

THINK TANK

**TREE  
CONSERVATION IN  
CENTRAL AMERICA**



July 2024



**BOTANIC  
GARDENS**  
CONSERVATION  
INTERNATIONAL



The Think Tank was held at the Osa Conservation campus in Piro, situated on the Osa Peninsula of Costa Rica, and featured four days of expert presentations, breakout sessions, field excursions, and additional activities.



In response to the accelerating climate crisis, Osa Conservation is dedicated to fostering resilience throughout the remarkable landscape of southern Costa Rica. We are actively collaborating with local communities, government representatives, and global leaders to establish a climate-resilient mega-corridor, ensuring that both nature and humanity can flourish indefinitely.

With a network of trails extending across 3,000 hectares through secondary, primary, coastal, and mangrove forests, the Osa Arboretum serves as a dynamic laboratory for botanical research and education.



# CATALYZING ACTION FOR TREE CONSERVATION THROUGHOUT CENTRAL AMERICA

The Think Tank sought to mobilize action throughout the Central American region to safeguard and rehabilitate endangered trees, convening experts to deliberate on the challenges, opportunities, and subsequent steps for tree conservation in the area.



## THEMATIC FRAMEWORKS

- Conservation prioritization: insights from conservation assessments, gap analysis, and tree conservation strategies.
- Conservation initiatives: regional insights in tree conservation.
- Fundraising for tree conservation in Central America: opportunities and challenges in securing financial resources within the region.
- Conservation via Restoration: Insights into the Preservation of Endangered Trees through Ecological Restoration.
- Tree conservation networks: the Caribbean and Central America Botanical Gardens Network.

# CHRONOGRAM

## DAY 1

### Introductory presentations

- The Osa Conservation Campus - A hub for tree conservation in Central America - Andy Withworth, Executive Director, Osa Conservation
- Botanic Gardens Conservation International: Orchestrating initiatives for plant conservation - Noelia Álvarez, BGCI
- Flora of Costa Rica: Exploration, Knowledge, and Conservation - Nelson Zamora, ITCR
- GTA (Global Tree Assessment) Initiative - Emily Beech, Botanic Gardens Conservation International

### Plenary sessions

- Guardians of the Trees: Transforming Conservation into Action - Heiner Acevedo - Pronatura Agathos Association
- Preservation of Mexican native trees in the FESI-UNAM seed bank - Isela Rodríguez Arévalo, UNAM



## DAY 2

### Visit to the Osa Verde nursery and tree planting

#### Plenary presentations: Prioritization and planning for tree conservation

- Emily Beech - BGCI - GTA Initiative, prioritization/Conservation Action Plan for Colombian Trees
- Jean Linsky - Global Conservation Consortium/Atlanta Botanical Garden

#### Plenary Presentations: Initiatives for Tree Conservation in Central America

- Carolina Rosales de Zea - CECON USAC Botanical Garden - Guatemala
- Dagoberto Rodriguez - La Laguna Botanical Garden - El Salvador
- Jonathan Hernández Sosa - Lancetilla Botanical Garden - Honduras
- María Stapf - National Herbarium of Panama - Panama
- Elizabeth Dorgay - Ya'axché Conservation Trust - Belize
- Arturo Parra - Botanical Garden of BUAP - Mexico
- Daniela Quesada - Monteverde Institute - Costa Rica
- Ruthmery Pillco - ACCA - Peru
- María José Mata & Rodrigo De Sousa - Osa Conservation - Costa Rica

**Discussion:** Plenary session regarding the conservation techniques employed by the participants

# SCHEDULE

## DAY 3

**Working session:** Analysis of strengths, opportunities, and weaknesses for tree conservation initiatives and regional plans in Central America.

**Working session:** Funding for tree conservation.

## DAY 4

**Discussion:** Future Directions for Tree Conservation in Central America - Synthesis of Think-Tank sessions.

**Closure of the Think Tank**

You may view the comprehensive schedule [HERE](#).



# PARTICIPANTS

<b>Name</b>	<b>Institution</b>	<b>Country</b>
Arturo Parra	BUAP Botanical Garden	Mexico
Carolina Rosales	University of San Carlos de Guatemala, JB CECON-USAC	Guatemala
Dagoberto Rodriguez	Director of the Botanical Garden La Laguna	El Salvador
Daniela Quesada	Monteverde Institute	Costa Rica
Diego Aguilar Sandí	Master's student in Biology, University of California, Riverside	Costa Rica
Elizabeth Dorgay	Ya'axché Conservation Trust	Belize
Emily Beech	BGCI	England
Gared Rodriguez	UTN undergraduate student	Costa Rica
Hazel Munoz	UNA Bachelor's Student, Wildlife Conservation Foundation	Costa Rica
Heiner Acevedo	Agathos	Costa Rica
Isela Rodriguez	FESI-UNAM Seed Repository	Mexico
Jean Linsky	Atlanta Botanical Garden, GCCM	USA
Jonathan Hernandez	Lancetilla Botanical Garden	Honduras
Karina Orozco	The Morton Arboretum	USA
Kenneth Barrantes	Master's student in Biology, University of California, Riverside	Costa Rica
Lina Ramirez Granada	Naples Botanical Gardens	USA
Luana Souza	CATIE Master's Candidate	Brazil
Maria Stapf	National Herbarium of Panama	Panama
Norma Mamani	ACCA	Peru
Nelson Zamora	ITCR	Costa Rica
Noelia Alvarez	BGCI	Spain
Ruthmery Pillco	Wayqecha Biological Station, ACCA	Peru
Rodrigo de Sousa	Osa Conservation	Costa Rica
Maria Jose Mata Quiros	Osa Conservation/BGCI	Costa Rica

# SWOT analysis for initiatives aimed at tree conservation in Central America

## Strengths

- Sensitivity to conservation
- Multidisciplinary and trained teams
- Infrastructure including nurseries and seed banks
- High percentage of species assessed on the red list
- Educational programs
- Engagement with communities
- Conservation and research initiatives in development
- Local, regional, national, and international connections
- Utilization of communication tools

## Weaknesses

- Disjointed efforts
- Insufficient training (taxonomy, project development, administration)
- Disconnection between academia and conservation efforts
- Inadequate infrastructure
- Staff shortages (overload/multitasking)
- Limited accessibility and quality of data and protocols
- Dependence on external funding or government budgets
- Challenges in sharing and disseminating experiences
- Information gaps regarding species

## Opportunities

- Institutional support
- Availability of methodologies for tree conservation
- High biodiversity within the region
- Formation of networks
- International conservation initiatives
- Political and institutional stability
- Implementation of joint projects
- Skilled human resources
- Accessibility of data
- Inclusion in national policies

## Threats

- Sensitivity to climate change
- Diminution of NGOs
- Insufficient funding
- Shortage of taxonomists
- Sociopolitical climate (insecurity, drug trafficking, corruption, etc.)
- Absence of sustainability in projects
- Deficiency in environmental education regarding plants
- Lack of generational transition
- State bureaucracy
- Inadequate funding for salary disbursements

During this exercise, several themes emerged as weaknesses, strengths, and opportunities. This indicates that capacities vary significantly across the region and underscores the necessity for action plans to be tailored to each country. Concurrently, it highlights the importance of fostering an exchange of knowledge and experiences through a Mesoamerican Tree Conservation Technical Network.

# Outcomes and commitments of the Think Tank



In a plenary session, the formation of a **Technical Network for the Conservation of Mesoamerican Trees** was unanimously agreed upon, outlining the following lines of action, which will be reviewed biannually, with progress updates shared with the group:

## SHORT-TERM ✓

Compile a list of skills and requirements to promote knowledge sharing within the region. Access the list [HERE](#).

1. Share information from botanical gardens, arboretums, or organizations with the BGCi PlantSearch and Conservation Action Tracker databases.
2. Emily Beech shares resources. ✓
  - a. BGCi conducts sessions to address inquiries.
  - b. Agreed date for the submission or transmission of data: November 2024.

## MEDIUM-TERM

Support and advocate for the publication of red lists identifying threatened tree species in the countries within the region.

1. Nelson Zamora and his collaborators are engaged in the compilation of the Costa Rica list.
  - a. Emily Beech will assist other nations.
  - b. Promote national list publications in the CCABG and BGCi newsletters (Lina Ramírez, Noelia Álvarez, and María José Mata).

## a. LONG-TERM

Generate a list of priority species for conservation initiatives based on red list evaluations and the identification of climatic corridors proposed by Conservación Osa.

1. The article detailing the proposed climate corridors is available for download [HERE: Mapping climate adaptation corridors for biodiversity—A regional-scale case study in Central America](#). Rodrigo De Sousa collaborates with Emily Beech to extract a comprehensive species checklist using shapefiles.
  - a. Generate proposals for priority species within the region (Rodrigo De Sousa, Emily Beech, and María José Mata).
  - b. Collaboratively apply for funding to support tree conservation and facilitate the exchange of knowledge and experiences.

# Financing proposals

## Global Botanical Garden Fund

- Collection and conservation of two endangered species in the Chiapas region aims to search for, gather, and preserve this germplasm, supported by a substantial project led by Isela Rodríguez and her team.
- Establishment of the network of botanical gardens in Honduras, spearheaded by JB Lancetilla and UNACIFOR, with Jonathan Hernández.
- Enhancement of the exhibition area featuring pertinent information regarding the epiphytic collection at the Lancetilla Botanical Garden. Jonathan Hernández.
- Support the nursery in Monteverde by investigating new species, mapping trees, collecting seeds, and experimenting with germination. Funding the salaries of two individuals. Five brief local expeditions. Daniela Quesada.
- Establishment of an orchid collection at JB Universidad Puebla. Orchids associated with trees in humid forests. Construction of a climate-controlled greenhouse. Arturo Parra in collaboration with local partners.
- Exploring the oak trees of Cerro Rincón in Osa involves a botanical investigation aimed at documenting the isolated population in this region. This initiative is part of the *Quercus insignis* conservation plan. The expenses include those for the taxonomist, specialists, and logistics. Gared Rodríguez collaborates with the Osa Conservation team and María José Mata.
- Optimizing the germination potential of endangered species in the nursery and conducting a workshop to engage members from other gardens (Lankaster and CATIE) on greenhouse management. Osa Conservation Staff. Ruthmery Pillco alongside the Osa Conservation team.
- Support for a significant initiative aimed at locating individuals of endangered species, as well as the comprehensive collection and germination of seeds from these species. María Stapf collaborates with a local NGO to secure funding.



# Financing proposals

## **The Mohamed bin Zayed Species Conservation Fund**

- *Jatropha costaricensis*: an endangered species found in Costa Rica, Guatemala, and Nicaragua, with potential occurrences in El Salvador and Honduras. Objectives: (1) Enhance the population of known individuals for in situ conservation. (2) Conduct explorations to map trees and collect seeds for botanical gardens. (3) Expand distribution and deepen understanding of the species. The application will be submitted under the name of Agathos. The budget will fund four botanical expeditions, one in each country. Heiner Acevedo, Diego Aguilar, Carolina Rosales, Jonathan Hernández, Dagoberto Rodríguez.
- Conservation efforts for three emblematic species, which have limited records and lack representation in the JB Lancetilla arboretum, are at risk. These species include *Eugenia lancetilla* and *Conarus popenoides*. Funding is required for expeditions aimed at locating these species. Jonathan Hernández will utilize JB Lancetilla's equipment for this purpose.
- *Magnolia montebelloensis* conservation initiative for Belize. An exploration is underway to verify its existence and gather specimens for species identification, potentially initiating propagation efforts. Elizabeth is collaborating with the Yaxché team.

## **Darwin Initiative**

Areas 1 (priority): Nicaragua and Costa Rica Areas 2 (conditional upon the feasibility of proposal extension): Honduras, El Salvador, and Guatemala Issue: Habitat fragmentation resulting from unsustainable agricultural practices.

Solution: Develop a productive and resilient mosaic landscape by improving ecological connectivity and environmental services, while integrating them into the local socioeconomic context.

Baseline information: (1) socioeconomic and market analysis of regional products; (2) biodiversity encompassing coverage and endangered species; and (3) essential environmental services (both direct and indirect).

OBJ 1. Diversification of income at the farm level

OBJ 2. Enhance the diversity of threatened and understudied tree species

OBJ 3. Strengthen regional capacity for integrated tree conservation.

# Annexes

Folder of photographs  
Folder of presentations

