Systematic review of useful plants in the Colombian Orinoquia: A quantitative synthesis for biocultural management

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Review

Abstract

Background: The Colombian Orinoquia is largely composed of a mosaic of savannas determined by drainage conditions, where useful plants underpin food, health, materials, and livelihoods. Yet information is scattered and uneven across places and cultures, limiting evidence-based biocultural management. A standardized baseline is needed to describe species–use patterns and remaining gaps.

Methods: We followed PRISMA, harmonized published records, verified taxonomy, and compiled incidence matrices (studies × species; studies × categories). Diversity was estimated with coverage-based rarefaction/extrapolation (iNEXT, q=0). Redundancy was summarized with Hill numbers (q=1) and network structure with H2', nestedness, and modularity. Relative Importance combined citation frequency and use versatility.

Results: We included 44 studies. Species coverage was low (SC=0.574), with extrapolated richness ≈769 species (95% CI 674–863), while the 12 major categories appeared saturated. The dataset comprised 1,119 study–species–category records for 502 species in 92 families; Fabaceae and Arecaceae were most speciose. Records and species concentrated in Construction, Edible, Medicinal, Ornamental, and Handicrafts. Redundancy and evenness were high in most categories (e.g., Construction Reff=155.3; Ornamental 126.9). Network indices indicated low-to-moderate specialization and moderate compartmentalization (H2'=0.321; NODF=22.9; Q=0.470). High-RI taxa were dominated by palms, led by *Mauritia flexuosa* and *Oenocarpus bataua*.

Conclusions: Major use categories are already represented, but incomplete species coverage and a right-skewed versatility distribution indicate many underreported taxa. High redundancy in leading categories and a moderately modular network suggest functional insurance in local practices. Priorities include standardized locality-specific surveys to raise coverage and targeted management of high-RI palms and context-relevant mid-rank species.

Keywords: Llanos Orientales; Ethnobotany; Savannas.

Background

Across the world, traditional knowledge about useful plants is increasingly recognized as a vital resource for sustainable development and the conservation of both biodiversity and cultural heritage (Kumar *et al*. 2021, Pironon *et al.* 2024). Communities in diverse regions rely on ethnobotanical knowledge for their food security, primary healthcare, and livelihoods, as plants provide nutrition, medicine, supply raw materials for construction, crafts, shelter, decoration, and clothing (Balick 1996), and are deeply embedded in cultural identities (Balick 1996), This rich plant knowledge aligns closely with global sustainability goals, supporting zero hunger and good health, guiding sustainable resource use, and informing biodiversity conservation initiatives (Arrivabene *et al*. 2024, Ramirez 2007). However, rapid biodiversity loss coupled with the erosion of traditional knowledge now threatens these benefits, underscoring an urgent need to document ethnobotanical information before both species and cultural practices disappear (Ramirez 2007).

Globally, at least 35,000 plant species are documented as used by humans, with the highest concentrations occurring in tropical regions (Pironon *et al*. 2024). The Americas are a prime example of this, endowed with extraordinary plant biodiversity that underpins a wealth of useful species. The continent's diverse ecosystems, from Amazonian rainforests and Andean forests to Mesoamerican lowlands and Central American agroforestry landscapes, sustain intricate interactions between Indigenous and local communities and native flora. In the Andes, traditional agroecosystems function as socio-ecological systems that promote resilience through the coexistence of native and modern crop varieties (Ibarra *et al*. 2024). Amazonian landscapes reflect long-standing Indigenous landscape management and species domestication, resulting in biodiversity-rich environments rooted in cultural memory (Clement *et al*. 2021, Kujawska & Albán-Castillo 2025, Levis *et al*. 2017, Sánchez-Capa *et al*. 2023). Similarly, in Mesoamerica, archaeological and ethnobotanical evidence reveals thousands of native species, many still cultivated, embedded in complex agroecological systems (Clement *et al.* 2021). This pattern of deep botanical knowledge extends to arid zones (dos Santos *et al*. 2009, de Medeiros *et al*. 2021) and highlands (Alcántara-Rodríguez *et al.* 2018, Paz Perafan & Montenegro Paz 2024) where communities utilize a wide array of plants for food, medicine, and cultural practices, demonstrating the integral relationship between biodiversity and cultural heritage across environmental gradients (Bystriakova *et al*. 2021, Kor *et al*. 2024).

Despite the recognized ethnobotanical richness of many Neotropical ecosystems, its savannas are among the most affected by agrobiodiversity loss yet remain largely overlooked in conservation and research agendas (Sharai *et al*. 2024; Etharl, 2020). These ecosystems form a fragmented belt across the lowland tropics and subtropics of the Americas, extending from southern Mexico through Central America and into northern South America (Huber 1987, Pennington *et al.* 2006). Covering approximately three million square kilometers, they include vast regions such as the Brazilian Cerrado and the Llanos of Colombia and Venezuela, as well as smaller formations in the Caribbean, the Guiana Shield, and the Andean foothills (Huber 1987, Pennington *et al.* 2006). Characterized by ecological heterogeneity and pronounced seasonality, these landscapes are far from being untouched wilderness; they reflect long histories of human stewardship by Indigenous Peoples and Local Communities (IPLCs) through practices such as controlled burning, selective harvesting, and species enrichment (Ferreira *et al*. 2022). Nonetheless, their ecological and cultural values remain insufficiently recognized, leaving them highly vulnerable to land-use change and agribusiness expansion (Ferreira *et al*. 2022, Furley 1999).

The Colombian Llanos, a key region within this biome, encompass extensive tropical grasslands interwoven with gallery forests, wetlands, and riverine systems. In recent decades, this landscape has undergone substantial transformation driven by industrial agriculture, fragmenting natural habitats, diminishing local agrobiodiversity, and disrupting socio-ecological relationships (Gori *et al*. 2022, Quezada *et al*. 2022). These changes have diminished local agrobiodiversity and disrupted socio-ecological relationships, displacing community-based practices with mechanized, export-oriented systems.

In this context of rapid change, Neglected and Underutilized Species (NUS) are increasingly recognized for their potential to revitalize agrobiodiversity, enhance nutrition, and strengthen socio-ecological resilience, particularly in landscapes simplified by conventional agriculture (Padulosi *et al.* 2011, Ulian *et al*. 2020). These species, defined as wild, domesticated, or semi-domesticated plants that are locally significant for food, health, or cultural identity yet remain underrepresented in scientific literature, markets, and policy agendas (IPGRI 2002, FAO 2020), are adapted to marginal environments. In the Llanos, where agricultural intensification has displaced traditional crops, NUS continue to support food security, nutritional diversity, and cultural identity, positioning them as strategic assets for adaptation (Borelli *et al*. 2020, Ulian *et al*. 2020). However, knowledge about NUS in Neotropical savannas remains fragmented, and formal programs for their conservation or promotion are scarce, reflecting broader gaps in integrating IPLC knowledge into agrobiodiversity strategies (Arruda *et al.* 2022, Bystriakova *et al.* 2021; Galluzzi & López Noriega 2014, Gomes *et al*. 2023a, 2023b; Kor *et al.* 2024, de Medeiros *et al.*

2021, Vargas-Carpintero *et al*. 2023). A critical step toward revaluing these species is to undertake comprehensive, quantitative syntheses of the region's ethnobotanical evidence (Gomes *et al.* 2023a, 2023b).

To address this gap, this paper presents a systematic review of useful plants from the Colombian Orinoquia. The aim of this paper is to produce a literature-based, standardized synthesis of useful plants from this region and to quantify species–use patterns relevant for biocultural management. Drawing exclusively on published sources, we address four questions at the level of main use categories*:* (i) Which plant species and main use categories are documented for the Colombian Orinoquia? and (ii) How are species' versatility (number of distinct main categories per species) and categories' redundancy (number of species per category) distributed?

Materials and Methods

This systematic review follows the guidelines established by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page *et al*. 2021). its extension for ecology and evolutionary biology (O'Dea *et al*. 2021), and the guidance of the Collaboration for Environmental Evidence (CEE, 2018). Additionally, it incorporates methodological insights from a practical guide designed for ecologists and evolutionary biologists on systematic review formulation and representative research selection (Foo *et al*. 2021).

Eligibility criteria

The inclusion and exclusion criteria were defined *a priori* to ensure consistency and transparency throughout the review process. Studies were eligible if they documented useful plant species and their associated uses within the geographic boundaries of the Colombian Llanos Orientales (Orinoquia region; Fig. 1). Both cultivated and wild species were considered. Studies were excluded if they focused solely on molecular biology, phytochemistry without an ethnobotanical context, or were conducted outside the defined region. Purely taxonomic studies and species checklists without data on plant uses were also excluded. Eligible sources included peer-reviewed scientific articles, books, and grey literature, including institutional reports and theses. Only studies published in the last 40 years (between 1985 and 2025) were considered eligible for inclusion. This extended time frame was adopted due to the limited availability of region-specific literature, particularly in the Orinoquia region. Publications written in English, Spanish, or Portuguese were included, as these correspond to the primary languages of scientific dissemination in the region and were fully accessible to the review team.

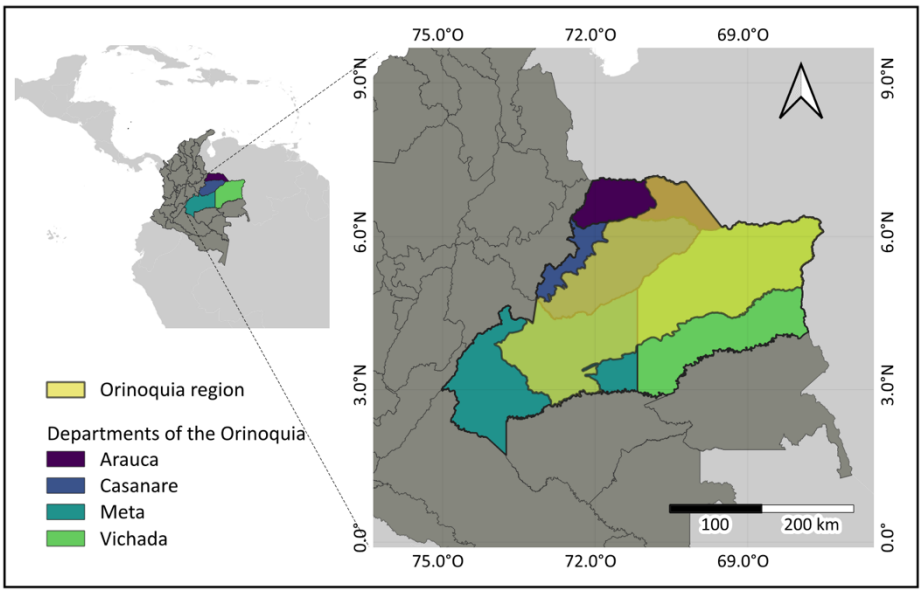

Figure 1. Geographic scope of the systematic review

Information Sources and Search Strategy

To identify relevant literature, a comprehensive search strategy was implemented across selected academic databases and institutional sources, encompassing both peer-reviewed and grey literature. Searches were conducted in Web of Science, Scopus, ProQuest, and Redalyc to cover international and regional peer-reviewed publications as well as grey literature, including theses and dissertations. Grey literature was also retrieved from repositories such as La Referencia (Red de Repositorios Latinoamericanos). Furthermore, reference lists of all included articles were manually screened to identify

relevant documents not captured through electronic searches. The search strategy was developed iteratively, using the PICO framework, to refine keyword combinations. The final search string was tested and refined through multiple trials to balance sensitivity and specificity. In Web of Science the following search string was used:

("ethnobotan*" OR etnobotán* OR "useful plant*" OR "plant use*" OR "plant uses" OR "plantas útiles" OR "usos de plantas") (Topic) AND (Colombia OR Colombian) (Title) OR (Colombia OR Colombian) (Abstract) OR ("Orinoqu*" OR "Orinoquía" OR "Llanos Orientales" OR "Llanos Colombianos" OR "Colombian Llanos" OR Arauca OR Casanare OR Meta OR Vichada) (Title) OR ("Orinoqu*" OR "Orinoquía" OR "Llanos Orientales" OR "Llanos Colombianos" OR "Colombian Llanos" OR Arauca OR Casanare OR Meta OR Vichada) (Abstract).

This string was adapted for syntax differences in the other databases (Scopus, ProQuest, Redalyc).

Study Selection and Screening

All records were exported and imported into Rayyan, an online screening tool that allows for blinding and pairing reviewers, for the screening process (Ouzzani *et al*. 2016). Duplicate removal was performed using Rayyan's built-in deduplication feature. The selection process involved two stages: title and abstract screening, and full-text review. Two reviewers independently screened all records at both stages, applying the predefined inclusion and exclusion criteria. Disagreements were resolved through discussion.

Data Extraction and Analysis

A unified database of useful plant species and their uses was created. Once eligible studies were identified, relevant data were extracted using a standardized form developed specifically for this review. Data extraction focused on key variables, including documented plant species (with scientific name and family), vernacular name, use categories and subcategories, plant parts used, and, when available, the conservation status of the species. All scientific names were verified and updated when necessary, using Plants of the World Online (POWO 2025) to ensure taxonomic accuracy. The extraction form was pilot-tested on a sample of studies and adjusted as needed to ensure consistency and clarity in capturing the ethnobotanical data required for the analysis.

For question (i), we documented the taxonomic breadth and coverage of use categories and evaluated the completeness of information on diverse plant parts used. We harmonized all use records into a long-format database in R (tidyverse v2.0), with each entry linking a verified scientific name and family to a standardized use category, the plant part used (when reported), locality descriptors, and the bibliographic source. Terminology was mapped to categories using a review-specific dictionary aligned with the Economic Botany Data Collection Standard (EBDCS), so semantically equivalent uses from different sources were grouped consistently (Cook 1995). Scientific names and synonyms were checked against Plants of the World Online (POWO) via the httr/jsonlite package in R v. 4.2; accepted names and families were retained, and ambiguous cases were flagged for manual curation.

Taxonomic breadth was summarized from the deduplicated species set (accepted names). We counted unique families and genera and tabulated species per family to describe the family-size distribution. From the harmonized table, we built two incidence matrices of species-by-study and category-by-study, treating each study as a sampling unit. To avoid double-counting, we retained a single record per study–species–category combination, irrespective of the number of specific uses reported within a category. We summarized the richness of useful species (S) and use categories (C) and estimated richness with coverage-based rarefaction/extrapolation for incidence data (q = 0), which standardizes comparisons by sample completeness rather than sample size; we produced curves and 95% confidence intervals with iNEXT (Chao & Jost 2012, Hsieh *et al*. 2016) in R. For the used plant-part field, we quantified documentation completeness for each use category as the proportion of records that explicitly report the used part ($n_{with\ part}$ / n_{total}). These values guide interpretation: we restrict cross-category comparisons to categories with completeness ≥ 70%; categories below this threshold are described but not compared quantitatively. For each category × part, we computed the proportion $p = k / n$ with k = records reporting that part in the category and n = records in the category with the plant part specified, together with 95% Wilson confidence intervals ($z = 1.96$). As a sensitivity check, we recomputed within-category compositions restricted to categories with completeness ≥ 70%, re-normalizing to 100%. All denominators exclude missing plant-part entries.

For question (ii), we quantified species versatility and redundancy to characterize the breadth of use and functional backup among species within use categories. We first computed weights for each species–category pair, defined as the number of independent studies documenting that link; these weights approximate knowledge sharing among sources and reduce the

influence of single, uncorroborated mentions. Following Hart *et al*. (2017), we defined species versatility as the number of distinct standardized use categories recorded for a species in the Colombian Orinoquia. Because documentation is uneven across categories and studies, we also defined an effective versatility that accounts for the distribution of information across categories; this was the Hill number of order q = 1 (i.e. exp(H); Chao *et al*. 2014) calculated over the vector of study-based weights per category for each species. In this study, we defined redundancy at the category level as species richness, that is, the number of species recorded for that category, consistent with approaches used in the utilitarian redundancy literature (e.g. Albuquerque & Oliveira 2007, de Medeiros *et al*. 2020). For each category we further estimated an effective redundancy, defined as exp(H) computed over the vector of species weights within that category, and we derived an evenness ratio E = effective redundancy/richness. Lower E indicates stronger prioritization of a subset of species, which is relevant for practical redundancy and potential pressure on useful taxa as emphasized by the utilitarian redundancy framework. We summarized the distributions of versatility (raw and effective) and redundancy (raw and effective) and highlighted the most versatile species and the categories with the lowest evenness. Uncertainty for effective redundancy was quantified using a nonparametric bootstrap over studies (resampling studies with replacement); 95% percentile intervals were reported.

To account for heterogeneous documentation effort and explore dispersion in counts, we fitted generalized linear models. Versatility is a positive count with minimum one; therefore we modeled (V − 1) with a Poisson GLM and switched to a negative-binomial GLM when overdispersion was detected (Pearson $\chi^2/df > 1.5$) (McCullagh & Nelder 1989, Lindén y Mäntyniemi 2011, Brooks *et al*. 2017), including an offset of log (number of studies per species). Redundancy (species per category) was modeled analogously with Poisson or negative-binomial GLMs and an offset of log (number of studies per category). At the species level, we included simple covariates such as origin status (native/introduced) when available and reported estimates with standard errors and goodness-of-fit diagnostics. As an exploratory complement, we represented the data as a quantitative bipartite network (species × standardized use categories) with study-based edge weights. We measured network-level specialization (H2') following Blüthgen *et al*. (2006), nestedness using NODF (Almeida-Neto *et al*. 2008) and its quantitative extension WNODF (Almeida-Neto & Ulrich 2011), and modularity using the DIRTLPAwb+ algorithm for detecting communities in weighted bipartite networks as implemented in the function computeModules of the package bipartite (Beckett 2016). All metrics were computed on the study-weighted network. Uncertainty in effective redundancy (Hill number of order q = 1) was estimated using a nonparametric bootstrap over studies (resampling study IDs with replacement; B = 200) and reporting 95% bootstrap percentile intervals. All analyses were conducted in R, using the packages tidyverse and janitor for data handling, MASS for negative-binomial models, vegan for nestedness, and bipartite for specialization, nestedness, and modularity indices.

Finally, we quantified the relative importance (RI) of each species in the Llanos region using the formula proposed by Tardío y Pardo-de-Santayana (2008). For each species s, *RFC(s)* is the relative frequency of citation, computed as the number of studies in which species s is reported divided by the total number of studies in the review. $V_{raw}(s)$ is the number of distinct use categories recorded for species *s* (its raw versatility). Both terms were scaled to [0,1] by dividing by the maximum value observed across all species in this dataset (the empirical/raw maxima, denoted $\max_j RFC_j$ and $\max_j V_{raw}(j)$).

The RI was then defined as their average:

$$RI_s = [\ RFC_s / \max_j RFC_j\ +\ V_{raw}(s) / \max_j V_{raw}(j)\ ] / 2.$$

Thus, $RI_s = 1$ for a species that simultaneously attains the highest citation frequency and the highest number of use categories within our compiled dataset, and $RI_s = 0$ for a species never cited. Species were ranked by *RI*; ties were broken by $RFC_s / \max_j V_{raw}(j)$ and then by $V_{raw}(s) / \max_j V_{raw}(j)$.

Results

The initial literature search identified 1,965 articles. After removing 340 duplicates, the titles and abstracts of 1,625 records were screened, resulting in the selection of 76 studies for a full-text review. Of these, 51 were excluded for not meeting the inclusion criteria, leaving 24 studies for the final analysis. A subsequent manual search added 20 documents, bringing the total to 44 studies included in this review (Table S1). The complete selection process is detailed in PRISMA Flowchart (Fig. 2).

We evaluated sampling completeness with incidence-based rarefaction and extrapolation (q = 0), treating each study as one sampling unit (T = 44; Fig. S1). In this framework, iNEXT quantifies how complete the available body of evidence is, given the set of studies included. For species, the observed richness was 500 at a sample coverage of SC = 0.574. The frequency counts show many study-specific occurrences (Q1 = 342 singletons, Q2 = 82 doubletons, Q3 = 47), which explains the low coverage.

Extrapolating to the maximum coverage reached in our run (SC ≈ 0.738) gives an estimated richness of S ≈ 769 species (95% CI 674 – 863), which is a +53.8% increase over the observed value. This pattern indicates that additional independent studies would likely document many further useful taxa. For use categories, the observed richness was 12 with SC = 1.000 (95% CI 10.88 – 13.11), suggesting that the set of major categories is already fully represented in the current literature.

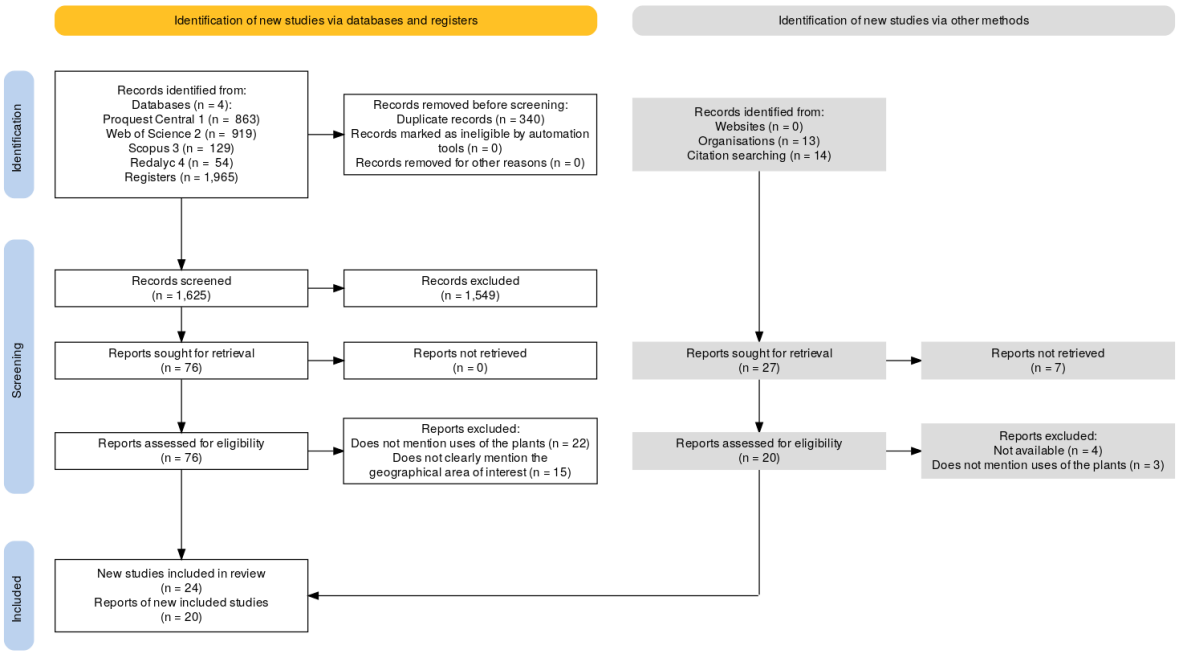

Figure 2. PRISMA flow diagram of the search strategy

Across the deduplicated dataset we compile 1,119 unique study–species–category records from 44 studies, representing 502 useful plant species distributed across all 12 predefined use categories (Seasoning Plants is now present, but with only 1 species/record). The flora spans 92 families and 313 genera (Table S2). Species are unevenly distributed among families, with Fabaceae (95 spp.; 19%), Arecaceae (42; 8.4%), and Poaceae (22; 4.4%) being the most speciose. In the native-only subset there are 1,084 records and 477 species, also across 12 categories, wilt Fabaceae (90 spp.; 18.9%), Arecaceae (41; 8.6%) and Melastomataceae (19; 4%) the most important botanicañ families. Records are concentrated in a few categories—Construction (262 records; 23.4%), Edible (246; 22%), Medicinal (205; 18.3%), Ornamental (146; 13%), and Handicrafts (124; 11.1%). These categories are likewise richest in species—Construction (184 spp.), Medicinal (151 spp.), Edible (135 spp.), Ornamental (132 spp.), Handicrafts (81 spp.). They are also the most widely reported across sources: Construction appears in 26 studies, Edible in 24, and Medicinal in 22; a second tier includes Handicrafts (19) and Other Uses (12), followed by Ornamental, Firewood, and Ceremonial–Religious (each 9), Cosmetics (7), Fodder and Wrapping (4), and Seasoning Plants (1).

Plant-part information was reported for 949 of 1,119 records (84.8%). Across all categories (Fig. 3A), the four dominant parts were fruits (n = 249; ~25% of records with part specified), wood/trunk (231; ~23%), whole plant (163; ~16%), and leaves (144; ~15%); other parts were comparatively rare (each ≤~4%). Because documentation completeness varies among categories (Table S3), we interpret within-category compositions (Fig. 3B) only where completeness ≥ 70%. These profiles align with ethnobotanical expectations: Construction/Firewood are dominated by woody tissues, Edible concentrates on fruits (secondarily seeds), Handicrafts mixes wood/trunk and leaves, Ornamental relies on whole plants, and Wrapping is mostly leaves. Categories below the completeness threshold—especially Medicinal, Other Uses, and Fodder—are shown for transparency but not compared quantitatively; exact proportions with 95% Wilson CIs are provided in Table S4.

NA entries are excluded in both panels. Documentation completeness is defined as $n_{with\ part} / n_{total}$ for each category; categories with completeness ≥ 70% are appropriate for comparison, whereas those below this threshold are shown for context and interpreted cautiously. Exact counts and 95% Wilson confidence intervals for every category × part combination are provided in Table S4.

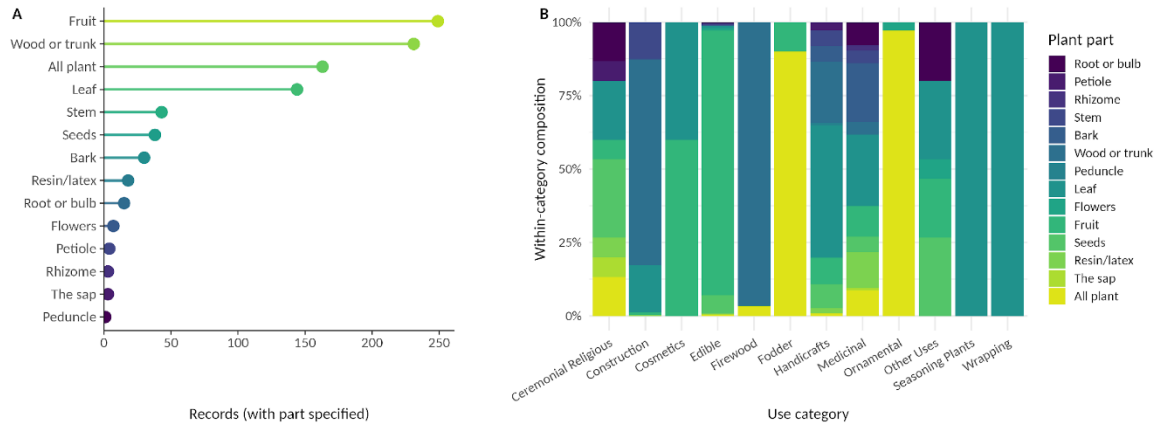

Figure 3. Plant parts used. (A) Overall frequency of plant parts across all records with the part specified (n = 949 of 1,119 total). (B) Within-category composition: for each use category, bars show the percentage of records by plant part among records in that category that specify a part (category-specific sample sizes in Table S3).

Species versatility, measured as the number of distinct use categories per species (V_{raw}), was highly concentrated, with a positively skewed distribution. Of the 502 species, 68.5% are associated with a single category, 15.3% with two, 9.2% with three, and 4.0% with four; only 3.0% have ≥ 5 categories, with a maximum of 9 (Fig. 4). The median V_{raw} was 1. To account for unequal documentation across studies, a Poisson GLM with an offset for the number of studies in which each species appears was fitted. Over-dispersion was negligible, and the effect of origin status (native vs. exotic) was not significant (β_{Native} = 0.135 ± 0.338 SE, z = 0.399, p = 0.69), indicating that the observed skew is not an artifact of differential reporting effort (Table S5).

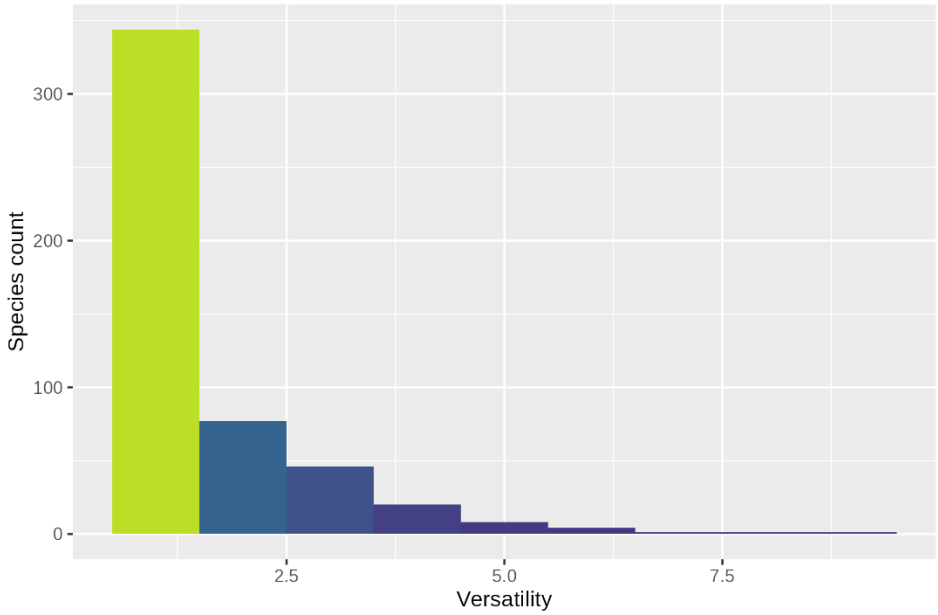

Figure 4. Histogram of species' versatility (V_{raw}). Frequency of species by the number of distinct use categories. The distribution is dominated by single-category species, with a rapidly thinning tail (see Table 1 for exact counts).

Category-level redundancy was high in the dominant categories. Construction (R_o = 184 species) had an effective number at q = 1 of R_{eff} = 155.3 (evenness = 0.84), Medicinal (151) 133.5 (0.88), Ornamental (132) 126.9 (0.96), and Edible (135) 108.3 (0.80). Most remaining categories also showed very even species assemblage, e.g., Firewood ($R_{eff}/R_o \approx 0.98$), Fodder (≈ 0.97), Ceremonial Religious (≈ 0.95), Other Uses (≈ 0.95), Cosmetics (≈ 0.96), and Wrapping/Seasoning Plants (= 1.00), whereas Handicrafts and Edible were comparatively less even (≈ 0.81 and 0.80). Bootstrap confidence intervals for R_{eff} were wide in some groups (e.g., Construction 37.8–161.8; Medicinal 19.8–130.0), reflecting between-study heterogeneity rather than dominance by a few taxa (Fig. 5; Table 1). A negative-binomial GLM with an offset for the number of studies per category indicated that differences in species counts across categories are not explained by documentation effort alone.

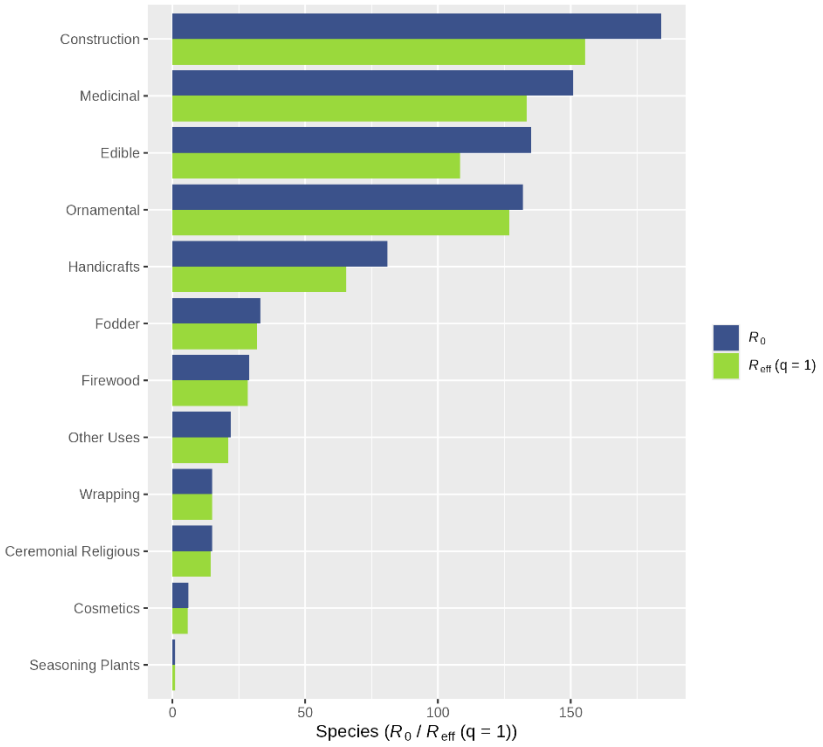

Figure 5. Species redundancy by use category in the Colombian Orinoquia. Bars show, for each standardized use category, the number of species recorded (R_o) and the effective number at q = 1 (R_{eff}).

Table 1. Redundancy by use category in the Colombian Orinoquia. R_0: number of species; R_{eff} (q=1): effective number based on Shannon diversity; Evenness = R_{eff} /R_0; CIs from bootstrap by study.

Use category	R_0 (species)	R_{eff} (q=1)	Evenness (R_{eff}/R_0)	Studies	R_{eff} CI low	R_{eff} CI high
Construction	184	155.3	0.84	26	37.8	161.8
Medicinal	151	133.4	0.88	22	19.8	130.0
Edible	135	108.2	0.80	24	36.7	112.8
Ornamental	132	126.9	0.96	9	13.5	128.3
Handicrafts	81	65.49	0.81	19	24.4	67.7
Fodder	33	31.8	0.97	9	11.0	32.0
Firewood	29	28.3	0.98	5	10.0	28.4
Other Uses	22	20.8	0.95	12	5.7	21.0
Wrapping	15	15.0	1.00	4	1.0	15.0
Ceremonial Religious	15	14.2	0.95	9	3.8	14.4
Cosmetics	6	5.74	0.96	7	2.0	6.0
Seasoning Plants	1	1.0	1.00	1	1.0	1.0

Network-level indices indicate low–to–moderate specialization and moderate compartmentalization. Global specialization was H2′=0.321, nestedness was NODF = 22.9 (weighted WNODF = 12.4), and modularity was Q=0.470. Taken together, these values suggest a network that is partly clustered by use categories, i.e., recognizable compartments, but still has appreciable cross-categories sharing of species. This pattern is illustrated by Figure 6, where the 20 most versatile species (highest V_{raw}) are dominated by palms and channel substantial flow toward Construction and Edible, with secondary links to Medicinal and Handicrafts. Several multipurpose palms (e.g., *Mauritia flexuosa* L.f., *Oenocarpus bataua* Mart., *Attalea* spp., *Euterpe precatoria* Mart.) bridge multiple categories, while resin-bearing trees such as *Protium heptaphyllum* (Aubl.) Marchand and *Copaifera officinalis* L. connect prominently to Medicinal. Overall, the architecture is only moderately modular and weakly nested, consistent with widespread species sharing across use categories rather than tightly isolated clusters.

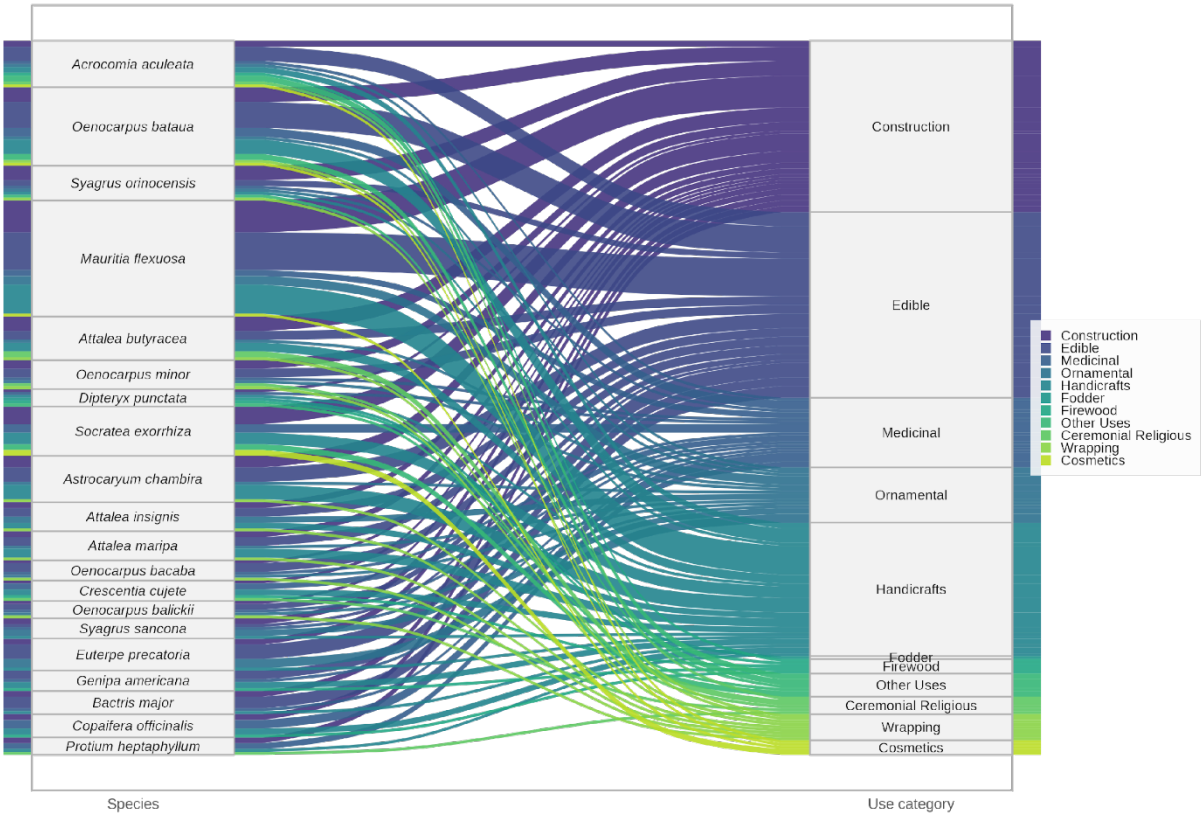

Figure 6. Alluvial diagram for the 20 most versatile species (highest V_{raw}) linking species (left) to standardized use categories (right). Flow widths are proportional to the number of studies that report species–category link.

The highest regional RI was for *M. flexuosa* (RI = 0.83; RFC* = 1.00, V_{raw} = 6, RNU* = 0.67). It was followed by *O. bataua* (RI = 0.78; RFC* = 0.67, V_raw = 8, RNU* = 0.89) and *Acrocomia aculeata* (Jacq.) Sweet (RI = 0.67; RFC* = 0.33, V_{raw} = 9, RNU* = 1.00). Thereafter, the curve shows a marked elbow around ranks 3–4, with a gradual decline through *Syagrus orinocensis* (Spruce) Burret (RI = 0.56), *Socratea exorrhiza* (Mart.) H.Wendl. (0.51), *Attalea butyracea* (Mutis ex L.f.) Wess.Boer (0.50), *Oenocarpus minor* Mart. (0.47), *Astrocaryum chambira* Burret (0.44), *Attalea insignis* (Mart.) Drude (0.44), and *Attalea maripa* (Aubl.) Mart. (0.41). The top tier is dominated by palms, indicating a short head of highly salient, multipurpose taxa and a long tail of species with intermediate RI (Fig. 7).

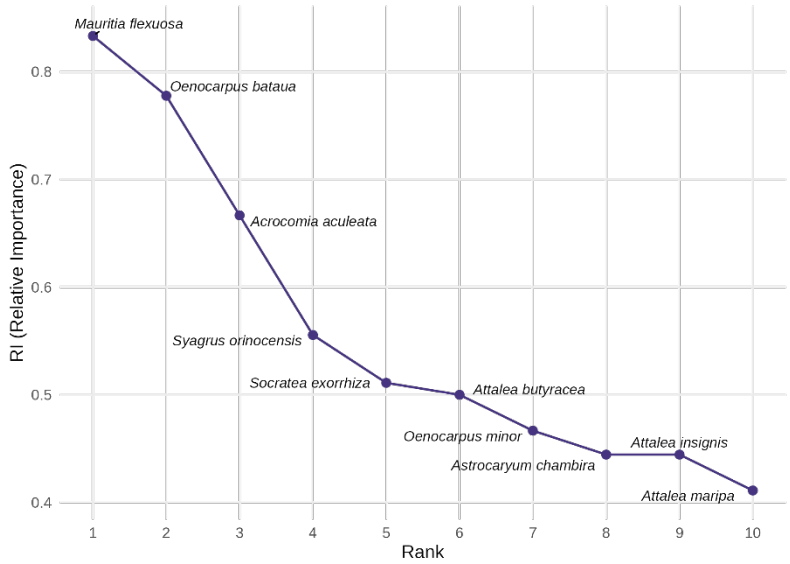

Figure 7. Rank-RI curves of the ten species with the highest weighted relative importance (RI) values in colombian Orinoquia.

Discussion

In this literature-based synthesis, we outline the useful flora of the Colombian Orinoquia and characterize species–use structure across major categories. Although the compilation spans broad taxonomic and functional scopes, evidence is uneven across sources and places: many species are reported in only one or two studies, which depresses sample coverage and under a coverage-based rarefaction–extrapolation framework, predicts substantial unseen diversity (Chao *et al*. 2014, Chao & Jost 2012, Hsieh *et al*. 2016). These patterns indicate gaps in the primary literature rather than flaws in retrieval; regional assessments likewise show that only ~16% of 10×10 km cells are well surveyed for useful plants (Bystriakova *et al.* 2021). Accordingly, targeted, standardized ethnobotanical surveys in under-sampled localities and cultural groups should raise coverage and stabilize species-richness estimates, while the set of major use categories already appears saturated (Bystriakova *et al*. 2021, Chao *et al.* 2014, Chao & Jost 2012, Hsieh *et al.* 2016).

The taxonomic breadth recovered, dominated by Fabaceae and Arecaceae, matches national and continental patterns in which Fabaceae is consistently among the richest families of useful plants and palms provide key materials and foods. National syntheses report “materials” and “medicines” as the most frequent use categories and show palms ranking just behind Fabaceae within materials, consistent with the large share of Construction records (Bystriakova *et al*. 2021). In the edible realm, country-wide work highlights Arecaceae and Fabaceae (with Poaceae and others) among top food-plant families and points to Meta in the Orinoquia as rich yet unevenly documented, mirroring our concentration of Edible records and patchy coverage (Bystriakova *et al.* 2021, Gori *et al*. 2022). At the scale of livelihoods*, Mauritia flexuosa* illustrates why Handicrafts and Edible are prominent: its leaf fibers sustain craft economies, and its fruits are widely consumed (Cano-Calderón *et al*. 2024, Endress *et al*. 2013, Narváez-Ortiz *et al*. 2021, Virapongse *et al.* 2017). Across South America, community studies likewise place Construction, Food, Medicine, and Handicrafts among principal motives for plant use and management, helping to explain the concentration of records and species in these categories (Cummings & Read 2016, Lima *et al*. 2012, Paniagua-Zambrana *et al*. 2017). By contrast, the near absence of Seasoning Plants likely reflects reporting bias rather than real scarcity, as condiment uses are often embedded within culinary or medicinal narratives and can be undercounted by broad syntheses (Cámara-Leret *et al*. 2014, de Medeiros *et al*. 2021).

Plant-part profiles align with functional expectations in well-reported categories: Construction and Firewood concentrate on woody tissues, Edible on fruits (with seeds secondarily), Handicrafts combines wood/trunk and leaves, Ornamental relies on whole plants, and Wrapping is mostly leaves. For categories below the reporting threshold (notably Medicinal, Other Uses, and Fodder) we show profiles for transparency but avoid quantitative comparisons; in the Neotropics, medicinal preparations often emphasize aerial parts/leaves and fodder uses commonly involve foliage, so proportions could shift upward with more complete documentation.

Species versatility is strongly right-skewed, with many specialists and few generalists spanning multiple need categories, a pattern consistent with discussions on use profiles in ethnobiology and with evidence from plant–use systems (Cámara-Leret *et al*. 2014, Gaoue *et al*. 2017, Hart *et al*. 2017, Santoro *et al*. 2015). These patterns persist after accounting for documentation effort, indicating that the skew and cross-category differences are not artifacts of sampling. Regarding origin status, versatility does not differ between native and exotic species in our data, in line with Ecuadorian evidence where introduced medicinals treated more diseases but did not cover more broad use categories than natives (Hart *et al.* 2017); elsewhere, however, alien woody medicinals appear more versatile on average, suggesting context-dependence shaped by floristic composition, cultural filters, and how “versatility” is defined (Yessoufou *et al*. 2021).

At the category level, high redundancy and very even species assemblages in Ornamental and Medicinal, high in Construction but comparatively less even in Edible and Handicrafts, indicate utilitarian redundancy, whereby many species can fulfill similar functions within a category (de Medeiros *et al*. 2020, Santoro *et al*. 2015). Within the Hill-number framework, high effective numbers (q = 1) and evenness imply broadly shared contributions rather than dominance (Chao *et al.* 2010). Wide bootstrap intervals nonetheless warn that redundancy is heterogeneous across sources and places, and prior studies caution that richness alone does not guarantee resilience if redundancy is unevenly distributed across critical functions (de Medeiros *et al*. 2020, Santoro *et al*. 2015).

Network indices portray a plant–use system that is only partly compartmentalized yet still shares many species across categories. In ethnobotanical networks, such structures typically consist of recognizable modules connected by a small set of versatile bridge species; palms are well known for these cross-category roles in north-western South America (Castiñeira Latorre *et al*. 2024, Macía *et al*. 2011). Their prominence as connectors is consistent with syntheses of their multi-purpose salience and with recent overviews of wild palms in livelihoods; resin-bearing trees such as *Copaifera* and *Protium* likewise

link strongly to medicinal categories, in line with long-documented therapeutic uses of copaíba oils and breu resins (Andrade *et al*. 2024, Frazão *et al*. 2023, Jaramillo-Vivanco *et al*. 2022, Lago *et al*. 2016).

Finally, the short head of very high RI dominated by palms signals a culturally salient, multipurpose tier that anchors everyday functions, followed by a long tail of intermediate importance—an allocation frequently reported for Neotropical palms. This structure, together with the coverage gaps noted above, points to two complementary priorities: standardized monitoring and sustainable management for high-RI palms such as *M. flexuosa*, *O. bataua*, and *Acrocomia* sp., and place-based assessment of mid-rank taxa with potential to substitute functions within categories (Castiñeira Latorre *et al*. 2024, Gilmore *et al*. 2013, Jaramillo-Vivanco *et al*. 2022, Macía *et al*. 2011, Vargas-Carpintero *et al*. 2021,).

Conclusion

In sum, this literature-based synthesis indicates that the major use categories in the Colombian Orinoquia are already represented, but species documentation remains incomplete. Coverage-based evidence and the right-skew in versatility point to many underreported useful taxa, whereas high redundancy within leading categories and a moderately modular network—bridged by multipurpose palms—suggest functional insurance within local practices. These findings support a two-track agenda: standardized, locality-specific ethnobotanical surveys to raise coverage and refine species-richness estimates, and targeted monitoring and sustainable management of high-RI palms alongside context-relevant mid-rank species. By improving primary data and focusing management on species that actually sustain multiple functions, the region can strengthen biocultural outcomes without expanding the set of categories.

Declarations

List of abbreviations: Not applicable

Ethics approval and consent to participate: Ethics approval not applicable, and all authors gave their consent before starting the study.

Consent for publication: The authors declare that they have no conflict of interest.

Availability of data and materials: Not applicable.

Competing interests: The authors declare that they have no conflict of interest.

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Literature cited

Alcántara-Rodríguez M, Angueyra A, Cleef AM, van Andel T. 2018. Ethnobotany of the Sierra Nevada del Cocuy-Güicán: Climate change and conservation strategies in the Colombian Andes. Journal of Ethnobiology and Ethnomedicine 14:34. doi: 10.1186/s13002-018-0227-6

Almeida-Neto M, Ulrich W. 2011. A straightforward computational approach for measuring nestedness using quantitative matrices. Environmental Modelling & Software 26(2):173-178. doi: 10.1016/j.envsoft.2010.08.003

Almeida-Neto M, Guimarães P, Guimarães Jr PR, Loyola RD, Ulrich W. 2008. A consistent metric for nestedness analysis in ecological systems: reconciling concept and measurement. Oikos 117(8):1227-1239. doi: 10.1111/j.0030-1299.2008.16644.x

Andrade V, Casas A, Balslev H, Mora F. 2024. The role of wild palms in agroforestry systems in the Neotropics: A review. People and Nature 6(6):2200-2227. doi: 10.1002/pan3.10741

Arrivabene A, Lasic L, Blanco J, Carrière SM. Ladio A, Caillon S, Porcher V, Teixidor-Toneu I. 2024. Ethnobiology's Contributions to Sustainability Science. Journal of Ethnobiology, 44(3):207-220. doi.org/10.1177/02780771241261221

Arruda HS, Araújo MVL, Maróstica Júnior MR. 2022. Underexploited Brazilian Cerrado fruits as sources of phenolic compounds and dietary fiber: A review. Food Chemistry: Molecular Sciences 5:100148. doi.org/10.1016/j.fochms.2022.100148

Balick MJ. 1996. Transforming ethnobotany for the new millennium. Annals of the Missouri Botanical Garden 83(1):58-66. doi: 10.2307/2399968

Beckett SJ. 2016. Improved community detection in weighted bipartite networks. Royal Society open science 3(1):140536. doi: 10.1098/rsos.140536

Blüthgen N, Menzel F, Blüthgen N. 2006. Measuring specialization in species interaction networks. BMC Ecology 6(9). doi: 10.1186/1472-6785-6-9

Borelli T, Hunter D, Powell B, Ulian T, Mattana E, Termote C, Pawera L, Beltrame D, Penafiel D, Tan A, Taylor M, Engels J. 2020. Born to eat wild: An integrated conservation approach to secure wild food plants for food security and nutrition. Plants 9(10): 1299. doi: 10.3390/plants9101299

Brooks ME, Kristensen K, van Benthem KJ, Magnusson A, Berg CW, Nielsen A, Skaug HJ, Mächler M, Bolker BM. 2017. glmmTMB Balances Speed and Flexibility Among Packages for Zero-inflated Generalized Linear Mixed Modeling. The R Journal 9(2):378–400. DOI 10.32614/RJ-2017-066

Bystriakova N, Tovar C, Monro A, Moat J, Hendrigo P, Carretero J, Torres-Morales G, Diazgranados M. 2021. Colombia's bioregions as a source of useful plants. PLoS ONE, 16(8):e0256457. doi: 10.1371/journal.pone.0256457

Cámara-Leret R, Paniagua-Zambrana N, Balslev H, Macía MJ. 2014. Ethnobotanical knowledge is vastly under-documented in northwestern South America. PloS one 9(1):e85794. doi: 10.1371/journal.pone.0085794

Cano-Calderón YM, Rodriguez-Hurtado JD, Vásquez-Ramos JM, Quiñones Méndez LM, Castillo-Monroy EF, Serrano-Gómez M, Torres-Mora MA. 2024. Estructura poblacional de *Mauritia flexuosa* L. f. en la altillanura colombiana, Puerto Gaitán, Meta. Colombia forestal 27(1). doi: 10.14483/2256201X.20126

Castiñeira Latorre E, Borthagaray AI, Canavero A. 2024. Core-periphery structure of a medicinal botanical system in Uruguay. Journal of ethnobiology and ethnomedicine 20(1):96. doi: 10.1186/s13002-024-00739-z

Chao A, Chiu CH, Jost L. 2010. Phylogenetic diversity measures based on Hill numbers. Philosophical Transactions 365(1558):3599-609. doi: 10.1098/rstb.2010.0272

Chao A, Chiu CH, Jost L. 2014. Unifying species diversity, phylogenetic diversity, functional diversity, and related similarity and differentiation measures through Hill numbers. Annual review of ecology, evolution, and systematics 45(1):297-324. doi: 10.1146/annurev-ecolsys-120213-091540

Chao A, Jost L. 2012. Coverage-based rarefaction and extrapolation: Standardizing samples by completeness rather than size. Ecology 93(12):2533–2547. doi: 10.1890/11-1952.1

Clement CR, Casas A, Parra-Rondinel FA, Levis C, Peroni N, Hanazaki N, Cortés-Zárraga L, Rangel-Landa S, Alves RP, Ferreira MJ, Cassino MF, Coelho SD, Cruz-Soriano A, Pancorbo-Olivera M, Blancas J, Martínez-Ballesté A, Lemes G, Lotero-Velásquez E, Bertin VM, Mazzochini GG. 2021. Disentangling Domestication from Food Production Systems in the Neotropics. Quaternary, 4(1):4. doi: 10.3390/quat4010004

Collaboration for Environmental Evidence (CEE). 2018. Guidelines and standards for evidence synthesis in environmental management. version 5.0. Pullin AS, Frampton GK, Livoreil B, Petrokofsky G, (Eds). www.environmentalevidence.org/information-for-authors (Accessed 07/05/2025).

Cook FEM. 1995. Economic Botany Data Collection Standard. Prepared for the International Working Group on Taxonomic Databases for Plant Sciences (TDWG) by the Royal Botanic Gardens, Kew. ISBN 0947643710. http://rs.tdwg.org/ebdc/doc/specification/

Cummings AR, Read JM. 2016. Drawing on traditional knowledge to identify and describe ecosystem services associated with Northern Amazon's multiple-use plants. International Journal of Biodiversity Science, Ecosystem Services & Management 12(1–2):39-56. doi: 10.1080/21513732.2015.1136841

de Albuquerque UP, de Oliveira RF. 2007. Is the use-impact on native caatinga species in Brazil reduced by the high species richness of medicinal plants?. Journal of ethnopharmacology 113(1):156-170. doi: 10.1016/j.jep.2007.05.025

de Medeiros PM, dos Santos GMC, Barbosa DM, Gomes LCA, Santos ÉM da C, da Silva RRV. 2021. Local knowledge as a tool for prospecting wild food plants: experiences in northeastern Brazil. Scientific Reports 11:594. doi.org/10.1038/s41598-020-79835-5

de Medeiros PM, Ferreira Júnior WS, Queiroz FDS. 2020. Utilitarian redundancy in local medical systems - theoretical and methodological contributions. Journal of ethnobiology and ethnomedicine 16(1):62. DOI: 10.1186/s13002-020-00416-x

dos Santos LL, Ramos MA, da Silva SI, de Sales MF, de Albuquerque UP. 2009. Caatinga Ethnobotany: Anthropogenic Landscape Modification and Useful Species in Brazil's Semi-Arid Northeast. Economic Botany 63:363–374. doi: 10.1007/s12231-009-9094-3

Endress BA, Horn CM, Gilmore MP. 2013. *Mauritia flexuosa* palm swamps: composition, structure and implications for conservation and management. Forest ecology and management 302:346-353. doi: 10.1016/j.foreco.2013.03.051

Erthal Abdenur A. 2020. Deforestation in Brazil: It's not just the Amazon. Climate Diplomacy Magazine. https://climatediplomacy.org/magazine/environment/deforestation-brazil-its-not-just-amazon (Accessed 04/06/2025)

FAO. 2018. FUTURE SMART FOOD Rediscovering hidden treasures of neglected and underutilized species for Zero Hunger in Asia, Executive summary, Bangkok, 36 pp.

Ferreira MJ, Levis C, Chaves L, Clement CR, Soldati GT. 2022. Indigenous and Traditional Management Creates and Maintains the Diversity of Ecosystems of South American Tropical Savannas. Frontiers in Environmental Science 10:809404. doi.org/10.3389/fenvs.2022.809404

Foo YZ, O'Dea RE, Koricheva J, Nakagawa S, Lagisz M. 2021. A practical guide to question formation, systematic searching and study screening for literature reviews in ecology and evolution. Methods in Ecology and Evolution 12(9):1705-1720. doi: 10.1111/2041-210X.13654

Frazão DR, Cruz JN, Santana de Oliveira M, Baia-da-Silva DC, Nazário RMF, Rodrigues MFL, Saito MT, Souza-Rodrigues RD, Lima RR. 2023. Evaluation of the biological activities of Copaiba (*Copaifera* spp): a comprehensive review based on scientometric analysis. Frontiers in pharmacology 14:1215437. doi: 10.3389/fphar.2023.1215437

Furley PA. 1999. The nature and diversity of neotropical savanna vegetation with particular reference to the Brazilian cerrados. Global Ecology and Biogeography, 8(3-4):223–241. doi.org/10.1046/j.1466-822X.1999.00142.x

Galluzzi G, López Noriega I. 2014. Conservation and use of genetic resources of underutilized crops in the Americas—A continental analysis. Sustainability *6*(2):980–1017. doi: 10.3390/su6020980

Gaoue OG, Coe MA, Bond M, Hart G, Seyler BC, McMillen H. 2017. Theories and major hypotheses in ethnobotany. Economic Botany 71(3):269-287. doi: 10.1007/s12231-017-9389-8

Gilmore MP, Endress BA, Horn CM. 2013. The socio-cultural importance of *Mauritia flexuosa* palm swamps (aguajales) and implications for multi-use management in two Maijuna communities of the Peruvian Amazon. Journal of Ethnobiology and Ethnomedicine 9(29). DOI: 10.1186/1746-4269-9-29

Gomes LCA, de Medeiros PM, Prata APN. 2023a. Wild food plants of Brazil: A theoretical approach to non-random selection. Journal of Ethnobiology and Ethnomedicine 19(28). doi.org/10.1186/s13002-023-00603-6

Gomes LCA, de Medeiros PM, Prata APN. 2023b. Patterns of use of wild food plants by Brazilian local communities: Systematic review and meta-analysis. Journal of Ethnobiology and Ethnomedicine 19(47). doi.org/10.1186/s13002-023-00619-y

Gori B, Ulian T, Bernal HY, Diazgranados M. 2022. Understanding the diversity and biogeography of Colombian edible plants. Scientific Reports 12:7835. DOI: 10.1038/s41598-022-11600-2

Hart G, Gaoue OG, de la Torre L, Navarrete H, Muriel P, Macía MJ, Balslev H, León-Yánez S, Jørgensen P, Duffy DC. 2017. Availability, diversification and versatility explain human selection of introduced plants in Ecuadorian traditional medicine. PloS one 12(9):e0184369. DOI: 10.1371/journal.pone.0184369

Hsieh TC, Ma KH, Chao A. 2016. iNEXT: An R package for rarefaction and extrapolation of species diversity (Hill numbers). Methods in Ecology and Evolution 7(12):1451–1456. doi: 10.1111/2041-210X.12613

Huber O. 1987. Neotropical savannas: Their flora and vegetation. Trends in Ecology & Evolution, 2(3):67–71. doi: 10.1016/0169-5347(87)90151-0

Ibarra JT, Caviedes J, Monterrubio-Solís C, Barreau A, Marchant C. 2024. Social-ecological resilience: Knowledge of agrobiodiversity by campesinos and migrants in the face of global changes. Journal of Environmental Management 370:122461. doi: 10.1016/j.jenvman.2024.122461

IPGRI. 2002. Neglected and Underutilized Plant Species: Strategic Action Plan of the International Plant Genetic Resources Institute. International Plant Genetic Resources Institute, Rome, Italy

Jaramillo-Vivanco T, Balslev H, Montúfar R, Cámara RM, Giampieri F, Battino M, Cámara M, Alvarez-Suarez JM. 2022. Three Amazonian palms as underestimated and little-known sources of nutrients, bioactive compounds and edible insects. Food chemistry 372:131273. doi: 10.1016/j.foodchem.2021.131273

Kor L, Fernández-Lucero M, Granados Flórez DA, Dawson TP, Diazgranados M. 2024. Bridging local and scientific knowledge for area-based conservation of useful plants in Colombia. Ambio 53:309–323. doi.org/10.1007/s13280-023-01921-5

Kujawska M, Albán-Castillo J. 2025. Wild-grown medicinal plants used by the Asháninka people from the Tambo River, Peruvian Amazonia. Journal of Ethnopharmacology, 30;337(Pt 3):118919. doi: 10.1016/j.jep.2024.118919

Kumar A, Kumar S, Komal, Ramchiary N, Singh P. 2021. Role of Traditional Ethnobotanical Knowledge and Indigenous Communities in Achieving Sustainable Development Goals. Sustainability 13(6):3062. doi.org/10.3390/su13063062

Lago JHG, Tezoto J, Yazbek PB, Cassas F, Santos JDF, Rodrigues E. 2016. Exudates used as medicine by the “caboclos river-dwellers” of the Unini River, AM, Brazil-classification based in their chemical composition. Revista Brasileira de Farmacognosia 26(3):379-384. doi: 10.1016/j.bjp.2016.03.001

Levis C, Costa FR, Bongers F, Peña-Claros M, Clement CR, Junqueira AB, Neves EG, Tamanaha EK, Figueiredo FO, Salomão RP, Castilho CV, Magnusson WE, Phillips OL, Guevara JE, Sabatier D, Molino JF, Cárdenas López D, Mendoza AM, Pitman NCA, Duque A, Núñez Vargas P, Zartman CE, Vasquez R, Andrade A, Camargo JL, Feldpausch TR, Laurance SGW, Laurance WF, Killen TJ, Mendoça Nascimento HE, Montero JC, Mostacedo B, Amaral IL, Guimarães Vieira IC, Brienen R, Castellanos H, Terborgh J, de Jesus Veiga Carim M, da Silva Guimarães Vieira JR, de Souza Coelho L, de Almeida Matos FD, Wittmann F, Mogollón HF, Damasco G, Dávila N, García-Villacorta R, Coronado ENH, Emilio T, de Andrade Lima Fiilho D, Schietti J, Souza P, Targhetta N, Comiskey JA, Marimon Jr BH, Neill D, Alonso A, Arroyo L, Carvalho FA, de Souza FC, Dallmeier F, Pansonato MP, Duivenvoorden JF, Fine PVA, Stevenson PR, Araujo-Murakami A, Aymar CGA, Baraloto C, do Amaral DD, Engel J, Henkel TW, Maas P, Petronelli P, Cardenas Revilla JD, Stropp J, Daly D, Gribel R, Ríos Paredes M, Silveira M, Thomas-Caesar R, Baker TR, da Silva NF, Ferreira LV, Peres CA, Silman MR, Cerón C, Valverde FC, di Fiore A, Jimenez EM, Peñuela Mora MC, Toledo M, Barbosa EM, de Matos Bonates LC, Arboleda NC, de Sousa Farias E, Fuentes A, Guillaumet JL, Møller Jørgensen P, Malhi Y, de Andrade Miranda IP, Phillips JF, Prieto A, Rudas A, Ruschel AR, Silva N, von Hildebrand P, Vos VA, Zent EL, Zent S, Cintra BBL, Nascimento MT, Oliverira AA, Ramirez-Angulo, Ramos JF, Rivas G, Schöngart J, Sierra R, Tirado M, van der Heijden G, Torre EV, Wang O, Young KR, Baider, C, Cano A, Farfan-Riso W, Ferrerira C, Hoffman B, Mendoza C, Mesones I, Torres-Lezama A, Medina MNU, van Andel TR, Villaroel D, Zagt R, Alexiades MN, Balslev H, García-Cabrera, Gonzales T, Hernandez L, Humantupaa-Chuquimaco I, Manzatto AG, Milliken W, Cuenca WP, Pansini S, Pouletto D, Arevalo FR, Costa Reis NF, Sampaio AF, Urrego Giraaldo LE, Valdderrama Sandoval EH, Valenzuela Gamarraa L, Vela CIA, ter Steege H. 2017. Persistent effects of pre-Columbian plant domestication on Amazonian forest composition. Science. 355:925-31. doi.org/10.1126/science.aal0157

Lima ILP, Scariot A, Medeiros MB, Sevilha AC. 2012. Diversidade e uso de plantas do Cerrado em comunidade de Geraizeiros no norte de Minas Gerais, Brasil. Acta Botanica Brasilica 26(3):675-684. doi: 10.1590/S0102-33062012000300017

Lindén A, Mäntyniemi S. 2011. Using the negative binomial distribution to model overdispersion in ecological count data. Ecology 92(7):1414-1421. doi: 10.1890/10-1831.1

Macía MJ, Armesilla P J, Cámara-Leret R, Paniagua-Zambrana N, Villalba S, Balslev H, Pardo-de-Santayana M. 2011. Palm Uses in Northwestern South America: A Quantitative Review. Botanical Review 77(4):462–570 doi: 10.1007/s12229-011-9086-8

McCullagh P, Nelder JA. 1989. Generalized Linear Models. Chapman and Hall. London

Narváez-Ortiz I, Ortíz Paz RA, López Patarroyo E. 2021. Regeneración pasiva de morichales (*Mauritia flexuosa* L.f.) en los llanos orientales de Colombia. Ecosistemas 30(3):2230. doi: 10.7818/ECOS.2230

O'Dea RE, Lagisz M, Jennions MD, Koricheva J, Noble DWA, Parker TH, Gurevitch J, Page MJ, Stewart G, Moher D, Nakagawa S. 2021. Preferred reporting items for systematic reviews and meta-analyses in ecology and evolutionary biology: a PRISMA extension. Biological Reviews 96(5):1695-172. doi: 10.1111/brv.12721

Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. 2016. Rayyan—a web and mobile app for systematic reviews. Systematic Reviews 5:210. doi: 10.1186/s13643-016-0384-4

Padulosi S, Heywood V, Hunter D, Jarvis A. 2011. Underutilized species and climate change: current status and outlook. In: Yadav SS, Redden RJ, Hatfield JL, Lotze-Campen H, Hall AE (eds). Crop adaptation to climate change. John Wiley & Sons, The Atrium, Southern Gate, Chichester, West Sussex, UK, Pp. 507-521.

Page MJ, Moher D, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, Chou R, Glanville J, Grimshaw JM, Hróbjartsson A, Lalu MM, Li T, Loder EW, Mayo-Wilson E, McDonald S, McGuinness LA, Stewart LA, Thomas J, Tricco AC, Welch VA, Whiting P, McKenzie JE. 2021 . PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. BMJ 372:n160. doi: 10.1136/bmj.n160

Paniagua Zambrana NY, Bussmann RW, Hart RE, Moya Huanca AL, Ortiz Soria G, Ortiz Vaca M, Ortiz Álvarez D, Soria Morán J, Soria Morán M, Chávez S, Chávez Moreno B, Chávez Moreno G, Roca O, Siripi E. 2017. Traditional knowledge hiding in plain sight - twenty-first century ethnobotany of the Chácobo in Beni, Bolivia. Journal of Ethnobiology and Ethnomedicine 13(57). doi: 10.1186/s13002-017-0179-2

Paz Perafán GM, Montenegro Paz G. 2024. Ethnobotanical study of the uses of medicinal plants in the Nasa ethnic group in the Colombian Andes. Acta Botanica Mexicana 131:e2257. doi.org/10.21829/abm131.2024.2257

Pennington RT, Lewis GP, Ratter JA. 2006. An overview of the plant diversity, biogeography and conservation of Neotropical savannas and seasonally dry forests. In: Pennington RT, Ratter JA. (eds). Neotropical Savannas and Seasonally Dry Forests: Plant Diversity, Biogeography, and Conservation. CRC Press, United States of America, Pp.1-29. doi.org/10.1201/9781420004496

Pironon S, Ondo I, Diazgranados M, Allkin R, Baquero AC, Cámara-Leret R, Canteiro C, Dennehy-Carr Z, Govaerts R, Hargreaves S, Hudson AJ, Lemmens R, Milliken W, Nesbitt M, Patmore K, Schmelzer G, Turner RM, van Andel TR, Ulian T, Antonelli A, Willis KJ. 2024. The global distribution of plants used by humans. Science 383(6680):293-297. doi:10.1126/science.adg802

Plants of the World Online (POWO). Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; https://powo.science.kew.org/. (Accessed 26/09/2025)

Quezada JC, Guillaume T, Poeplau C, Ghazoul J, Buttler A. 2022. Deforestation-free land-use change and organic matter-centered management improve the C footprint of oil palm expansion. Global Change Biology 28(7):2476-2490. doi.org/10.1111/gcb.16069

Ramirez CR. 2007. Ethnobotany and the Loss of Traditional Knowledge in the 21st Century. Ethnobotany Research and Applications 5:245–247. Retrieved from https://ethnobotanyjournal.org/index.php/era/article/view/134

Sánchez-Capa M, Corell González M, Mestanza-Ramón C. 2023. Edible Fruits from the Ecuadorian Amazon: Ethnobotany, Physicochemical Characteristics, and Bioactive Components. Plants, 12(20):3635. doi: 10.3390/plants12203635

Santoro FR, Ferreira Júnior WS, Araújo TA, Ladio AH, de Albuquerque UP. 2015. Does plant species richness guarantee the resilience of local medical systems? A perspective from utilitarian redundancy. PloS one 10(3):e0119826. DOI: 10.1371/journal.pone.0119826

Shirai LT, Courtenay AP, Agerström M, Freitas AVL, Baccaro FB, Trad RJ. 2024.“Savannization of the Amazon” is a term that reinforces the Cerrado neglect. Perspectives in Ecology and Conservation 22(3):219-223. doi.org/10.1016/j.pecon.2024.07.002

Tardío J, Pardo-de-Santayana M. 2008. Cultural Importance Indices: A Comparative Analysis Based on the Useful Wild Plants of Southern Cantabria (Northern Spain). Economic Botany 62(1):24-39. doi: 10.1007/s12231-007-9004-5

Ulian T, Diazgranados M, Pironon S, Padulosi S, Liu U, Davies L, Howes MR, Borrell JS, Ondo I, Pérez-Escobar OA, Sharrock S, Ryan P, Hunter D, Lee MA, Barstow C, Łuczaj L, Pieroni A, Cámara-Leterl R, Noorani A, Mba C, Womdim RN, Muninjaanov H, Antonelli A, Pritchard HW, Mattana E. 2020. Unlocking plant resources to support food security and promote sustainable agriculture. Plants, People, Planet 2(5):421–445. doi.org/10.1002/ppp3.10145

Vargas-Carpintero R, Hilger T, Mössinger J, Souza RF, Barroso Armas JC, Tiede K, Lewandowski I. 2021. *Acrocomia* spp.: neglected crop, ballyhooed multipurpose palm or fit for the bioeconomy? A review. Agronomy for sustainable development 41(75). doi: 10.1007/s13593-021-00729-5

Vargas-Carpintero R, Romero-Perdomo F, Martínez JF, Lewandowski I. 2023. A review of the knowledge base for the development of natural ingredients value chains for a sustainable biobased economy in Colombia. Discover Sustainability 4(33). doi: 10.1007/s43621-023-00150-w

Virapongse A, Endress BA, Gilmore MP, Horn C, Romulo C. 2017. Ecology, livelihoods, and management of the *Mauritia flexuosa* palm in South America. Global ecology and conservation 10:70-92. doi: 10.1016/j.gecco.2016.12.005

Yessoufou K, Ambani AE, Elansary HO, Gaoue OG. 2021. Alien woody plants are more versatile than native, but both share similar therapeutic redundancy in South Africa. PloS one 16(11):e0260390. doi: 10.1371/journal.pone.0260390

Appendix

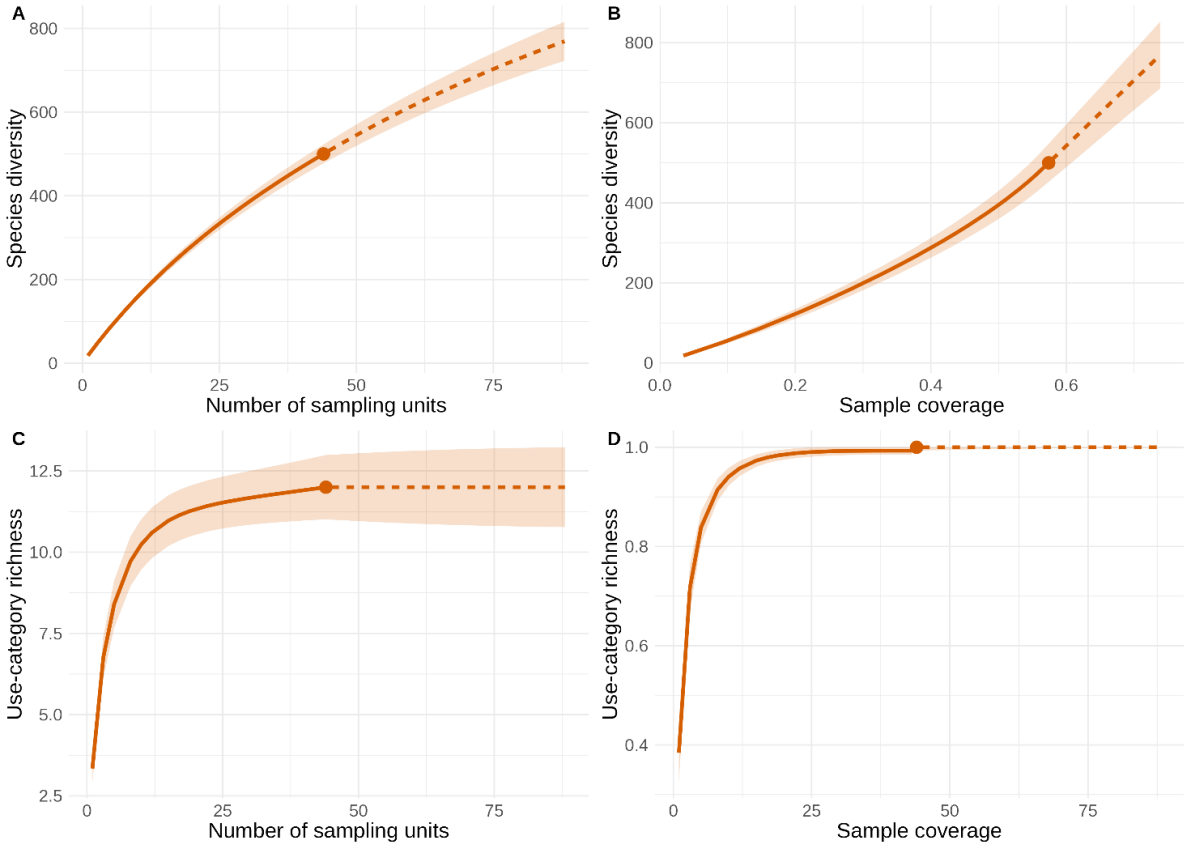

Figure S1. Incidence-based rarefaction–extrapolation (q = 0) using each study as a sampling unit (T = 44). A. Species richness as a function of the number of studies. B. Species richness as a function of sample coverage. C. Use-category richness as a function of the number of studies (y-axis in the panel should read "Use-category richness"). D. Sample coverage for use categories as a function of the number of studies. Solid lines show rarefaction and dashed lines show extrapolation (up to ~2× T); shaded bands are 95% unconditional confidence intervals. The curves indicate larger potential gains for species with additional studies, whereas use categories approach saturation with high coverage. Analyses were performed in iNEXT on incidence data built with one record per study–species–category.

Table S1. List of articles included in the literature search, with their corresponding ID, title, year of publication, authors, and type of publication. Articles identified through databases and the search string (yellow) are distinguished from those retrieved through other methods, such as websites, organizations, and citation searching (gray).

Identification of new studies via databases and registers				
ID	**Title**	**Year**	**Authors**	**Publication type**
1	La palma de Moriche (*Mauritia flexuosa* L.f.) un ecosistema estratégico	2011	Trujillo-Gonzalez Juan M; Torres Mora Marco A; Santana-Castañeda Elvinia	Paper
2	Manejo de *Mauritia flexuosa* L.f. para la producción de artesanías en la altillanura colombiana	2017	Mesa Castellanos L; Toro Buitrago A; Isaza Aranguren C	Paper
32	Descripción anatómica de juveniles de *Mauritia flexuosa* (Arecaceae) en áreas afectadas por incendios en el Parque Nacional Natural El Tuparro (Vichada), Colombia	2023	Pachón-Venegas Carolina; Mesa-Castellanos Laura Isabel; Álvarez-Flórez Fagua	Paper
33	Estructura poblacional de *Mauritia flexuosa* L. f. en la altillanura colombiana, Puerto Gaitán, Meta	2023	Cano-Calderón Yinny Marcela; Rodriguez-Hurtado Juan David; Vásquez-Ramos Jesús Manuel; Quiñones Méndez Luz Mila; Castillo-Monroy Edgar Fernando; Serrano-Gómez Marlon; Torres-Mora Marco Aurelio	Paper
34	Tratamientos pregerminativos y germinación de semillas de *Vochysia lehmannii* en los Llanos Orientales de Colombia	2022	Narváez Ortiz Ildefonso; Torres Leonela; Granados Zoleidy; Delgado Iván	Paper
35	Forest structure, diversity and dynamics in terra firme and Igapó gallery forests in the colombian Orinoco basin	2021	González-Abella Juan S; Aldana Ana M; Correa Diego F; Casas Luisa Fernanda; Stevenson Pablo R	Paper
36	Uso de los recursos de la biodiversidad: estudio de caso de la oleorresinaa de Copaiba (*Copaifer* spp.) en la medicina tradicional en el departamento del Meta – Colombia	2019	Chacon Luis Camilo Toro; Valderrama Nicolás Rafael; Robles Aguilera Francisco; Trigos Daniel Fernando; González Juan Manuel; Trujillo Mora Marco Aurelio Torres	Paper
37	Bee pollination in *Syagrus orinocensis* (ARECACEAE) in the colombian Orinoquia	2017	Nuñez Avellaneda Luis Alberto; Carreño, Javier Isnardo	Paper
38	Alimentos autóctonos de las comunidades indígenas y afrodescendientes de Colombia	2010	Rivas Abadía Ximena; Pazos Sonia Carolina; Castillo Castillo Silvana Katerin; Pachón Helena	Paper
39	Caracterización morfofisiológica de *Jatropha curcas* L. variedad Brasil cultivada en dos zonas de Colombia	2010	Pedraza Sánchez Erik Alexander; Cayón Salinas Daniel Gerardo	Paper
40	Morfología y anatomía de las flores y semillas de Pronto Alivio	2007	Muñoz Aida M; Vallejo Cabrera Franco Alirio; Sánchez Manuel Salvador	Paper
41	Productive performance and adaptation of *Jatroplui curcas* L. in three ecoregions in Colombia	2020	Campuzano-Duque LF; Gualdrón-Acosta R; Chávez-Oliveros LF	Paper
42	Volatil metabolites of *Protium heptaphyllum* (Aubl.) March. from Tame (Arauca-Colombia)	2012	Tafurt-García G; Munoz-Acevedo A	Paper
43	Assessment of the response to fertilization for the sustainable management of native grasses from flooded savannah ecosystem Arauca, colombian Orinoquia	2024	Salamanca-Carreño A; Pérez-López O; Vélez-Terranova M; Vargas-Corzo OM; Parés-Casanova PM; Castillo-Pérez AF	Paper

45	Volatile compounds of analysis of *Eriope crassipes*, *Hyptis conferta*, *H.dilatata*, *H.brachiata*, *H.suaveolens* y *H.mutabilis* (Lamiaceae)	2014	Tafurt-García G; Muñoz-Acevedo A; Calvo AM; Jiménez LF; Delgado WA	Paper
46	Aceite de la palma de seje *Oenocarpus bataua* Mart. por su calidad nutricional puede contribuir a la conservación y uso sostenible de los bosques de galería en la Orinoquia colombiana	2013	Ocampo-Duran Álvaro; Fernández-Lavado Andrea P; Castro-Lima Francisco	Paper
47	Efectos del tamaño de semilla y escarificación del endocarpio sobre la germinación de *Mauritia flexuosa* (Arecaceae)	2017	Herández-Valencia Ismael; Guitián Daniel; González Valois	Paper
48	Evaluación de la variabilidad fenotípica en *Simarouba amara* Aubl., mediante descriptores cualitativos y cuantitativos	2021	Castañeda-Garzón Sandra Liliana; Argüelles-Cárdenas Jorge H; Zuluaga-Peláez Jhon J; Moreno-Barragán Jessica	Paper
49	Propiedades farmacológicas del Algarrobo (*Hymenaea courbaril* Linneaus) de interés para la industria de alimentos	2008	Alzate Tamayo Luz María; Arteaga González Diana María; Jaramillo Garcés Yamilé	Paper
50	Diversity of Colombian Passifloraceae: biogeography and an updated list for conservation	2007	Pérez John Ocampo	Paper
51	Ethnobotany of *Acrocomia aculeata* (Jacq.) Lodd. ex Mart. in two ecoregions of Colombia	2025	Gonzalez DC; Tranbarger TJ; Isaza C	Paper
52	Wild edible fruits of Colombia: Diversity and use prospects	2021	Diago DL; García N	Paper
31	Phytochemical composition of the root extract of *Ichthyothere terminalis* from two geographical regiones in Colombia	2017	Ortíz-Rojas LY; Chaves-Bedoya G	Paper
15	Uses and commercial prospects for the wine palm, *Attalea butyracea*, in Colombia	2010	Bernal Rodrigo; Galeano Gloria; García Néstor; Olivares Ingrid Lorena; Cocomá Carolina	Paper
Identification of new studies via other methods				
ID	**Title**	**Year**	**Authors**	**Publication type**
3	Inventario preliminar de las plantas utilizadas para elaborar artesanías en Colombia	1994	Linares C Edgar L	Paper
4	Bases biológicas, sociales y comerciales para el fortalecimiento de la cadena de valor de la semilla *Dipteryx punctata* (S.F.Blake) Amshoff (Fabaceae) en el municipio de Orocué, Casanare, Colombia	2017	Parra Martínez Zara Patricia	Bachelor's thesis
5	Catálogo comentado y análisis espacial del género *Clusia* (Clusiaceae) en el departamento del Meta	2017	Cruz Fernández Yohanna	Bachelor's thesis
6	Plantas acuáticas de la Orinoquia colombiana	2017	Madriñán Santiago; Rial Anabel; Rial Ana María; Bedoya Ana María; Fernández-Lucero Mateo	Book
7	Plantas útiles de las cuencas de los ríos Tillavá y Planas en el municipio de Puerto Gaitán, Meta.	2016	Forero Riaño Jully Andrea	Bachelor's thesis
8	Cosechar sin destruir. Aprovechamiento sostenible de palmas colombianas	2013	Bernal Rodrigo; Galeano Gloria	Book

9	Las reservas naturales del nodo Orinoquia en su rol de conservación de la biodiversidad	2011	Peñuela L; Castro F; Ocampo-Peñuela N	Book
10	Usos tradicionales de las plantas de la Orinoquia colombiana	2015	Ortega David Eduar Humberto	Paper
11	Plantas útiles de la cuenca del Orinoco	2005	Acero Duarte Luis Enrique	Book
12	Botánica médica Guhaibo. Plantas medicinales, mágicas y psicotrópicas utilizadas por los Skuani y Cuiba (Llanos Orientales de Colombia)	1989	Ortiz Gómez Francisco	Paper
13	Caracterización de las plantas usadas en la partería en el municipio de Guamal departamento del Meta, Colombia	2017	Sánchez Piña Nataly	Master's thesis
14	Palmas Nativas de la Orinoquia: biodiversidad productiva	2013	Castro F; Ocampo A, Penuela L; Sanabria DP	Book
18	Diagnóstico de problemas fitopatógenos en algunos cultivos de huertas aromáticas, caseras y medicinales en algunas zonas del departamento del Meta	2018	Rodriguez Vargas Arley	Bachelor's thesis
20	Libro resumen de las plantas útiles de la cuenca del río Orotoy	2011	Torres Mora Marco Aurelio; Tovar Hernández Naisly Ada; Delgado García Sandra; Rincón Sandra; Ecopetrol	Book
22	Capítulo 20. Plantas útiles Bojonawi. Biodiversidad de la reserva natural Bjonawi, Vichadaa, Colombia: río Orinoco y planicie de inundación	2020	Diazgranados Mauricio; Moreno-Pachón Natalia	Book
23	Diagnóstico preliminar para la formulación de un plan de manejo de la palma de Moriche (*Mauritia flexuosa* L.F.) en la altillanura colombiana en el área de influencia de la etnia Sikuani de la comunidad Buenos Aires, vereda Rubiales, municipio de Puerto Gaitán-Meta, a través de una estrategia participativa	2010	Pardo Carrasco Fidela Patricia	Bachelor's thesis
24	Las palmas de Colombia. Guía de campo	2010	Galeano Gloria; Bernal Rodrigo	Book
25	Evaluación del efecto de dietas artesanales con diferentes porcentajes de inclusión de harina de torta de cacay (*Caryodendron orinocense*) sobre el desempeño productivo de alevinos de cachama blanca (*Piaractus brachypomus*)	2020	Mejía Sánchez Michael; Roa Reyes Gisell Alexa	Bachelor's thesis
26	Pautas para el conocimiento, conservación y uso sostenible de las plantas medicinales nativas en Colombia: estrategia nacional para la conservación de plantas	2011	Bernal Henry Yesid; García Martínez Hernando; Quevedo Sánchez Germán Felipe	Book
54	Composición química del aceite esencial de *Ocotea cymbarum* Kunth (cascarillo y/o sasafrás) de la región Orinoquia	2016	Delgado Avila Wilman Antonio; Cuca Suárez Luis Enrique; Caroprese José Fernando	Paper

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Table S2. List of plant families with their respective species, indicating origin status and use category (CER: Ceremonial Religious, CST: Construction, COS: Cosmetics, EDI: Edible, FWD: Firewood, FOD: Fodder, HCF: Handicrafts, MED: Medicinal, ORN: Ornamental, OTH: Other Uses, SPC: Seasoning Plants, WRP: Wrapping) and part used (Wp: All plant, Bk: Bark, Bu: Bud, Fl: Flowers, Fr: Fruit, Lf: Leaf, Pe: Peduncle, Pt: Petiole, Rl: Resin/latex, Rh: Rhizome, Rb: Root or bulb, Se: Seeds, St: Stem, Sa: The sap, Wd: Wood or trunk)

Family	Species	Origin status	Use categories	Part used
Acanthaceae	*Aphelandra scabra* (Vahl) Sm.	Native	ORN	Wp
Acanthaceae	*Ruellia geminiflora* Kunth	Native	ORN, OTH	Lf, Wp
Alismataceae	*Aquarius paniculatus* (Micheli) Christenh. & Byng	Native	ORN	Wp
Alismataceae	*Helanthium tenellum* (Mart. ex Schult.f.) J.G.Sm.	Native	ORN	Wp
Alismataceae	*Sagittaria guayanensis* Kunth	Native	EDI, ORN	Rb, Wp
Amaranthaceae	*Amaranthus spinosus* L.	Native	FOD	
Amaryllidaceae	*Hippeastrum puniceum* (Lam.) Voss	Native	ORN	Wp
Anacardiaceae	*Anacardium occidentale* L.	Native	EDI, HCF, MED	Bk, Fr, Sa
Anacardiaceae	*Astronium graveolens* Jacq.	Native	CST	Wd
Anacardiaceae	*Spondias mombin* L.	Native	EDI, HCF, MED	Bk, Fr, Wd
Anacardiaceae	*Tapirira guianensis* Aubl.	Native	CST	Wd
Annonaceae	*Annona edulis* (Triana & Planch.) H.Rainer	Native	EDI	Fr
Annonaceae	*Annona exsucca* DC.	Native	EDI	Fr
Annonaceae	*Annona glabra* L.	Native	EDI	Fr
Annonaceae	*Annona jahnii* Saff.	Native	EDI	Fr
Annonaceae	*Annona muricata* L.	Native	EDI	Fr
Annonaceae	*Bocageopsis multiflora* (Mart.) R.E.Fr.	Native	CST	Wd
Annonaceae	*Duguetia macrophylla* R.E.Fr.	Native	CST	Wd
Annonaceae	*Guatteria hirsuta* Ruiz & Pav.	Native	CST, EDI	Fr, Wd
Annonaceae	*Guatteria punctata* (Aubl.) R.A.Howard	Native	CST	Wd
Annonaceae	*Xylopia aromatica* (Lam.) Mart.	Native	CST, MED, ORN	Bk, Fr, Lf, Wd, Wp
Annonaceae	*Xylopia emarginata* Mart.	Native	CST	Wd
Apocynaceae	*Couma macrocarpa* Barb.Rodr.	Native	EDI, MED	Fr, Rl
Apocynaceae	*Funastrum clausum* (Jacq.) Schltr.	Native	HCF, ORN	St, Wp
Apocynaceae	*Himatanthus articulatus* (Vahl) Woodson	Native	CST, FWD, MED	Rl, Wd

Apocynaceae	*Himatanthus attenuatus* (Benth.) Woodson	Native	EDI	Fr
Apocynaceae	*Lacmellea edulis* H.Karst.	Native	CST, EDI	Fr, Wd
Apocynaceae	*Parahancornia oblonga* (Benth. ex Müll.Arg.)	Native	EDI, ORN	Fr, Wp
Apocynaceae	*Tabernaemontana grandiflora* Jacq.	Native	MED, ORN	Wp
Apocynaceae	*Tabernaemontana siphilitica* (L.f.) Leeuwenb.	Native	MED	
Apocynaceae	*Tassadia aristata* (Benth. ex E.Fourn.) Fontella	Native	ORN	Wp
Araceae	*Anthurium atropurpureum* R.E.Schult. & Maguire	Native	ORN	Wp
Araceae	*Anthurium clavigerum* Poepp.	Native	ORN	Wp
Araceae	*Anthurium gracile* (Rudge) Lindl.	Native	ORN	Wp
Araceae	*Caladium macrotites* Schott	Native	MED, ORN	Rb, Wp
Araceae	*Dracontium spruceanum* (Schott) G.H.Zhu	Native	EDI	
Araceae	*Monstera adansonii* Schott	Native	ORN	Wp
Araceae	*Monstera dubia* (Kunth) Engl. & K.Krause	Native	ORN	Wp
Araceae	*Monstera pinnatipartita* Schott	Native	ORN	Wp
Araceae	*Montrichardia arborescens* (L.) Schott	Native	EDI, HCF	Fl, St
Araceae	*Philodendron brevispathum* Schott	Native	MED	Rb
Araceae	*Philodendron fragrantissimum* (Hook.) G.Don	Native	ORN	Wp
Araceae	*Philodendron solimoesense* A.C.Sm.	Native	ORN	Wp
Araceae	*Pistia stratiotes* L.	Native	MED, ORN	Wp
Araceae	*Spathiphyllum cannifolium* (Dryand. ex Sims) Schott	Native	MED	
Araceae	*Urospatha sagittifolia* (Rudge) Schott	Native	CER	Pt
Araceae	*Xanthosoma striatipes* (Kunth & C.D.Bouché) Madison	Native	ORN	Wp
Araliaceae	*Dendropanax arboreus* (L.) Decne. & Planch.	Native	FWD	Wd
Araliaceae	*Didymopanax morototoni* (Aubl.) Decne. & Planch.	Native	CST, HCF	Wd
Arecaceae	*Acrocomia aculeata* (Jacq.) Sweet	Native	CER, COS, CST, EDI, FWD, HCF, MED, ORN, OTH	Fr, Lf, Se, St, Wp

Arecaceae	*Aiphanes horrida* (Jacq.) Burret	Native	CST, EDI, HCF, ORN	Fr, Lf, St, Wp
Arecaceae	*Astrocaryum acaule* Mart.	Native	EDI, HCF, WRP	Fr, Lf
Arecaceae	*Astrocaryum aculeatum* G.Mey.	Native	CST, EDI, HCF	Fr, St
Arecaceae	*Astrocaryum chambira* Burret	Native	CST, EDI, HCF, ORN, WRP	Fr, Lf, Se, St, Wp
Arecaceae	*Astrocaryum jauari* Mart.	Native	CST, EDI, HCF	Fr, St, Wd
Arecaceae	*Attalea butyracea* (Mutis ex L.f.) Wess.Boer	Native	CER, CST, EDI, HCF, ORN, WRP	Bu, Fr, Lf, Sa, Wp
Arecaceae	*Attalea insignis* (Mart.) Drude	Native	CST, EDI, HCF, ORN, WRP	Fr, Lf, Wp
Arecaceae	*Attalea maripa* (Aubl.) Mart.	Native	CST, EDI, HCF, ORN, WRP	Fr, Lf, Wp
Arecaceae	*Attalea racemosa* Spruce	Native	CST, EDI, HCF, WRP	Lf, Se
Arecaceae	*Bactris bidentula* Spruce	Native	CST, EDI, HCF	Fr, Lf, St
Arecaceae	*Bactris brongniartii* Mart.	Native	CST, EDI, HCF	Fr, Lf, St, Wd
Arecaceae	*Bactris corossilla* H.Karst.	Native	CST, EDI, HCF, ORN	Lf, Se, St, Wp
Arecaceae	*Bactris gasipaes* Kunth	Native	CST, FOD, HCF, MED	Fr, Wd
Arecaceae	*Bactris gasipaes* var. *gasipaes*	Native	CST, EDI, HCF	Fr, Lf
Arecaceae	*Bactris guineensis* Jacq. (L.) H.E.Moore	Native	CST, EDI, HCF, ORN	Fr, Lf, St, Wp
Arecaceae	*Bactris major* Jacq.	Native	CST, EDI, HCF, MED	Fr, Lf, St, Wd
Arecaceae	*Bactris maraja* Mart.	Native	CST, EDI, MED	Fr, St
Arecaceae	*Bactris pilosa* H.Karst.	Native	CST, EDI, HCF, MED	Fr, Lf, St
Arecaceae	*Cocos nucifera* L.	Introduced	EDI	Fr
Arecaceae	*Desmoncus polyacanthos* Mart.	Native	CST, EDI, HCF	Fr, St, Wd
Arecaceae	*Euterpe precatoria* Mart.	Native	CST, EDI, HCF, ORN	Fl, Fr, St, Wd, Wp
Arecaceae	*Euterpe precatoria* var. *Longevaginata* (Mart.) A.J.Hend.	Native	CST, EDI, HCF, ORN	Fr, Lf, St, Wp
Arecaceae	*Euterpe precatoria* var. *precatoria*	Native	CST, EDI, HCF	Fr, Lf, St
Arecaceae	*Geonoma deversa* (Poit.) Kunth	Native	CST, HCF, ORN	Fr, Lf, Wp
Arecaceae	*Geonoma macrostachys* Mart.	Native	CST, HCF	Fr, Lf
Arecaceae	*Iriartea deltoidea* Ruiz & Pav.	Native	CST, HCF, MED, ORN	Lf, Wd, Wp
Arecaceae	*Leopoldinia piassaba* Wallace	Native	CST, EDI, HCF	Fr, Lf
Arecaceae	*Leopoldinia pulchra* Mart.	Native	CST, EDI, HCF	Fr, Lf, St
Arecaceae	*Mauritia carana* Wallace	Native	CST, EDI, HCF, ORN	Fr, Lf, Wp

Arecaceae	*Mauritia flexuosa* L.f.	Native	COS, CST, EDI, HCF, MED, ORN	Fr, Lf, Pt, Wp
Arecaceae	*Mauritiella aculeata* (Kunth) Burret	Native	CST, EDI, HCF, ORN	Fr, Lf, St, Wp
Arecaceae	*Mauritiella armata* (Kunth) Burret	Native	CST, EDI, HCF	Fr, Lf
Arecaceae	*Oenocarpus vacaba* Mart.	Native	CST, EDI, MED, ORN, WRP	Fr, Lf, Wp
Arecaceae	*Oenocarpus balickii* F.Kahn	Native	CST, EDI, MED, ORN, WRP	Fr, Lf, Wp
Arecaceae	*Oenocarpus bataua* Mart.	Native	COS, CST, EDI, HCF, MED, ORN, OTH, WRP	Fr, Lf, St, Wp
Arecaceae	*Oenocarpus mapora* H.Karst.	Native	CST	Wd
Arecaceae	*Oenocarpus minor* Mart.	Native	CER, CST, EDI, MED, ORN, WRP	Fr, Lf, St, Wp
Arecaceae	*Roystonea oleracea* (Jacq.) O.F.Cook	Native	CST, EDI, ORN	Fr, St, Wp
Arecaceae	*Socratea exorrhiza* (Mart.) H.Wendl.	Native	COS, CST, HCF, MED, OTH	Lf, Rb, Se, St, Wd
Arecaceae	*Syagrus orinocensis* (Spruce) Burret	Native	CST, EDI, HCF, MED, ORN, OTH, WRP	Fr, Lf, Se, St, Wd, Wp
Arecaceae	*Syagrus sancona* (Kunth) H.Karst.	Native	CST, EDI, HCF, MED, ORN	Fr, Lf, Wd, Wp
Aristolochiaceae	*Aristolochia nummulariifolia* Kunth	Native	MED	
Aristolochiaceae	*Aristolochia ringens* Vahl	Native	MED	
Asteraceae	*Ambrosia peruviana* All.	Native	MED	
Asteraceae	*Bidens cynapiifolia* Kunth	Native	OTH	
Asteraceae	*Chaptalia nutans* (L.) Pol.	Native	MED	
Asteraceae	*Egletes viscosa* (L.) Less.	Native	MED	
Asteraceae	*Ichthyothere terminalis* S.F.Blake	Native	MED, OTH	Lf, Rb
Asteraceae	*Lycoseris triplinervia* Less.	Native	ORN	Wp
Asteraceae	*Mikania congesta* DC.	Native	MED	
Asteraceae	*Mikania micrantha* Kunth	Native	MED	Lf
Asteraceae	*Piptocoma discolor* (Kunth) Pruski	Native	CST	Wd
Asteraceae	*Tagetes erecta* L.	Introduced	CER	Wp
Asteraceae	*Tessaria integrifolia* Ruiz & Pav.	Native	CST	Wd
Asteraceae	*Tilesia baccata* (L.) Pruski	Native	MED, ORN	Wp
Asteraceae	*Trichospira verticillata* (L.) S.F.Blake	Native	MED, ORN	Wp

Asteraceae	*Vernonanthura brasiliana* (L.) H.Rob.	Native	MED	
Bignoniaceae	*Bignonia corymbosa* Vent.	Native	ORN	Wp
Bignoniaceae	*Crescentia cujete* L.	Native	CER, CST, FWD, HCF, MED	Fr, Wd
Bignoniaceae	*Fridericia candicans* (Rich.) L.G.Lohmann	Native	ORN	Wp
Bignoniaceae	*Fridericia chica* (Bonpl.) L.G.Lohmann	Native	SPC	Lf
Bignoniaceae	*Godmania aesculifolia* (Kunth) Standl.	Native	CST	
Bignoniaceae	*Handroanthus barbatus* (E.Mey.) Mattos	Native	CST, ORN	Wd, Wp
Bignoniaceae	*Handroanthus ochraceus* (Cham.) Mattos	Native	CST, MED	
Bignoniaceae	*Handroanthus serratifolius* (Vahl) S.O.Grose	Native	CST	
Bignoniaceae	*Jacaranda copaia* (Aubl.) D.Don	Native	CST	
Bignoniaceae	*Jacaranda obtusifolia* Bonpl.	Native	FWD, MED, ORN	Bk, Wd, Wp
Bignoniaceae	*Pleonotoma jasminifolia* (Kunth) Miers	Native	MED	
Bignoniaceae	*Tabebuia orinocensis* (Sandwith) A.H.Gentry	Native	CST	Wd
Bixaceae	*Bixa orellana* L.	Native	CER, EDI, HCF	Se
Bixaceae	*Bixa urucurana* Willd.	Native	CER, EDI, HCF	Se
Bixaceae	*Cochlospermum orinocense* (Kunth) Steud.	Native	CST, MED, ORN	Bk, Lf, Wp
Boraginaceae	*Cordia nodosa* Lam.	Native	EDI	Fr
Boraginaceae	*Heliotropium indicum* L.	Introduced	MED	
Boraginaceae	*Varronia spinescens* (L.) Borhidi	Native	FOD	
Bromeliaceae	*Aechmea rubiginosa* Mez	Native	EDI	Fr
Bromeliaceae	*Aechmea setigera* Mart. ex Schult. & Schult.f.	Native	ORN	Wp
Bromeliaceae	*Ananas comosus* (L.) Merr.	Native	EDI	Fr
Bromeliaceae	*Bromelia pinguin* L.	Native	EDI	Fr
Bromeliaceae	*Tillandsia elongata* Kunth	Native	ORN	Wp
Bromeliaceae	*Tillandsia fasciculata* Sw.	Native	ORN	Wp
Burseraceae	*Bursera simaruba* (L.) Sarg.	Native	CST	Wd
Burseraceae	*Protium calanense* Cuatrec.	Native	MED	Rl
Burseraceae	*Protium glabrescens* Swart	Native	CST	Wd

Burseraceae	*Protium heptaphyllum* (Aubl.) Marchand	Native	CER, CST, HCF, MED	Rl
Burseraceae	*Protium llanorum* Cuatrec.	Native	CER, CST, HCF, MED	Bk, Rl, Sa, Wd
Burseraceae	*Protium rhoifolium* (Benth.) Byng & Christenh.	Native	CST	Wd
Burseraceae	*Protium stevensonii* (Standl.) Daly	Native	CST, EDI	Fr, Wd
Burseraceae	*Trattinnickia rhoifolia* Willd.	Native	CST	Wd
Cactaceae	*Melocactus neryi* K.Schum.	Native	MED, ORN	Wp
Cactaceae	*Selenicereus monacanthus* (Lem.) D.R.Hunt	Native	COS	
Calophyllaceae	*Calophyllum brasiliense* Cambess.	Native	CST, HCF, MED	Rl, Wd
Calophyllaceae	*Caraipa llanorum* Cuatrec.	Native	CST	Wd
Capparaceae	*Crateva tapia* L.	Native	EDI	Fr
Caricaceae	*Vasconcellea microcarpa* (Jacq.) A.DC.	Native	EDI	Fr
Caryocaraceae	*Caryocar microcarpum* Ducke	Native	CST	Wd
Chrysobalanaceae	*Hirtella elongata* Mart. & Zucc.	Native	CST	Wd
Chrysobalanaceae	*Hirtella racemosa* Lam.	Native	HCF	St
Chrysobalanaceae	*Hymenopus heteromorphus* (Benth.)	Native	FWD	Wd
Chrysobalanaceae	*Hymenopus latifolius* (Benth. ex Hook.f.) Sothers & Prance	Native	CST	Wd
Chrysobalanaceae	*Leptobalanus apetalus* (E.Mey.) Sothers & Prance	Native	CST, HCF	Wd
Chrysobalanaceae	*Licania pyrifolia* (Griseb.) R.O.Williams	Native	CST, EDI	Fr, Wd
Chrysobalanaceae	Moquilea pyrifolia	Native	EDI	Fr
Chrysobalanaceae	*Moquilea subarachnophylla* (Cuatrec.) Sothers & Prance	Native	CST	Wd
Chrysobalanaceae	*Parinari pachyphylla* Rusby	Native	EDI, MED	Fr
Clusiaceae	*Clusia lineata* (Benth.) Planch. & Triana	Native	CST, FWD	Wd
Clusiaceae	*Garcinia macrophylla* Mart.	Native	EDI	Fr
Clusiaceae	*Garcinia madruno* (Kunth) Hammel	Native	CST, EDI	Fr, Wd
Clusiaceae	*Symphonia globulifera* L.f.	Native	MED	
Combretaceae	*Terminalia amazonia* (J.F.Gmel.) Exell	Native	CST	St, Wd
Connaraceae	*Connarus venezuelanus* Baill.	Native	CST, MED	Bk, Wd
Convolvulaceae	*Ipomoea mauritiana* Jacq.	Native	ORN	Wp

Convolvulaceae	*Ipomoea schomburgkii* Choisy	Native	ORN	Wp
Convolvulaceae	*Ipomoea subrevoluta* Choisy	Native	ORN	Wp
Costaceae	*Costus arabicus* L.	Native	EDI, MED, ORN	St, Wp
Costaceae	*Costus scaber* Ruiz & Pav.	Native	MED	
Costaceae	*Costus spiralis* (Jacq.) Roscoe	Native	EDI, MED	St
Costaceae	*Dimerocostus strobilaceus* Kuntze	Native	MED	
Cucurbitaceae	*Momordica charantia* L.	Introduced	MED	Lf
Cyperaceae	*Bulbostylis lanata* (Kunth) Lindm.	Native	MED	St
Cyperaceae	*Cyperus digitatus* Roxb.	Native	HCF, MED	Pe, Rh
Cyperaceae	*Rhynchospora barbata* (Vahl) Kunth	Native	FOD	
Cyperaceae	*Scleria macrophylla* J.Presl & C.Presl	Native	MED	
Cyperaceae	*Scleria secans* (L.) Urb.	Native	OTH	
Dilleniaceae	*Curatella americana* L.	Native	CST, HCF, MED	Bk, Rb, Wd
Dilleniaceae	*Davilla nítida* (Vahl) Kubitzki	Native	MED	Lf, St
Droseraceae	*Drosera cayennensis* Sagot ex Diels	Native	ORN	
Droseraceae	*Drosera sessilifolia* A.St.-Hil.	Native	ORN	Wp
Elaeocarpaceae	*Sloanea terniflora* (Moc. & Sessé ex DC.) Standl.	Native	CST	Wd
Eriocaulaceae	*Eriocaulon spruceanum* Körn.	Native	OTH	
Eriocaulaceae	*Paepalanthus fluviatilis* (Aubl.) Christenh. & Byng	Native	ORN	Wp
Erythroxylaceae	*Erythroxylum coca* Lam.	Native	CST, FWD, MED	Lf, Wd
Euphorbiaceae	*Alchornea discolor* Poepp.	Native	FWD	Wd
Euphorbiaceae	*Alchornea fluviatilis* Secco	Native	CST	Wd
Euphorbiaceae	*Alchornea triplinervia* (Spreng.) Müll.Arg.	Native	CST	Wd
Euphorbiaceae	*Caryodendron orinocense* H.Karst.	Native	EDI, MED, OTH	Se
Euphorbiaceae	*Croton cuneatus* Klotzsch	Native	CST	Wd
Euphorbiaceae	*Croton palanostigma* Klotzsch	Native	CST	Wd
Euphorbiaceae	*Croton trinitatis* Millsp.	Native	MED, OTH	Lf
Euphorbiaceae	*Euphorbia hirta* L.	Native	MED	Rl
Euphorbiaceae	*Jatropha curcas* L.	Native	MED, OTH	Lf, Se
Euphorbiaceae	*Jatropha gossypiifolia* L.	Native	MED, ORN	Lf, Wp
Euphorbiaceae	*Mabea nítida* Spruce ex Benth.	Native	CST	Wd

Euphorbiaceae	*Mabea trianae* Pax	Native	CST, FWD, MED	Rl, Wd
Euphorbiaceae	*Sapium glandulosum* (L.) Morong	Native	CST	Wd
Euphorbiaceae	*Sapium laurifolium* (A.Rich.) Griseb.	Native	CST	Wd
Euphorbiaceae	*Sapium marmieri* Huber	Native	CST	Wd
Fabaceae	*Acosmium nitens* (Vogel) Yakovlev	Native	HCF	Wd
Fabaceae	*Anadenanthera peregrina* (L.) Speg.	Native	CER, CST	Se
Fabaceae	*Andira surinamensis* (Bondt) Splitg. ex Pulle	Native	CST, HCF, ORN	Wd, Wp
Fabaceae	*Apuleia leiocarpa* (Vogel) J.F.Macbr.	Native	CST	Wd
Fabaceae	*Bauhinia ungulata* L.	Native	ORN	Wp
Fabaceae	*Bowdichia virgilioides* Kunth	Native	CST, MED	Bk, Wd
Fabaceae	*Brownea ariza* Jacq.	Native	MED, ORN	Wp
Fabaceae	*Brownea enrici* Quiñones	Native	ORN	Wp
Fabaceae	*Cabari macrocarpa* (Ducke) Gregório & D.B.O.S.Cardoso	Native	ORN	Wp
Fabaceae	*Campsiandra comosa* Benth.	Native	CST, EDI, HCF	Se, Wd
Fabaceae	*Cassia grandis* L.f.	Native	EDI	Fr
Fabaceae	*Cassia leiandra* Benth.	Native	CST	Wd
Fabaceae	*Cassia moschata* Kunth	Native	CST, MED	Fr, Wd
Fabaceae	*Centrosema angustifolium* (Kunth) Benth.	Native	ORN	Wp
Fabaceae	*Centrosema macrocarpum* Benth.	Native	FOD	
Fabaceae	*Chamaecrista desvauxii* (Collad.) Killip	Native	ORN	Wp
Fabaceae	*Chamaecrista diphylla* (L.) Greene	Native	ORN	Wp
Fabaceae	*Chamaecrista flexuosa* (L.) Greene	Native	ORN	Wp
Fabaceae	*Chamaecrista nictitans* (L.) Moench	Native	ORN	Wp
Fabaceae	*Chamaecrista orenocensis* Spruce ex Benth.) H.S.Irwin & Barneby	Native	ORN	Wp
Fabaceae	*Chamaecrista ramosa* (Vogel) H.S.Irwin & Barneby	Native	ORN	Wp
Fabaceae	*Chamaecrista rotundifolia* (Pers.) Greene	Native	ORN	Wp
Fabaceae	*Chamaecrista viscosa* (Kunth) H.S.Irwin & Barneby	Native	ORN	Wp
Fabaceae	*Clitoria Javitensis* (Kunth) Benth.	Native	ORN	Wp

Fabaceae	*Clitoria arborescens* R.Br.	Native	ORN	Wp
Fabaceae	*Clitoria dendrina* Pittier	Native	ORN	Wp
Fabaceae	*Clitoria guianensis* (Aubl.) Benth.	Native	ORN	Wp
Fabaceae	*Copaifera officinalis* L.	Native	CST, FWD, HCF, MED	Rl, Wd
Fabaceae	*Copaifera pubiflora* Benth.	Native	CST	Wd
Fabaceae	*Crotalaria pallida* Aiton	Introduced	MED	
Fabaceae	*Crotalaria pilosa* Mill.	Native	MED	Lf
Fabaceae	*Cynometra bauhiniifolia* Benth.	Native	CST, HCF	Wd
Fabaceae	*Delonix regia* (Bojer ex Hook.) Raf.	Introduced	ORN	Wp
Fabaceae	*Dialium guianense* (Aubl.) Sandwith	Native	EDI	Fr
Fabaceae	*Dioclea guianensis* Benth.	Native	OTH	
Fabaceae	*Dipteryx punctata* (S.F.Blake) Amshoff	Native	CST, FOD, FWD, HCF, MED, OTH	Fr, Se, Wd
Fabaceae	*Dipteryx rosea* Spruce ex Benth.	Native	MED	Se
Fabaceae	*Eriosema simplicifolium* (DC.) G.Don	Native	ORN	Wp
Fabaceae	*Erythrina poeppigiana* (Walp.) O.F.Cook	Native	CST	Wd
Fabaceae	*Fissicalyx fendleri* Benth.	Native	CST	Wd
Fabaceae	*Grona barbata* (L.) H.Ohashi & K.Ohashi	Native	FOD	
Fabaceae	*Grona orinocensis* (DC.) H.Ohashi & K.Ohashi	Native	FOD	
Fabaceae	*Helicotropis linearis* (Kunth) A.Delgado	Native	FOD, OTH	Fl
Fabaceae	*Hydrochorea corymbosa* (Rich.) Barneby & J.W.Grimes	Native	CST	Wd
Fabaceae	*Hymenaea courbaril* L.	Native	CST, EDI, MED	Bk, Fr, Wd
Fabaceae	*Hymenaea oblongifolia* Huber	Native	CST	Wd
Fabaceae	*Indigofera lespedezioides* Kunth	Native	MED	Rb
Fabaceae	*Inga alba* (Sw.) Willd.	Native	EDI, FWD	Fr, Wd
Fabaceae	*Inga capitata* Desv.	Native	EDI	Fr
Fabaceae	*Inga cylindrica* (Vell.) Mart.	Native	EDI	Fr
Fabaceae	*Inga edulis* Mart.	Native	EDI, FWD, ORN	Fr, Wd, Wp
Fabaceae	*Inga macrophylla* Humb. & Bonpl. ex Willd.	Native	EDI	Fr
Fabaceae	*Inga marginata* Willd.	Native	EDI	Fr

Fabaceae	*Inga stenoptera* Benth.	Native	EDI	Fr
Fabaceae	*Inga thibaudiana* DC.	Native	EDI	Fr
Fabaceae	*Inga umbellifera* (Vahl) Steud. ex DC.	Native	CST	Wd
Fabaceae	*Inga vera* Willd.	Native	FWD	Wd
Fabaceae	*Jupunba trapezifolia* var. *Micradenia* (Benth.) M.V.B.Soares, M.P.Morim & Iganci	Native	CST	Wd
Fabaceae	*Leptolobium nitens* Vogel	Native	CST	Wd
Fabaceae	*Machaerium arboreum* (Jacq.) Vogel	Native	ORN	Wp
Fabaceae	*Machaerium cuspidatum* Kuhlm. & Hoehne	Native	CST	Wd
Fabaceae	*Macrolobium acaciifolium* (Benth.) Benth.	Native	CST, HCF	Se, Wd
Fabaceae	*Macrolobium colombianum* (Britton & Killip)	Native	CST	Wd
Fabaceae	*Macrolobium multijugum* (DC.) Benth.	Native	CST, HCF	Se, Wd
Fabaceae	*Mimosa púdica* L.	Native	OTH	Lf
Fabaceae	*Mimosa trianae* Benth.	Native	FWD	Wd
Fabaceae	*Myroxylon balsamum* (L.) Harms	Native	MED	Rl
Fabaceae	*Ormosia costulata* (Miq.) Kleinhoonte	Native	HCF, MED	Se
Fabaceae	*Ormosia macrocalyx* Ducke	Native	CST, HCF	Wd
Fabaceae	*Parkia multijuga* Benth.	Native	CST	Wd
Fabaceae	*Parkia pendula* (Willd.) Benth. ex Walp.	Native	CST	Wd
Fabaceae	*Platypodium elegans* Vogel	Native	CST	Wd
Fabaceae	*Pseudosamanea guachapele* (Kunth) Harms	Native	CST	Wd
Fabaceae	*Pterocarpus acapulcensis* Rose	Native	CST	Wd
Fabaceae	*Pterocarpus amazonum* (Mart. ex Benth.) Amshoff	Native	MED	
Fabaceae	*Robrichia schomburgkii* (Benth.) A.R.M.Luz & E.R.Souza	Native	CST	Wd
Fabaceae	*Schnella glabra* (Jacq.) Dugand	Native	MED	Lf
Fabaceae	*Schnella guianensis* (Aubl.) Wunderlin	Native	MED	Rl
Fabaceae	*Senna alata* (L.) Roxb.	Native	ORN	Wp

Fabaceae	*Senna bacillaris* (L.f.) H.S.Irwin & Barneby	Native	ORN	Wp
Fabaceae	*Senna macrophylla* (Kunth) H.S.Irwin & Barneby	Native	CST	Wd
Fabaceae	*Senna multijuga* (Rich.) H.S.Irwin & Barneby	Native	CST	Wd
Fabaceae	*Senna occidentalis* (L.) Link	Native	EDI, MED	Se
Fabaceae	*Senna reticulata* (Willd.) H.S.Irwin & Barneby	Native	CST	Wd
Fabaceae	*Senna silvestris* (Vell.) H.S.Irwin & Barneby	Native	ORN	Wp
Fabaceae	*Stryphnodendron guianense* (Aubl.) Benth.	Native	FOD	
Fabaceae	*Tachigali cavipes* (Spruce ex Benth.) J.F.Macbr.	Native	CST	Wd
Fabaceae	*Tachigali tinctoria* (Benth.) Zarucchi & Herend.	Native	CST	Wd
Fabaceae	*Tamarindus indica* L.	Introduced	EDI	Fr
Fabaceae	*Vigna lasiocarpa* (Mart. ex Benth.) Verdc.	Native	FOD	
Fabaceae	*Vigna unguiculata* (L.) Walp.	Introduced	FOD	
Fabaceae	*Zornia diphylla* (L.) Pers.	Introduced	FOD	
Fabaceae	*Zygia cataractae* (Kunth) L.Rico	Native	CST	Wd
Fabaceae	*Zygia inaequalis* (Humb. & Bonpl. ex Willd.) Pittier	Native	CST	Wd
Fabaceae	*Zygia latifolia* (L.) Fawc. & Rendle	Native	CST, FWD, HCF	Wd
Fabaceae	*Zygia unifoliolata* (Benth.) Pittier	Native	CST	Wd
Haemodoraceae	*Schiekia orinocensis* (Kunth) Meisn.	Native	EDI	
Heliconiaceae	*Heliconia hirsuta* L.f.	Native	EDI, ORN, WRP	Lf, Rh, Wp
Heliconiaceae	*Heliconia marginata* (Griggs) Pittier	Native	ORN	Wp
Heliconiaceae	*Heliconia platystachys* Baker	Native	ORN	Wp
Heliconiaceae	*Heliconia psittacorum* L.f.	Native	ORN	Wp
Heliconiaceae	*Heliconia stricta* Huber	Native	ORN	Wp
Heliconiaceae	*Heliconia velutina* L.Andersson	Native	ORN	Wp
Hydroleaceae	*Hydrolea spinosa* L.	Native	MED	
Hypericaceae	*Vismia baccifera* (L.) Triana & Planch.	Native	CST, FWD, HCF, MED	Lf, Rl, Wd
Hypericaceae	*Vismia guianensis* (Aubl.) Pers.	Native	FWD	Wd

Hypericaceae	*Vismia macrophylla* Kunth	Native	FWD	Wd
Hypoxidaceae	*Curculigo scorzonerifolia* (Lam.) Baker	Native	ORN	Wp
Iridaceae	*Cipura paludosa* Aubl.	Native	MED	
Iridaceae	*Sisyrinchium vaginatum* Spreng.	Native	MED	Rh
Lamiaceae	*Aegiphila integrifolia* (Jacq.) B.D.Jacks.	Native	ORN	Wp
Lamiaceae	*Aegiphila mollis* Kunth	Native	MED	
Lamiaceae	Cantinoa mutabilis *(Rich.) Harley & J.F.B.Pastore*	Native	MED	
Lamiaceae	*Eriope crassipes* Benth.	Native	MED	
Lamiaceae	*Hyptis atrorubens* Poit.	Native	MED	
Lamiaceae	*Hyptis brachiata* Briq.	Native	MED	Wp
Lamiaceae	*Hyptis conferta* Pohl ex Benth.	Native	MED	
Lamiaceae	*Hyptis dilatata* Benth.	Native	MED	Wp
Lamiaceae	*Hyptis lantanifolia* Poit.	Native	MED	Wp
Lamiaceae	*Hyptis recurvata* Poit.	Native	MED	
Lamiaceae	*Vitex compressa* Turcz.	Native	CST	Wd
Lamiaceae	*Vitex orinocensis* Kunth	Native	CST, EDI, MED	Bu, Fr, Wd
Lauraceae	*Aniba panurensis* (Meisn.) Mez	Native	CST	Wd
Lauraceae	*Cinnamomum verum* J.Presl	Introduced	MED	Wp
Lauraceae	*Mespilodaphne cymbarum* (Kunth) Trofimov	Native	CST, MED	Wd
Lauraceae	*Nectandra cuspidata* Nees & Mart.	Native	CST	Wd
Lauraceae	*Nectandra pichurim* (Kunth) Mez	Native	CST	Wd
Lauraceae	*Ocotea aurantiodora* (Ruiz & Pav.) Mez	Native	CST	Wd
Lauraceae	*Persea americana* Mill.	Native	EDI	Fr
Lecythidaceae	*Couroupita guianensis* Aubl.	Native	CST	Wd
Lecythidaceae	*Eschweilera parvifolia* Mart. ex DC.	Native	CST	Wd
Lecythidaceae	*Eschweilera tenuifolia* (O.Berg) Miers	Native	CST, HCF, MED	Bk, St, Wd
Lecythidaceae	*Gustavia hexapetala* (Aubl.) Sm.	Native	CST	Wd
Lecythidaceae	*Gustavia pulchra* Miers	Native	EDI	Fr
Lentibulariaceae	*Utricularia gibba* L.	Native	ORN	Wp
Linderniaceae	*Torenia crustacea* (L.) Cham. & Schltdl.	Native	MED, ORN	Wp

Linderniaceae	*Vandellia diffusa* L.	Introduced	ORN	Wp
Lythraceae	*Cuphea antisyphilitica* Kunth	Native	MED	
Malpighiaceae	*Banisteriopsis caapi* (Spruce ex Griseb.) C.V.Morton	Native	CER	Rb
Malpighiaceae	*Byrsonima crassifolia* (L.) Kunth	Native	EDI, FWD, HCF, MED	Bk, Fr, Wd
Malpighiaceae	*Byrsonima crispa* A.Juss.	Native	CST, EDI	Fr, Wd
Malpighiaceae	*Byrsonima japurensis* A.Juss.	Native	CST	Wd
Malpighiaceae	*Byrsonima spicata* (Cav.) Rich. ex Kunth	Native	CST	Wd
Malpighiaceae	*Byrsonima verbascifolia* (L.) DC.	Native	EDI	Fr
Malvaceae	*Apeiba tibourbou* Aubl.	Native	HCF	Bk
Malvaceae	*Ceiba pentandra* (L.) Gaertn.	Native	CST, MED	Wd
Malvaceae	*Guazuma ulmifolia* Lam.	Native	CST, FWD, MED	Bk, Lf, Wd
Malvaceae	*Helicteres guazumifolia* Kunth	Native	FOD	
Malvaceae	*Hibiscus furcellatus* Lam.	Native	ORN	Wp
Malvaceae	*Matisia glandifera* Triana & Planch.	Native	EDI	Fr
Malvaceae	*Matisia ochrocalyx* K.Schum.	Native	EDI	Fr
Malvaceae	*Ochroma pyramidale* (Cav. ex Lam.) Urb.	Native	CST	
Malvaceae	*Pachira minor* (Sims) Otto & A.Dietr.	Native	FWD, ORN	Wd, Wp
Malvaceae	*Peltaea trinervis* (C.Presl) Krapov. & Cristóbal	Native	ORN	Wp
Malvaceae	*Pseudobombax septenatum* (Jacq.) Dugand	Native	CST	Wd
Malvaceae	*Sida rhombifolia* L.	Native	HCF	St
Malvaceae	*Sida serrata* Willd. ex Spreng	Native	MED	
Marantaceae	*Calathea lutea* (Aubl.) E.Mey. ex Schult.	Native	HCF, ORN, WRP	Lf, Wp
Marantaceae	*Ischnosiphon arouma* Körn.	Native	HCF	Lf
Marantaceae	*Maranta arundinacea* L.	Native	CER	Rb
Marantaceae	*Monotagma laxum* (Poepp. & Endl.) K.Schum.	Native	WRP	
Marantaceae	*Thalia geniculata* L.	Native	MED	
Mayacaceae	*Mayaca fluviatilis* Aubl.	Native	ORN	Wp
Melastomataceae	*Aciotis acuminifolia* (Mart. ex DC.) Triana	Native	MED, ORN	Wp

Melastomataceae	*Aciotis purpurascens* (Aubl.) Triana	Native	EDI	Fr
Melastomataceae	*Bellucia grossularioides* (L.) Triana	Native	CST, EDI	Fr, Wd
Melastomataceae	*Bellucia strigosa* (Gleason) Penneys, Michelang., Judd & Almeda	Native	FWD	Wd
Melastomataceae	*Henriettea fascicularis* (Sw.) M.Gómez	Native	CST	Wd
Melastomataceae	*Miconia albicans* (Sw.) Steud.	Native	CST	Wd
Melastomataceae	*Miconia dolichorrhyncha* Naudin	Native	CST	Wd
Melastomataceae	*Miconia elata* (Sw.) DC.	Native	CST	Wd
Melastomataceae	*Miconia holosericea* (L.) DC.	Native	CST	Wd
Melastomataceae	*Miconia minutiflora* (Bonpl.) DC.	Native	CST	Wd
Melastomataceae	*Miconia multispicata* Naudin	Native	FWD	Wd
Melastomataceae	*Miconia rubiginosa* (Bonpl.) DC.	Native	CST	Wd
Melastomataceae	*Miconia sericea* (D.Don) Michelang.	Native	EDI	Fr
Melastomataceae	*Miconia tomentosa* (Rich.) D.Don	Native	CST	Wd
Melastomataceae	*Miconia trinervia* (Sw.) D.Don ex G.Don	Native	FWD	Wd
Melastomataceae	*Mouriri guianensis* Aubl.	Native	EDI	Fr
Melastomataceae	*Pterogastra divaricata* (Bonpl.) Naudin	Native	ORN	Wp
Melastomataceae	*Rhynchanthera bracteata* Triana	Native	ORN	Wp
Melastomataceae	*Tibouchina aspera* Aubl.	Native	ORN	Fl
Meliaceae	*Melia azedarach* L.	Introduced	MED	
Menispermaceae	*Abuta grandifolia* (Mart.) Sandwith	Native	MED	
Menyanthaceae	*Nymphoides indica* (L.) Kuntze	Introduced	MED, ORN	Wp
Moraceae	*Brosimum lactescens* (S.Moore) C.C.Berg	Native	CST, EDI	Fr, Wd
Moraceae	*Brosimum utile* (Kunth) Oken	Native	EDI	Fr
Moraceae	*Clarisia biflora* Ruiz & Pav.	Native	CST	Wd
Moraceae	*Clarisia racemosa* Ruiz & Pav.	Native	CST	Wd
Moraceae	*Pseudolmedia laevis* (Ruiz & Pav.) J.F.Macbr.	Native	CST, EDI, HCF	Fr, Wd
Moraceae	*Trophis racemosa* (L.) Urb.	Native	EDI	Fr
Myristicaceae	*Virola carinata* (Spruce ex Benth.) Warb.	Native	CST, MED	Bk, Wd
Myristicaceae	*Virola cuspidata* (Benth.) Warb.	Native	MED	Rb

Myristicaceae	*Virola elongata* (Benth.) Warb.	Native	CST	Wd
Myristicaceae	*Virola sebifera* Aubl.	Native	CST, HCF	Wd
Myrtaceae	*Campomanesia lineatifolia* Ruiz & Pav.	Native	EDI	Fr
Myrtaceae	*Eugenia biflora* (L.) DC.	Native	CST, MED	Rb, Wd
Myrtaceae	*Eugenia stipitata* McVaugh	Native	EDI	Fr
Myrtaceae	*Myrcia splendens* (Sw.) DC.	Native	EDI	Fr
Myrtaceae	*Myrcia subsessilis* O.Berg	Native	CST, HCF	Bk, Wd
Myrtaceae	*Myrciaria floribunda* (H.West ex Willd.) O.Berg	Native	EDI	Fr
Myrtaceae	*Psidium guajava* L.	Native	EDI	Fr
Myrtaceae	*Psidium guineense* Sw.	Native	EDI	Fr
Ochnaceae	*Quiina macrophylla* Tul.	Native	CST, EDI	Fr, Wd
Ochnaceae	*Sauvagesia erecta* L.	Native	MED	
Onagraceae	*Ludwigia inclinata* (L.f.) M.Gómez	Native	ORN	Wp
Onagraceae	*Ludwigia nervosa* (Poir.) H.Hara	Native	ORN	Wp
Onagraceae	*Ludwigia octovalvis* (Jacq.) P.H.Raven	Native	MED	
Onagraceae	*Ludwigia peploides* (Kunth) P.H.Raven	Native	MED, ORN	Wp
Onagraceae	*Ludwigia rigida* (Miq.) Sandwith	Native	ORN	Wp
Orchidaceae	*Catasetum pileatum* Rchb.f.	Native	ORN	Wp
Orchidaceae	*Cattleya violacea* (Kunth) Lindl.	Native	ORN	Wp
Orchidaceae	*Encyclia leucantha* Schltr.	Native	ORN	Wp
Orchidaceae	*Ionopsis utricularioides* (Sw.) Lindl.	Native	ORN	Wp
Oxalidaceae	*Averrhoa carambola* L.	Introduced	EDI	Fr
Passifloraceae	*Passiflora ambigua* Hemsl.	Native	EDI	Fr
Passifloraceae	*Passiflora auriculata* Kunth	Native	EDI	Fr
Passifloraceae	*Passiflora coccinea* Aubl.	Native	EDI	Fr
Passifloraceae	*Passiflora foetida* L.	Native	EDI, ORN	Fr, Wp
Passifloraceae	*Passiflora misera* Kunth	Native	EDI	Fr
Passifloraceae	*Passiflora nitida* Kunth	Native	EDI, ORN	Fr, Wp
Passifloraceae	*Passiflora seemannii* Griseb.	Native	EDI	Fr
Passifloraceae	*Passiflora vespertilio* L.	Native	EDI	Fr
Passifloraceae	*Passiflora vitifolia* Kunth	Native	EDI	Fr
Phyllanthaceae	*Hieronyma alchorneoides* Allemão	Native	CST, EDI	Fr, Wd

Phyllanthaceae	*Phyllanthus niruri* L.	Native	MED	Wp
Phytolaccaceae	*Phytolacca rivinoides* Kunth & C.D.Bouché	Native	EDI, HCF, MED	Fr, Lf
Picrodendraceae	*Piranhea trifoliolata* Baill.	Native	CST, MED	Bk, Wd
Plantaginaceae	*Bacopa myriophylloides* (Benth.) Wettst.	Native	ORN	
Plantaginaceae	*Scoparia dulcis* L.	Native	MED, ORN	Wp
Poaceae	*Acroceras zizanioides* (Kunth) Dandy	Native	FOD	
Poaceae	*Anatherum bicorne* (L.) P.Beauv.	Native	CST, FOD, HCF, OTH	Fr, St
Poaceae	*Axonopus compressus* (Sw.) P.Beauv.	Native	FOD	
Poaceae	*Axonopus purpusii* (Mez) Chase	Native	FOD	Wp
Poaceae	*Cynodon dactylon* (L.) Pers.	Introduced	FOD	
Poaceae	*Echinochloa colona* (L.) Link	Introduced	FOD	
Poaceae	*Eleusine indica* (L.) Gaertn.	Introduced	FOD, MED	
Poaceae	*Eragrostis maypurensis* (Kunth) Steud.	Native	FOD	
Poaceae	*Eriochrysis cayennensis* P.Beauv.	Native	MED	
Poaceae	*Gynerium sagittatum* (Aubl.) P.Beauv.	Native	CST, HCF	Lf, St, Wd
Poaceae	*Hymenachne amplexicaulis* (Rudge) Nees	Native	FOD	Wp
Poaceae	*Imperata contracta* Hitchc.	Native	FOD	
Poaceae	*Leersia hexandra* Sw.	Native	EDI, FOD	Wp
Poaceae	*Olyra latifolia* L.	Native	FOD	
Poaceae	*Oryza latifolia* Desv.	Native	OTH	St
Poaceae	*Otachyrium versicolor* (Döll) Henrard	Native	FOD	Wp
Poaceae	*Panicum rudgei* Roem. & Schult.	Native	FOD	
Poaceae	*Paspalum notatum* Flüggé	Introduced	FOD	
Poaceae	*Paspalum plicatulum* Michx.	Native	FOD	Wp
Poaceae	*Saccharum officinarum* L.	Introduced	EDI, FOD	
Poaceae	*Urochloa brizantha* (A.Rich.) R.D.Webster	Introduced	FOD	
Poaceae	*Urochloa eminii* (Mez) Davidse	Introduced	FOD	
Polygalaceae	*Asemeia violacea* (Aubl.) J.F.B.Pastore & J.R.Abbott	Native	OTH	
Polygalaceae	*Diclidanthera bolivarensis* Pittier	Native	EDI	Fr
Polygonaceae	*Coccoloba mollis* Casar.	Native	CST, MED	Se, Wd

Polygonaceae	*Coccoloba ovata* Benth.	Native	EDI, FWD	Fr, Wd
Polygonaceae	*Persicaria acuminata* (Kunth) M.Gómez	Native	MED	
Polygonaceae	*Triplaris americana* L.	Native	ORN	Wp
Polypodiaceae	*Serpocaulon triseriale* (Sw.) A.R.Sm.	Native	MED	Lf
Pontederiaceae	*Pontederia azurea* Sw.	Native	HCF, MED, ORN	Rb, Wp
Portulacaceae	*Portulaca oleracea* L.	Introduced	EDI, MED	Lf
Rapateaceae	*Guacamaya superba* Maguire	Native	ORN	Wp
Rubiaceae	*Alibertia edulis* (Rich.) A.Rich. ex DC.	Native	EDI	Fr
Rubiaceae	*Capirona macrophylla* (Poepp.) Delprete	Native	MED	Bk
Rubiaceae	*Duroia hirsuta* (Poepp.) K.Schum.	Native	CST, EDI, HCF	Fr, Lf, Wd
Rubiaceae	*Duroia micrantha* (Ladbr.) Zarucchi & J.H.Kirkbr.	Native	CST, EDI	Fr, Wd
Rubiaceae	*Genipa americana* L.	Native	EDI, FWD, HCF, MED	Fr, Wd
Rubiaceae	*Hamelia patens* Jacq.	Native	MED, ORN	Wp
Rubiaceae	*Oldenlandia corymbosa* L.	Introduced	EDI, MED	Wp
Rubiaceae	*Palicourea bracteocardia* (DC.) Delprete & J.H.Kirkbr.	Native	MED	Rb
Rubiaceae	*Palicourea justiciifolia* (Rudge) Delprete & J.H.Kirkbr.	Native	MED	Rb
Rubiaceae	*Palicourea tomentosa* (Aubl.) Borhidi	Native	MED, ORN, OTH	Wp
Rubiaceae	*Perama hirsuta* Aubl.	Native	MED	Lf
Rubiaceae	*Simira rubescens* (Benth.) Bremek. ex Steyerm.	Native	HCF	Wd
Rubiaceae	*Sipanea pratensis* Aubl.	Native	MED	Lf
Rubiaceae	*Warszewiczia coccinea* (Vahl) Klotzsch	Native	CST	Wd
Rutaceae	*Zanthoxylum fagara* (L.) Sarg.	Native	CST	Wd
Salicaceae	*Casearia ulmifolia* Vahl ex Vent.	Native	CER	Lf
Sapindaceae	*Cupania latifolia* Kunth	Native	CST	Wd
Sapindaceae	*Serjania clematidea* Triana & Planch.	Native	MED	
Sapotaceae	*Pouteria caimito* (Ruiz & Pav.) Radlk.	Native	EDI	Fr
Sapotaceae	*Pouteria elegans* (A.DC.) Baehni	Native	EDI	Fr
Sapotaceae	*Pouteria guianensis* Aubl.	Native	CST	
Sapotaceae	*Sarcaulus brasiliensis* (A.DC.) Eyma	Native	CST	Wd
Schizaeaceae	*Lygodium venustum* Sw.	Native	OTH	

Selaginellaceae	*Selaginella asperula* Mart. ex Spring	Native	MED	Lf
Simaroubaceae	*Simarouba amara* Aubl.	Native	CST, HCF, OTH	Wd
Siparunaceae	*Siparuna guianensis* Aubl.	Native	HCF, MED	Bk, Lf
Siparunaceae	*Siparuna sessiliflora* (Kunth) A.DC.	Native	MED	Lf
Solanaceae	*Nicotiana tabacum* L.	Introduced	CER, MED	Lf
Strelitziaceae	*Phenakospermum guyannense* (A.Rich.) Endl. ex Miq.	Native	EDI, MED, WRP	Fr, Lf, Wd
Urticaceae	*Pourouma bicolor* Mart.	Native	FWD	Wd
Urticaceae	*Pourouma cecropiifolia* Mart.	Native	EDI	Fr
Urticaceae	*Urera baccifera* (L.) Gaudich. ex Wedd.	Native	MED	
Urticaceae	*Urera caracasana* (Jacq.) Gaudich. ex Griseb.	Native	MED	
Verbenaceae	*Lantana cámara* L.	Native	MED, ORN	Wp
Verbenaceae	*Lantana trifolia* L.	Native	ORN	Wp
Verbenaceae	*Lippia alba* (Mill.) N.E.Br. ex Britton & P.Wilson	Native	MED	Lf
Verbenaceae	*Petrea volubilis* L.	Native	ORN	Wp
Vochysiaceae	*Vochysia lehmannii* Hieron.	Native	CST, EDI, ORN	Se, Wd, Wp
Vochysiaceae	*Vochysia venezuelana* Stafleu	Native	CST	Wd
Xyridaceae	*Xyris jupicai* Rich.	Native	MED	Wp
Zingiberaceae	*Hedychium coronarium* J.Koenig	Introduced	COS, EDI, MED, ORN	Fl
Zingiberaceae	*Renealmia alpinia* (Rottb.) Maas	Native	HCF, MED	Fr
Zingiberaceae	*Renealmia aromatica* (Aubl.) Griseb.	Native	MED	

Table S3. Documentation completeness of plant-part information by use-category

Use Category	Total records	Records with part specified	Proportion with part specified
Seasoning Plants	1	1	1.00
Edible	246	241	0.97
Ornamental	146	143	0.97
Firewood	31	30	0.96
Construction	262	249	0.95
Wrapping	15	14	0.93
Handicrafts	124	111	0.89

Ceremonial - Religious	18	15	0.83
Cosmetics	7	5	0.71
Medicinal	205	115	0.56
Other Uses	27	15	0.55
Fodder	37	10	0.27

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Table S4. Within-category composition of plant parts with 95% Wilson Cis

Use category	Plant part	Records	Denominator for proportions	Proportion within category	95% CI lower	95% CI upper	Category completeness
Ceremonial Religious	All plant	2	15	0.13	0.04	0.38	0.83
Ceremonial Religious	Fruit	1	15	0.07	0.01	0.30	0.83
Ceremonial Religious	Leaf	3	15	0.20	0.07	0.45	0.83
Ceremonial Religious	Petiole	1	15	0.07	0.01	0.30	0.83
Ceremonial Religious	Resin/latex	1	15	0.07	0.01	0.30	0.83
Ceremonial Religious	Root or bulb	2	15	0.13	0.04	0.38	0.83
Ceremonial Religious	Seeds	4	15	0.27	0.11	0.52	0.83
Ceremonial Religious	The sap	1	15	0.07	0.01	0.30	0.83
Construction	Bark	1	249	0.00	0.00	0.02	0.95
Construction	Fruit	2	249	0.01	0.00	0.03	0.95
Construction	Leaf	40	249	0.16	0.12	0.21	0.95
Construction	Resin/latex	1	249	0.00	0.00	0.02	0.95
Construction	Stem	31	249	0.12	0.09	0.17	0.95
Construction	Wood or trunk	174	249	0.70	0.64	0.75	0.95
Cosmetics	Fruit	3	5	0.60	0.23	0.88	0.71
Cosmetics	Leaf	2	5	0.40	0.12	0.77	0.71
Edible	All plant	1	241	0.00	0.00	0.02	0.98
Edible	Flowers	2	241	0.01	0.00	0.03	0.98
Edible	Fruit	217	241	0.90	0.86	0.93	0.98

Edible	Leaf	2	241	0.01	0.00	0.03	0.98
Edible	Rhizome	1	241	0.00	0.00	0.02	0.98
Edible	Root or bulb	1	241	0.00	0.00	0.02	0.98
Edible	Seeds	15	241	0.06	0.04	0.10	0.98
Edible	Stem	1	241	0.00	0.00	0.02	0.98
Edible	The sap	1	241	0.00	0.00	0.02	0.98
Firewood	All plant	1	30	0.03	0.01	0.17	0.97
Firewood	Wood or trunk	29	30	0.97	0.83	0.99	0.97
Fodder	All plant	9	10	0.90	0.60	0.98	0.27
Fodder	Fruit	1	10	0.10	0.02	0.40	0.27
Handicrafts	All plant	1	111	0.01	0.00	0.05	0.90
Handicrafts	Bark	6	111	0.05	0.03	0.11	0.90
Handicrafts	Fruit	10	111	0.09	0.05	0.16	0.90
Handicrafts	Leaf	50	111	0.45	0.36	0.54	0.90
Handicrafts	Peduncle	1	111	0.01	0.00	0.05	0.90
Handicrafts	Petiole	3	111	0.03	0.01	0.08	0.90
Handicrafts	Resin/latex	2	111	0.02	0.00	0.06	0.90
Handicrafts	Seeds	9	111	0.08	0.04	0.15	0.90
Handicrafts	Stem	6	111	0.05	0.03	0.11	0.90
Handicrafts	Wood or trunk	23	111	0.21	0.14	0.29	0.90
Medicinal	All plant	10	115	0.09	0.05	0.15	0.56

Medicinal	Bark	23	115	0.20	0.14	0.28	0.56
Medicinal	Fruit	12	115	0.10	0.06	0.17	0.56
Medicinal	Leaf	28	115	0.24	0.17	0.33	0.56
Medicinal	Resin/latex	14	115	0.12	0.07	0.19	0.56
Medicinal	Rhizome	2	115	0.02	0.00	0.06	0.56
Medicinal	Root or bulb	9	115	0.08	0.04	0.14	0.56
Medicinal	Seeds	6	115	0.05	0.02	0.11	0.56
Medicinal	Stem	5	115	0.04	0.02	0.10	0.56
Medicinal	The sap	1	115	0.01	0.00	0.05	0.56
Medicinal	Wood or trunk	5	115	0.04	0.02	0.10	0.56
Ornamental	All plant	139	143	0.97	0.93	0.99	0.98
Ornamental	Flowers	4	143	0.03	0.01	0.07	0.98
Other Uses	Flowers	1	15	0.07	0.01	0.30	0.56
Other Uses	Fruit	3	15	0.20	0.07	0.45	0.56
Other Uses	Leaf	4	15	0.27	0.11	0.52	0.56
Other Uses	Root or bulb	3	15	0.20	0.07	0.45	0.56
Other Uses	Seeds	4	15	0.27	0.11	0.52	0.56
Seasoning Plants	Leaf	1	1	1.00	0.21	1.00	1.00
Wrapping	Leaf	14	14	1.00	0.78	1.00	0.93

Table S5. Distribution of species' versatility (V_{raw}) in the Colombian Orinoquia (N = 502). Counts and percentages for V_{raw} classes, with summary statistics (median, IQR and maximum). Only distinct study–species–category links were considered.

Class	Count	Percent	Value
V_{raw} = 1	344	68.5%	
V_{raw} = 2	77	15.3%	
V_{raw} = 3	46	9.2%	
$V_{raw} \geq 4$	35	7%	
Median V_{raw}			1
IQR (Q1–Q3)			1–2
Max V_{raw}			9