Influence of plant-pollinator interactions on the assembly of plant and hummingbird communities

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DATA

**Table 1.** Data of species occurrence and functional traits of hummingbird-plant communities. Communities abbreviations are as follows: CBO = Carlos Botelho; CAG = Caraguatatuba; PIC = Picinguaba; SVG = Santa Virginia; CUN = Cunha; CJO = Campos do Jordão; ITA = Itatiaia. Values of effective corolla length represent the average of the values reported in the primary studies or from additional sources for each plant species. Numbers between brackets represent the primary studies from which the data was obtained. When data of effective corolla length was not available in the primary study, values were obtained from additional sources. In these cases, references, herbarium sheets or personal field data are indicated for each plant species. For hummingbirds, values of functional traits were obtained from Grantsau 1989.

A – Plant species

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Community | | | | | | | Effective corolla length (mm) | References |
| CBO | CAG | PIC | SVG | CUN | CJO | ITA |
| *Adenocalymma* sp. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 35.7 | [4] |
| *Aechmea coelestis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 23.0 | [4] |
| *Aechmea distichantha* | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 16.7 | [1;2;5] |
| *Aechmea gamosepala* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 17.9 | [4;5] |
| *Aechmea nudicaulis* | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 13.5 | [1;2;3;4;6] |
| *Aechmea organensis* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13.0 | [5] |
| *Aechmea ornata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15.0 | [4] |
| *Aechmea pectinata* | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 26.4 | [1;2;4] |
| *Aechmea vanhoutteana* | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 9.1 | [3;6;5] |
| *Alstroemeria inodora* | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 30.7 | [2;5] |
| *Aphelandra colorata* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 34.0 | [5] |
| *Aphelandra longiflora* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 29.0 | [5];UEC044492 |
| *Besleria longimucronata* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 14.0 | [5] |
| *Billbergia amoena* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 40.2 | [4;5] |
| *Billbergia distachia* | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 49.4 | [2;3;6] |
| *Billbergia pyramidalis* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 44.5 | [1;2] |
| *Billbergia vittata* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 37.0 | [3;6] |
| *Billbergia zebrina* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 18.5 | [1] |
| *Bomarea edulis* | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 24.0 | [3] |
| *Camptosema scarlatinum* | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 29.7 | [2] |
| *Canistropsis billbergioides* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 21.7 | [4] |
| *Canistropsis seidelii* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 25.7 | [1;2];personal field data |
| *Canistrum terminalis* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 29.6 | [2] |
| *Canna paniculata* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 35.0 | [5] |
| *Centropogon cornutus* | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 39.8 | [1;2;5] |
| *Cestrum corymbosum* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 14.8 | [2] |
| *Collaea speciosa* | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 28.6 | [2] |
| *Costus spiralis* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 51.8 | [2;4] |
| *Dahlstedtia pentaphylla* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 45.8 | [4] |
| *Dahlstedtia pinnata* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 46.5 | [2;4] |
| *Edmundoa ambigua* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10.0 | [2];RB184234;  RB301991 |
| *Edmundoa lindenii* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 19.9 | [4;5] |
| *Edmundoa perplexa* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 16.0 | [5] |
| *Elleanthus brasiliensis* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 8.0 | [4;6];personal field data |
| *Erythrina speciosa* | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 56.7 | [1;2;5] |
| *Esterhazya splendida* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 29.4 | [2];personal field data |
| *Fridericia speciosa* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.0 | [2];RB181665;  RB482121;  RB205098;  RB606736;  RB419750;  RB406584;  INPA97060;  RB77566;  RB77292;  NY00931135 |
| *Fuchsia regia* | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 27.1 | [2;3;4;5] |
| *Heliconia angusta* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 38.6 | [1;2] |
| *Heliconia spathocircinata* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 37.5 | [1;2] |
| *Heliconia velloziana* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 37.5 | [2] |
| *Hippeastrum aulicum* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 54.4 | [3;4;6] |
| *Hippeastrum glaucescens* | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 14.4 | [2] |
| *Justicia carnea* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 34.0 | [2] |
| *Justicia rizzinii* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12.0 | [2];ESA39982;  ESA39970 |
| *Justicia sebastianopolitana* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 28.8 | [3;6] |
| *Justicia* sp. 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 30.0 | [5] |
| *Justicia* sp. 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12.0 | [5] |
| *Lobelia fistulosa* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 32.1 | [2] |
| *Manettia chrysoderma* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 52.0 | [5] |
| *Manettia cordifolia* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 38.0 | [2] |
| *Manettia gracilis* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 43.0 | [2];UEC046109;  UEC046099 |
| *Manettia luteorubra* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11.9 | [4] |
| *Manettia mitis* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 30.5 | [3;6] |
| *Manettia pubescens* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 42.9 | [2] |
| *Mendoncia velloziana* | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 33.5 | [2;4;3;6] |
| *Mutisia campanulata* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 15.0 | [2];RB122860;  RB4986;  RB77095;  RB190895;  RB479774;  FURB00854;  ESA60417;  ESA95439 |
| *Mutisia coccinea* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 42.9 | [2] |
| *Mutisia speciosa* | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 42.2 | [1;2] |
| *Nematanthus crassifolius* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 48.7 | [3;6] |
| *Nematanthus fissus* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 29.3 | [1;2] |
| *Nematanthus fluminensis* | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 51.4 | [1;2;5] |
| *Nematanthus fornix* | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 28.1 | [2;3;6] |
| *Nematanthus fritschii* | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 45.3 | [2;5];personal field data |
| *Nematanthus gregarius* | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 25.0 | [2;4;5] |
| *Nematanthus lanceolatus* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 28.7 | [3;6] |
| *Nematanthus sericeus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 36.5 | [2];personal field data |
| *Nematanthus striatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 22.6 | [4] |
| *Neoregelia johannis* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 25.7 | [2] |
| *Neoregelia laevis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20.0 | [4];MO1379661;  Smith&Downs  1979\_p.1570 |
| *Nidularium amazonicum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 33.3 | [4] |
| *Nidularium angustibracteatum* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 43.2 | [2] |
| *Nidularium bicolor* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 40.0 | [3;6];Leme 2000 |
| *Nidularium innocentii* | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 51.1 | [1;2;4;5] |
| *Nidularium itatiaiae* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 51.0 | [3;6] |
| *Nidularium longiflorum* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 47.0 | [5] |
| *Nidularium marigoi* | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 43.7 | [2] |
| *Nidularium procerum* | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 46.3 | [1;2;4;5] |
| *Nidularium rutilans* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 36.0 | [5] |
| *Odontonema barbelerioides* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 40.5 | [3;6] |
| *Palicourea rudgeoides* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 20.7 | [3;6] |
| *Pitcairnia flammea* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 37.1 | [3;6] |
| *Psittacanthus brasiliensis* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 29.4 | [3;6] |
| *Psittacanthus dichroos* | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 37.9 | [1;2;4;5] |
| *Psychotria nemorosa* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6.0 | [2];ESA072195;  ESA052091;  ESA33966;  INPA132273;  RB348479 |
| *Psychotria nuda* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 21.4 | [1;2] |
| *Pyrostegia venusta* | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 48.9 | [2;3;5;6] |
| *Quesnelia arvensis* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 20.6 | [1;2] |
| *Quesnelia augustocoburgii* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 34.9 | [3;6] |
| *Quesnelia humilis* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 30.0 | [2];RB438588;  RB423148;  UEC043677;  Smith&Downs  1979\_p.1962 |
| *Quesnelia marmorata* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 25.1 | [2] |
| *Quesnelia testudo* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 18.0 | [4];RB342292;  SP008963;  Smith&Downs  1979\_p.1961 |
| *Salvia arenaria* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 15.7 | [2] |
| *Salvia balaustina* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 36.6 | [2] |
| *Salvia sellowiana* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 43.1 | [3;6] |
| *Schlumbergera opuntioides* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 36.3 | [2] |
| *Schwartzia brasiliensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29.0 | [4] |
| *Sinningia allagophylla* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 14.0 | [2];FURB01882;  UEC015347;  NY00929952;  SP006130;  RB115535 |
| *Sinningia cooperi* | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 24.8 | [2;3;5;6] |
| *Sinningia douglasii* | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 31.9 | [2] |
| *Sinningia elatior* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 31.0 | [5] |
| *Sinningia gigantifolia* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 39.0 | [3;6] |
| *Sinningia glazioviana* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 32.0 | [5] |
| *Siphocampylus convolvulaceus* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 32.4 | [4;5] |
| *Siphocampylus longipedunculatus* | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 33.9 | [3;5;6] |
| *Siphocampylus* sp. | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 42.0 | [5];personal field data |
| *Siphocampylus westinianus* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31.4 | [2] |
| *Spirotheca rivieri* | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 48.4 | [2;4;5] |
| *Staurogyne itatiaiae* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 17.3 | [3;6] |
| *Stromanthe thalia* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9.7 | [3;6] |
| *Tillandsia gardneri* | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 8.0 | [2;3;6];RB424952;  RB587760;  UEC043656;  Smith&Downs  1977\_p.799 |
| *Tillandsia geminiflora* | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 17.2 | [1;2;3;4;6] |
| *Tillandsia* sp. | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 15.0 | [5] |
| *Tillandsia stricta* | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 17.0 | [1;2;3;4;5;6] |
| *Tillandsia tenuifolia* | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 13.0 | [2;4;3;6];SP008968;UEC043525;  UEC043517;  RB532745;  RB512758;  RB468663;  RB467527;  UEC043520;  CVRD7287;  Smith&Downs  1977\_p.828 |
| *Velloziella dracocephaloides* | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 52.4 | [2;3;6] |
| *Vriesea carinata* | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 40.1 | [3;4;5;6] |
| *Vriesea drepanocarpa* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 40.4 | [4] |
| *Vriesea ensiformis* | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 43.3 | [1;2;4] |
| *Vriesea erythrodactylom* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 31.5 | [4;5] |
| *Vriesea flammea* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 27.0 | [2];UEC043412;  Smith&Downs  1977\_p.1247 |
| *Vriesea gradata* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 38.7 | [3;6];personal field data |
| *Vriesea incurvata* | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 41.8 | [2;4;5] |
| *Vriesea inflata* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 37.0 | [5] |
| *Vriesea morreniana* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 50.0 | [2] |
| *Vriesea penduliflora* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 35.8 | [3;6] |
| *Vriesea philippocoburgii* | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 28.5 | [2;4;5] |
| *Vriesea procera* | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 36.5 | [1;2] |
| *Vriesea rodigasiana* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 27.8 | [1;2;4] |
| *Vriesea scalaris* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 50.0 | [2];NY00486368;  RB473336;  RB309323;  RB275716;  Smith&Downs  1977\_p.1238 |
| *Vriesea sceptrum* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 35.8 | [2] |
| *Vriesea simplex* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 37.0 | [5] |
| *Vriesea vagans* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 28.6 | [4] |
| *Wittrockia cyathiformis* | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 39.7 | [2;4] |

B – Hummingbird species

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Community | | | | | | | Bill length (mm) | Body mass (g) | References |
| CBO | CAG | PIC | SVG | CUN | CJO | ITA |
| *Amazilia fimbriata* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 22.0 | 6.0 | [1] |
| *Amazilia versicolor* | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 18.0 | 4.0 | [1;4;5] |
| *Anthracothorax nigricollis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 24.0 | 7.0 | [1;4] |
| *Aphantochroa cirrhochloris* | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 21.0 | 9.0 | [1;2;4] |
| *Calliphlox amethystina* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13.0 | 2.5 | [2] |
| *Chlorostilbon aureoventris* | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 18.5 | 3.4 | [2;4] |
| *Clytolaema rubricauda* | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 18.5 | 7.0 | [2;3;4;5;6] |
| *Eupetomena macroura* | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 21.0 | 7.0 | [1;5] |
| *Florisuga fusca* | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 21.0 | 9.0 | [1;2;4;5] |
| *Glaucis hirsuta* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 32.3 | 8.0 | [1;2] |
| *Hylocharis cyanus* | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 17.0 | 3.5 | [1;2;4] |
| *Leucochloris albicollis* | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 22.0 | 8.0 | [1;2;3;4;5;6] |
| *Lophornis chalybea* | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 13.3 | 2.3 | [1;2;4;5] |
| *Phaethornis eurynome* | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 33.0 | 4.0 | [2;3;4;5;6] |
| *Phaethornis ruber* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 21.0 | 1.8 | [1;2] |
| *Phaethornis squalidus* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 24.0 | 2.5 | [3;4;6] |
| *Ramphodon naevius* | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 33.5 | 8.0 | [1;2;4] |
| *Stephanoxis lalandi* | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 14.0 | 3.4 | [2;5] |
| *Thalurania furcata* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 20.0 | 4.0 | [2] |
| *Thalurania glaucopis* | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 17.0 | 5.0 | [1;2;3;4;5;6] |

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**Primary studies**

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**Table 2.** Data of pollen limitation, morphological overlap, and flowering synchrony analysed using phylogenetic generalized least squares regression.

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Pollen limitation  (Ln-transformed + 1) | Morphological overlap | Flowering synchrony (Ln.-transformed + 1) |
| *Aechmea nudicaulis* | 0.67 | 2.35 | 2.82 |
| *Aechmea vanhoutteana* | 0.00 | 15.85 | 3.15 |
| *Billbergia distachia* | 0.50 | 85.90 | 3.58 |
| *Elleanthus brasiliensis* | 0.47 | 0.10 | 1.93 |
| *Justicia sebastianopolitana* | 0.00 | 68.51 | 3.05 |
| *Manettia mitis* | 0.16 | 55.16 | 3.15 |
| *Nematanthus crassifolius* | 0.27 | 10.82 | 3.80 |
| *Nematanthus lanceolatus* | 0.13 | 23.94 | 3.82 |
| *Nidularium itatiaiae* | 0.23 | 47.68 | 3.00 |
| *Odontonema barbelerioides* | 0.54 | 76.32 | 2.78 |
| *Pitcairnia flammea* | 0.38 | 65.92 | 2.92 |
| *Quesnelia augustocoburgii* | 0.07 | 91.77 | 2.94 |
| *Salvia sellowiana* | 0.21 | 122.46 | 4.26 |
| *Sinningia cooperi* | 0.71 | 107.10 | 1.97 |
| *Sinningia gigantifolia* | 1.45 | 65.02 | 2.76 |
| *Staurogyne itatiaiae* | 0.00 | 12.08 | 3.54 |
| *Tillandsia geminiflora* | 1.08 | 15.08 | 2.70 |
| *Vriesea carinata* | 0.64 | 57.69 | 2.44 |
| *Vriesea gradata* | 0.62 | 86.93 | 2.89 |

**Table 3.** Quantitative data of flowering phenology, from January 2010 to December 2011, of the Itatiaia community. Values represent the number of flowers (floral buds and open flowers) counted per species on each month.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | 2010 | | | | | | | | | | | | 2011 | | | | | | | | | | | |
| J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| *Aechmea nudicaulis* |  |  |  |  |  |  |  |  |  |  |  |  | 24 |  |  | 24 | 5 |  |  |  | 1 |  | 28 |  |
| *Aechmea vanhoutteana* |  |  |  |  |  |  | 15 |  | 83 | 84 |  |  |  |  |  |  |  |  |  | 21 | 59 | 18 |  |  |
| *Billbergia distachia* |  |  |  |  |  | 17 | 41 |  | 9 |  |  | 11 |  |  |  |  | 18 | 10 | 44 | 11 | 25 |  | 10 | 27 |
| *Billbergia vittata* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 26 |  |  |  |
| *Elleanthus brasiliensis* | 10 |  |  |  |  |  |  |  |  |  |  |  | 10 | 96 |  |  |  |  |  |  |  |  |  |  |
| *Justicia sebastianopolitana* |  |  |  | 75 | 277 | 870 | 546 |  |  |  |  |  |  |  |  | 63 | 155 | 372 | 440 | 2 |  |  |  |  |
| *Manettia mitis* |  |  | 163 | 357 | 573 | 74 | 3 |  |  |  |  |  |  | 3 | 18 | 14 | 156 | 172 | 56 | 4 |  |  |  |  |
| *Mendoncia velloziana* |  |  |  |  |  |  |  |  |  |  | 135 | 23 | 4 |  |  |  |  |  |  |  |  |  |  |  |
| *Nematanthus crassifolius* |  | 7 | 35 | 37 | 31 | 35 | 24 | 67 | 110 | 112 | 13 |  |  | 3 | 10 | 17 | 16 | 32 | 27 | 105 | 185 | 124 | 5 |  |
| *Nematanthus fornix* |  |  | 1 |  | 1 |  |  | 1 | 1 | 43 | 13 | 2 |  |  |  |  | 2 |  |  |  | 5 | 38 | 12 | 6 |
| *Nematanthus lanceolatus* |  |  |  |  | 2 | 3 | 1 | 13 | 60 | 55 | 24 | 1 |  |  |  |  |  | 2 | 6 | 14 | 41 | 41 | 14 | 1 |
| *Nidularium bicolor* |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 5 |  |  |  |  |  |  |  |  |  |
| *Nidularium itatiaiae* | 66 |  |  |  |  |  |  |  |  |  | 9 | 61 | 110 | 14 |  |  |  |  |  |  |  |  |  | 73 |
| *Odontonema barbelerioides* | 7 | 272 | 37 | 4 | 18 | 8 |  |  |  |  |  |  |  | 77 | 141 | 26 |  | 8 |  |  |  |  |  |  |
| *Pitcairnia flammea* | 2 | 10 | 44 | 286 |  |  |  |  |  |  |  |  |  | 83 | 264 | 138 | 2 |  |  |  |  |  |  |  |
| *Psittacanthus brasiliensis* |  |  |  |  |  |  |  |  |  |  |  |  | 22 |  |  |  |  |  |  |  |  |  |  | 217 |
| *Pyrostegia venusta* |  |  |  |  |  |  |  | 39 | 7 |  |  |  |  |  |  |  |  |  | 93 | 29 |  |  |  |  |
| *Quesnelia augusto-coburgii* |  |  |  |  | 5 | 7 | 23 | 31 |  |  |  |  |  |  |  |  |  | 14 | 4 | 9 |  |  |  |  |
| *Salvia sellowiana* | 35 | 100 | 112 | 144 | 111 | 65 | 103 | 29 | 123 | 30 | 15 | 29 | 27 | 113 | 119 | 148 | 102 | 160 | 114 | 111 | 71 | 13 | 53 | 12 |
| *Sinningia cooperi* |  | 8 |  |  |  |  |  |  |  |  |  |  |  |  | 54 |  |  |  |  |  |  |  |  |  |
| *Sinningia gigantifolia* |  |  |  | 1 |  |  |  |  |  |  | 15 | 41 |  |  |  |  |  |  |  |  |  |  | 27 | 45 |
| *Staurogyne itatiaiae* |  | 1 | 20 | 18 | 23 | 8 | 14 | 1 |  |  |  |  |  | 21 | 34 | 51 | 41 | 48 | 10 |  |  |  |  |  |
| *Stromanthe thalia* | 3 |  |  |  |  |  |  |  |  |  |  | 69 | 211 |  |  |  |  |  |  |  |  |  |  | 188 |
| *Tillandsia geminiflora* |  |  |  |  |  |  |  | 39 | 20 |  |  |  |  |  |  |  |  |  |  | 77 | 14 |  |  |  |
| *Tillandsia stricta* |  |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |  |  |  |  |  | 6 |  |  |  |
| *Tillandsia tenuifolia* |  |  |  | 64 |  |  |  |  |  |  |  |  |  |  | 14 | 10 |  |  |  |  |  |  |  |  |
| *Velloziela dracocephaloides* |  |  |  |  |  |  |  |  | *56* | 15 | 1 |  |  |  |  |  |  |  |  | 10 | 39 | 6 | 5 |  |
| *Vriesea carinata* |  | 1 | 3 |  |  |  |  |  |  |  |  |  |  |  | 1 | 7 |  |  |  |  |  |  |  |  |
| *Vriesea gradata* | 2 | 1 |  |  |  |  |  |  |  | 1 |  | 11 | 4 | 1 |  |  |  |  |  |  |  |  |  | 11 |
| *Vriesea penduliflora* |  |  |  |  |  |  |  |  |  |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |  |