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**Key words:**

Azteca

Crematogaster laevis

Pheidole minutula

Maieta guianensis

Tococa bullifera

Melastomataceae

Amazon

Manaus

myrmecophyte

ant-plant mutualism

demography

Biological Dynamics of Forest Fragments Project https://datadryad.org/themes/Mirage/images/authority_control/invisible.gif

**Geographic Coverage:**

Biological Dynamics of Forest Fragments Project, Manaus, Amazonas, Brazil

Bounding Coordinates:

West:  -59.45  degrees

East:  -59.45  degrees

North: -2.25  degrees

South: -2.25  degrees

**Temporal Coverage:**

Begin: 2007-09-01

End: 2007-09-30

**Project Info:**

Title: Elucidating mechanisms of coexistence in a community of ant-plant mutualists

Funding: National Science Foundation DEB-0453631 and DEB-0452720

**File: Ant-Plant-plot.locations.CSV**

**Description:** Location of the 40 demographic plots in which a study on ant-plant demography was conducted.

**Methods:** Reserve #1501 of the Biological Dynamics of Forest Fragments Project is laid out in a grid of trails that run north-south (letters) and east-west (numbers). Trails are separated by 100 m. Locations of study sites in the reserve are identified by the closest intersection (e.g., N5 is the intersection of trails N and 5) or by the location along one trail between two others (e.g., H 8-9 is a location along trail H between trails 8 and 9). A map of the trail system has been archived at Figshare: <http://dx.doi.org/10.6084/m9.figshare.1157869>

**Column Headings:**

site.id: Identification number assigned to each of the N=40 plots in which we marked plants

Block: Each of the 20 blocks is made up of a pair of demographic plots: one in a gap and one of similar size approximately 50 m away in closed canopy forest

canopy.cover: demographic plots were located either in the forest understory (forest) or in treefall gaps (gap)

topography: half of the blocks were located in the upland plateau areas of the reserve (plateau). The other half were located in lowland areas along streamsides (streamside)

location: closest point on the Reserve 1501 grid system to the demographic plot

**File: Ant-Plant-Demography\_2September2014.CSV**

**Description:** Data on the location, growth, and reproduction of ant-plants found in the lowland tropical forests of Reserve #1501 of the Biological Dynamics of Forest Fragments Project.

**Methods:** In January 2006 we used the trail system that bisects Reserve 1501 to find 10 gaps in the upland plateaus and 10 gaps adjacent to streams. We measured the length and width of each of these gaps, calculated the area of each gap with the formula for an ellipse, and used these measurements to mark an area of comparable size in adjacent closed canopy forest. We then surveyed each plot and marked all *Maieta guianensis* and *Tococa bullifera* (both Melastomataceae) with a permanent tag. Other myrmecophytic melastomes were also marked, thiough these species are rareWe recorded the identity of any ant occupants and measured the size of each plant by counting the number of domatia and branches each plant had. The plots were censused at 6 month intervals, at which time we recorded whether marked plants had died, the size of surviving plants, and the identity of ant residents. We also marked and measured any newly established seedlings. In the fourth, fifth, and sixth censuses we quantified plant reproductive effort by counting the number of fruits or flowers on each plant.

**Column Headings:**

unique.plant.id: unique number identifying each plant in database

within.plot.id: Number of the tag with which a plant was marked.

plant.species: Three species of myrmecophytic Melastomes were identified in the plots. Maieta guianensis (Mg), Maieta poepigii (Mpp), and Tococa bullifera (Tb).

site.id: Identification number assigned to each of the N=40 plots in which we marked plants

Block: Each of the 20 blocks is made up of a pair of demographic plots: one in a gap and one of similar size approximately 50 m away in closed canopy forest

canopy.cover: demographic plots were located either in the forest understory (forest) or in treefall gaps (gap)

topography: half of the blocks were located in the upland plateau areas of the reserve (plateau). The other half were located in lowland areas along streamsides (streamside)

gap.width: the length of the gap (m). For the paired forest understory sites this is the length of the demographic plot set up in approximately the same shape.

gap.lengththe width of the gap (m). For the paired forest understory sites this is the length of the demographic plot set up in approximately the same shape.

area: the area of the plot in m2. It was calculated with the formula for ellipse using gap.width and gap.length (below)

branches.1: number of branches at census 1 (i.e., initial census 1 in Jan 2006). Note that 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

branches.2: number of branches at census 2 (1 July 2006). Note that 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

branches.3: number of branches at census 3 (1 January 2007). Note that 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

branches.4: number of branches at census 4 (1 July 2007). Note that 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

branches.5: number of branches at census 5 (1 January 2008. Note that 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

branches.6: number of branches at census 6 (1 September 2008). Note that 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

branches.7: number of branches at census 7 (1 January 2009). Note that 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

domatia.1: number of domatia at census 1 (i.e., initial census 1 January 2006). Note that 200 = 200 or more domatia on the plant. 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

domatia.2: number of domatia at census 2 (1 July 2006). Note that 200 = 200 or more domatia on the plant. 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

domatia.3: number of domatia at census 3 (1 January 2007). Note that 200 = 200 or more domatia on the plant. 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

domatia.4: number of domatia at census 4 (1 July 2007) (Note that 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero

domatia.5: number of domatia at census 5 (1 January 2008) Note that 200 = 200 or more domatia on the plant. 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

domatia.6: number of domatia at census 6 (1 September 2008) Note that 200 = 200 or more domatia on the plant. 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

domatia.7: number of domatia at census 7 (1 January 2009) Note that 200 = 200 or more domatia on the plant. 9999 indicates the measurement from that date is missing (plant could not be found), whereas 0 is a true zero.

Surv12 Survivorship from census 1 to census 2 (0=died, 1=survived). This is used in the R package IPM pack.

Surv23 Survivorship from census 2 to census 3 (0=died, 1=survived). This is used in the R package IPM pack.

Surv34 Survivorship from census 3 to census 4 (0=died, 1=survived). This is used in the R package IPM pack.

Surv45 Survivorship from census 4 to census 5 (0=died, 1=survived). This is used in the R package IPM pack.

Surv56 Survivorship from census 5 to census 6 (0=died, 1=survived). This is used in the R package IPM pack.

Surv67 Survivorship from census 6 to census 7 (0=died, 1=survived). This is used in the R package IPM pack.

ant.1: The ant species present in a plant’s domatia at the time of census 1. A=Azteca, P=Pheidole, C=Crematogaster, none=plant was vacant. Occasionally, plants at the seedling stage or adults that have recently lost their resident ant colonies will be colonized by queens of more than one ant species simultaneously. In these cases both ant residents are noted (e.g., P+C=Pheidole+Crematogaster).

ant.2: ant species present in domatia at census 2. A=Azteca, P=Pheidole, C=Crematogaster, none=plant was vacant. Occasionally, plants at the seedling stage or adults that have recently lost their resident ant colonies will be colonized by queens of more than one ant species simultaneously. In these cases both ant residents are noted (e.g., P+C=Pheidole+Crematogaster).

ant.3: ant species present in domatia at census 3. A=Azteca, P=Pheidole, C=Crematogaster, none=plant was vacant. Occasionally, plants at the seedling stage or adults that have recently lost their resident ant colonies will be colonized by queens of more than one ant species simultaneously. In these cases both ant residents are noted (e.g., P+C=Pheidole+Crematogaster).

ant.4: ant species present in domatia at census 4. A=Azteca, P=Pheidole, C=Crematogaster, none=plant was vacant. Occasionally, plants at the seedling stage or adults that have recently lost their resident ant colonies will be colonized by queens of more than one ant species simultaneously. In these cases both ant residents are noted (e.g., P+C=Pheidole+Crematogaster).

ant.5: ant species present in domatia at census 5. A=Azteca, P=Pheidole, C=Crematogaster, none=plant was vacant. Occasionally, plants at the seedling stage or adults that have recently lost their resident ant colonies will be colonized by queens of more than one ant species simultaneously. In these cases both ant residents are noted (e.g., P+C=Pheidole+Crematogaster).

ant.6: ant species present in domatia at census 6. A=Azteca, P=Pheidole, C=Crematogaster, none=plant was vacant. Occasionally, plants at the seedling stage or adults that have recently lost their resident ant colonies will be colonized by queens of more than one ant species simultaneously. In these cases both ant residents are noted (e.g., P+C=Pheidole+Crematogaster).

ant.7: ant species present in domatia at census 7. A=Azteca, P=Pheidole, C=Crematogaster, none=plant was vacant. Occasionally, plants at the seedling stage or adults that have recently lost their resident ant colonies will be colonized by queens of more than one ant species simultaneously. In these cases both ant residents are noted (e.g., P+C=Pheidole+Crematogaster).

fruitsflowers.4: Number of flowers and/or fruits produced at census 5. For Maieta, this is the actual number of fruits or flowers (summed in cases where there are both fruits and flowers). For Tococa it is the number of infloresences/infructesences.

fruitsflowers.5: Number of flowers/fruits produced at census 6. For Maieta, this is the actual number of fruits or flowers (summed in cases where there are both fruits and flowers). For Tococa it is the number of infloresences/infructesences.

fruitsflowers.6: Number of flowers/fruits produced at census 7. For Maieta, this is the actual number of fruits or flowers (summed in cases where there are both fruits and flowers). For Tococa it is the number of infloresences/infructesences.

Rep4: Reproductive at census 5 (0=no, 1=yes). For use in ipm pack

Rep5: Reproductive at census 6 (0=no, 1=yes). For use in ipm pack

Rep6: Reproductive at census 7 (0=no, 1=yes). For use in ipm pack