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ARTHROPOD CONSTRUCTS AND HOST PLANTS

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Study Description

We compiled a dataset that includes more than 1,000 unique records of ecosystem engineering by arthropods, in the form of structures built on plants. Data were gathered between 1932 and 2021, across more than 50 countries and several natural ecosystems, ranging from polar to tropical zones. Our records cover natural (91% of the records) and artificially created structures (9% of the records), registering detailed information regarding the types of constructs and the identity of inquilines using these structures. This dataset provides primary data for hypotheses testing in ecological studies addressing ecosystem engineering and facilitation mediated by arthropod constructs.

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Photo 1. Leaf roll gall created by the *Ditylenchus gallaeformans* Oliveira (Tylenchida: Anguinidae) on *Miconia ligustroides* (DC.) Naudin (Melastomataceae). As these galls develop, the leaf curls from the abaxial to the adaxial surface, from the edges to the midvein, forming a roll of ~20 mm in diameter. These structures are colonized by several arthropods and can remain on the plants for ~8 months until they fall to the ground. Photograph credit: Cássio Cardoso Pereira.



Photo 2. Stem cavities created by the larvae of the beetle *Oncideres albomarginata* Thomson (Coleoptera: Cerambycidae) on *Spondias purpurea* L. (Anarcadiaceae). These galleries are persistent and used by several secondary occupants, such as the ant *Cephalotes goniodontus* De Andrade (Hymenoptera: Formicidae). Photograph credit: Samuel Novais.



Photo 3. Leaf gall created by the *Baccharopelma dracunculifoliae* Burckhardt, Espírito-Santo, Fernandes & Malenovský (Hemiptera: Psyllidae) on *Baccharis dracunculifolia* DC. (Asteraceae). The galler induces a gall in the midvein of the leaf, which bends over itself until the borders are joined, forming an elliptical, green, glabrous, single-chambered gall, which is often used by secondary occupants such as the ant *Cephalotes pusillus* Klug (Hymenoptera: Formicidae). Photograph credit: Milton Barbosa.



Photo 4. Leaf roll created by the *Anaea* spp. Hübner (Lepidoptera: Nymphalidae) on *Croton floribundus* Spreng. (Euphorbiaceae). The caterpillars of the *Anaea* genus roll these leaves with silk, forming a roll that remains on the plants for up to 12 months, which can provide shelter for many arthropods. Photograph credit: Camila Vieira.



Photo 5. A leaf gall of *Baccharopelma dracunculifoliae* Burckhardt, Espírito-Santo, Fernandes & Malenovský (Hemiptera: Psyllidae) on *Baccharis dracunculifolia* DC. Asteraceae opened to expose the secondary occupant *Parawixia* sp. F. O. Pickard-Cambridge (Araneae: Araneidae). Photograph credit: Milton Barbosa.

These photographs illustrate the article "Subtle structures with not-so-subtle functions: a dataset of arthropod constructs and their host plants" by Pereira et al. published in *Ecology*. https://doi.org/10.1002/ecy.3639.