



Amapá Regional Center

Coordinator: José Julio de Toledo Federal University of Amapá Emails: jjuliotoledo@gmail.com, jjulio@unifap.br

V CENBAM and PPBio Western Amazon Symposium Location: National Institute for Amazon Research – INPA, Campus V, Manaus, Amazonas. Date: June 28th to 30th, 2023.

PRESENTATION NR Amapá Coordinator

José Julio de Toledo

Training

- ÿ Biologist, UNEMAT (2019-2002)
- ÿ Master in Ecology and Conservation Biodiversity, UFMT (2003-2005)
- ÿ PhD in Ecology, INPA (2005-2009)
- ÿ Post-doctorates:
- 2009-2011 Ecology, INPA
- 2022-2023 Ecological Interactions, Instituto de Ecología, AC, Mexico

O A https://labecoap.wixsite.com/labeco-unifap-br/professores					
	Este site foi desenvolvi	do com o criador de sites	WIX.com. Crie seu site ho	oje. Começar	
LAB	Labor Unive	ratório de Ec ersidade Fede	ologia eral do Amapa	á	nglish Partugués
ΙΝΊCΙΟ	SOBRE NÓS	PESQUISA	GALERIA	BLOG	CONTATO
					Professores
	1				PostDoc
States	José Julio de 1	Toledo			Doutorado
	Sou biólogo (2003, Universidade do Estado do Mato Grosso), com mestrado em Ecologia e Conservação da Biodiversidade			Mestrado	
A Section of Section	com mestrado er				

NR Amapá Coordinator

Professional experience

ÿ Professor in graduation

- 1 State University of Mato Grosso-UNEMAT (2005)
- 2 State University of Roraima-UERR (2011-2014)
- 3 Federal University of Amapá (2014-Present) ÿ

Postgraduate professor - PPG

Natural Resources/UFRR (2011-2014)

- -PPG Agroecology/UERR (2013-2015)
- -PPG Botany /INPA (2013-2016)
- -PPG Tropical Biodiversity (2014-Present)
- -PPG Environmental Sciences (2017-Present)

ÿ Administration

- Coordinator or Deputy Coordinator. PPG Tropical Biodiversity (2016-2021)



NR Amapá Coordinator

Bibliographic production ÿ

46 scientific articles ÿ 2 book chapters

Lines of research ÿ

Forest ecology ÿ **Ecological interactions**

Orientations ÿ

2 doctors

ÿ 6 masters

ÿ 4 graduates

1	NAME AND ADDRESS OF	José Julio de Toledo 🗸		SEGUNDO	Citado por		VER TOD
S	03	Universidade Federal do Amapá E-mail confirmado em unifap.br - <u>Página inicial</u>				Todos	Desde 2
	6	Ecologia Conservação da Biodiversid			Citações Índice h Índice i10	978 17 28	
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Ð	Biodiversity, th savanna K Mustin, WD Ca Nature Conservati	reats and conservation challenges in the Cerrado of Amapá, an Amazonian nalho, RR Hilário, SV Costa-Neto, C Silva, on 22, 107-127	58	2017	Com base nas autorio	zações de fir	nanciamento

VER TODOS

Desde 2018

752

15

21

240

VER TODOS

10 artigos

disponivel

Researchers



- Currently, the Amapá Center has 10 researchers from 4 institutions:
 - UNIFAP: José Julio de Toledo, Renato Richard Hilarious, Darren Norris, Fernanda Michalski
 - IEPA: Cláudia Regina da Silva, Isaí Jorge Castro, Salustiano Vilar Costa-Grandchild
 - UEAP: Zenaide Palheta Miranda
 - UAM-Spain: William Douglas de rvlh Mtin

Students



Total of 128 students who defended and 35 in progress

Level	Completed Cu	irrent
Doctorate 15 (12%) 9 (24%)	
Master's degre	e 44 (34%) 14 (38%)
Undergraduate	e 69 (54%) 14 (3	8%)

Origin of undergraduate students

	Origem	dos est	tudantes	de gradu	ação		
	ODONTOL	OGIA-IMES					
H	GEOGRAPHY AND REGIONAL STUDIES-UNIVERSITY OF MIAMI GEOGRAFIA-UNIFAP						
	ENGENHARIA QUIMICA-UEAP						
	ENGENHARIA FLORESTAL-UEAP						
	ENGENHA	ARIA CIVIL-U	NIFAP				
	ENGENHARIA AMBIENTAL-UEAP						
	CIENCIAS DA COMPUTACAO-UNIFAP						
	CIENCIAS BIOLOGICAS-UNIFAP						
	CIENCIAS BIOLOGICAS-UFRJ						
	CIENCIAS	BIOLOGICA	S-FACULDA	DES DE MACA	PA		
	CIENCIAS	AMBIENTA	S-UNIFAP				
	BIOLOGICAL SCIENCES-UNIVERSITY OF ABERDEEN						
	BIOLOGIA-UNIVERSIDAD AUTONOMA DE MADRID						
0	10	20	30	40	50	60	
		%	de estudan	tes			

• 9 courses:

- 52% Environmental Sciences
- 19% Biological Sciences
- 9% Forestry Engineering
- 9% Civil Engineering
- 8 different institutions:
 - 79% from UNIFAP
 - 14% from UEAP

Origin of postgraduate students



- 6 PPGs from 3 institutions
- Master's degree:
 - 66% PPGBio/UNIFAP
 - -17% PPGCA/UNIFAP
 - -8% PPGECO/UFRGS
 - -7% PPGECO/INPA
- Doctorate:
 - -71% PPGBio/UNIFAP
 - -25% BIONORTE/UNIFAP
 - 4% PPGECO/INPA

Search sites Trail grid in FLONA do Amapá (30 plots)



Module in the Curiaú APA savannah (10 plots)









Mosaic modules of eucalyptus plantations and savannas (30 plots)



51°18'W 0°39'N

51°10' W 0°40' N 51°12' W 0°35' N

Source: conexaoplaneta.com

Plots (4) in a mangaba area near Macapá











SEARCH

Data by site

	FLONA-AP	APA Curiaú	Eucalyptus	Mangaba
Ground	30 plots (20 x 250 m)			
Vegetation structure		10 plots (4 x 250 m)	6 km of trails	4 plots (4 x 250 m)
Floristics	05 plots (20 x 250 m) 10 p	ots (4 x 250 m)		4 plots (4 x 250 m)
Mangaba phenology				5 years in 4 installments
Medium and large mammals	Camera trap (30 installments)		6 km of trails (sighting method)	
Underforest birds Car	nera trap (30 plots)			
Epiphytes	11 plots (120 trees)			
Bats	15 installments			

Scientific production Articles



- Total of 251 articles published since 2013
- 47% with student participation
- Increased student participation in scientific articles: 26% for 2013-16, 46% for 2017-20 and 64% for 2021-23

Books or chapters Guide

• A total of 30

books/chapters and 1 guide

Floresta Nacional de Amapá (FLONA-AP), Amapá-Brazil Aroids of Floresta Nacional de Amapá

Edith Clemente-Arenas & Lucio Trujillo-Rodriguez

¹Graduate Program of Biodiversity Tropical, Amapá Federal University

Photos by: Edith Clemente Arenas, Lucio Trujillo Rodriguez. Produced by: Edith Clemente Arenas with support from Dr. Thomas Croat © Edith Clemente Arenas [edith-clemente-a@outlook.com]



Número de livros ou capítulos

8-



Livros ou capítulos

Recognition of increased scientific production with students



ÿ Raising the concept of the PPG in Tropical Biodiversity from 4 to 5 in the quadrennial assessment of CAPE 2020

Scientific production



Journal of Tropical Ecology

www.cambridge.org/tro

Research Article

Cite this article: Ferreira MM, Xavier BS, Bobrowiec PED, de Castro IJ, Hilário R, da Cunha AC, Oliveira LL, Toledo Jú, and Carvalho WD (2023). Bat diversity is driven by elevation and distance to the nearest watercourse in a terra firme forest in the northeastern Brazilian Amazon. Journal of Tropical Ecology. 39(e1), 1–12. doi: https:// doi.org/10.1017/S0266467422000438

Received: 21 July 2021 Revised: 21 September 2022 Accepted: 2 October 2022

Bat diversity is driven by elevation and distance to the nearest watercourse in a *terra firme* forest in the northeastern Brazilian Amazon

Marcelo Martins Ferreira^{1,3}, Bruna da Silva Xavier²,

Paulo Estefano Dineli Bobrowiec³, Isaí Jorge de Castro⁴, Renato Hilário¹^o, Alan Cavalcanti da Cunha¹, Leidiane Leão Oliveira⁵, José Júlio de Toledo¹ and William Douglas Carvalho^{1,6,7}

¹Programa de Pós-Graduação em Biodiversidade Tropical, Universidade Federal do Amapá (UNIFAP), Macapá, Brazil; ²Programa de Pós-Graduação em Ecologia, Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil; ³Programa de Pós-Graduação em Ecologia, Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Brazil; ⁴Laboratório de Mamíferos, Instituto de Pesquisas Científicas e Tecnológicas do Estado do Amapá (IEPA), Macapá, Brazil; ⁵Instituto de Ciências e Tecnologia das Águas – ICTA, Universidade Federal do Oeste do Pará, Santarém, Brazil; ⁶Terrestrial Ecology Group (TEG-UAM), Department of Ecology, Faculty of Sciences, Autonomous University of Madrid, Madrid, Spain and ^TCentro de Investigación en Biodiversidad y Cambio Global (CIBC-UAM), Universidad Autónoma de Madrid, Madrid, Spain





ended the second se

• Diversity increases with terrain elevation

 Bats with greater mass body are more favored in forests with greater basal area

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nature > scientific reports > articles > article

Article Open Access Published: 22 February 2021

Contribution of *Vouacapoua americana* fruit-fall to the release of biomass in a lowland Amazon forest

Victor Juan Ulises Rodriguez Chuma & Darren Norris

Scientific Reports 11, Article number: 4302 (2021) Cite this article

614 Accesses | 1 Altmetric | Metrics

Abstract

Fruit-fall provides the transfer of biomass and nutrients between forest strata and remains a poorly understood component of Amazon forest systems. Here we detail fruit-fall patterns





Easting

 Acapu (Vouacapoua americana) dominates (43% to 64%) fruit production in the FLONA of Amapá

 Permanent plots allow spatial modeling of acapú fruit production.

Machine Translated by Google

Received: 16 December 2021 Revised: 9 September 2022 Accepted: 7 November 2022

DOI: 10.1111/btp.13191

ORIGINAL ARTICLE

WILEY

Phorophyte size and soil profiles differentially correlate with community structure among hemiepiphytes and nomadic vines

José Julio de Toledo² 💿

Edith Rosario Clemente-Arenas¹ | Lucio Royer Trujillo-Rodriguez¹ Renato Richard Hilário² | Mariana Victória Irume³ | Charles E. Zartman³



¹Programa de Pós-Graduação em Biodiversidade Tropical, Universidade Federal do Amapá-UNIFAP, Macapá, Amapá, Brazil

²Departamento de Meio Ambiente e Desenvolvimento, UNIFAP, Macapá, Amapá, Brazil

³Coordenação de Biodiversidade, Instituto Nacional de Pesquisas da Amazônia. Aleixo, Manaus, Brazil

Correspondence

Abstract

Tropical non-self-supporting plants such as hemiepiphytes and nomadic vines are model organisms for disentangling biotic and environmental correlates which influence their occupancy patterns. We inventoried >4000 individuals from >3000 trees ranging from 1 to 200 cm diameter at breast height (DBH) in a northeastern Amazonian upland forest to address how tree (phorophyte) size, edaphic factors and recruitment strategy influence occupancy, diversity, and compositional patterns of two vascular non-self-supporting plant functional groups. Hemiepiphytes germinate



• The probability of phorophyte colonization increases with size, but increases faster for nomadic vines that germinate in the soil and slower for hemiepiphytes that germinate on the phorophyte



 Nomadic vines respond more strongly to gradients in fertility and soil texture than hemiepiphytes

Study of the interaction network between epiphytes and phorophytes in FLONA do Amapá

Lucio Royer Trujillo-Rodriguez, Lorena Antunes Jimenez, Edith Rosario Clemente-Arenas, Mariana Victória Irume, Charles E. Zartman, Wesley Dattilo, José Julio de Toledo



51.8 W



Holoepiphytes (a) and hemiepiphytes (bd) responded to soil gradients.



















- Phorophyte size proved to be the most important variable in structuring the epiphyte network
- Canopy coverage if proved to be more important for hemiepiphytes

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journal homepage: www.elsevier.com/locate/foreco

Drivers of mammal richness, diversity and occurrence in heterogeneous landscapes composed by plantation forests and natural environments

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ARTICLE INFO

ABSTRACT

Keywords:

Landscape composition Landscape structure Camera trap Conservation Anthropogenic landscapes Brazilian Amazon

wildlife communities thriving in these areas, and the drivers shaping these patterns. Thus, we evaluated the effects of vegetation structure and landscape composition on the richness, diversity and occurrence patterns of medium and large mammal in a heterogeneous Amazonian landscape, composed by planted forest and native habitats. Based on line transects and camera trap surveys in three different environments (eucalyptus plantations, savannas and forests), we detected 17 mammal species, including two species threatened nationally and worldwide. Mammal richness and diversity were similar among the environments. Mammals were more re-

corded in eucalyptus plantations, at homogeneous areas (i.e. few edges), in sites with fewer roads, and with

larger proportions of natural environments. The detection of Primates, Carnivora, Rodentia and Pilosa was



Check for







• Found a complementary pattern for diversity between eucalyptus plantations, savannah and riparian forest Research, Society and Development, v. 10, n. 13, e193101321176, 2021 (CC BY 4.0) | ISSN 2525-3409 | DOI: http://dx.doi.org/10.33448/rsd-v10i13.1321176

Caracterização morfométrica de frutos e sementes e aspectos morfológicos da germinação e plântula de mangaba (*Hancornia speciosa* Gomes) nativa da savana

amapaense

Morphometric characterization of fruits and seeds and morphological aspects of mangaba (*Hancornia speciosa* Gomes) germination and seedlings native to the savanna in Amapá state Caracterización morfométrica de frutos y semillas y aspectos morfológicos de la germinación y plántula de mangaba (*Hancornia speciosa* Gomes) nativa de la Savana de Amapá

Recebido: 28/09/2021 | Revisado: 03/10/2021 | Aceito: 06/10/2021 | Publicado: 10/10/2021

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Landsc Ecol https://doi.org/10.1007/s10980-022-01565-y

RESEARCH ARTICLE



The relative importance of forest cover and patch-level drivers for phyllostomid bat communities in the Amazonian Savannas

William Douglas Carvalho[®] · Luís Miguel Rosalino · Bruna da Silva Xavier · Isaí Jorge de Castro · Renato Hilário · Tiago Miranda Marques · José Júlio de Toledo · Marcus Vinícius Vieira · Jorge M. Palmeirim · Karen Mustin

Received: 4 December 2021 / Accepted: 21 November 2022 © The Author(s) 2022

Abstract

Context Analyze the multiple dimensions of biodiversity under a local and landscape lens in natural habitats, such as Amazonian savannas, is fundamental for the conservation of species and ecosystems.

Objectives We aim to explore how landscape forest cover and patch-level variables affect the patterns of species abundance, functional traits, and taxonomic, functional and phylogenetic α -diversity of

Supplementary Information The online version

Phyllostomid bats in forest patches of the Savannas of Amapá, in both the wet and dry seasons.

Methods We used mist nets to survey bats in 26 forest patches. We also quantified forest cover in buffers of 500, 1000, 1500, 2000 and 2500 m around each patch, and tree height, basal area, canopy cover, and vegetation clutter in the understorey at the patch level. We used hierarchical partitioning to relate the different indices with our predictor variables.

Results Taxonomic, functional and phylogenetic diversity in the wet season increased with the proportion of forest cover in the 2500 m buffer. Vegetation clutter was negatively related to taxonomic and





phyllostomid bats

Sociodemographic factors affect the attitude towards urban trees in the most preserved state of the Brazilian Amazon

Lorena Antunes Jimenez, Taissa Lobato, Laisa Freire, Saulo Silvestre, José Toledo



 The probability of a resident keeping a tree in front of their house in Macapá depends on their environmental attitude, level of anthropocentrism and age.

HUMAN RESOURCES TRAINING



- 15 doctors (15%),
- 44 (44%) masters
- 40 (41%) graduates

HR utilization potential

ÿ GEA **(UEAP, IEPA,** SDR – Rurap/Pescap/IEF, Command Control) = 37% ÿ GF **(Univers., IFAP, IBAMA,** INPA, MAPA/CONAB/EMBRAPA) = 24% ÿ City Halls

- = 5% ÿ Projects (consultancy/
- scholarship) = 4% ÿ Foreign

institutions = 4% ÿ Third sector (NGOs,

institutes) = 3% ÿ Private sector (Colleges, companies, entrepreneurship) = 3

Interaction with teaching

Environmental education for elementary school children at APA do Curiaú



Field classes with undergraduate students at collection sites





Interaction with teaching

4 publication workshops4 project workshops















Interaction with the business sector

• Survey of fauna in eucalyptus plantations



 Negotiation to create an Integrated Forest Management Research Center with its own area and interaction with concessionary companies.



DIFFICULTIES FOUND

- High cost of access to FLONA in Amapá
- Lack of maintenance of existing infrastructure (trails, camping)
- Decrease in institutional support due to budget reduction
- Reduced communication and interaction between researchers
- Conversion of plots into soybean plantations
- Loss of access to plots in private areas
- Lack of accessible and stable research site to develop studies with low travel cost
- Low registration of metadata and data in the PPBio repository

FUTURE GOALS

- Finalize the floristic inventory at FLONA in Amapá
- Reinvent the savannah plots of the Curiaú and Mangaba APA
- Carry out floristic inventory on the eucalyptus module plots
- Improve communication between core researchers through periodic meetings
- Installation of permanent plots in the Cajari Resex to have a closer collection site in a conservation unit
- Carrying out publication and training workshops for data deposit and metadata

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ThanksIII