

Brazil's Virtual Herbarium: Outputs, Outcomes, and Challenges

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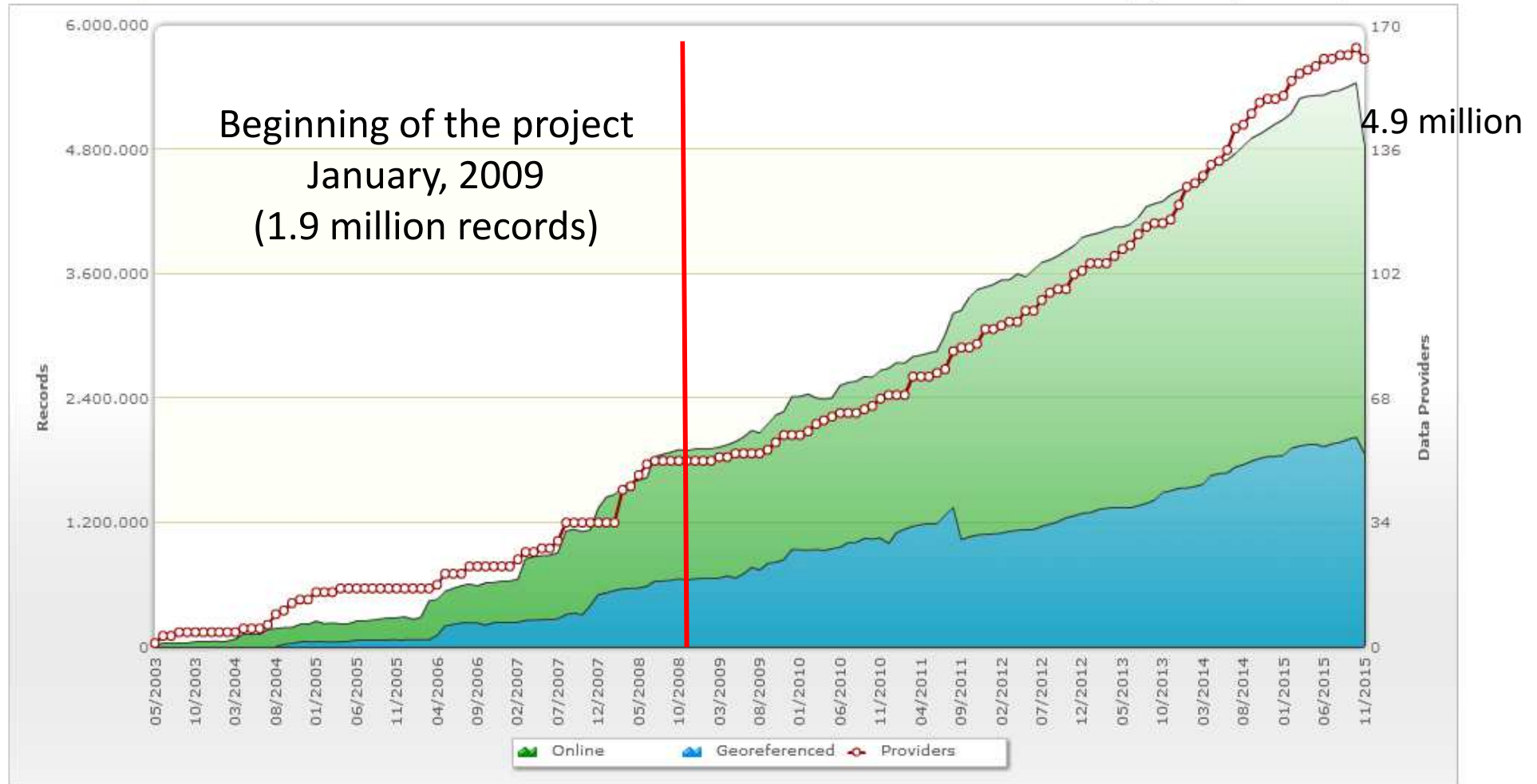
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Indicators



[See other options for indicators here](#) ↴

All Networks - Plants and Fungi (dried specimens) - records



78,079 distinct species; > 1 million images

Brazil's Virtual Herbarium

<http://www.splink.org.br/showNetwork>



2008: 48 datasets

2015: 161 datasets



2 from abroad



13 from abroad

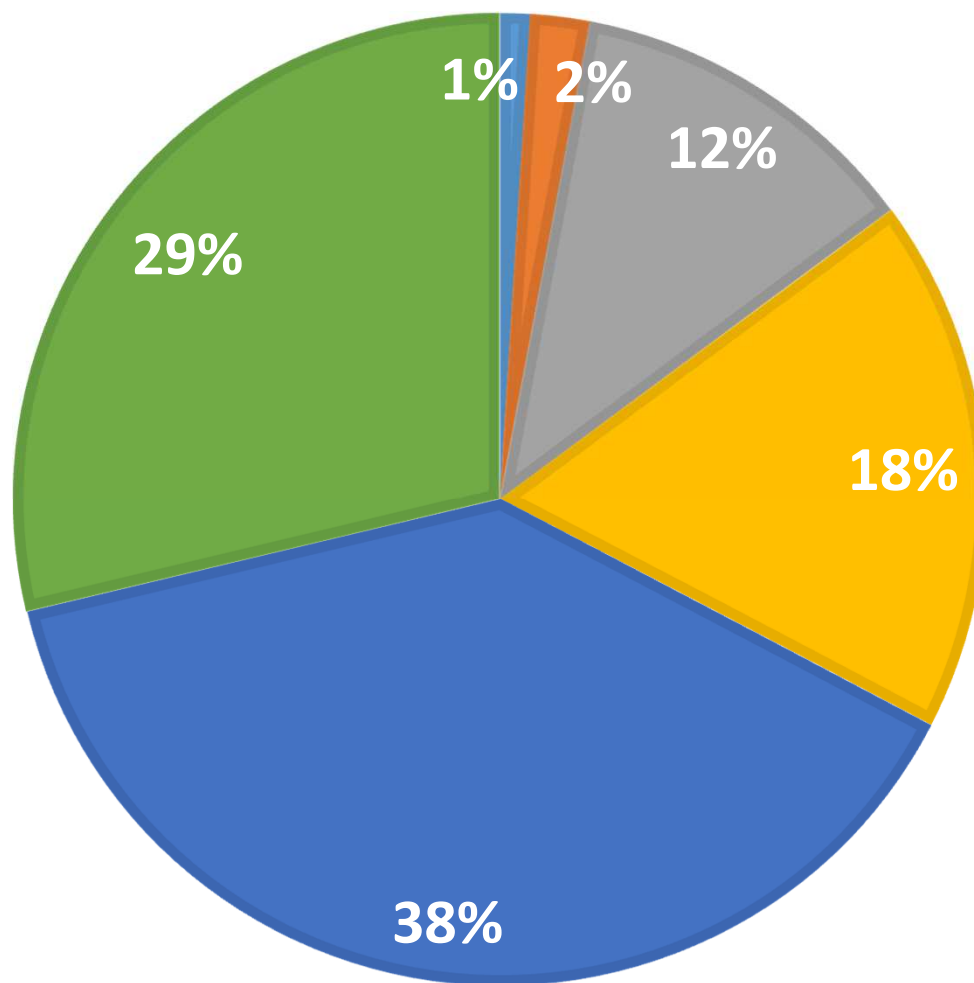


Brazil's Virtual Herbarium



HERBARIA

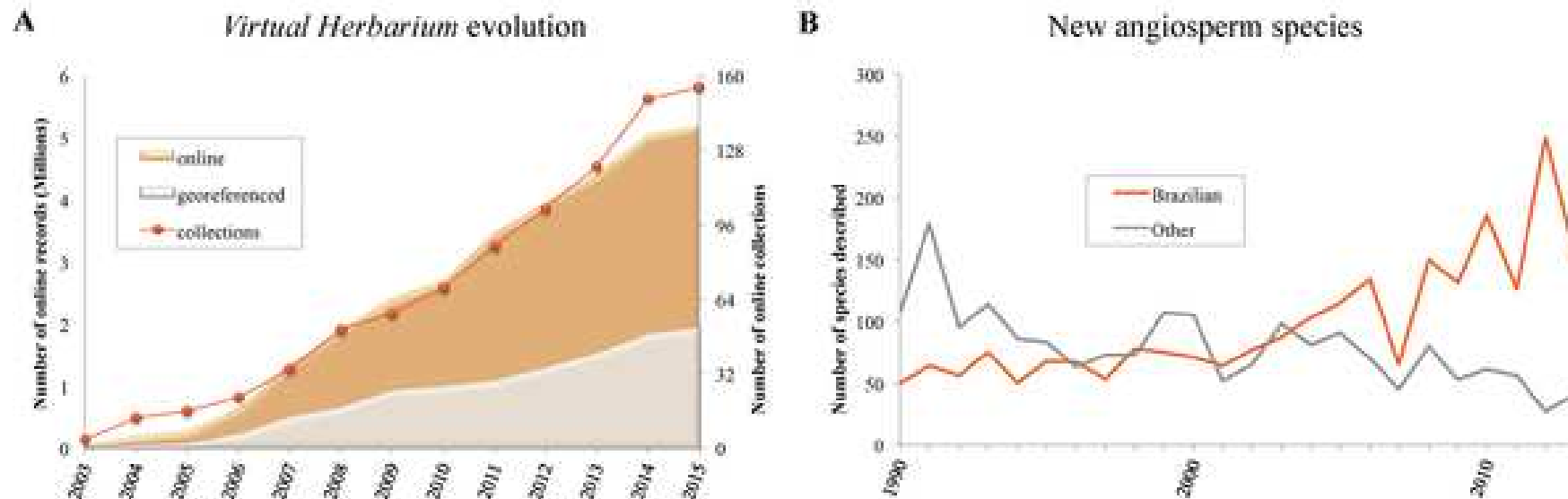
- > 500K
- 300-500K
- 100-300K
- 50-100K
- 10-50K
- <10K



Outcomes from sharing data

- greater institutional recognition
- greater involvement with graduate courses
- increased number of visits to the herbaria
- increase of the holdings
- increase of grants

The evolution of Brazilian flora primary data available online and species described by Brazilian specialists.



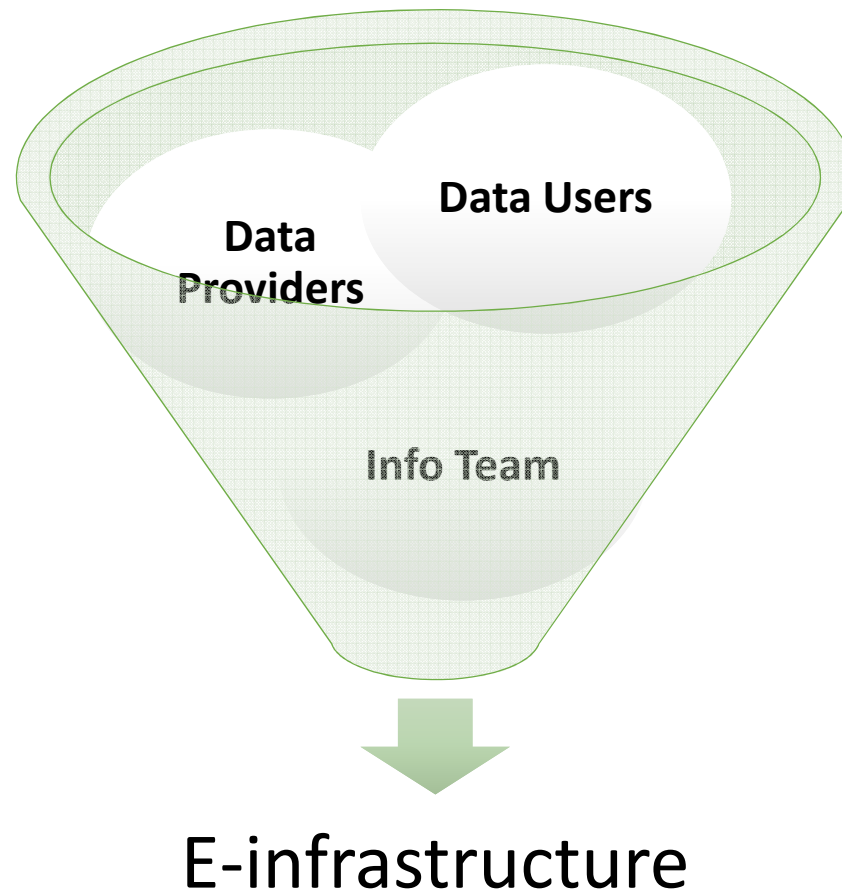
Canhos DAL, Sousa-Baena MS, de Souza S, Maia LC, Stehmann JR, et al. (2015) The Importance of Biodiversity E-infrastructures for Megadiverse Countries. *PLoS Biol* 13(7): e1002204.

doi:10.1371/journal.pbio.1002204

<http://journals.plos.org/plosbiology/article?id=info:doi/10.1371/journal.pbio.1002204>

Lesson learned

- The social network is an essential component of an e-infrastructure
- Interaction among data providers, users, and information management team is the center of innovation



Data Cleaning Reports



specieslink **dataCleaning**
português

This tool aims at helping curators in identifying possible errors and to standardize data. Records are not modified. The system just presents "suspect" records, recommending that they be checked by each author or curator. The tool is under constant development, so any suggestion is more than welcome.

Select a collection ASE

collection: ASE

total number of records on-line	32796
- without coordinates	18
- georeferenced	32778
- access to georeferenced data denied	0
- in the sea	58
- blank catalognumber	1
smaller: 1 larger: 35763	[gap]

repeated records

catalog number	335
duplicate records	0
collector's name and number	1296

last update - error logs
of the collection: 12-09-2015 of dataCleaning: 13-09-2015

taxonomic data

inventory	scientific name - collector - identifier - types
family	not found
genus	not found
species	24 suspect records
subspecies	not found
author	142 suspect records
duplicate	1648 suspect records
other inconsistencies	not found

date collected

collected before 1902	not found
last update previous to date collected	not found
identification year previous to date collected	not found

geographic distribution of the specimens

collection profile
dataCleaning statistics
geographic coordinates analysis

locality data

inventory	country - state - municipality
name of the country/state	610 suspect records
outlier	9 suspect records
long/lat outside the world limit	not found
equal long/lat	not found
long or lat equal to zero	12 suspect records
long/lat in the sea (Brazil)	27 suspect records
municipality name (Brazil)	3740 suspect records
coordinate unit analysis (Brazil)	11 suspect records
other inconsistencies	not found

suggestions for blank fields

long/lat (Brazil)	11 suggestions
country/state name	22 suggestions
municipality name (Brazil)	211 suggestions

search email
dataCleaning Centro de Referência em Informação Ambiental, CRIA

Suspect Records & Inconsistencies

- Taxonomic data
- Dates
- Locality data
- Blank fields

Data cleaning and duplicates



Filter: [\[no filter\]](#) [\[undetermined family\]](#) [\[undetermined genus\]](#)

[same collection date](#)

collector	collector number	date collected	img	catalognumber	family	genus	species
Almeida, MN de	30	1982-01-23		ASE 2111	Solanaceae	<i>SP</i> Solanum	<i>stipulaceum</i>
Almeida, MN	30	1982-01-23		JPB 58260	Solanaceae	<i>SP</i> Solanum	<i>asperum</i>

identified by	date identified	stateprovince	county
Agra, MF	2012-04	Sergipe	São Cristóvão
Viana, G	1988-10-31	Sergipe	São Cristovão



Annotations



Herbário Dr. Roberto Miguel Klein - FURB

Universidade Regional de Blumenau, FURB




PLANTAE DICOTYLEDON CACTACEAE

Rhipsalis cereuscula Haw.. Det: Zappi, DC **13/12/2012**

FURB 11879 Collect: Dreveck, S; Carneiro, FE 386 **18/11/2008**.

Loc: Linha Santa Terezinha, Herval d'Oeste, Santa Catarina, Brasil Barcode: **FURB01187**.

 Coord orig: [lat: -27.135 long: -51.435 WGS84] Altitude: 742m.

Notes: Florística IFFSC 2100(Epífita); epífita;; Floresta Estacional Decidual; Estágio Avançado

Basis of record: preserved specimen



reference

CACTACEAE

Rhipsalis baccifera (J.S.Muell.) Stearn. Det: S. Dreveck **18/11/2008** Barcode: **FURB01187**. **FURB 11879** Collect: S. Dreveck 386 Loc: Linha Santa Terezinha Herval d'Oeste Santa Catarina Brasil **18/11/2008**. [lat: -27.135 long: -51.435 WGS84]

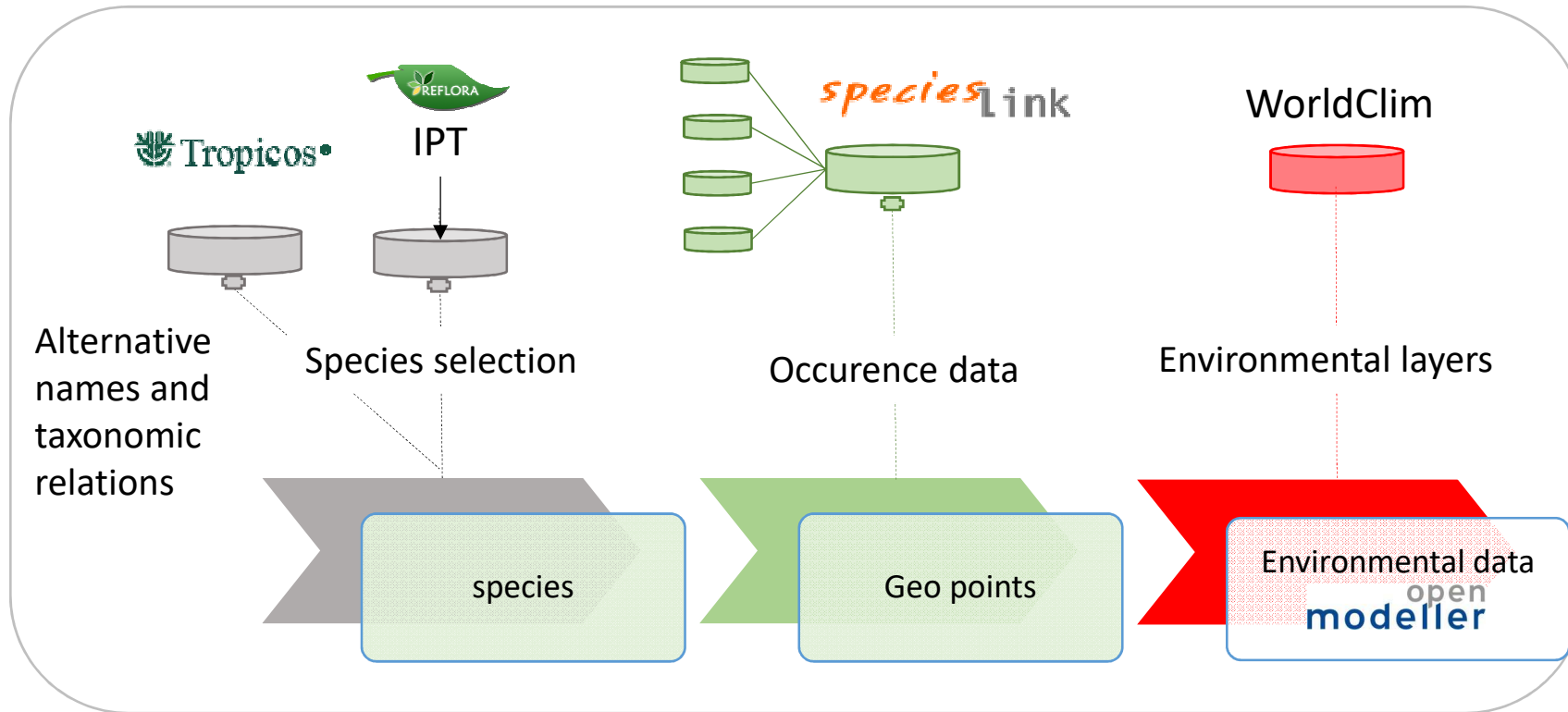
comment

sciname

Olá! Com certeza esse espécime não é *R. baccifera*, poderia enviar uma imagem em alta resolução para que eu possa identificar corretamente? Muito obrigada, Zappi

Daniela Zappi
13-Dec-2012 00:16

Plataforma for *e-Science*: BioGeo



BioGeo (ecological niche model)

<http://biogeo.inct.florabrasil.net>



Virtual
Fungos

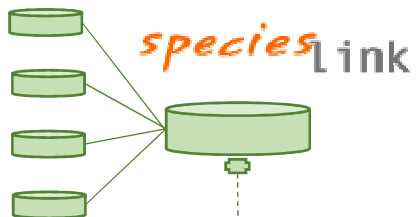
Accepted names,
synonyms, states
of occurrence

Status and origin of data
states of occurrence

Portaria 443
(redlist)



IPT



GBIF INTEGRATED PUBLISHING TOOLKIT[®]™

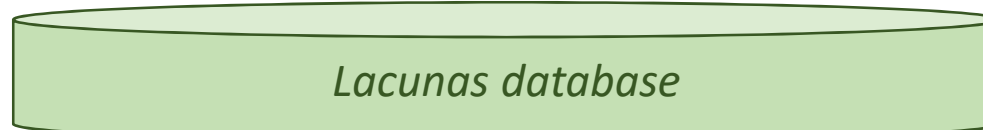
Home About

Lista Oficial de Espécies Ameaçadas - Portaria 443

Lista Oficial de Espécies Ameaçadas - Portaria 443

Summary	Date Published	Feb 25, 2016
	Version	2 (Latest)
	Dataset Core Archive	Download (11 MB) 12113 records
	DOI	10.2306/2016-1443
	API	Download (1 KB)
	GBIF Registration	Not registered
Keywords	Checklist, Risk Assessment, Threats	
Language	Metadata Language	Portuguese
	Resource Language	Portuguese
Resource Contact	Name	Guilherme Machado
	Position	Coordenador
	Organization	Jardim Botânico do Rio de Janeiro
	Address	Plácido de Castro, 141, BRUNEL
	Contact	gma@jbrj.gov.br
	Home Page	http://reflora.org.br/

Filtrar accepted names and synonyms (phonetic)



Lacunas: September 2012 – August 2015

Species with no data records: phonetic search including synonyms, with or without geographic coordinates

Taxonomic Groups	Brazil's Flora	Sept/2012		Aug/2015	
	No. Species	Species	%	Species	%
Algae	4.746	2.555	54%	2.424	51%
Angiosperms	32.824	2.429	7%	1.578	5%
Bryophytes	1.524	324	21%	196	13%
Fungi	5.710	2.925	51%	2.453	43%
Gymnosperms	30	0	0%	1	3%
Ferns & Lycophytes	1.253	121	10%	62	5%
Total	46.087	8.354	18%	6.714	15%

Lacunas: September 2012 – August 2015



Species > 20 records: phonetic search including synonyms, with consistent & distinct geographic coordinates (origin)

Taxonomic Groups	Brazil's Flora	September 2012		August 2015	
	No. Species	Species	%	Species	%
Algae	4.746	46	1%	103	2%
Angiosperms	32.824	5.587	17%	8.250	25%
Bryophytes	1.524	158	10%	246	16%
Fungi	5.710	13	0,2%	21	0,4%
Gymnosperms	30	4	13%	5	17%
Ferns & Lycophytes	1.253	274	22%	473	38%
Total	46.087	6.082	13%	9.098	20%

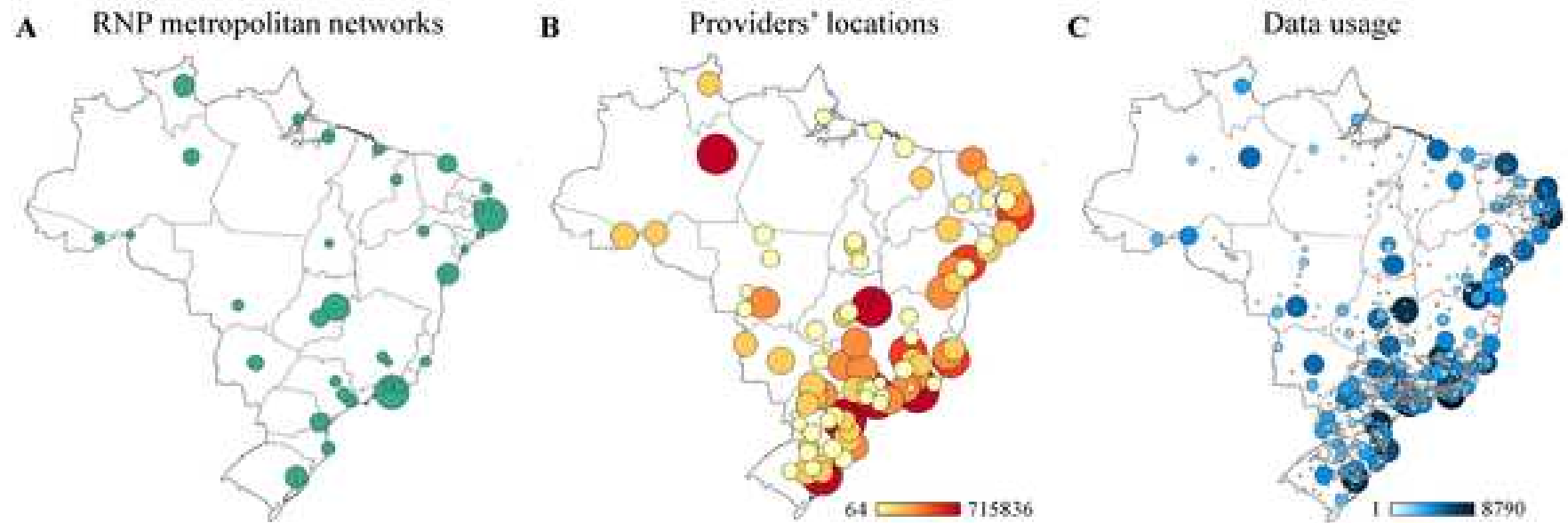
Geographic Gaps - Monimiaceae

North	AC	
	AM	
	AP	1
	PA	1
	RO	
	RR	2
	TO	
Northeast	AL	
	BA	
	CE	1
	MA	
	PB	
	PE	
	PI	
	RN	
	SE	
Midwest	DF	
	GO	
	MS	1
	MT	1
Southeast	ES	
	MG	
	RJ	4
	SP	1
North	PR	
	SC	
	RS	

- *Hennecartia omphalandra* J.Poiss.
- *Mollinedia calodonta* Perkins
- *Mollinedia myriantha* Perkins
- *Mollinedia sphaerantha* Perkins

Research infrastructure and biodiversity data usage in Brazil.

1.4 million records/day



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doi:10.1371/journal.pbio.1002204

<http://journals.plos.org/plosbiology/article?id=info:doi/10.1371/journal.pbio.1002204>

Challenges

- Large institutions resilient to change
- Making data useful and usable to other communities
- Governance of Virtual Institutes
- Sustainability of e-infrastructures: from project based grants to long-term support

Thank you!

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- *speciesLink* search interface (www.splink.org.br)
- The Virtual Herbarium (inct.splink.org.br)
- *Lacunas* (lacunas.inct.florabrasil.net)
- *BioGeo* (biogeo.inct.florabrasil.net)
- Data Cleaning Reports (splink.cria.org.br/dc)
- Other tools (splink.cria.org.br/tools)
- CRIA's blog (blog.cria.org.br)