Appendix S1. Ant species and subfamilies recorded during the Winkler sampling around the cave and in a control area situated more than 500 m away (50 leaf litter samples of 1 m2 each) plus those recorded inside the cave and in the exposed area plus the immediate surroundings. The distinction between functional groups (i.e., leaf-cutting, fungus-growing ants; nectar and honeydew feeders; fungus-growing ants using debris and feces to grow their fungus; predators; and generalists) is based on [1-9].

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Functional group: Leaf-cutting, fungus-growing ants** | | | | |  | Details |
| Subfamily | Species | | Control | Around the cave | In the cave |  |
| Myrmicinae | *Acromyrmex rugosus* (Smith) | | 1 | 1 | 0 | Leaf-cutting, fungus-grower |
|  | **TOTAL:** | | 1 | 1 | / |  |
|  | **Number of species:** | | 1 | 1 | / |  |
|  |  | |  |  |  |  |
| **Functional group: Nectar and honeydew feeders** | | | |  |  | Details |
| Subfamily | Species | | Control | Around the cave | In the cave |  |
| Formicinae | *Acropyga decedens* (Mayr) | | 4 | 0 | 0 | Honeydew from scale insects |
| Formicinae | *Acropyga fuhrmanni* (Forel) | | 0 | 1 | 0 | — |
| Myrmicinae | *Cephalotes atratus* (Linnaeus) | | 1 | 0 | P | Feed on nectar and pollen |
| Paraponerinae | *Paraponera clavata* (Fabricius) | | 0 | 0 | P | Nectarivorous, can be predatory |
| Pseudomymecinae | *Pseudomyrmex penetrator* Smith | | 0 | 0 | P | Plant-ant (on *Tachigali*) |
| Pseudomymecinae | *Pseudomyrmex tenuis* (Fabricius) | | 3 | 0 | 0 | Nectarivorous, can be predatory |
|  | **TOTAL:** | | 8 | 1 | / |  |
|  | **Number of species:** | | 3 | 1 | 3 |  |
|  |  | |  |  |  |  |
| **Functional group: generalist species** | | |  |  |  |  |
| Subfamily | Species | | Control | Around the cave | In the cave |  |
| Formicinae | *Brachymyrmex heeri* Forel | | 3 | 7 | 0 |  |
| Formicinae | *Brachymyrmex* sp.2 cf *heeri* | | 11 | 8 | 0 |  |
| Formicinae | *Brachymyrmex* sp.8 | | 1 | 0 | 0 |  |
| Formicinae | *Camponotus femoratus* (Fabricius) | | 10 | 3 | 0 |  |
| Formicinae | *Camponotus latangulus* Roger | | 0 | 1 | 0 |  |
| Formicinae | *Camponotus novogranadensis* Mayr | | 2 | 0 | 0 |  |
| Formicinae | *Camponotus rapax* (Fabricius) | | 1 | 0 | 0 |  |
| Formicinae | *Camponotus renggeri* Emery | | 1 | 0 | 0 |  |
| Formicinae | *Camponotus* sp. cf *atriceps* | | 0 | 1 | 0 |  |
| Formicinae | *Camponotus* sp.32 | | 0 | 1 | 0 |  |
| Myrmicinae | *Carebara urichi* (Wheeler) | | 4 | 5 | 0 |  |
| Myrmicinae | *Carebara* group E*scherichi* sp.2 | | 0 | 1 | 0 |  |
| Myrmicinae | *Carebara* group *Lignata* sp.4 | | 1 | 7 | 0 |  |
| Myrmicinae | *Crematogaster brasiliensis* Mayr | | 1 | 8 | 0 |  |
| Myrmicinae | *Crematogaster carinata* Mayr | | 8 | 1 | P |  |
| Myrmicinae | *Crematogaster flavosensitiva* Longino | | 19 | 0 | 0 |  |
| Myrmicinae | *Crematogaster limata* Smith | | 34 | 45 | 0 |  |
| Myrmicinae | *Crematogaster tenuicula* Forel | | 2 | 0 | 0 |  |
| Myrmicinae | *Crematogaster* sp.9 | | 1 | 0 | 0 |  |
| Myrmicinae | *Crematogaster* sp.20 | | 0 | 2 | 0 |  |
| Myrmicinae | *Cryptomyrmex longinodus* (Fernandez and Brandão) | | 1 | 0 | 0 |  |
| Dolichoderinae | *Dolichoderus bispinosus* (Olivier) | | 5 | 0 | 0 |  |
| Dolichoderinae | *Dolichoderus imitator* Emery | | 0 | 5 | 0 |  |
| Myrmicinae | *Hylomyrma balzani* (Emery) | | 6 | 5 | 0 |  |
| Myrmicinae | *Hylomyrma* sp.10 | | 0 | 2 | 0 |  |
| Myrmicinae | *Lachnomyrmex pilosus* Weber | | 1 | 1 | 0 |  |
| Myrmicinae | *Megalomyrmex cuatiara* Brandão | | 1 | 0 | 0 |  |
| Myrmicinae | *Megalomyrmex drifti* Kempf | | 0 | 1 | 0 |  |
| Myrmicinae | *Megalomyrmex gnomus* Kempf | | 3 | 1 | 0 |  |
| Myrmicinae | *Megalomyrmex leoninus* Forel | | 3 | 1 | 0 |  |
| Myrmicinae | *Megalomyrmex* group *Pusillus* sp.8 | | 0 | 2 | 0 |  |
| Myrmicinae | *Megalomyrmex* sp.9 | | 1 | 0 | 0 |  |
| Myrmicinae | *Megalomyrmex* group *Pusillus* sp.10 | | 1 | 0 | 0 |  |
| Myrmicinae | *Nesomyrmex tristani* (Emery) | | 0 | 1 | 0 |  |
| Formicinae | *Nylanderia guatemalensis* (Forel) | | 0 | 1 | 0 |  |
| Formicinae | *Nylanderia* sp.1 | | 0 | 0 | P |  |
| Formicinae | *Nylanderia* sp.3 | | 2 | 1 | 0 |  |
| Formicinae | *Nylanderia* sp.4 | | 0 | 2 | 0 |  |
| Formicinae | *Nylanderia* sp.5 | | 8 | 32 | 0 |  |
| Formicinae | *Nylanderia* sp.6 | | 0 | 1 | 0 |  |
| Myrmicinae | *Pheidole alexeter* Wilson | | 6 | 2 | 0 |  |
| Myrmicinae | *Pheidole allarmata* Wilson | | 15 | 6 | 0 |  |
| Myrmicinae | *Pheidole impressa* Mayr | | 4 | 4 | 0 |  |
| Myrmicinae | *Pheidole jeannei* Wilson | | 1 | 1 | 0 |  |
| Myrmicinae | *Pheidole midas* Wilson | | 2 | 3 | 0 |  |
| Myrmicinae | *Pheidole rubiceps* Wilson | | 0 | 4 | 0 |  |
| Myrmicinae | *Pheidole scolioceps* Wilson | | 8 | 0 | 0 |  |
| Myrmicinae | *Pheidole susannae* Forel | | 0 | 0 | P |  |
| Myrmicinae | *Pheidole synarmata* Wilson | | 0 | 2 | 0 |  |
| Myrmicinae | *Pheidole terribilis* Wilson | | 2 | 2 | 0 |  |
| Myrmicinae | *Pheidole transversostriata* Mayr | | 6 | 1 | 0 |  |
| Myrmicinae | *Pheidole tysoni* Forel | | 14 | 9 | 0 |  |
| Myrmicinae | *Pheidole* sp. cf *brandaoi* | | 12 | 7 | 0 |  |
| Myrmicinae | *Pheidole* group *Diligens* sp. | | 7 | 0 | 0 |  |
| Myrmicinae | *Pheidole* group *Fallax* sp. | | 0 | 3 | 0 |  |
| Myrmicinae | *Pheidole* group *Fallax* sp.4 | | 7 | 11 | 0 |  |
| Myrmicinae | *Pheidole* group *Diligens* sp.5 | | 2 | 3 | 0 |  |
| Myrmicinae | *Pheidole* group *Flavens* sp.11 | | 1 | 17 | 0 |  |
| Myrmicinae | *Pheidole* group *Diligens* sp.12 | | 3 | 0 | 0 |  |
| Myrmicinae | *Pheidole* group *Tristis* sp.13 | | 3 | 9 | 0 |  |
| Myrmicinae | *Pheidole* group *Flavens* sp.25 | | 1 | 0 | 0 |  |
| Myrmicinae | *Pheidole* group *Transversostriata* sp.30 | | 4 | 1 | 0 |  |
| Myrmicinae | *Pheidole* sp.32 near *subarmata* | | 2 | 1 | 0 |  |
| Myrmicinae | *Pheidole* complex *Flavens* sp.40 | | 30 | 28 | 0 |  |
| Myrmicinae | *Pheidole* complex *Flavens* sp.41 | | 0 | 1 | 0 |  |
| Myrmicinae | *Pheidole* sp.50 near *scolioceps* | | 0 | 1 | 0 |  |
| Myrmicinae | *Pheidole* sp.51 | | 5 | 10 | 0 |  |
| Myrmicinae | *Pheidole* group *Diligens* sp.54 | | 0 | 1 | 0 |  |
| Myrmicinae | *Pheidole* group *Diligens* sp.55 | | 0 | 1 | 0 |  |
| Myrmicinae | *Pheidole* complex *Flavens* sp.58 | | 1 | 0 | 0 |  |
| Myrmicinae | *Pheidole* group *Diligens* sp.59 | | 0 | 1 | 0 |  |
| Myrmicinae | *Pheidole* group *Tristis* sp.61 | | 1 | 0 | 0 |  |
| Myrmicinae | *Rogeria besucheti* Kugler | | 0 | 3 | 0 |  |
| Myrmicinae | *Rogeria blanda* (Smith) | | 3 | 1 | 0 |  |
| Myrmicinae | *Rogeria ciliosa* Kugler | | 0 | 2 | 0 |  |
| Myrmicinae | *Rogeria germaini* Emery | | 0 | 1 | 0 |  |
| Myrmicinae | *Rogeria lirata* Kugler | | 0 | 5 | 0 |  |
| Myrmicinae | *Rogeria tonduzi* Forel | | 5 | 1 | 0 |  |
| Myrmicinae | *Rogeria* sp.10 cf *besucheti* | | 0 | 1 | 0 |  |
| Myrmicinae | *Solenopsis virulens* (Smith) | | 10 | 24 | 0 |  |
| Myrmicinae | *Solenopsis* sp.1 | | 0 | 0 | P |  |
| Myrmicinae | *Solenopsis* sp.6 | | 1 | 0 | 0 |  |
| Myrmicinae | *Solenopsis* sp.8 | | 9 | 11 | 0 |  |
| Myrmicinae | *Solenopsis* sp.11 | | 3 | 1 | 0 |  |
| Myrmicinae | *Solenopsis* sp.12 | | 8 | 7 | 0 |  |
| Myrmicinae | *Solenopsis* sp.13 | | 2 | 8 | 0 |  |
| Myrmicinae | *Solenopsis* sp.15 | | 7 | 19 | 0 |  |
| Myrmicinae | *Solenopsis* sp.16 | | 32 | 26 | 0 |  |
| Myrmicinae | *Solenopsis* sp.18 | | 1 | 0 | 0 |  |
| Myrmicinae | *Solenopsis* sp.28 | | 38 | 29 | 0 |  |
| Dolichoderinae | *Tapinoma melanocephalum* (Fabricius) | | 2 | 0 | 0 |  |
| Myrmicinae | *Wasmannia auropunctata* (Roger) | | 0 | 3 | 0 |  |
|  | **TOTAL:** | | 389 | 417 | / |  |
|  | **Number of species:** | | 62 | 68 | 4 |  |
|  |  | |  |  |  |  |
| **Functional group: non-leaf-cutting, fungus-growing ants** | | | | |  |  |
| Subfamily | Species | | Control | Around the cave | In the cave |  |
| Myrmicinae | *Apterostigma auriculatum* Wheeler | | 0 | 0 | P |  |
| Myrmicinae | *Apterostigma jubatum* Wheeler | | 0 | 1 | 0 |  |
| Myrmicinae | *Apterostigma* complex *Pilosum* sp.1 | | 0 | 2 | 0 |  |
| Myrmicinae | *Apterostigma* complex *Pilosum* sp.2 | | 4 | 4 |  |  |
| Myrmicinae | *Apterostigma* complex *Pilosum* sp.3 | | 7 | 6 | P |  |
| Myrmicinae | *Cyphomyrmex flavidus* Pergande | | 1 | 5 | 0 |  |
| Myrmicinae | *Cyphomyrmex peltatus* Kempf | | 9 | 22 | 0 |  |
| Myrmicinae | *Cyphomyrmex transversus* Emery | | 0 | 1 | 0 |  |
| Myrmicinae | *Mycocepurus smithi* (Forel) | | 0 | 1 | 0 |  |
| Myrmicinae | *Myrmicocrypta* sp.7 | | 0 | 2 | 0 |  |
| Myrmicinae | *Ochetomyrmex neopolitus* Fernández | | 4 | 0 | 0 |  |
| Myrmicinae | *Ochetomyrmex semipolitus* Mayr | | 1 | 1 | 0 |  |
| Myrmicinae | *Sericomyrmex* sp.1 | | 1 | 0 | 0 |  |
| Myrmicinae | *Sericomyrmex* sp.2 | | 0 | 3 | 0 |  |
| Myrmicinae | *Trachymyrmex cornetzi* (Forel) | | 3 | 2 | 0 |  |
| Myrmicinae | *Trachymyrmex mandibularis* Weber | | 0 | 1 | 0 |  |
|  | **TOTAL:** | | 30 | 51 | / |  |
|  | **Number of species:** | | 8 | 13 | 2 |  |
|  |  | |  |  |  |  |
| **Functional group: predators** | | |  |  |  | Details |
| Subfamily | Species | | Control | Around the cave | In the cave |  |
| Dorylinae | *Acanthostichus kirbyi* Emery | | 0 | 0 | P | Likely prey on other ants |
| [Dorylinae](http://en.wikipedia.org/wiki/Dorylinae) | *Eciton drepanophorum* Smith | | 8 | 0 | 0 | Army ant |
| Dorylinae | *Labidus coecus* (Latreille) | | 1 | 0 | 0 | Army ant |
| Ponerinae | *Anochetus emarginatus*(Fabricius) | | 1 | 2 | 0 | Prey mostly on termites |
| Ponerinae | *Anochetus horridus* Kempf | | 12 | 16 | P | of the genus *Nasutitermes* |
| Ponerinae | *Anochetus inermis* André | | 15 | 9 | 0 | — |
| Ponerinae | *Anochetus neglectus* Emery | | 8 | 16 | 0 | — |
| [Proceratiinae](http://en.wikipedia.org/wiki/Proceratiinae) | *Discothyrea denticulata* Weber | | 2 | 8 | 0 | Prey on arthropod eggs, |
| [Proceratiinae](http://en.wikipedia.org/wiki/Proceratiinae) | *Discothyrea sexarticulata* Borgmeier | | 0 | 1 | 0 | mostly on spider eggs |
| Ectatomminae | *Ectatomma edentatum* Roger | | 6 | 3 | 0 | Generalist predators, can |
| Ectatomminae | *Ectatomma lugens* Emery | | 1 | 6 | 0 | feed on nectar |
| Ectatomminae | *Ectatomma tuberculatum* (Olivier) | | 0 | 1 | 0 | — |
| Formicinae | *Gigantiops destructor* (Fabricius) | | 0 | 1 | P | — |
| Ectatomminae | *Gnamptogenys acuminata* (Emery) | | 2 | 0 | 0 | Generalist predators |
| Ectatomminae | *Gnamptogenys continua* (Mayr) | | 1 | 1 | 0 | prey mostly on termites |
| Ectatomminae | *Gnamptogenys horni* (Santschi) | | 4 | 8 | 0 | — |
| Ectatomminae | *Gnamptogenys moelleri* (Forel) | | 3 | 0 | 0 | — |
| Ectatomminae | *Gnamptogenys pleurodon* (Emery) | | 3 | 4 | 0 | — |
| Ectatomminae | *Gnamptogenys relicta* (Mann) | | 2 | 1 | 0 | — |
| Ectatomminae | *Gnamptogenys sulcata* (Smith) | | 1 | 0 | 0 | — |
| Ectatomminae | *Gnamptogenys tortuolosa* (Smith) | | 1 | 0 | 0 | — |
| Ponerinae | *Hypoponera* sp.1 | | 14 | 17 | 0 | — |
| Ponerinae | *Hypoponera* sp.2 | | 8 | 22 | 0 | — |
| Ponerinae | *Hypoponera* sp.4 | | 3 | 2 | 0 | — |
| Ponerinae | *Hypoponera* sp.5 | | 2 | 2 | 0 | — |
| Ponerinae | *Hypoponera* group *Foreli* sp.6 | | 2 | 1 | 0 | — |
| Ponerinae | *Hypoponera* sp.9 | | 4 | 0 | 0 | — |
| Ponerinae | *Hypoponera* sp.10 | | 16 | 0 | 0 | — |
| Ponerinae | *Hypoponera* sp.13 | | 10 | 18 | 0 | — |
| Ponerinae | *Leptogenys dasygyna* Wheeler | | 0 | 1 | 0 | Prey on Isopods |
| Ponerinae | *Leptogenys* sp.3 | | 0 | 1 | 0 | — |
| Ponerinae | *Leptogenys* sp.5 | | 2 | 0 | 0 | — |
| Ponerinae | *Leptogenys* sp.7 | | 0 | 1 | 0 | — |
| Ponerinae | *Mayaponera constricta (Mayr)* | | 4 | 5 | P | Generalist predators, which |
| Ponerinae | *Neoponera procidua* (Emery) | | 1 | 0 | 0 | prey mostly on termites |
| Ponerinae | *Neoponera* cf *apicalis* | | 0 | 2 | 0 | Can feed on nectar |
| Myrmicinae | *Octostruma balzani* (Emery) | | 4 | 12 | 0 |  |
| Myrmicinae | *Octostruma betschi* Perrault | | 1 | 6 | 0 |  |
| Myrmicinae | *Octostruma emeryi* (Forel) | | 2 | 7 | 0 | Generalist predators, which |
| Ponerinae | *Odontomachus biumbonatus* Brown | | 2 | 0 | 0 | prey mostly on termites |
| Ponerinae | *Odontomachus brunneus* (Patton) | | 1 | 0 | 0 | — |
| Ponerinae | *Odontomachus haematodus* (Linnaeus) | | 4 | 4 | P | — |
| Ponerinae | *Odontomachus meinerti* Forel | | 13 | 12 | 0 | — |
| Ponerinae | *Odontomachus scalptus* Brown | | 1 | 6 | 0 | — |
| Ponerinae | *Pachycondyla harpax* (Fabricius) | | 0 | 1 | 0 | — |
| Ponerinae | *Pachycondyla impressa* (Roger) | | 0 | 0 | P | — |
| Ponerinae | *Pachycondyla striata* Smith | | 1 | 1 | 0 | — |
| Amblyoponae | *Prionopelta* sp.1 | | 1 | 0 | 0 | Specialized predators, |
| Amblyoponae | *Prionopelta* sp.4 | | 1 | 1 | 0 | prey on myriapods |
| Ponerinae | *Pseudoponera gilberti* (Kempf) | | 0 | 0 | P | Generalist predators |
| Ponerinae | *Pseudoponera stigma* (Fabricius) | | 4 | 5 | 0 | prey mostly on termites |
| Ponerinae | *Simopelta pergandei* (Forel) | | 3 | 11 | 0 | — |
| Myrmicinae | *Strumigenys auctidens* (Bolton) | | 10 | 7 | 0 | Specialized predators |
| Myrmicinae | *Strumigenys beebei* (Wheeler) | | 0 | 1 | 0 | prey on Collembollans |
| Myrmicinae | *Strumigenys denticulata* (Mayr) | | 34 | 42 | 0 | — |
| Myrmicinae | *Strumigenys dyseides* Bolton | | 0 | 1 | 0 | — |
| Myrmicinae | *Strumigenys elongata* Roger | | 6 | 14 | 0 | — |
| Myrmicinae | *Strumigenys hadrodens* (Bolton) | | 1 | 0 | 0 | — |
| Myrmicinae | *Strumigenys hyphata* (Brown) | | 1 | 0 | 0 | — |
| Myrmicinae | *Strumigenys inusitata* (Lattke) | | 1 | 0 | 0 | — |
| Myrmicinae | *Strumigenys perparva* Brown | | 15 | 18 | 0 | — |
| Myrmicinae | *Strumigenys subedentata* Mayr | | 7 | 10 | 0 | — |
| Myrmicinae | *Strumigenys trinidadensis* Wheeler | | 2 | 0 | 0 | — |
| Myrmicinae | *Strumigenys trudifera* Kempf & Brown | | 3 | 0 | 0 | — |
| Myrmicinae | *Strumigenys zeteki* (Brown) | | 1 | 0 | 0 | — |
| Agroecomyrmecinae | *Tatuidris tatusia* | | 0 | 1 | 0 | Unknown specialization |
|  | | **TOTAL:** | 256 | 309 | / |  |
|  | **Number of species** | | 52 | 44 | 7 |  |
| **Proxy of the number of ant colonies (TOTAL)** | | | 684 | 779 | / | **(181 ant species in total)** |

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Appendix S2. Results of the Generalized linear models with Poisson error distribution on the number of species per functional group with *Cave* as a dummy predictor (parameter estimates and standard errors, Wald Z statistics, P values).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Functional group | Estimate | SE | Z value | P |
| *Nectar and honeydew feeders* | |  |  |  |
| Intercept | -1.80 | 0.35 | -5.17 | \*\*\* |
| Cave | -2.10 | 1.05 | -1.99 | \* |
| *Predators* |  |  |  |  |
| Intercept | 1.63 | 0.06 | 26.13 | \*\*\* |
| Cave | 0.19 | 0.08 | 2.23 | \* |
| *Fungus-growers* |  |  |  |  |
| Intercept | -0.51 | 0.18 | -2.79 | \*\* |
| Cave | 0.53 | 0.23 | 2.31 | \* |
| *Generalists* |  |  |  |  |
| Intercept | 2.05 | 0.05 | 40.36 | \*\*\* |
| Cave | 0.07 | 0.07 | 0.99 | ns |