

# Ricardo de Oliveira Perdiz

PHD IN BOTANY

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## Professional summary

Experience in tropical botany, botanical surveys in the Amazon and Atlantic Forests, angiosperm taxonomy and systematics (especially Burseraceae, Caryocaraceae and Sapindaceae), interactive keys of identification, ecological data and metadata management, laboratory work (DNA extraction and library preparation for NGS), general computational and bioinformatics for data wrangling and analysis.

## Professional data

- Orcid : 0000-0002-2333-6549
- Brazilian CNPq Lattes CV
- ResearchGate

## Academic Formation

### INPA

Amazonas, Brazil

PH.D. IN BOTANY

2015–2019

- Thesis title: Species delimitation and phylogeography of the *Protium aracouchini* (Aubl.) Marchand species complex (Burseraceae)
- Funding: CNPq and CAPES
- Partially executed in the University of California, Berkeley (UC Berkeley), EUA, with a CAPES scholarship
- Supervisor: Paul V.A. Fine (UC Berkeley)
- Co-supervisors: Dr. Alberto Vicentini (INPA) and Dr. Douglas Daly (New York Botanical Garden, EUA)

### State University of Feira de Santana (UEFS)

Bahia, Brazil

M.S. IN BOTANY

2009–2011

- Dissertation title: Sapindaceae Juss. in remnants of montane forests in southern Bahia, Brazil
- Funding: CNPq
- Supervisor: Dr. André Amorim (UESC, Bahia, Brazil)
- Co-supervisor: Dra. María Silvia Ferrucci (IBONE, Corrientes, Argentina)

### State University of Santa Cruz (UESC)

Bahia, Brazil

B.SC. IN BIOLOGICAL SCIENCES

2005–2008

- Undergraduate thesis title: Maxillariinae s.l. (Orchidaceae) em três remanescentes de florestas montanas no sul da Bahia, Brasil
- Supervisor: Dr. André Amorim (UESC, Bahia, Brazil)

## Professional skills

- Field work and herbarium activities
- Plant identification of the Amazon flora, especially angiosperms
- Laboratory work - DNA extraction, PCR, library preparation for ddRADseq method
- General computational and data skills in bioinformatics
- Intermediate (Python, SQL) to advanced (R, bash) knowledge of programming languages for data science
- Advanced knowledge in reproducible reports using HTML, CSS, LaTeX, R Markdown, Markdown, Jupyter Notebooks and pandoc
- Advanced knowledge of Git for version-control system

## Scientific Production

### RESEARCH PAPERS - PUBLISHED

1. Draper, F. C., Costa, F. R. C., Arellano, G., Phillips, O. L., Duque, A., Macía, M. J., Steege, H. t., Asner, G. P., Berenguer, E., Schietti, J., Socolar, J. B., Souza, F. C. d., Dexter, K. G., Jørgensen, P. M., Tello, J. S., Magnusson, W. E., Baker, T. R., Castilho, C. V., Monteagudo-Mendoza, A., Fine, P. V. A., Ruokolainen, K., Coronado, E. N. H., Aymard, G., Dávila, N., Sáenz, M. S., Paredes, M. A. R., Engel, J., Fortunel, C., Paine, C. E. T., Goret, J., Dourdain, A., Petronelli, P., Allie, E., Andino, J. E. G., Brien, R. J., Pérez, L. C., Ângelo, ., Manzatto, G., Zambrana, N. Y. P., Molino, J., Sabatier, D., Chave, J., Fauset, S., Villacorta, R. G., Réjou-Méchain, M., Berry, P. E., Melgaço, K.,

- Feldpausch, T. R., Sandoval, E. V., Martinez, R. V., Mesones, I., Junqueira, A. B., Roucoux, K. H., Toledo, J. J. d., Andrade, A. C., Camargo, J. L., Pasquel, J. d. A., Santana, F. D., Laurance, W. F., Laurence, S. G., Lovejoy, T. E., Comiskey, J. A., Galbraith, D. R., Kalamandeen, M., Aguilar, G. E. N., Arenas, J. V., Guerra, C. A. A., Flores, M., Llampazo, G. F., Montenegro, L. A. T., Gomez, R. Z., Pansonato, M. P., Moscoso, V. C., Vleminckx, J., Barrantes, O. J. V., Duivenvoorden, J. F., Sousa, S. A. d., Arroyo, L., **Perdiz, R. O.**, Cravo, J. S., Marimon, B. S., Junior, B. H. M., Carvalho, F. A., Damasco, G., Disney, M., Vital, M. S., Diaz, P. R. S., Vicentini, A., Nascimento, H., Higuchi, N., Andel, T. V., Malhi, Y., Ribeiro, S. C., Terborgh, J. W., Thomas, R. S., Dallmeier, F., Prieto, A., Hilário, R. R., Salomão, R. P., Silva, R. d. C., Casas, L. F., Vieira, I. C. G., Araujo-Murakami, A., Arevalo, F. R., Ramírez-Angulo, H., Torre, E. V., Peñuela-Mora, M. C., Killeen, T. J., Pardo, G., Jimenez-Rojas, E., Castro, W., Cabrera, D. G., Pipoly, J., Sousa, T. R. d., Silvera, M., Vos, V., Neill, D., Vargas, P. N., Vela, D. M., Aragão, L. E., Umetsu, R. K., Sierra, R., Wang, O., Young, K. R., Prestes, N. C., Massi, K. G., Huaymacari, J. R., Gutierrez, G. A. P., Aldana, A. M., Alexiades, M. N., Baccaro, F., Céron, C., Muelbert, A. E., Rios, J. M. G., Lima, A. S., Lloyd, J. L., Pitman, N. C., Gamarra, L. V., Oroche, C. J. C., Fuentes, A. F., Palacios, W., Patiño, S., Torres-Lezama, A. & Baraloto, C. 2021. Amazon tree dominance across forest strata. *Nature Ecology and Evolution* 5. <https://doi.org/10.1038/s41559-021-01418-y>
2. Paiva, D. N. A., **Perdiz, R. O.** & Almeida, T. E. 2021. Using near-infrared spectroscopy to discriminate closely related species: A case study of neotropical ferns. *Journal of Plant Research* 134(3): 509–520. <https://doi.org/10.1007/s10265-021-01265-9>
  3. **Perdiz, R. O.**, Daly, D. C., Vicentini, A. & Fine, P. V. A. 2020. A new species of Protium (Burseraceae) from the Pacific Coast of Costa Rica. *Phytotaxa* 434(2): 183–194. <https://doi.org/10.11646/phytotaxa.434.2.4>
  4. Piva, L. R. O., Jardine, K. J., Gimenez, B., **Perdiz, R. O.**, Menezes, V. S., Durgante, F., Cobello, L. O., Higuchi, N. & Chambers, J. Q. 2019. Volatile monoterpene ‘fingerprints’ of resinous Protium tree species in the Amazon Rainforest. *Phytochemistry* 160: 61–70. <https://doi.org/10.1016/j.phytochem.2019.01.014>
  5. Farroñay, F., **Perdiz, R. O.**, Costa, F. M., Prata, E. M. B. & Vicentini, A. 2019. New record and emended description of a rare white-sand Amazonian species: Schoepfia clarkii (Schoepfiaceae). *Brittonia* 71(3): 312–317. <https://doi.org/10.1007/s12228-019-09571-2>
  6. Farroñay, F., **Perdiz, R. O.**, Prata, E. M. B. & Vicentini, A. 2019. Notes on morphology and distribution of Acmanthera (Adr. Juss.) Griseb. (Malpighiaceae), an endemic genus from Brazil. *Phytotaxa* 415(4): 199–207. <https://doi.org/10.11646/phytotaxa.415.4.4>
  7. Farroñay, F., Adrianzén, M. U., **Perdiz, R. O.** & Vicentini, A. 2018. A new species of Macrolobium (Fabaceae, Detarioideae) endemic on a Tepui of the Guyana shield in Brazil. *Phytotaxa* 361(1): 97–105. <https://doi.org/10.11646/phytotaxa.361.1.8>
  8. BFG and **Perdiz, R. O.** 2018. Brazilian Flora 2020: Innovation and collaboration to meet Target 1 of the Global Strategy for Plant Conservation (GSPC). *Rodriguésia* 69(4): 1513–1527. <https://doi.org/10.1590/2175-7860201869402>
  9. Rodrigues, R. S., **Perdiz, R. O.** & Flores, A. S. 2017. Novas ocorrências de angiospermas para o estado de Roraima, Brasil. *Rodriguésia* 68(2): 783–790. <https://doi.org/10.1590/2175-7860201768229>
  10. Oliveira, R., Farias, H. S., **Perdiz, R. O.**, Scudeller, V. & Barbosa, R. I. 2017. Structure and tree species composition in different habitats of savanna used by indigenous people in the Northern Brazilian Amazon. *Biodiversity Data Journal* 5. <https://doi.org/10.3897/BDJ.5.e20044>
  11. Barbosa, R. I., Castilho, C. V., **Perdiz, R. O.**, Damasco, G., Rodrigues, R. & Fearnside, P. M. 2017. Decomposition rates of coarse woody debris in undisturbed Amazonian seasonally flooded and unflooded forests in the Rio Negro-Rio Branco Basin in Roraima, Brazil. *Forest Ecology and Management* 397: 1–9. <https://doi.org/10.1016/j.foreco.2017.04.026>
  12. Lavor, P., **Perdiz, R. O.**, Versieux, L. M. & Calvente, A. 2016. Rediscovery of Pilosocereus oligolepsis (Cactaceae) in the state of Roraima, Brazil. *Cactus and Succulent Journal* 88(3): 137–143. <https://doi.org/10.2985/015.088.0306>
  13. BFG and **Perdiz, R. O.** 2015. Growing knowledge: an overview of Seed Plant diversity in Brazil. *Rodriguésia* 66(4): 1085–1113. <https://doi.org/10.1590/2175-7860201566411>
  14. **Perdiz, R. O.**, Giulietti, A. M. & Oliveira, R. P. 2015. Flora da Bahia: Clethraceae. *Sitientibus Série Ciências Biológicas* 15. <https://doi.org/10.13102/scb342>

15. **Perdiz, R. O.**, Ferrucci, M. S. & Amorim, A. M. A. 2014. Sapindaceae em remanescentes de florestas montanas no sul da Bahia, Brasil. *Rodriguésia* 65(4): 987–1002. <https://doi.org/10.1590/2175-7860201465410>
16. **Perdiz, R. O.**, São-Mateus, W. M. B. & Amorim, A. M. 2012. Flora da Bahia: Caryocaraceae. *Sitientibus Série Ciências Biológicas* 12(1): 109–113. <https://doi.org/10.13102/scb122>
17. **Perdiz, R. O.**, Amorim, A. M. A. & Ferrucci, M. S. 2012. Paullinia unifoliolata, a remarkable new species of Sapindaceae from the Atlantic Forest of southern Bahia, Brazil. *Brittonia* 64(2): 114–118. <https://doi.org/10.1007/s12228-011-9213-1>
18. Amorim, A. M., Jardim, J. G., Lopes, M. M. M., Fiaschi, P., Borges, R. A. X., **Perdiz, R. O.** & Thomas, W. W. 2009. Angiospermas em remanescentes de floresta montana no sul da Bahia, Brasil. *Biota Neotropica* 9(3): 313–348. <https://doi.org/10.1590/S1676-06032009000300028>

#### RESEARCH PAPERS - IN PRESS

1. Silva, W. R., Pequeno, P. A. C. L., Farias, H. L. S., Melo, V. F., Villacorta, C. D. A., Carvalho, L. C. S., **Perdiz, R. O.**, Citó, A. C. & Barbosa, R. I. *In press*. Environmental filters affecting species richness and composition in ecotone forests of the northern Brazilian Amazonia. *Boletim do Museu Paraense Emílio Goeldi - Ciências Naturais*.

#### RESEARCH PAPERS - SUBMITTED

1. Damasco, G., Anhalt, M., **Perdiz, R. O.**, Wittmann, F., Assis, R. L., Schöngart, J., Piedade, M. T. F., Bacon, C. D., Antonelli, A. & Fine, P. V. A. *Submitted*. Certification of açaí agroforestry increases the conservation potential of the Amazonian tree flora. *Agroforestry Systems*.

#### PREPRINTS

1. Paiva, D. N. A., **Perdiz, R. O.** & Almeida, T. E. 2020. Using near-infrared spectroscopy to discriminate closely related species: A case study of neotropical ferns. *bioRxiv*. <https://doi.org/10.1101/2020.10.19.343947>

#### ONLINE CHECKLISTS

1. Colli-Silva, M., Medeiros, H., Obermüller, F. A., Antar, G., Amorim, A. M., **Perdiz, R. O.**, Lima, H. C., Gil, A. S. B., Secco, R., Lima, D. F., Almeida, T., Delprete, P. G., Pederneiras, L., Moraes, P. R. L., Alves-Araújo, A. G., Koch, I., Lohmann, L. G., Mello-Silva, R., Viana, P. L., Goldenberg, R., Daly, D. C. & Forzza, R. C. 2020. Lista de espécies de plantas vasculares da Estação Ecológica de Maracá. In: *Catálogo de Plantas das Unidades de Conservação do Brasil*. Jardim Botânico do Rio de Janeiro. Available at: <https://catalogo-ucs-brasil.jbrj.gov.br>.

#### ONLINE BOOK

1. Vicentini, A. & **Perdiz, R. O.** 2021. Curso básico de introdução à linguagem R. Available at: <https://labotam.github.io>.

#### BOOK CHAPTERS

1. **Perdiz, R. O.** 2014. Ensinando botânica nas florestas no sul do Estado de Roraima. In: Flores, A. S. & Rodrigues, R. S. (Eds.) *As Unidades de Conservação e a preservação da diversidade biológica*. UERR edic~oes, Boa Vista. Pp. 45–48.
2. **Perdiz, R. O.** & Queiroz, L. P. 2013. Meliaceae. In: França, F., Melo, E., Souza, I. & Pugliesi, L. (Eds.) *Flora de Morro do Chapéu*. Universidade Estadual de Feira de Santana, Feira de Santana. Pp. 172–174.

#### DATASETS

1. Farias, H. L. S., Silva, W. R., Citó, A. C., **Perdiz, R. O.**, Carvalho, L. C. S. & Barbosa, R. I. 2020. Dataset on Wood Density of Trees in Ecotone Forests of the Northern Brazilian Amazonia. *Data in Brief* 30: 105378. <https://doi.org/10.1016/j.dib.2020.105378>
2. Oliveira, R. L. C., **Perdiz, R. O.**, Scudeller, V. V., Barbosa, R. I. & Farias, H. L. S. 2020. Tree species composition in different habitats of savanna used by indigenous in the Northern Brazilian Amazonia. Version 1.15. Dataset published by Sistema de Informação sobre a Biodiversidade Brasileira - SiBBR. Available for download at: <https://doi.org/10.15468/oby3vu>.
3. Silva, W. R., Villacorta, C. D. A., Carvalho, L. C. S., Farias, H. L. S., **Perdiz, R. O.** & Barbosa, R. I. 2019. Tree species composition in ecotone forests on Maracá Island, Roraima, northern Brazilian Amazonia: preliminary

data. V1.18. Dataset published by Sistema de Informação sobre a Biodiversidade Brasileira - SiBBR. Available for download at: <https://doi.org/10.15468/xa5lrb>.

4. Silva, W. R., Villacorta, C. D. A., **Perdiz, R. O.**, Farias, H. L. S., Oliveira, A. S., Citó, A. C., Carvalho, L. C. S. & Barbosa, R. I. 2019. Floristic composition in ecotone forests in northern Brazilian Amazonia: preliminary data. *Biodiversity Data Journal* 7: e47025. <https://doi.org/10.3897/BDJ.7.e47025>
5. Jaramillo, M. M. A., Turcios, M. M., **Perdiz, R. O.**, Carvalho, L. C. S. & Barbosa, R. I. 2019. Tree species composition of natural forest islands in a savanna matrix in the northern Brazilian Amazonia. v1.9. Dataset published by Sistema de Informação sobre a Biodiversidade Brasileira - SiBBR. Available for download at: <https://doi.org/10.15468/n8yolk>.

## SCIENTIFIC REVIEWS

1. **Perdiz, R. O.** 2020. *Ad Hoc* reviewer in peer review for **Phytokeys** journal.
2. **Perdiz, R. O.** 2020. *Ad Hoc* reviewer in peer review for **Brittonia** journal.
3. **Perdiz, R. O.** 2020. *Ad Hoc* reviewer in peer review for **Phytokeys** journal.
4. **Perdiz, R. O.** 2020. *Ad Hoc* reviewer in peer review for **Phytokeys** journal.
5. **Perdiz, R. O.** 2020. *Ad Hoc* reviewer in peer review for **Phytotaxa** journal.
6. **Perdiz, R. O.** 2018. *Ad Hoc* reviewer in peer review for **Phytotaxa** journal.
7. **Perdiz, R. O.** 2016. *Ad Hoc* reviewer in peer review for **Rodriguésia** journal.
8. **Perdiz, R. O.** 2013. *Ad Hoc* reviewer in peer review for **Boletim do Museu Integrado de Roraima** journal.
9. **Perdiz, R. O.** 2013. *Ad Hoc* reviewer in peer review for **Journal of Torrey Botanical Society**.

## Awards and Achievements

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### FELLOWSHIPS & GRANTS

2015	Alwyn H. Gentry Fellowship for Latin American Botanists, Missouri Botanical Garden, St. Louis MO	–
2016	José Cuatrecasas Fellowship Award	US\$3000
2017	ASPT Research Grant for Graduate students	US\$800
2018	IAPT Research Grant	US\$2000

## Teaching experience

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### Programa de Pós-graduação em Ciências Biológicas (Botânica) INPA

Amazonas, Brazil

TEACHER IN BOT-89 *Preparação de dados para análise estatística e Introdução ao uso de linguagem R*

6–17 Apr 2020

- Teachers: Dr. Alberto Vicentini (INPA) and myself
- This course provides skills for students dealing with basic R operations and perform exploratory data analysis in their datasets

### EMBRAPA

Roraima, Brazil

TEACHER IN *Técnicas de coleta e identificação botânica de espécies arbóreas da Amazônia*

21–30 Jan 2020

- Teachers: Dr. Ricardo de Oliveira Perdiz, M.Sc. Herison Medeiros, Bachelor Daniel Silva, and Adriano Souza
- Course done in collaboration with EMBRAPA-Roraima, Brazil
- Lessons ranging botanical collections, basic knowledge of plant morphology, good practices in collecting and documenting botanical collections, and taxonomy and systematics of neotropical woody angiosperms, with special emphasis on how to identify plant families and genera through the use of vegetative characters

### Programa de Pós-graduação em Ciências Biológicas (Botânica) INPA

Amazonas, Brazil

GRADUATE TEACHING ASSISTANT IN *Uso de espectroscopia para reconhecimento da Biodiversidade*

19–30 Nov 2018

- Teacher: Dra. Flávia Durgante (INPA)

## Programa de Pós-graduação em Ciências Biológicas (Botânica) INPA

Amazonas, Brazil

GRADUATE TEACHING ASSISTANT IN BOT-89 *Preparação de dados para análise estatística e Introdução ao uso de linguagem R*

2016-2017

- Teacher: Dr. Alberto Vicentini (INPA)
- Check the website

## Programa de Pós-graduação em Recursos Naturais, UFRR, Brazil

Roraima, Brazil

GRADUATE TEACHING ASSISTANT IN PRN 235 *Preparação de dados para análise estatística*

9–13 Nov 2015

- Teacher: Dr. Reinaldo Imbrozio Barbosa (INPA), Lidiany Carvalho (UFRR)
- Assisted students in dealing with R environment
- Actively contributed to lecture course design through meetings with instructor
- Created a website to help students in learning R

## Centro de Estudos da Biodiversidade Amazônica (CENBAM)

Roraima, Brazil

ORGANIZER AND TEACHER OF FIELD COURSE CALLED *Métodos de herborização e identificação de angiospermas neotropicais arbóreas, com ênfase nos caracteres vegetativos*

8–16 Aug 2013

- Course done in collaboration with Programa de Pós-graduação in Natural Resources from Federal University of Roraima (PRONAT UFRR), Brazil
- Lessons of taxonomy and systematics of neotropical woody angiosperms, with special emphasis on how to identify plant families and genera through the use of vegetative characters

## Professional experience

- PPBio Data Repository manager, Regional Center Roraima, Centro de Estudos Integrados da Biodiversidade Amazônica - CENBAM. Project funded by the National Council for Scientific and Technological Development (CNPq), Brazil. Period: 2011–2014.

## Media appearance and interviews

- Interview on the Pink Trumpet tree flowering period in Boa Vista county, RR, done for local media news Rede Amazônica. Available at: <https://globoplay.globo.com/v/9413385/>. 2021.
- Interview on Amazon biodiversity and its preservation, available on **Youtube** under the title *Episode 2: Protecting the Amazon Biodiversity - Delicious Powers*. Available at <https://www.youtube.com/watch?v=C-Ko3UcM23Y>. 2020.
- Member of **Botany** team on documentary **Novas espécies - A expedição do Século**, a Coproduction Grifa Filmes, Globo Filmes, GloboNews, Gebrueder BeetzFilmproduktion (Germany), FilmLand International, ZDF/ARTE (Germany) and NHK (Japan), with support from INPA (Instituto Nacional de Pesquisas da Amazônia), Brazilian Army through CMA (Comando Militar da Amazônia), ICMBio (Instituto Chico Mendes de Conservação da Biodiversidade) and Parque Nacional Serra da Mocidade. More details at <https://www.grifafilmes.com/novas-especies>. 2018.
- Member of **Botany** team on documentary **Terra Incognita**, which talks about a scientific expedition organized by ICMBio to Serra da Mocidade National Park in December 2013, as part of the activities to the elaboration of Park's management plan. Available at: <https://youtu.be/M7o1avCPSjs>. 2013.

## Certifications

### IBM

PYTHON FOR DATA SCIENCE

Coursera

Mar 2019

### IBM

DATA SCIENCE METHODOLOGY

Coursera

Feb 2019

### IBM

OPEN SOURCE TOOLS FOR DATA SCIENCE

Coursera

Feb 2019

## Software (R packages)

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### **NIRtools: Tools to deal with near infrared (NIR) spectroscopy data**

[github.com/ricoperdiz/NIRtools](https://github.com/ricoperdiz/NIRtools)

R PACKAGE FOR DEALING WITH NIR SPECTROSCOPY DATA AND PROVIDING WRAPER FUNCTIONS FOR TURNING NIR DATA

ANALYSIS EASIER.

*In development*

- Lead developer