

DAVIS EXPEDITION FUND

REPORT ON EXPEDITION / PROJECT

Expedition/Project Title:	Guides on taxonomy, applications and conservation priorities for the genus <i>Inga</i> in the Chocó region
Travel Dates:	September – December 2023
Location:	Colombia
Group Members:	Kelly Tatiana Bocanegra González
Aims:	The project proposed to produce resource guides on taxonomy, applications and conservation priorities for the genus <i>Inga</i> in the Chocó region

Photography consent form attached: Yes
(please refer to your award letter) No

Outcome (a minimum of 500 words):

The Chocó region, situated between Panama, Colombia, and Ecuador, stands out as a biodiversity hotspot and is among the most endangered rainforests in South America. Despite its significance, insufficient data on its biodiversity has hindered effective management and conservation efforts. The genus *Inga* plays a crucial role in the plant community of this region; however, the specific *Inga* species comprising these communities and their ecosystem dynamics were previously unknown. Research on *Inga* is vital as it is a prevalent element in neotropical wet forests. In taxonomic terms, studies delineating *Inga* species boundaries enable various sectors of society to recognize this group of organisms, forming a fundamental foundation for environmental policies, ecotourism, and preventing mismanagement of land use and natural resources in the territory. From 2021 to 2023, three field expeditions were conducted across the Chocó region in Colombia, encompassing visits to 15 previously unexplored localities. At the same time, several herbarium collections we visited and specimens from the region were checked. The activities led to the collection of over 400 specimens in the field and the documentation of more than 1000 herbarium samples belonging to the genus. Subsequently, this project meticulously combined both sources of information and laid the foundation for guidelines aimed at enhancing taxonomic identifications and updating distribution patterns for each species. Previous result was compiled in the book "The Genus *Inga* in the Chocó Region" addressed to

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the botanic community which will be published in 2024 for the University of Tolima press and compiles information of 68 species of the genus. On the other hand, the initiative produced comprehensive guides for general use, conservation, and restoration, specifically tailored to the unique context of the Chocó region and intended for its local communities. These guides were developed in Spanish and will be disseminated among the local communities in the Chocó that participated in the project in 2024. I anticipate that these findings will significantly contribute to bridging knowledge gaps related to the *Inga* genus in the Chocó region. Furthermore, I hope they will provide valuable insights into plant community dynamics, enabling us to establish effective management and restoration plans for the humid forests of the Chocó region, and in turn, support local communities to make more efficient use of the resources associated with *Inga* species.

Methodology

Field collections

Three field expeditions were carried out in the Chocó region (two of them funded by Davis Expedition Fund). Were *Inga* species were sampled in 15 previously unexplored localities. In the north, in the municipality of Bahía Solano, the Botanic Garden of the Pacific; in the Tribugá Gulf in the municipality of Nuquí, El Choibal Natural Reserve, Jurubidá and Morromico (in the vicinity of Utría National Park). In the central area, four sites in the municipality of Buenaventura were visited, Bajo Calima (the old and new tropical forest centre of the University of Tolima), Cajambre and Bahía Málaga (vicinity of Urámba National Park and La Sierpe Natural Reserve). In addition, the locality of García-Gómez in the municipality of Litoral del San Juan was visited. Finally in the south of the Colombian portion, in the municipality of Timbiquí the localities of El Loro and San Miguel were visited, and in the municipality of Guapi, we visited San Antonio.

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In the municipality of Barbacoas two localities, Barbacoas and the El Pangan Natural Reserve of ProAves Colombia were visited. Finally in the municipality of Tumaco, we visited one locality close to the sector La Guayacana (Figure 1). In each locality, we explored along community-identified forest trails, and in each collection was recorded information about uses, and the local name of the species among others.

Herbarium collections

More than 1200 herbarium specimens from the Chocó region were reviewed (Figure 1): in Colombia from the herbaria COL, TOLI, CUVC, CHOCÓ, FAUC, FMB, HPUJ, HUA, TULV, UDBC; in Ecuador QCA; and in Panama PMA. In addition, international collections with an important representation from the Chocó were included: CNHM, NY, MO, US, GH, KEW, RBGE. Lastly, specimens from the region in other collections included, specifically UMICH, CR, IIAP, SP, ICN, AAU, and HERBMG.

The information recorded on the herbarium labels from each specimen was collected, (department, specific locality, latitude and longitude when available, elevation above sea level, common names and uses, herbarium, collection-number, collection date and phenological status of the tree). Finally, the data extracted from the labels of the herbarium specimens was entered into a spreadsheet for further analysis.

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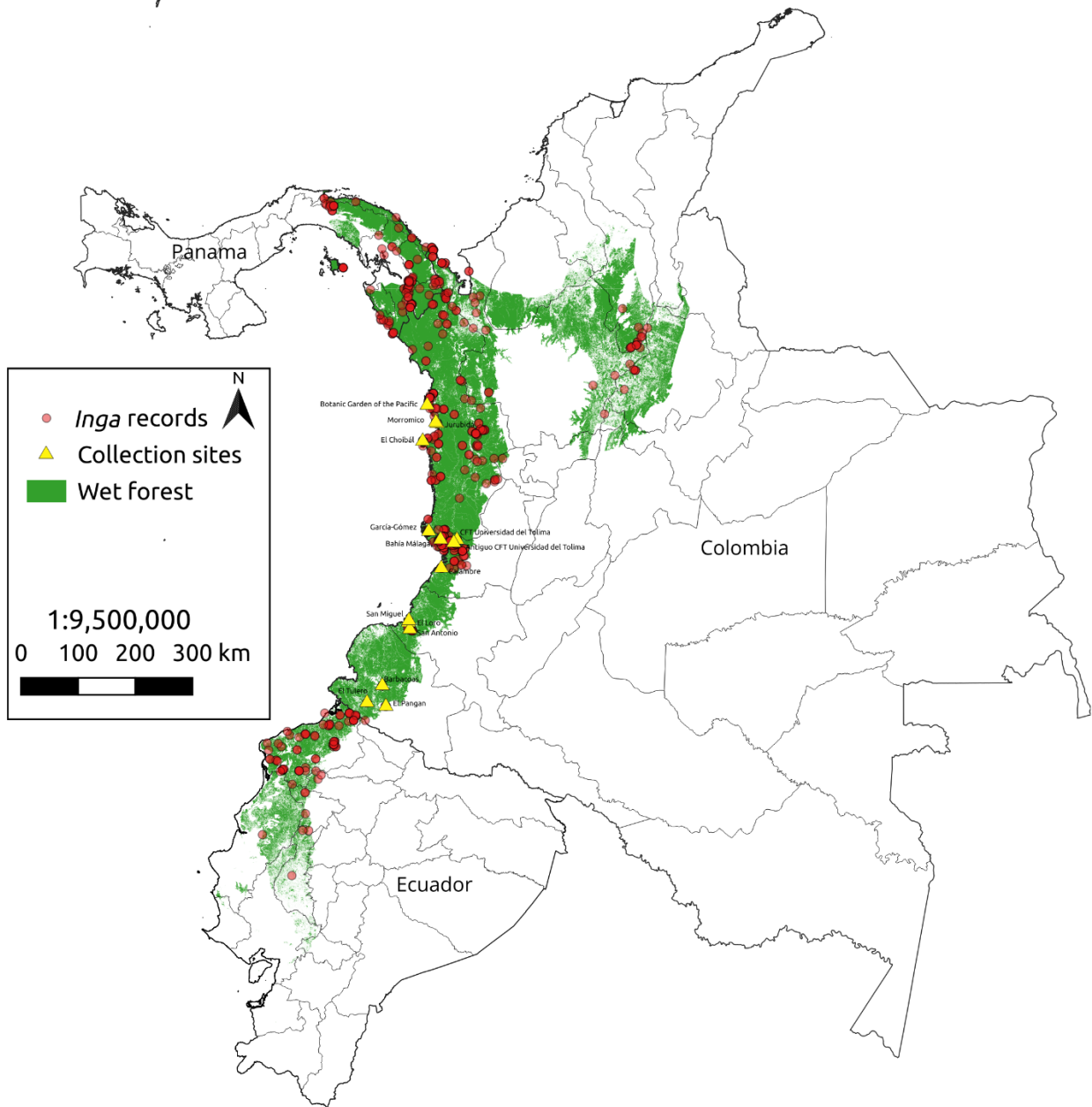


Figure 1. Occurrences of the genus *Inga* and collection sites.

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Data unification

All collected data from herbarium labels as well as the field was systematized in an Excel sheet. The file contained the list of species identified in the field, as well as the species registered in the herbarium. From the total list of species registered for the Chocó region, information on their regional distribution and morphological characteristics was systematized to enrich the taxonomic descriptions. At the same time, information on the uses of the species was systematized, as well as local names and general information.

The information extracted from the *Inga* species identified for the Chocó region was directed to two types of publication. A book for academic purposes, containing information on the taxonomy of the species, their distribution and local names. And a series of brochures aimed at the use, restoration and conservation status of species directed to local communities.

Results

This book "*The Genus Inga in the Chocó Region*" (Figure 2) is constituted by five chapters. It includes ecological generalities about the region and *Inga* species, as well as compiles a taxonomic and ecological review of *Inga* in the Chocó. Although through this research the region has been determined as 81 *Inga* species, the book only includes 68 species, this is because the additional species are undescribed taxa and currently are under molecular analyses. Eleven of the recorded species are endemic to the Chocó. In addition, according to the International Union for Conservation of Nature (IUCN) system, three species are classified as Endangered (EN), three as Vulnerable (VU), one as Near Threatened (NT), 57 as Least Concern (LC), and one is out of the IUCN categorization because it has been treated within another species. All information is provided for species and in most cases includes photography material.

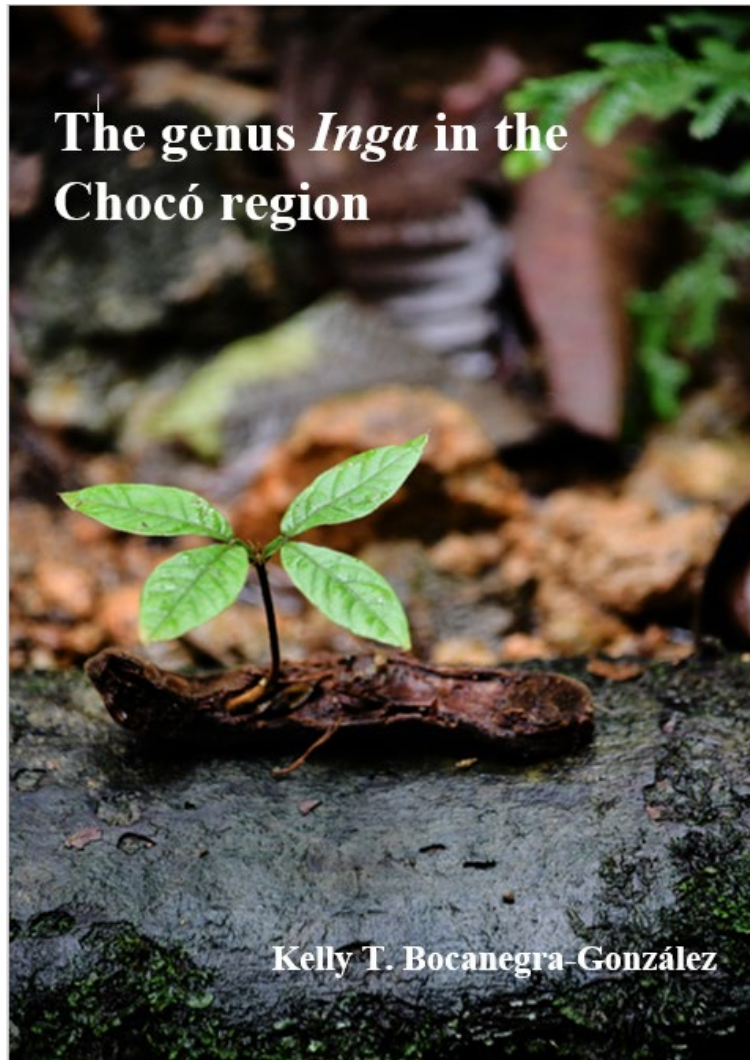


Figure 2. Book cover *The Genus Inga in the Chocó Region*

The community guides consist of three sections, each providing distinct information: *i)* Utilization of *Inga* within Chocó communities, *ii)* *Inga*'s potential role in the ecological restoration of the Chocó region, and *iii)* Conservation status of *Inga* in the Chocó.

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Figure 3. Guides cover

Conclusions

- Three field expeditions, along with the review of over 1000 herbarium specimens, were essential to update the status of the *Inga* genus in the Chocó region.
- The Chocó region boasts the second-highest diversity of the *Inga* genus, surpassed only by the Amazon basin.
- Details on 68 *Inga* species in the region have been published, aiming to enhance understanding of the genus and its taxonomic delimitation.

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- The local guides incorporate the ancestral knowledge of Chocó region communities and aim to offer scientific guidance throughout the restoration process.

Acknowledgment

I extend my gratitude to the DAVIS EXPEDITION FUND COMMITTEE for their support throughout the expeditions, including the analysis and writing phases of the book and the community guides.