

27 Appendix 2: Matrices analyzed in this study.

28 Faria 1996

| | Solanum_granulosoleprosum 10 | Piper_sp20 | Ficus_luschmathiana 11 | Polpa_sp12 | Ficus_enormis 13 | Polpa_sp24 | Ficus_sp15 | Ficus_inspida 16 | Cecropia_holloleuca 17 | Cecropia_pachystachya 18 | Ficus_sp29 | Piper_amalago 20 | Piper_arboreum 21 | Maclura_tinctoria 22 | Muntingia_calabura 23 | Solanum_aequale 24 |
|--------------------------|------------------------------|------------|------------------------|------------|------------------|------------|------------|------------------|------------------------|--------------------------|------------|------------------|-------------------|----------------------|-----------------------|--------------------|
| 1 Artibeus_lituratus | 17 | 1 | 9 | 4 | 4 | 9 | 5 | 5 | 5 | 3 | 4 | 0 | 1 | 0 | 0 | 0 |
| 2 Sturnira_lilium | 22 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 2 |
| 3 Carollia_perspicillata | 7 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 |
| 4 Platyrhinus_lineatus | 1 | 0 | 1 | 1 | 3 | 0 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 Pygoderma_bilabiatum | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 6 Chiroderma_doriae | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 Glossophaga_soricina | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 8 Phyllostomus_discolor | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| | Cecropia_glaziovii_7 | Solanaceae_sp4_8 | Piper_sp_9 | Psidium_sp1_10 | Psidium_sp2_11 | Piper_aduncum_12 | Carica_papaya_13 | Ficus_sp1_14 | Ficus_sp2_15 | Ficus_sp3_16 | Miconia_sp_17 | Solanaceae_sp1_18 | Solanaceae_sp2_19 | Solanaceae_sp3_20 |
|---|-------------------------|------------------|------------|----------------|----------------|------------------|------------------|--------------|--------------|--------------|---------------|-------------------|-------------------|-------------------|
| 1 | Carollia_perspicillata | 4 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 2 | Artibeus_lituratus | 2 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 3 | Sturnira_lilium | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 4 | Vampyressa_pussila | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | Glossophaga_soricina | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | Plathyrrhinus_recifinus | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | |
|----|-------------------------------|------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------------|-------------------------|------------------------------|--------------------|------------------|--------------------|---------------------|--------------------------------|------------------------|------------------------|---------------------|------------------------------|-------------------------|--------------------|--------------------|----------------------------|----------------------|-----------------------------|--------------------------|----------------------|----------|-------------------|---|
| | <i>Vismia_angusta</i> 2 | <i>Piper_aduncum</i> 3 | <i>Cecropia_ficifolia</i> 4 | <i>Cecropia_distachya</i> 5 | <i>Vismia_macrophylla</i> 6 | <i>Cecropia_membranacea</i> 7 | <i>Piper_arboreum</i> 8 | <i>Solanum_lanceolatum</i> 9 | <i>Ficus_sp2</i> 0 | <i>Araceae</i> 1 | <i>Piper_sp2</i> 2 | <i>Guttiferae</i> 1 | <i>Cecropia_sciadophylla</i> 4 | <i>Amaranthaceae</i> 1 | <i>Anthurium_sp1</i> 6 | <i>Piperaceae</i> 1 | <i>Pothomorphe_peitata</i> 8 | <i>Passifloraceae</i> 1 | <i>Ficus_sp3</i> 0 | <i>Ficus_sp1</i> 3 | <i>Gurania_acuminata</i> 2 | <i>Piper_sp1.3</i> 3 | <i>Solanum_jamaicense</i> 4 | <i>Philodendron_sp</i> 5 | <i>Piperaceae2</i> 6 | unknown1 | <i>Vismia_sp8</i> | |
| 1 | <i>Carollia_perspicillata</i> | 152 | 127 | 29 | 4 | 35 | 2 | 17 | 13 | 3 | 4 | 9 | 1 | 2 | 9 | 3 | 2 | 1 | 4 | 0 | 1 | 0 | 1 | 1 | 1 | 2 | 0 | 1 |
| 2 | <i>Carollia_brevicauda</i> | 80 | 51 | 17 | 2 | 11 | 1 | 8 | 4 | 2 | 9 | 5 | 0 | 0 | 1 | 2 | 4 | 6 | 2 | 0 | 0 | 1 | 2 | 1 | 2 | 1 | 0 | 1 |
| 3 | <i>Phyllostomus_hastatus</i> | 1 | 3 | 5 | 49 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 4 | <i>Carollia_castanea</i> | 9 | 18 | 1 | 0 | 3 | 1 | 6 | 1 | 2 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | <i>Artibeus_lituratus</i> | 2 | 1 | 18 | 6 | 1 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | <i>Rhinophylla_pumilio</i> | 13 | 0 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | <i>Artibeus_jamaicensis</i> | 3 | 1 | 12 | 2 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | <i>Artibeus_obscurus</i> | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | <i>Uroderma_bilobatum</i> | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | <i>Artibeus_gnomus</i> | 3 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | <i>Sturnira_lilium</i> | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |

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| | | Solanum_erianthum ⁸ | Piper_crassinervium ⁹ | Ficus_retusa ¹⁰ | Cecropia_sp ¹¹ | unidentified ¹² | Ficus_benjamina ¹³ | Piper_gaudichaudianum ¹⁴ | Piper_amalago ¹⁵ | Eriobotrya_japonica ¹⁶ | Mangifera_indica ¹⁷ | Piper_sp ¹⁸ | Muntingia_calabura ¹⁹ | Solanum_paniculatum ²⁰ |
|---|-------------------------------|--------------------------------|----------------------------------|----------------------------|---------------------------|----------------------------|-------------------------------|-------------------------------------|-----------------------------|-----------------------------------|--------------------------------|------------------------|----------------------------------|-----------------------------------|
| 1 | <i>Sturnira_lilium</i> | 39 | 9 | 0 | 1 | 3 | 0 | 1 | 3 | 1 | 0 | 2 | 0 | 1 |
| 2 | <i>Artibeus_lituratus</i> | 2 | 0 | 2 | 7 | 3 | 3 | 0 | 0 | 1 | 2 | 0 | 0 | 0 |
| 3 | <i>Carollia_perspicillata</i> | 0 | 12 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | <i>Platyrrhinus_lineatus</i> | 2 | 1 | 8 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 5 | <i>Glossophaga_soricina</i> | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | <i>Chiroderma_doriae</i> | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | <i>Pygoderma_bilabiatum</i> | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| | Piper_sancti-felcis | Piper_auritum | Piper_multiplinervium | Vismia_panamensis | Cecropia_obtusifolia | Solanum_rugosum | Ficus_cahultensis | Piper_glabratum | Piper_colonense | Piper_friedrichsthali | Philodendron_sp | Ficus_insipida | Markea_neuratha | Piper_trigonum | Piper_sp3 | Cecropia_insignis | Piper_augustum | Senna_frutcosa | Piper_reticulatum | Piper_sp2 | Solanum_arboreum | Ficus_popenoei | Ficus_nymphaeifolia | Piper_aduncum | Piper_sp1 | Hemandia_didymantha | Anthurium_sp | Passiflora_sp | Pothomorphe_peltata | Annona_sp. | Ficus_pertusa | Piper_hispidium | Piper_sp4 | Piper_sp5 | Clarisia_mexicana | | | |
|----|--------------------------|---------------|-----------------------|-------------------|----------------------|-----------------|-------------------|-----------------|-----------------|-----------------------|-----------------|----------------|-----------------|----------------|-----------|-------------------|----------------|----------------|-------------------|-----------|------------------|----------------|---------------------|---------------|-----------|---------------------|--------------|---------------|---------------------|------------|---------------|-----------------|-----------|-----------|-------------------|---|---|---|
| 1 | Carollia_castanea | 69 | 2 | 64 | 4 | 0 | 7 | 0 | 29 | 12 | 17 | 2 | 0 | 0 | 9 | 5 | 0 | 1 | 1 | 3 | 3 | 2 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 2 | Carollia_sowellii | 43 | 58 | 21 | 25 | 0 | 19 | 0 | 7 | 13 | 2 | 14 | 0 | 5 | 5 | 2 | 0 | 5 | 1 | 0 | 3 | 2 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 3 | Carollia_perspicillata | 17 | 29 | 33 | 21 | 0 | 15 | 0 | 6 | 2 | 9 | 3 | 0 | 2 | 0 | 1 | 0 | 1 | 5 | 3 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |
| 4 | Artibeus_jamaicensis | 1 | 1 | 0 | 5 | 23 | 1 | 32 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5 | Dermanura_sp | 14 | 19 | 1 | 2 | 16 | 1 | 1 | 5 | 6 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | |
| 6 | Glossophaga_commissarisi | 2 | 14 | 0 | 25 | 1 | 1 | 0 | 2 | 1 | 1 | 1 | 0 | 5 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7 | Vampyressa_nymphaea | 1 | 0 | 0 | 0 | 5 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 8 | Vampyrops_helleri | 0 | 0 | 0 | 0 | 10 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9 | Artibeus_lituratus | 0 | 1 | 0 | 4 | 4 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 10 | Chiroderma_villosum | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 11 | Uroderma_bilobatum | 1 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 12 | Hylonycteris_underwoodi | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 13 | Phylloderma_stenops | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | | | |
| 14 | Vampyressa_pusilla | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

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| | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---|----------------------------|-----------|---------------------|----------|-----------------|-------------------|--------------------|---------------------|---------------|---------------------|----------------------|-----------------------|-------------------------|----------|----------------------|-------------------|------------------|------------|----------------------------|--------------|--------------------|------------------|---------------------|-------------------|
| | Solanum_sanctae-katharinae | Vismia_sp | Solanum_swartzianum | Ficus_sp | Piper_dilatatum | Polpa_sem_semente | Cecropia_glaziovii | Ficus_luschnathiana | Piper_aduncum | Vassobia_breviflora | Solanum_subsyvestris | Cecropia_pachystachya | Familias_indeterminadas | Piper_sp | Solanum_megalochiton | Solanum_rufescens | Solanum_scuticum | Solanum_sp | Philodendron_apendiculatum | Aureliana_sp | Rubus_brasiliensis | Solanum_paraense | Solanum_cinnamomeum | Solanum_variabile |
| 1 | Sturnira_lilium | 15 | 8 | 11 | 1 | 4 | 2 | 1 | 1 | 0 | 1 | 3 | 2 | 0 | 1 | 3 | 3 | 3 | 0 | 1 | 1 | 0 | 1 | 1 |
| 2 | Artibeus_fimbriatus | 1 | 4 | 1 | 5 | 1 | 1 | 3 | 3 | 0 | 4 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | Carollia_perspicillata | 1 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 5 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| 4 | Artibeus_lituratus | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | Sturnira_tildae | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | Artibeus_jamaicensis | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | Pygoderma_bilabiatum | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| | | Piper_amalago 8 | Cecropia_pachystachya 9 | unidentified1 10 | Piper_gaudichaudianum 11 | Ficus_sp12 | Semente_não_identificada13 | Piper_arboreum 14 | Solanum_sp3 15 | Piper_sp 16 | Solanum_inaequale 17 | Copaifera_langsdorffii 18 | Solanum_paniculatum 19 | Miconia_albicans 20 |
|---|-----------------------|-----------------|-------------------------|------------------|--------------------------|------------|----------------------------|-------------------|----------------|-------------|----------------------|---------------------------|------------------------|---------------------|
| 1 | Carollia_perspiciatta | 24 | 1 | 7 | 11 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 0 |
| 2 | Sturnira_lilium | 5 | 1 | 6 | 1 | 1 | 4 | 2 | 4 | 1 | 2 | 2 | 2 | 0 |
| 3 | Vampyrops_lineatus | 0 | 14 | 0 | 0 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | Artibeus_planirostris | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | Glossophaga_soricina | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6 | Artibeus_lituratus | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | Chiroderma_doriae | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Cecropia_pachystachya 7 | Solanum_sp 8 | Ficus_sp 9 | Ficus_guarantica 10 | Piper_aduncum 11 | Familias_indeterminadas 12 | Photomorpha_umbellata 13 |
|--------------------------|-------------------------|--------------|------------|---------------------|------------------|----------------------------|--------------------------|
| 1 Artibeus_lituratus | 25 | 36 | 2 | 4 | 2 | 2 | 0 |
| 2 Carollia_perspicillata | 2 | 25 | 1 | 0 | 11 | 0 | 3 |
| 3 Platyrhinus_lineatus | 5 | 19 | 1 | 4 | 0 | 0 | 0 |
| 4 Sturnira_lilium | 3 | 30 | 0 | 1 | 2 | 0 | 0 |
| 5 Glossophaga_soricina | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 6 Vampyressa_cf._pusilla | 0 | 0 | 1 | 0 | 0 | 0 | 0 |