



BIOAMAZON PROJECT

Conservation of species threatened by unsustainable trade



ACTO

Amazon Cooperation Treaty Organization

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ACTO conducts webinar on the use of biodiversity

Steering Committee of the Amazon Regional Observatory

This is the Bioamazon Project Newsletter, of the Amazon Cooperation Treaty Organization (ACTO). It is published every two months to disseminate the actions and results of the Project and its partners.



Bolivia



Brazil



Colombia



Ecuador



Guyana



Peru



Suriname



Venezuela

Dear readers,

In this 15th edition we present the latest news from the Amazon Cooperation Treaty Organization and its Bioamazon Project, whose team conducted its second monitoring visit to Member Countries. This time, Venezuela received the project's team and technical meetings were held, along with a field trip to visit the Wildlife Refuge and the Protected Area of Arrua turtles.

Also, we hereby report on the actions that are being implemented by ACTO to learn about the bioeconomy and promote its development in the Amazon Region. The actions include support for the BioForestALC, the holding of dialogue tables with experts in flora and fauna of the region, and the development of a regional information window on micro, small and medium-sized enterprises (MSMEs), with emphasis on CITES species, within the scope of the Amazonian Regional Observatory (ARO).

See, also, how was the "In-person Meeting of Actors: Protection of the Health of Indigenous Peoples in Brazil-Suriname Territorial Base", carried out by the project Contingency Plan for the Protection of Health of Indigenous Peoples, in Macapá (Amapá), on the 14th and 15th June, and which involved indigenous leaders and representatives of institutions in Brazil and Suriname.

In the section Amazonian Countries, learn about the results of the course on Tropical Timber Identification and Traceability conducted by the ACTO and the Forest Products Laboratory of the Brazilian Forest Service (LPF/SFB), which involved participants from Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela and also Guatemala. Also, read about the experience of one Ecuadorian company on the in vitro reproduction of orchids, which includes endangered species. Finally, we suggest reading the technical article on strategies for the conservation of Amazon turtles in Venezuela.

Alexandra Moreira López

General Secretary

Permanent Secretariat

Amazon Cooperation Treaty Organization

Venezuela receives the ACTO team for monitoring and action planning

The Bioamazon Project financed the construction of the Data Center of the Ministry of Popular Power for Ecosocialism and the acquisition of office equipment and field activities



From May 16 to 20, the Bioamazon Project team continued the program of monitoring visits to ACTO Member Countries. The coordinator of the Bioamazon Project, Mauro Ruffino, and the technical specialist, Vicente Guadalupe, visited Venezuela for a work agenda with the staff of the Ministry of People's Power for Ecosocialism (MINEC) to present the Amazon Regional Observatory and to learn about the progress of the studies on species listed in CITES. On this occasion, a field trip was also made to the Wild Fauna Refuge and Protective Zone of the Arrua Turtle.

This agenda for the Amazonian countries is part of the work plan of the Regional Project to Manage, Monitor and Control of Species of Wild Fauna and Flora Endangered by Trade in preparation for the 19th Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), to be held on November 14 to 25, in Panama. The event will be attended by delegates from the European Union and the 183 signatory countries of CITES, as well as observer institutions.

With the visits to the countries, the Bioamazon Project monitors and compiles the results of the last year, which are intended to be presented at the 19th Conference of the Parties to CITES.



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In the workshop for the presentation of the Amazon Regional Observatory (ARO) to the entire MINEC team and the institutions that produce and manage Amazon data, training was given on the ARO, with a presentation of conceptual scope, the thematic and integrating modules (Biodiversity, Forests, Water Resources, CITES Species, Indigenous Peoples, Climate Change), the progress and status of data collection, as well as the interoperability mechanisms available.



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In the Bioamazon Project workshop, an evaluation of the progress of the activities was carried out and lessons learned, and recommendations were discussed. MINEC made presentations on the CITES Biodiversity Information System, the CITES Electronic Permit Issuance System, and on the Turtle Management Plans and Timber Traceability System.

The Data Center and the Signing Ceremony of the Term of Assignment of the Use of the equipment acquired by the Project were also inaugurated with the presence of Venezuelan authorities. More than 130 items were purchased between office equipment and for field activities, such as desktop and laptop computers, scanners, printers, videoconferencing equipment, cameras, GPS, and various tools. The acquisition cost of the equipment was 230,899.57 US dollars. The financing of the construction of the Data Center of the Ministry of Popular Power for Ecosocialism had a cost of 99,648 US dollars, both resources provided by the ACTO Bioamazon Project, financed by the German Development Bank (KfW).

Field visit

The field trip – Caracas to San Fernando, in the state of Apure, and from there to Puerto Páez, was carried out from the 18th to the 21st, and the Orinoco River was navigated to the Wildlife Refuge and Turtle Protection Zone.

The Refuge is in an indigenous community of the Mappoyo ethnic group, made up of several families that conserve the arrua turtle (*Podocnemis expansa*) with local strategies identified in the Turtle Management Plan developed with the support of the ACTO Bioamazon Project. On the 19th, an outbreak of approximately 100 hat-



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chlings was witnessed, and 500 hatchlings were released into the Orinoco River. Likewise, currently in the refuge there are 9000 hatchlings in the tanks, waiting to reach a larger size to be released within a year.

To learn more about turtle conservation work, access the technical article “Management Plan for the Conservation and Sustainable Use of *Podocnemis erythrocephala* (Red-headed Amazon River Turtle), *Podocnemis unifilis* (Yellow-spotted River Turtle), *Podocnemis expansa* (South American River Turtle) and *Peltocephalus dumerilianus* (Big-headed Amazon River Turtle)”, [available here](#).

On Saturday, May 21, the breeding farm “El Patruello de Chavez” of the Ministry of Popular Power for Ecosocialism (MINEC), located in San Fernando de Apure, was visited. The farm began its activities in the 1980s as an initiative to promote the recovery of the populations of the Orinoco Crocodile (*Crocodylus intermedius*).

The farm keeps the adult alligators in closed lagoons, and they are fed with beef meat and offal. Reproduction occurs once a year, from January-February, and the eggs are transferred to a traditional incubator to hatch between April and May. The hatchlings are deposited in ponds and protected from the sun where they are fed with remains of meat and ground fish, until they reach approximately 80 cm; subsequently, they are released into the river to contribute to the recovery of the natural populations of the species threatened and listed in Appendix II of CITES. The farm also develops recovery and maintenance activities for rescued fauna such as turtles, monkeys, macaws, and other threatened species. Currently, 13 people work on the breeding farms and are accompanied by park rangers from the MINEC National Parks Institute.



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ACTO discusses biodiversity use in the Amazonian Countries

The objective of discussions was to learn about successful strategies and actions aimed at the development of an economy based on the use of species and/or products of the Amazonian biodiversity, observing the laws of each Member Country.



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Explaining economy based on the use of biological diversity can be understood in different and have different terminologies. The Organization for Economic Cooperation and Development (OECD) recognizes that there is no universally accepted concept for bioeconomy, and this term has different meanings in different nations [1].

In general, approaches such as the economy of nature/bio-commerce/bioeconomy or similar uses presuppose promoting the use of renewable and biological resources for economic growth and the generation of knowledge-based jobs; the regeneration of vital ecosystems and biodiversity; population well-being; also, it may presuppose greater efficiency in the use of resources in all economic sectors. "In this way, the researchers affirm that different approaches in strategies development are linked to natural resources availability, being these resources and their use and management the center of the sustainability of the economic strategy" explains Vicente Guadalupe, specialist of the ACTO Bioamazon Project.

Based on the different approaches, the Amazon Cooperation Treaty Organization (ACTO) is promoting discussions with the Member Countries (MC) to exchange knowledge about and systematize models, strategies, experiences and successful actions that are being implemented in the MC, which are oriented towards the development of an economy based on the use of species and/or products of the Amazon biodiversity, according to the laws of each of the countries.

In this sense, on June 23, the webinar “Knowing about the actions implemented by the Member Countries of ACTO for the development of an economy based on the use of biological diversity” was held. The countries presented their strategies and actions, and this information will serve to define a conceptual framework for the ACTO on bioeconomy or similar approaches, so the organization will be able to work alongside the MC in the development of initiatives or in the formulation of projects aimed at promoting or strengthening actions that favor economy based on the sustainable use of Amazonian biodiversity. This important information presented in the webinar will also support the development of the Regional Platform of micro, small and medium-sized enterprises (SMEs) of the Amazon Regional Observatory.

Presentations

During the virtual event, the delegations of the ACTO Member Countries presented their strategies and actions.

Colombia presented “Negocios verdes” that, since 2010, its strategic axis is the policy for sustainable production and consumption. The strategy’s goal is by 2030 there will be 12,630 green businesses verified and linked to the Regional Green Business Planning. Currently, there are 4,000 green businesses tested and linked in 750 municipalities in Colombia and, by 2022, the goal is to include another 233 green businesses.

In the Colombian Amazon, there are 487 green businesses verified and linked in six departments with 4,220 employees and \$18,402 million pesos in reported annual sales. The strengths considered are the diversity of fauna and flora, the high purity and nutritional value of fruits, flora with potential for medicinal, cosmetic, food and ecotourism use, and ancestral knowledge and artisanal wisdom. On the other hand, the lack of studies, permits, registers and certifications for marketing, high transport and logistics costs of products and intermediaries are considered the current weaknesses, along with the lack of infrastructure, machinery, equipment, tools and satellite internet, in addition to lack of marketing strategies.

Green businesses in Colombia are considered “economic activities in which goods or services are offered generating positive environmental impacts. These also incorporate good environmental, social and economic practices, with a life cycle approach, contributing to the environment conservation as natural capital that supports the development of the territory,” explained Carla Blondineth Mosquera Zapata, Coordinator of competitiveness and promotion of green businesses of the Ministry of Environment and Sustainable Development.

The delegate of Peru, presented the legal framework and public policies devoted to strengthening the economy articulated to the use and management of biodiversity. He explained about the existence of priority gaps such as the recovery and conservation of agrobiodiversity, enhancing ancestral good practices in the management and of native

genetic resources and their wild relatives, and the agro-ecosystems that host them; pilot experiences demonstrating that participatory community management of forest resources is viable and economically, environmentally and socially sustainable; and the recovery of ancestral traditional practices of planting and harvesting water and the co-management of fisheries with Amazonian communities and other local groups.

The event presented a summary of the “Project Value Chains Free of Deforestation in the Peruvian Amazon” and the “Program to Promote Sustainable Financing in the Peruvian Amazon – Opportunity to leverage bio business”. The Eco and Bio business Catalogue of the Ministry of the Environment (MINAM) is a tool designed to articulate the offer of goods and services of eco and bio business with national and international markets; it contains 654 products that value biodiversity and make efficient use of resources. [The catalogue is available in Spanish here.](#)

The representative of the Peruvian delegation, Jaime Delgado, also stressed that Peru is the center of species origin and of many varieties of cultivated species. It is a heritage received from ancient cultures and has native genetic resources, that are vital for the food security of the population, in which more than 65% of agriculture depends on them. “Peru’s natural capital contributes more than 15% of the national GDP,” he said.

ACTO’s Administrative Director, Carlos Salinas, expressed that the ACTO is committed to the Amazon region and the Member Countries for the sustainable use of natural resources and to try to reduce asymmetries among countries. “ACTO considers fundamental an economy based on the sustainable use of biological diversity, as it is an important source of natural resources and because local populations and indigenous peoples depend on it. For sustainable use and the development of an economy based on the use of biological diversity several factors are required, such as financing, training and markets. Therefore, these whole set of issues and factors need to be studied and understood to carry out the development of an economy”, he stated



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BioForestALC and bioeconomy

Experts discussed challenges in strengthening the value chains of socio-biodiversity



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The Amazon Region has enormous potential to contribute to a fair bioeconomy that includes micro, small and medium-sized enterprises (MSMEs). The Amazon Cooperation Treaty Organization (ACTO) as a member of the 1st Virtual Forum on the Potential of Non-timber Forest Products for the Bioeconomy of Latin America and the Caribbean- BioForestALC, within the framework of the Amazonian Regional Observatory (ARO) has been implementing a series of actions to learn more about bioeconomy and promote its development in the region. Among the activities are the holding of dialogue tables with specialists in flora and fauna of the region and the development of a regional information window on MSMEs, with emphasis on CITES species.

During the BioForestALC, held virtually from May 23 to 26, the ACTO made available the [Regional Knowledge Exchange of Information Platform on Forests and Biodiversity Conservation](#) for the identification of bioeconomy experiences with non-timber forest products (NTFPs). Nineteen experiences were recorded, of which 12 were carried out in Brazil, six in Ecuador and two in Suriname.

The systematization of experiences in bioeconomy will collaborate with BioForestALC in achieving its objective of identifying and formulating joint initiatives to strengthen the bioeconomy in Latin America and the Caribbean based on the development of value chains of non-timber forest products.

BioForestALC

The Virtual Forum on the Potential of Non-timber Forest Products for a Bioeconomy in Latin America and the Caribbean was held by the Brazilian Forest Service, with the support of other institutions such as the Center for Tropical Agricultural Research and Education (CATIE), the Brazilian Agricultural Research Company (Embrapa), the Ecological Research Institute (IPÊ), the International Union of Forest Research Organizations (IUFRO), the University of Brasilia (UnB), and the ACTO. More than 200 people participated in the four-days-event, representing more than 100 institutions from 13 different countries interested in the bioeconomy agenda, including institutions in the public and private sectors; teaching and research; associations of producers; members of non-governmental organizations; national and international development agencies; etc.

In the opening session, the director of the SFB, Pedro Alves Corrêa Neto, highlighted the cooperation evidenced among institutions which contributed to the realization of the event. On the other hand, Guy Capdeville, PD&I Director of Embrapa, highlighted ACTO's fundamental role in articulating and partnering with countries that share the biome to explore potential for technological cooperation.

The Secretary General, Alexandra Moreira, highlighted the potential of the Amazon region and the relevant work of ACTO in it. "We consider it important to work in these spaces with institutions devoted to the promotion of sustainable use of biodiversity.

The Amazon encompasses more than 40% of the territory of South America and hosts not only a great biodiversity, but also the largest rainforest in the world, for which our committed work in the fight against climate change and degradation, valuing biodiversity is essential," she said.

In the panel "The forest bioeconomy in the promotion of human development in Latin America and the Caribbean" specialists such as Thais Juvenal, from the Food and Agriculture Organization of the United Nations (FAO); Ricardo Abramovay, from University of São Paulo (USP); and Joaquim Belo, from the National Council of Extractive Populations (CNS) discussed on bioeconomy's opportunities and challenges along with the importance of respecting the rights of forest peoples and their inclusion as bioeconomy protagonists.

Thais Juvenal, an economist focused on socio-environmental governance and finance, presented FAO's publication "[The State of the World's Forests \(SOFO\) 2022](#)", and she also highlighted three main paths: the need to end the loss of forest cover and the relevance of conservation of environmental services; forest and landscape restoration; agroforestry and sustainable forest use; and the bioeconomy.

"There are no global statistics for non-timber forest products due to informality, incomplete market circuits, and heterogeneous naming and accounting, as these products are often combined with agricultural products or other industries. Without statistics it is difficult to plan investments," said Juvenal.

Ricardo Abramovay, professor at the USP Department of Economics, stressed that, in terms of bioeconomy, tropical forests and, particularly, the Amazon are not included neither in the scientific literature nor in the technological frontier.

“There is concern that the Amazon is completely absent in this area. The paradox that the world’s richest biodiversity is far from the scientific and technological frontier of the bioeconomy is clear and was defined by Professor Bertha Becker many years ago: “*We practice an economy of destruction of nature, especially in the Amazon. We need to apply knowledge economy and not environment destruction economy for, the latter, has not brought about development.*”

Today the Brazilian Amazon has the worst indicators in Brazil. We cannot talk about bioeconomy or sociobiodiversity economy, without respecting the rights of the populations living in the forests”, said Abramovay.

The representative of the National Council of Extractive Populations (CNS), Joaquim Belo, stated that bioeconomy has always existed “because the wealth of the Amazon has built the wealth of many people. The forest is our great green infrastructure, and our major challenge is the fight for the right to the collective use of land to guarantee the means of production. This fact has triggered a great debate, and it was difficult to understand the importance of peoples in the conservation of biodiversity and the forest.

The starting point of the discussion must be the territories, their experiences, their traditions, their way of being”, said Belo.

The Book

On the first day’s closure the Brazilian Forest Service launched the second edition of the book *Bioeconomia da Floresta: A Conjuntura da Produção Florestal Não Madeireira no Brasil*.

On the second day, BioForestALC in working groups participants shared their experiences in the area of bioeconomy and discussed about challenges and opportunities that rise in this regard. The topics of the WG were capacity-building, training, and technical assistance; marketing, markets, and value chains: non-timber forest products and restoration, among others.

Next steps

On the last day of the forum (26/05) the guidelines were presented, among which the following stand out::

- BioForestALC Network Creation Proposal,
- Second call to share experiences on the ACTO RKEP platform,
- Publication of a document containing the results of BioForestALC 2022, which will tentatively include, among others, the following chapters:
- Bioeconomy of Forests in Latin America and the Caribbean, with official data presentation
- Premises for the Development of Forest Bioeconomy in Latin America and the Caribbean
- Proposals for Bioeconomy Development

CITES and Forestry Authorities of the Member Countries meet to define Working Groups

The formation of the Working Groups to support the implementation of CITES for Amazonian tree species was discussed, along with the participation in the Conference of the Parties (CoP19) to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which will be held in November in Panama.

The Bioamazon Project promoted, on May 24, 2022, a meeting with the CITES Authorities and Forest Authorities of the ACTO Member Countries for the formation of Working Groups within the framework of the consultancy "Support to the Member Countries of the ACTO in the implementation of CITES for tree species in the Amazon Region".

This consultancy carried out by the CITES flora specialist, César Belteton, follows up on the basic proposal of the "Amazon Regional Action Plan for the implementation of the Convention for tree species".

The Plan will allow a joint vision of the tree species of the Amazon Region to coordinate efforts for the exploration and export of timber forest resources under sustainability parameters without compromising the survival of species, in the long term and in their natural environment, and that the tools provided by CITES for this purpose, such as Non-Detriment Findings (NDEF) and Legal Acquisition Findings (LAF) are properly applied.

At the meeting, the CITES Focal Points and the Forest Authorities of the MC were able to socialize the activities to be implemented within the framework of the consultancy and share the analysis of the synergies found between the Amazon Regional Action Plan for the implementation of CITES for tree species and the ACTO Forest and Biological Diversity Programs for the Basin and the Amazon Region.

The proposal for an activity plan for the Working Groups, in the short and medium term, was also presented and validated, with a view to the participation of the PS/ACTO in the CoP19 of CITES in November 2022.



Capacity building

The CITES Convention to regulate the trade in specimens included in Appendix II establishes that a Scientific Authority of the State Party to the Convention state that an export, import and/or re-export will not harm the survival of a species regulated by CITES. These review and assessment mechanisms are collectively known as Non-Detrimental Extraction Findings.

As part of the ACTO's objectives of reducing asymmetries between Member Countries, the Bioamazon Project promoted, at the end of 2020, training, and support for each MC in the development of NDEF and the inclusion of Cedrela spp. in CITES Appendix II.

To strengthen the formulation of NDEF and LAF for Amazonian tree species, this training preceded the preparation of the proposed Regional Plan for Tree Species of the Amazon.



In historical session the Amazonian Parliament is reactivated after 10 years

After 10 years without activities, and one year holding virtual meetings, the group of parliamentarians met in person and approved the political declaration that is the benchmark of the institutionalization of the Parliament that involves the eight Member Countries of the Amazon Cooperation Treaty Organization (ACTO).

In a historic session the first face-to-face meeting was held at the headquarters of ACTO on May 18. The Brazilian Senator Nelsinho Trad resumed the Amazonian Parliament (Parlamaz), made up of the eight ACTO member countries: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela. The event was attended by the Secretary General of ACTO, Alexandra Moreira, the Minister of Foreign Affairs of Brazil, Carlos França and parliamentarians from the Amazon countries.

Minister Carlos França highlighted this moment as historic in defense of the environment and for the relations among the Amazonian countries. "It has been 44 years since the Amazon Cooperation Treaty was signed, which is the most important step. The Amazon is an incomparable biodiversity reserve and it is more and more

evident in international debates. We are fully aware of the challenges for sustainability," he said.

Foreign Minister França also said that the ACTO is today a key actor in the governance of the Amazonian cooperation thanks to its institutionality, practical knowledge and experience in coordinating dialogue and in the joint implementation of initiatives of Member Countries. "The work of ACTO is an important technical, legal and diplomatic framework for the regional treatment of the Amazon challenges. The Brazilian government will participate in the necessary negotiations to lead Parlamaz to become part of the institutional framework of ACTO," he said.

ACTO Secretary General, Alexandra Moreira, congratulated Senator Nelsinho Trad for its devoted work and effort in reactivating the Parlamaz. "It is a significant occasion as we are all together. She congratulated the parliamentarians of the Amazonian countries for embracing this important decision to work at the level of the powers and legislative bodies, as the sustainable management of the Amazon is an issue of relevance " she emphasized.

"The relevance of political dialogue, the creation of alliances, strategies, and building comprehensive and regional convergent results in favor of the Amazon territories is also part of the work of the senators and deputies of each of our countries. Therefore, it is appropriate that the issue of the Amazon not only be on the agenda of the executive bodies of the countries, but also in the agenda of legislative bodies, in order that greater relevance is given to the region, and in turn, within the framework of public policies give greater opportunity in the countries' priorities to a legislation that can be developed for its benefit", stressed the Secretary General of the ACTO.

For the Brazilian Deputy, Rodrigo Agostinho, the issues related to the Amazon are urgent. "We have a big challenge to develop the economy by keeping the forest standing," he added.

Senator Nelsinho Trad recalled that the Amazonian Parliament was instituted by the 1989 Declaration of the Amazon. At that time, the creation of a regional parliamentary body would be envisaged to ensure joint and concerted actions for the preservation of the rights of the Amazon region and the promotion of its development.

According to Senator Nelsinho Trad, the Parlamaz needs the same model as the Mercosur Parliament (Parlasul), which was created by a Constitutive Protocol signed by the presidents of the bloc to legislate on common interests and function as an independent political body. "The Parlamaz has not yet had this formal treatment by the signatory countries. That is what we are looking for today," explained the president of Parlamaz.

The representatives of the delegations expressed their opinions and the declaration was adopted unanimously. "After Parlamaz has been inactive for so long, this is a historic moment," said Parlamaz Vice President Alcira Aleiza Montero from Bolivia

The ARO Steering Committee is briefed on the latest updates

Currently, the ARO is equipped with web services to share its data on Amazon biodiversity with interested institutions



Delegations from the six ACTO Member Countries (MC) participated in the third meeting of the Steering Committee of the Amazonian Regional Observatory (ARO). On the occasion, they learned about the progress made, the results and agendas within the ARO.

The Amazonian Regional Observatory was created since decisions taken at the eleventh, twelfth and thirteenth meetings of Ministers for Foreign Affairs, which is the highest decision-making body responsible for setting the guidelines of the common policy. It evaluates all initiatives developed and takes the necessary decisions to achieve the objectives proposed in the Amazon Cooperation Treaty (ACT). The ARO was launched on November 10, 2021.

Isaac Ocampo, ARO's data specialist, described the observatory's contents, which are presented through thematic and integrative modules. He spoke about [CITES](#) and [Biodiversity](#) thematic modules, specifically the thematic lines and dashboards for graphical presentation of the information; moreover, he presented the progress made in the water resources and forests modules.

In relation to the Biodiversity module, since November 2021, ACTO has been integrated into the Global Biodiversity Information Facility ([GBIF](#)) and one of its actions

within the network is to implement the Amazonian node that integrates data of occurrences of more than 65 institutions of ACTO Member Countries. Based on data refinement, reports are currently generated, and data are downloaded at the Amazon basin level. Based on this data, work has been conducted on the modeling of ecological niches of eleven species. In addition, ARO has now web services to share its Amazon biodiversity data with any institution interested in them.

Regarding the integrator modules, Isaac Ocampo explained that these modules present contents in a transversal association. The Geoamazon module is a tool with three information approaches: monitoring (time), thematic, and geographical scope (of each PM). An important point is the daily monitoring of hotspots in the Amazon region. The Amazon Networks module integrates all 242 water quality and hydrological monitoring stations in the Amazon region of five ACTO/MC (Bolivia, Brazil, Colombia, Ecuador and Peru) highlighting the difference in the frequency of updating data from each country. Likewise, the system already allows to generate some rain and flood alerts, which are being validated by the company responsible for the development of that module, Geodatin. In addition, he reported that the modules Digital Amazon and Our Amazon have the function of a repository of storage and search for information related to the priorities of the ARO.

Mauro Ruffino, coordinator of the ARO, informed that the ACTO, through the Bioamazon Project, will participate in the CITES COP 19, in November 2022, through a side event. During the event, it will be explained about the contributions of the Project to the implementation of CITES, and ACTO will prepare a Technical Note on how ARO can contribute to a regional vision of CITES implementation. "The challenge of ARO is to give a regional character to the information collected. All Member Countries are known to submit their annual national reports to the conventions (CITES, CBD, etc.), but there is no regional analysis with information from all Member Countries. Once the Technical Note is prepared, it will be officially submitted to all MC for their respective considerations, and subsequently, a consensus document will be sent to the CITES Secretariat," he said.

Investments

In 2021, investments in the ARO amounted to more than US\$ 1.1 million, of which US\$ 926 thousand were allocated by the Bioamazon Project, channeled by the German Development Bank (KfW) for infrastructure works, purchase of equipment and computational development of the platform and modules, and US\$ 180 thousand invested by the Brazilian Cooperation Agency (ABC) and ANA Brazil to make the ARO Situation Room viable.

Challenges

ARO's challenges encompass four dimensions of sustainability: financial, technological, operational and institutional.

Regarding the financial aspect, about 80 percent of the investment was from the German government, through the Bioamazon ACTO Project, and about 20 percent by the Brazilian government, through the Amazonas/ANA/ABC Project. The expansion

of services and the maintenance of the functioning of ARO will require regular and predictable contributions of resources.

In terms of technology, the addition of new modules and functionalities to the ARO will require the acquisition of new hardware equipment and software licenses, and the future updates of those already available. It should be considered to seek for partnerships with institutions of the Member Countries that could collaborate with the ACTO.

The operational axis involves the availability of qualified and stable human resources for the operation of ARO. As for the institutional aspect, the ARO has a Steering Committee, composed of technicians from the MC, who coordinate and take decisions. The Observatory, incorporated into the structure of the ACTO, observes the precepts of the unanimous decisions of the ACT, operationalized through ministerial mandates, decisions of the Amazon Cooperation Council (CCA), and management of the Coordinating Committee of the Amazon Cooperation Council (CCOOR).

Delegations

Ruffino opened the plenary to the participants of the third meeting of the Steering Committee.

Among the interventions, Marco Ehrlich, delegate of Colombia, highlighted the importance of organizing the official and relevant information in the ARO. He mentioned that this process has helped in the articulation and coordination among national institutions and is valuable not only for Colombia but for the region.

Néstor Acosta, from the delegation of Ecuador, mentioned that the Ministry of the Environment, Water and Ecological Transition (MAATE) held a workshop with practical exercises to address the modules and everything developed in the ARO. He also indicated that there is a commitment to continue contributing with all the information in all the topics of the ARO, and thus strengthen the regional efforts foreseen.

From the delegation of Guyana, Felicia Adams-Kellman, highlighted the efforts and work done within the ARO. She expressed that the collection and storage of information for the country has always been a challenge, so it is very interesting to see the information centralized in a database that can help in the future in the management of biodiversity. He reiterated the readiness to continue supporting the implementation of the ARO.

Jonatan Quevedo, from the delegation of Peru, reiterated the country's commitment to continue participating in all ARO actions.

The third meeting of the ARO Steering Committee was held on May 4, 2022, in a virtual way.

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Brazil

Amazon Countries

Improving institutional capacity through information exchange

ACTO and LPF promoted Course for the Identification and Tracing of Woods.



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A marathon of new learnings was carried out, in the framework of the course Methodologies of Identification and Traceability of Tropical Timber carried out in Brasilia, on May 9 and 13, in which 21 representatives of Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela and Guatemala used the occasion to exchange knowledge.

The joint initiative of the Regional Project for the Management, Monitoring and Control of Wildlife Species Threatened by Trade (Bioamazon Project) and the Forest Products Laboratory (LPF for its acronym in Portuguese) of the Brazilian Forest Service (SFB for its acronym in Portuguese) took place at the facilities of the Amazonian Regional Observatory (ARO), ACTO headquarters in Brasilia.

ACTO's Executive Director, Ambassador Carlos Lazary, at the opening of the event highlighted the importance of technical training in the identification of woods for professionals in the areas of control, export, forest management, authorization of forest resources, among others. He stressed that the conduction of the course was

possible thanks to the decision of the Member Countries (MC) to advance in this agenda. “The ACTO is home to the Amazonian countries. This joint work among ACTO and its Member Countries with the German cooperation, through the KfW, is a vote of confidence of the international cooperators to the Bioamazon Project,” he said.

According to the Coordinator of the Forest Products Laboratory (LPF), Fernando Nunes Gouveia, this course was conceived “to share with representatives of the eight Amazonian countries and representatives of Guatemala the main technologies used in the identification of wood. We all benefit from this initiative for we can visualize the potential for exchange and cooperation on issues related to the sustainable management of timber and the strengthening of institutions in the fight against illegal trafficking,” he said.

Testimonies

For Gerrit Warsidie Amatmoekrim of the Foundation for Forest Management and Production Control of Suriname, the course was useful for learning about other timber identification techniques. “We normally look only at the tree, its leaves, and its fruits, etc. but with this course now I am aware about other important aspects such as the anatomy and structure of the trees, chemical aspects, etc.”, he commented.

Silvana Chulde, a specialist in Natural Heritage, stressed that the course made it possible to learn from other experiences, especially the Brazilian experiences. “It is important to know about the science with which we are working to be able to advance in the experiences and paths for the recognition of species, and to develop new topics in our daily work in Ecuador, which is to recognize species to minimize the traffic of wood”, she said.

Harol Gutiérrez Peralta, from the Peruvian Ministry of Environment, highlighted that the asymmetries that still exist in terms of technological development to identify wood were identified. We can see the many opportunities for synergies at the regional level, and useful tools to control illegal logging,” he said.

Program

The course had 10 lecturers from various institutions with exhibition classes and practices. It was coordinated by Alexandre Bahia Gontijo, responsible for the Anatomy and Morphology area of the LPF, who addressed the topics “Anatomy identification of woods (general and macroscopic characters)” and “Electronic Key Identification of Brazilian Commercial Woods”.

The “Federal Forest Management Systems – Control of traceable credits between origin and final consumer in Brazil” was explained by the General Coordinator of Monitoring the Use of Biodiversity and Foreign Trade of IBAMA, Rafael Freire de Macêdo; and studies on “Forensic isotopes applied as tracers for timber origin” were explained by the Brazilian Federal Police Expert, Camilla Vasconcelos Kafino.



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An approach from the perspective of forensic sciences was addressed in the session “Plant DNA barcoding in the characterization of plant species”, conducted by Renato Teodoro Ferreira de Paranaíba, Expert of the Federal Police. “Wood Species Identification using Deep Learning” was the topic addressed by Andre Reis de Geus, Doctor of Computer Science from the Federal University of Uberlândia.

At the end of the theoretical sessions, LPF researcher Tereza Cristina Monteiro Pastore, and the technological chemist from the University of Brasília (UnB), Hugo da Silva Rocha, presented the NIRS technology in the identification of commercial woods, with notions of near-infrared spectroscopy and chemometrics.



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The topics of the event aimed to update participants on the most modern wood identification technologies, their applications, and potentials, offering a broad overview of the current state of the art of deforestation combat. These technologies will provide an important forensic arsenal capable of elucidating various types of environmental crimes involving illegal logging. In addition, the event is a starting point of a collaborative network, whereby ACTO members will be able to develop such tools and join efforts in the protection of the Amazon. May 13 was exclusive for a technical visit to the LPF to know the collection of wood available in the xyloteca and the equipment acquired with the support of the Bioamazon Project.

The representatives also participated in practical demonstrations of “non-destructive extraction of wood samples” and “species identification using the NIRs methodology”, as well as in demonstrations of microscopy techniques for wood and coal analysis, among other activities.

Ecuadorian company reproduces endangered orchid species

Ecuagenera performs studies and in vitro reproduction for the survival of species that were about to disappear, in addition to promoting the ex situ conservation of orchids



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The Bioamazon Project supports Ecuador in developing a strategy for the implementation of the Orchid Route. In April, several orchid producers were visited, among them, the Ecuagenera company, which is the largest producer of orchids, not only in Ecuador but also worldwide. The company's main headquarters is in the Province of Azuay, south of the Andes, 40km from Cuenca, in Gualeceo. It is a privileged area with an average altitude of 2,200 m.a.s.l. and temperature of 17°C, which allow the cultivation of orchids from the different Ecuadorian microclimates such as Coast, Sierra, and Eastern area and from other parts of the world.

The company has been dedicated to the conservation and reproduction of orchids since 1992 and obtained licenses to export plants from the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Since then, Ecuagenera has been assessing the potential of this species and has launched a successful orchid conservation program.

The program consists of the in vitro reproduction of orchids, including endangered species, ensuring subsistence of species on the verge of disappearing and promoting the ex situ conservation of orchids. *Epidendrum sodiroi* Schltr is an IUCN EW species (Extinct in the Wild) that has been reproduced in the Ecuagenera laboratory, along with IUCN CR Species (Critically Endangered), including *Andinia hirtzii* Luer, *Benzingia hirtzii* Dodson ex Dodson, *Encyclia angustiloba* Schltr., *Lepanthes pretiosa* Luer & Hirtz, *Lepanthes terpsichore* Luer & Hirtz, *Macroclinium manabinum* (Dodson). More than 500 species cataloged on the IUCN list have been reproduced by Ecuagenera, according to José Portilla, President of the Company.



Orchid *Andinia hirtzii*.



Orchid *Lepanthes pretiosa*.

Research is the company's focus, achieving the development of in vitro propagation protocols for more than 4,200 species. The success of this program is subject to the effective and efficient application of in vitro techniques for the recovery, conservation and propagation of native orchids and orchids from all over the world.

In this sense, Ecuagenera is a key player in the Bioamazon Project and in the development and implementation of the Orchid Route. The company's knowledge and vast experience have been essential for capacity building and the exchange of good practices in the reproduction and management of orchids with small producers in the provinces of Napo, Morona Santiago and Zamora Chinchipe that are part of the Orchid Route. In addition, results achieved have encouraged these producers to promote the responsible use of biodiversity, through biotrade, as an efficient way to conserve and increase income.

Currently, thanks to the investment in research and equipment for the biotechnology laboratory, Ecuagenera has records and databases of nutritional, environmental aspects, light requirements, among others, which are essential for the development of an orchid production system in vitro, as an ex situ conservation strategy.

[Ecuagenera](#) is one of the few companies in the world that carries out all the links in the value chain of this species and takes advantage of its derivatives through biotrade as another component of this great project. There is no doubt that the commercialization of orchids in vitro is a tool implemented through this conservation project for the protection, conservation, and sustainable use of biodiversity, promoting the sustainable trade of different varieties of orchids, as well as encouraging activities such as tours and photography, among other biodiversity services.



Orchid *Macroclinium manabinum*.

Strategies for the conservation of the Arrau (*Podocnemis expansa*), Terecay (*Podocnemis unifilis*), Cuttlefish (*Podocnemis erythrocephala*) and Big-headed (*Peltocephalus dumerilianus*) turtles in Venezuela.

Authors: Edis Solórzano, consultant, and Carliz Díaz, General Director of Biological Diversity. Ministry of Popular Power for Ecosocialism. Venezuela

SUMMARY - This study briefly presents conservation strategies and actions conducted in the Bolivarian Republic of Venezuela for freshwater turtles *Podocnemis expansa*, *P. unifilis*, *P. erythrocephala* and *Peltocephalus dumerilianus*, aimed at maintaining ecological processes, and preserve populations and ensure the sustainable use of these species. Among the strategies applied the development of a management plan for the sustainable use of the four species stand out, which will provide legal technical standards for the promotion of their sustainable use and legal trade, along with create socio-economic alternatives to supplement and improve the livelihoods of local and indigenous communities in their natural distribution areas..

KEY-WORDS: continental turtles, conservation, sustainable use, Venezuela

INTRODUCTION

The Bolivarian Republic of Venezuela is one of the seventeen megadiverse countries worldwide (WILLIAMS et al, 2001) and wildlife is a vital resource with socioeconomic effects for rural and indigenous communities in the country.

Among the components of the country's natural wild fauna, there are turtles and continental tortoises, which are one of the most important food pillars for these communities.

The turtles mentioned in this study are among the most threatened reptiles in the planet (RUEDA et al, 2007) and, throughout their range in Venezuela, they are widely consumed. The Arrau turtle (*Podocnemis expansa*) is included in the listed of endangered species through Decree 1.486 (Republic of Venezuela, 1996). The most recent assessment by national experts (RODRÍGUEZ et al, 2015) lists *P. expansa* as “critically endangered” and the remaining three species as “vulnerable”, because of the intense illegal and artisanal commercial consumption of adults, newborns, and eggs.

To counter this trend, in Venezuela various strategies have been implemented for the conservation of the four species of continental turtles under study, and this article introduces the most relevant experiences, as well as viable options for sustainable use.

Conservation Programs

The Venezuelan state, to conserve the most threatened species of continental turtles (*Podocnemis expansa*, *P. unifilis*, *P. erythrocephala* and *Peltocephalus dumerilianus*), has been implementing a series of actions, both at the administrative level and within in situ and ex situ management, oriented to the maintenance of ecological processes, the preservation of biological diversity, and the sustainable use of natural and cultural resources. These actions are intended to collect and use biological and sociocultural information relevant for the conservation management of these threatened species and to implement management actions to increase the abundance of their populations and allow their permanence in the ecosystems. In addition, these management actions are

the bases for the eventual sustainable use of these species, and include:

Since 1989, the Ministry of Popular Power for Ecosocialism (MINEC) has successively developed a conservation program for this species in the Arrau Turtle Wildlife Refuge and Protective Zone, located in the Middle Orinoco, with the aim of protecting its wild populations by promoting the use of in situ and ex situ management techniques, all with the aim of increasing their population abundance, especially the reproductive segment. Consequently, among the specific in situ actions stand out the environmental nursery, determining the effective population size of reproductive females (count of nests) along with nesting parameters (number of eggs per nest and % of fertile eggs), and transplantation of nests at risk of being flood. Additionally, during the reproductive season, estimates of relative abundance are made (females basking in the sun) and the size structure of the population is determined (marking and morphometric data collection of reproductive females).

The ex situ component of the program focuses on rescuing newborn hatchlings to be taken to captive breeding farms (zoocriaderos) (Table 1), where they are kept -for a minimum period of one year- and released into the natural environment; Hence, wild populations will be demographically reinforced with individuals with a higher probability of survival than when they are newborn.

As a fundamental component of the program participation of local communities is encouraged, providing training and their inclusion in the several phases of species conservation, and generating employment sources. This participation includes environmental education work in local schools and in the communities surrounding the wildlife refuge.

Table N° 1: Breeding farms in operation during various periods between the years 1989 to 2019 in the Continental Turtle Conservation Program of Venezuela

N°	Breeding farms	Localization (State)	Bred species
1	Agropecuaria Puerto Miranda	Guárico	<i>P. expansa</i> y <i>P. unifilis</i>
2	Comunidad Boca de Anaro	Barinas State	<i>P. expansa</i> y <i>P. unifilis</i>
3	Comunidad La Capilla	Portuguesa	<i>P. expansa</i> y <i>P. unifilis</i>
4	Comunidad Momoni	Amazonas	<i>P. expansa</i> , <i>P. unifilis</i> y <i>P. erythrocephala</i>
5	Comunidad Los Palomos	Bolívar	<i>P. expansa</i> y <i>P. unifilis</i>
6	Estación Piscícola de San Fernando de Apure	Apure	<i>P. expansa</i>
7	Escuela Básica Provincial	Amazonas	<i>P. expansa</i>
8	FUDECI	Amazonas	<i>P. expansa</i>
9	Hato El Cedral	Apure	<i>P. expansa</i> y <i>P. unifilis</i>
10	Hato El Frío	Apure	<i>P. expansa</i>
11	Hato Masaguaral	Guárico	<i>P. expansa</i>
12	Hato San Francisco	Apure	<i>P. expansa</i>
13	Instituto Universitario de Tecnología Amazonas	Amazonas	<i>P. expansa</i>
14	PDVSA-PETROCEDEÑO	Anzoátegui	<i>P. expansa</i> y <i>P. unifilis</i>
15	Arrau Turtle Wildlife Refuge and Protective Zone	Apure	<i>P. expansa</i> y <i>P. unifilis</i>

Source: MINEC database

Based on this experience, in 2006 the Program was extended to other distribution areas of the species, including the states of Amazonas, Anzoátegui, Barinas, Guárico and Portuguesa, and it was named the National Program for the

Conservation of Continental Chelonians. Through its execution, numerous specimens (Table N° 2) between 8 and 12 centimeters in total length have been released into the wild, increasing their chances of survival.

Tabla N° 2: Ejemplares de tortugas criados y liberados.

N°	Species	N° Specimen Released	Period
1	<i>Podocnemis expansa</i>	964.108	1989-2019
2	<i>Podocnemis unifilis</i>	104.767	2007-2019
3	<i>Podocnemis erythrocephala</i>	3.394	2009-2016

Fuente: Base de Datos del MINEC

The Ministry of Popular Power for Ecosocialism, together with local communities, began in 2006 the project "Bases for the management of the chelonian populations of *Brazo Casiquiare* by local communities" (MARÍN, 2006) and inhabitants of the indigenous community of Momoni, who recognize the importance of these species, have been trained in management and conservation techniques and are interested in implementing plans for their sustainable use.

Within the framework of the "Regional project to manage, monitor and control wild fauna and flora species threatened by trade - Bioamazon Project, No. 2006-66-222," between October 2020 and April 2022 a consultancy was conducted to prepare a management plan for the conservation and sustainable use of the species *Podocnemis erythrocephala*, *Podocnemis unifilis*, *Podocnemis expansa* and *Peltocephalus dumerilianus*, through which technical and legal standards were proposed for these four species. These regulations, when enacted, will promote their sustainable use and legal trade, creating socioeconomic alternatives to complement and improve the livelihoods of these communities.

Breeding for commercial purposes

The breeding of inland tortoises for commercial purposes is an activity relatively incipient in the country, and only one private breeding farm has

made some efforts to breed *Podocnemis erythrocephala* in captivity. Of the species of turtles concerned in the study, all the legally exploited specimens come from "ranching" defined as the collection of specimens of wild origin (eggs or newborns) for their subsequent collection in breeding facilities; however, as animal breeding is a valid conservation strategy for the preservation of these species it should be further promoted in the country.

The sustainability of the breeding activity is guaranteed in the legislation which requires releasing, into the natural environment, of a percentage of specimens raised up to one year of age, for their demographic reinforcement and to ensure the conservation of their wild populations of origin.

The specific breeding efforts with *Podocnemis unifilis* (terecay) and *Chelus fimbriata* (matamata) have been carried out but there are not enough to obtain relevant results that support the conservation of these species.

Legislation

Venezuela has one of the most complete environmental legal bodies in Latin America, among which, for this present study stand out the Laws for Biological Diversity Management and the Protection of Wild Fauna and respective regulations, CITES Approval Law, as well as the Decrees creating

Areas Under Special Administration Regime. Accordingly, it is worth highlighting the Arrau Turtle Wildlife Refuge and the Alto Orinoco-Casiquiare Biosphere Reserve, the Decree on Animals Prohibited for Hunting and the Decree on Species Endangered and the Resolution on General Norms for the Installation and Operation of Breeding farms for Wild Fauna.

In Venezuela, all sustainable use is carried out under the modality of management plans properly proposed and executed in accordance with current legal regulations, generally in the form of a ministerial resolution. These legal instruments are, in fact, management plans designed for one or several species and based on existing scientific knowledge, on previous technical experiences, and according to their need.

Research

P. expansa y *P. unifilis* are among the most studied continental tortoise species in Venezuela throughout the 20th and 21st centuries (HERNANDEZ, 2015); However, in Venezuela, inland tortoises are one of the least studied groups of wildlife and hence, it is worth promoting research on this group to define greater strategies for their conservation with scientific bases.

Traceability

The traceability process should be transversal to all actions for the sustainable use of wild fauna, including, but not limited to, the issuance of prior control instruments (Hunting Licenses, Mobilization Permits, CITES Export Permits), environmental supervision in the exploitation site, as well as subsequent control actions, such as supervision of mobilization, internal trade, and export.

For the effectiveness of the traceability process, a record (database) must be kept

by means of which the legality or not of specimens is determined under certain circumstances, either for reasons of the administrative body (MINEC) or at the request of other national and international inspection bodies.

Bases of the management plan

A management plan for the use of these species to comply with the sustainability criterion should minimize the negative environmental impacts derived from said activity, so that it is limited to the real potential of the animal population, evaluated through scientific studies. Likewise, the intended use and its impact must be subject to effective and systematic monitoring to apply corrective actions to improve its efficiency and sustainability.

From the sociocultural point of view, the management plan should satisfy the real needs of the communities, both direct participants in the plan and indirect beneficiaries (families, merchants, etc.); within the framework of respect for cultural and religious values of the community.

The economic viability of the exploitation will depend on its insertion within a market structure for the proposed product and if the potential sales are realistic according to an existing or foreseen demand.

The aforementioned management plan, formulated within the framework of the "Regional project for the management, monitoring and control of species of wild fauna and flora threatened by trade - Bioamazon Project, No. 2006-66-222", is based on the following technical criteria for the use of these four species of freshwater turtles: a) Determine the abundance of the target population in order to verify its potential for harvesting, b) Delimit harvesting

area, c) Determine utilization modality i.e., "rancho" (farm), closed breeding or mixed modality, d) Define harvesting seasons when females, their eggs and newborns are more vulnerable to losses due to natural predation or human poaching, e) Calculation of harvest based on the capacity of the reproductive population, f) Conduct actions that guarantee traceability of the entire value chain and g) Conduct community participation actions for efficient and effective management.

This strategy proposes to ensure direct economic benefits for the human population and to ensure the sustainability of the activity by reinforcing the wild populations from which the specimens are extracted.

Commerce

With reference to freshwater turtles, practically the entire trade of these species originating in Venezuela goes directly to the international pet market. Its legal commerce has been very limited in terms of numbers, being the *P. unifilis* the most traded species. The CITES Database records that, between 1987 and 2012, approximately 8,656 specimens were exported from Venezuela to eleven countries. In the case of *Podocnemis erythrocephala*, a total of 339 specimens were exported between 1987 and 2007.

The four studied species of turtles are included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), therefore, their trade is regulated and their traceability are controlled by the Convention.

Trials have been carried out with several species of commercial interest (*Chelus orinocensis*, *Kinosternon scorpioides*) but so far without commercial success.

Community Participation

Local communities have participated in the programs and projects developed, being an important strategy to achieve the conservation objectives of these species.

Any management plan for the sustainable use of wildlife must include social participation actions and training for local leaders to integrate local knowledge and traditional practices in the proposed management. The plan should meet the specific needs of the communities involved, so for the species *Podocnemis erythrocephala*, *Podocnemis unifilis*, *Podocnemis expansa* and *Peltecephalus dumerilianus*, the following specific objectives are set out:

- Establish appropriate practices to develop a strategy for the commercial use of freshwater turtles for the sustainable livelihoods of the communities involved, as a non-traditional socio-productive alternative.
- Provide alternatives against the illicit trafficking of wildlife, encouraging conservation along with the participation of the communities that live in the habitats of these species.
- Promote community self-management for wildlife in their ancestral territories and obtain benefits and improvements in their livelihoods.

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Photos: Wildlife Refuge and Protective Zone of Tortuga Arrau, Apure and Bolívar states. Bolivarian Republic of Venezuela



PHOTO: EDIS SOLÓRZANO

Arrau turtle (*Podonecmis expansa*) spawning on the Refuge's beaches.

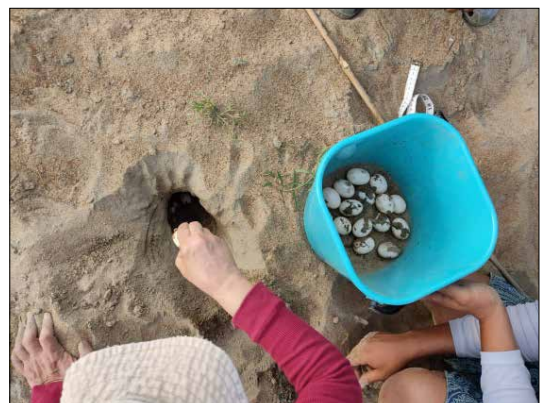


PHOTO: ALI VARGAS

Transplanting the nests of Amazonian turtles (*Podonecmis expansa*) to Refuge's beaches.



PHOTO: ANGEL GONZÁLEZ

Breeding tanks for Arrau hatchlings (*Podonecmis expansa*) for release on the Refuge's beaches.



PHOTO: ANGEL GONZÁLEZ

Collection of Arrau hatchlings (*Podonecmis expansa*) for release on the Refuge's beaches.



PHOTO: ANGEL GONZÁLEZ

Release of Arrau turtle hatchlings (*Podonecmis expansa*) on the Refuge's beaches.



PHOTO: ANGEL GONZÁLEZ

Release of Arrau hatchlings (*Podonecmis expansa*) on the Refuge's beaches.



PHOTO: ANGEL GONZÁLEZ

Roundtable with the community of Santa María del Orinoco.



PHOTO: ANGEL GONZÁLEZ

Work meeting with the Mapoyo indigenous community.



PHOTO: ALI VARGAS

Measurement of the Arrau turtle (*Podonecmis expansa*) from a confiscation on the Refuge's beaches.



PHOTO: ALI VARGAS

Release of the Arrau turtle (*Podonecmis expansa*) from a confiscation on the Refuge's beaches.

About the Bioamazon Project

Bioamazon is a **regional project in the ACTO's framework** that contributes to the conservation of **Amazon Biodiversity**, especially the species included in the CITES Convention.

To this end, it seeks to **increase the efficiency and effectiveness of the management, monitoring and control of species of wild fauna and flora threatened by trade** in ACTO member countries: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela.

It is part of a Cooperation Agreement between the Federal Government of Germany and ACTO with implementation through the KfW.

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Bolivia



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