La dimensión cultural de la biodiversidad

RODRIGO CÁMARA LERET
UNIVERSIDAD DE ZÚRICH

VI SIMPOSIO DE BOTÁNICA ESPAÑOLA, MIE
DEL CUADERNO DE CAMPO AL BIG DAT

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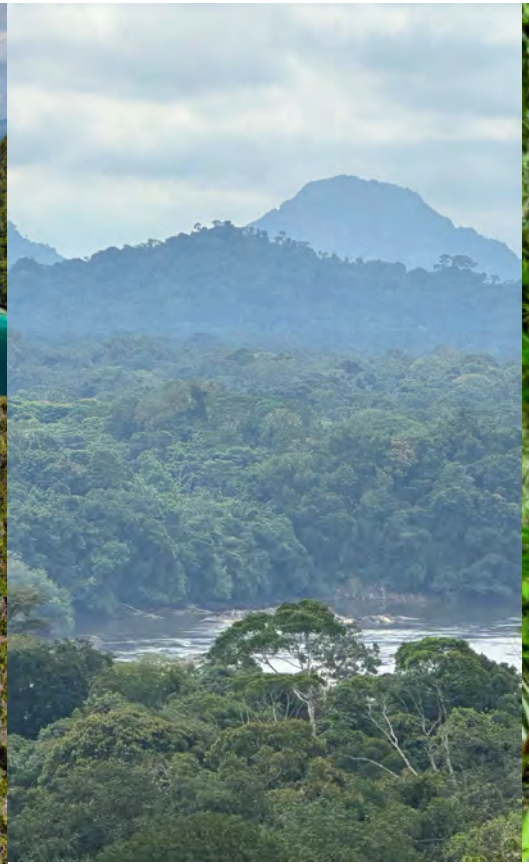
CRISTINA TARQUIN *LUIZ SALDANHA* *LENA SCHNEIDER* *CHIARA CASPERS*

A window into a fascinating world

Dominate many irreplaceable ecosystems

Karst forests, sea-level
West Papua, Indonesia
© Tim Laman

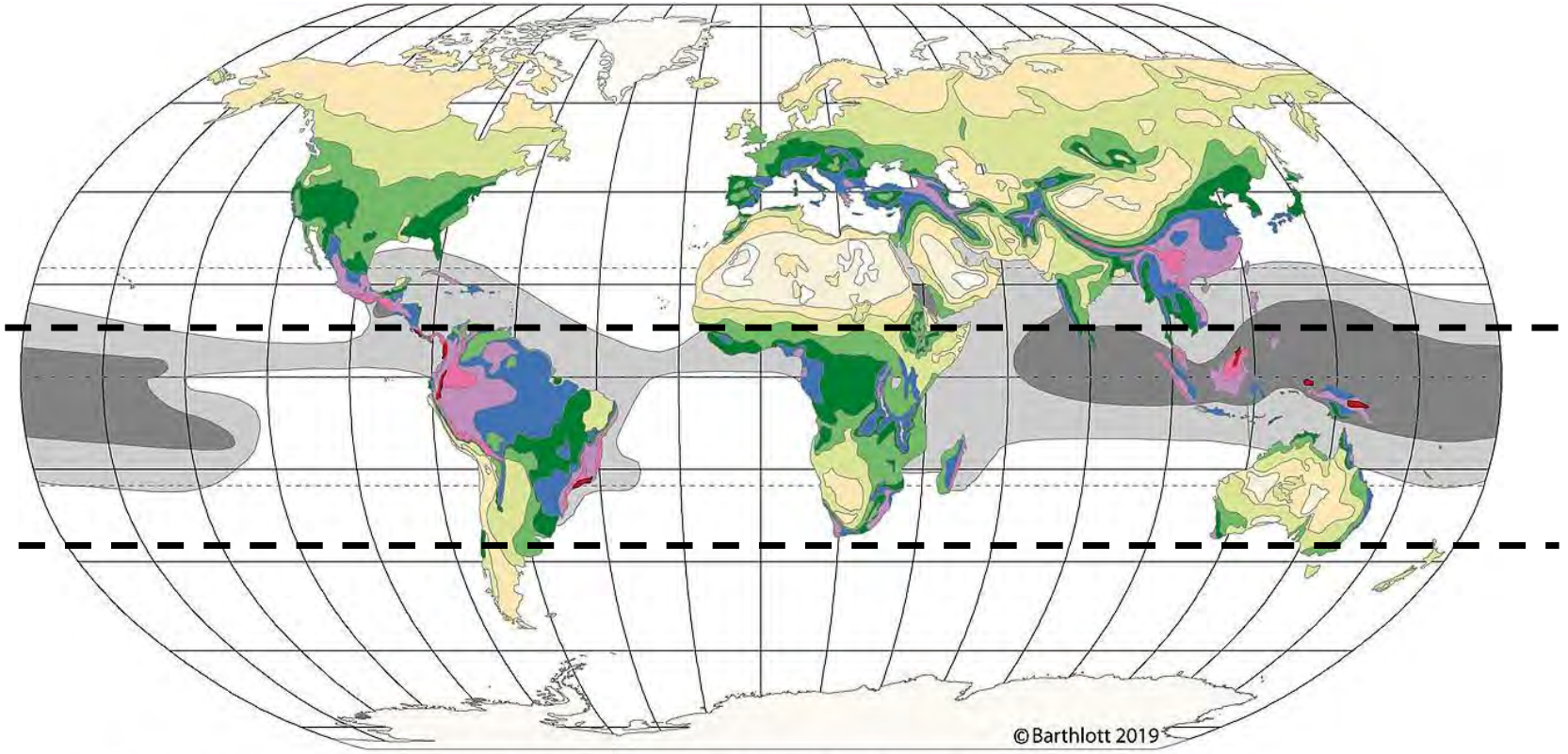


Amazonian forests, 100m
Vaupés, Colombia
© Rodrigo Cámara-Leret

Andean forests, 2800m
Cundinamarca, Colombia
© Rodrigo Cámara-Leret

Páramos, 3500m
Sierra Nevada del Cocuy, Colombia
© Rodrigo Cámara-Leret

Megadiverse



Robinson projection
Standard parallels 38° N and 38° S

> 27° C Sea surface temp.
> 29° C Sea surface temp.

Diversity zones (DZ), number of vascular plant species per 10,000 km²

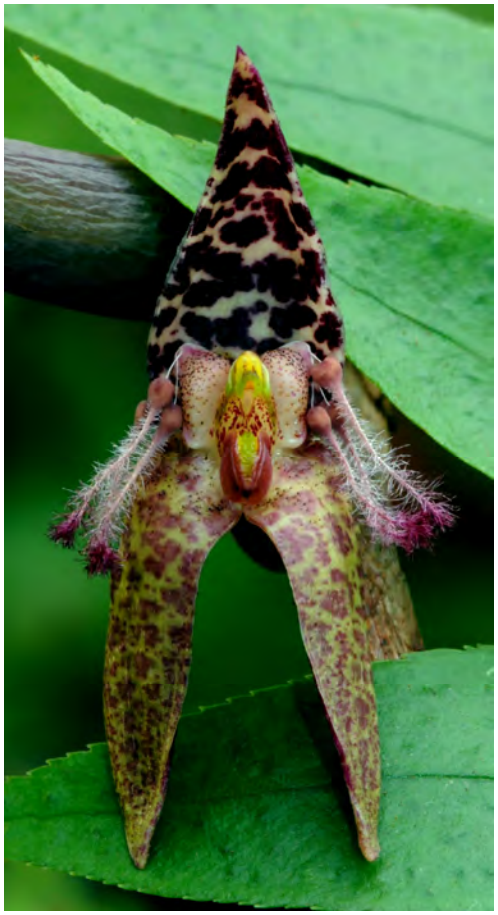
DZ 1 (<100)
DZ 2 (100 - 200)
DZ 3 (200 - 500)
DZ 4 (500 - 1000)
DZ 5 (1000 - 1500)
DZ 6 (1500 - 2000)
DZ 7 (2000 - 3000)
DZ 8 (3000 - 4000)
DZ 9 (4000 - 5000)
DZ 10 (> 5000)

Modified after Barthlott W., Rafiqpoor, M.D. & Mutke, J. (2014) and Barthott et al. (1996, 2007)

Unique model systems for studying evolution

Nepenthes biak
New Guinea
© Martin Cheek

Bulbophyllum cimicnum
New Guinea
© André Schuiteman



Bulbophyllum tarantula
New Guinea
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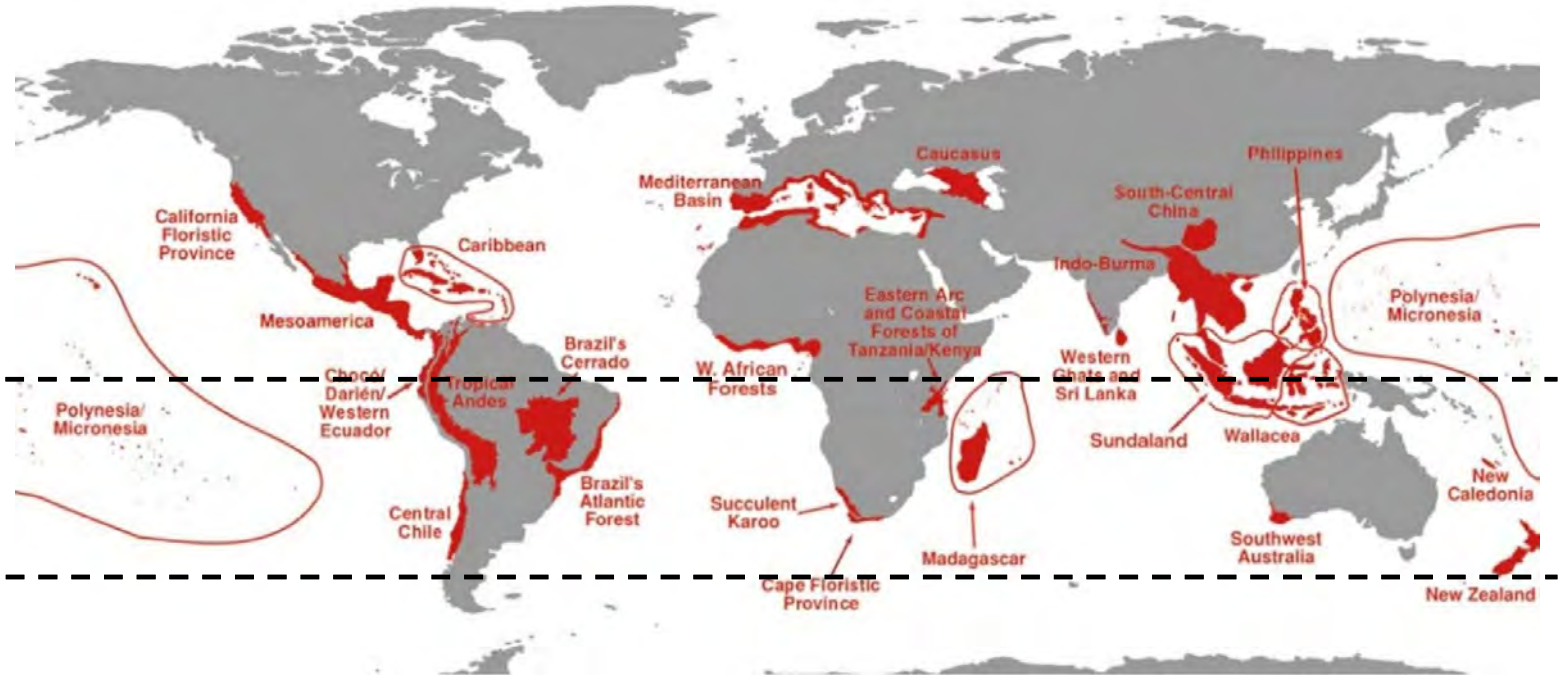
Many endangered 'biodiversity 'hotspots'

Ceroxylon quidiuense (Arecaceae)
Quindio, Colombia

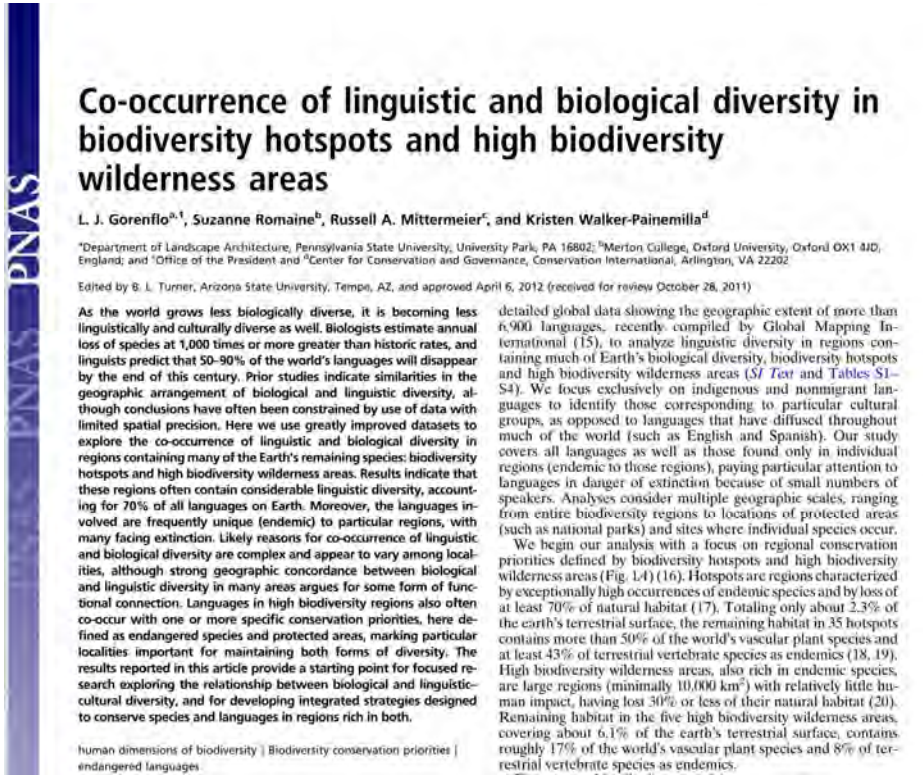


2% of the earth's land surface
> 50% of the world's plant species
>43% of terrestrial vertebrate species

Myers, N. *et al.* (2000) Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.

Cultural diversity

- Tropical regions have the world's highest concentration of ethnolinguistic groups
- Half of all languages are in the 35 biodiversity hotspots



PNAS

Co-occurrence of linguistic and biological diversity in biodiversity hotspots and high biodiversity wilderness areas

L. J. Gorenflo[a,1], Suzanne Romaine[b], Russell A. Mittermeier[c], and Kristen Walker-Painemilla[d]

[a]Department of Landscape Architecture, Pennsylvania State University, University Park, PA 16802; [b]Merton College, Oxford University, Oxford OX1 4JD, England; and [c]Office of the President and [d]Center for Conservation and Governance, Conservation International, Arlington, VA 22202

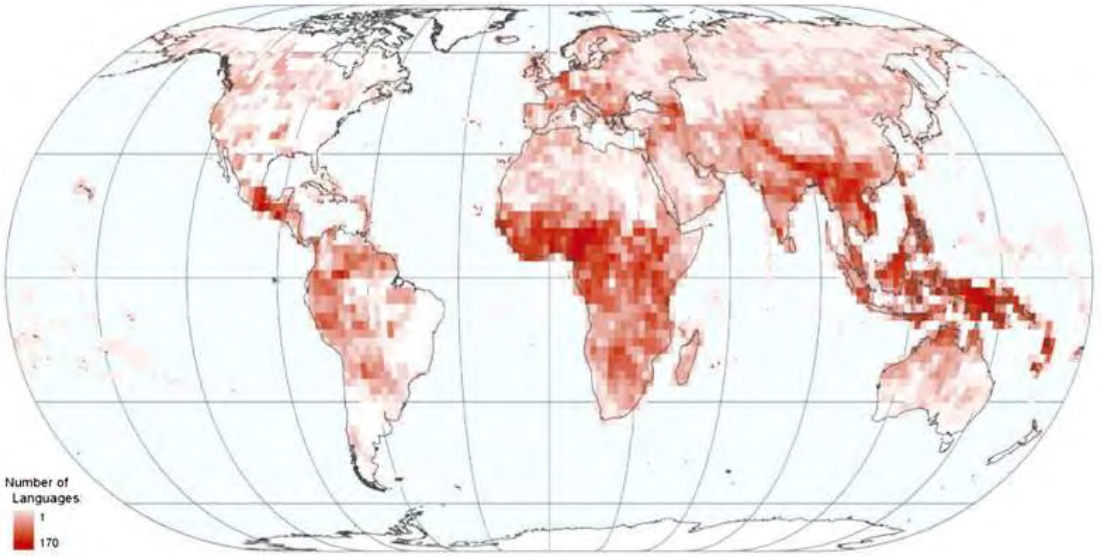
Edited by B. L. Turner, Arizona State University, Tempe, AZ, and approved April 6, 2012 (received for review October 28, 2011)

As the world grows less biologically diverse, it is becoming less linguistically and culturally diverse as well. Biologists estimate annual loss of species at 1,000 times or more greater than historic rates, and linguists predict that 50–90% of the world's languages will disappear by the end of this century. Prior studies indicate similarities in the geographic arrangement of biological and linguistic diversity, although conclusions have often been constrained by use of data with limited spatial precision. Here we use greatly improved datasets to explore the co-occurrence of linguistic and biological diversity in regions containing many of the Earth's remaining species: biodiversity hotspots and high biodiversity wilderness areas. Results indicate that these regions often contain considerable linguistic diversity, accounting for 70% of all languages on Earth. Moreover, the languages involved are frequently unique (endemic) to particular regions, with many facing extinction. Likely reasons for co-occurrence of linguistic and biological diversity are complex and appear to vary among localities, although strong geographic concordance between biological and linguistic diversity in many areas argues for some form of functional connection. Languages in high biodiversity regions also often co-occur with one or more specific conservation priorities, here defined as endangered species and protected areas, marking particular localities important for maintaining both forms of diversity. The results reported in this article provide a starting point for focused research exploring the relationship between biological and linguistic-cultural diversity, and for developing integrated strategies designed to conserve species and languages in regions rich in both.

human dimensions of biodiversity | Biodiversity conservation priorities | endangered languages

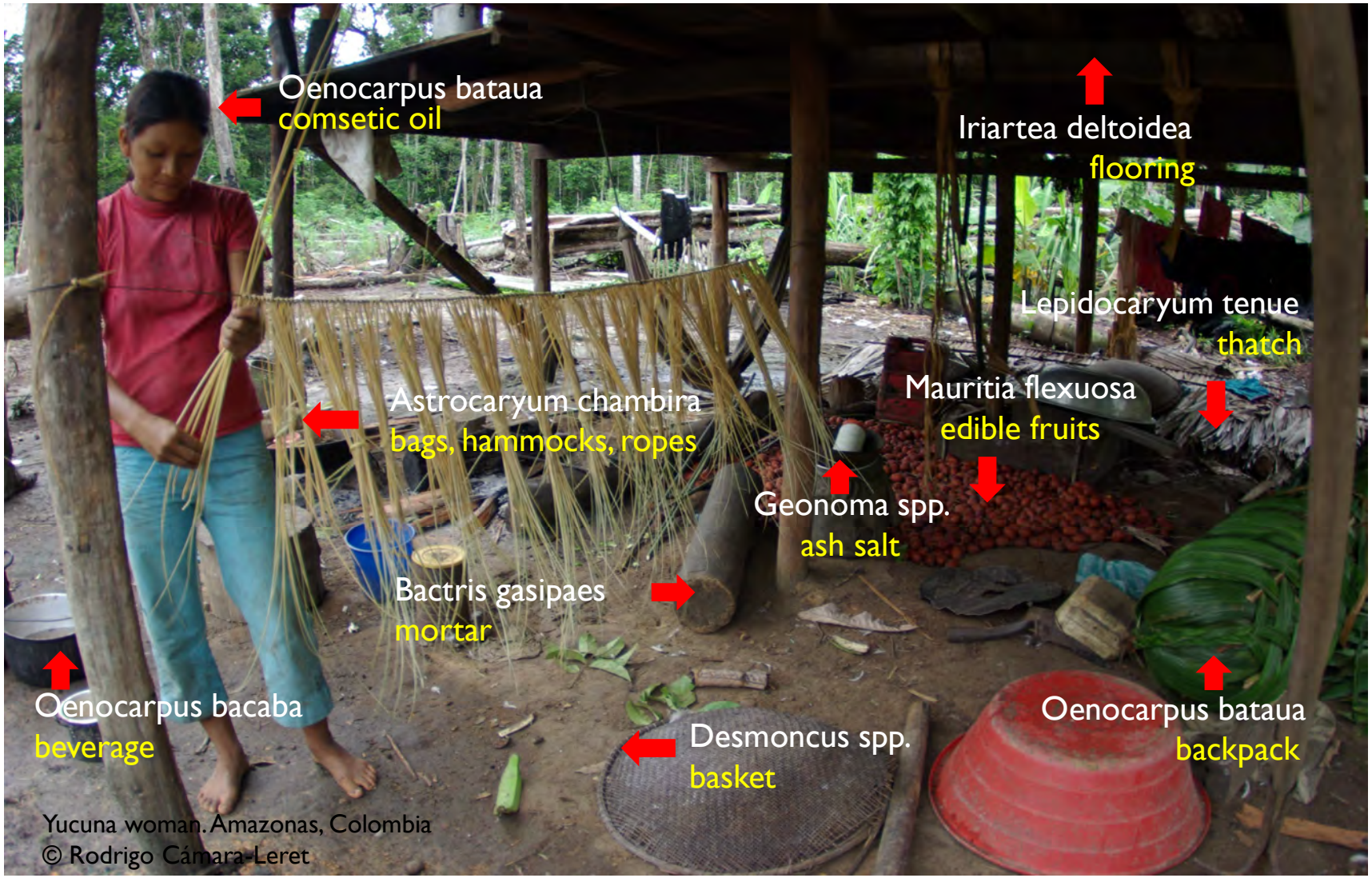
detailed global data showing the geographic extent of more than 6,900 languages, recently compiled by Global Mapping International (15), to analyze linguistic diversity in regions containing much of Earth's biological diversity, biodiversity hotspots and high biodiversity wilderness areas (*SI Text* and Tables S1–S4). We focus exclusively on indigenous and nonmigrant languages to identify those corresponding to particular cultural groups, as opposed to languages that have diffused throughout much of the world (such as English and Spanish). Our study covers all languages as well as those found only in individual regions (endemic to those regions), paying particular attention to languages in danger of extinction because of small numbers of speakers. Analyses consider multiple geographic scales, ranging from entire biodiversity regions to locations of protected areas (such as national parks) and sites where individual species occur.

We begin our analysis with a focus on regional conservation priorities defined by biodiversity hotspots and high biodiversity wilderness areas (Fig. 1*A*) (16). Hotspots are regions characterized by exceptionally high occurrences of endemic species and by loss of at least 70% of natural habitat (17). Totaling only about 2.3% of the earth's terrestrial surface, the remaining habitat in 35 hotspots contains more than 50% of the world's vascular plant species and at least 43% of terrestrial vertebrate species as endemics (18, 19). High biodiversity wilderness areas, also rich in endemic species, are large regions (minimally 10,000 km^2) with relatively little human impact, having lost 30% or less of their natural habitat (20). Remaining habitat in the five high biodiversity wilderness areas, covering about 6.1% of the earth's terrestrial surface, contains roughly 17% of the world's vascular plant species and 8% of terrestrial vertebrate species as endemics.



Central to Human Lives

Central to Human Lives




Standard
LYFLAT
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Standard B&P
A BOORUM & PEASE PRODUCT
5350 — 5607
7000 — 7277
NAME
FROM
TO
NO.
K 43
MADE IN U. S. A.

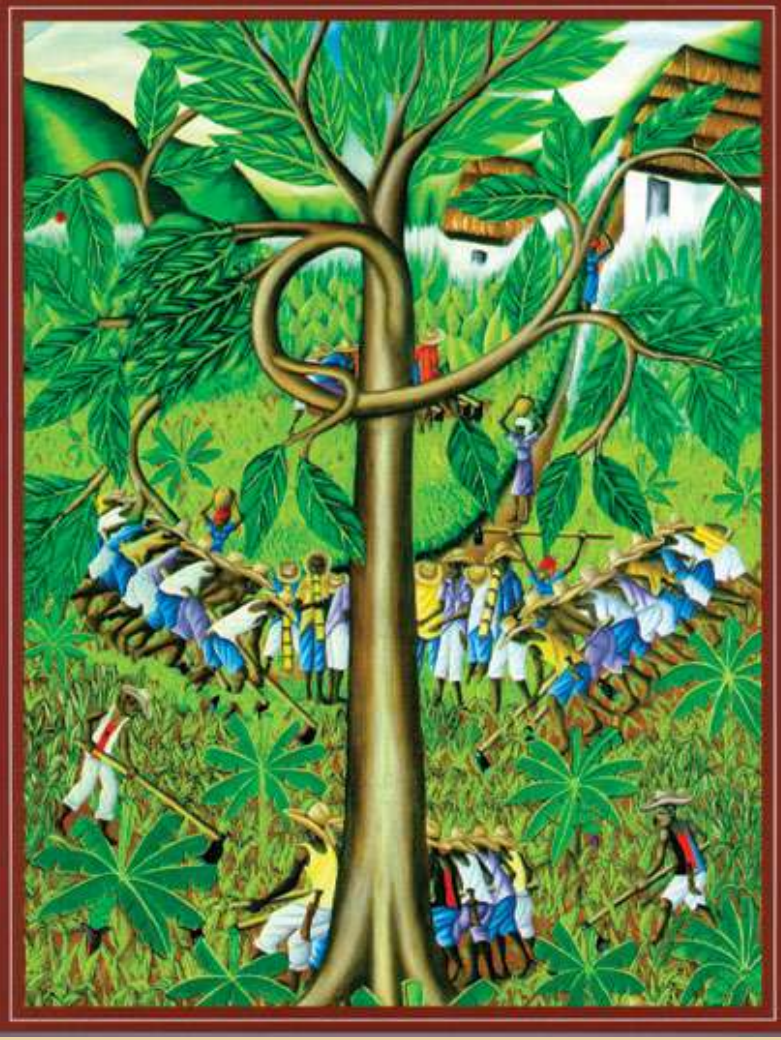
RICHARD EVANS SCHULTES

(1915 – 2001)

ETHNOBOTANY

EVOLUTION OF A DISCIPLINE

Edited by Richard Evans Schultes & Siri von Reis



THE HEALING FOREST

Medicinal and Toxic Plants of the Northwest Amazonia

Richard Evans Schultes *and* Robert F. Raffauf

Foreword by H. R. H. Philip, Duke of Edinburgh

Vine of the Soul

Medicine Men, their Plants and Rituals in the Colombian Amazonia

Richard Evans Schultes, F.M.L.S.
Robert F. Raffauf, F.L.S.

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Professor of Biology
Director and Curator of Economic Botany
Botanical Museum of Harvard University
Cambridge, Massachusetts

ALBERT HOFMANN
Ph.D., Dr. Pharm. H.C., Dr. Sc. Nat. H.C.
Head of the Pharmaceutical-Chemical Research Laboratories
Division of Natural Products, Sandoz Ltd.
Basel, Switzerland

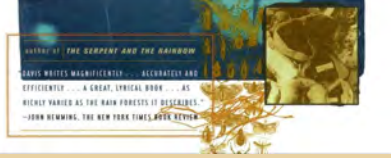
With a Foreword
Heinrich Klu
M.D. (Hon.), P
Professor Em
Division of the Biological Sci
University of Ch
Chicago, Il

The brevity and matter-of-fact style with which this book handles a bewildering mass of data makes it valuable to the work of specialists in many fields upon which the study of plant hallucinogens impinges.

ONE RIVER

EXPLORATIONS AND DISCOVERIES IN THE AMAZON RAIN FOREST

WADE DAVIS



author of THE SERPENT AND THE RAINBOW

DAVIS WRITES MAGNIFICENTLY . . . ACCURATELY AND EFFICIENTLY . . . A GREAT, LYRICAL BOOK . . . AS RICHLY VARIED AS THE RAIN FORESTS IT DESCRIBES.

—JOHN NEMING, THE NEW YORK TIMES BOOK REVIEW

CATORCE NUEVAS FUENTES DE CURARE

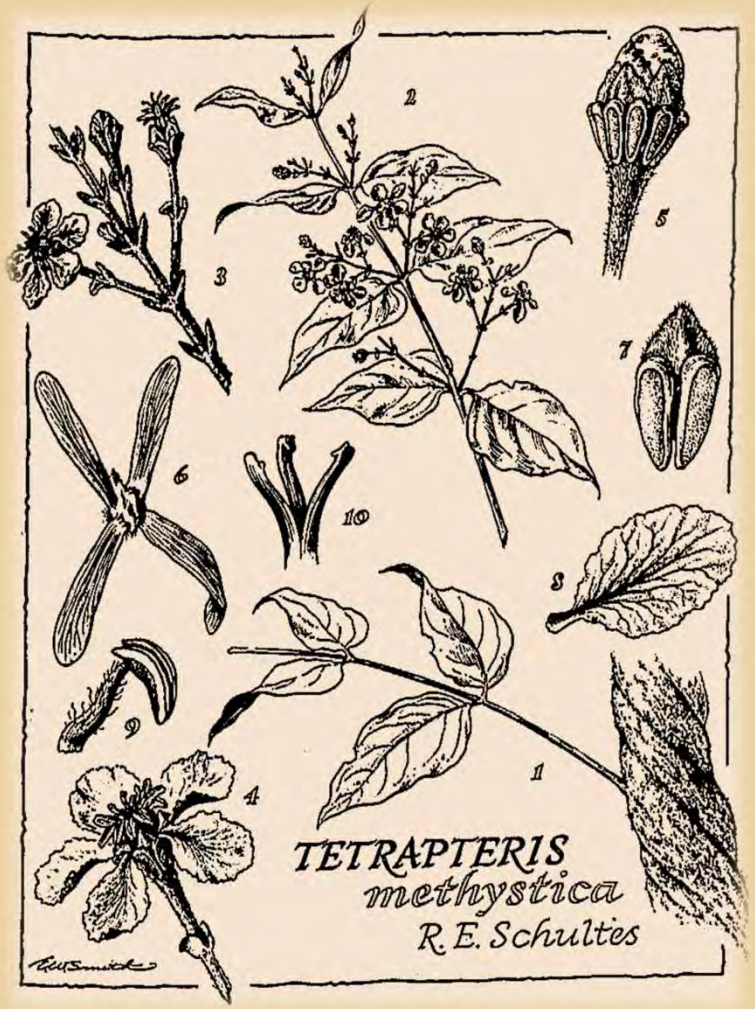
Cofán elder making a blowgun, Río Sucumbíos, April 1942.

By the time Schultes began his Amazonian explorations, the biological action of curare had been understood for a century. Medical experiments in 1942 revealed that the poison acted as a powerful muscle relaxant, promising to revolutionize modern surgery. Botanical knowledge, by contrast, was still embryonic. Not until 1943 would Harvard researchers produce the active compound d-tubocurarine from a properly identified botanical specimen. At this point no one had any idea how many plants contained the drug. Thus, as Schultes made his way to the Cofán, a journey that would yield no fewer than fourteen sources of curare, he did so charged with the excitement and anticipation of a scientist poised on the edge of discovery.

NUEVA ESPECIE CULTURAL CLAVE

HONRA LOS NOMBRES INDÍGENAS (PAULLINIA YOCO)

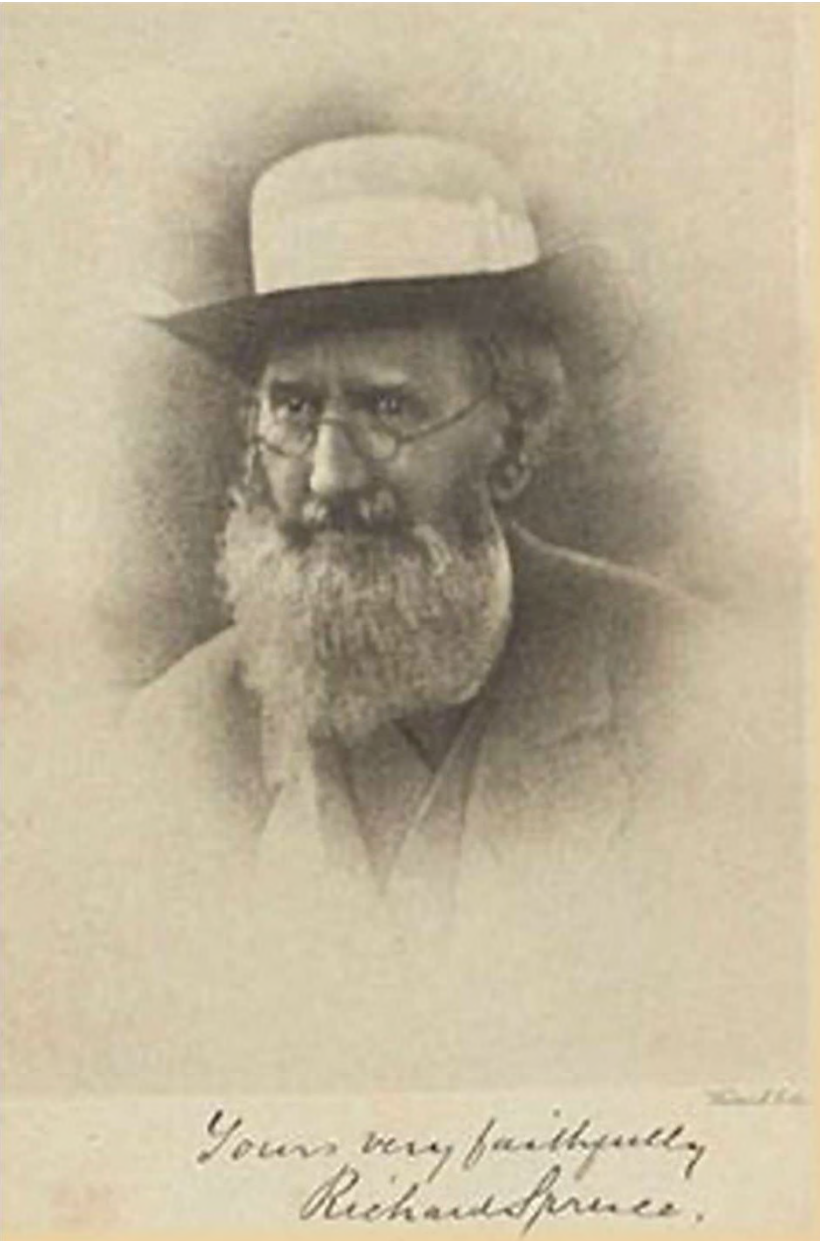
NUEVA ESPECIE DE AYAHUASCA



"Yet, strong poisons may lurk undiscovered in many others of the order, WHICH IS VERY LARGE AND (THE TWINING SPECES ESPECIALLY) OF GREAT SAMENESS OF ASPECT; AND THE CLOSELY ALLIED SOAPWORTS (SAPINDACEAE) CONTAIN STRONG NARCOTIC POISONS, ESPECIALLY IN THE GENUS *PARIELLA*." SPRUCE (1873)

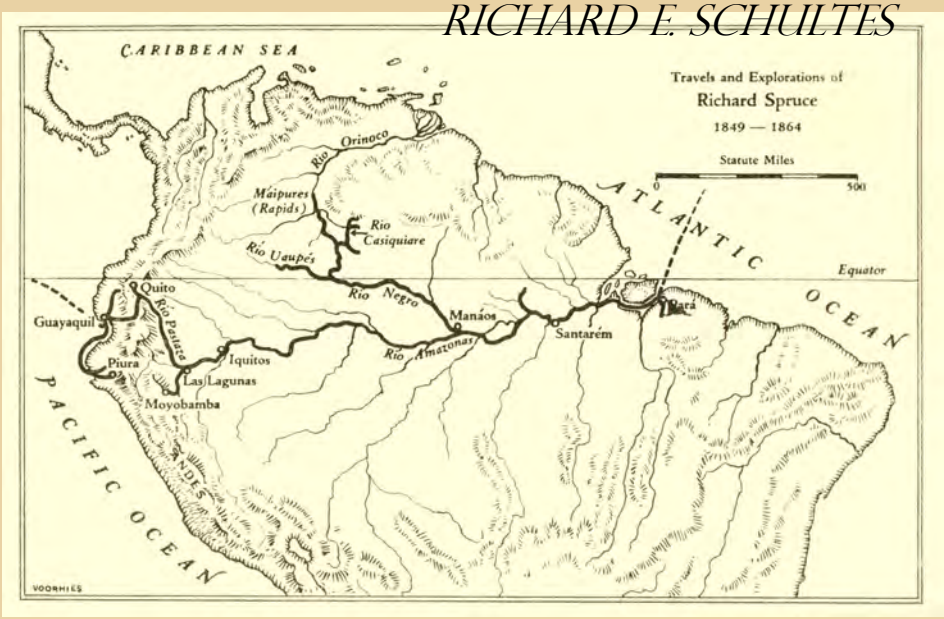
"The literature of the past is voluminous and, except in isolated cases, has really not been systematically combed nor critically examined."

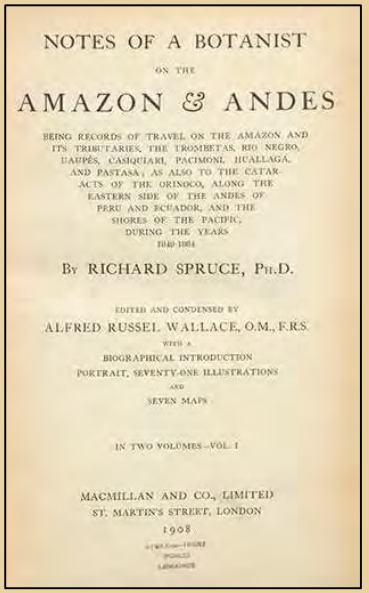
R.E. SCHULTES (1972) FROM WITCH DOCTOR TO MODERN MEDICINE. ARNOLDIA 32 (5)



"NINGÚN BOTÁNICO ESPECIALIZADO EN FLORÍSTICA TROPICAL SUDAMERICANA, INVESTIGACIÓN MONOGRÁFICA, ESTUDIOS FITOGEOGRÁFICOS Y ETNOBOTÁNICA PUEDE PERMITIRSE EL LUJO DE NO CONSULTAR LOS ESPECÍMENES Y LAS DETALLADAS NOTAS DE SPRUCE"

RICHARD E. SCHULTES




NOTES OF A BOTANIST

ON THE

AMAZON & ANDES

BEING RECORDS OF TRAVEL ON THE AMAZON AND ITS TRIBUTARIES, THE TROMBETAS, RIO NEGRO, UAUPÉS, CASIQUIARI, PACIMONI, HUALLAGA, AND PASTASA; AS ALSO TO THE CATARACTS OF THE ORINOCO, ALONG THE EASTERN SIDE OF THE ANDES OF PERU AND ECUADOR, AND THE SHORES OF THE PACIFIC, DURING THE YEARS 1849-1864

By RICHARD SPRUCE, Ph.D.

EDITED AND CONDENSED BY
ALFRED RUSSEL WALLACE, O.M., F.R.S.
WITH A
BIOGRAPHICAL INTRODUCTION
PORTRAIT, SEVENTY-ONE ILLUSTRATIONS
AND
SEVEN MAPS

IN TWO VOLUMES—VOL. I

MACMILLAN AND CO., LIMITED
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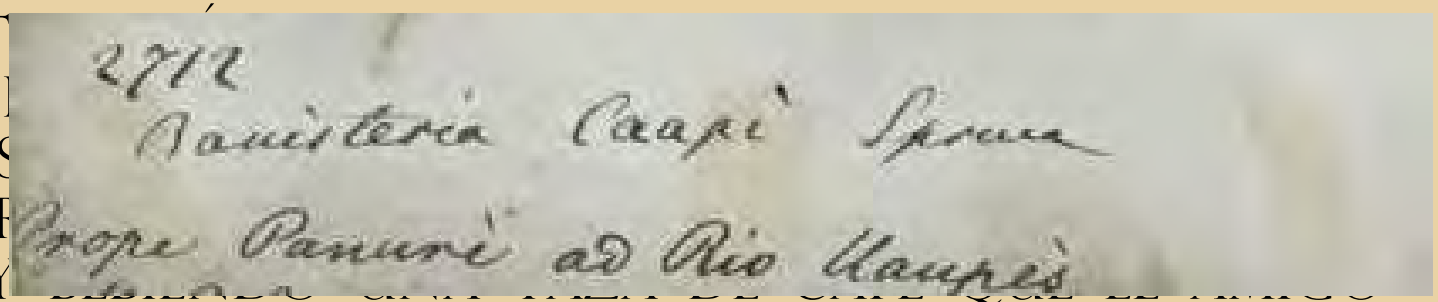
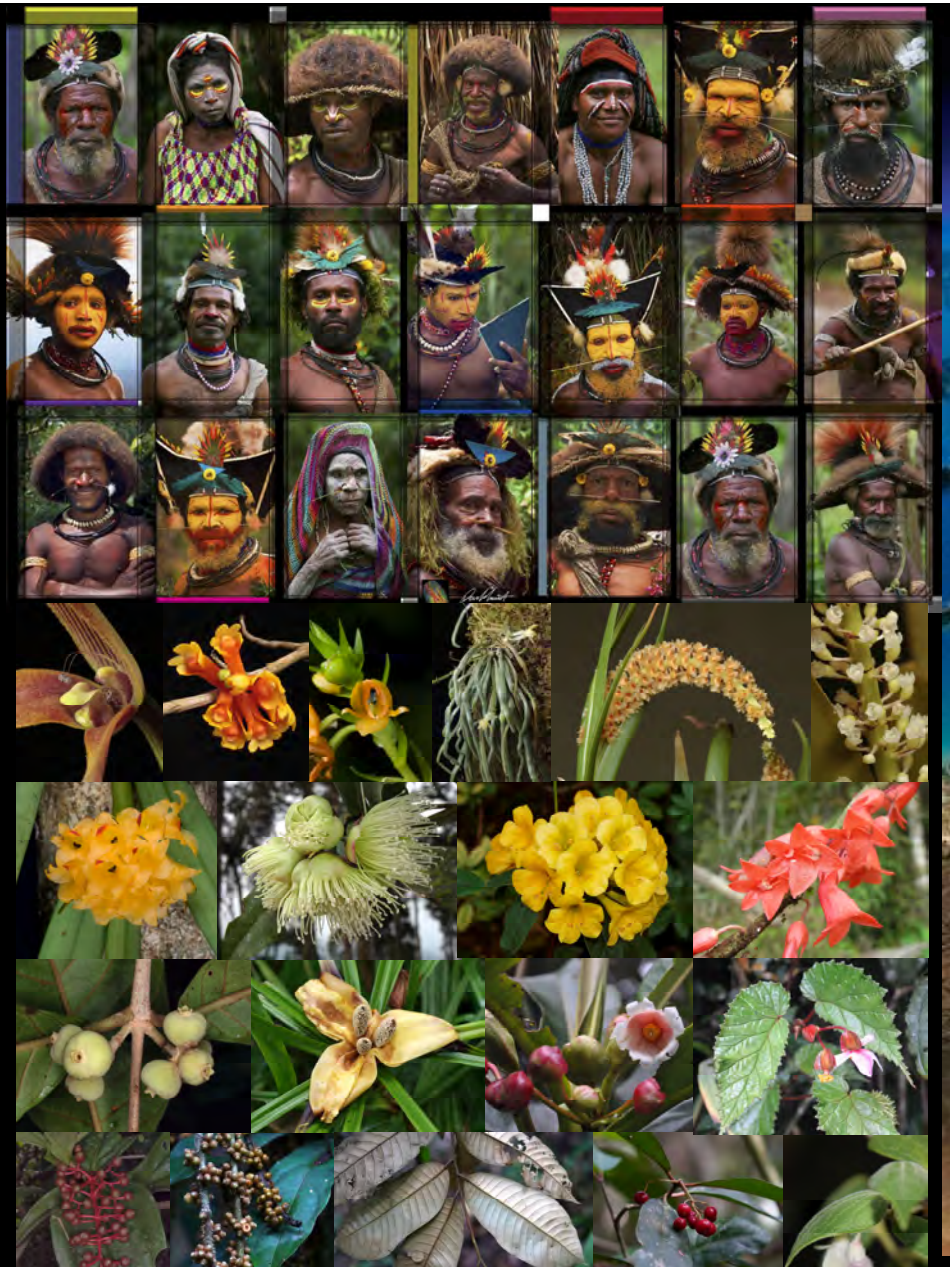
1908

“PROCURED FROM GAUHIBO INDIANS AT CATARACT OF MAYPURES. THE NIOPO OF VENEZUELA IS THE SAME AS PARICA OF BRAZIL AND IS USED ON UPPER ORINOCO, GUAVIARE, VICHADA, META, LIPAPO ETC. THERE IS NO DOUBT OF ITS BEING PREPARED FROM ACACIA NIOPO, HUMB WHICH IS PERHAPS NOT DIFFERENT FROM PIPTADENIA PEREGINA, BENTH. MY SPECIMENS OF THE PARICA TREE FROM THE BARRA ARE REFERRED TO THE LATTER SPECIES BY BENTHAM. I DID NOT SEE THE TREE FROM WHICH THE GUAHIBOS OBTAINED THEIR NIOPO, AND WHICH THEY TOLD ME WAS PLANTED IN THE CANUCOS NEAR THE HEAD WATERS OF THE RIVER TUPARO; BUT THE PARICO I HAVE SEEN ON THE AMAZON AND ALL THE WAY UP THE RIO, NEGRO, PLANTED NEAR THE VILLAGES, BELONGS TO BUT ONE SPECIES, WHICH ON THE VENEZUELAN FRONTIER TAKES THE NAME OF NIOPO. IN PREPARING THE SNUFF, THE ROASTED SEEDS OF THE NIOPO ARE PLACED IN A SHALLOW WOODEN PLATTER, WHICH IS HELD ON THE KNEES BY MEANS OF, BROAD HANDLE GRASPED IN LEFT HAND; THEN CRUSHED BY A SMALL PESTLE OF THE HARD WOOD OF PAO D’ARCO (TECOMA SP.) WHICH IS HELD BETWEEN FINGERS AND THUMB OF RIGHT HAND. THE SNUFF IS KEPT IN A MULL MADE OUT OF TIGER’S BONE, CLOSED AT ONE END WITH PITCH AND THE OTHER STOPPED WITH A CORK OF MARUNA. IT HANGS FROM THE NECK AND HAS ATTACHED TO IT THE TUBIFEROUS PART OF SOME CYPERACEAE WHICH ARE SLIGHTLY ODORIFEROUS. THESE OR SOME ALLIED SPECIES ARE USED THROUGHOUT THE AMAZON, RIO NEGRO, AND UAUPÉS ETC AMONG INDIANS OF THE FOREST. WITH A PIECE OF PISIPISIACA ABOUT THE PERSON, ONE IS SAFE FROM BAD WISH AND EVIL EYE. THE INSTRUMENT FOR TAKING THE SNUFF IS MADE OF BIRDS BONES AND DIFFERS SOMEWHAT FROM THAT USED BY CAUTAUXI INDIANS. TWO TUBES END UPWARDS IN LITTLE, BLACK BALLS (THE ENDOCARPS OF SOME SPECIES OF ASTROCARYUM) WHICH ARE APPLIED TO NOSTRILS WHILE THE TUBE IN WHICH THEY END IS DIPPED INTO THE MULL AND THUS THE NIOPO IS SNUFFED UP THE NOSE. I ENCLOSE A PIECE OF CAAPI, FROM WHICH THE INDIAN WHO WAS GRINDING THE NIOPO EVERY NOW AND THEN TORE A STRIP WITH HIS TEETH AND

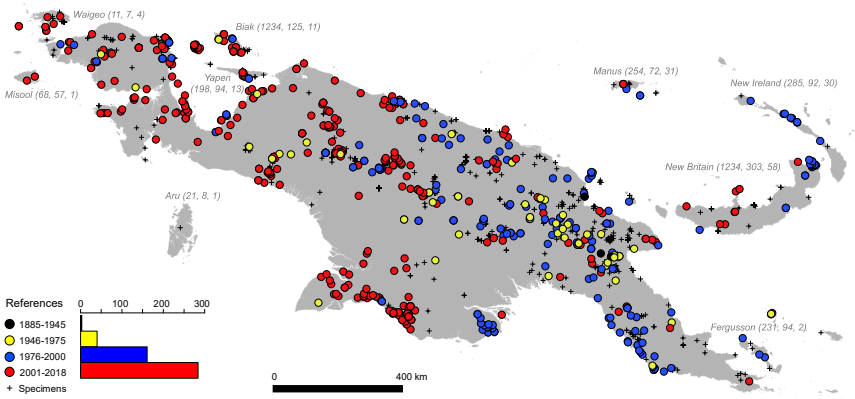
“HABÍA IDO CON LA FIRME INTENCIÓN DE PROBAR EL CAAPI POR MÍ MISMO, PERO APENAS HABÍA TOMADO UNA TAZA DE LA NAUSEABUNDA BEBIDA, QUE NO ES MÁS QUE MEDIA DOSIS, CUANDO EL ANFITRIÓN DE LA FIESTA —DESEOSO, AL PARECER, DE QUE PROBARA TODAS SUS DELICIAS DE UNA VEZ— SE ACERCÓ CON UNA MUJER QUE LLEVABA UNA GRAN CALABAZA DE CAXIRI (CERVEZA DE MANDIOCA), DE LA QUE TUVE QUE BEBER UN TRAGO COPIOSO Y, COMO CONOCÍA EL MODO DE PREPARARLA, LA ENGULLÍ CON SECRETO DISGUSTO. APENAS HABÍA LOGRADO ESTA HAZAÑA, CUANDO ME PUSIERON EN LA MANO UN GRAN CIGARRO, DE DOS PIES DE LARGO Y TAN GRUESO COMO UNA MUÑECA, Y LA ETIQUETA EXIGÍA QUE DIERA UNAS CUANTAS CALADAS, YO, QUE NUNCA EN MI VIDA HABÍA FUMADO UN CIGARRO O UNA PIPA DE TABACO. ADEMÁS DE TODO EST
PALMA, Y SI
UNA DOSIS
A VOMITAR
HAMACA Y





SYNTHESIS

Royal Botanic Gardens Kew



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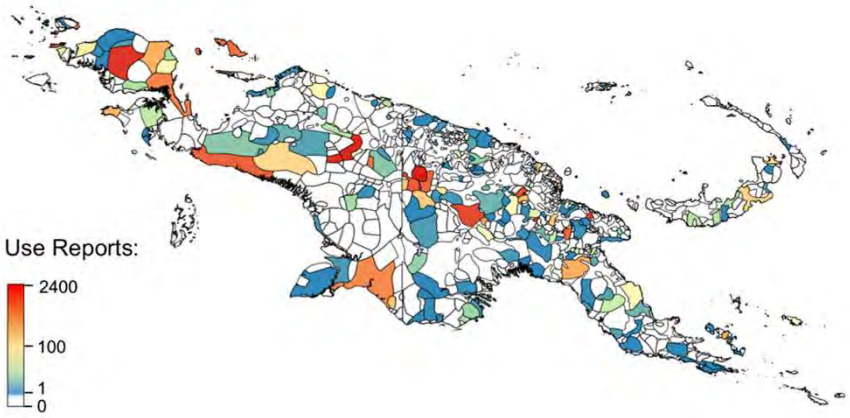

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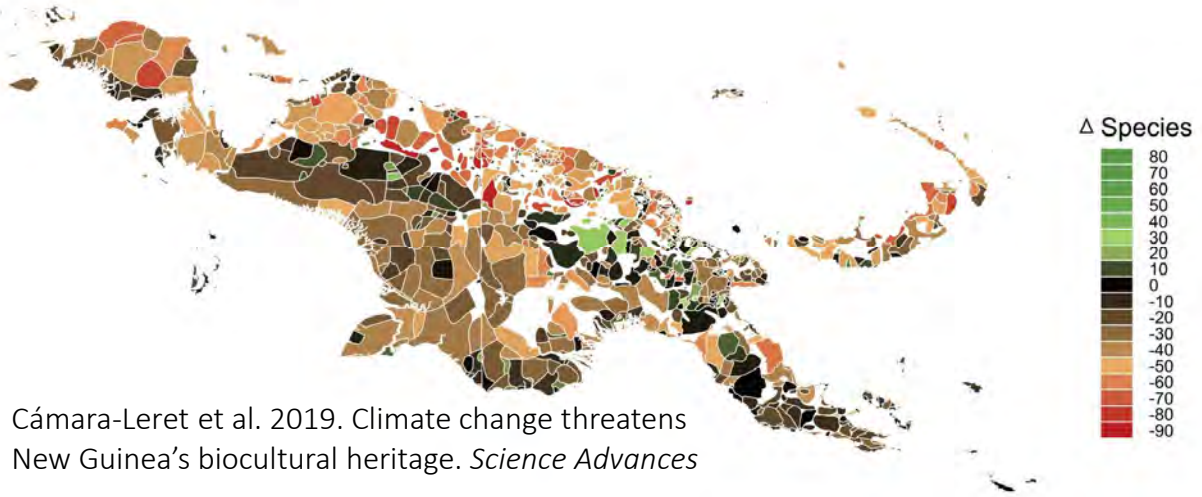


Cámara-Leret et al. 2019. Climate change threatens New Guinea's biocultural heritage. *Science Advances*

Cámara-Leret et al. 2020. New Guinea has the world's richest island flora. *Nature*

New Guinea has the world's richest island flora

Rodrigo Cámara-Leret ✉, David G. Frodin, Frits Adema, Christiane Anderson, Marc S. Appelhans, George Argent, Susana Arias Guerrero, Peter Ashton, William J. Baker, Anders S. Barfod, David Barrington, Renata Borosova, Gemma L. C. Bramley, Marie Briggs, Sven Buerki, Daniel Cahen, Martin W. Callmander, Martin Cheek, Cheng-Wei Chen, Barry J. Conn, Mark J. E. Coode, Iain Darbyshire, Sally Dawson, John Dransfield, Clare Drinkell, Brigitta Duyfjes, Atsushi Ebihara, Zacky Ezedin, Long-Fei Fu, Osia Gideon, Deden Girmansyah, Rafaël Govaerts, Helen Fortune-Hopkins, Gustavo Hassemer, Alistair Hay, Charlie D. Heatubun, D. J. Nicholas Hind, Peter Hoch, Peter Homot, Peter Hovenkamp, Mark Hughes, Matthew Jebb, Laura Jennings, Tiberius Jimbo, Michael Kessler, Ruth Kiew, Sandra Knapp, Penniel Lamei, Marcus Lehnert, Gwilym P. Lewis, Hans Peter Linder, Stuart Lindsay, Yee Wen Low, Eve Lucas, Jeffrey P. Mancera, Alexandre K. Monro, Alison Moore, David J. Middleton, Hidetoshi Nagamasu, Mark F. Newman, Eimear Nic Lughadha, Pablo H. A. Melo, Daniel J. Ohlsen, Caroline M. Pannell, Barbara Parris, Laura Pearce, Darin S. Penneys, Leon R. Perrie, Peter Petoe, Axel Dalberg Poulsen, Ghillean T. Prance, J. Peter Quakenbush, Niels Raes, Michele Rodda, Zachary S. Rogers, André Schuiteman, Pedro Schwartsburd, Robert W. Scotland, Mark P. Simmons, David A. Simpson, Peter Stevens, Michael Sundue, Weston Testo, Anna Trias-Blasi, Ian Turner, Timothy Utteridge, Lesley Walsingham, Bruce L. Webber, Ran Wei, George D. Weiblen, Maximilian Weigend, Peter Weston, Willem de Wilde, Peter Wilkie, Christine M. Wilmot-Dear, Hannah P. Wilson, John R. I. Wood, Li-Bing Zhang & Peter C. van Welzen — Show fewer authors

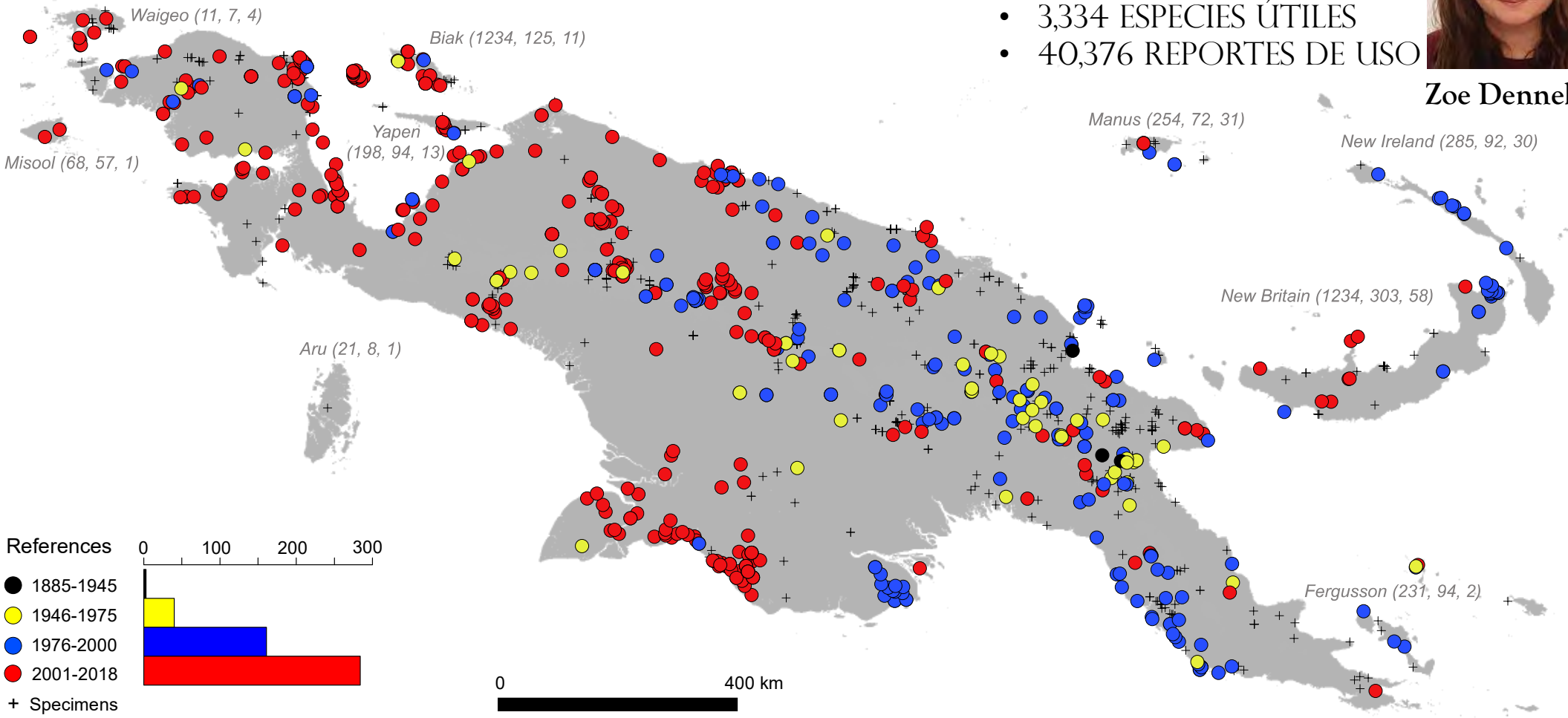
Nature **584**, 579–583 (2020) | Cite this article

- 23,381 NOMBRES DERIVADOS DE 704,724 ESPECÍMENES
- 13,634 ESPECIES, 1742 GÉNEROS Y 264 FAMILIAS
- 22% INFLACIÓN RECURSOS TAXONÓMICOS EN LÍNEA

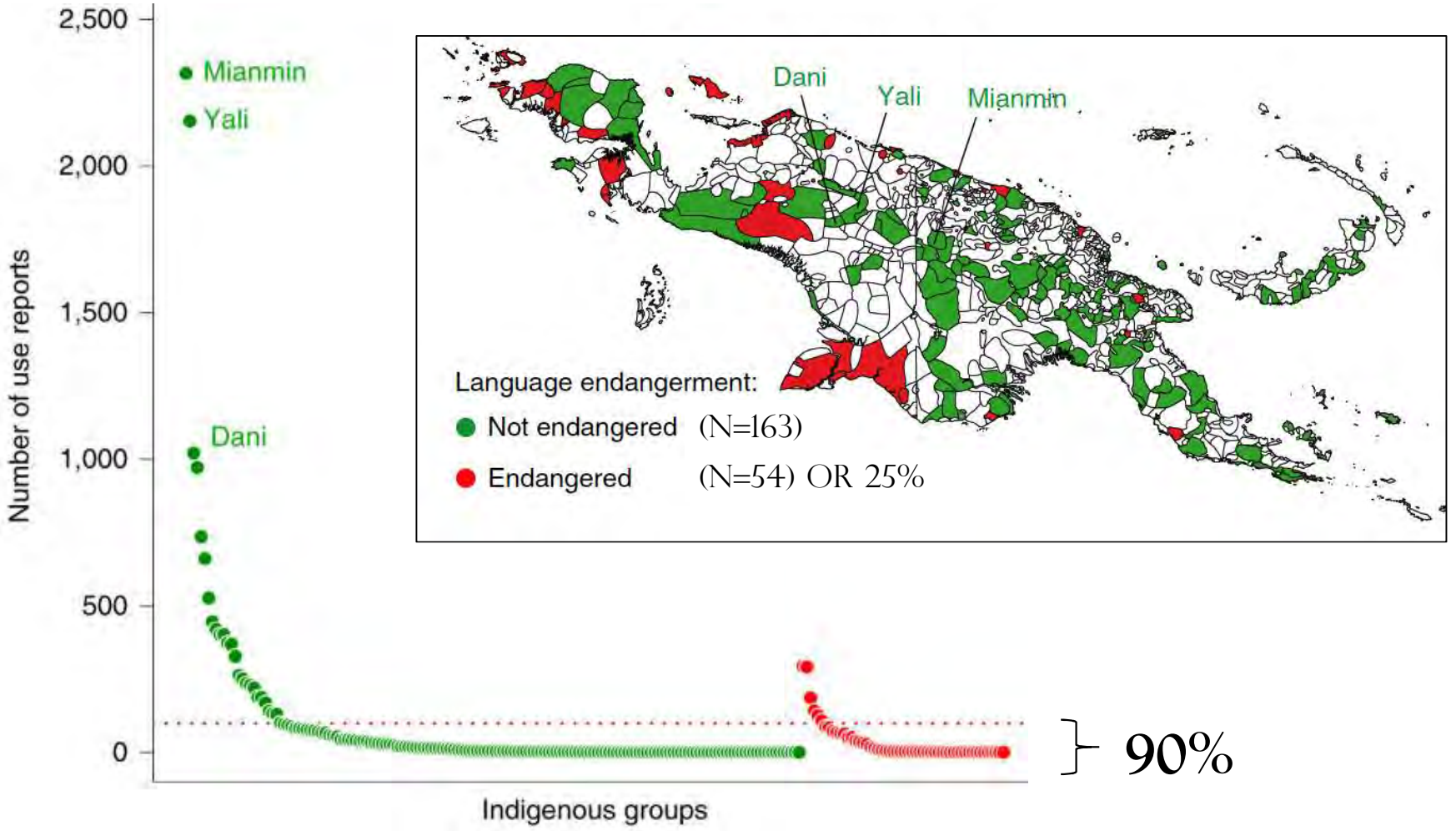
NUEVA GUINEA

- 488 ESTUDIOS
- 854 ESPECÍMENES HERBARIO
- 3,334 ESPECIES ÚTILES
- 40,376 REPORTES DE USO

Zoe Dennehy



CÁMARA-LERET & DENNEHY (2019) *ECONOMIC BOTA*



CÁMARA-LERET & DENNEHY (2019) *NATURE SUSTAINABILITY*


Asmat-Kamrau languages
South
Bird's Head
mainland
West Bomberai
Kamoro
Irian Highlands
Mek
Asmat-Kamoro
Awyu-
Dumut
Kayagar
Anim
Kolopom
Mombum
Insular West Bomberai (Timor-Alor-Pantar)
125° E.
0 100 200 300 400 500 km
180° E.

PNAS

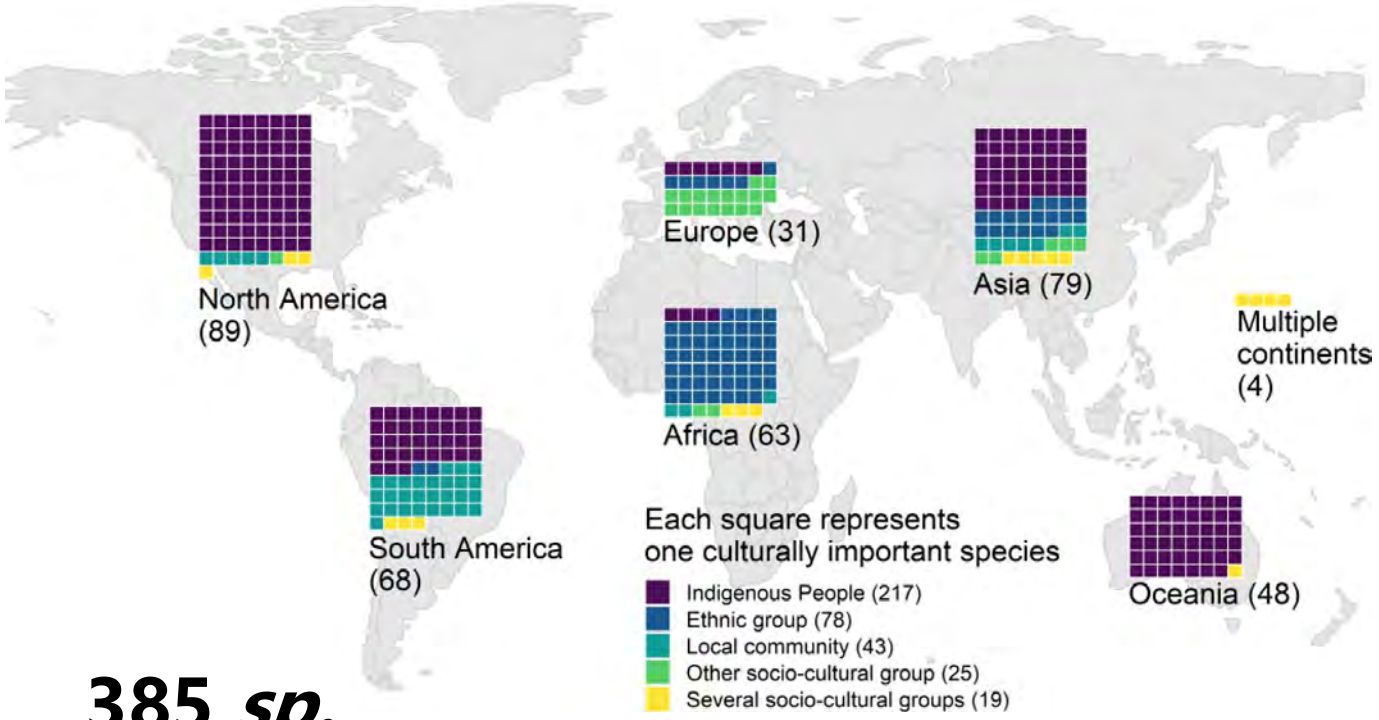
Biocultural vulnerability exposes threats of culturally important species

Victoria Reyes-García[a,b,c,1], Rodrigo Cámara-Leret[d], Benjamin S. Halpern[e,f], Casey O'Hara[e], Delphine Renard[g], Noelia Zafra-Calvo[h], and Sandra Díaz[i]

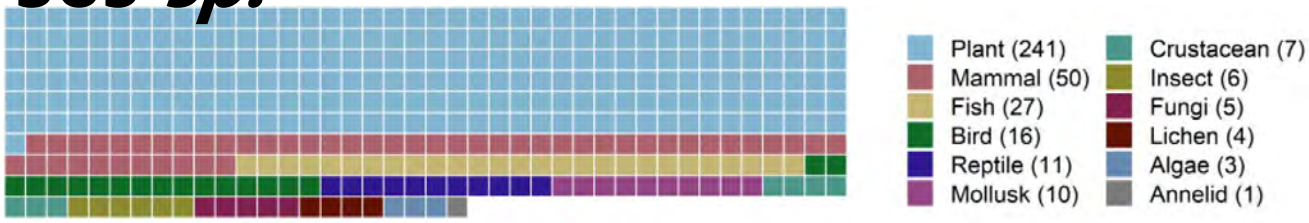
NCEAS
National Center for Ecological Analysis and Synthesis

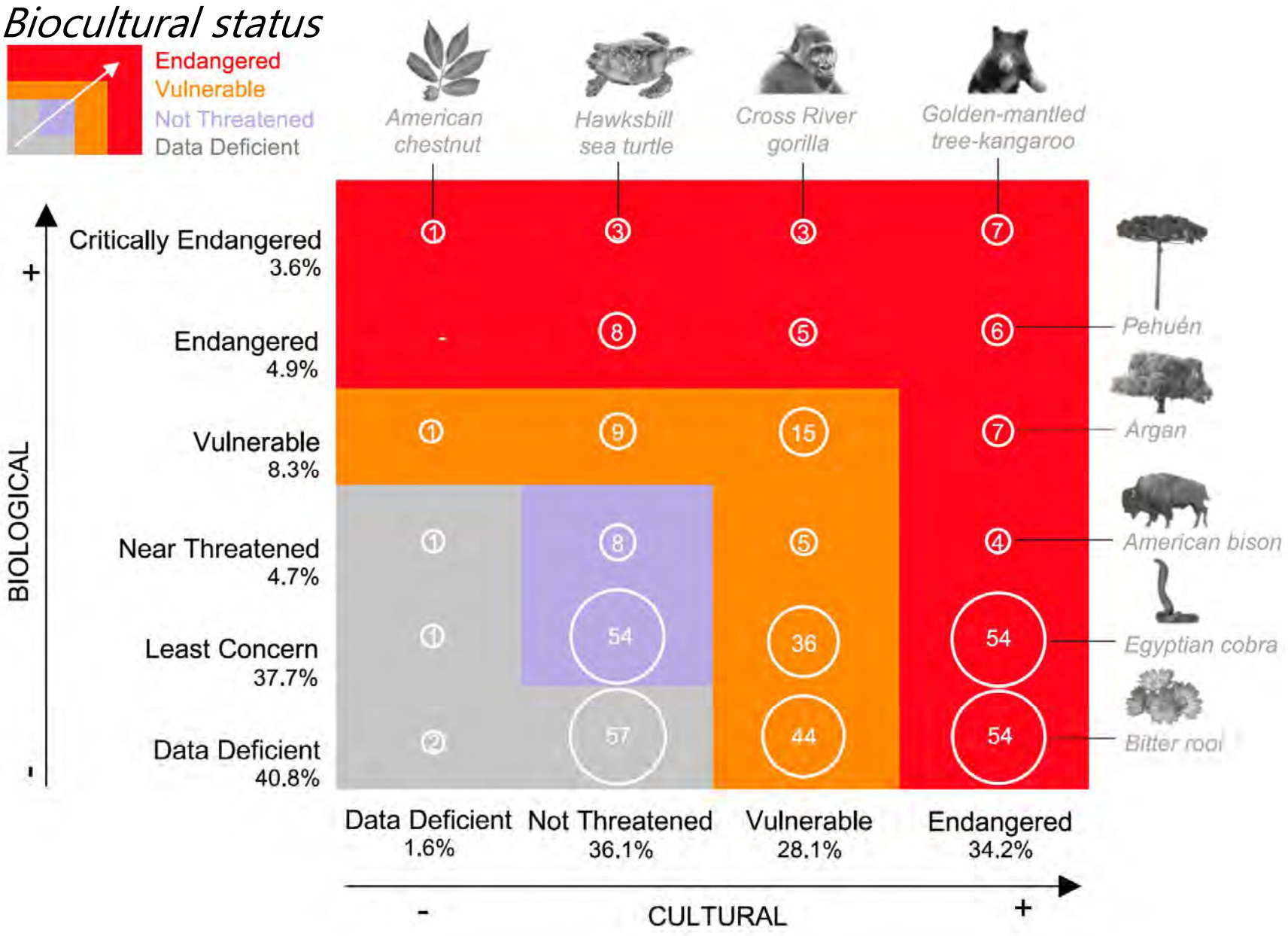
Culturally important species

have a recognized role in supporting cultural identity, as they are generally the basis for religious, spiritual, and social cohesion and provide a common sense of place, purpose, belonging, or rootedness associated with the living world



385 *sp.*




Biocultural status
Endangered
Vulnerable
Not Threatened
Data Deficient
American chestnut
Hawksbill sea turtle
Cross River gorilla
Golden-mantled tree-kangaroo
Critically Endangered 3.6%
Endangered 4.9%
Vulnerable 8.3%
Near Threatened 4.7%
Least Concern 37.7%
Data Deficient 40.8%
BIOLOGICAL
+
-
1
3
3
7
8
5
6
1
9
15
7
1
8
5
4
1
54
36
54
2
57
44
54
Pehuén
Argan
American bison
Egyptian cobra
Bitter root
Data Deficient 1.6%
Not Threatened 36.1%
Vulnerable 28.1%
Endangered 34.2%
-
CULTURAL
+

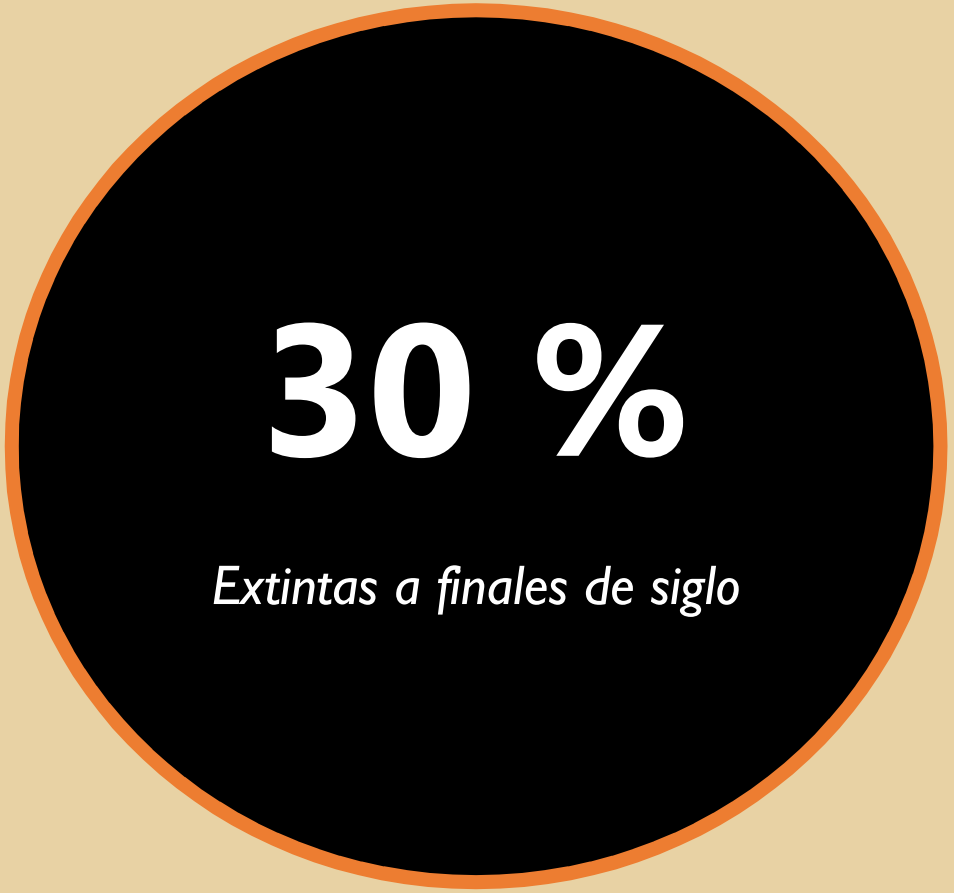

41%
Proportion of CIS Data Deficient
vs.
12%
full set of IUCN species

Science

How Many Ayahuasca Drinkers Are There in Brazil?

November 8, 2019

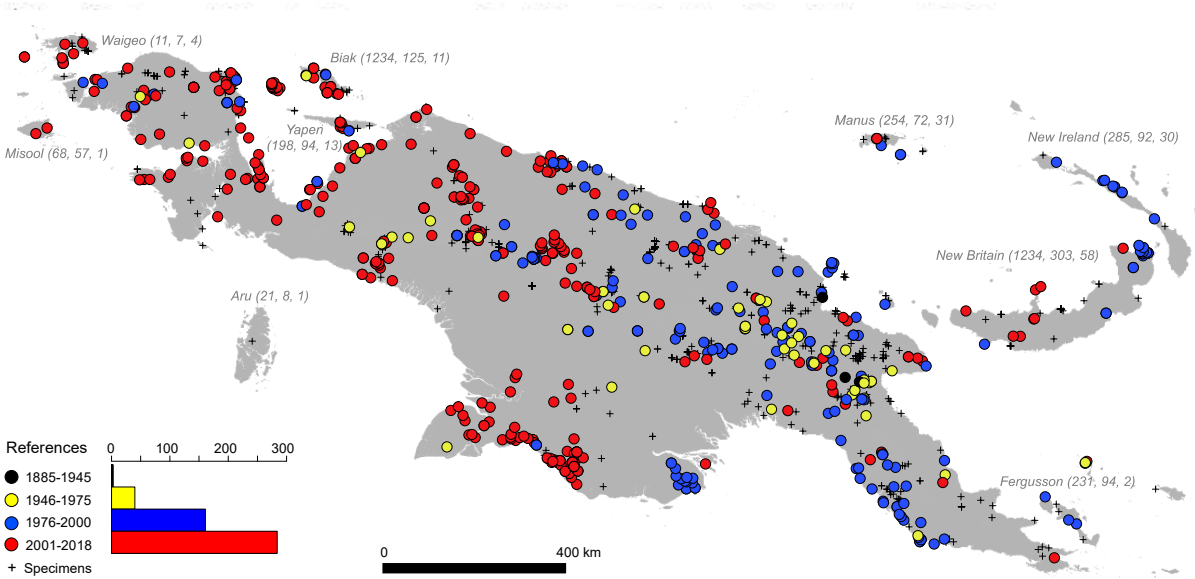

7,400
Lenguas en el mundo


30 %
Extintas a finales de siglo


CAMSÁ
MARIND
SHARANAHUA
KAMORO
ANDOQUE
HAMTAI
MAYBRAT-KARON
BIAK
NOBONOB
WANDAMEN
KUANUA
CATAWBA
COFÁN
ACHUAR
MACUNA
PUINAVE
TICUNA
CARIJONA
CENTRAL ALASKAN YUPIK
WAORANI
CHEYENE
KAULONG
QUINAULT
YUCUNA
AMANAB
MENGEN
IHA
BINANDERE
KAKUA
COMANCHE
CHEROKEE
SECOYA
EASTERN ABENAKI
COWLITZ
NAVAJO
SHOSHONI
WESTERN APACHE
YANOMAMI
NANTICOKE
EASTERN POMO

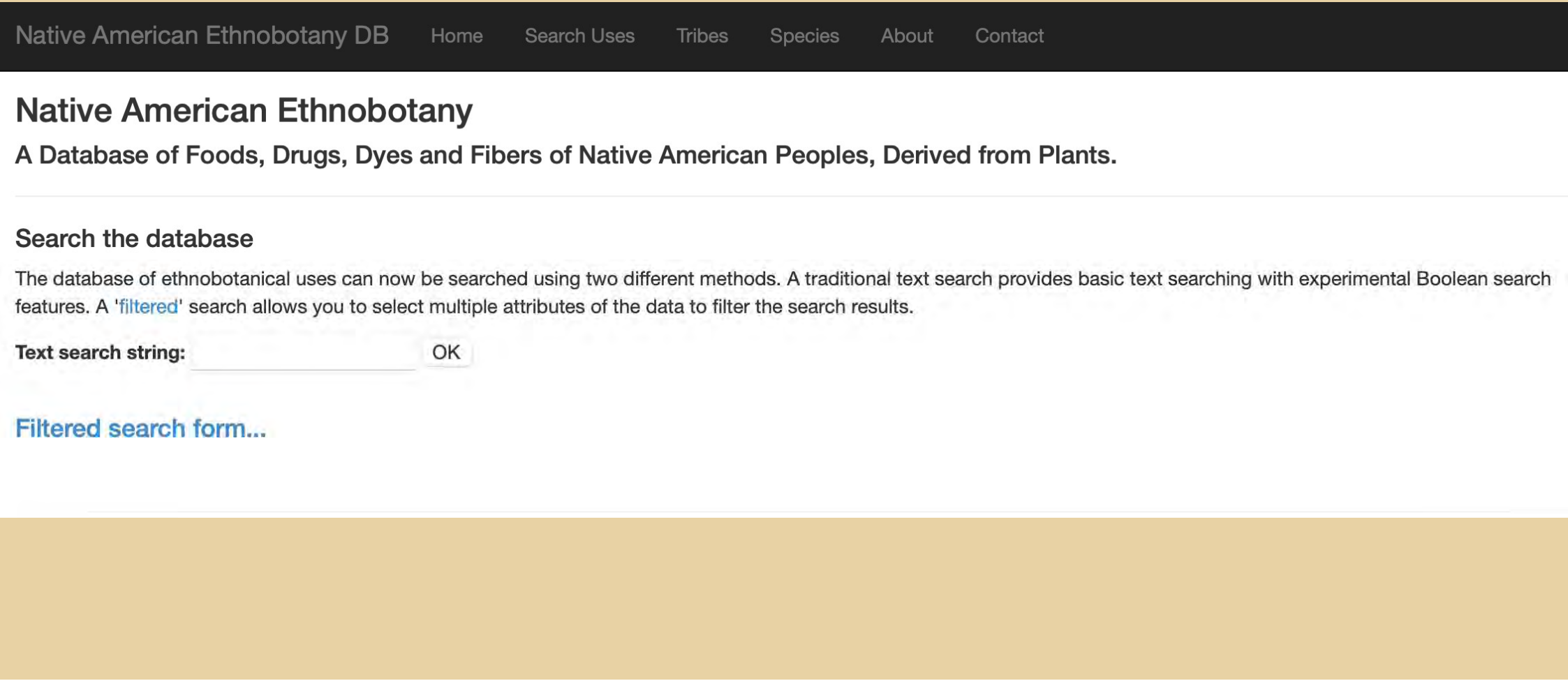
Indigenous Knowledge of New Guinea's Useful Plants: A Review

Rodrigo Cámara–Leret*,[1] and Zoe Dennehy[1,2]

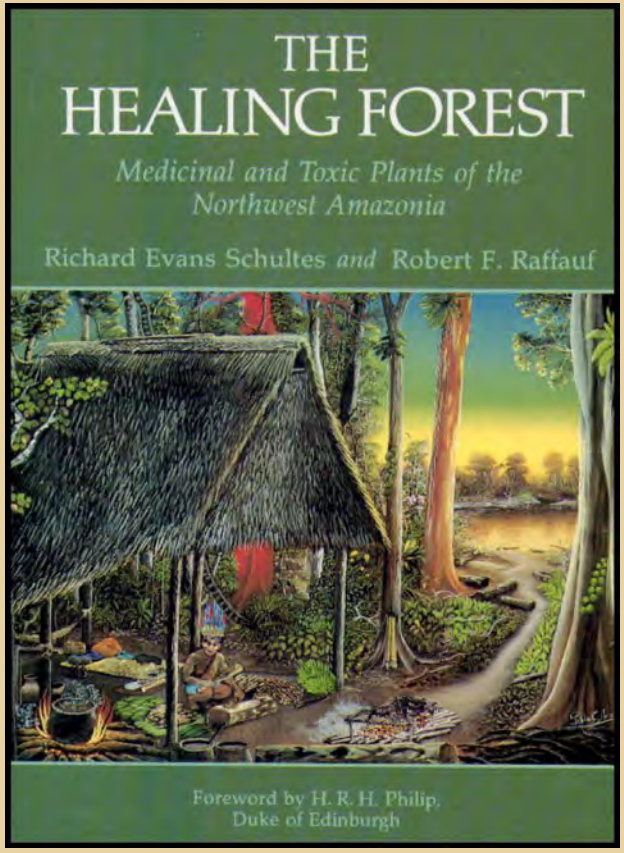


Economic Botany, 73(3), 2019, pp. 405–415

NORTE AMERICA



NOROESTE AMAZÓNICO



“SERVICIO MEDICINAL”

ESPECIE + SUBCATEGORÍA MEDICINAL

Tetrapterys meth *m&MentalHealth*

3,597
ESPECIES
12,495
SERVICIOS
236
LENGUAS

Tetrapterys *Cavanilles*

All members of T trees. There are approximately 100 species i es.

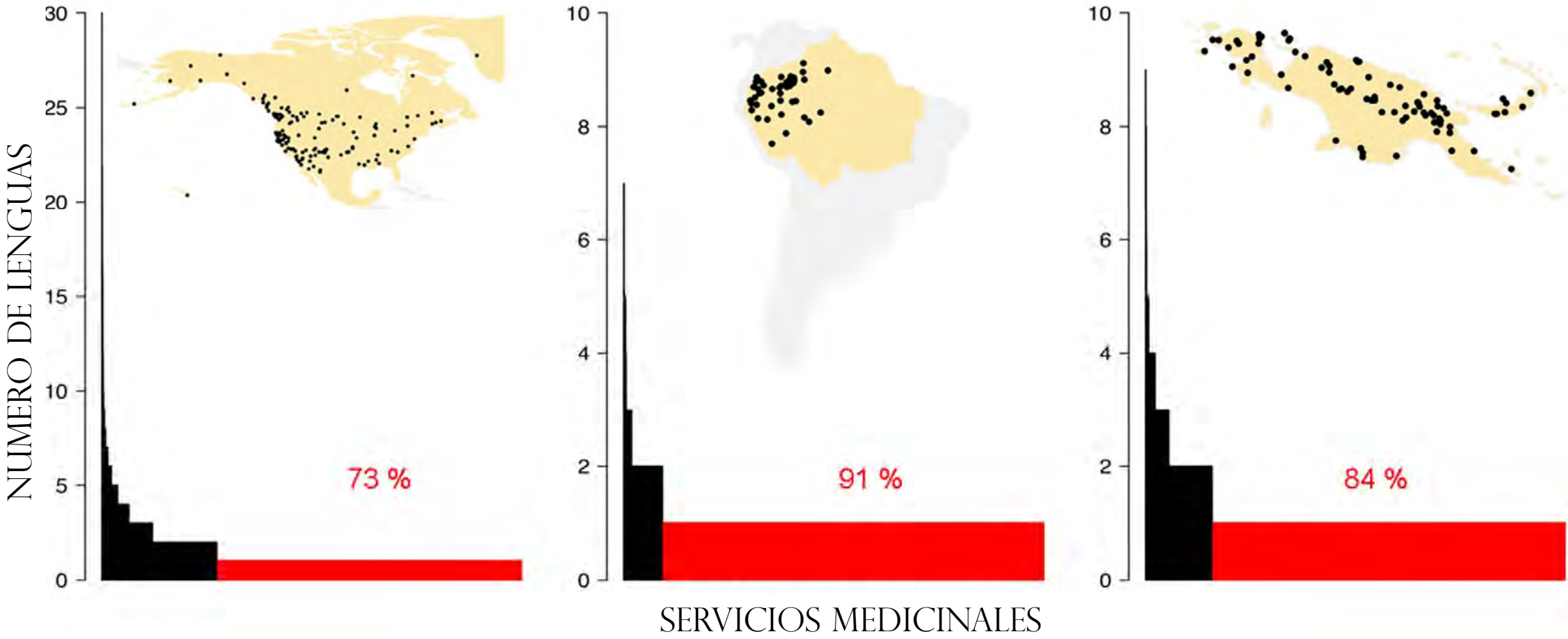
The chemistry o

Tetrapterys meth , Harvard Univ. 16 (1954) 202.

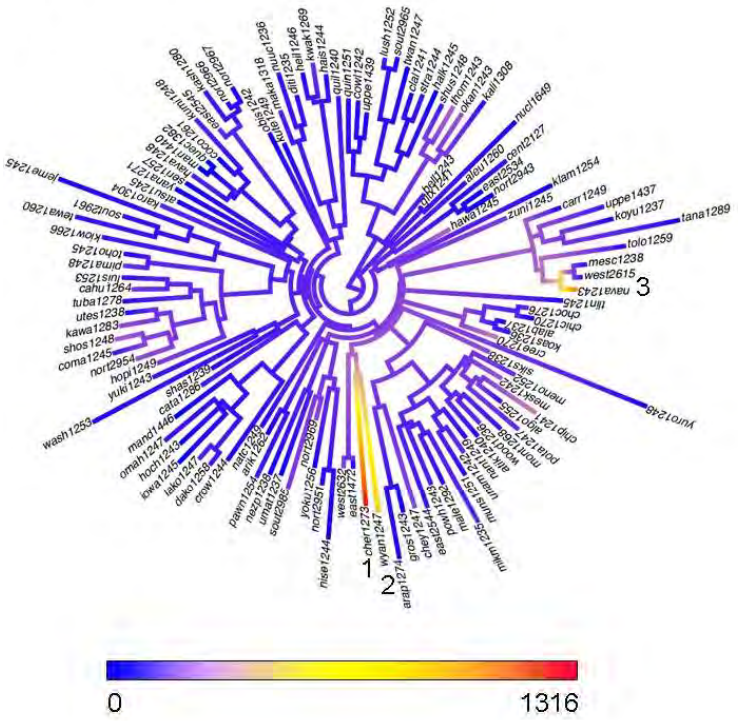
caapi (Makú)

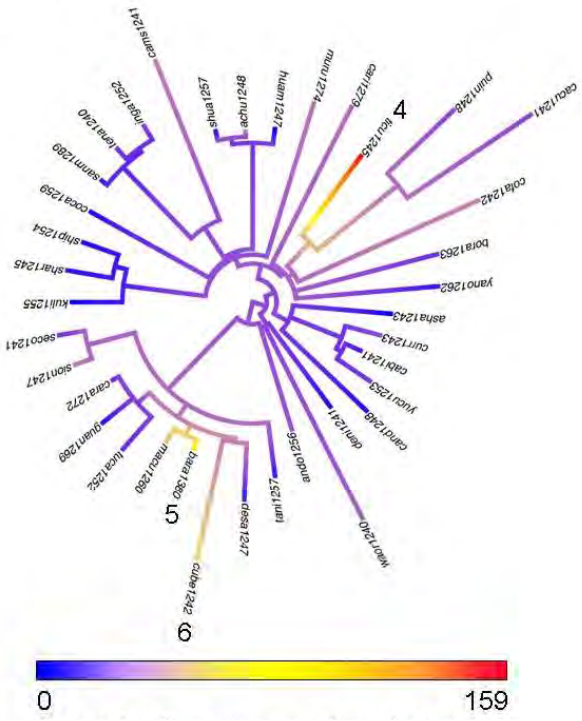
SL 10184A

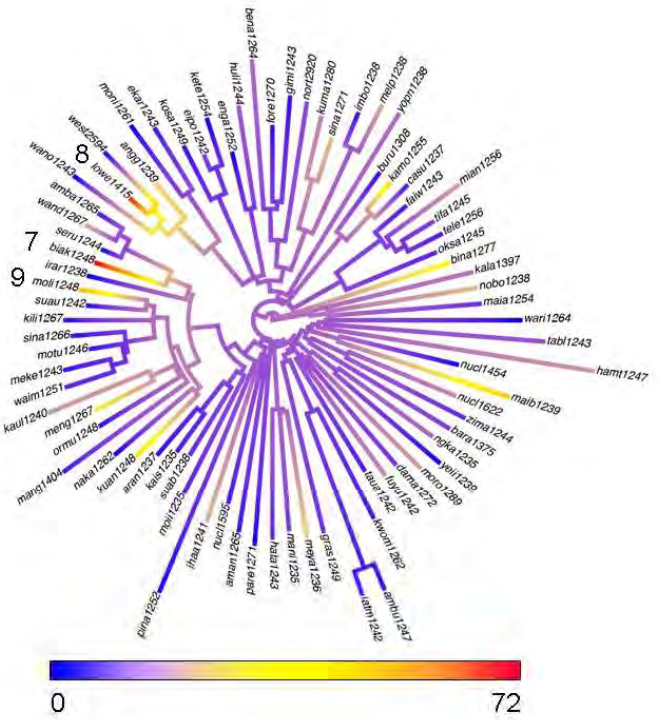
No chemical studies have ye d out on this plant, but it is almost certain, judging from the hallucinogenic effects of the drink prepared from the bark, that the active principles are the same as those found in *Banisteriopsis caapi*. This species is the source of the intoxicant used by the Makús in the Río Tikié of Amazonian Brazil.



CÁMARA-LERET & BASCOMPTE (2021) LANGUAGE EXTINCTION TRIGGERS THE LOSS OF UNIQUE MEDICINAL KNOWLEDGE. *PNAS*

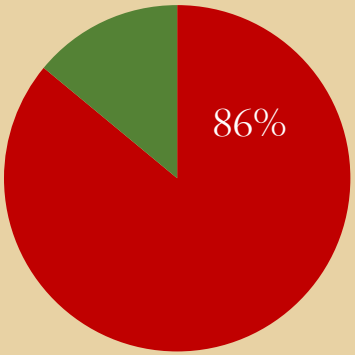




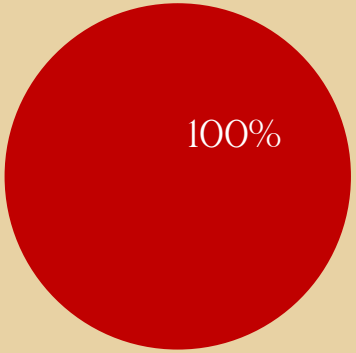


SERVICIOS MEDICINALES LINGÜÍSTICAMENTE ÚNICOS

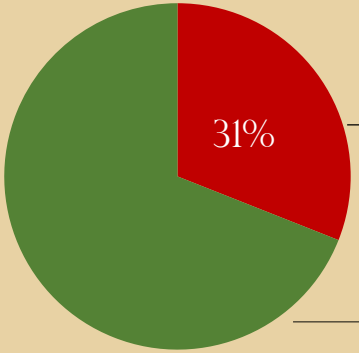
N. AMÉRICA



AMAZONIA

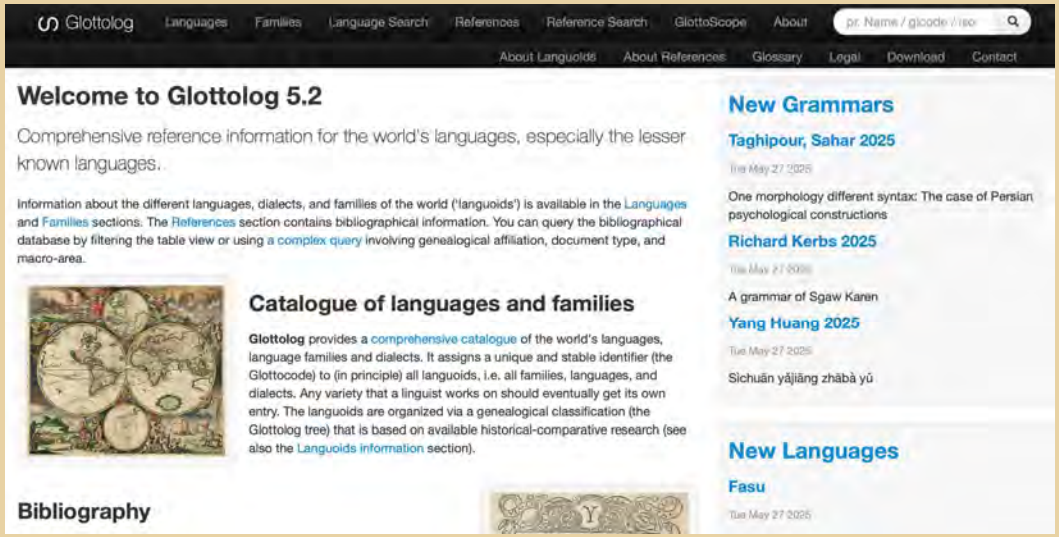


NUEVA GUINEA

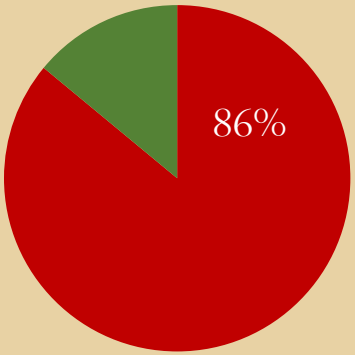


AMENAZADAS

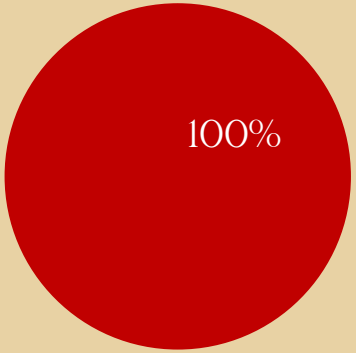
NO AMENAZADAS



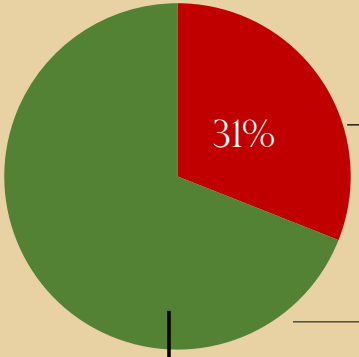
N. AMÉRICA



AMAZONIA

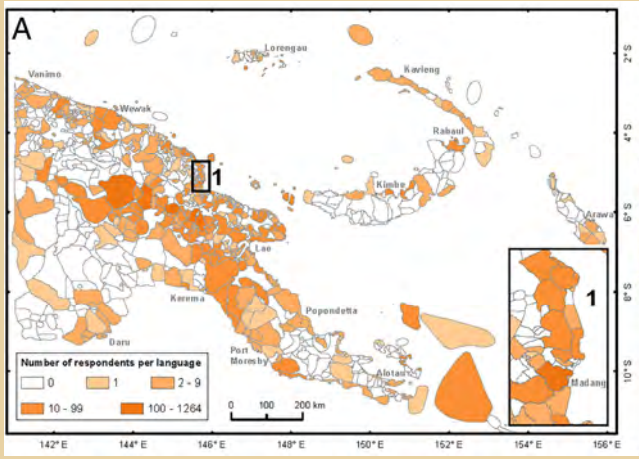


NUEVA GUINEA



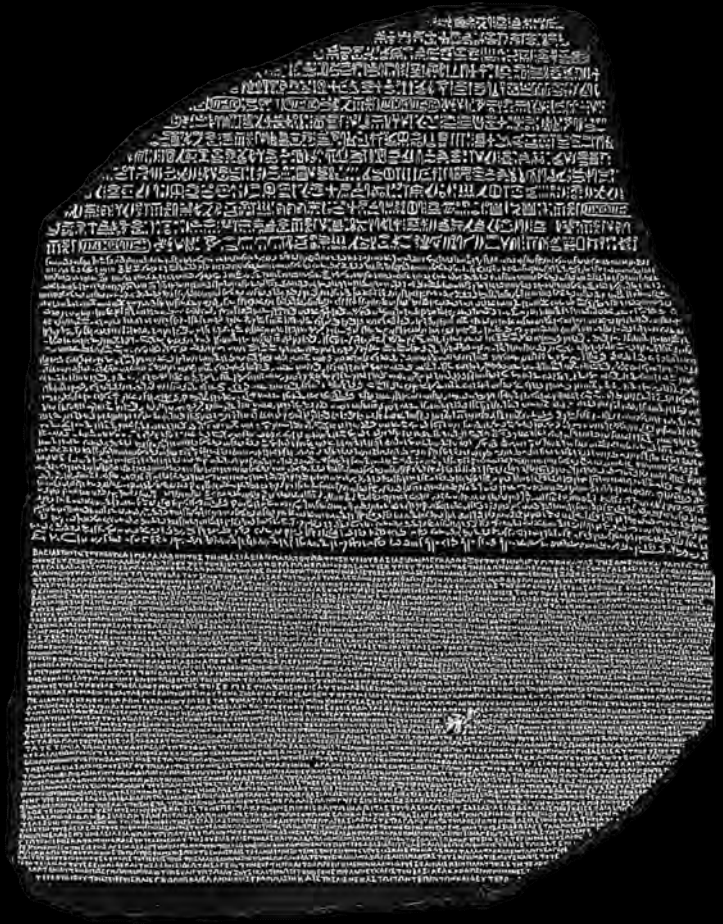
AMENAZADAS

NO AMENAZADAS



6,190 ESTUDIANT
392 LENGUAS

KIK, A. ET AL. (2021). LANGUAGE AND ETHNOBIOLOGICAL SKILLS DECLINE PRECIPITOUSLY IN PAPUA NEW GUINEA, THE WORLD'S MOST LINGUISTICALLY DIVERSE NATION. *PNAS 118(22)*



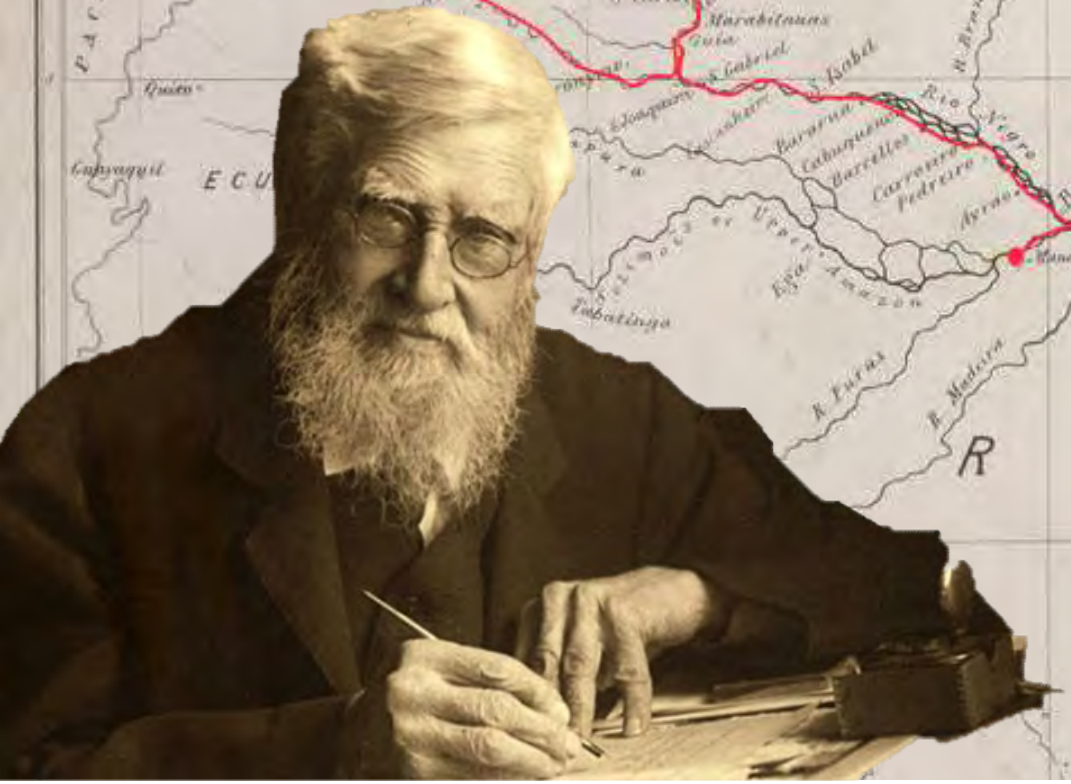
"The Rosetta stone for traditional ecological knowledge in Amazonia is not made of rock; rather, it is to be found in living native languages and cultural practices."

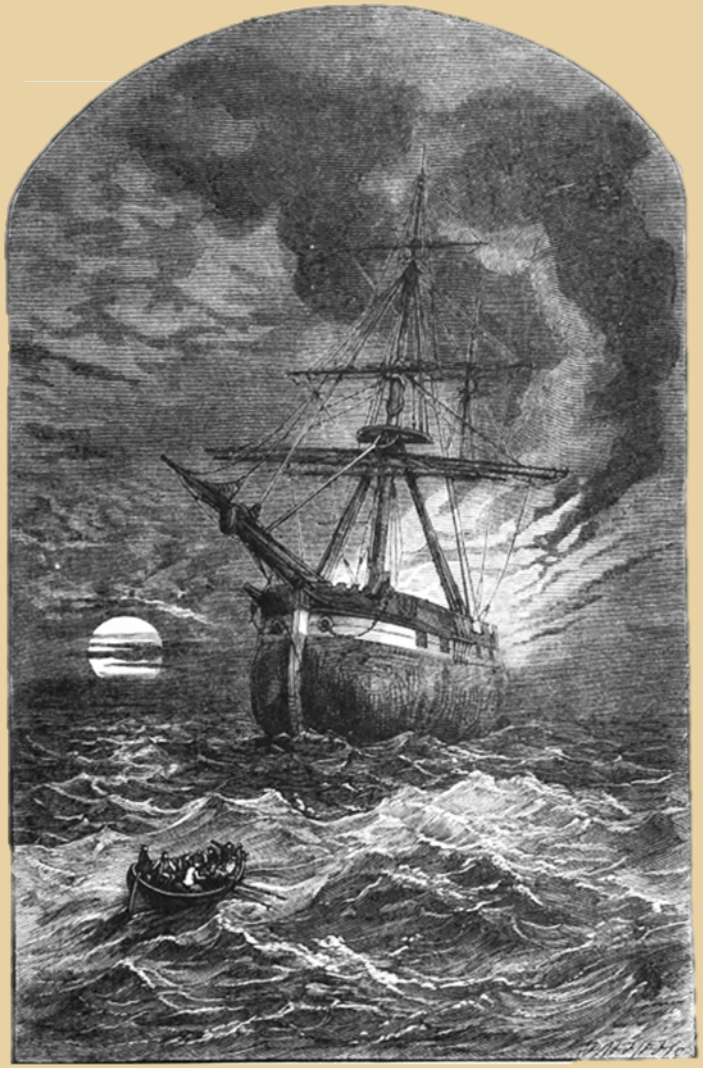
William Balée (2015)


CABA
Sirve para tomar jugo
y su palo sirve para
Ser madera

ALFRED RUSSELL WALLACE

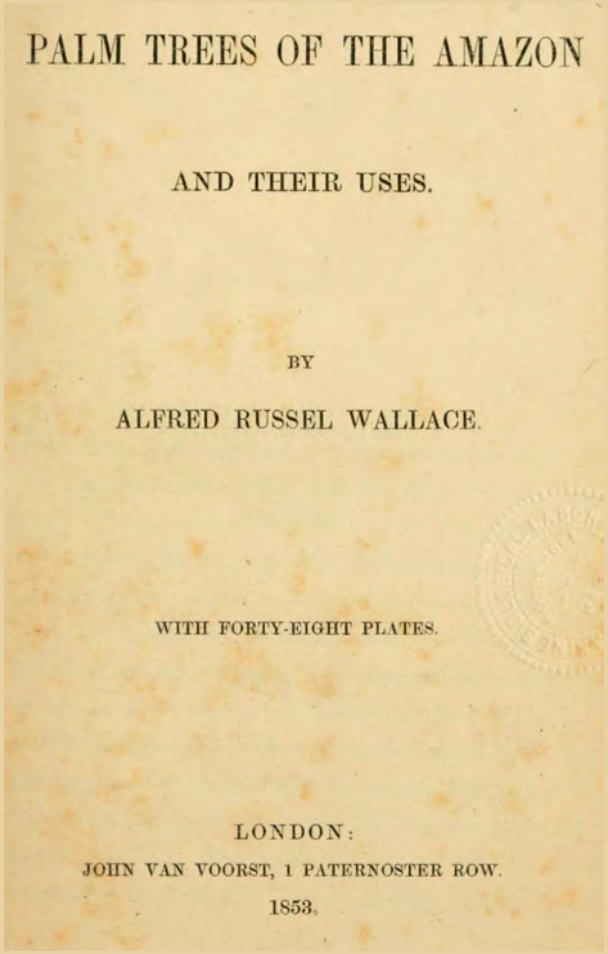
(1823 – 1913)





"SIN EMBARGO, MIS COLECCIONES ESTABAN EN LA BODEGA Y SE PERDIERON IRREVOCABLEMENTE.

Y AHORA EMPIEZO A PENSAR QUE CASI TODA LA RECOMPENSA DE MIS CUATRO AÑOS DE PRIVACIONES Y


PALM TREES OF THE AMAZON

AND THEIR USES.

BY

ALFRED RUSSEL WALLACE.

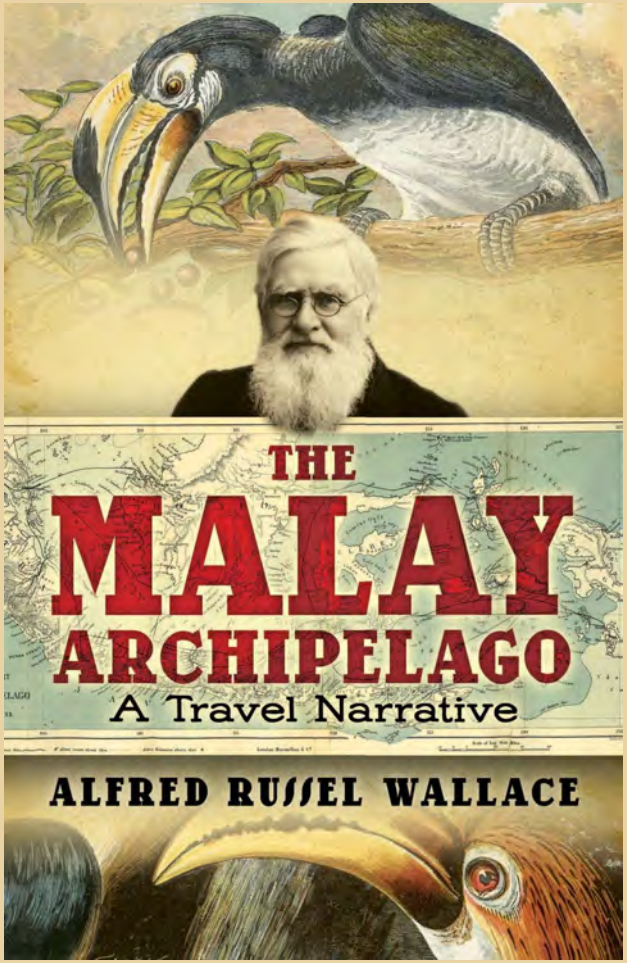
WITH FORTY-EIGHT PLATES.

LONDON:
JOHN VAN VOORST, 1 PATERNOSTER ROW.
1853.

“PRIMERO INTENTÉ FAMILIARIZARME CON EL ASPECTO DE CADA ESPECIE Y APRENDER A RECONOCERLA POR SU NOMBRE NATIVO; PERO NI SIQUIERA ESO FUE FÁCIL, YA QUE A MENUDO NO LOGRABA VER NINGUNA DIFERENCIA ENTRE ÁRBOLES QUE, SEGÚN ME ASEGURABAN LOS INDIOS, ERAN MUY DISTINTOS Y TENÍAN PROPIEDADES Y USOS MUY DIFERENTES. SIN EMBARGO, UN EXAMEN MÁS DETALLADO ME CONVENCIÓ DE QUE EXISTÍAN CARACTERÍSTICAS EXTERNAS QUE PERMITÍAN DIFERENCIAR CADA

"DURANTE MI ESTANCIA EN LA REGIÓN AMAZÓNICA, APROVECHÉ TODAS LAS OPORTUNIDADES PARA DETERMINAR LOS LÍMITES DE LAS ESPECIES, Y PRONTO DESCUBRÍ QUE EL AMAZONAS, EL RÍO NEGRO Y EL MADEIRA FORMABAN LOS LÍMITES MÁS ALLÁ DE LOS CUALES CIERTAS ESPECIES NUNCA PASABAN. LOS CAZADORES NATIVOS CONOCEN PERFECTAMENTE ESTE HECHO Y SIEMPRE CRUZAN EL RÍO CUANDO QUIEREN PROCURARSE ANIMALES CONCRETOS, QUE SE ENCUENTRAN INCLUSO EN LA ORILLA DEL

(1854) ON THE MONKEYS OF THE AMAZON. *ANNALS AND MAGAZINE OF NATURAL HISTORY* 14(84).

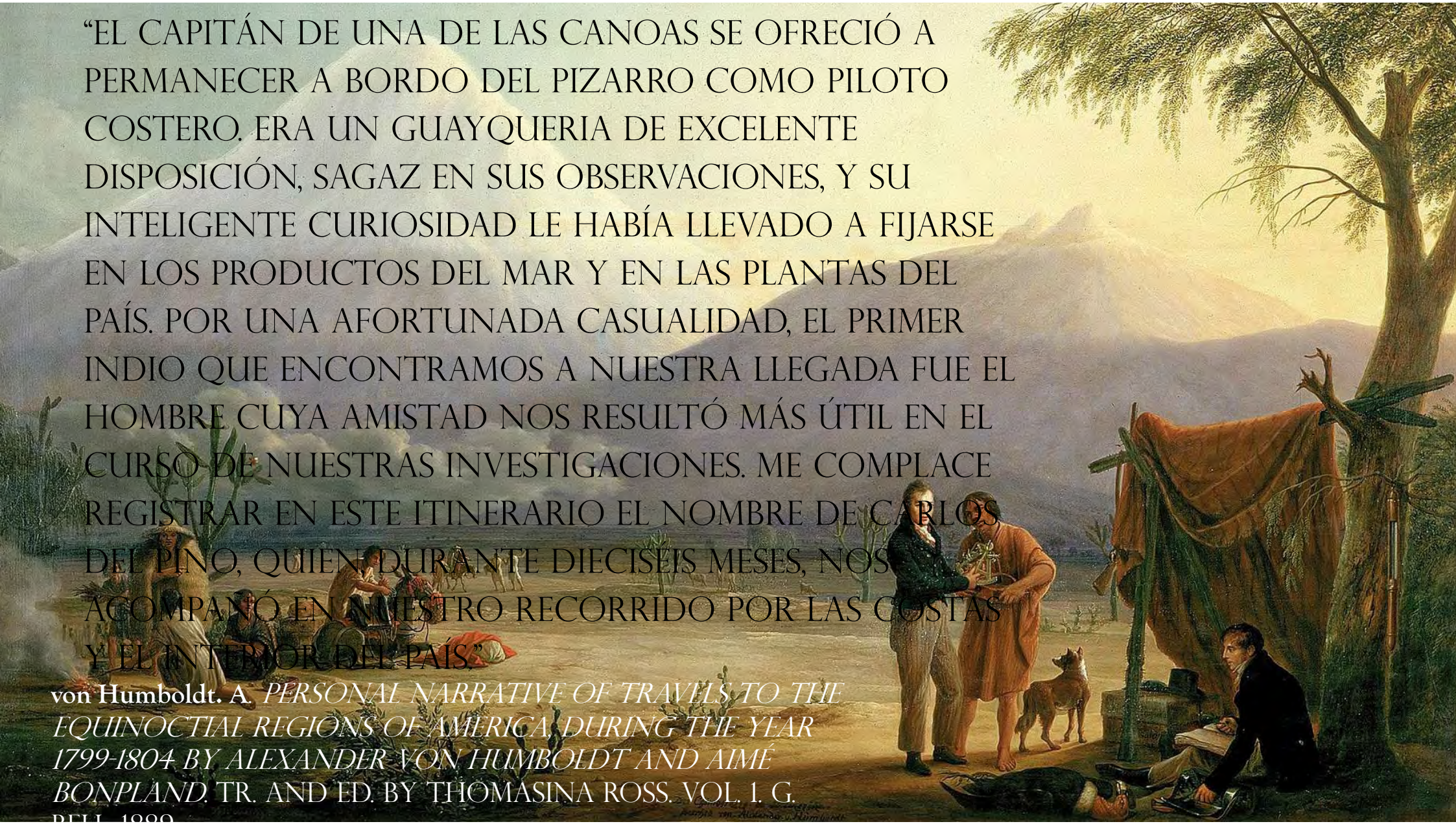


Wallace's Help: The Many People Who Aided A. R. Wallace in the Malay Archipelago

John van Wyhe

Abstract

Alfred Russel Wallace was a quintessential Victorian collector-naturalist, remembered for his eight years of collecting throughout the Malay Archipelago, today's Indonesia, Malaysia, Singapore and East Timor. Written accounts almost always note that Wallace collected 125,660 natural history specimens, but almost no one mentions that he had a great deal of help in assembling this vast collection. His published and unpublished writings contain references to an array of hired assistants, boatmen, porters, cooks and guides. Along with the well-known assistants usually mentioned, Charles Allen and Ali, hundreds of local people helped Wallace by showing him where local animals lived and explaining how they behaved, and they procured the vast majority of the vertebrates in his collection. This article suggests that at least 1,200 individuals helped Wallace in one way or another, and the number could easily have been twice as large.



"EL CAPITÁN DE UNA DE LAS CANOAS SE OFRECIÓ A PERMANECER A BORDO DEL PIZARRO COMO PILOTO COSTERO. ERA UN GUAYQUERIA DE EXCELENTE DISPOSICIÓN, SAGAZ EN SUS OBSERVACIONES, Y SU INTELIGENTE CURIOSIDAD LE HABÍA LLEVADO A FIJARSE EN LOS PRODUCTOS DEL MAR Y EN LAS PLANTAS DEL PAÍS. POR UNA AFORTUNADA CASUALIDAD, EL PRIMER INDIO QUE ENCONTRAMOS A NUESTRA LLEGADA FUE EL HOMBRE CUYA AMISTAD NOS RESULTÓ MÁS ÚTIL EN EL CURSO DE NUESTRAS INVESTIGACIONES. ME COMPLACE REGISTRAR EN ESTE ITINERARIO EL NOMBRE DE CARLOS DEL PINO, QUIEN, DURANTE DIECISEIS MESES, NOS ACOMPAÑÓ EN NUESTRO RECORRIDO POR LAS COSTAS Y EL INTERIOR DEL PAÍS."

von Humboldt. A. *PERSONAL NARRATIVE OF TRAVELS TO THE EQUINOCTIAL REGIONS OF AMERICA, DURING THE YEAR 1799-1804 BY ALEXANDER VON HUMBOLDT AND AIMÉ BONPLAND.* TR. AND ED. BY THOMASINA ROSS. VOL. 1. G. BELL, 1889.

Trends in Ecology & Evolution

Volume 38, Issue 12, December 2023, Pages 1112-1114

Science & Society

Series: Local and Indigenous ecological knowledge

The importance of Indigenous and local people for cataloging biodiversity

Juan C. Copete [1], Alfred Kik [2 3 4], Vojtech Novotny [2 3 4], Rodrigo Cámara-Leret [1 5]

Abstract

Indigenous and local peoples' (ILPs) role in cataloging life on Earth has been significant but underappreciated. ILPs knowledge faces growing cultural and biological threats. Greater participation by ILPs in research would make science more efficient, conservation more sustainable, and traditional knowledge stronger, but formidable obstacles remain.

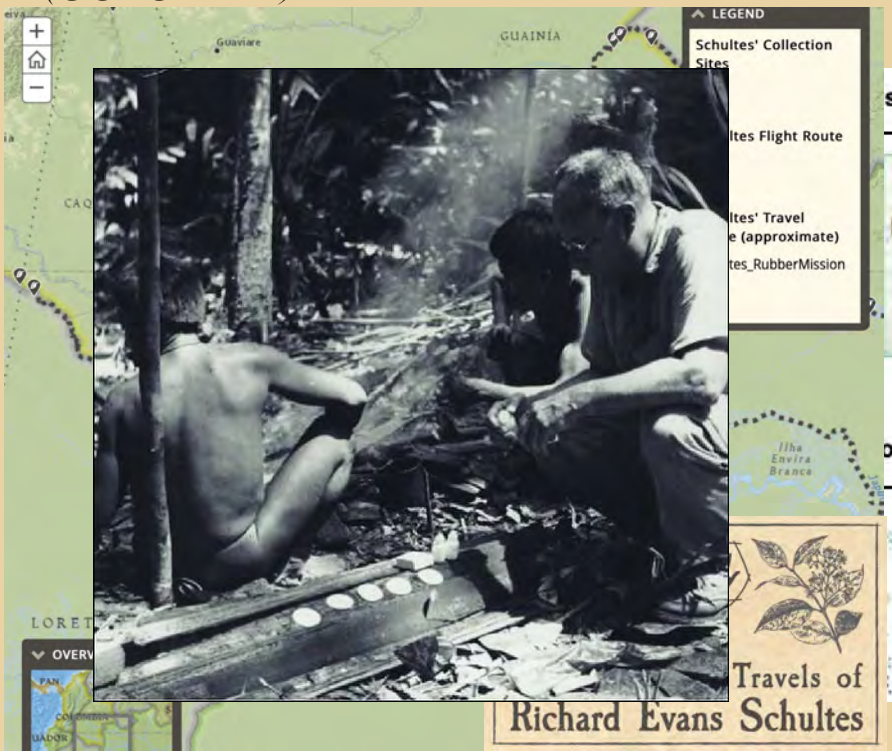
Photo: Sebastião Salgado

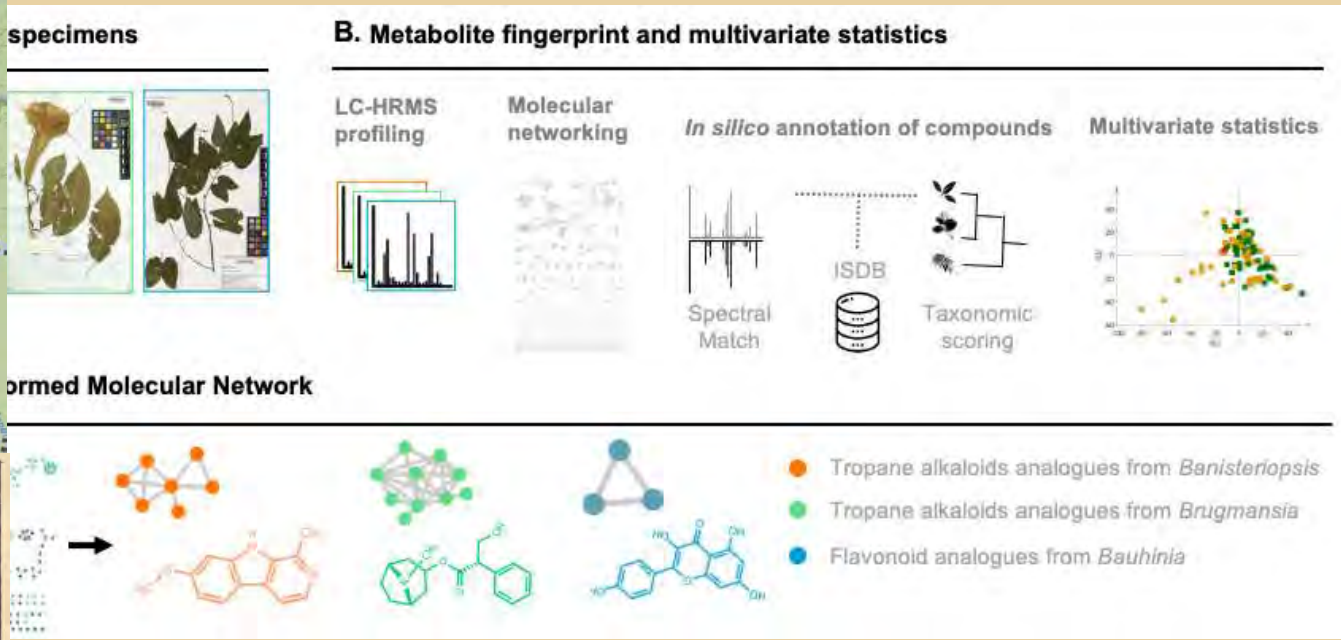
In a small region of Brazil included in this summary, most of the tribes are Tukanoan with a few groups of nomadic Makús whose extensive knowledge of their useful plants merits urgent study. A few Kuripakos and Baniwas, now rather well acculturated, live along the upper Rio Negro and its affluents, but even these Indians have retained some knowledge of their medicinal plants. We have included a few

METABOLOMICS OF MEDICINAL PLANT COMMUNITIES



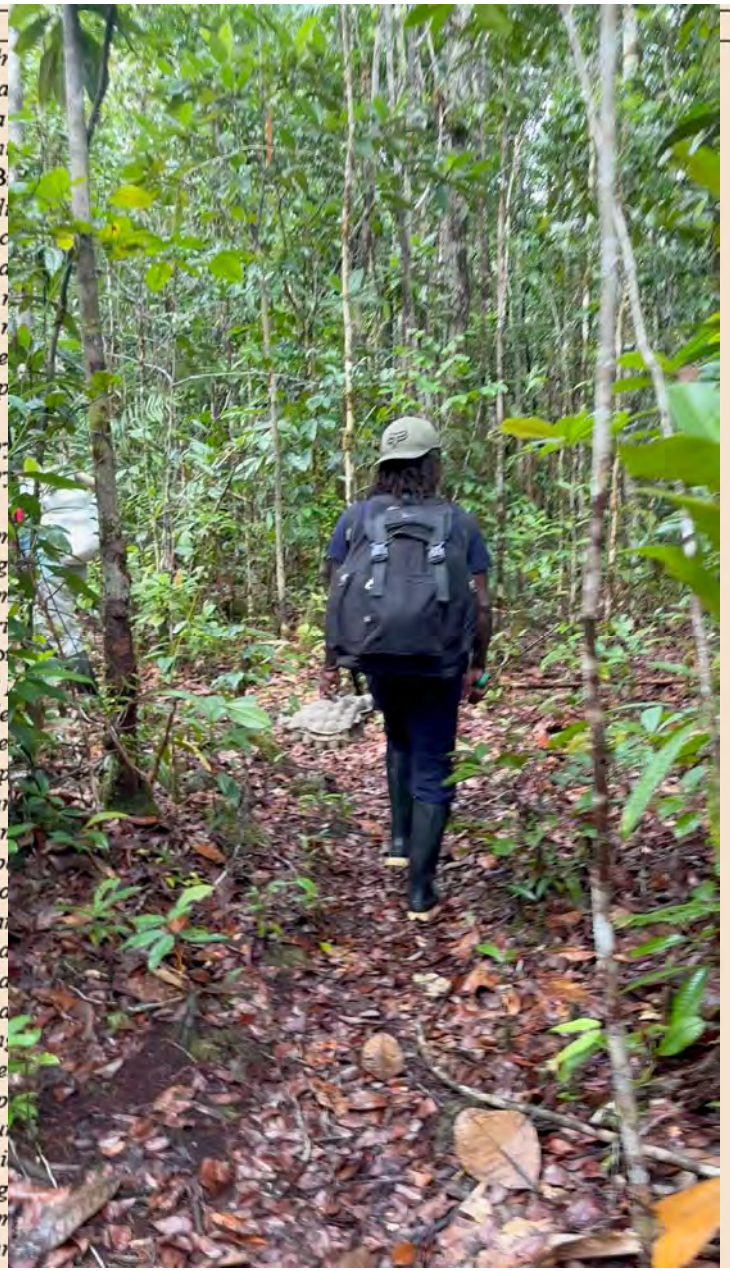
JUAN C. COPETE & AATICAM, VAUPÉS (COLOMBIA)





ETNOBOTÁNICA CACUA

13
especies



	Kakua	Nadeb	Daw
Abuta Gr			
Aechmea			
Alibertia			
Alternan			
(L.) R. B		▲	
Anacardi			
Ananas c	▲	▲	
Anaueria			
Annona			
Apuleia		▲	
Arrabide			
Aspidosp			
Astrocar			
Astrocar			
Attalea	▲		
Bactris g	▲	▲	
Bactris			
Banisteri			
C.V. Mo	▲		
Bellucia			
Bertholle		▲	
Bixa Ore	▲	▲	
Batocarp			
Brosimu			
Capsicu			
Carica p		▲	
Carpotro		▲	
Caryoca		▲	
Cecropia			
Cecropia			
Cecropia			
Cedrelin			
Ceiba pe			
Clathrop			
Clibadiu		▲	
Colocasi			
Couma g			
Couma	▲		
Couratar			

BECERRA, G.C. (2023) LAS PLANTAS Y LOS PUEBLOS INDÍGENAS DE TRADICIÓN NÓMADA DEL NOROESTE AMAZÓNICO EN ALTO RÍO NERO–VAUPÉS, FRONTERA DE COLOMBIA Y

The importance of Indigenous and local people for cataloging biodiversity

Juan C. Copete [1,*]
Alfred Kik [2,3,4]
Vojtech Novotny [2,3,4] and
Rodrigo Cámara-Leret [1,5,*,@]

Indigenous and local peoples' (ILPs) role in cataloging life on Earth has been significant but underappreciated. ILPs knowledge faces growing cultural and biological threats. Greater participation by ILPs in research would make science more efficient, conservation more sustainable, and traditional knowledge stronger, but formidable obstacles remain.

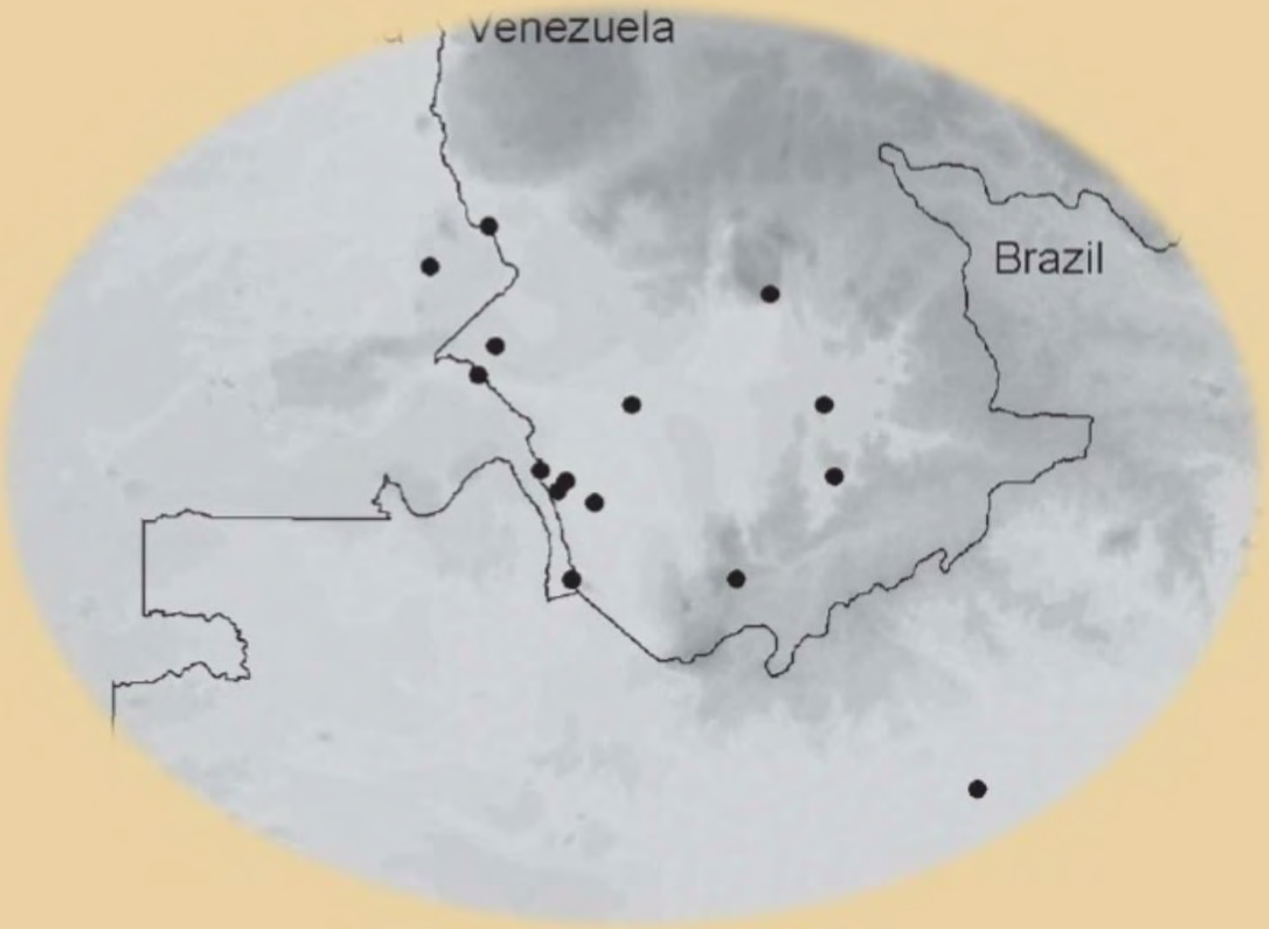
European explo
heavily on local
and classify the
flora. Alexander
nized the value
knowledge over
ter of one of the
on board the Piz
was a Guayqueri
tion, sagacious
he had been led
notice the produ
as the plants of t
chance, the firs
arrival was the
became the most
of our researche
cording in this itin
del Pino, who, d
months, attende
the coasts, anc
Alfred Russell W
local collectors
between 1854
from their kno

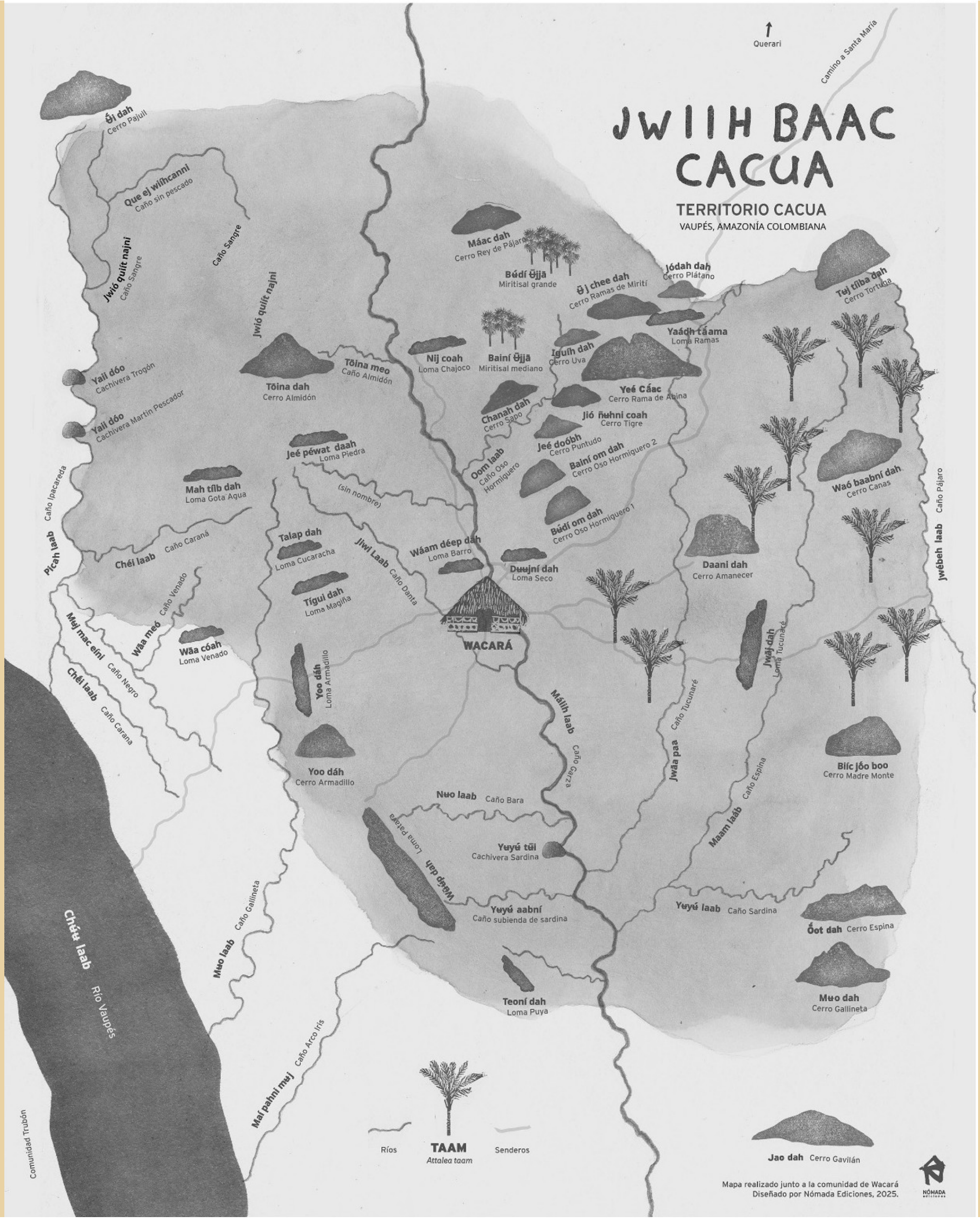

VHX

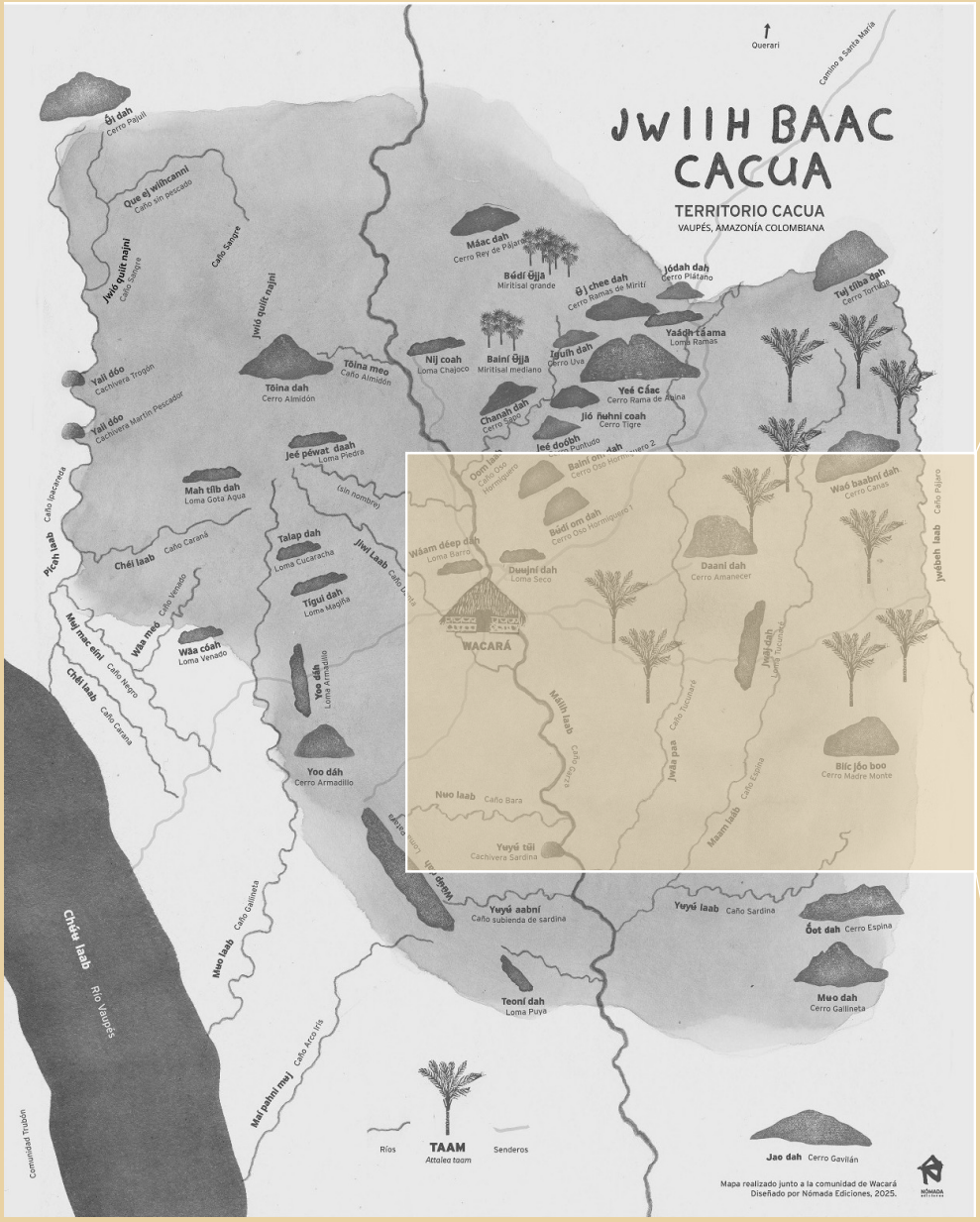
ATTALEA

A. Habit; B. trunk/stem detail; C. seedling leaf; D. ♂ inflorescence, E. ♂ rachilla, adaxial, F. ♂ rachilla, abaxial; G. partial ♂ flower (petals only). H. petal; I. stamen; J. detail hairs outside K. infructescence; L. fruit on rachilla; M.° seed, endocarp w. fibres, N. seed, endocarp end-on; O. seed, endocarp, T.S. Scale bar: A= ; B= ; C= ; D= ; E,F= ; G,H,I= ; J= K= ; L+M,N,O=

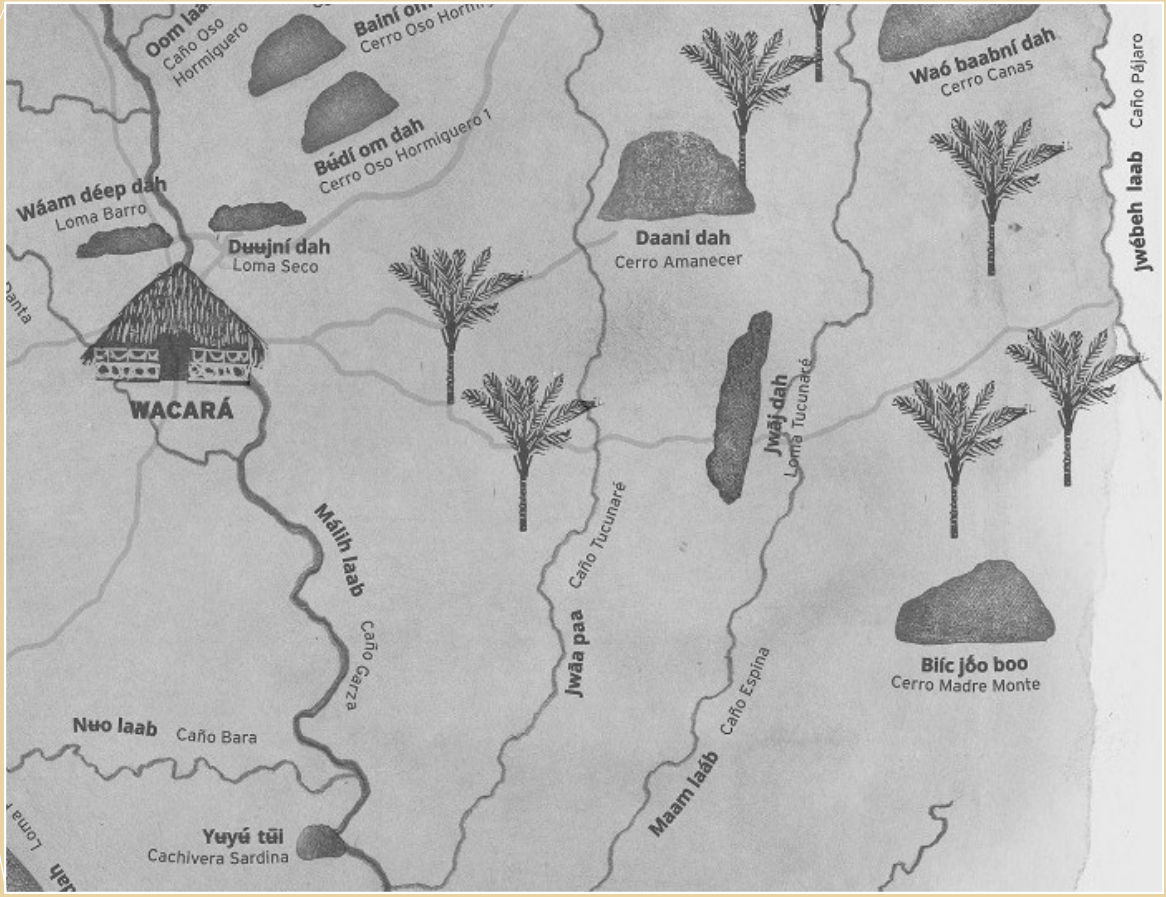
CARTOGRAFÍA BOTÁNICA

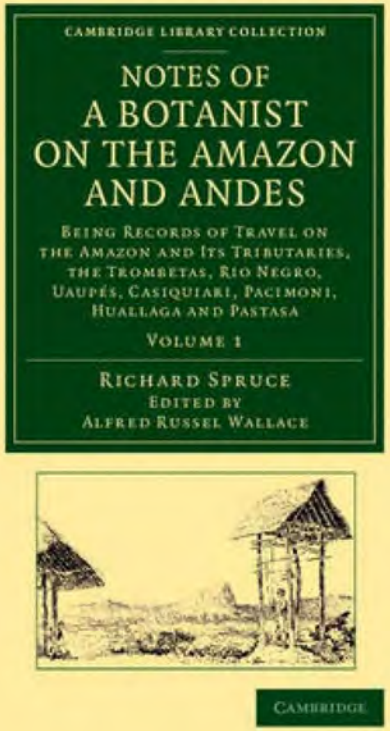



JWIIH BAAC CACUA
TERRITORIO CACUA
VAUPÉS, AMAZONÍA COLOMBIANA
Querarí
Camino a Santa María
Ői dah
Cerro Pajuil
Que ej wihcanni
Caño sin pescado
Jwió quit najni
Caño Sangre
Caño Sangre
Jwió quit najni
Yali dóo
Cachivera Trogón
Yali dóo
Cachivera Martín Pescador
Tõina dah
Cerro Almidón
Tõina meo
Caño Almidón
Jeé péwat daah
Loma Piedra
Mah tíib dah
Loma Gota Agua
Caño Ipacareda
Picah laab
Chéi laab
Caño Caraná
(sin nombre)
Talap dah
Loma Cucaracha
Tígui dah
Loma Magiña
Jwiį Laab
Caño Danta
Wãa meó
Caño Venado
Wãa cóah
Loma Venado
Mųį mac eini
Caño Negro
Chéi laab
Caño Carana
Yoo dáh
Loma Armadillo
Yoo dáh
Cerro Armadillo
Máac dah
Cerro Rey de Pájaros
Bédí Ųįįã
Miritisal grande
Nij coah
Loma Chajoco
Bainí Ųįįã
Miritisal mediano
Chanah dah
Cerro Sapo
Oom laab
Caño Oso Hormiguero
Jeé doóbh
Cerro Puntudo
Jió ñuhni coah
Cerro Tigre
Bainí om dah
Cerro Oso Hormiguero 2
Bédí om dah
Cerro Oso Hormiguero 1
Wáam déep dah
Loma Barro
Duųní dah
Loma Seco
WACARÁ
Jódah dah
Cerro Plátano
Ũ j chee dah
Cerro Ramas de Mirití
Iguih dah
Cerro Uva
Yaách táama
Loma Ramas
Yeé Cãac
Cerro Rama de Asina
Tuj tiiba dah
Cerro Tortuga
Waó baabní dah
Cerro Canas
Caño Pájaro
Jwébeh laab
Daaní dah
Cerro Amanecer
Jwaį dah
Loma Tucunaré
Caño Tucunaré
Jwãa paa
Málih laab
Caño Garza
Bíic jõo boo
Cerro Madre Monte
Caño Espina
Maam laab
Nuo laab
Caño Bara
Loma Palma
Wáap dah
Yuyú túi
Cachivera Sardina
Yuyú aabní
Caño subienda de sardina
Yuyú laab
Caño Sardina
Őot dah
Cerro Espina
Mųo dah
Cerro Gallineta
Teoní dah
Loma Puya
Chóu laab
Río Vaupés
Mųo laab
Caño Gallineta
Mai pahni mųį
Caño Arco Iris
Comunidad Trubón
Ríos
TAAM
Attalea taam
Senderos
Jao dah
Cerro Gavilán
Mapa realizado junto a la comunidad de Wacará
Diseñado por Nómada Ediciones, 2025.
NÓMADA



Comunidad Cacua
&
Mónica Naranjo Uribe

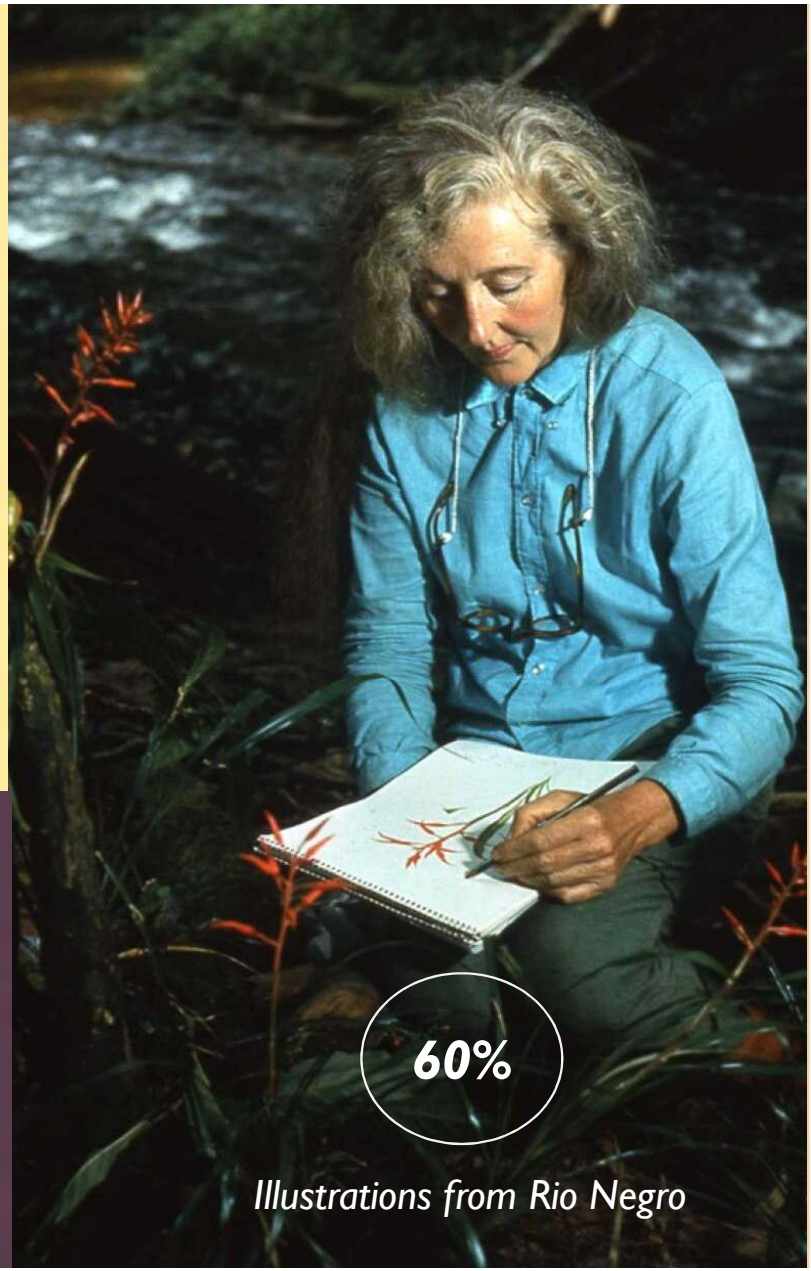




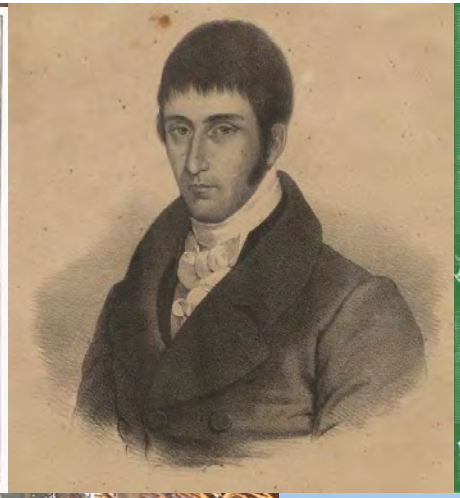
Margaret Mee

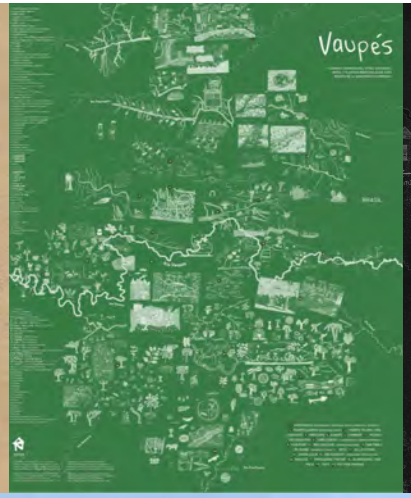
Rainforest Conservationist

British botanical artist Margaret Mee (1909–1988) spent more than 30 years studying and painting the tropical plants of the Amazon rainforest, including several species previously unknown to science. A passionate environmentalist, Mee was one of the first people to speak out about the damage caused to the rainforest by illegal mining and logging.




MAPA
FITOGEOGRÁFICO




Vaupés


ALTO RIO NEGRO
SÃO JOÃO BATISTA
TARACUÁ
PIRARA POÇO
PENOKE
SERRA DO TRAIRÁ


TIVER
NEVER


A
B
C
D
UNCARA
expedia

2025

Attalea taam — a new palm species well known by the Cacua Indigenous People

PHYTOTAXA (IN PRESS)

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CACUA COLOMBIA

"I will make even busy New Yorkers take time to see what I see of flowers."

Georgia O'Keeffe


¡Muchas gracias!