environmental and biological variables, each with its own timeframe. Factors such as the growth rate of each species or their sensitivity to climate and pests vary and contribute to the restoration's duration. Thus, restoration takes several years to complete, during which monitoring, vigilance, and technical support are crucial.

Because of this complexity, we have divided the project into two stages. The first, lasting about 20 months, will establish the groundwork and infrastructure for natural growth and maturation processes to occur. The second stage involves monitoring, supporting, and accompanying the restoration progress for three to five years after its initiation.

To achieve our goal, we will work on reforesting 183 hectares with 15 representative species of semi-evergreen medium forest using two techniques:

1. Traditional reforestation on 139 hectares with a planting design of four meters between rows and four meters between plants, resulting in approximately 87,000 trees planted.
2. Strip reforestation on 44 hectares, involving clearing the land along five-meter-wide strips and leaving adjacent six-meter-wide strips where organic material from the initial clearing will accumulate. This will contribute nutrients to the soil, maintain moisture, and provide refuge and growth space for associated fauna. Around 10,000 plants are planned to be planted using this technique.

Simultaneously, we will work on the ecological recovery of 267 hectares containing mature secondary forests (acahual). We'll use nucleation techniques (also known as the Anderson's patch technique) to create microhabitats that promote natural regeneration, species influx, and the formation of an interactive network among organisms. Approximately 3,000 plants will be planted in areas without tree vegetation.

Given the susceptibility of the entire project area to fires, we will establish 15 km of internal and external firebreaks, utilizing right-of-way clearing to prevent fuel accumulation and safeguard the restoration zone.



We will also install 300 georeferenced access restriction signs at potential entry points to the restoration polygons. Community outreach will involve discussions with land users and neighboring communities to explain restoration actions, restrictions, and each intervention zone.



CONSERVATION AND RESTORATION OF ECOSYSTEMS

For baseline data on associated fauna, we installed camera traps that will allow us to compare changes in faunal biodiversity within the intervened area two to five years after reforestation and restoration actions. We'll build and update a database with location, date, and species records.

By December, we completed the construction of firebreaks encircling the intervention perimeter, also creating firebreaks within the traditional reforestation zone. Our team underwent training in fire prevention and combat techniques.

For protection, information, and awareness activities, we placed 253 posts for installing informative and restrictive signs around the restoration area.

Additionally, we carried out various administrative activities, including safety workshops, emergency response plans, and health management for our team. 🌿

During the second half of 2022, we formed and trained our working group in administrative and safety procedures. We initiated seed collection and plant production, having acquired 90% of the required plants by year-end.

We progressed in soil preparation for 100 hectares of the traditional reforestation zone.

In July, we initiated and concluded the land marking for strip reforestation, assisted by a surveying brigade. In December, we completed soil preparation for planting. In the restoration area, we established planting locations with a spacing of 25 to 40 meters, planting in areas devoid of tree vegetation. By December, we marked 390 locations and planted 1,950 plants.

To facilitate free bird movement, essential for seed dispersion, we constructed, placed, georeferenced, and monitored 111 perches in the restoration area.



ENVIRONMENTAL AWARENESS



A CULTURAL CENTER FOR NATURE CONSERVATION

SCHUK TOAK



ENVIRONMENTAL AWARENESS

ENVIRONMENTAL AWARENESS | CONSERVATION AND RESTORATION OF ECOSYSTEMS

Furthermore, our team coordinated and/or participated in various events, including:

- An exhibition in the museum premises featuring 36 photographs and a talk titled “The Garden of Native Bees” by photographer Diana Caballero.
- The screening of the documentary “Batman of Mexico” in the audiovisual room of the Visitor Center. The documentary highlights the significance of bats and the work of Dr. Rodrigo Medellin with this species.
- A meeting of traditional Tohono O’odham leaders to reinforce the importance of the desert for the conservation of their culture, hosted by the PNA.

Since the inauguration of the Museum and Center for Nature Conservation “Schuk Toak” in 2009, in coordination with the management of the El Pinacate and Gran Desierto de Altar Biosphere Reserve (RBPGEA), we have been operating and managing this center with the goal of promoting a culture of conservation and understanding the importance of the Sonoran Desert. We achieve this through a continually updated program of environmental education. Additionally, we support surveillance and monitoring activities within this protected natural area (PNA).

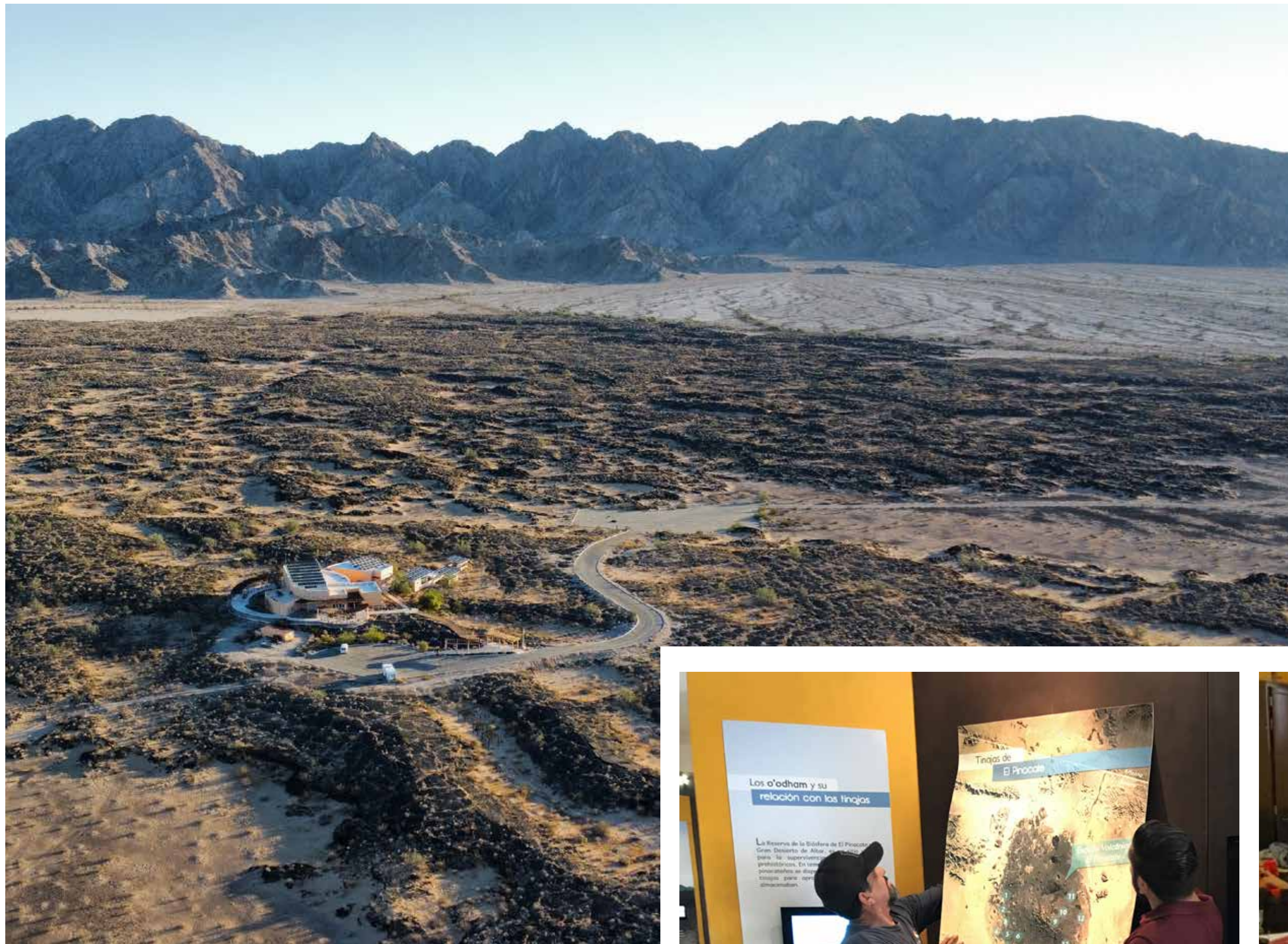
In 2022, we received a total of 3760 visitors and hosted 13 school groups with 400 students. It’s worth noting that starting from the second half of October, there was no visitation due to road access being blocked by the owner of adjacent land. Negotiations were ongoing between the management of the PNA and government authorities to resolve this issue.



As part of the events for National Conservation Week, talks were held at schools, an exhibition showcasing the reserve’s fauna was organized, and a children’s drawing contest took place.

We published 36 posts on the official Facebook page of the Visitor Center, sharing information about the values of the protected natural area and important details for visitors. Thanks to the effective reach and design of the posts, many of them were reposted on the official CONANP (National Commission of Natural Protected Areas) Facebook page with excellent results.

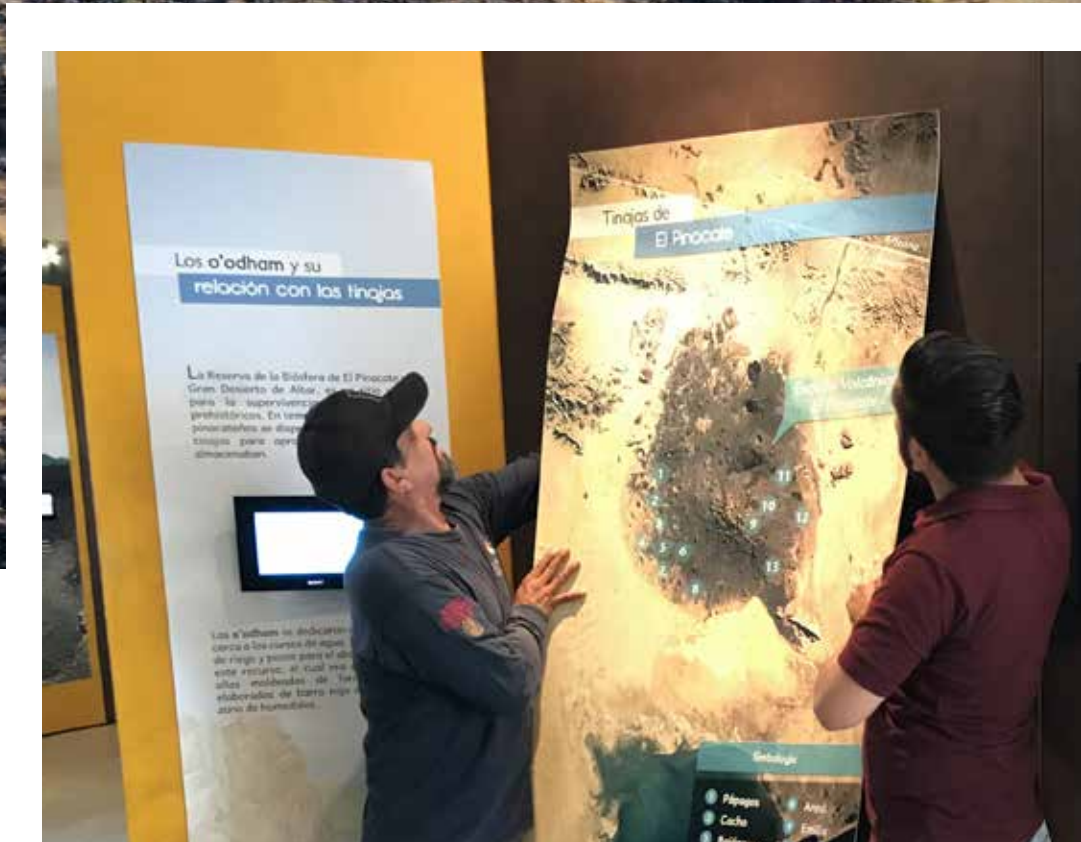
Maintenance, monitoring, and surveillance activities were carried out throughout the year. We performed maintenance on the pupfish (*Cyprinodon macularius*) pond and supported the monitoring of the flat-tailed horned lizard (*Phrynosoma mcallii*) with the assistance of four trained volunteers. Both species are endemic to the Sonoran desert.



In terms of center improvements, we added a display case showcasing the materials and equipment used for biological monitoring within the PNA, enriching the section that explains the importance of species and their monitoring. To enhance visitor experience, we improved the picnic area adjacent to the center’s parking lot and the camping area in the dune zone. Preventative and corrective actions were taken for the infrastructure and equipment of the Visitor Center and the Biological Station of the RBPGDA.

As a support to the PNA, we participated in over 50 supervision tours across various access routes and maintained roads and infrastructure, particularly during vacation periods like Easter and winter.

We also supported 24 visits to the Churea site for the supervision of Sonoran pronghorn specimens reintroduced to the PNA, as well as fence inspection, filling water troughs, replenishing feeders, and checking electric fencing. 🌿



We have been operating and managing the “Schuk Toak” Center for Nature Conservation since its inauguration in 2009. The center’s main goal is to foster a culture of conservation and increase understanding of the significance of the Sonoran Desert through an updated environmental education program. The center also contributes to surveillance and monitoring within the El Pinacate and Gran Desierto de Altar Biosphere Reserve.



Undoubtedly, the most significant outcome of Endesu's work in the Centla Wetlands Biosphere Reserve (RBPC) has been the construction and operation of "La Casa del Agua" as a center for knowledge dissemination and revaluation of coastal wetlands. This center has been in continuous operation since February 2002, contributing to the conservation and sustainable use of this ecosystem.

Since its opening, "La Casa del Agua" has been the focal point of all of Endesu's projects within the RBPC and represents the most important effort in the state of Tabasco regarding environmental education and conservation outreach.

Unfortunately, the Covid-19 pandemic had serious effects on the operation of this center, compounded by the impacts of the floods at the end of 2020. However, in 2022, we managed to overcome these challenges and maintain its operation.



ENVIRONMENTAL AWARENESS CENTER **LA CASA DEL AGUA**

"La Casa del Agua" was open to the public for 360 days. Weekdays were reserved for groups with prior appointments, and on weekends, it was open to the general public. A total of 3314 visitors were received (a 52% increase compared to 2021), with a breakdown of 56% local visitors, 31% national visitors, 10% from communities within the RBPC, and 3% international visitors.

Six school workshops were conducted, involving 290 students. Three community workshops were attended by a total of 60 participants. Three workshops focused on legislation and environmental monitoring were provided for 46 workers from the energy industry. The center also hosted 13 meetings for the signing of institutional agreements, the presentation of reforestation program results, and knowledge exchange within the Sustainable Tourism and Social Development Network.

To commemorate the 30th anniversary of the RBPC, a celestial observation workshop was organized, with the participation of 20 students and visitors from the municipalities of Centro and Cárdenas.

As part of World Wetlands Day, a training workshop was held to address stranded manatees in Tabasco, involving 34 specialists and government officials from various levels. This two-day event worked towards standardizing criteria for handling stranded manatees.

The support of 11 students engaged in social service was enlisted for various support and visitor assistance tasks.

In the nursery, 20,000 plants of pukté (*Bucida buceras*), tinto (*Haematoxylum campechianum*), and tasiste (*Achoelorrhapha sp*) were produced for restoration activities in the RBPC.

Furthermore, maintenance activities were conducted to ensure visitor safety, the good condition of infrastructure and equipment, and biodiversity monitoring across the 11 hectares of “La Casa del Agua.”

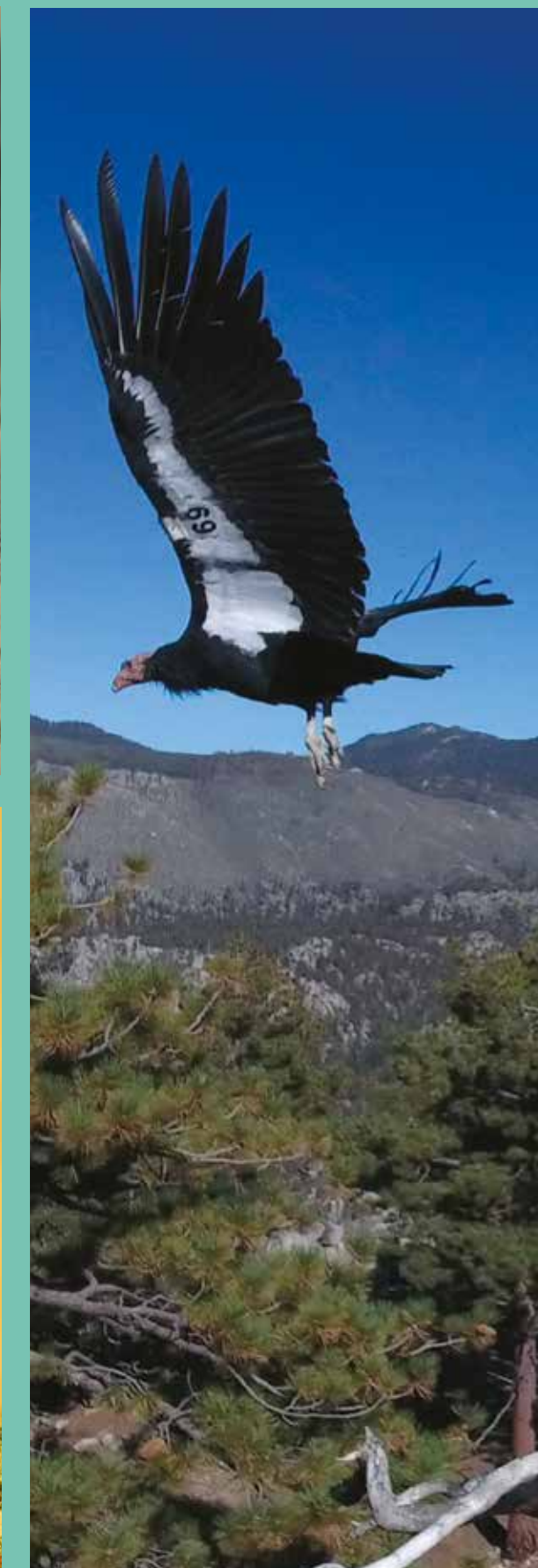
We also monitored and managed the social media presence of “La Casa del Agua,” achieving a 15% increase in Facebook followers compared to the previous year, ending the year with 3897 followers. On Instagram, there was a 6% increase with a total of 431 followers. A combined total of 11,757 people viewed the posts from these outreach platforms.

Surveys were conducted, and 95% of visitors expressed satisfaction with the attention and information received. 🌿

ENVIRONMENTAL AWARENESS
ENVIRONMENTAL AWARENESS



EDANGERED SPECIES



CONSERVATION OF THE JAGUAR

IN THE CALAKMUL BIOSPHERE RESERVE

Starting from July 2021, ENDESU supports activities carried out in the Calakmul Biosphere Reserve (REBICA) within the framework of the project “Saving the Jaguar, the Ambassador of the Americas,” which aims to secure key sites for this species by integrating conservation practices into policies and productive activities, sustainable management of critical habitats that enhance landscape connectivity, and reduction of hunting, ensuring that populations of jaguars (*Panthera onca*) stabilize and the well-being of the communities coexisting with this species improves. During 2022, we coordinated activities in two main areas of work.

Estamos trabajando en asegurar medios de vida sustentables para las comunidades locales y garantizar la supervivencia del jaguar, su hábitat y la biodiversidad en la región.

Support for Wildlife Management and Use Units (UMA).

This line of work seeks to increase the structural and functional connectivity of ecosystems as an option that makes it compatible for communities to ensure sustainable livelihoods while conserving biodiversity and jaguar habitat.

During 2022, three UMA and three ADVC (Areas Devoted Voluntarily for Conservation) were established in the Sian Ka'an-Calakmul Corridor and the surrounding areas of Calakmul, which were supported in the development of their management plans.



Through the application of 156 interviews (55 women and 101 men) in 10 ADVC within the reserve, a study of wildlife consumption was conducted, providing valuable information about the species used by local communities and the potential impacts of such consumption. This information will help make more informed decisions about viable species for utilization in each UMA and ADVC.

Notable data from the study shows that 38% of respondents reported practicing subsistence hunting, while 62% mentioned not doing so. The main reasons for practicing subsistence hunting were to provide animal-origin food for their families (48% of subsistence hunters) and to prevent crop damage (26%). It is worth noting that the annual per capita consumption of animal protein in the area is 47 kg, which is below the national average (69 kg).

A total of 31 species of terrestrial vertebrates with some form of use were recorded (16 mammals, eight birds, and seven reptiles). 74% of these species are used for food purposes, particularly the white-tailed deer, peccary, and agouti due to the taste of their meat. 7% have medicinal uses, 13% are used as pets, and 6% are hunted to prevent damage to crops, domestic animals, or people. Most hunting events occur in ejidal plots and tend to respect the core zones of the ADVC. As a result of this study, 10 rules were established to regulate subsistence hunting.

The study revealed that in the last three years, there have been 22 reported cases of domestic livestock and guide conservation actions.

Strengthening Technical Capacities in Surveillance and Monitoring Activities.

These activities aim to strengthen the field capabilities of park rangers to support the conservation of jaguars, their prey, and biodiversity.

We acquired transportation, communication, security, camping, and tools equipment that allows monitoring and surveillance brigades to carry out their activities safely and enhance their performance.

Training of personnel and park rangers from REBICA and ADVC in the use of the SMART (Spatial Monitoring and Reporting Tool) system began. This tool was developed to measure, evaluate, and improve the effectiveness of conservation activities by collecting field data and managing it in a database to generate reports, consult and process information to optimize decision-making for the management and conservation of REBICA Calakmul. This tool will be used in conjunction with geographic information systems (GIS).

48 community park rangers, half of whom are also ejidal authorities, participated in monitoring tasks involving locating, placing, and tracking camera traps, as well as locating, surveying, and recording tracks and sightings on linear transects. These activities allowed the recording of 30 species of mammals, 25 birds, and 12 reptiles. Out of these species, 14 are endangered, 11 are threatened, six are under special protection, and 12 are prioritized for our country.

The jaguar (*Panthera onca*) was registered in nine out of the 10 ADVC in the study area. Based on the analysis of the fur pattern of photographed jaguars, 23 different individuals were identified in the area. We also recorded through camera trapping the presence of other key species such as tapirs, pumas, ocelots, jaguarundis, ocellated turkeys, white-lipped peccaries, and brocket deer.

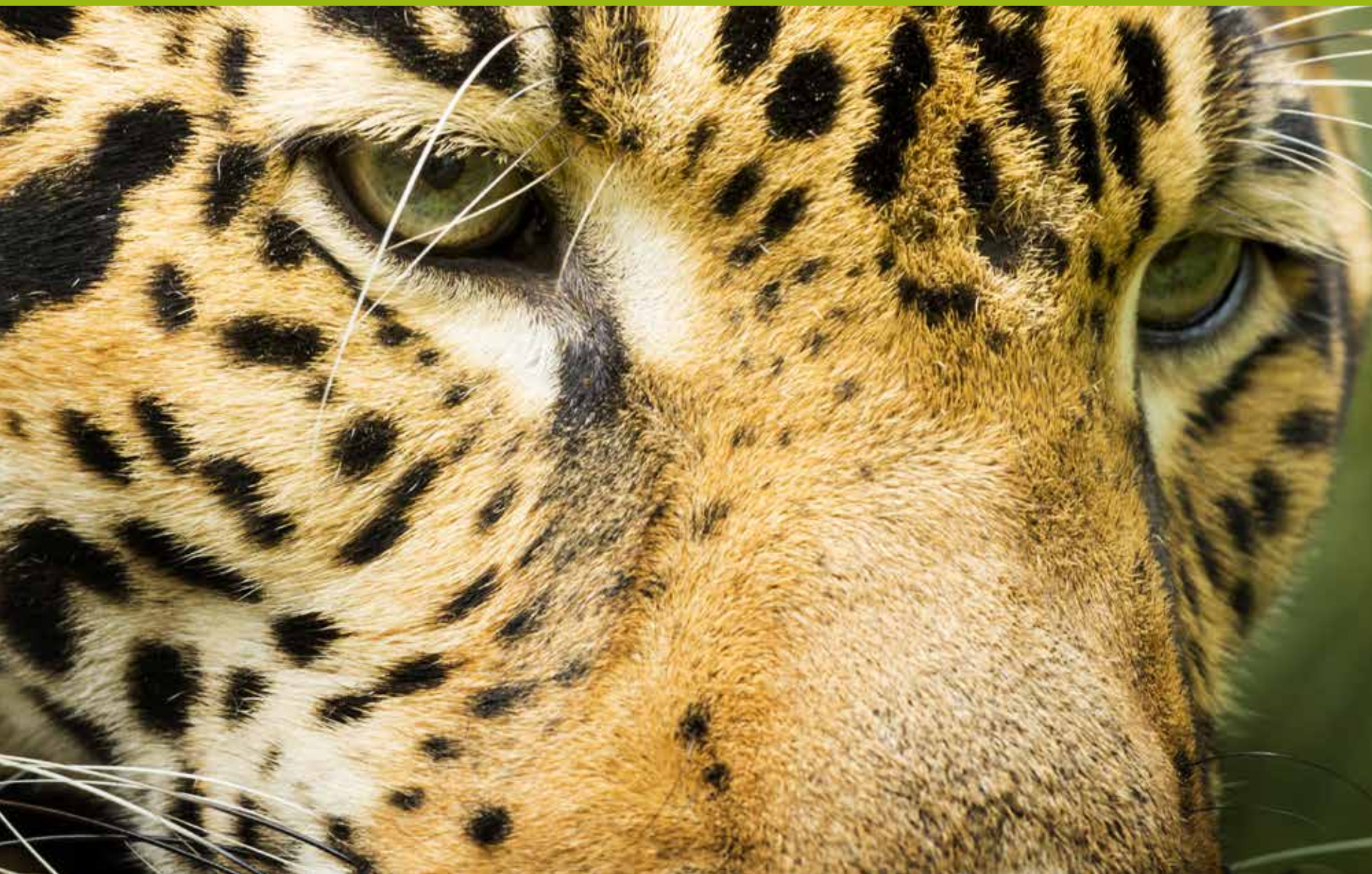
Three park rangers from REBICA participated in a training course on fire management and firefighting provided by the National Forestry Commission (CONAFOR).

We supported the supervision of projects that received support from conservation programs for sustainable development (Procodes) and protection and restoration of priority ecosystems and species (Prorest).

A group of park rangers participated in an exchange of experiences at the Río Bravo Conservation and Management Area Reserve in Belize.

Additionally, four young science communicators began developing content and materials for awareness and environmental education activities within REBICA.

We are working to ensure sustainable livelihoods for local communities and guarantee the survival of jaguars, their habitat, and biodiversity in the region. 🌿



CALIFORNIA CONDOR

REINTRODUCTION PROGRAM

EDANGERED SPECIES | ENVIRONMENTAL AWARENESS

Over the past year, we have continued our successful monitoring and conservation activities for the California Condor population in the Sierra de San Pedro Mártir National Park (PNSSPM). Our main objective is to ensure the survival and growth of this priority species, considered endangered both in Mexico and the United States. Currently, the condor population in our country consists of 40 individuals in the wild (26 released and 14 born in the wild) and seven in the program's aviaries undergoing adaptation for subsequent release.

In satellite monitoring, we use transmitters to determine the monthly distribution range of the condors. During 2022, 35% of the population had a functional satellite transmitter. Processing these data provided us with valuable information about the occupied area and roosting sites of the condors. We also conducted conventional radio telemetry monitoring using very high-frequency (VHF) transmitters on 22 out of the 40 free-flying condors to record their presence and absence without direct contact.

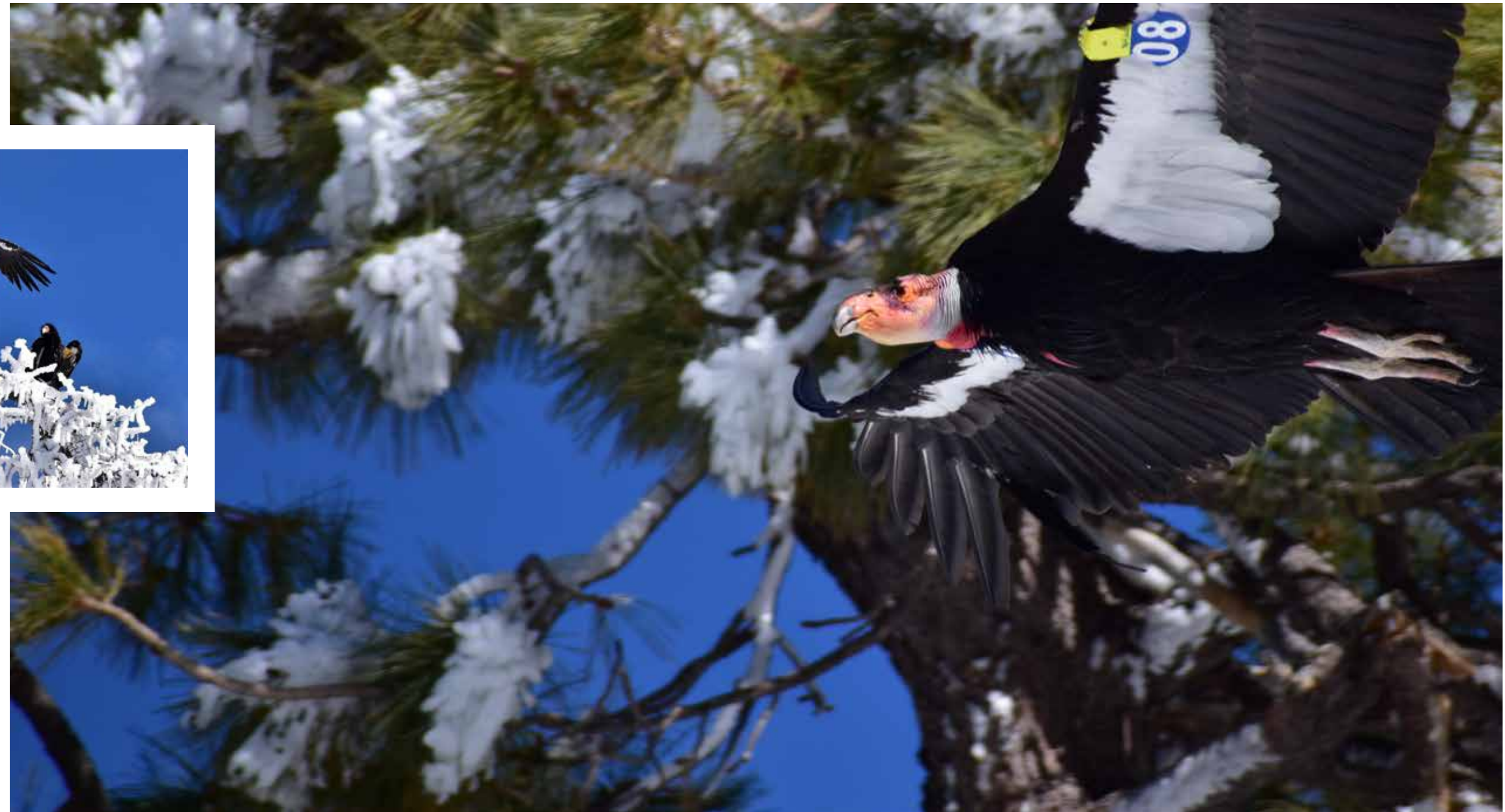


In addition to monitoring methods, we conducted direct field observations to study condor behavior, especially during the breeding season. During our observations, we identified new breeding pairs and detected any unusual behavior or injuries in individuals. These observations help us better understand population dynamics and identify potential threats.

Another priority activity is monitoring the health of the population. Between August and September, we conducted capture and handling of 37 condors. In this process, we took blood samples for blood chemistry tests and lead level analysis. We recorded the weight of the condors to assess their physical condition and vaccinated them against the West Nile virus. We also replaced identification tags and transmitters with malfunctions.

Regarding supplementary feeding, we distributed lead-free food at various sites within and outside the park. This activity is particularly carried out during trapping and breeding seasons.

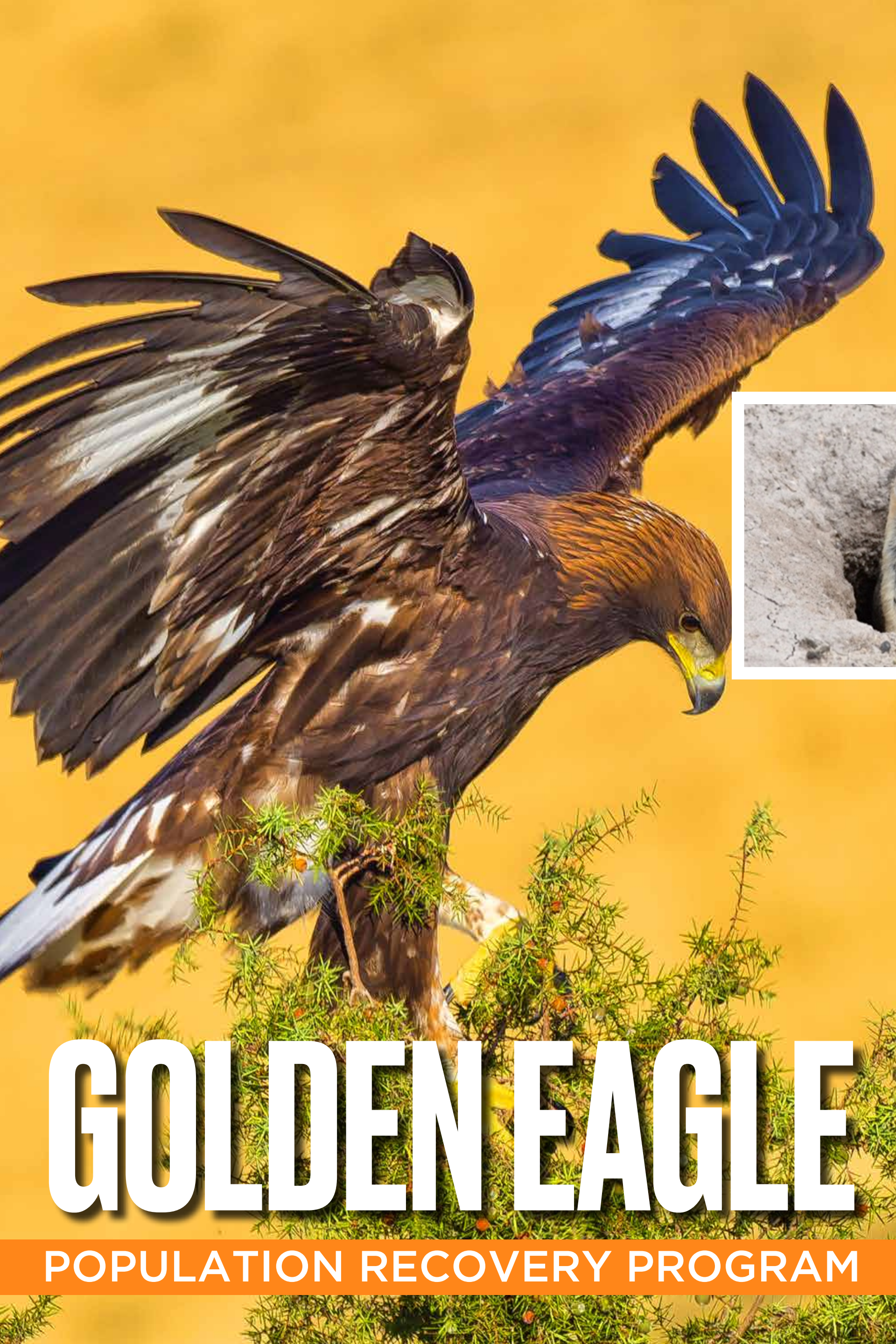
Moreover, in collaboration with community brigades and the National Commission of Protected Natural Areas (CONANP), we participated in fire prevention, firefighting, and addressing environmental incidents in the PNSSPM. We also established connections with teachers and school principals to plan environmental awareness talks in schools in nearby communities. During Holy Week, the period of highest park visitation, we adapted our activities to inform visitors about the California Condor reintroduction program, the importance of not littering in the area, and the dangers of lead consumption for the species. On a regional level, we participated in events such as Expo Turismo Tijuana and the Megaregión.



It's important to highlight that in 2022, we received new condor individuals, two from the San Diego Zoo and four from the Chapultepec Zoo, currently undergoing adaptation to the wild habitat in the program's aviary.

Our activities involving satellite monitoring, conventional telemetry, direct observation, vaccination, condor capture and handling, community brigades, and information dissemination have contributed to the survival and growth of this endangered species.





Starting in 2021, we resumed actions aimed at the conservation of the golden eagle with a medium and long-term vision that aims to conserve 100 nesting areas nationwide over the next 10 years. With this vision, we are implementing a communication and fundraising strategy aimed at different sectors of society that will allow us to achieve our set goal.

During 2022, we solidified our work in the Zacatecan semidesert - one of the regions in the country with the highest record of golden eagle nesting sites - through three initiatives aimed at increasing knowledge, competence levels, and community participation in the sustainable management and utilization of natural resources.



The program includes the recovery of golden eagle populations, Mexican prairie dog, and other species linked to grasslands, as well as work with vulnerable communities, gender equity, sustainable productive options, and carbon capture through reforestation.

- **Educating from Home:** We trained women in the monitoring of flora and fauna, enabling them to identify possibilities for sustainable management and utilization of natural resources and share this knowledge with their families.
- **Youth Conservation:** We trained young individuals about the benefits of proper ecosystem management in the sustainable diversification of their productive activities, making them more resilient to climate change. This was achieved through the operation of Wildlife Management and Utilization Units (UMA) and/or the creation of Areas Voluntarily Designated for Conservation (ADVC).
- **Enhancing Your Community:** We provided training and generated temporary employment for adults in tasks related to the rehabilitation, conservation, prevention, restoration, and management for grassland ecosystem recovery and its key species.

With the support of community brigades, we conducted priority field activities, including extensive surveys in the Mazapil basin to locate active nests. Unfortunately, we did not find any breeding activity in the traditional nests used in the last 10 years. This led us to consider the possibility that the pairs might have found new locations to

GOLDEN EAGLE

POPULATION RECOVERY PROGRAM



build their nests, considering the lack of food due to the prolonged drought in the area. As a result, we initiated expeditions to sites that could have better nesting conditions for the golden eagle.

Regarding hunting sites, we focused on the conservation and monitoring of the prairie dog colony in the Tanque Nuevo ejido, estimating a population of 1150 individuals during the winter. To enhance the colony's survival, we provided supplemental food that also benefited rabbit and hare populations.



During 2022, the effects of prolonged drought in the area presented a continuous challenge, further exacerbated by severe forest fires in the upper parts of the mountains in the localities of Concha del Oro, Aranzazu, and Mazapil. In terms of social conditions, unfortunately, insecurity has hindered our visits to nesting territories, especially in the area known as Pico de Teyra. Despite these challenges, we consider it vital to maintain our presence to support the community and prevent further social degradation and degradation of work sites. 🌱



PENINSULAR PRONGHORN REINTRODUCTION PROGRAM



For the past 25 years, we have been leading the Peninsular Pronghorn Reintroduction Program (PPRP) with the aim of rescuing and conserving this endemic species and its historical habitat in the coastal plains of the El Vizcaíno Desert, in the central part of the Baja California Peninsula. Since the inception of the Program, the goal has been to reintegrate as many individuals as possible into their habitat and involve local communities in this process.

Through the Berrendo Wildlife Management Unit (UMA), the PPRP has produced over 1200 individuals, starting with the capture authorization of five young pronghorns in 1998 and the first births of that group in 2000. Currently, the managed population in captivity, semi-captivity, and in the wild is estimated to be over 600 individuals.

Based on these results, in 2021 we planned the reintroduction of 200 individuals from the extensive management herds that were selected considering their genetics, age, and sex. Field assessments were also conducted on different dates to evaluate the potential release areas, taking into account proximity to human settlements, access routes, habitat quality, conservation status, presence of the subspecies in the area, coyote presence and abundance, domestic livestock, and vehicle access ease.

All activities were coordinated by a committee that included representatives from the involved ejidos (community landowners), Endesu's technical teams, the National Commission of Protected Natural Areas (CONANP), and the Undersecretariat of Environmental Sustainability of the Government of BCS.

EDANGERED SPECIES



The release process was carried out in the first half of 2022, under strict handling and capture protocols, from the La Choya station to the selected sites within the core zone of the El Vizcaíno Biosphere Reserve (ReBiVi); all with the approval of the General Wildlife Directorate (DGVS) and in coordination with CONANP. It's worth noting that telemetry collars were placed on eight pronghorns for tracking purposes.

To reduce competition for food and water with domestic livestock during drought seasons, we constructed two exclusion fences equipped with feeders and water troughs in two sites frequently used by wild pronghorns.

The Peninsular Pronghorn Reintroduction Project in the El Vizcaíno Biosphere Reserve has been a success after 25 years of diligent work.

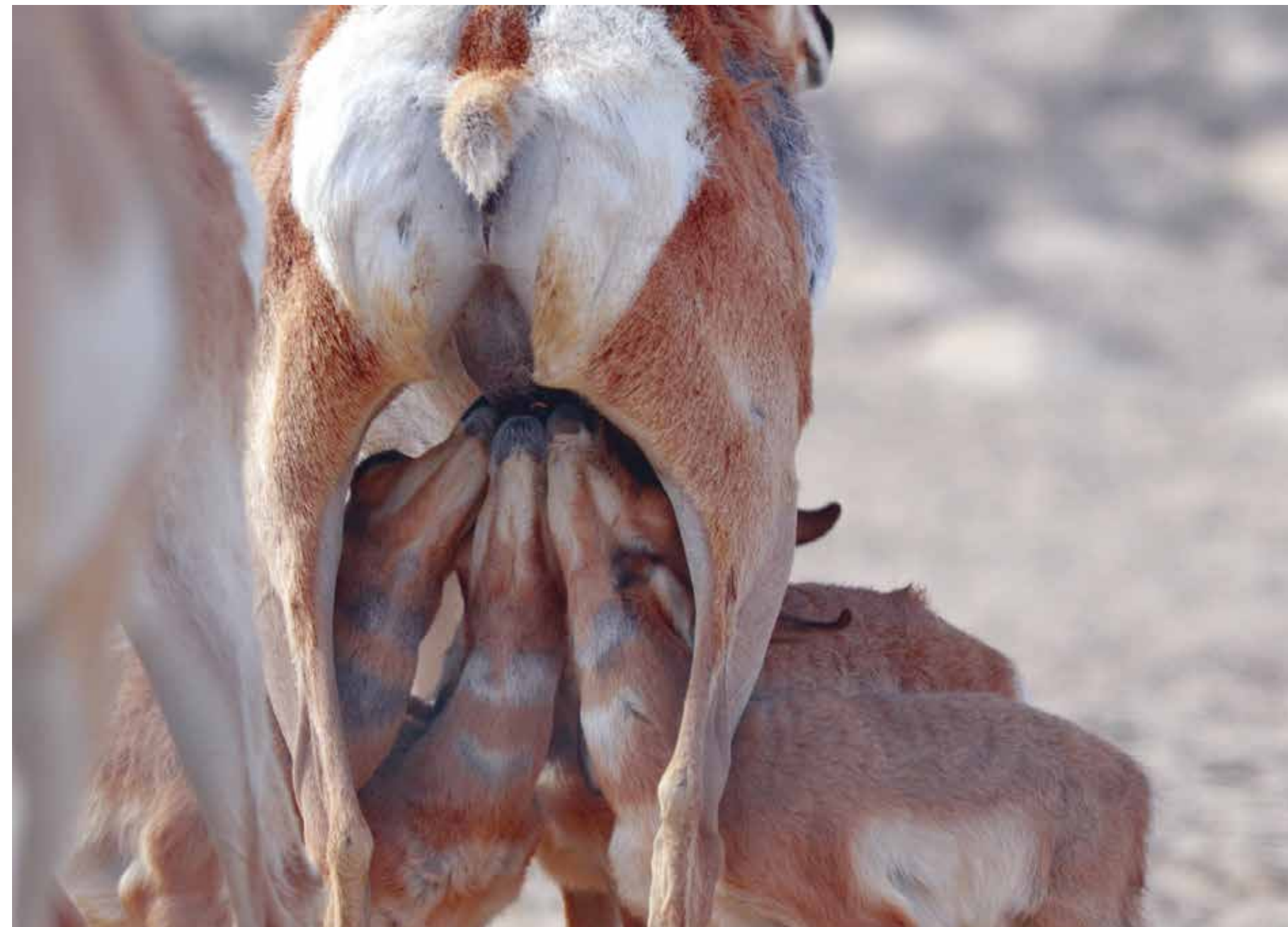


Throughout 2022, in the core zone, the ejidos of Matarranchos, Lagunitas, Baturi, Héroes de Chapultepec, and Gómez Palacios conducted monthly monitoring to locate the wild population and provide forage and water at the feeders. These actions were supported by CONANP and PPRP personnel.

We also conducted ground monitoring in the La Choya area, observing 30 pronghorns during the survey, including 20 males and 10 females. An additional 40 pronghorns were observed in the release area.

The goal of the reintroduction is to establish a viable herd within the core zone with the aim of increasing the population by 20-30% in the next 5-10 years after the release. This increase will serve as an indicator that the free-ranging herd is responding adequately to its habitat. 🌿

EDANGERED SPECIES



JAGUAR IN MEXICO



Since 2021, we have been supporting actions and guidelines aimed at ensuring the conservation of the jaguar and its habitat in Mexico. Our approach is multidisciplinary and inclusive, focusing on generating both basic and cutting-edge knowledge about the ecology and conservation of the jaguar. We aim to propose consensus-based solutions between decision-makers and landowners. Our work is concentrated in the Calakmul region in Campeche and Quintana Roo, and we also participate in analyses at the Latin American level. Some of the most noteworthy results include the following:

We compiled databases on the movements of five jaguars equipped with GPS collars and co-occurrence data between jaguars and their prey. The average home range size was greater than 200 km², with a range of 48 to 633 km². On average, males had a home range of 296 km², and females had 148 km².

To analyze activity patterns of both jaguars and their potential prey, as well as the co-occurrence between them, we used data from 42 camera traps deployed for 195 days in the field, with a total sampling effort of 8230 camera days. We obtained 125 independent jaguar

records and 1928 independent records of five potential prey species: white-lipped peccary (256), agouti (1030), red brocket deer (286), gray brocket deer (158), and collared peccary (198). The occupancy model revealed that two out of the five pairs of species, jaguar-collared peccary and jaguar-white-lipped peccary, occurred more frequently than expected by chance.

We analyzed the spatial ecology of 125 jaguars fitted with GPS collars on a continental scale, grouping the data into 27 populations and 13 groups based on habitat types. This allowed us to define their activity areas, describing their size for different sexes and populations. Male jaguars had significantly larger activity areas than females (average: 350 km² vs. 133.34 km²). Smaller activity areas were associated with populations in Costa Rica, while larger areas were found in central Brazil. These results help understand the population dynamics of this species on a continental scale, facilitating comparisons across their distribution range and aiding the development of conservation strategies.



We conducted monitoring of jaguars and terrestrial and arboreal mammal biodiversity using camera trapping in the ADVC Laguna Om in Quintana Roo. We placed 20 ground-level camera traps distributed in 20 units across five 9 km² quadrants, along with another 20 tree-mounted cameras using a web-like design to analyze arboreal species biodiversity.

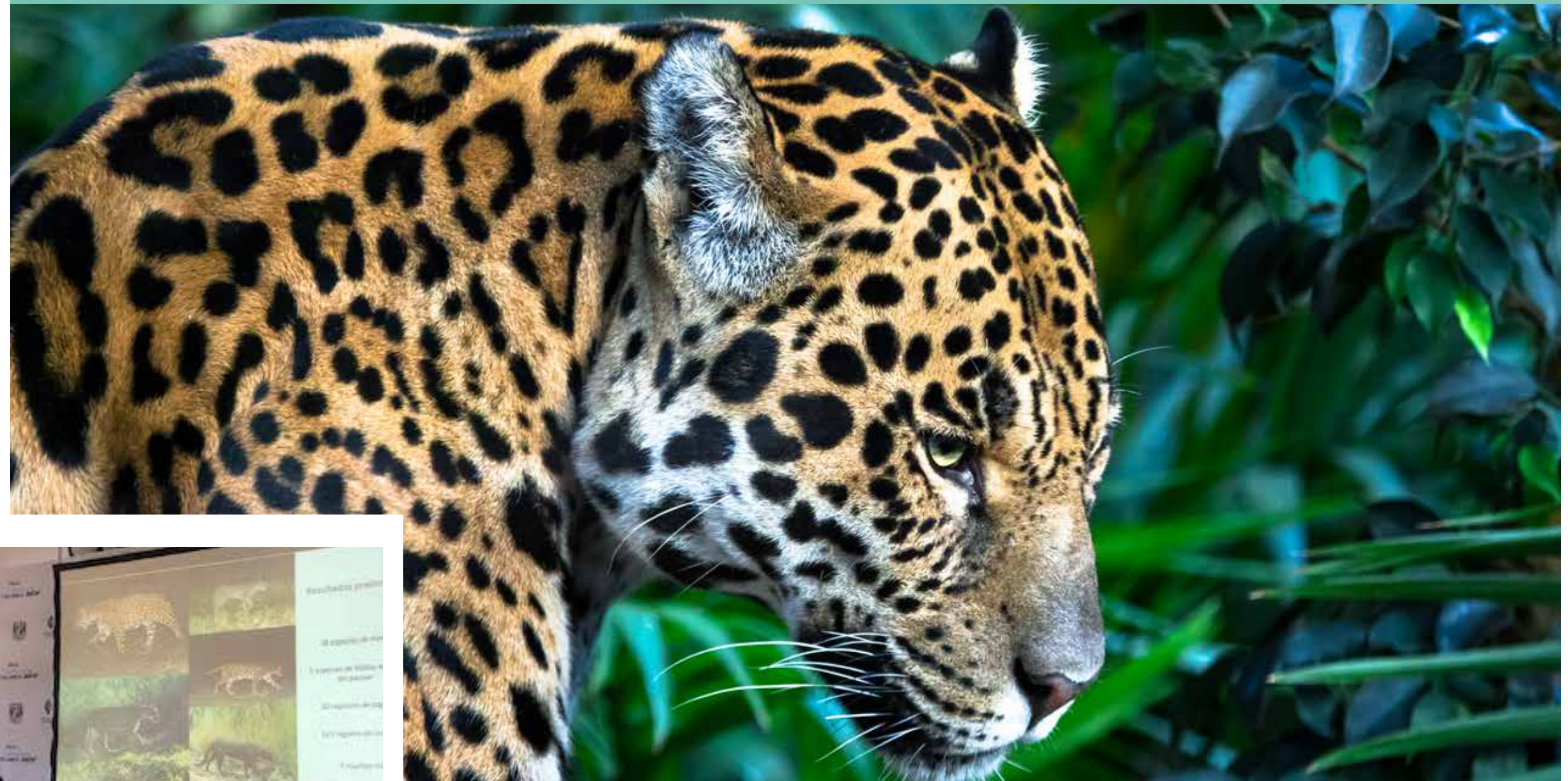
During the fall-winter 2022 monitoring, a total of 3,984 digital files were obtained at ground level, with 652 photographs corresponding to independent events. In total, 30 vertebrate species were recorded during this period. The most frequently recorded species were gray fox with 198 records, crested guan with 179 records, ocelot with 70 records, and collared peccary with 47 records.

For arboreal mammals monitoring, 2,456 files were obtained, with 423 corresponding to independent events. The group with the highest number of records was rodents, followed by the gray fox, crested guan, and coatimundi.

During this period, 15 jaguar photographs were obtained. So far, only one new or unidentified male individual has been identified. Maintenance and rehabilitation of the scientific station and the 50 km study area circuit were also conducted.



EDANGERED SPECIES | INSTITUTIONAL COOPERATION



Additionally, we assessed the prey-predator relationship of jaguars in Mexico. We analyzed 176 camera trap locations in six different states, covering 12,250 camera trap days between May 13, 2016, and March 31, 2019. From a total of 15,179 images, 5,744 were used for analysis. The most relevant results indicated a positive relationship between prey diversity and jaguar abundance.

Concerning prey species, there was an apparent relationship between jaguar abundance and collared peccary abundance. In the analysis of cattle and jaguars, the fact that the three study areas without cattle had more jaguars, and that the single site with cattle but total jaguar protection had a high jaguar abundance, could suggest that the presence of cows itself does not pose a risk to the jaguar population. The primary factor linked to low jaguar abundance in cattle areas seems to be human retaliation, with jaguars being killed to prevent cattle predation.

We also worked on evaluating biological corridors such as the Sierrita de Ticul - Calakmul - Sian Ka'an corridor, the Calakmul - Sierrita de Ticul - Los Petenes corridor, the Costa Norte Península Yucatán corridor, and the Calakmul - Laguna de Términos corridor. Each corridor was analyzed in terms of socio-environmental conditions, threats, management possibilities, and connectivity.

Finally, we collaborated with the organizing committee to develop the agenda for the First Latin American Symposium on Jaguar Ecology and Conservation, expected to take place in the second half of 2023.



INSTITUTIONAL COOPERATION



ELEMENTS FOR THE CONSTRUCTION OF AN ACTION PLAN FOCUSED ON

BIODIVERSITY-RELEVANT SUBSIDIES

LINKED TO PRODUCTIVE ACTIVITIES IN THE RURAL SECTOR AND CRITICAL PATHWAY

In 2022, with the support of a group of experts in the field, we conducted a study to analyze the current state of subsidies with potential detrimental impacts on biodiversity in priority sectors in Mexico. Our goal was to issue recommendations and an action plan to reform, reduce, redirect, or eliminate subsidies with higher potential for impact. Among the achieved results:

We analyzed 307 types of support in the form of subsidies and incentives from 16 government budgetary programs linked to productive activities (agriculture, livestock, fisheries-aquaculture, and forestry) based on their potential effect on biodiversity. Using this information, we developed a methodology to analyze the design of subsidies, categorizing types of support based on their association with factors of change in biodiversity.

We conducted interviews with key officials and established contact with various government departments to design a proposed action plan to transform and expand subsidies in favor of biodiversity. Our recommendations suggest mainstreaming the biodiversity theme into subsidies for productive sectors, emphasizing advisory services and training in good practices. For in-kind subsidies, we propose working with the inventory of their nurseries, seed banks, or breeding centers, with the goal of transforming them to offer native species or locally adapted varieties specific to the ecoregion. Regarding market incentives, we recommend enhancing the appeal of those focused on production systems with ecological criteria and biodiversity integration.

INSTITUTIONAL COOPERATION



To support producers in transitioning to sustainable production systems, we have proposed fostering synergy between different subsidies, ensuring the availability of inputs and labor, as well as interactions between different production systems. Additionally, we emphasize closing cycles from a circular economy perspective, utilizing waste as inputs for other systems. 🌱



We conducted a study to analyze the current state of subsidies with potential detrimental impacts on biodiversity in priority sectors in Mexico.



STRENGTHENING SURVEILLANCE AND PUBLIC USE PROGRAM AT

CABO PULMO NATIONAL PARK

Tourism is the main productive activity allowed in Cabo Pulmo, primarily autonomous diving, free diving (snorkeling), and recently gaining popularity, freediving. One of the purposes of this project is to collaborate in monitoring and implementing the Public Use Program (PUP), which aims to guide and regulate these activities. This involves informing users about the park's attractions, designated sites for each permitted activity, usage intensity, and carrying capacities of the allowed tourism and recreational activities.

One activity under the PUP is to keep track of departures of tourist tours and upload them to a database for analysis to improve activity management.

With the assistance of community boats and official vehicles from the Protected Natural Area, 17 marine surveillance tours and 39 land tours were conducted at the five most visited sites. Cleanup activities were carried out, and information was provided to tourists.

During the Easter operation, collaboration with PROFEPA took place, and supervision reports were issued to permit holders conducting activities without proper authorization from the Protected Natural Area and not carrying the required fee payment as mandated by law.

Additionally, 20 underwater inspections were conducted to verify compliance with good practices in diving activities.



Through effective program implementation and collaboration with authorities and the local community, tourism activity management has been improved, and the park's natural capital is conserved.

In Cabo Pulmo, shore fishing is allowed only for local community domestic consumption. When individuals are found fishing outside these areas or are not part of the community, they are informed of these regulations and requested to refrain from continuing in the area.

Strengthening surveillance activities and the Public Use Program at Cabo Pulmo National Park ensures sustainable utilization of the resources and ecosystem services of the Protected Natural Area. Through effective program implementation and collaboration with authorities and the local community, tourism activities management is enhanced, and the park's natural capital is conserved. 🌿



MAPIMÍ BIOSPHERE RESERVE

During 2022, in coordination with the Mapimí Biosphere Reserve (MBR) Directorate, we supported the biological monitoring and environmental education project to assess the impact of human activities in the protected area and promote environmental awareness in local communities.

We safeguarded that the tourism activities conducted in the Mapimí Biosphere Reserve comply with regulations, focus on the area's biological and cultural values, and promote the development of local communities. A comprehensive monitoring was carried out at four camping sites and 10 visitation sites. The results revealed that human activities had minimal to low impact on vegetation coverage and richness, as well as on cactus species.



The primary objective was to assess the impact of human activities in the protected area and promote environmental awareness in local communities.

To enhance knowledge of the existing flora and fauna in the Reserve, monitoring activities were conducted. For birds, 122 sampling sites were visited, identifying 70 species in winter and 60 in summer, totaling 3257 individuals. Eleven species are listed in the NOM 059, including the Golden Eagle (*Aquila chrysaetos*). The Sandhill Crane (*Antigone canadensis*) was the most abundant species in winter, and the Turkey Vulture (*Cathartes aura*) in summer.

In vegetation monitoring, a 400-hectare property in the Vicente Guerrero ejido was selected, where three plots were established to measure soil loss in different vegetation types: halophytic grassland, microphyll desert shrubland, and rosetophyll desert shrubland.

Erosion measurement was also conducted in 49 established plots across various properties within the protected area. The results indicated that the erosion rate corresponded to the “negligible” category for the year 2022.

Recognizing that environmental education is a vital cross-cutting component for conservation and development in the Mapimí Biosphere Reserve, five workshops and cleanup campaigns were organized in the Granja Morelos and Laguna de Palomas ejidos, involving 90 participants including students, teachers, homemakers, and environmental advocates. Support was provided for the operation of recycling centers in these communities, along with awareness workshops about proper solid waste management. Collaborative efforts were undertaken with ejido members and the ejido committee to ensure proper maintenance of landfill sites. These activities engaged a total of 160 individuals.



Close to 60 environmental education activities were carried out, focusing on the conservation of the Bolson Tortoise, the Golden Eagle, and grasslands. Commemorative events related to the environment, such as the National Golden Eagle Day and International Environment Day, were also organized. These events involved ejidos within the Biosphere Reserve and its surrounding area of influence, directly impacting over 800 individuals. 🌱

INSPECTION, SUPERVISION, AND MONITORING OF ACTIVITIES IN THE REVILLAGIGEDO NATIONAL PARK

For the second year, we supported the Directorate of the Revillagigedo National Park in implementing a protocol for inspection, supervision, and monitoring through the operation of a remote vessel monitoring system to identify ecosystem alterations due to actions or omissions.

One of the main challenges faced by the park administration is its remote location and vast expanse, coupled with limited operational capacity and equipment to address potential violations in the area. To address this issue, the use of monitoring technologies and platforms are powerful tools that enable effective surveillance of the marine zone.

Based on these premises, a diagnostic was conducted in 2022 to identify areas and seasons with the highest irregularities within the National Park. A joint work plan was developed for inspection and monitoring in coordination with the Secretariat of the Navy, the Federal Attorney for Environmental Protection (PROFEPA), and other relevant authorities. This plan encompassed both physical patrols and satellite monitoring.

As a result of these efforts, 67 inspections were carried out on vessels engaged in low-impact activities within the National Park boundaries.

Furthermore, with the support of the Center for Marine Biodiversity Research and Conservation, training was provided to the personnel of the Protected National Area on the operation of the Skylight surveillance platform for remote monitoring of vessel movement within the Natural Park. This system's usage has enabled the collection of images, screenshots, reports, and trajectories to identify potential illegal practices and ecosystem alterations. Additionally, the gathered information has been used to file complaints with PROFEPA regarding possible illegal fishing practices.

Monitoring alerts from the National Fisheries Commission (CONAPESCA) were also tracked. Through the SISMEP platform, CONAPESCA identifies the entry of fishing vessels into the park.

Environmental education and sensitization of individuals present or involved in the park have been crucial for collaborative work with federal institutions, civil society organizations, and academic institutions. 🌱



STRENGTHENING OPERATIONAL ACTIONS IMPLEMENTED IN THE

BANCO CHINCHORRO BIOSPHERE RESERVE AND XCALAK REEF NATIONAL PARK



For the third year, we supported the Directorate of the Banco Chinchorro Biosphere Reserve and Xcalak Reef National Park to carry out activities aimed at reducing environmental violations and developing a communication and outreach program to enhance conservation efforts.

Monitoring and Surveillance

A total of 130 land and marine patrols were conducted in both protected areas. Out of these patrols, 69 were carried out in collaboration with various institutions such as the Mexican Navy (SEMAR), the National Guard, and the Federal Attorney for Environmental Protection (PROFEPA). This collaboration allowed for a stronger presence in the field and more effective work to protect these ecosystems. The remaining 61 patrols were conducted with the assistance of two community monitoring and surveillance brigades for both protected areas.

A flyover was conducted in coordination with PROFEPA from the Canal de Zaragoza area, passing through the Xcalak Reef National Park and Banco Chinchorro polygon, to observe the presence of sargassum and potential land-use violations in the areas.

Participation took place in the monthly meetings of the Surveillance and Inspection Group (GIVS) coordinated by the SEMAR of the 11th naval zone, in coordination with personnel from federal and state-level institutions related to environmental protection and conservation.

A meeting was held with SEMAR, CONAPESCA, RBSK, the Port Authority of Xcalak and Mahahual, and the presidents of the Cooperatives of Lobster Producers of the Caribbean, Chinchorro Bank Fishermen, and Andrés Quintana Roo, in order to address the issue of illegal fishing in the southern zone of the state of Quintana Roo.

Communication and Outreach

Actions carried out in the Banco Chinchorro Biosphere Reserve were presented as part of a peer exchange for coordinated monitoring of Stony Coral Tissue Loss Disease (SCTLD) in the Gulf of Mexico and the Greater Caribbean.

A presentation was given on “Banco Chinchorro Biosphere Reserve: Challenges and Opportunities in the Face of Climate Change” at the 7th Mexico-Belize Binational Seminar, and a presentation was made to SEMAR regarding threats to both protected areas.

Monitoring results of crocodiles in the Banco Chinchorro Biosphere Reserve were presented during the 26th Meeting of the Crocodile Specialist Group of the International Union for Conservation of Nature (CSG-UICN).

Four talks were delivered to university and secondary school students.

A promotional segment with Jaguardo Onca was created to invite the general public to the activities

of the anniversary of the Banco Chinchorro Biosphere Reserve.

As part of the strategy for lionfish control, crafts made from materials of this invasive species were displayed at the fishing tournament event held in Xcalak and during the Crocodile Specialist Group meeting.

Signs were installed to better identify administrative offices in Chetumal and the field station of the Xcalak Reef National Park.

Digital materials were designed and published on social media platforms related to fee collection, a children’s contest, and activities associated with Manatee Week.



Activities were conducted to reduce environmental violations and develop a communication and outreach program.

KNOWLEDGE AND CONSERVATION ACTIONS IN THE SIERRA DEL ABRA TANCHIPA BIOSPHERE RESERVE

For the fourth consecutive year, we collaborated with the Directorate of the Sierra del Abra Tanchipa Biosphere Reserve (RBSAT) to consolidate knowledge and biological monitoring of flora and fauna species, as well as surveillance and citizen participation in environmental matters. The key results for the year 2022 are as follows:

- Land reconnaissance tours were conducted in the reserve and its surrounding area with the participation of 21 community monitors (five women and 16 men) from the communities of Laguna del Mante and Los Sabinos Número Dos. This effort resulted in the recording of 177 species from five taxonomic groups. According to the NOM-059-SEMARNAT-2010, 18.08% (32 species) are categorized as endangered.
- Three community surveillance committees, composed of 13 women and 16 men, conducted 160 land reconnaissance tours to prevent and promptly detect environmental violations within the RBSAT and its surrounding area, covering a total area of 30,000 hectares. From these activities, seven reports were generated and appropriately followed up on. Additionally, environmental awareness activities were conducted among residents of communities adjacent to the reserve.
- It is noteworthy that the involvement of women and men from local communities in conservation actions within the RBSAT contributed to the generation of biological knowledge, monitoring, surveillance, and response to environmental contingencies. This progress enhances the sense of ownership and participation of residents in protecting this valuable ecosystem. 🌿



Through land reconnaissance, biological monitoring, surveillance, and awareness activities, significant strides are being made in the protection of this important ecosystem.





In the fourth year of cooperation with the Directorate of the Santa Elena Canyon Flora and Fauna Protection Area (APFF CSE), we supported the operation of the project “Management, Training, and Monitoring of Livestock Projects in the Sierra Rica.” This project has focused on monitoring exotic grasses along the Ojinaga-Manuel Benavides road, training the population in the detection and control of exotic and invasive species in their pastures, and promoting best livestock practices.

This year, four surveys were conducted to detect exotic grasses along the roadside, and a report was prepared with the results obtained from transects located on both sides of the Ojinaga-Manuel Benavides road.

This study allowed for the identification of the most common species, such as buffelgrass, African grass, and Johnson grass. After four years of work, the general population demonstrates increasing knowledge and skills in identifying these species and understanding the importance of their control, leading them to report their presence to APFF CSE staff.

Talks were given to residents of the communities of San Carlos and Manuel Benavides about the impact that the Barbary sheep (an exotic species) has on native forage grasses and the conservation of the desert bighorn sheep. The population’s capacity in monitoring and controlling Barbary sheep populations was also strengthened. Both women and men actively participate in these activities.

Furthermore, a talk on best livestock practices was given at the annual meeting “Conscious Livestock Farming and Its Connection to Carbon” in Chihuahua, and the course “Grazing Methods” was taught in Cuauhtémoc, Chihuahua. These events allowed small producers within APFF CSE to gain more knowledge to enhance their livestock practices and efficient land use.

Regarding the livestock projects in the Sierra Rica, progress was made in integrating two technical files. One focused on water distribution infrastructure, while the second aimed at habitat restoration through the installation of fences.

Advancements have been made in detecting exotic species, training producers, and implementing livestock projects.



A significant achievement has been the consolidation of livestock producers’ training and their participation in experience exchanges using digital platforms. These activities are carried out with active engagement through applications such as WhatsApp and Zoom video conferences.

Another accomplishment is that two of the ranches within Sierra Rica are undergoing satellite evaluation of their vegetative cover to measure their carbon capture capacity and potentially qualify for the commercialization of carbon credits. 🌱

VISUAL COMMUNICATIONS IN BAHÍA DE LORETO NATIONAL PARK



For the second year, we supported the Bahía de Loreto National Park (PNBL) in implementing a communication plan to disseminate conservation actions to park users and in developing awareness and environmental education initiatives.

In 2022, an annual calendar was established with the planning of publications and content for various digital communication channels, resulting in the acquisition of 12,761 followers on Facebook. An image and video repository was created, organized by themes and containing files optimized for web and print use. Three outreach campaigns were generated, both digitally and in print, covering topics like a bay without cigarette butts, a community women's group, and dry toilets on Coronados Island. Additionally, nine videos were produced and published, providing information about whales, turtles, sea lions, seabirds, cigarette butt recycling, and underwater restoration, among others.

aware of the main rules of the protected natural area. During the Loreto Film Festival, an informational booth was set up focusing on "The Turtles of PNBL."

Three environmental education workshops were conducted, covering the importance of wetlands and their graphical representation for young individuals; birdwatching and photographic registration aimed at women and girls; and recognition of the Bahía de Loreto National Park. A total of 58 participants engaged in these workshops.

Additionally, to strengthen ties with communities, six cleanup campaigns were carried out in five hectares of wetlands with the support of volunteers. A puppet theater presentation was held, centered around marine species and conservation. On the occasion of the 26th anniversary of PNBL, seven thematic murals were created, along with a film screening and discussions with fishermen.

Through these activities, the regulations for entering the Protected Natural Area, allowed recreational activities, and ongoing conservation and restoration efforts have been effectively communicated. Moreover, environmental values like care, respect, biodiversity recognition, and community engagement in the protection of PNBL, especially among young individuals, have been promoted.



Furthermore, support was extended through the design of informative materials for the "Easter Week 2022" operation, as well as signage for no-fishing zones and a new edition of the "Al Punto" newspaper. This effort aimed to ensure that visitors and users are

We have fostered environmental values such as care, respect, and recognition of biodiversity a testament to success after 25 years of diligent work.

PROMOTION OF WATER CULTURE AND IMPLEMENTATION OF CLIMATE CHANGE ADAPTATION TECHNOLOGIES IN

APFF OCAMPO



As part of our cooperation with the Ocampo Flora and Fauna Protection Area (APFF Ocampo), for the fourth consecutive year, we supported the promotion of a water culture and the implementation of climate change adaptation technologies. In this year, among the most relevant activities, we can mention the following:

Eleven communities within the APFF Ocampo were involved (Álamos de Marquez, Santa Fe del Pino, San Miguel, Piedritas, Jaboncillos Grande, Jaboncillos Chico, La Unión y el Olan, San Vicente, Boquillas del Carmen, Ojo Caliente, and Norias de Boquillas), which represent nearly 90% of the communities within the APFF.

Nine workshops -one per community- were conducted to strengthen the knowledge of environmental promoters about the ecological value of water and conservation options, as well as techniques and dynamics to help spread the topic in their communities. A total of 93 people participated (80 women and 13 men).

INSTITUTIONAL COOPERATION | ENVIRONMENTAL AWARENESS

A theoretical and practical course was developed to promote food sustainability through basic knowledge of agroecology. Ten people participated (five women and five men) from two communities that have or are interested in setting up a family garden. The course included an exchange of experiences, techniques, and knowledge to improve their production in the short and medium term.

A follow-up was conducted with the 28 families that have rainwater harvesting roofs installed in the Piedritas and Jaboncillos Grande ejidos to monitor their effectiveness and ensure they receive the required maintenance. The solar ovens installed in the Unión and El Olán ejidos were also monitored.

Based on protocols established in 2020, two monitoring sessions (spring-summer and fall-winter) were conducted for eight springs, collecting data on flora, fauna, water flow, and quality. The monitoring points on the springs' map were updated.

In terms of restoring degraded ecosystems, maintenance was provided for the 350 agave and willow plants that have been in development for three years and will be planted in public areas in 2023.

Additionally, 250 pomegranate and fig plants were acquired, which are fruit trees adapted to arid zones, allowing producers to have a means of livelihood for their families. These plants were planted in five communities. Prior to this, residents received training on plant physiology, and a drip irrigation system was installed. 🌿



IMPLEMENTATION OF THE PARTICIPATION STRATEGY FOR THE APRN DON MARTIN DISTRICT 004 WATERSHED FEEDER AREA

INSTITUTIONAL COOPERATION

For the fourth consecutive year, we supported the Natural Resources Protection Area (APRN) Don Martin District 004 Watershed Feeder Area in strengthening interinstitutional coordination for the management of water, mining, and stone resources within the APRN through the operation of its Advisory Council.

In 2022, three meetings of the APRN's Advisory Council were facilitated. Each meeting included presentations on topics of interest related to the protected area for the 15 council members to enhance their capacities and knowledge. Additionally, all agreements originating from the meetings of this collegial body were fulfilled, and the database containing information about the agencies and authorities involved in APRN activities was kept up-to-date.



As part of the tenth cycle of conferences on the Don Martin District 004 Watershed Feeder Area, around 90 participants attended, including three women and two men who were speakers.

It is worth noting that after four years, there is a greater autonomy and initiative from the president and some council members to carry out work that benefits and promotes the conservation of the APRN. For example, several of them participated in meetings with student groups from the Universidad Autónoma de Coahuila to promote the work of the Advisory Council and this protected national area.

This project has led to increased social participation in forums organized by the APRN, where educational institutions, companies, and organizations actively engaged. Moreover, the connections among council members were strengthened, which enabled the implementation of improvements aligned with their interests. 🌱

EMERGENCY FUNDS

FOR ADDRESSING UNFORESEEN EVENTS IN PROTECTED NATURAL AREAS

For over 20 years, we have been supporting the operation of Emergency Funds to address unforeseen events that impact the health of ecosystems, the well-being of species, or the lives of people residing in Protected Natural Areas supported by the Natural Protected Areas Fund (FANP).



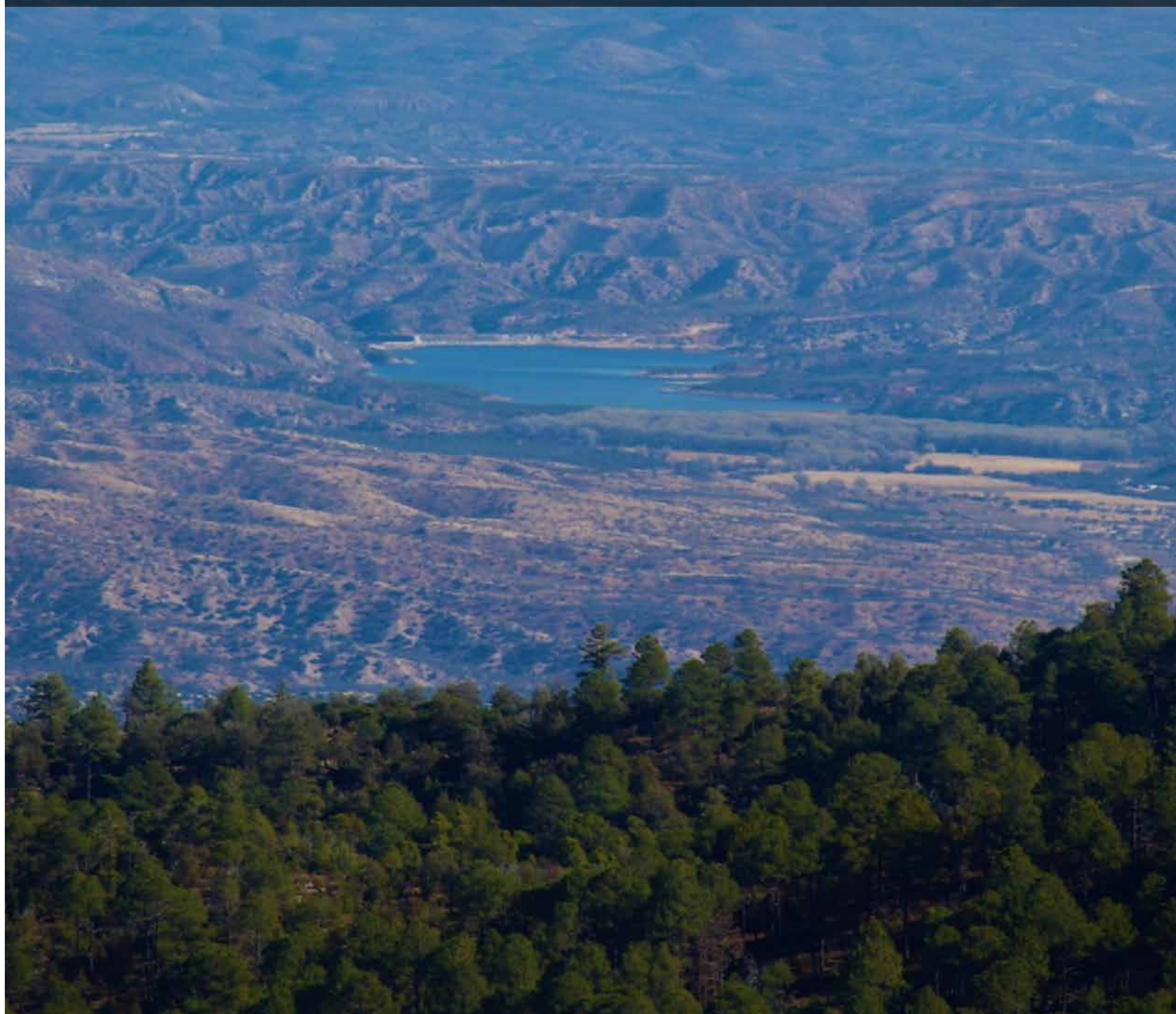
In 2022, we managed and allocated emergency resources for two significant contingencies:

In the Cuatrociénegas Flora and Fauna Protection Area, a forest fire threatened natural grasslands and microphyllous scrub. We coordinated a team of 10 individuals, including security personnel, medical services, civil protection, and environmental experts. The fire's location was identified, risks were assessed, and actions were taken to control it using appropriate vehicles and tools.

In the La Encrucijada Biosphere Reserve, another forest fire affected key ecosystems such as mangrove swamps and palm groves. A team of 50 people, including specialized brigades and local communities, was deployed to combat the fire and protect these areas. 🌿



COORDINACIÓN OPERATIVA DE LOS PROGRAMAS OPERATIVOS ANUALES DE 31 PROTECTED NATURAL AREAS



INSTITUTIONAL COOPERATION

Since 1998, we have been supporting the operation of Annual Operating Plans (POA) for federal Protected Natural Areas (ANP). In 2022, we assisted in the operation and management of the POA for 31 ANPs to enhance the effectiveness of their management based on medium-term strategic plans.

Biosphere Reserves:

- El Pinacate y Gran Desierto de Altar
- Banco Chinchorro Parque Nacional Arrecifes Xcalak
- Janos
- Calakmul
- El Vizcaíno
- La Encrucijada
- Mapimí
- Alto Golfo de California y Delta del Río Colorado
- Montes Azules
- Selva El Ocote
- La Sepultura
- Sierra Gorda
- Sierra del Abra Tanchipa
- Sierra de Manantlán
- Sierra La Laguna
- Ocampo

Areas of Flora and Fauna Protection:

- Islas del Golfo de California, Sinaloa
- Sierra de Álamos Río Cuchujaqui
- Cañón de Santa Elena
- Cuatrociénegas
- Islas del Golfo de California, BCS Parque Nacional Zona Marina del Archipiélago de Espíritu Santo
- Maderas del Carmen
- Bavispa y RPC Cuenca del Río San Pedro
- Islas del Golfo de California, Sonora
- Corredor Biológico Chichinautzin Parque Nacional Lagunas de Zempoala y El Tepozteco

National Parks:

- Revillagigedo
- Bahía de Loreto
- Cabo Pulmo

Complexes:

- Área Nacional Protegida Isla de Cozumel
- Sian Kaan

Areas of Natural Resource Protection

- Cuenca Alimentadora del Distrito Nacional de Riego 004 Don Martín 🌱

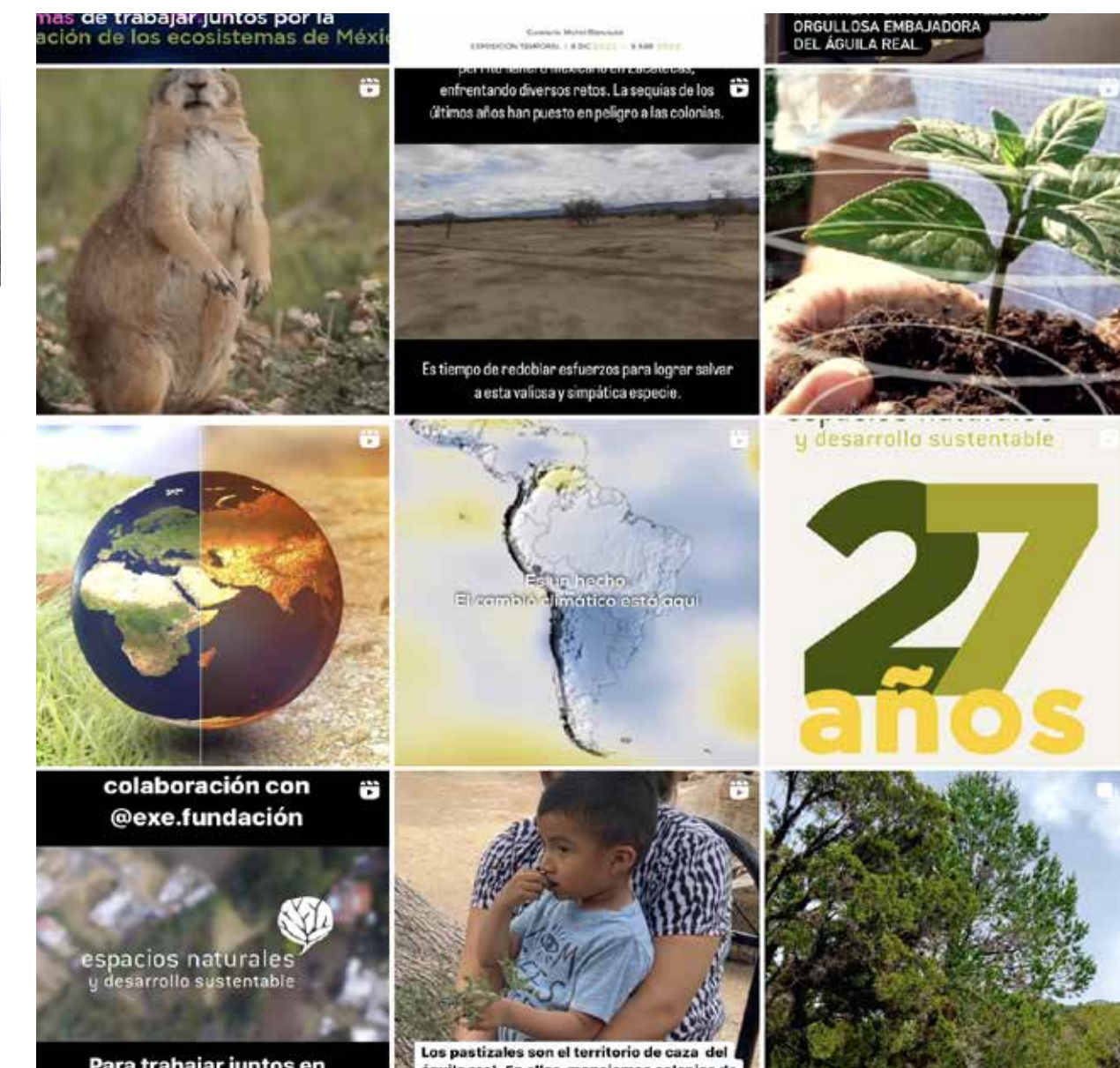
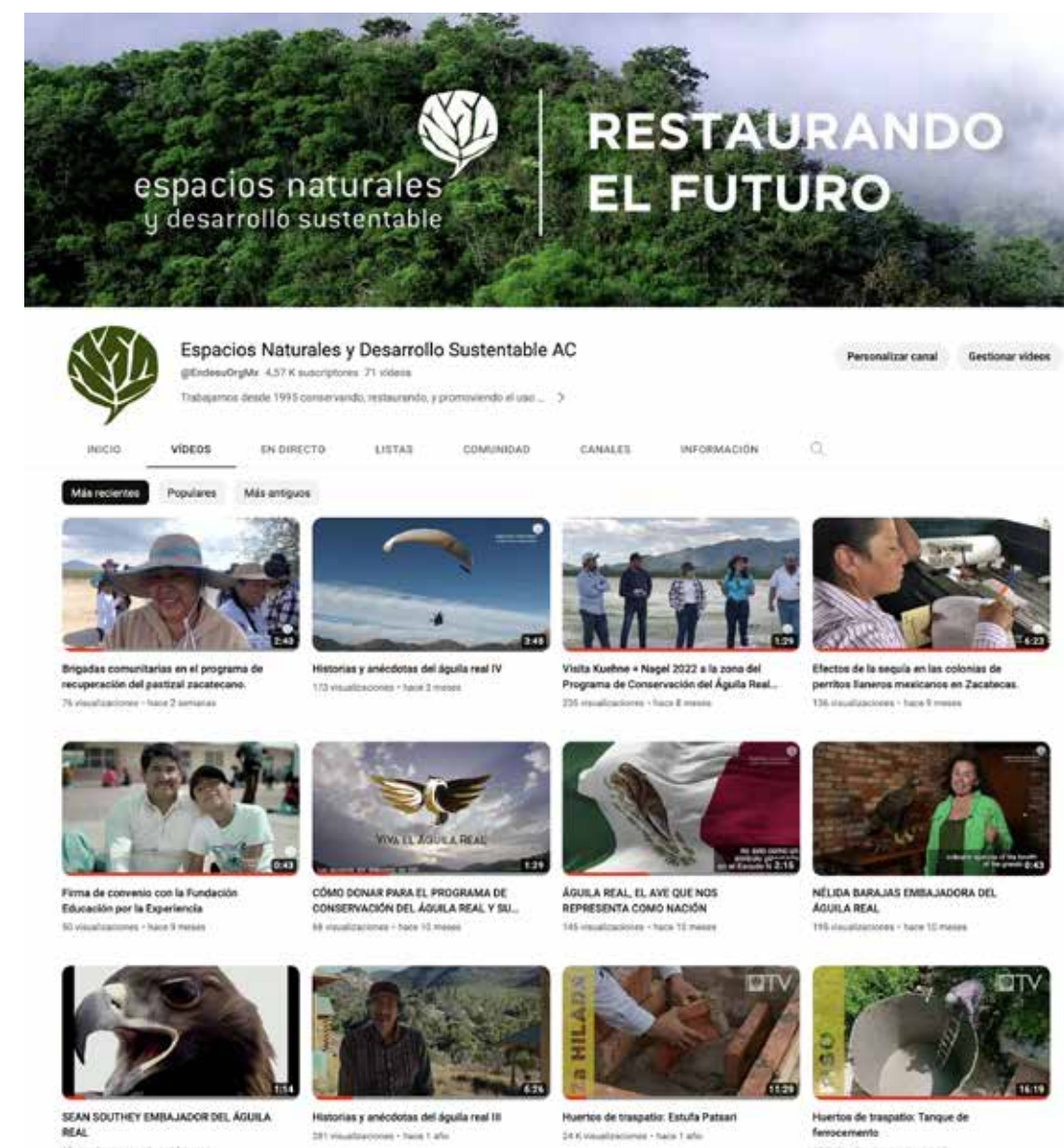
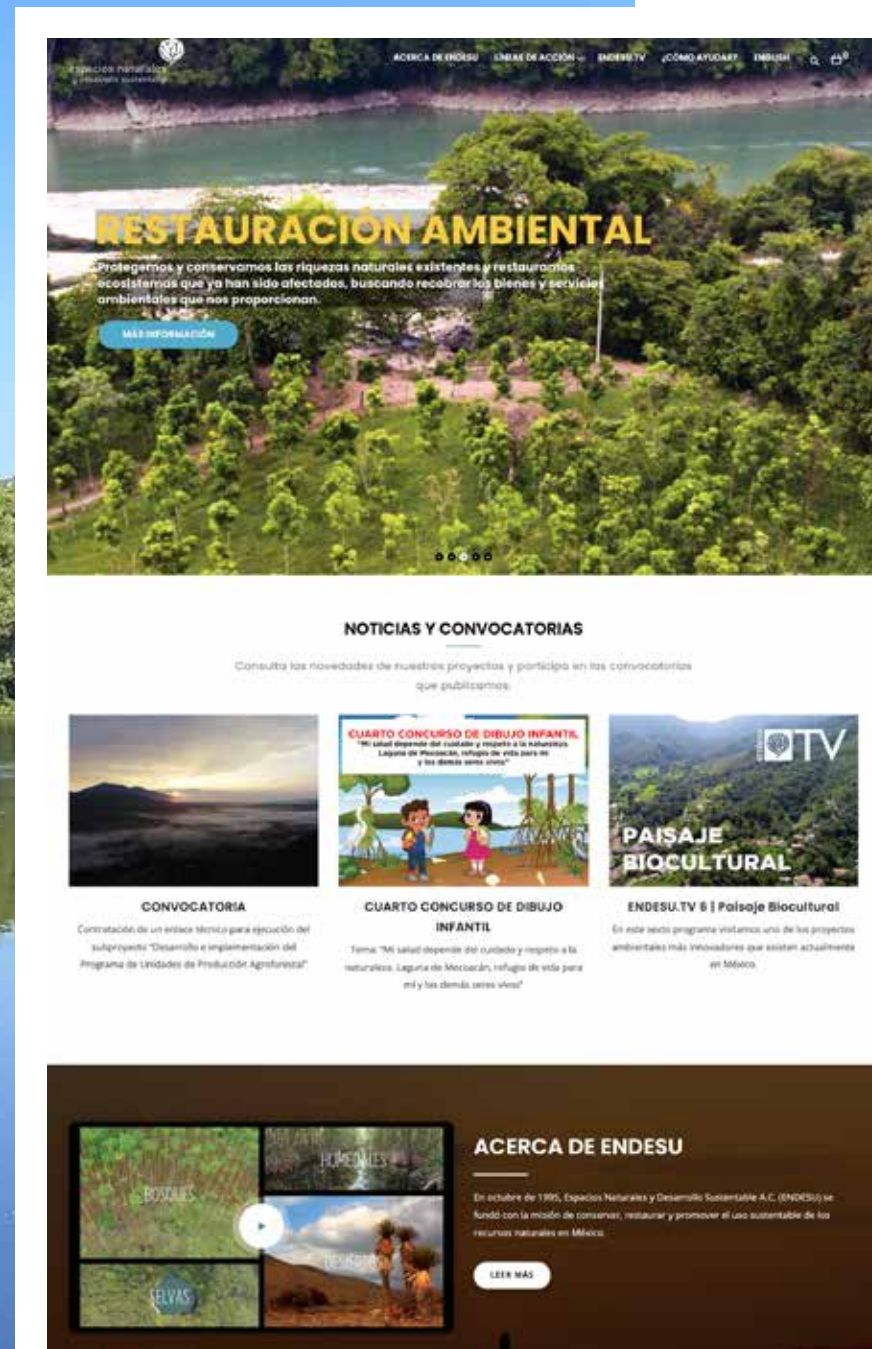
COMMUNICATION PUBLIC RELATIONS AND FUNDRAISING

COMMUNICATION PUBLIC RELATIONS AND FUNDRAISING

In 2022, the coordination of communication merged with the area of public relations and fundraising to consolidate a dedicated team that oversees internal and external communication and maintains contacts with partners and donors, while also seeking new funding opportunities.

During the latter stage of the pandemic, communication efforts continued through social media channels. An organic growth of 4% was achieved on Facebook, 57% on Instagram, and 2% on Twitter. The YouTube channel garnered 155,000 views and gained 880 new subscribers. The website received 46,100 visits, which is 13,000 more than in 2021.

The YouTube channel reached 70 original videos, including three new tutorials on the construction of eco-technologies and capsules from the golden eagle conservation program and its habitat. 🌿



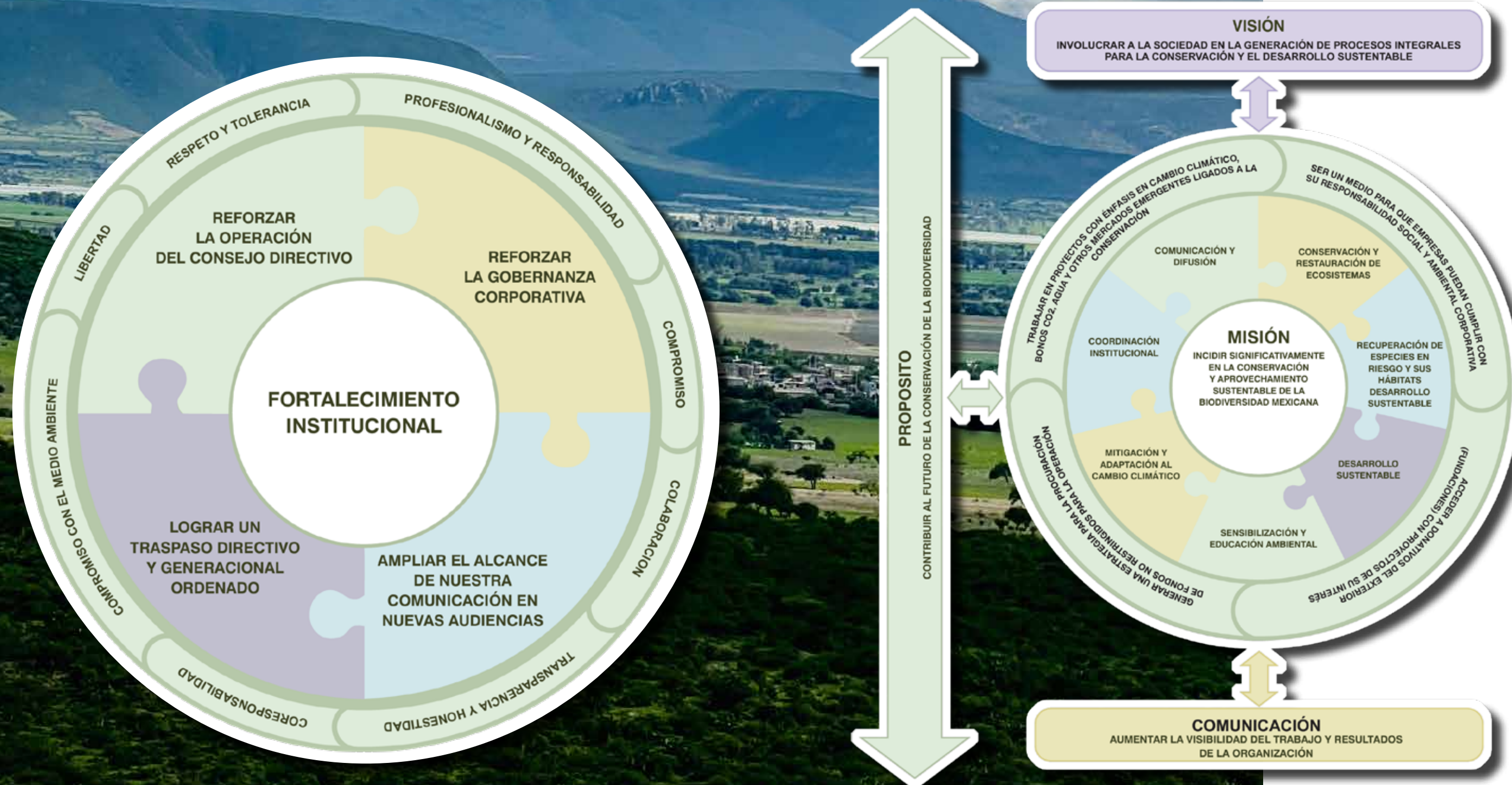
STRATEGIC PLANNING 2022-2023

STRATEGIC PLANNING

In 2022, we deemed it important to undergo an evaluation process to reevaluate ourselves and answer who we are today, who we want to become in the future, and what path we must take to achieve our objective: the conservation of our country's natural resources. Given the ever-changing environment, we approached this exercise with a three-year vision, planning to revisit it on our 30th anniversary.

Over a span of 15 weeks between April and August 2022, we conducted a strategic planning exercise that involved the participation of all the stakeholders within the Endesu ecosystem. This included those within the association who work on our projects day-to-day, as well as external collaborators such as donors, partners, allies, and advisors. These individuals possess an understanding of us and the environment in which we operate. The outcome of this exercise revealed:

- Endesu's values remain relevant and therefore should remain unchanged. These values include freedom, respect and tolerance, professionalism, responsibility, co-responsibility, collaboration, transparency and honesty, and commitment to fulfilling our mission.
- The organization's Vision and Mission also remain relevant, with adjustments made to their wording to make them more impactful.
- Regarding our lines of work, we added the area of climate change mitigation and adaptation to make our efforts in this area more visible.
- Our new strategic lines are focused on institutional strengthening and enhancing our presence and impact within the SME sector. This includes direct access to international resources, projects with an emphasis on climate change, CO2 offsets, water, and other emerging markets linked to conservation.



AUDITED FINANCIAL STATEMENTS

ESPACIOS NATURALES Y DESARROLLO SUSTENTABLE, A. C.

ESTADOS DE SITUACION PATRIMONIAL
AL 31 DE DICIEMBRE DE 2022 Y 2021
(En pesos)

ACTIVO	2022	2021
ACTIVO CIRCULANTE:		
Efectivo y equivalentes de efectivo (Nota 5)	\$ 18,591,354	\$ 14,531,268
Cuentas por cobrar – neto (Nota 6)	129,324	1,740,468
Pagos anticipados	<u>218,813</u>	<u>209,394</u>
Activo circulante	18,939,491	16,481,130
INMUEBLES Y EQUIPO – Neto (Nota 7)	<u>13,757,271</u>	<u>12,170,619</u>
TOTAL	<u>\$ 32,696,762</u>	<u>\$ 28,651,749</u>
PASIVO Y PATRIMONIO CONTABLE		
PASIVO CIRCULANTE:		
Gastos acumulados	\$ 1,827,469	\$ 2,048,513
Impuestos por pagar	892,790	758,426
Impuesto sobre la renta (Nota 11)	609,943	183,060
Pasivo por contrato de arrendamiento (Nota 8)	<u>230,931</u>	<u>443,107</u>
Pasivo circulante	3,561,133	3,433,106
OBLIGACIONES LABORALES AL RETIRO (Nota 9)	<u>1,570,745</u>	<u>1,411,881</u>
Total pasivo	5,131,878	4,844,987
PATRIMONIO CONTABLE (Nota 12):		
Restringido temporalmente	26,284,795	22,526,673
Restringido permanentemente	<u>1,280,089</u>	<u>1,280,089</u>
Total patrimonio contable	27,564,884	23,806,762
TOTAL	<u>\$ 32,696,762</u>	<u>\$ 28,651,749</u>

Las notas adjuntas son parte de los estados financieros.

ESPACIOS NATURALES Y DESARROLLO SUSTENTABLE, A. C.

ESTADOS DE ACTIVIDADES
POR LOS AÑOS QUE TERMINARON EL 31 DE DICIEMBRE DE 2022 Y 2021
(En pesos)

	2022 Restringido Temporalmente	2021 Restringido Temporalmente
INGRESOS:		
Donativos	\$ 53,113,186	\$ 42,835,246
Otros ingresos	12,326,783	6,116,116
Productos financieros	<u>1,433,282</u>	<u>524,759</u>
Total de ingresos	66,873,251	49,476,121
COSTO POR PROGRAMAS Y GASTOS:		
Costos por programas:		
Programas de manejo de especies	9,410,868	12,083,787
Programas de conservación y restauración	8,494,425	4,634,659
Programas de sensibilización ambiental	15,328,410	13,132,677
Programa de apoyo institucional	<u>26,745,912</u>	<u>24,979,165</u>
Total costos por programas	59,979,615	54,830,588
Servicios de apoyo:		
Gastos de administración	2,427,012	2,351,737
Gastos financieros	<u>98,559</u>	<u>76,152</u>
Total servicios de apoyo	2,525,571	2,427,889
Total costos y gastos	62,505,186	57,258,477
Impuesto sobre la renta (Nota 11)	<u>609,943</u>	<u>183,060</u>
CAMBIO NETO EN EL PATRIMONIO CONTABLE	3,758,122	(7,965,416)
PATRIMONIO CONTABLE AL INICIO DEL AÑO	<u>23,806,762</u>	<u>31,772,178</u>
PATRIMONIO CONTABLE AL FINAL DEL AÑO	<u>\$ 27,564,884</u>	<u>\$ 23,806,762</u>

Las notas adjuntas son parte de los estados financieros.

ESPACIOS NATURALES Y DESARROLLO SUSTENTABLE, A. C.

ESTADOS DE FLUJOS DE EFECTIVO
POR LOS AÑOS QUE TERMINARON EL 31 DE DICIEMBRE DE 2022 Y 2021
(En pesos)

	2022	2021
ACTIVIDADES DE OPERACIÓN:		
Ingresos cobrados	\$ 66,956,789	\$ 47,078,342
Pagos a proveedores	(44,941,735)	(39,298,728)
Pagos a empleados y otros	(14,583,120)	(10,680,723)
Impuesto sobre la renta pagado	<u>(183,060)</u>	<u>(236,243)</u>
Flujos netos de efectivo de actividades de operación	7,248,874	(3,137,352)
ACTIVIDADES DE INVERSIÓN:		
Adquisición de equipos - neto	(4,732,070)	(2,683,146)
Cobros por venta de equipos	110,000	246,200
Intereses cobrados	<u>1,433,282</u>	<u>524,759</u>
Flujos netos de efectivo de actividades de inversión	(3,188,788)	(1,912,187)
Incremento (Disminución) neta del efectivo en el año	4,060,086	(5,049,539)
SALDO INICIAL DEL EFECTIVO Y EQUIVALENTES	<u>14,531,268</u>	<u>19,580,807</u>
SALDO FINAL DE EFECTIVO Y EQUIVALENTES	<u>\$ 18,591,354</u>	<u>\$ 14,531,268</u>

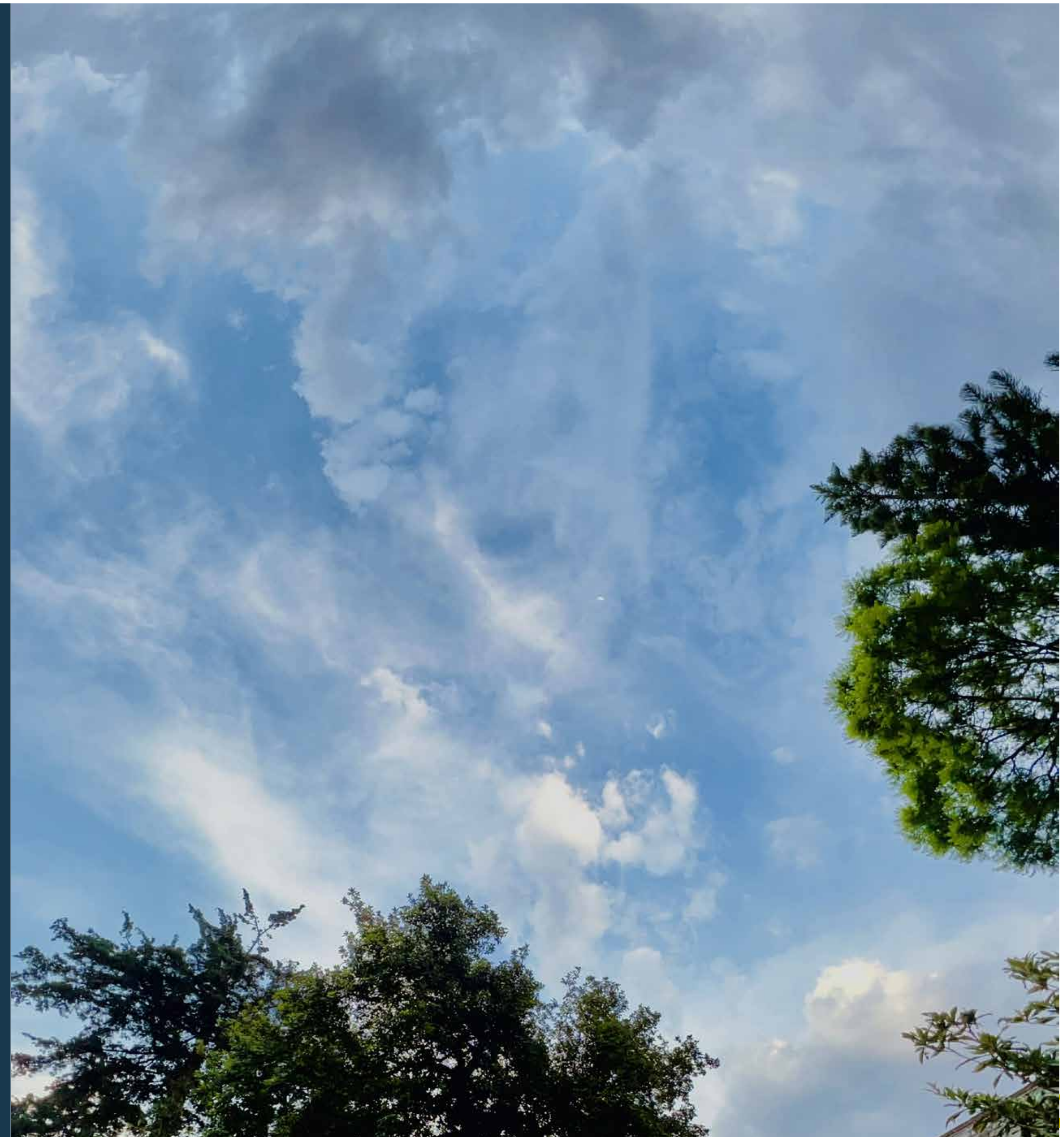
Las notas adjuntas son parte de los estados financieros.

ACKNOWLEDGMENTS

Espacios Naturales y Desarrollo Sustentable A.C. extends its heartfelt gratitude to the valuable support of partners and allies who enabled us to achieve results in each of our projects:

MEXICAN FUND FOR NATURE CONSERVATION
LA PIMIENTA SOLAR
WORLD WILDLIFE FUND
CHEVRON ENERGY OF MEXICO
SHELL EXPLORATION AND EXTRACTION OF MEXICO
CONSERVATION INTERNATIONAL MEXICO
GULF OF MEXICO FUND
LEVANOV GROUP
U.S. FISH AND WILDLIFE SERVICE
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Javier Hinojosa Hinojosa
Alejandra Monroy Valentino
Jessica I. Morales González
Santiago Gámez Monroy
Martín Gutiérrez Perea
Aideé Sánchez Ramírez
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