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Ecology, 102(4), 2021, e03301

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How much leaf area do insects eat? A data set of insect herbivory sampled globally with a standardized protocol

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Citation: Mendes, G. M., F. A. O. Silveira, C. Oliveira, W. Dáttilo, R. Guevara, B. Ruiz-Guerra, M. G. Boaventura, Sershen, S. Ramdhani, S. S. Phartyal, S. P. Ribeiro, V. D. Pinto, H. L. Vasconcelos, R. Tito, C. C. Pereira, B. Carvalho, G. M. Carvalho, E. del-Val, E. Buisson, A. J. Arruda, J.-B. Toth, F. de O. Roque, A. H. Souza, F. Bolzan, F. Neves, J. Kuchenbecker, G. R. Demétrio, L. Seixas, G. Q. Romero, P. M. de Omena, J. O. Silva, L. Paolucci, E. Queiroz, M. K. J. Ooi, C. H. Mills, P. Gerhold, A. Merzin, J. C. Massante, R. Aguilar, L. M. Carbone, R. Campos, I. Gomes, G. Zorzal, R. Solar, L. Ramos, T. Sobrinho, P. Sanders, and T. Cornelissen. 2021. How much leaf area do insects eat? A data set of insect herbivory sampled globally with a standardized protocol. *Ecology* 102(4):e03301. 10.1002/ecy.3301

Abstract. Herbivory is ubiquitous. Despite being a potential driver of plant distribution and performance, herbivory remains largely undocumented. Some early attempts have been made to review, globally, how much leaf area is removed through insect feeding. Kozlov et al., in one of the most comprehensive reviews regarding global patterns of herbivory, have compiled published studies regarding foliar removal and sampled data on global herbivory levels using a standardized protocol. However, in the review by Kozlov et al., only 15 sampling sites, comprising 33 plant species, were evaluated in tropical areas around the globe. In Brazil, which ranks first in terms of plant biodiversity, with a total of 46,097 species, almost half (43%) being endemic, a single data point was sampled, covering only two plant species. In an attempt to increase knowledge regarding herbivory in tropical plant species and to provide the raw data needed to test general hypotheses related to plant–herbivore interactions across large spatial scales, we proposed a joint, collaborative network to evaluate tropical herbivory. This network allowed us to update and expand the data on insect herbivory in tropical and temperate plant species. Our data set, collected with a standardized protocol, covers 45 sampling sites from nine countries and includes leaf herbivory measurements of 57,239 leaves from 209 species of vascular plants belonging to 65 families from tropical and temperate regions. They expand previous data sets by including a total of 32 sampling sites from tropical areas around the globe, comprising 152 species, 146 of them being sampled in Brazil. For temperate areas, it includes 13 sampling sites, comprising 59 species. Thus, when compared to the most recent comprehensive review of insect herbivory (Kozlov et al.), our data set has increased the base of available data for the tropical plants more than 460% (from 33 to 152 species) and the Brazilian sampling was increased 7,300% (from 2 to 146 species). Data on precise levels of herbivory are presented for more than 57,000 leaves worldwide. There are no copyright restrictions. Please cite this paper when using the current data in publications; the authors request to be informed how the data is used in the publications.

Key words: defoliation; herbivory; latitudinal gradients; leaf consumption; plant–herbivore interactions; primary consumption; trophic interactions.

The complete data sets corresponding to abstracts published in the Data Papers section in the journal are published electronically as Supporting Information in the online version of this article at <http://onlinelibrary.wiley.com/doi/10.1002/ecy.3301/supinfo>.

Manuscript received 21 September 2020; revised 23 November 2020; accepted 24 November 2020. Corresponding Editor: William K. Michener

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