



espacios naturales
y desarrollo sustentable



ANNUAL REPORT

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CLIMATE CHANGE, OTHER CHANGES AND ENDESU

New paradigms in conservation and sustainable development?

Climate Change.

Climate change (CC) and its effects are not new. On one hand, on our planet they have occurred repeatedly throughout its history. As for the current change, it has been studied and analyzed for decades.

Nor are the necessary tasks to mitigate or adapt to the novel conditions derived from the CC new; they are actions such as the reduction of greenhouse gas (GHG) emissions, the conservation and recovery of carbon sinks, changes in production and consumption patterns in society. Activities that have also been discussed and proposed in various forums for years.

The consensus of the scientific, economic and environmental communities regarding current CC, and whose effects we already notice are:

- That its main causes lie in human activity,
- And that, consequently, it is still in our hands to modify its course and evolution.

This consensus stems from publications, outreach campaigns, films, multiple meetings, the Paris Agreement and other national and international commitments. However, despite all this, until now it has not been possible to significantly change the course of action of society and economic processes. Thus, the average annual temperature of the planet continues its rise with increasing effects and, although the precise date on which these changes will be irreversible is not known, it is known that this will happen.



Other changes.

Finally, it seems that the vision of society in this respect is changing. As the evidence of the effects of climate change increase (fires, storms, droughts, floods, etc.) its economic and social effects are felt; the great engines of the world economy are beginning to shift towards new production paradigms in favour of renewable energy, emission reduction, better agricultural practices and restoration of forest cover.

This shift will progressively disrupt all production chains. "Producing X" is not the same as "producing X with carbon footprint zero". Some markets for goods and services will disappear and new ones are being created to replace them. New opportunities for action and investment are generated, while current ones stagnate and disappear.

Among other changes, we are interested in highlighting the one that is revaluing the environmental services generated in functional ecosystems. Goods and services such as water decontamination, carbon sequestration or the regeneration of fertile soils, which have long been managed in the environmental sphere, are now breaking into the political, productive and economic spheres. They begin to monetize and even securitize. New ways of financing environmental activities and the conservation of environmental services are on the horizon.



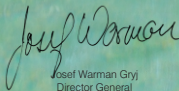
A photograph of a mangrove forest with dense green foliage and prominent, gnarled tree roots extending into clear, turquoise water. The scene is captured from a low angle, emphasizing the intricate root system.

AND ENDESU.

Over 26 years, the activities developed by Espacios Naturales y Desarrollo Sustentable A.C. (ENDESU) are precisely those that we now associate with the crusade against the effects of climate change: conservation and recovery of carbon sinks such as forests and mangroves, environmental education, agroforestry, regenerative livestock, work with communities for the application of best productive practices, etc. Activities that, although they are part of our history, in the light of climate change take on new dimensions.

The challenge we now face is to insert our usual actions into the new dynamics of change worldwide.

This report, which presents the ENDESU projects in 2021, represents the last x-ray image of the activities we carried out this year for mitigation and adaptation to the effects of climate change. But it also portrays the take-off platform to contribute to the fight against the effects of climate change with new tools and in a new environment.



Josef Warman Gryj
Director General
Espacios Naturales y Desarrollo Sustentable A.C.



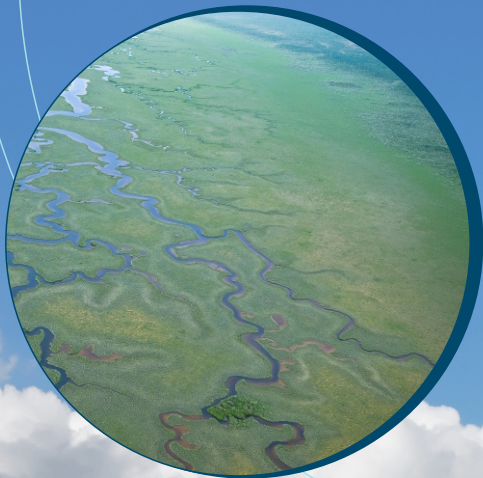
In a large number of the countries of the world and particularly in Mexico, environmental deterioration has advanced without effective containment. We have witnessed how in a few decades the soil, air and water, have been ruined to levels that we did not think possible. Coupled with this, we are losing our biodiversity at an unprecedented speed in history, with devastating consequences on the quality of life and health of the population in general.

The problem is so serious that it is no longer enough to have specific environmental institutions and legislation or even international agreements. It is essential to have greater participation of society, in such a way that it allows actions to be taken to conserve and strengthen the quality of the environment in Mexico.

It is urgent to get down to work on the containment of climate change, through the timely operation of measures related to energy and ecosystem restoration, which allow carbon capture while reducing emissions of this gas, which largely causes adverse effects on the atmosphere. On the other hand, soil and water pollution also require measures that can only be effective with the participation of society, since, in large part, they are a consequence of our development models.

The deterioration of the quality of our soils, in all regions where intensive agriculture is practiced or where grazing practices exist, above the recovery capacity of grasslands, also highlights the need to act urgently and include social participation.





The degradation of soils by erosion of wind and water, already reaches the equivalent of two thirds of the total surface of our country. Pollution from excess use of pesticides, herbicides and fertilizers has contributed alarmingly to the loss of biodiversity, in addition to the aforementioned factors.

Unfortunately, the environmental agenda has not been a priority of our governments, at least for the past two decades, despite constantly being drawn to the close influence between economics, health and the environment.

Therefore, it is essential the existence of civil society organizations such as Espacios Naturales y Desarrollo Sustentable, A.C. (Endesu) that function as a space for social participation. At Endesu, we know the problem and, over 26 years, we have applied solutions, we need more support and participation. Join.



Felipe Ramirez

Presidente del Consejo Directivo
Espacios Naturales y Desarrollo Sustentable A.C.



Where we work

- Environmental restoration
- Sustainable development
- Species recovery
- Environmental awareness
- Institutional coordination



ENDESU

and the Sustainable Development Goals (SDG)

In 2015, as part of the 2030 Agenda for Sustainable Development, the United Nations adopted 17 goals and a plan to achieve them in 15 years. Subsequently, at the summit on the Sustainable Development Goals in September 2019, all social sectors were called for a decade of action to promote the transformations necessary to achieve them.

Endesu, as a civil organization whose mission is to conserve, restore and promote the sustainable use of natural resources in Mexico, joins the efforts that organized civil society, communities and individuals can make to achieve the goals established in various SDG:

2 Hunger and food security

We work with rural communities in the management and productive restoration of their farms and productive units, through agroecological techniques and best practices for the production and harvesting of food for self-consumption and sale, as well as for the recovery of ecosystem services in their productive areas.

4 Quality education

Training centers are operated on conservation, climate change and sustainable development issues in various ecosystems (deserts, forests, jungles and wetlands). The workshops are aimed at all audiences, with emphasis on young people of all educational levels.

5 Gender equality

Respect and active and equal participation of women and young people is encouraged in all our projects and at all levels of our organization.

8 Decent work and economic growth

We aim to demonstrate that economic growth and the conservation of natural capital are a possible and indispensable pair to guarantee the well-being of society. Likewise, entrepreneurship, formalization and consolidation of micro and small enterprises linked to the sustainable production of goods and services are encouraged.





12 Responsible production and consumption

Endesu's activities are aimed at sustainable management and efficient use of natural resources, as well as providing information and knowledge relevant to sustainable development and lifestyles in harmony with nature. Sustainable community tourism that promotes culture, conservation and consumption of local products is encouraged.



11 Sustainable Cities and Communities

13 Climate Change

We promote, in coordination with authorities and communities, the adoption and implementation of actions for the efficient use of resources, climate change mitigation and adaptation to climate-related risks. We have generated strategies, exhibitions, workshops and specific materials to influence environmental awareness regarding climate change mitigation, adaptation to it, reduction of its effects and early warning.



14. Life Underwater

We support activities to sustainably manage and protect marine and coastal ecosystems and take steps to restore them to restore their health and productivity.



15 Life of terrestrial ecosystems

Our work focuses primarily on the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and the services they provide, particularly forests, coastal wetlands, mountains and drylands.

We promote the sustainable management of all types of forests through afforestation and reforestation with a comprehensive landscape vision.

We seek to reduce the degradation of natural habitats, stop the loss of biological diversity through the management and conservation of priority species and their habitat.

We support actions within Natural Protected Areas to adopt measures to prevent the introduction of invasive exotic species and reduce their effects on ecosystems.

We promote the capacity of local communities to promote sustainable livelihood opportunities that prevent poaching and trafficking of protected species.





Golden Eagle and Habitat Conservation Program

In 2021, Endesu resumed actions aimed at the conservation of the golden eagle with a new project that, based on the lessons learned, has the goal of generating a medium and long-term financing scheme that allows the recovery of golden eagle populations and their habitat.

The objectives set for this period were:

- Develop a medium and long-term financial strategy for the conservation of the golden eagle and its habitat in Mexico.
- Carry out field activities in the golden eagle territories located in the north of the state of Zacatecas

With the activities carried out during 2021, the following goals were achieved:

- A virtual workshop to design the fundraising strategy. Approximately 50 people participated, who were presented with the technical version of the project and the fundraising strategy developed by Endesu and Zamia Media.
- The Champions and Ambassadors strategies are operating, for which audiovisual communication material, brochures, website, infographics and messages on social networks were developed to disseminate both options. The compilation of all this work can be found on the Golden Eagle microsite within the Endesu <https://www.endesu.org.mx/aguilareal/> website as well as on Facebook and Twitter.
- As of December 2021, four companies had joined the project as Golden Eagle Champions and seven personalities as Ambassadors.



Regarding the fieldwork, the biological and social conditions in the area were updated.

- Monitoring at nesting sites reported no nesting in the spring of 2021 and no courtship activity was detected at year-end.
- In coordination with the ejidos, we proceeded to regularize the technical and administrative situation of four Management Units for the Conservation of Wildlife (UMA) that together add up to 35,000 hectares as a hunting area for the golden eagle.
- Within the UMA, monitoring, attention and management was carried out to three colonies of Mexican Prairie Dogs and a flock of Wild Turkey.
- An environmental awareness strategy for women's brigades is in the process of being designed to be called "Conserving from Home".
- At the same time, the "Training to Conserve" strategy is being developed to train young people with secondary education in the management of wildlife populations so that they generate jobs for themselves.
- Support was also provided for the training of community surveillance and monitoring brigades made up of women from the Ejido Huertecillas.
- Materials were developed on wildlife and habitat monitoring techniques in order to train members of the ejidos participating in the program.



¡VIVA EL ÁGUILA REAL!



Ventures in Sustainable Landscapes

For the past seven years, Espacios Naturales y Desarrollo Sustentable (Endesu) has worked on the implementation of the Biocultural Landscape initiative (PBSOJ), a form of collective organization for the sustainable use of natural resources in the region known as the Sierra Occidental de Jalisco, which encompasses the municipalities of Atenguillo, Mascota, San Sebastián del Oeste and Talpa de Allende.

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

Efforts were aimed at identifying community organizations that can become Collective Business Entities (CBE). Endesu has also promoted collaboration with the Intermunicipal Board of Environment of the Western Sierra and Coast (JISOC) so that small producers can continue with the development and promotion of their good productive practices to create the PBSOJ.

The beneficiaries of this project will be small-scale rural producers who own between one and two hectares on which they produce goods associated with forest ecosystems, such as coffee, cocoa, fruits, honey and livestock; Private investors and buyers of agricultural and forestry products interested in improving sustainability will also benefit.



Results achieved in 2021:

1. Monitoring of producer groups in the PBSOJ.

- Presentation of the SLV project to six producer groups in order to identify, accompany and strengthen the initiatives of the enterprise.
- Potential ventures to participate in the initiative were identified and at least four field visits were made to assess the relevance of promoting CBE as an alternative.
- A database was generated of each entrepreneurship/company initiative recognized by the system or product, starting with those that have aspired or have the approval to use the PBSOJ seal in order to recognize their attributes as business units and their scaling potential.
- Design of the accompaniment to the groups of producers to analyze the paths and areas of opportunity for the transition to better productive practices of articles of the region.



2. Monitoring of processes related to integrated land management.

- Four potential initiatives that have advanced in the incorporation of best practices of production systems to promote business strengthening processes under a production and marketing approach were recognized.
- The local promoter group of the PBSOJ held a meeting in which the training requirements, investment for transformation and support in commercialization under the value proposition of the CBE were discussed.

3. Current status of the emblematic products to be promoted under the PBSOJ brand.

- Data were collected to analyze opportunities to improve production in the PBSOJ region and to evaluate the relevance and viability of producer groups, without neglecting the accompaniment in their strengthening as business entities.

4. Training of producers in the six product lines identified in the PBSOJ.

- A training process for the design, monitoring and use of rural trails was initiated with the ecotourism working group.
- A training process in marketing and advertising on social networks was carried out with the group of artisans.
- A guided tour was made with the agriculture and livestock group to jointly analyze the practices implemented and the lessons learned.





- A workshop to promote good practices for coffee production in which 18 producers from Estancia de Landeros and San Sebastián del Oeste participated.
- Livestock producers were given a training workshop to teach and promote the correct process of installation and operation of electric fences for the rotation of pastures.
- Women's groups from the towns of Santa Rosa, Agostadero, Cimarrón Chico and Ocotes were trained in useful plants and the production of personal care and herbal products.
- Technical advice was given to the Talpa de Allende biofactory to legally constitute itself and also to promote itself as a trainer in organic farming practices.

5. Institutional linkage.

- The SLV linkage project was presented at the JISOC meeting, in which it was agreed that the work will be in coordination with the Executive Directorate of JISOC, and through the Coordination of the PBSOJ and its consultation platforms.
- Meetings were held with different initiatives to promote collaboration based on the PBSOJ and the EPS project: Mountain-Bay Alliance, Conecta Project, Sierra Occidental Development Master Plan, Strengthening for Innovation in Jalisco Project (FARO) and Regional Forestry Committee (Cofor).
- At the session of the Municipal Council for Sustainable Rural Development of Mascota, the different efforts that accompany the JISOC and the PBSOJ were presented, including the SLV initiative.
- Participated in the transition workshop of the JISOC with the mayors of the 2021-2024 administrations. Emphasis was placed on the coordination of the PBSOJ and the SLV initiative as a project that can accompany the processes of promoting best productive practices in the coming years.



Sustainable sugarcane cultivation in Jalisco

With the objective of providing accompaniment and technical assistance to implement a sustainable management plan for sugarcane production in the state of Jalisco, face-to-face and virtual workshops were held, as well as institutional coordination, exchange of experiences and the design of a fundraising strategy for the sustainability of the project.

The main achievements of the project during 2021 were:

- Technical advice to 67 producers.
- Three face-to-face workshops and three virtual theoretical-practical workshops with the Peasant School model.
- Four meetings with project partners for operational agreements.
- Experience exchange sessions (face-to-face and virtual), from producer to producer.
- Design of fundraising and fundraising strategy with four financing proposals.

The objective of the accompaniment was to train producers in the Peasant School model for the sustainable cultivation of sugarcane and in the incorporation of good practices of organic and ecological agriculture to promote the regeneration of soils; improve the profitability and productivity of sugarcane cultivation; strengthen the social fabric among producers and encourage the exchange of successful experiences around good agroecological practices..

The Peasant School is a model that aims to contribute to the development of communities based on the empowerment of people because it promotes the growth of social capital (trust, collaboration, mutual support) and generates synergy among the population so that they themselves are the ones who design and strengthen the necessary processes.

With each of the producers, a Management Plan was made to systematize and document all the activities and tasks necessary for fertilization and pest and disease control. The plan includes recommendations for an integral and agroecological management for the cultivation and harvest of sugarcane. Practices that nourish the soil and some cultural tasks such as the management of organic matter and its incorporation are recommended. The Management Plan is a document that will serve as a starting point for the producer looking for alternatives, without limiting or pigeonholing it within a standardized technological package.





During the brainstorming sessions, successful experiences were identified among sugarcane producers, who are willing to share their knowledge. The experiences presented are part of the training program related to green harvesting and the use of organic inputs for the management of organic matter and soil and plant nutrition.

In the area of communication and environmental education, didactic, communication and support materials were developed that include good recommended practices for sugarcane cultivation. This material was specially designed to support producers in their daily cultural tasks of planting, harvesting, fertilizing and preventing pests and diseases.





Oyster Production using Floating Baskets. A Pilot Project in Laguna Mecoacán, Paraíso, Tabasco

The project aims to determine the productivity and quality in the production of the American oyster (*Crassostrea virginica*), using floating Australian type baskets in the Mecoacán Lagoon in Paraíso, Tabasco. It aims to compare its advantages, both environmental and economical, with respect to the presently used technology, harvesting in the natural oyster banks.

Two oyster producing organizations in the Mecoacán Lagoon (Ormes and El Chivero) participated in the first phase. Each organization managed a 50-meter-long line with 135 baskets each.



Technically, the project began with the propagation of 100,000 American oyster seeds in the laboratory of the Oyster Technology Center of the state of Tabasco (COTET) at the beginning of 2021 that were planted in March.

Ten producers of the Ormes and El Chivero cooperatives were trained in oyster production and production systems in Mexico, the American oyster production system, good practices and cultivation sites, components and use of the baskets, installation and management of production lines, planting, growth, unfolding of organisms and cleaning.

ENDESU staff carried out a permanent technical accompaniment with fishermen to promote good management practices and the proper use of this new technology. Growth and yield rates were tracked, as well as environmental factors.

At the end of 46 weeks of production, the oyster in baskets reached an approximate growth of 10 to 12 centimeters, a record never before registered in the intensive production systems in the Mecoacán lagoon in that period of time. In this first phase, 1.8 tons were harvested. Additionally, oysters coming from basket production have a better presentation and are easier to harvest and prepare for sale.

The results obtained confirm that the production of oysters in floating baskets Australian type is totally viable for use in the lagoon of Mecoacán, allows to reach the best commercial size in a period of 8 to 10 months, growth that in natural banks requires 15 months, which on the other hand are currently overexploited.





Jaguar conservation

through the sustainable use of wildlife and territorial conservation alternatives.

The jaguar is the top predator in its habitat, which gives it the characteristic of an umbrella species; This means that, by conserving this species, we conserve all other species that coexist in the same habitat. The Calakmul Biosphere Reserve (REBICA) is a region where it is still possible to find jaguars in the wild. Unfortunately, it faces great threats to its survival: poaching, habitat loss and poor connectivity between existing forest massifs endanger the development of this species.

In the last quarter of 2021, Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) initiated, in coordination with REBICA, the Jaguar Conservation project that aims to increase the structural and functional connectivity of ecosystems in the Selva Maya, through the establishment of Environmental Management Units (UMA) and Areas Voluntarily Destined for Conservation (ADVC), to ensure sustainable livelihoods for local communities, biodiversity, jaguar conservation and habitat.



The basis of the project is the obtention of diagnoses that cover all the objectives of the project. That implies visiting the different communities of the region (ANP Calakmul, Balam kú and Balam kin, as well as other areas of influence), have interviews with experts and analyze the present situation of the UMA, ADVC and the REBICA.

During 2021, work began along the following lines of action:

- To know the degree of consumption of wildlife (bushmeat) in the Mayan Jungle of Mexico, as well as its potential impacts.
- To know the status and possible projection of the Community Productive Units (UMA, community companies, SSS, SPR, etc.) in the area of intervention of the project.
- To establish UMA and ADVC in the Sian Ka'an – Calakmul Corridor and in the surroundings of Calakmul.
- To strengthen REBICA's capacities in wildlife monitoring to advance the effective management of this area and train members of the ejidos participating in the program.





Integral fire management in the Maderas del Carmen Flora and Fauna Protection Area

The Maderas del Carmen Flora and Fauna Protection Area (APFFMC) is known as "Heavens Island" for its richness and endemic flora and fauna. It is located in three municipalities of the state of Coahuila: Acuña, Múzquiz and Ocampo.

The main problem of this natural area are forest fires caused by natural causes and high loads of accumulated fuels, which are a factor of catastrophic level disturbance in the area. The ecological processes of fire are altered by the action of man on hundreds of hectares.

In 2021, Natural Spaces and Sustainable Development (Endesu), with the Directorate of Maderas del Carmen, carried out the Integral Fire Management project.



Institutional coordination





The project has four lines of action:

1. Strengthen local capacity to prevent, combat, control and protect against forest fires.
2. Improve inter-institutional coordination for the prevention and attention of forest fires.
3. Reduce the incidence and risk of forest fires through fire management and fuel management in priority areas of the APFF Maderas del Carmen.
4. Increase knowledge for decision-making related to fire management, which favors the resilience of Maderas del Carmen ecosystems to climate change and the environmental services it provides.



Results obtained during the development of the project:

- Teaching of the courses: Introduction to the behavior of fire / Forest fire fighter (25 people), SCI-300 Incident Command System (25 people), The two faces of fire (25 people) and Fuel Management (14 people).
- Seven basic protective equipment sets were delivered to the Women's Fire Brigade.
- Three meetings were held with the different relevant actors to discuss fire management, with the participation of the National Forestry Commission and the Northeast Regional Fire Management Center.
- With the support of the APFFMC brigades, 60 km of firebreaks were opened and maintained.
- Pre-established and controlled burns were coordinated on 102 hectares.
- Two documents were produced, the first with studies focused on the effects of fire in areas of the ANP and the second related to the effects of fire by pre-established burns.
- Five permanent fire management sites were established in the APFF Maderas del Carmen and its area of influence.





Inspection, supervision and surveillance in Revillagigedo National Park

During 2021, Natural Spaces and Sustainable Development (Endesu) and the Directorate of Revillagigedo National Park (PNR) worked on the implementation of a protocol on inspection, supervision and surveillance. This National Park is located in the Mexican Pacific and four islands belong to it: Socorro, San Benedicto, Roca Partida and Clarión.

During 2021, the following activities were carried out:

- A diagnosis was made that identified the areas and seasons with the greatest irregularities within the Park.
- A protocol was developed for the coordinated attention of fishing and environmental irregularities in the PNR. The protocol is waiting for the final process of validation by the Naval authorities (SEMAR).
- The work plan "Strengthening Surveillance and Operation Actions for the Protection and Conservation of PNR" was designed and followed up in collaboration with SEMAR.

- The PNR has a remote monitoring system for boats, permitting to know their position in real time. In this way, damage to the ecosystem caused by illegal acts or omissions can be identified. This system also makes it possible to provide information (images, screenshots, reports, trajectories) to support complaints filed with the Federal Attorney for Environmental Protection (PROFEPA) for possible illegal fishing practices.
- The park staff has been trained in the operation of the two satellite monitoring platforms (Sky Light and SISMEP), in order to generate updated databases to recognize vessels entering the Park.





Environmental Monitoring and Awareness in the Mapimí Biosphere Reserve

During 2021, Endesu, in coordination with the Directorate of the Mapimí Biosphere Reserve (RBM), supported the systematized monitoring project of animal and plant species in the properties of La Granja Morelos (Tlahualilo, Durango), Laguna de Palomas and La Soledad (Jiménez, Chihuahua), located within the ANP. Environmental education activities were also carried out to strengthen the inclusion, participation and knowledge of the inhabitants and users of the MBR.

Activities carried out during 2021:

- Monitoring of birds in the winter and summer season at 123 sampling sites. 89 species were identified in winter and 72 in summer, for a total of 10,136 individuals. The desert chimbito (*Spizella breweri*) was the most abundant species in winter and the huiolota pigeon (*Zenaida macroura*) in summer. Twelve species are found in NOM059, including the golden eagle (*Aquila chrysaetos*) and 15 species are indicators of well-preserved grasslands.
- Golden eagle monitoring: Seven prey sampling transects and two observation transects were established. Two nests, a pair of golden eagle and a chick were located inside the ejido La Flor which was visited four times. 11 golden eagle prey were identified, including hares, rabbits, coots, ducks and wild boars.
- Monitoring at nine visitation sites at the MBR.



- During the monitoring of the vegetation, the baseline was established in an area of 6,607 ha, within the ejido La Soledad, Jiménez, Chihuahua.
- Erosion was measured in 43 plots within different properties in the ANP.
- In the area of environmental education, in the communities of Granja Morelos and Laguna de Palomas, activities were carried out with the Temporary Employment Program (PEC), which included 12 grassland activities (70 people), 12 golden eagle activities (100 people), 12 activities related to the bag turtle and 12 solid waste activities.
- A newsletter of the activities was developed with the collaboration of residents of the ANP. We participated in two interviews, one for World Turtle Day and one for World Environment Day. An event was also held to commemorate Chihuahuan Desert Month and National Conservation Week.





Visual communication of Loreto Bay National Park

During 2021, Natural Spaces and Sustainable Development (Endesu) collaborated with the Bahía de Loreto National Park (PNBL) Protected Natural Area, on the Baja California peninsula. Collaboration covered projects for the creation and execution of a communication plan for the actions realized in conservation and environmental education for PNBL users. Through multimedia content, actions such as the new regulations, the work carried out and the state of conservation of the Protected Natural Area are circulated and promoted in order to impact a greater percentage of the local communities.

Through the PNBL, the community is made aware of the effects caused by garbage in marine environments and motivates them to participate in protection actions.

Activities carried out in 2021:

- A communication plan was generated for the dissemination on social networks, a calendar based on the management subprograms, publications, ephemeris and data for the notes to be published.
- A bank of digital images was created, where the material generated to date is protected, organized according to categories such as videos and images, themes or actions carried out throughout the year.
- Through social networks (Facebook, Instagram and YouTube) three statistical reports were circulated about conservation actions and good tourism practices

Institutional coordination



- Eight programs were developed for audiovisual communication: four for promotion of fishing (clams), three for tourist activities (nautical tourism, diving, camping) and one for turtle monitoring.
- Three environmental education workshops were given: two group workshops (Wetlands and Blue Carbon) and PST (Value Added).
- Printing of information materials: PNBL maps, three signs for Los Metates and El Esterito, on Coronados Island, and one for Estero las Garzas. Two infographics for Salt Pine and Prevention for viral hemorrhagic disease of rabbits, and a poster on the regulations for the beaches in the islands.
- More than 200 volunteers participated in six clean-up campaigns on wetlands, beaches and rocky reefs.
- Within the framework of the National Day for Conservation, the Forum on Plastic Reduction and Waste Management on Beaches was held, with the participation of the Environment Directorate of the Municipality of Loreto and the Federal Maritime-Terrestrial Zone (Zofemat). In addition to the presentations by the Autonomous University of Baja California Sur and the 5/2 High School Center.



Institutional coordination



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Ecology and conservation of the Jaguar in Mexico

The jaguar (*Panthera onca*) is considered an endangered species due to habitat loss, hunting and illegal trafficking. Despite this, it is still possible to find large populations in some regions of Latin America and Mexico.

In our country, the jaguar is distributed in a fragmented way along the Pacific coastal plain, the Sierra Madre Occidental and the Sierra Madre Oriental. Priority areas for jaguar conservation have been identified in Tamaulipas, northwestern Sonora, Nayarit, Jalisco, Oaxaca, coastal Chiapas, Mayan jungle (Lacandona-Calakmul jungle) and the Yucatan Peninsula.

Since July 2021, Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) collaborates in the Ecology and Conservation of the Jaguar in Mexico project, which aims to follow up on regional studies on jaguar ecology in the region of Calakmul, Campeche, and Quintana Roo. These studies have been carried out with the support of various governmental, academic and private institutions.

The project has two main lines: the first is to generate basic and frontier knowledge about the ecology and conservation of the jaguar; The second seeks to propose consensual solutions between decision makers and landowners where the jaguar lives.

This jaguar trapping and monitoring project remains the longest-term in Mexico and America.

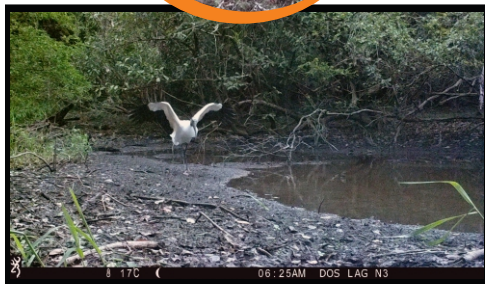
Objectives and results

1. Spatial ecology and jaguar conservation

- Databases were created with the movements of five jaguars (equipped with GPS collars) and with the co-occurrence data of these and their prey. Both variants were analyzed based on habitat use and statistical models. For the study, data from 42 camera traps that were in the field for 195 days were used. 125 independent records of jaguars and 1,928 independent records of their five potential prey species were obtained.
- The first version of a scientific manuscript was completed and will be submitted to the journal Ecology and Evolution.

2. Comparison of spatial ecology and jaguar conservation in Mexico and Latin America

- The spatial ecology of 125 jaguars living in five countries was analyzed: Mexico, Costa Rica, Brazil, Paraguay and Argentina. Data were grouped into 27 populations and 13 groups based on habitat types. From this, the areas of activity were defined based on their size, sex and populations. The area of activity of males was greater than that of females (mean: 350 km² vs 133.34 km²). The smallest areas of activity belong to populations in Costa Rica, while the largest are in central Brazil.





3. Monitoring of the jaguar and the biodiversity of terrestrial and arboreal mammals through phototrapping

- Maintenance and rehabilitation works were carried out on the scientific station and the circuit of the study area (50 km), in the Laguna Om ejido, south of Quintana Roo.
- 40 camera traps were placed, 20 of them at ground level and spread over five quadrants of 9 km², giving a total of 45 km² monitored. The other 20 cameras were distributed in trees in a cobweb-designed quadrant to identify the biodiversity of the region's tree and terrestrial species.
- A total of 5,046 digital files (photographs and videos) of arboreal activities were obtained, of these 2,174 correspond to wildlife. For this period, 20 species of vertebrates were identified; The group with the highest number of records was mice, followed by squirrels and finally coati. Important species such as the margay (*Leopardus wiedii*) were also sighted; the gray fox (*Urocyon cinereoargenteus*), the spider monkey (*Ateles geoffroyi*) and the ocelot (*Leopardus pardalis*).
- In the same period, 12,181 digital files (photographs and videos) of terrestrial activities were obtained. Of these, 3,346 correspond to wildlife events and 3,035 are considered independent events (60-minute interval). In total, 28 species of vertebrates were identified, among which the collared peccary (*Pecari tajacu*), the hocofaisán (*Crax rubra*) and the gray fox (*Urocyon cinereoargenteus*) stand out. The jaguar records stand out, with 114 photographs corresponding to five male and two female individuals, one apparently pregnant. Photos of puma (*Puma concolor*) and ocelot (*Leopardus pardalis*) were also obtained. Margay and jaguarundi were also recorded. Likewise, captures of all species of wild cats identified for the area were obtained.



4. Evaluation of biological corridors in the Yucatan Peninsula

- The biological corridor of the Sierrita de Ticul-Calakmul-Sian Ka'an was analyzed. Progress was made with the definition of the Calakmul-Sierrita de Ticul-Los Petenes biological corridor and the North Coast and Yucatan Peninsula corridor was defined. These corridors have natural forest cover in a good state of conservation; From this characteristic, the number of jaguars was estimated at 484 and 949 individuals, respectively.

5. XIV Symposium: The Mexican Jaguar in the XXI Century

- The event was held at the Cuernavaca Golf Club. 35 specialists participated, including biologists, veterinarians, environmental educators and authorities. A diagnosis of the situation of the jaguar in Mexico was made and some activities to be carried out in 2022 were proposed: 1) Planning of the 3rd National Jaguar Census, 2) Design of standardized monitoring with photo trapping, for local inhabitants, 3) Creation of the Latin American Alliance for the Conservation of the Jaguar, among other points.



Peninsular Pronghorn Recovery

Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) and the National Commission of Natural Protected Areas (Conanp), with the support of various partners and funding sources, have operated for 24 years the Peninsular Pronghorn Recovery Program, with the aim of rescuing and conserving this species and its historical habitat in the coastal plains of the El Vizcaino desert in Baja California. Since 2004, Endesu has operated the Environmental Management Unit (UMA) "Berrendo Station".

The PRBP is the project with the longest years of operation of Endesu and since its inception the integration of as many specimens as possible to the wild was projected, with the participation of local communities.

During 2021, the goal was to reintroduce 200 peninsular pronghorns (*A.a. peninsularis*), releasing them in discrete groups at strategic points within the core zone of the El Vizcaino Biosphere Reserve. This action seeks to strengthen the resilience of the species in its habitat to the onslaught of climate change. The number of animals to be released was determined based on the capacity of the three PRBP breeding stations, which kept viable individuals to be reintroduced into their historical habitat. In total, 115 females and 85 males aged two to seven years were released.

For the selection of the release sites, four tours were carried out to evaluate the flora and fauna resources of the area. Likewise, two specific sites were visited to know if it was feasible to place and mount locks for cattle and thus avoid competition for food with the pronghorn.

For these activities, the committee for the liberation-reintroduction of the peninsular pronghorn was formed with the participation of the ejidos Gómez Palacio, Matarranchos, Lagunitas, Benito Juárez, Luis Echeverría, El Costeño. The Valle de los Cirios Flora and Fauna Protection Area, the El Vizcaíno Biosphere Reserve, the Baja California Peninsula Regional Directorate, the Directorate of Priority Species and the Undersecretariat of Environmental Sustainability of the Government of BCS served as witnesses.





In order to ensure the survival of pronghorns in the release areas, the following characteristics were considered: proximity of human settlements, access roads, habitat quality and conservation status, ease of access by vehicle, presence of the subspecies, existence and abundance of coyotes and domestic livestock.

Over the course of several months, the field team observed and selected the specimens that were reintroduced to the wild. To do this, they considered his general physical condition, approximate age, sex, body condition and individual behavior.

No attachment to human beings has been observed, nor abnormal behaviors that could have been caused by semi-captivity. All selected specimens are in adulthood, in good health, can survive by themselves, and their release does not represent any risk to the wild population.

Interpretation Center: The Casa del Agua (The Water's Home)

The Casa del Agua was inaugurated in February 2002 and since then it has operated uninterruptedly. It remains the only infrastructure in the entire Grijalva-Usumacinta Basin dedicated to raising awareness about the ecological, cultural and economic values of the wetlands of this region.

During 2021, attending all the sanitary measures to avoid contagion of Covid 19, it opened its doors to the public from Thursday to Sunday

24 workshops were given in which 570 people participated, mostly residents of the communities of the Pantanos de Centla Biosphere Reserve (RBPC) who were trained in topics such as: creation of Community Brigades in the Usumacinta Basin; management of geographic information systems; hot spot monitoring and location; manatee mortality and its underlying causes; Integration of the Gender and Human Rights approach in the Management, Use and Protection of Water Resources.

The workshops for students were resumed by holding two events for 22 university students.

In total, the Water´s Home received 2,182 visitors, of which 416 were from the RBPC communities; 1,122 from the state of Tabasco, 745 from other entities in the country and 89 from other countries. This visitation was 38% higher than that received in 2020, the year with the greatest restrictions on social coexistence due to the Covid 19 pandemic.

The center was in contact with the public through social networks, particularly Facebook that had an increase in followers by 25% compared to 2020.

Basic maintenance was carried out on its infrastructure and equipment to have the appropriate conditions for the attention to its users.



Schuk Toak Museum and Culture Center of "El Pinacate and Gran Desierto de Altar" Biosphere Reserve



Since its opening in 2009, the Schuk Toak Museum and Culture Center, located in the El Pinacate and Gran Desierto de Altar Biosphere Reserve in the state of Sonora, is operated and managed by Natural Spaces and Sustainable Development (Endesu) in coordination with the Directorate of this Protected Natural Area.

The center aims to create and promote the culture of understanding and conservation of the Sonoran Desert, through a permanent and updated environmental education program.





During 2021, general, preventive and corrective maintenance tasks were carried out both inside and outside the building. The works were carried out on the interpretive trails, the scenic route, the museographic infrastructure, the projection room, the rest areas for visitors and the parking lots.

The Schuk Toak Museum and Visitor Center received a total of 4,878 visitors, 54% corresponded to national visitors (2,609), 35% to locals (1,730) and 11% to foreigners (539). It should be noted that since October 2021, the Visitor Center is open from Thursday to Sunday, which has had a positive impact on the influx of the public, doubling the visitation of the previous year.

During 2021, due to the contingency due to COVID-19, no school groups were received, but 3 online talks were provided to a total of 103 students from middle and high schools.

16 informative notes were designed and published on topics related to the protected natural area such as flora, fauna, culture and geology and various notices.

The staff of the Visitor Center participated in 11 environmental and cultural events, hosting four of them: Astronomical observation, training for the tourist police of Puerto Peñasco, guided tour of the winners of a short film contest, giving lectures within the framework of the national festival for water and forests.





Training Center for the Sustainable Development of the Usumacinta River, Ya Ax Tunich Ha

Since 2010, Espacios Naturales y Desarrollo Sustentable A. C. (Endesu), in close collaboration with the Directorate of the Usumacinta Canyon Flora and Fauna Protection Area, and the support of the owners of Hacienda Santa Margarita, has restored 40 hectares. Currently, this property is a center of sustainable development and an example of success in the generation of biological corridors and in the recovery of biodiversity and ecosystem services of the forest.

During 2021, the Training Center was only open to the public with restricted access and prior reservation, so it only received 234 visitors.

This space was also used as a venue for two workshops:

- Techniques in moving river descent for beginners. 11 people participated.
- Use of didactic materials to strengthen a culture for the conservation of the APFF Usumacinta Canyon. 30 people participated.





Monitoring the California Condor

Wild Population in the Sierra de San Pedro Mártir National Park

The California Condor is a priority species according to the National Commission of Natural Protected Areas (Conanp) and the U.S. Fish and Wildlife Service (USFWS). In Mexico, the California condor is listed in the Official Mexican Standard NOM-059-SEMARNAT-2010 in the endangered category. The species was considered extinct since 1939, the year in which the last records were obtained. In 2002, the California Condor Reintroduction Project was established in Sierra de San Pedro Mártir National Park (PNSSPM). It started with the reintroduction of six condors from the United States.

This project promotes and strengthens conservation actions through biological monitoring by direct observation and management of the population that lives in the SSPM and since 2016 Endesu collaborates in its operation.

The increase and maintenance of the population has been the result of specialized and constant attention that involves the following activities: supplementary lead-free feeding, detoxification (in the event that the condors have ingested it at the time of feeding on corpses killed by lead bullets), rescue in case of fire, clinical care and vaccination.

During 2021, the scheduled activities included the marking and monitoring of specimens with satellite and conventional telemetry, in order to obtain their distribution range, route maps, habitat use inside and outside the National Park. Thanks to this, conservation strategies can be established, new breeding sites can be searched and, when possible, the interactions between adults and juveniles can be known. This information favors the maintenance of the population and the annual planning of biological monitoring, whose objectives are the timely detection of new individuals and reduce the possible threats that may arise for the different population strata of the California condor.

As of December 31, 2021, the total population of free condors in the SSPM was 40 (26 released and 14 born in their habitat). That month a wild juvenile specimen was sighted without markings; Probably he was born during that year. There are four birds in captivity: Mentora, Nakai, Ashkii and Mimitih that come from the Chapultepec Zoo, which is the breeding center for the species.

Satellite transmitters were used to determine the monthly distribution range of the population. Data are processed to determine the occupied area and resting sites; With the information, distribution maps are created. Fifteen condors have this type of transmitter.

To locate condors in real time, high frequency transmitters (VHF) are placed on them – with them their activity is recorded (absence and presence of the specimens) – and the field personnel use antennas and receivers previously programmed with the frequencies of the transmitters. Monitoring is carried out remotely without having contact with birds. Currently 20 have VHF transmitter.



Telemetry systems are not enough to know the behavior and condition of birds, so field trips are made to observe the interaction that occurs between condors and / or predators while they feed, fly or are perched. Through surveillance one can identify any unusual behavior, detect any intoxicated or injured specimen. Courtship and mating rituals are also observed to determine if new breeding pairs have formed. Currently, six breeding pairs have been identified.

Throughout the year, food (lead-free) was provided to the condors that are both in freedom and in captivity, which was distributed in different places and according to the observation of their movements. This activity is more frequent during the trapping season and during the breeding season.





Once a year, an attempt is made to select a group of individuals to be vaccinated against West Nile virus. That moment is used to change the identification tags on the wings and check or change the satellite and VHF transmitters. Individuals are also weighed, their general health is checked, and blood samples are taken to measure lead concentration. In case of detecting lead poisoning, a procedure is performed to eliminate it, later they are released.

From field observation, supplementary feeding and vaccination, detailed monthly reports were prepared that accurately document the activities of the program and the general condition of the condor population in the Sierra de San Pedro Martyr National Park.





Operational coordination of the POAs of 31 ANPs

In 2021, Natural Spaces and Sustainable Development (Endesu) supported the operation of the Annual Operational Programs (POA) of 30 Natural Protected Areas (ANP) for the execution of basic field actions for conservation.





In 2021, Endesu participated in the proposals call published by the FMCN to manage 39 ANPs, and was selected to continue coordinating 29 and was assigned two new ones: Sian Ka'an and Cabo Pulmo.

Therefore, Endesu continues to be an excellent choice to administer and manage strategic financial resources in favor of the conservation and support for the operation of the ANP.

REGIÓN	ANP
PENINSULA DE YUCATÁN Y CARIBE MEXICANO	<ul style="list-style-type: none"> ● RB Banco Chichorro, PN Arrecifes de Xcaliak ● RB Calakmul ● PN Arrecifes de Cozumel APFF Porción Norte y Franja Costera Oriental terrestres y marinas de la Isla de Cozumel ● RB Sian Ka'an
FRONTERA SUR, ISTMO Y PACÍFICO SUR	<ul style="list-style-type: none"> ● RB Montes Azules ● RB Selva El Ocote ● RB La Sepultura ● RB La Encrucijada
CENTRO Y EJE NEOVOLCÁNICO	<ul style="list-style-type: none"> ● APFF Corredor Biológico Chichinautzin, ● PN Lagunas de Zempoala, PN El Tepozteco ● RB Sierra Gorda Querétaro
OCCIDENTE Y PACÍFICO CENTRO	<ul style="list-style-type: none"> ● RB Sierra de Manantlán ● RB Masamé ● APFF Ocuilicénegas ● APFF Cañón de Santa Elena ● APFF Maderas del Carmen ● APFF Ocuilicé ● APFFN Distrito del Riego 04 Don Martín ● RB Sierra del Abra Tanchipa
NOROESTE Y ALTO GOLFO DE CALIFORNIA	<ul style="list-style-type: none"> ● APFF Bavispe ● RB Janos ● APFF Sierra de Álamos - Río Cuchumatán ● APFF Islas del Golfo de California - Sonora ● APFF Islas del Golfo de California - Sinaloa ● RB Alto Golfo de California y Delta del Río Colorado ● RB El Pinacate y Gran Desierto de Altar
PENINSULA DE BAJA CALIFORNIA Y PACÍFICO NORTE	<ul style="list-style-type: none"> ● PN Zona Marina del Archipiélago de Espíritu Santo ● RB El Vizcaíno ● RB Sierra La Laguna ● PN Bahía de Loreto ● PN Revillagigedo ● PN Cabo Pulmo

Institutional coordination





Sustainable plots in the Huasteca of Veracruz

In 2014, Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) began the operation of the Sustainable Plots Project in the Huasteca of Veracruz, with the aim of improving the quality of life of tobacco producers through:

1. Implementation of eco-techniques and the use of agroecological techniques for the management of the family backyard.
2. Installation and management of eco-technologies in schools.
3. Operation of pilot projects of new self-sustaining productive options that improve family income.
4. Organization of events in which the different members of the community participate.





During 2021, the following results were obtained:

- 20 rainwater harvesting systems and 17 wood-saving stoves were installed to reduce the problem of lack of water and to prevent inhalation of gases produced during the combustion of firewood in households. Between 2014-2021, 130 families have been supported, with 650 people benefiting directly.
- To ensure access to clean water in schools in this time of pandemic, rainwater harvesting systems were installed in eight schools.
- Four workshops were given on school orchards management, planting techniques and composting. 20 students from two schools participated.
- Two workshops with producers in which they were provided with information about the importance of organic production in their backyard orchards and the cultivation and use of medicinal herbs. 40 people of all ages attended.
- Four tutorial videos on the construction of the rainwater harvesting systems, wood-saving stoves, maintenance of a backyard orchard and pest control and management.

Sustainable Development in the Coastal Strip of the Municipality of Paraíso, Tabasco

Since 2020, Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) has been working on the Social Program for Sustainable Development in the Coastal Strip of the Municipality of Paraíso, Tabasco. The Program has four lines of action: environmental culture, training of young people and workers, improvements in oyster cultivation and production of vegetables for family self-consumption in the region.

During 2021, the project had to be adjusted due to the restrictions derived from the Covid-19 pandemic achieving the following results:

- A workshop with nine teachers and basic level authorities.
- Elaboration of the digital book "La Laguna de Mecoacán. A refuge for life." This book aims to support teachers and replace face-to-face school workshops that could not be carried out.
- Production of didactic material for workshops and traveling exhibitions.
- Exhibition "The children of Paradise express themselves on the Mecoacán Lagoon", which had 450 visitors.





- Two social activation events with 400 participants from the towns of Torno Largo, Puerto Ceiba, Paraiso and El Bellote.
- Eight face-to-face community workshops. 122 children and 42 adults from Escribano, Carrizal, Torno Largo and La Isla participated.
- 92 drawings were received for the Second Children's Drawing Contest.
- Agreements were signed with five undergraduate students and fishermen's families so that they can strengthen their technical and academic capacities.



Primer lugar Concurso de Dibujo
José Jesús Hernández Herrera



- Collaboration with the Polytechnic University of the Gulf of Mexico (UPGM) for the realization of workshops aimed at students and workers of the coastal area of Paraíso, in order to strengthen their technical and academic skills. 40 schoolchildren and 40 workers participated.
- Five cooperatives participated in oyster production with the suspension system, handling 22,000 seeded oyster strings.
- Installation and operation of 100 backyard orchards.
- Seven workshops on the advantages of backyard production. 90 people participated.
- Edition and printing of 300 copies of the "Manual for backyard orchards for the coastal strip of Tabasco"





Training and monitoring of livestock projects
in the Sierra Rica, within the

Santa Elena Canyon Flora and Fauna Protection Area

For the third consecutive year, Natural Spaces and Sustainable Development (Endesu), in coordination with the Directorate of the Area of Protection of Flora and Fauna (APFF) Santa Elena Canyon, continued to support livestock producers in the Sierra Rica in strengthening their management and administration capacities to improve the management of their properties and thus reduce the deterioration of the grasslands of this mountain range.

During the year 2021, the following activities were carried out:

- Report with the data obtained during the tours to identify exotic pastures on the side of the Ojinaga-Manuel Benavides highway. Technicians from the National Commission of Natural Protected Areas (Conanp), municipal park rangers and volunteers from the Golden Eagle Monitoring Brigade participated in its preparation.
- Two community talks. The first, aimed at the inhabitants of the Benito Juárez and Paso de San Antonio ejidos, on the impact of introduced species on grasslands; the second was taught within the framework of the course Education and Safety in the Handling of Hunting and Shooting Weapons, in total 26 people participated.
- The talks "Grazing systems and Livestock strategy" were aimed at beneficiaries of livestock projects in 2021.
- The technical files of each project were integrated with administrative documentation.

Promotion of the culture of water management in rural communities of the Ocampo Flora and Fauna Protection Area

Since 2019, Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) has collaborated with the Directorate of the Flora and Fauna Protection Area (APFF) Ocampo on promoting good water management and conservation practices in the communities of this Protected Natural Area, with a view to mitigating the consequences of climate change. The actions focus on raising awareness, using alternatives to harness rainwater and producing native plants to reforest degraded sites.

Among the most relevant activities in 2021 are:

- Five workshops on the efficient use of water and resilience to climate change in the communities of San Miguel, Jaboncillos Grande, La Unión and El Olán, Norias de Boquillas and Boquillas del Carmen. 70 people participated.
- Two workshops in Santa Fe del Pino and San Vicente, and two informative forums, one in the Piedritas ejido and another in the Barter Market, attended by most of the communities.
- A session was held to exchange experiences between the group of model households of the ANP and the small producers of the APFF Cuatro Ciénegas, the objective was to learn about cultivation techniques in arid areas.





- Five model homes were built that have some type of ecotechnology (solar cooking pots, water collection roofs or home orchards), which are still in operation. The characteristics of these models are based on the climatic conditions (temperature and precipitation) of the area.
- Eight springs were evaluated for updating data such as flow, site conditions and water quality.
- Three sites were selected to characterize the structure of the main streams in the ANP.
- The map with the location of the springs registered in 2020 was updated and the 2021 sites were added. Also, new data on the evaluated sections of the streams were added.
- 350 agave plants were maintained and new seedlings were registered, which will remain under care until they are transplanted into reforestation or restoration sites.
- In the ejidos of San Vicente and Ojo Caliente, the control of invasive exotic species (Tamarix and Arundo) was carried out through two techniques: traditional and endotherapy, in order to recover the space for native species and avoid excessive water consumption by exotic species.



Participation strategy in the APRN Feeder Basin of the Distrito Nacional de Riego 004, Don Martín

Over three years, Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) has collaborated with the direction of the Natural Resources Protection Area (APRN) Feeder Basin of the National Irrigation District 004 Don Martín, in the state of Coahuila, for the operation of the APRN participation strategy, whose objective is to strengthen inter-institutional coordination for the management of water, mining and stone resources.

During 2021, significant progress was made in the incorporation of new guests (biologists, geologists, etc.) to the meetings of the Advisory Council of the ANP, which allowed the members to understand the risks and threats within the ANP and to know the technical and administrative processes and the conservation actions that are carried out.

Other activities:

- Two meetings with the heads of the sectors and dependencies that are part of the Advisory Council of the ANP, as established in its regulations.
- General information was provided to 15 people about the ANP, as well as the Annual Operational Programs and the Management Program.
- The list of dependencies and authorities linked to the activities of the ANP was updated.
- Two workshops were given to manage and organize talks and workshops related to team building, continuous training, organizational development and teamwork



Knowledge and conservation actions in the Sierra del Abra Tanchipa Biosphere Reserve

Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) collaborated for the third consecutive year with the Directorate of the Sierra del Abra Tanchipa Biosphere Reserve (RBSAT) to implement the Biological Monitoring and Proper Management of Solid Waste Program. This Program seeks to reduce threats to the conservation of biodiversity in the Reserve.

The achievements of the project during 2021 were:

- Community Biological Knowledge and Monitoring Program, in which 19 community monitors participated. 43 terrestrial prospecting tours were carried out in the ANP and its area of influence, 354 records were obtained, of which 13 are priority species for conservation.
- Within the framework of the Program for the Protection and Restoration of Ecosystems and Priority Species (Prorest), community biological monitoring of the RBSAT and its area of influence was carried out, during which 75 species of birds, 2 reptiles, 1 amphibian and 14 mammals were registered, of which 14 are in NOM-059.
- Through a workshop, six livestock producers were trained – from the properties adjacent to the ANP – in the elaboration of multi-nutritional blocks, this in order to promote alternative livestock feeding practices and thus reduce the change of land use for grazing.
- In order to promote sustainable livestock feeding practices and reduce pollution of ecosystems, a training workshop was held for the substitution of the use, acquisition, distribution and promotion of the herbicide glyphosate.



Strengthening operational actions in the Banco Chinchorro Biosphere Reserve and Xcalak Reefs National Park

With the objective of maintaining, conserving and sustainably using the natural resources of the Banco Chinchorro Biosphere Reserve and the Xcalak Reefs National Park (PNAX), located in the state of Quintana Roo, Espacios Naturales y Desarrollo Sustentable A.C. (Endesu) supported the directorates of both Natural Protected Areas (ANP) to strengthen supervision and surveillance actions within them, as well as the communication and broadcasting program.

These two lines of work seek to reduce the amount of environmental crimes in both areas, in addition to designing and carrying out broadcasting and communication activities with fishermen's cooperatives, local residents, tourism service providers, inhabitants of the coastal zone of both PNAs and visitors.

In 2021, the activities carried out were the following:

- 93 patrols to detect any environmental crimes.
 - 58 land and sea tours in the Chinchorro-Xcalak Complex.
 - 35 land and sea tours in the RBBCH-PNAX.
- 24 land and sea inspection and surveillance tours in coordination with other institutions such as the Secretariat of the Navy, the Federal Attorney for Environmental Protection, the National Fisheries Commission and RBCM personnel.
- 6 meetings with various key actors, out of which one took place with the fisheries subcouncil and the rest with the population of Xcalak.

- 2 meetings, one with the advisory council and the second with the Island Biosafety Subcouncil and an exchange was held between biosafety officers.
- Design and placement of an informative sign in the Xcalak Reefs National Park to communicate the importance of reef care.
- 5 signs signaling the various activities allowed in the Xcalak Reefs National Park.



Operational Coordination of Emergency Funds in ANP

For more than 20 years, Natural Spaces and Sustainable Development (Endesu) has supported the operation of Emergency Funds for the attention of unforeseen events that affect the health of ecosystems, a species or the lives of the people who live in the ANP, with fund from the Fund for Natural Protected Areas (FANP).

In 2021, Endesu managed and channeled emerging resources to 15 PNAs for the following actions:

- Fire fighting in areas such as APFF Cuatro Ciénegas, APRN Distrito de Riego 04 Don Martín, RB La Sepultura, RB Sierra de Manantlán and APFF Maderas del Carmen.
- Identification and maneuvers to free a sea lion that was stranded in the Puerto Arista Beach Sanctuary in the La Encrucijada Biosphere Reserve.
- Repair of the buoy anchoring system, an important part of the signage that allows safeguarding the ecosystem of the Cozumel Reefs National Park.

It is worth mentioning that this type of emerging financing requires prompt and expeditious attention to resources, so Endesu has committed to carry out the channeling of them efficiently.



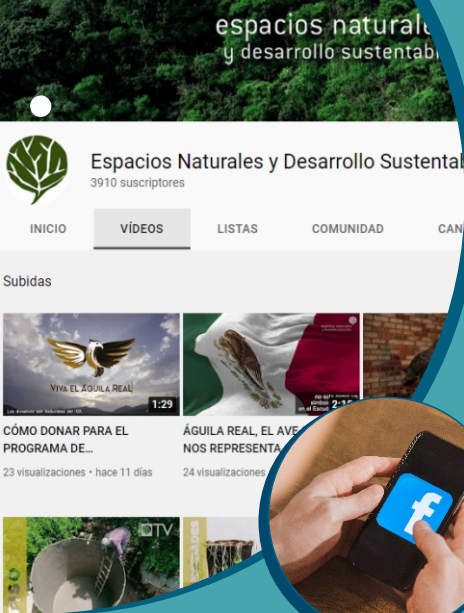
Communication

During 2021, Endesu's communication department continued with the digital broadcasting strategy, while reinitiating the recording of field materials that had to be suspended during the Covid-19 pandemic.

In social networks, an organic growth was obtained of 3% on Facebook, 22% on Instagram and 3% on Twitter. The YouTube channel garnered 115,000 views and 627 new followers. The website received 119,000 visits.

Tutorial videos were developed for ENDESU. TV on the making and maintaining backyard orchards. These were realized as a didactic support to maintaining training in schools and communities that could not take in face to face events. Videos were developed and published for the Golden Eagle and its Habitat Conservation Program's fundraising effort, as well as videos documenting our activities in the Mecocacán Lagoon, Tabasco.

For 2022, the strategy is to strengthen social media communication by focusing efforts on a fundraising strategy and expanding its reach with the aim of increasing the number of donors through campaigns for specific projects.



FINANCIAL STATEMENTS

Espacios Naturales y Desarrollo Sustentable A.C.

ESPACIOS NATURALES Y DESARROLLO SUSTENTABLE, A. C.

ESTADOS DE SITUACION PATRIMONIAL
AL 31 DE DICIEMBRE DE 2021 Y 2020
(En pesos)

ACTIVO	2021	2020
ACTIVO CIRCULANTE:		
Efectivo y equivalentes de efectivo (Nota 5)	\$ 14,531,268	\$ 19,580,807
Cuentas por cobrar – neto (Nota 6)	1,740,468	146,487
Pagos anticipados	209,394	310,883
Activo circulante	16,481,130	20,038,277
INMUEBLES Y EQUIPO – Neto (Nota 7)	12,170,619	14,433,789
TOTAL	\$ 28,651,749	\$ 34,472,066
PASIVO Y PATRIMONIO CONTABLE		
PASIVO CIRCULANTE:		
Gastos acumulados	\$ 2,048,513	\$ 169,316
Impuestos por pagar	758,426	787,452
Impuesto sobre la renta (Nota 11)	183,060	236,243
Pasivo por contrato de arrendamiento (Nota 8)	443,107	231,531
Pasivo circulante	3,433,106	1,424,542
OBLIGACIONES LABORALES AL RETIRO (Nota 9)	1,411,881	1,275,346
Total pasivo	4,844,987	2,699,888
PATRIMONIO CONTABLE (Nota 12):		
Restringido temporalmente	22,526,673	30,492,089
Restringido permanentemente	1,280,089	1,280,089
Total patrimonio contable	23,806,762	31,772,178
TOTAL	\$ 28,651,749	\$ 34,472,066

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 2021 Y 2020
(En pesos)

	2021 Restringido Temporalmente	2020 Restringido Temporalmente
INGRESOS:		
Donativos	\$ 42,835,246	\$ 46,379,196
Subsidios		1,750,000
Otros ingresos	6,116,116	3,634,893
Productos financieros	524,759	1,027,468
Total de ingresos	49,476,121	52,791,557
COSTO POR PROGRAMAS Y GASTOS:		
Costos por programas:		
Programas de manejo de especies	12,083,787	12,483,097
Programas de conservación y restauración	4,634,959	8,114,653
Programas de sensibilización ambiental	13,132,677	12,404,860
Programa de apoyo institucional	24,979,165	22,480,987
Total costos por programas	54,830,588	55,493,597
Servicios de apoyo:		
Gastos de administración	2,351,737	2,272,968
Gastos financieros	76,152	76,952
Total servicios de apoyo	2,427,889	2,349,920
Total costos y gastos	57,258,477	57,818,517
Impuesto sobre la renta (Nota 11)	183,060	236,243
CAMBIO NETO EN EL PATRIMONIO CONTABLE	(7,965,416)	(5,263,203)
PATRIMONIO CONTABLE AL INICIO DEL AÑO	31,772,178	37,035,381
PATRIMONIO CONTABLE AL FINAL DEL AÑO	\$ 23,806,762	\$ 31,772,178

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