**Table 1.** Functional traits description for fruit-feeding butterflies. C – continuous traits, B – binary traits.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Trait name | Type | Measure | Description | References |
| FWL | Forewing length (mm) | C | Forewing base to apex | Used as proxy for body size and related with dispersion capacity | Chai and Srygley 1990, Sekar 2012 |
| TM:TDM | Thorax mass to total body mass ratio | C | Ratio between thorax mass and total body mass | Proportion that represent the investment in thorax mass; related with flight capacity due that thorax allocates the flight muscles | Chai and Srygley 1990 |
| AM:TDM | Abdomen mass to total body mass ratio | C | Ratio between abdomen mass and total body mass | Proportion that represent the investment in abdomen mass; related with investment in reproductive tissues | Srygley and Chai 1990 |
| FEA | Functional eye area (mm²) | C | Set of linear eye measurements | Represent the functional visual field; associated with habitat perception | Rutowski 2000, Turlure et al. 2016 |
| WL | Wing loading (N/m²) | C | Amount of body mass sustained by wing area unit | Related with flight speed and agility and can be associated with adaptative response to environmental gradients | Chai and Srygley 1990, Berwaerts et al. 2002, Turlure et al. 2016 |
| AR | Aspect Ratio | C | Ratio between forewing span squared to forewing area | Express the wing shape; related with flight speed and agility | Chai and Srygley 1990, Berwaerts et al. 2002 |
| FS | Food specialization | C | Amount of host plants used by immature stages | Express the food habit; lower values represents specialists and higher values represents more generalists species. | Graça et al. 2017 |
| Iridescence | Wing Iridescence | B | Presence or absence of iridescence coloration | Related with intra and interspecific visual recognition | Pinheiro et al. 2016, Spaniol et al. 2019 |
| Eyespots | Wing Eyespot | B | Presence or absence of wing eyespots | Related with defense strategies to avoid or deflect attacks of visually hunting predators | Stevens 2005, Olofsson et al. 2010 |
| Rings | Mimetic Ring | B | Member or not of mimetic rings complex | Indicate if species are member of mimetic rings; related with Mullerian, Batesian or scape mimetic rings | Su et al. 2015, Spaniol et al. 2019 |
| Cryptic | Cryptic Coloration | B | Colorations that resemble to background | Related with capacity to avoid predators | Ruxton et al. 2004 |
| Masquerade | Masquerade Camouflage | B | Colors and shapes that resemble to environmental structures | Related with capacity to avoid predators | Skelhorn et al. 2010 |
| Disruptive | Disruptive Coloration | B | Conspicuous colorations in wing's periphery that disguises the body outline of the animal | Related with capacity to avoid predators, by preventing prey recognition | Schaefer and Stobbe 2006 |

**Table 2.** Relationship between detection probability and functional traits performed based on phylogenetic independent contrasts (PICs) for the fruit-feeding butterflies in each stratum of a subtropical Atlantic forest. Bolded values representing p-values lower than 0.05.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Canopy | | | |  | Understory | | | |
|  | Estimate | SE | t value | p |  | Estimate | SE | t value | p |
| Intercept | 0.0004 | 0.0006 | 0.6480 | 0.5230 |  | -0.0031 | 0.0041 | -0.7430 | 0.4642 |
| FWL | -0.0001 | 0.0004 | -0.3370 | 0.7390 |  | 0.0030 | 0.0027 | 1.1020 | 0.2809 |
| TM | 0.0546 | 0.0307 | 1.7750 | 0.0880 |  | 0.2282 | 0.2024 | 1.1280 | 0.2702 |
| AM | 0.0144 | 0.0326 | 0.4410 | 0.6630 |  | 0.4826 | 0.2147 | 2.2480 | **0.0337** |
| WL | 0.0019 | 0.0109 | 0.1740 | 0.8630 |  | -0.0206 | 0.0717 | -0.2880 | 0.7760 |
| AR | 0.0153 | 0.0068 | 2.2570 | **0.0330** |  | 0.0015 | 0.0446 | 0.0350 | 0.9726 |
| Host | -0.0004 | 0.0003 | -1.3460 | 0.1900 |  | -0.0022 | 0.0019 | -1.1510 | 0.2606 |
| Eyespots | -0.0116 | 0.0072 | -1.6220 | 0.1170 |  | -0.0171 | 0.0471 | -0.3630 | 0.7196 |
| Cryptic | 0.0138 | 0.0103 | 1.3420 | 0.1920 |  | 0.0415 | 0.0677 | 0.6140 | 0.5450 |