

# Atlantic flower–invertebrate interactions: A data set of occurrence and frequency of floral visits

Danilo Boscolo<sup>1,2</sup>  | Bárbara Nobrega Rodrigues<sup>1,2</sup>  |  
 Patrícia Alves Ferreira<sup>2,3</sup>  | Luciano Elsinor Lopes<sup>2,3</sup>  |  
 Vinicius Rodrigues Tonetti<sup>4</sup>  | Isabela Cristhina Reis dos Santos<sup>1</sup>  |  
 Juliana Akemi Hiruma-Lima<sup>1</sup>  | Laura Nery<sup>1</sup>  |  
 Karoline Baptista de Lima<sup>1</sup>  | Jéssica Perozi<sup>1</sup>  | André Victor Lucci Freitas<sup>5</sup>  |  
 Blandina Felipe Viana<sup>2,6</sup>  | Caio Antunes-Carvalho<sup>7</sup>  | Dalton de Souza Amorim<sup>1</sup>  |  
 Favízia Freitas de Oliveira<sup>2,6</sup>  | Milton Groppo<sup>1</sup>  | Maria Lúcia Absy<sup>8</sup>  |  
 Renata Jimenez de Almeida-Scabbia<sup>9</sup>  | Anderson Alves-Araújo<sup>6</sup>  |  
 Felipe Wanderley de Amorim<sup>10</sup>  | Pablo Augusto Poletto Antikeira<sup>5</sup>  |  
 Yasmine Antonini<sup>11</sup>  | Camila Aoki<sup>12</sup>  | Daniele dos Santos Aragão<sup>13</sup>  |  
 Tais Cristina Teixeira Balbino<sup>13</sup>  | Michele da Silva Ferreira Bandeira<sup>14</sup>  |  
 Bruno Corrêa Barbosa<sup>15</sup>  | Maria Regina de Vasconcellos Barbosa<sup>16</sup>  |  
 Gudryan Jackson Baronio<sup>17</sup>  | Leví Oliveira Barros<sup>1</sup>  |  
 Mariana Beal-Neves<sup>18</sup>  | Victor Martins Bertollo<sup>19</sup>  |  
 Antonio Diego de Melo Bezerra<sup>20</sup>  | Cristiano Roberto Buzatto<sup>21</sup>  |  
 Liedson Tavares Carneiro<sup>22,23</sup>  | Edilson Caron<sup>24</sup>  | Camila Silva Carpim<sup>19</sup>  |  
 Emanuela Simoura Carvalho<sup>19</sup>  | Tuane Letícia Carvalho<sup>25</sup>  |  
 Ludimila Juliele Carvalho-Leite<sup>26</sup>  | Mainara Figueiredo Cascaes<sup>27</sup>  |  
 Flávio Siqueira de Castro<sup>28</sup>  | Adriano Cavalleri<sup>29</sup>  | Eliana Cazetta<sup>30</sup>  |  
 Monise Terra Cerezini<sup>3</sup>  | Luís Francisco Mello Coelho<sup>1</sup>  |  
 Renato Colares<sup>27</sup>  | Guaraci Duran Cordeiro<sup>17</sup>  | Juliana Cordeiro<sup>31</sup>  |  
 Angela Maria da Silva Corrêa<sup>32</sup>  | Fernanda Vieira da Costa<sup>11</sup>  |  
 Cléber Covre<sup>19</sup>  | Renata Drummond Marinho Cruz<sup>33</sup>  |  
 Oswaldo Cruz-Neto<sup>22</sup>  | Léo Correia-da-Rocha-Filho<sup>34</sup>  |  
 Jacques Hubert Charles Delabie<sup>30</sup>  | Marcos da Costa Dórea<sup>35</sup>  |  
 Viviany Teixeira do-Nascimento<sup>13</sup>  | Jean Miguel Alves dos-Santos<sup>16</sup>  |  
 Marcelo Duarte<sup>36</sup>  | Marília Cristina Duarte<sup>9</sup>  |  
 Olívia Maria Pereira Duarte<sup>14</sup>  | Julie Henriette Antoinette Dutilh<sup>5</sup>  |  
 Betina Pereira Emerick<sup>27</sup>  | Gabrielly dos Santos Fabiano<sup>19</sup>  |  
 Fernando Henrique Antonioli Farache<sup>37</sup>  | Ana Paula Gelli de Faria<sup>15</sup>  |

For affiliations refer to page 4.

Geraldo Wilson Fernandes<sup>28</sup>  | Pedro Maria Abreu Ferreira<sup>18</sup>  |  
 Maria Juliana Ferreira-Caliman<sup>1</sup>  | Lívia Maria Negrini Ferreira<sup>19</sup>  |  
 Túlio Freitas Filgueira de Sá<sup>22</sup>  | Edivani Villaron Franceschinelli<sup>38</sup>  |  
 Greice Ayra Franco-Assis<sup>13</sup>  | Frederico Fregolente Faracco Mazziero<sup>39</sup>  |  
 Breno Magalhães Freitas<sup>20</sup>  | Joelcio Freitas<sup>40</sup>  | Natália Arias Galastri<sup>41</sup>  |  
 Leonardo Galetto<sup>42</sup>  | Caroline Tito Garcia<sup>6</sup>  | María Teresa Amela García<sup>43</sup>  |  
 Nicole Luize Garcia<sup>18</sup>  | Carlos Alberto Garófalo<sup>1</sup>  | Irene Gélvez-Zúñiga<sup>28</sup>  |  
 Camila da Silva Goldas<sup>44</sup>  | Tadeu José Guerra<sup>28</sup>  | Tânia Mara Guerra<sup>19</sup>  |  
 Birgit Harter-Marques<sup>27</sup>  | Juliana Hipólito<sup>2,6,8</sup>  | Rafael Kamke<sup>45</sup>  |  
 Ricardo Pablo Klein<sup>44</sup>  | Elmo Borges de Azevedo Koch<sup>6</sup>  |  
 Paulo Landgref-Filho<sup>46</sup>  | Sebastião Laroca<sup>47</sup>  |  
 Cristiane Martins Leandro<sup>11</sup>  | Reinanda Lima<sup>1</sup>  |  
 Taysla Roberta Almeida de Lima<sup>20</sup>  | Luiz Wilson Lima-Verde<sup>20</sup>  |  
 Elton John de Lório<sup>17</sup>  | Ariadna Valentina Lopes<sup>22</sup>  |  
 Andrea Pereira Luizi-Ponzo<sup>15</sup>  | Isabel Cristina Sobreira Machado<sup>22</sup>  |  
 Tatiana Machado<sup>1,2</sup>  | Fabrício Severo Magalhães<sup>9</sup>  | Thiago Mahlmann<sup>8</sup>  |  
 Cléa dos Santos Ferreira Mariano<sup>30</sup>  | Thamy Evellini Dias Marques<sup>30</sup>  |  
 Felipe Martello<sup>3</sup>  | Celso Feitosa Martins<sup>16</sup>  | Mauricio Nogueira Martins<sup>48</sup>  |  
 Rafael Martins<sup>27</sup>  | André Luiz Santos Mascarenhas<sup>8</sup>  |  
 Geovana de Assis Mendes<sup>19</sup>  | Milton de Souza Mendonça<sup>44</sup>  |  
 Luiz Menini Neto<sup>15</sup>  | Michael Alvim Milward-de-Azevedo<sup>49</sup>  |  
 Adrienne Oliveira Miranda<sup>50</sup>  | Paula María Montoya-Pfeiffer<sup>17</sup>  |  
 Andreza Magro Moraes<sup>15</sup>  | Bruna Borges Moraes<sup>26</sup>  |  
 Eduardo Freitas Moreira<sup>2,6</sup>  | Maria Santana Morini<sup>9</sup>  |  
 Diego Moure-Oliveira<sup>1</sup>  | Letícia Fabri De Nadai<sup>41</sup>  |  
 Victor Hideki Nagatani<sup>9</sup>  | Michelle Helena Nervo<sup>44</sup>  |  
 Frederico de Siqueira Neves<sup>28</sup>  | Jaílson Santos de Novais<sup>14</sup>  |  
 Évellyn Silva Araújo-Oliveira<sup>26</sup>  | João Henrique Figueredo de Oliveira<sup>31</sup>  |  
 Alípio José de Souza Pacheco-Filho<sup>20</sup>  | Luciano Palmieri<sup>51</sup>  | Martin Pareja<sup>5</sup>  |  
 Marcella de Almeida Passarella<sup>15</sup>  | Nayra da Mata Passos<sup>38</sup>  |  
 Hipólito Ferreira Paulino-Neto<sup>26</sup>  | Ariane Luna Peixoto<sup>52</sup>  |  
 Luciana Carvalho Pereira<sup>15</sup>  | Rodrigo Augusto Santinelo Pereira<sup>1</sup>  |  
 Brenda Pereira-Silva<sup>26</sup>  | Jimmy Pincheira-Ulbrich<sup>53</sup>  |  
 Mardiore Pinheiro<sup>54</sup>  | Augusto João Piratelli<sup>55</sup>  |  
 Luciana Regina Podgaiski<sup>44</sup>  | Diego Santos Polizello<sup>10</sup>  |  
 Lívia Pires do Prado<sup>56</sup>  | Fabio Prezoto<sup>15</sup>  | Franciele Rosset de Quadros<sup>57</sup>  |  
 Elisa Pereira Queiroz<sup>17</sup>  | Zelma Glebya Maciel Quirino<sup>16</sup>  |  
 Ananza Mara Rabello<sup>58</sup>  | Gabriela Beatriz Pereira Rabeschini<sup>5</sup>  |

**Monna Myranna Manguera Ramalho**<sup>20</sup>  | **Flavio Nunes Ramos**<sup>23</sup>  |  
**Ludmila Rattis**<sup>59,60</sup>  | **Luiz Henrique Gonçalves de Rezende**<sup>5</sup>  |  
**Caroline Ribeiro**<sup>39,47</sup>  | **Lizandra Jaqueline Robe**<sup>25,29</sup>  |  
**Ely Márley de Souza Ribeiro Rocha**<sup>13</sup>  | **Ricardo Ribeiro Rodrigues**<sup>61</sup>  |  
**Gustavo Quevedo Romero**<sup>5</sup>  | **Nádia Roque**<sup>6</sup>  | **William de Oliveira Sabino**<sup>56</sup>  |  
**Paulo Takeo Sano**<sup>17</sup>  | **Patricia da Silva Santana Reis**<sup>62</sup>  |  
**Fernando Silva dos Santos**<sup>14</sup>  | **Isabel Alves dos Santos**<sup>17</sup>  |  
**Francisco de Assis Ribeiro dos Santos**<sup>35</sup>  | **Igor Silva dos Santos**<sup>63</sup>  |  
**Ricardo Sartorello**<sup>9</sup>  | **Hermes José Schmitz**<sup>64</sup>  | **Maria Rosângela Sigris**<sup>12</sup>  |  
**Juvenal Cordeiro Silva Junior**<sup>50</sup>  | **Ana Carolina Granero e Silva**<sup>23</sup>  |  
**Carolina Veronese Corrêa da Silva**<sup>8</sup>  | **Beatriz Symara Alves Vieira Silva**<sup>16</sup>  |  
**Bruna Leticia de Freitas Silva**<sup>9</sup>  | **Cláudia Inês Silva**<sup>65</sup>  |  
**Fabiana Oliveira da Silva**<sup>2,66</sup>  | **Jéssica Luiza Souza e Silva**<sup>22</sup>  |  
**Nathalia Sampaio Silva**<sup>9</sup>  | **Otávio Guilherme Moraes da Silva**<sup>9</sup>  |  
**Carlos de Melo e Silva Neto**<sup>67</sup>  | **Edito Romão Silva Neto**<sup>22</sup>  |  
**Denise Silveira**<sup>44</sup>  | **Maxwell Souza Silveira**<sup>68</sup>  | **Rodrigo Bustos Singer**<sup>44</sup>  |  
**Leiza Aparecida Souza Serafim Soares**<sup>30</sup>  | **Evelise Márcia Locatelli de Souza**<sup>16</sup>  |  
**Jana Magaly Tesserolli de Souza**<sup>39</sup>  | **Josefina Steiner**<sup>45</sup>  |  
**Mara Cristina Teixeira-Gamarra**<sup>12</sup>  | **Bruno Alves Trentin**<sup>29</sup>  |  
**Isabela Galarda Varassin**<sup>47</sup>  | **Gabriel Vila-Verde**<sup>30</sup>  |  
**Vania Nobuko Yoshikawa**<sup>9</sup>  | **Elisabete Maria Zanin**<sup>57</sup>  | **Mauro Galetti**<sup>4</sup>  |  
**Milton Cezar Ribeiro**<sup>4</sup> 

#### Correspondence

Danilo Boscolo

Email: [danilo.boscolo@usp.br](mailto:danilo.boscolo@usp.br)

#### Funding information

Brazilian Ministry of Environment;  
 Bundesministerium für Bildung und  
 Forschung; CADCT - Centro de Apoio ao  
 Desenvolvimento Científico e  
 Tecnológico, Bahia/Brazil; ComCerrado -  
 Research Network for the Sustainable Use  
 and Conservation of the Cerrado; Consejo  
 Nacional de Investigaciones Científicas y  
 Técnicas, Grant/Award Number: 548;  
 Conselho Nacional de Desenvolvimento  
 Científico e Tecnológico, Grant/Award  
 Numbers: 131491/2015-6, 132220/2017-2,  
 141022/2007-8, 141415/2016-9,  
 142012/2018-1, 146811/2010-0,  
 153129/2018-2, 156550/2014-8,  
 190772/2013-1, 243000/2, 301320/00-4,  
 303834/2015-3, 305233/2016-5,  
 306078/2014-7, 307022/2007-2,  
 307209/2010-5, 308832/2014-0,

#### Abstract

Encounters between flowers and invertebrates are key events for the functioning of tropical forests. Assessing the structure of networks composed of the interactions between those partners leads to a better understanding of ecosystem functioning and the effects of environmental factors on ecological processes. Gathering such data is, however, costly and time-consuming, especially in the highly diverse tropics. We aimed to provide a comprehensive repository of available flower–invertebrate interaction information for the Atlantic Forest, a South American tropical forest domain. Data were obtained from published works and “gray literature,” such as theses and dissertations, as well as self-reports by co-authors. The data set has ~18,000 interaction records forming 482 networks, each containing between one and 1061 interaction links. Each network was sampled for about 200 h or less, with few exceptions. A total of 641 plant genera within 136 different families and 39 orders were reported, with the most abundant and rich families being Asteraceae, Fabaceae, and Rubiaceae. Invertebrates interacting with these plants were all arthropods from 10 orders, 129 families, and 581 genera, comprising

309616/2015-8, 313016/2021-6, 402447/2016-6, 402765/2021-4, 421248/2017-3, 426828/2016-0, 442147/2020-1, 448668/2014-9, 449740/2014-5, 465767/2014-1, 475127/2008-0, 52263010, 563332/2010-7, 567739/2008-2, 577336/2008 8, 831572/1999-0; Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, Grant/Award Numbers: 1702566, BEX 5998/11-5, Finance Code 001; CT-AGRO - Agribusiness Sector Fund - Brazil; Departamento Administrativo de Ciencia, Tecnología e Innovación; FDB - Amazon Biosphere Defense Foundation, Grant/Award Number: 054/2017; Fundação de Amparo à Ciência e Tecnologia do Estado de Pernambuco, Grant/Award Numbers: IBPG-1369-2.05/08, PBIC 0791-2.03/10; Fundação de Amparo à Pesquisa do Estado da Bahia, Grant/Award Numbers: APP0011/2016, BOL2041/2017; Fundação de Amparo à Pesquisa do Estado de Minas Gerais; Fundação de Amparo à Pesquisa do Estado de São Paulo, Grant/Award Numbers: 03/12595-7, 07/58666-3, 2004/10299-4, 2007/01542-0, 2008/52378-9, 2011/06811-5, 2011/50225-3, 2012/23543-7, 2013/50297-0, 2013/50421-2, 2015/04534-5, 2015/06430-2, 2015/25417-7, 2017/00647-5, 2017/26243-8, 2020/01779-5, 2021/08534-0, 2021/10195-0, 92/01743-9; Fundação de Amparo à Pesquisa e Inovação do Estado de Santa Catarina; Fundação de Apoio ao Desenvolvimento do Ensino, Ciência e Tecnologia do Estado de Mato Grosso do Sul, Grant/Award Number: 59/300.048/2015; Ministério da Ciência e Tecnologia; U. S. National Science Foundation, Division Of Environmental Biology, Grant/Award Number: 1256742; UNEB - State University of Bahia, Grant/Award Number: 031/2015; 010/2016; VALE

**Handling Editor:** William K. Michener

## AFFILIATIONS

<sup>1</sup>Universidade de São Paulo – USP, Ribeirão Preto, Brazil

<sup>2</sup>National Institute of Science and Technology in Interdisciplinary and Transdisciplinary Studies in Ecology and Evolution (IN-TREE), Salvador, Brazil

<sup>3</sup>Universidade Federal de São Carlos – UFSCAR, São Carlos, Brazil

<sup>4</sup>Universidade Estadual Paulista – UNESP, Rio Claro, Brazil

2419 morphotypes (including 988 named species). Hymenoptera was the most abundant and diverse order, with at least six times more records than the second-ranked order (Lepidoptera). The complete data set shows Hymenoptera interacting with all plant orders and also shows Diptera, Lepidoptera, Coleoptera, and Hemiptera to be important nodes. Among plants, Asterales and Fabales had the highest number of interactions. The best sampled environment was forest (~8000 records), followed by pastures and crops. Savanna, grasslands, and urban environments (among others) were also reported, indicating a wide range of approaches dedicated to collecting flower–invertebrate interaction data in the Atlantic Forest domain. Nevertheless, most reported data were from forest understory or lower strata, indicating a knowledge gap about flower–invertebrate interactions at the canopy. Also, access to remote regions remains a limitation, generating sampling bias across the geographical range of the Atlantic Forest. Future studies in these continuous and hard-to-access forested areas will yield important new information regarding the interactions between flowers and invertebrates in the Atlantic Forest. There are no copyright restrictions on the data set. Please cite this data paper if the data are used in publications and teaching events.

## KEYWORDS

ecological networks, florivory, flower visitors, focal plant observation, food web, herbivory, mutualism, neotropical forests, plant–animal interactions, pollen survey, pollination, tropical forest interactions

<sup>5</sup>Universidade Estadual de Campinas – UNICAMP, Campinas, Brazil

<sup>6</sup>Universidade Federal da Bahia – UFBA, Salvador, Brazil

<sup>7</sup>Universidade Federal Fluminense – UFF, Niteroi, Brazil

<sup>8</sup>Instituto Nacional de Pesquisas da Amazônia – INPA, Manaus, Brazil

<sup>9</sup>Universidade de Mogi das Cruzes – UMC, Mogi das Cruzes, Brazil

- <sup>10</sup>Universidade Estadual Paulista – UNESP, Botucatu, Brazil
- <sup>11</sup>Universidade Federal de Ouro Preto – UFOP, Ouro Preto, Brazil
- <sup>12</sup>Universidade Federal de Mato Grosso do Sul – UFMS, Campo Grande, Brazil
- <sup>13</sup>Universidade do Estado da Bahia – UNEB, Barreiras, Brazil
- <sup>14</sup>Universidade Federal do Sul da Bahia – UFSB, Porto Seguro, Brazil
- <sup>15</sup>Universidade Federal de Juiz de Fora – UFJF, Juiz de Fora, Brazil
- <sup>16</sup>Universidade Federal da Paraíba – UFPB, João Pessoa, Brazil
- <sup>17</sup>Universidade de São Paulo – USP, São Paulo, Brazil
- <sup>18</sup>Pontifícia Universidade Católica do Rio Grande do Sul – PUCRS, Porto Alegre, Brazil
- <sup>19</sup>Universidade Federal do Espírito Santo – UFES, Vitória, Brazil
- <sup>20</sup>Universidade Federal do Ceará – UFC, Fortaleza, Brazil
- <sup>21</sup>Universidade de Passo Fundo – UPF, Passo Fundo, Brazil
- <sup>22</sup>Universidade Federal de Pernambuco – UFPE, Recife, Brazil
- <sup>23</sup>Universidade Federal de Alfenas UNIFAL-MG, Alfenas, Brazil
- <sup>24</sup>Universidade Federal do Paraná – UFPR, Palotina, Brazil
- <sup>25</sup>Universidade Federal de Santa Maria – UFSM, Santa Maria, Brazil
- <sup>26</sup>Universidade do Estado de Minas Gerais – UEMG, Passos, Brazil
- <sup>27</sup>Universidade do Extremo Sul Catarinense – UNESC, Criciúma, Brazil
- <sup>28</sup>Universidade Federal de Minas Gerais – UFMG, Belo Horizonte, Brazil
- <sup>29</sup>Universidade Federal do Rio Grande – FURG, Rio Grande, Brazil
- <sup>30</sup>Universidade Estadual de Santa Cruz – UESC, Ilhéus, Brazil
- <sup>31</sup>Universidade Federal de Pelotas – UFPel, Pelotas, Brazil
- <sup>32</sup>Instituto de Botânica de São Paulo – IBt, São Paulo, Brazil
- <sup>33</sup>Instituto Federal de Educação Ciência e Tecnologia da Paraíba – IFPB, Patos, Brazil
- <sup>34</sup>Universidade Federal de Uberlândia – UFU, Uberlândia, Brazil
- <sup>35</sup>Universidade Estadual de Feira de Santana – UEFS, Feira de Santana, Brazil
- <sup>36</sup>Universidade de São Paulo, Museu de Zoologia – MZUSP, São Paulo, Brazil
- <sup>37</sup>Instituto Federal de Educação, Ciência e Tecnologia Goiano – IFGoiano, Rio Verde, Brazil
- <sup>38</sup>Universidade Federal de Goiás – UFG, Goiânia, Brazil
- <sup>39</sup>Universidade Tecnológica Federal do Paraná – UTFPR, Curitiba, Brazil
- <sup>40</sup>Instituto Nacional da Mata Atlântica – INMA, Santa Teresa, Brazil
- <sup>41</sup>Faculdade de Tecnologia de Jahu – Fatec Jahu, Jaú, Brazil
- <sup>42</sup>Universidad Nacional de Córdoba – UNC – CONICET, Cordoba, Argentina
- <sup>43</sup>Universidad de Buenos Aires – UBA – CONICET, Buenos Aires, Argentina
- <sup>44</sup>Universidade Federal do Rio Grande do Sul – UFRGS, Porto Alegre, Brazil
- <sup>45</sup>Universidade Federal de Santa Catarina – UFSC, Florianópolis, Brazil
- <sup>46</sup>Universidade Federal de Mato Grosso do Sul – UFMS, Aquidauana, Brazil
- <sup>47</sup>Universidade Federal do Paraná – UFPR, Curitiba, Brazil
- <sup>48</sup>Universidade Federal de São Paulo – UniFeSP, Diadema, Brazil
- <sup>49</sup>Universidade Federal Rural do Rio de Janeiro – UFRRJ, Três Rios, Brazil
- <sup>50</sup>Universidade Estadual do Sudoeste da Bahia – UESB, Jequié, Brazil
- <sup>51</sup>University of Wisconsin – UW, Madison, WisconsinUSA
- <sup>52</sup>Jardim Botânico do Rio de Janeiro – JBRJ, Rio de Janeiro, Brazil
- <sup>53</sup>Universidad Católica de Temuco – UCT, Temuco, Chile
- <sup>54</sup>Universidade Federal da Fronteira Sul – UFFS, Cerro Largo, Brazil
- <sup>55</sup>Universidade Federal de São Carlos – UFSCAR, Sorocaba, Brazil
- <sup>56</sup>Museu Paraense Emílio Goeldi – MPEG, Belém, Brazil
- <sup>57</sup>Universidade Regional Integrada do Alto Uruguai e das Missões – URI, Erechim, Brazil
- <sup>58</sup>Universidade Federal do Sul e Sudeste do Pará – UNIFESSPA, São Félix do Xingu, Brazil
- <sup>59</sup>Woodwell Climate Research Center, Falmouth, MassachusettsUSA
- <sup>60</sup>Instituto de Pesquisa Ambiental da Amazônia – IPAM, Brasília, Brazil
- <sup>61</sup>Universidade de São Paulo – USP, Piracicaba, Brazil
- <sup>62</sup>Universidade Federal do Oeste da Bahia – UFOB, Barreiras, Brazil
- <sup>63</sup>Instituto Federal Baiano – IFBaiano, Salvador, Brazil
- <sup>64</sup>Universidade Federal da Integração Latino-Americana – UNILA, Foz do Iguaçu, Brazil
- <sup>65</sup>Consultoria Inteligente em Serviços Ecológicos – CISE, Sorocaba, Brazil

<sup>66</sup>Universidade Federal de Sergipe – UFS, Nossa Senhora da Glória, Brazil

<sup>67</sup>Instituto Federal de Educação, Ciência e Tecnologia de Goiás – IFG, Cidade de Goiás, Brazil

<sup>68</sup>Universidade Federal de Sergipe – UFS, São Cristóvão, Brazil

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

The complete data set is available as Supporting Information and is also available in Zenodo at <https://doi.org/10.5281/zenodo.6330088>.

## ORCID


Danilo Boscolo  <https://orcid.org/0000-0002-0741-501X>

Bárbara Nobrega Rodrigues  <https://orcid.org/0000-0001-8097-7871>

Patrícia Alves Ferreira  <https://orcid.org/0000-0003-4677-5314>

Luciano Elsinor Lopes  <https://orcid.org/0000-0001-5869-8972>

Vinicius Rodrigues Tonetti  <https://orcid.org/0000-0003-2263-5608>

Isabela Cristhina Reis dos Santos  <https://orcid.org/0000-0002-5090-3596>

Juliana Akemi Hiruma-Lima  <https://orcid.org/0000-0002-1090-8122>

Laura Nery  <https://orcid.org/0000-0001-7848-6758>

Karoline Baptista de Lima  <https://orcid.org/0000-0002-0306-7388>

Jéssica Perozi  <https://orcid.org/0000-0003-0824-7721>

André Victor Lucci Freitas  <https://orcid.org/0000-0002-5763-4990>

Blandina Felipe Viana  <https://orcid.org/0000-0002-4924-1257>

Caio Antunes-Carvalho  <https://orcid.org/0000-0002-0124-2509>

Dalton de Souza Amorim  <https://orcid.org/0000-0001-5224-8276>

Favízia Freitas de Oliveira  <https://orcid.org/0000-0003-4366-5005>


Milton Groppo  <https://orcid.org/0000-0003-2932-7798>

Maria Lúcia Absy  <https://orcid.org/0000-0001-7260-9892>

Renata Jimenez de Almeida-Scabbia  <https://orcid.org/0000-0003-0290-6079>

Anderson Alves-Araújo  <https://orcid.org/0000-0001-5810-5145>

Felipe Wanderley de Amorim  <https://orcid.org/0000-0002-6026-0395>


Pablo Augusto Poletto Antiqureira  <https://orcid.org/0000-0002-1118-8796>

Yasmine Antonini  <https://orcid.org/0000-0002-5582-8193>

Camila Aoki  <https://orcid.org/0000-0002-4240-0120>

Daniele dos Santos Aragão  <https://orcid.org/0000-0002-8131-097X>

Tais Cristina Teixeira Balbino  <https://orcid.org/0000-0003-2357-0519>

Michele da Silva Ferreira Bandeira  <https://orcid.org/0000-0002-6507-7610>

Bruno Corrêa Barbosa  <https://orcid.org/0000-0003-2421-6239>


Maria Regina de Vasconcellos Barbosa  <https://orcid.org/0000-0001-6166-3922>

Gudryan Jackson Baronio  <https://orcid.org/0000-0003-2988-9168>

Levi Oliveira Barros  <https://orcid.org/0000-0002-8491-041X>

Mariana Beal-Neves  <https://orcid.org/0000-0001-5900-563X>

Victor Martins Bertollo  <https://orcid.org/0000-0003-2615-4705>

Antonio Diego de Melo Bezerra  <https://orcid.org/0000-0002-8070-5582>

Cristiano Roberto Buzatto  <https://orcid.org/0000-0003-4780-0390>


Liedson Tavares Carneiro  <https://orcid.org/0000-0002-4569-9500>

Edilson Caron  <https://orcid.org/0000-0001-7136-2218>

Camila Silva Carpim  <https://orcid.org/0000-0003-0651-5913>

Emanuela Simoura Carvalho  <https://orcid.org/0000-0001-9504-0360>

Tuane Leticia Carvalho  <https://orcid.org/0000-0001-5227-3009>

Ludimila Juliele Carvalho-Leite  <https://orcid.org/0000-0003-4444-7931>


Mainara Figueiredo Cascaes  <https://orcid.org/0000-0002-1477-1813>


Flávio Siqueira de Castro  <https://orcid.org/0000-0002-5533-1355>

Adriano Cavalleri  <https://orcid.org/0000-0003-4163-6745>


Eliana Cazetta  <https://orcid.org/0000-0002-2209-2554>

Monise Terra Cerezini  <https://orcid.org/0000-0002-7724-0470>

Luís Francisco Mello Coelho  <https://orcid.org/0000-0001-6901-1267>

Renato Colares  <https://orcid.org/0000-0003-2419-4674>

Guaraci Duran Cordeiro  <https://orcid.org/0000-0002-5434-7937>

Juliana Cordeiro  <https://orcid.org/0000-0003-0902-9638>

Angela Maria da Silva Corrêa  <https://orcid.org/0000-0001-6310-9191>

- Fernanda Vieira da Costa*  <https://orcid.org/0000-0002-0753-8060>
- Cléber Covre*  <https://orcid.org/0000-0003-2615-4588>
- Renata Drummond Marinho Cruz*  <https://orcid.org/0000-0003-4799-0673>
- Oswaldo Cruz-Neto*  <https://orcid.org/0000-0002-6625-7568>
- Léo Correia-da-Rocha-Filho*  <https://orcid.org/0000-0002-3431-6009>
- Jacques Hubert Charles Delabie*  <https://orcid.org/0000-0002-2695-1061>
- Marcos da Costa Dórea*  <https://orcid.org/0000-0003-2263-5579>
- Viviany Teixeira do-Nascimento*  <https://orcid.org/0000-0002-6471-4446>
- Jean Miguel Alves dos-Santos*  <https://orcid.org/0000-0003-4913-8791>
- Marcelo Duarte*  <https://orcid.org/0000-0002-9562-2974>
- Marília Cristina Duarte*  <https://orcid.org/0000-0002-1257-3389>
- Olivia Maria Pereira Duarte*  <https://orcid.org/0000-0003-0480-2054>
- Julie Henriette Antoinette Dutilh*  <https://orcid.org/0000-0003-4353-0899>
- Betina Pereira Emerick*  <https://orcid.org/0000-0001-6425-3072>
- Gabrielly dos Santos Fabiano*  <https://orcid.org/0000-0003-3457-0186>
- Fernando Henrique Antonioli Farache*  <https://orcid.org/0000-0001-7655-8826>
- Ana Paula Gelli de Faria*  <https://orcid.org/0000-0003-0126-0317>
- Geraldo Wilson Fernandes*  <https://orcid.org/0000-0003-1559-6049>
- Pedro Maria Abreu Ferreira*  <https://orcid.org/0000-0002-4088-4571>
- Maria Juliana Ferreira-Caliman*  <https://orcid.org/0000-0002-1262-780X>
- Livia Maria Negrini Ferreira*  <https://orcid.org/0000-0002-7878-4031>
- Túlio Freitas Filgueira de Sá*  <https://orcid.org/0000-0001-9347-2231>
- Edivani Villaron Franceschinelli*  <https://orcid.org/0000-0001-9050-8577>
- Greice Ayra Franco-Assis*  <https://orcid.org/0000-0001-6719-5656>
- Frederico Fregolente Faracco Mazziero*  <https://orcid.org/0000-0003-4877-5211>
- Breno Magalhães Freitas*  <https://orcid.org/0000-0002-9932-2207>
- Joelcio Freitas*  <https://orcid.org/0000-0002-4211-5047>
- Natália Arias Galastrí*  <https://orcid.org/0000-0002-5466-8239>
- Leonardo Galetto*  <https://orcid.org/0000-0003-3828-657X>
- Caroline Tito Garcia*  <https://orcid.org/0000-0002-6348-7528>
- Maria Teresa Amela García*  <https://orcid.org/0000-0002-3745-1361>
- Nicole Luíze Garcia*  <https://orcid.org/0000-0002-1186-4686>
- Carlos Alberto Garófalo*  <https://orcid.org/0000-0003-2494-2089>
- Irene Gélvez-Zúñiga*  <https://orcid.org/0000-0001-7724-0799>
- Camila da Silva Goldas*  <https://orcid.org/0000-0002-8119-2459>
- Tadeu José Guerra*  <https://orcid.org/0000-0003-1247-365X>
- Tânia Mara Guerra*  <https://orcid.org/0000-0003-4964-8935>
- Birgit Harter-Marques*  <https://orcid.org/0000-0003-0717-4217>
- Juliana Hipólito*  <https://orcid.org/0000-0002-0721-3143>
- Rafael Kamke*  <https://orcid.org/0000-0001-9951-990X>
- Ricardo Pablo Klein*  <https://orcid.org/0000-0002-3009-631X>
- Elmo Borges de Azevedo Koch*  <https://orcid.org/0000-0002-2022-4066>
- Paulo Landgref-Filho*  <https://orcid.org/0000-0003-1629-8852>
- Sebastião Laroca*  <https://orcid.org/0000-0002-5051-0135>
- Cristiane Martins Leandro*  <https://orcid.org/0000-0001-8186-9282>
- Reinanda Lima*  <https://orcid.org/0000-0002-1745-8304>
- Taysla Roberta Almeida de Lima*  <https://orcid.org/0000-0002-4081-9470>
- Luiz Wilson Lima-Verde*  <https://orcid.org/0000-0002-6908-1692>
- Elton John de Lirio*  <https://orcid.org/0000-0002-9986-9640>
- Ariadna Valentina Lopes*  <https://orcid.org/0000-0001-5750-5913>
- Andrea Pereira Luiz-Ponzo*  <https://orcid.org/0000-0001-6291-9627>
- Isabel Cristina Sobreira Machado*  <https://orcid.org/0000-0001-5015-2393>
- Tatiana Machado*  <https://orcid.org/0000-0002-4845-9545>
- Fabício Severo Magalhães*  <https://orcid.org/0000-0002-7173-658X>
- Thiago Mahlmann*  <https://orcid.org/0000-0002-0381-6377>
- Cléa dos Santos Ferreira Mariano*  <https://orcid.org/0000-0001-7188-8201>

- Thamy Evellini Dias Marques*  <https://orcid.org/0000-0002-2564-6540>
- Felipe Martello*  <https://orcid.org/0000-0003-1243-9750>
- Celso Feitosa Martins*  <https://orcid.org/0000-0001-5953-3758>
- Mauricio Nogueira Martins*  <https://orcid.org/0000-0002-5017-0089>
- Rafael Martins*  <https://orcid.org/0000-0002-5071-0137>
- André Luiz Santos Mascarenhas*  <https://orcid.org/0000-0003-4709-3948>
- Geovana de Assis Mendes*  <https://orcid.org/0000-0001-8979-3489>
- Milton de Souza Mendonça*  <https://orcid.org/0000-0001-5272-5124>
- Luiz Menini Neto*  <https://orcid.org/0000-0001-8750-2422>
- Micheale Alvim Milward-de-Azevedo*  <https://orcid.org/0000-0001-8076-5561>
- Adrienne Oliveira Miranda*  <https://orcid.org/0000-0002-6059-6577>
- Paula Maria Montoya-Pfeiffer*  <https://orcid.org/0000-0002-6648-1535>
- Andreza Magro Moraes*  <https://orcid.org/0000-0003-4980-1290>
- Bruna Borges Moraes*  <https://orcid.org/0000-0002-8603-3035>
- Eduardo Freitas Moreira*  <https://orcid.org/0000-0001-7754-9585>
- Maria Santana Morini*  <https://orcid.org/0000-0002-1823-6703>
- Diego Moure-Oliveira*  <https://orcid.org/0000-0003-4266-0501>
- Leticia Fabri De Nadai*  <https://orcid.org/0000-0003-1534-4896>
- Victor Hideki Nagatani*  <https://orcid.org/0000-0002-2203-4186>
- Michelle Helena Nervo*  <https://orcid.org/0000-0002-7213-5532>
- Frederico de Siqueira Neves*  <https://orcid.org/0000-0002-2691-3743>
- Jailson Santos de Novais*  <https://orcid.org/0000-0003-3080-8994>
- Évellyn Silva Araújo-Oliveira*  <https://orcid.org/0000-0002-7265-6557>
- João Henrique Figueredo de Oliveira*  <https://orcid.org/0000-0003-1839-723X>
- Alípio José de Souza Pacheco-Filho*  <https://orcid.org/0000-0003-2865-2142>
- Luciano Palmieri*  <https://orcid.org/0000-0002-4813-2614>
- Martin Pareja*  <https://orcid.org/0000-0002-2615-9947>
- Marcella de Almeida Passarella*  <https://orcid.org/0000-0002-2372-7566>
- Nayra da Mata Passos*  <https://orcid.org/0000-0003-4043-9600>
- Hipólito Ferreira Paulino-Neto*  <https://orcid.org/0000-0003-4993-1191>
- Ariane Luna Peixoto*  <https://orcid.org/0000-0003-1959-8543>
- Luciana Carvalho Pereira*  <https://orcid.org/0000-0003-1569-6103>
- Rodrigo Augusto Santinelo Pereira*  <https://orcid.org/0000-0002-7736-4211>
- Brenda Pereira-Silva*  <https://orcid.org/0000-0003-1129-2267>
- Jimmy Pincheira-Ulbrich*  <https://orcid.org/0000-0001-9841-7426>
- Mardiore Pinheiro*  <https://orcid.org/0000-0001-8698-5856>
- Augusto João Piratelli*  <https://orcid.org/0000-0003-0268-4007>
- Luciana Regina Podgaiski*  <https://orcid.org/0000-0001-8020-2312>
- Diego Santos Polizello*  <https://orcid.org/0000-0003-0180-7001>
- Livia Pires do Prado*  <https://orcid.org/0000-0003-1819-8767>
- Fabio Prezoto*  <https://orcid.org/0000-0003-1179-9279>
- Franciele Rosset de Quadros*  <https://orcid.org/0000-0002-1224-9300>
- Elisa Pereira Queiroz*  <https://orcid.org/0000-0001-5587-191X>
- Zelma Glebya Maciel Quirino*  <https://orcid.org/0000-0003-0396-107X>
- Ananza Mara Rabello*  <https://orcid.org/0000-0003-4089-251X>
- Gabriela Beatriz Pereira Rabeschini*  <https://orcid.org/0000-0003-4161-8109>
- Monna Myranna Manguera Ramalho*  <https://orcid.org/0000-0002-8832-8291>
- Flavio Nunes Ramos*  <https://orcid.org/0000-0001-6689-3575>
- Ludmila Rattis*  <https://orcid.org/0000-0001-6943-3099>
- Luiz Henrique Gonçalves de Rezende*  <https://orcid.org/0000-0002-7278-7020>
- Caroline Ribeiro*  <https://orcid.org/0000-0002-9416-1272>
- Lizandra Jaqueline Robe*  <https://orcid.org/0000-0001-8506-9143>
- Ely Márley de Souza Ribeiro Rocha*  <https://orcid.org/0000-0002-8241-5749>
- Ricardo Ribeiro Rodrigues*  <https://orcid.org/0000-0003-4818-0736>
- Gustavo Quevedo Romero*  <https://orcid.org/0000-0003-3736-4759>
- Nádia Roque*  <https://orcid.org/0000-0002-2103-917X>



William de Oliveira Sabino  <https://orcid.org/0000-0003-2151-0723>

Paulo Takeo Sano  <https://orcid.org/0000-0002-1709-1215>

Patricia da Silva Santana Reis  <https://orcid.org/0000-0001-7305-7794>

Fernando Silva dos Santos  <https://orcid.org/0000-0002-1588-8829>

Isabel Alves dos Santos  <https://orcid.org/0000-0003-2352-1290>

Francisco de Assis Ribeiro dos Santos  <https://orcid.org/0000-0002-9246-3146>

Igor Silva dos Santos  <https://orcid.org/0000-0002-9915-7213>

Ricardo Sartorello  <https://orcid.org/0000-0002-6062-8268>

Hermes José Schmitz  <https://orcid.org/0000-0003-4487-1898>

Maria Rosângela Sigrist  <https://orcid.org/0000-0003-1971-3564>

Juvenal Cordeiro Silva Junior  <https://orcid.org/0000-0003-1730-0926>

Ana Carolina Granero e Silva  <https://orcid.org/0000-0002-4928-5938>

Carolina Veronese Corrêa da Silva  <https://orcid.org/0000-0003-3440-0507>

Beatriz Symara Alves Vieira Silva  <https://orcid.org/0000-0002-2116-7403>

Bruna Leticia de Freitas Silva  <https://orcid.org/0000-0002-5681-3313>

Cláudia Inês Silva  <https://orcid.org/0000-0003-0836-8662>

Fabiana Oliveira da Silva  <https://orcid.org/0000-0002-6919-7716>

Jéssica Luíza Souza e Silva  <https://orcid.org/0000-0001-8519-0891>

Nathalia Sampaio Silva  <https://orcid.org/0000-0002-4558-1596>

Otávio Guilherme Moraes da Silva  <https://orcid.org/0000-0002-5805-7937>

Carlos de Melo e Silva Neto  <https://orcid.org/0000-0001-8624-3836>

Edito Romão Silva Neto  <https://orcid.org/0000-0003-0775-9135>

Denise Silveira  <https://orcid.org/0000-0003-3101-6112>

Maxwell Souza Silveira  <https://orcid.org/0000-0002-5320-8775>

Rodrigo Bustos Singer  <https://orcid.org/0000-0001-8980-7713>

Leiza Aparecida Souza Serafim Soares  <https://orcid.org/0000-0003-3706-7949>

Evelise Márcia Locatelli de Souza  <https://orcid.org/0000-0003-4722-4039>

Jana Magaly Tesserolli de Souza  <https://orcid.org/0000-0002-8278-2952>

Josefina Steiner  <https://orcid.org/0000-0002-8464-3948>

Mara Cristina Teixeira-Gamarra  <https://orcid.org/0000-0003-4522-3657>

Bruno Alves Trentin  <https://orcid.org/0000-0002-5308-6093>

Isabela Galarda Varassin  <https://orcid.org/0000-0001-9189-8765>

Gabriel Vila-Verde  <https://orcid.org/0000-0001-5290-7171>

Vania Nobuko Yoshikawa  <https://orcid.org/0000-0002-7056-988X>

Elisabete Maria Zanin  <https://orcid.org/0000-0003-0533-9751>

Mauro Galetti  <https://orcid.org/0000-0002-8187-8696>

Milton Cezar Ribeiro  <https://orcid.org/0000-0002-4312-202X>

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Boscolo, Danilo, Bárbara Nobrega Rodrigues, Patrícia Alves Ferreira, Luciano Elsinor Lopes, Vinicius Rodrigues Tonetti, Isabela Cristhina Reis dos Santos, Juliana Akemi Hiruma-Lima, et al. 2023. "Atlantic Flower–Invertebrate Interactions: A Data Set of Occurrence and Frequency of Floral Visits." *Ecology* 104(3): e3900. <https://doi.org/10.1002/ecy.3900>