SUPPLEMENTARY TABLE 1. GenBank accession numbers.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SPECIES** | **CODE** | **12SrRNA** | **16SrRNA** | **18SrRNA** | **28SrRNA** | **COI** | **COII** | **Histone 2A** | **Histone 3** | **ND4** | **Wingless** |
| *Acanthops falcata* | MN112 | EF383218 | EF383378 | EF383538 | EF383701 | EF383861 | EF383988 | KU507727 | EF384117 | FJ802526 | FJ803015 |
| *Acontista gracilis* | MN511 | KU320198 | KU320301 | KU320383 | KU320487 | KU507634 | KU528767 | NA | KU507830 | KU507934 | NA |
| *Acontista cordillerae* | MN510 | KU320197 | KU320300 | KU320382 | KU320486 | KU507633 | KU528766 | KU507728 | KU507829 | KU507933 | KU508032 |
| *Amorphoscelis annulicornis* | MN061 | EF383184 | EF383344 | EF383504 | EF383664 | EF383828 | EF383954 | NA | EF384083 | FJ802476 | FJ802977 |
| *Amorphoscelis austrogermanica* | MN176 | FJ806043 | FJ806219 | FJ806407 | FJ806609 | FJ802821 | FJ806934 | NA | FJ806770 | FJ802582 | FJ803058 |
| *Amorphoscelis borneana* | MN318 | FJ806111 | FJ806289 | FJ806485 | FJ806687 | FJ802888 | FJ807005 | NA | FJ806845 | FJ802712 | FJ803154 |
| *Amorphoscelis singaporana* | MN081 | FJ806004 | FJ806179 | FJ806366 | FJ806565 | FJ802783 | FJ806893 | NA | FJ806730 | FJ802496 | FJ802992 |
| *Amorphoscelis sp.* | MN240 | FJ806064 | FJ806240 | FJ806429 | FJ806629 | FJ806954 | FJ806954 | NA | FJ806791 | FJ802639 | FJ803095 |
| *Amorphoscelis sp.* | MN317 | FJ806110 | FJ806288 | FJ806484 | FJ806686 | FJ802887 | FJ807004 | NA | FJ806844 | FJ802711 | FJ803153 |
| *Amorphoscelis sp.* | MN327 | FJ806119 | FJ806298 | FJ806494 | FJ806696 | NA | FJ807014 | NA | FJ806853 | FJ802721 | FJ803159 |
| *Amorphoscelis sp.* | MN337 | FJ806126 | FJ806308 | FJ806504 | FJ806707 | FJ802906 | FJ807024 | NA | FJ806861 | FJ802731 | FJ803165 |
| *Anasigerpes bifasciata* | MN241 | EF383287 | EF383445 | EF383606 | EF383772 | EF383926 | EF384056 | KR360649 | EF384183 | FJ802640 | FJ803096 |
| *Angela sp.* | MN353 | KU557266 | KU557271 | KU557275 | KU557280 | KU557247 | NA | KU507729 | KU557258 | KU557254 | NA |
| *Angela sp.* | MN355 | KU557267 | KU557272 | KU557276 | KU557281 | NA | NA | KU507730 | KU557259 | NA | NA |
| *Archimantis sobrina* | MN012 | EF383158 | EF383318 | EF383478 | EF383640 | EF383802 | AY491278 | NA | AY491336 | FJ802427 | FJ802932 |
| *Archimantis latistylus* |  | NA | NA | AF220578 | NA | NA | NA | NA | NA | NA | NA |
| *Blatta orientalis* | BL097 | NA | FJ806140 | FJ806323 | FJ806520/1 | FJ802746 | FJ806875 | NA | NA | FJ802410 | FJ802919 |
| *Chlidonoptera vexillum* | MN390 | NA | KR360507 | KR360540 | KR360577 | KR360608 | NA | NA | NA | NA | KR360712 |
| *Chloroharpax modesta* | MN234 | EF383281 | EF383439 | EF383600 | EF383766 | EF383920 | EF384050 | NA | EF384177 | FJ802633 | FJ803089 |
| *Chrysomantis cachani* | MN225 | EF383274 | EF383432 | EF383593 | EF383759 | EF383913 | EF384044 | KR360647 | EF384170 | FJ802624 | FJ803080 |
| *Chrysomantis speciosa* | MN467 | KR360490 | KR360522 | KR360557 | KR360590 | KR360616 | NA | NA | KR360682 | NA | NA |
| *Ciulfina biseriata* | MN036 | FJ805989 | FJ806165 | NA | NA | FJ802768 | AY491302 | NA | FJ806723 | FJ802451 | FJ802956 |
| *Cryptocercus kyebangensis* | BL115 | FJ805967 | FJ806141 | FJ806324 | FJ806522 | NA | FJ806876 | NA | NA | FJ802411 | NA |
| *Danuria (Danuria) thunbergi* | MN277 | EF383305 | EF383464 | EF383624 | EF383791 | EF383945 | EF384076 | NA | EF384199 | FJ802672 | FJ803121 |
| *Deroplatys desiccata* | MN348 | FJ806136 | FJ806319 | FJ806515 | FJ806719 | FJ802917 | FJ807034 | NA | FJ806871 | FJ802742 | NA |
| *Deroplatys rhombica* | MN347 | FJ806135 | FJ806318 | FJ806514 | FJ806718 | FJ802916 | FJ807033 | NA | FJ806870 | FJ802741 | FJ803174 |
| *Deroplatys sp* | MN168 | EF383243 | EF383402 | EF383563 | EF383729 | EF383884 | EF384013 | NA | EF384141 | FJ802576 | FJ803053 |
| *Deroplatys truncata* | MN349 | FJ806137 | FJ806320 | FJ806516 | FJ806720 | FJ802918 | FJ807035 | NA | FJ806872 | FJ802743 | NA |
| *Empusa guttula* | MN132 | EF383226 | EF383386 | EF383546 | EF383709 | EF383869 | EF383996 | NA | EF384125 | FJ802545 | FJ803029 |
| *Empusa sp.* | MN131 | FJ806027 | FJ806202 | FJ806389 | FJ806588 | FJ802806 | FJ806916 | NA | FJ806752 | FJ802544 | FJ803028 |
| *Eremiaphila rotundipennis* | MN064 | EF383187 | EF383347 | EF383507 | EF383668 | EF383830 | EF383957 | NA | EF384086 | FJ802479 | NA |
| *Eremiaphila sp.* | MN192 | FJ806052 | FJ806228 | FJ806416 | FJ806618 | FJ802830 | FJ806943 | NA | FJ806779 | FJ802597 | NA |
| *Gyna capucina* | BL048 | FJ805966 | FJ806138 | FJ806321 | FJ806517 | FJ802744 | FJ806873 | NA | NA | FJ802408 | NA |
| *Gyromantis occidentalis* | MN056 | EF383180 | EF383340 | EF383500 | EF383660 | EF383824 | AY491321 | NA | AY491377 | FJ802471 | FJ802974 |
| *Gyromantis sp.* | MN053 | FJ805997 | AY491141 | AY491203 | AY491262 | FJ802776 | AY491318 | NA | AY491375 | FJ802468 | FJ802971 |
| *Hestiasula inermis* | MN199 | EF383257 | EF383416 | EF383576 | EF383742 | FJ802833 | EF384027 | KR360644 | EF384154 | FJ802604 | FJ803067 |
| *Hestiasula phyllopus* | MN340 | NA | FJ806311 | FJ806507 | FJ806710 | FJ802909 | FJ807027 | KR360662 | NA | FJ802734 | FJ803168 |
| *Hestiasula masoni* | MN297 | FJ806097 | FJ806270 | FJ806464 | FJ806665 | NA | FJ806986 | NA | FJ806825 | FJ802692 | FJ803141 |
| *Hierodula schultzei* | MN044 | EF383173 | EF383333 | EF383493 | EF383654 | EF383817 | AY491310 | NA | AY491367 | FJ802459 | FJ802964 |
| *Hoplocorypha sp.* | MN139 | FJ806031 | FJ806206 | FJ806393 | FJ806592 | FJ802810 | FJ806920 | NA | FJ806756 | FJ802552 | FJ803034 |
| *Hoplocorypha sp.* | MN190 | FJ806050 | FJ806226 | FJ806414 | FJ806616 | FJ802828 | FJ806941 | NA | FJ806777 | FJ802595 | NA |
| *Hoplocorypha sp.* | MN035 | FJ805988 | FJ806164 | FJ806351 | FJ806550 | FJ802767 | AY491301 | NA | AY491359 | FJ802450 | FJ802955 |
| *Hoplocorypha sp.* | MN042 | EF383171 | EF383331 | EF383491 | EF383653 | EF383815 | AY491308 | NA | AY491365 | FJ802457 | FJ802962 |
| *Hymenopus coronatus* | MN010 | EF383156 | EF383316 | EF383476 | EF383638 | EF383800 | AY491276 | KR360626 | AY491334 | FJ802425 | FJ802930 |
| *Idolomantis diabolica* | MN193 | EF383253 | EF383412 | EF383572 | EF383738 | EF383894 | EF384023 | KR360643 | EF384150 | FJ802598 | FJ803061 |
| *Idolomorpha dentifrons* | MN175 | EF383246 | EF383405 | EF383565 | EF383731 | EF383887 | EF384016 | KR360642 | EF384143 | FJ802581 | FJ803057 |
| *Leptocola stanleyana* | MN284 | FJ806084 | FJ806259 | FJ806450 | FJ806648 | FJ802859 | FJ806973 | NA | FJ806812 | FJ802679 | FJ803128 |
| *Liturgusa maya* | MN621 | KU320231 | KU320329 | KU320415 | KU320519 | KU507665 | KU528785 | KU507758 | KU507863 | KU507966 | KU508052 |
| *Macromusonia conspersa* | MN126 | FJ806023 | FJ806198 | FJ806385 | FJ806584 | FJ802802 | FJ806912 | KU507762 | FJ806748 | FJ802539 | FJ803023 |
| *Mantis religiosa* | MN001 | EF383151 | EF383311 | EF383471 | EF383633 | EF383796 | AY491270 | NA | AY491327 | FJ802419 | FJ802922 |
| *Mantoida schraderi* | MN009 | EF383155 | EF383315 | EF383475 | EF383637 | EF383799 | AY491275 | NA | AY491333 | FJ802424 | FJ802929 |
| *Mantoida sp.* | MN110 | FJ806015 | FJ806190 | FJ806377 | FJ806576 | FJ802794 | FJ806904 | NA | FJ806740 | FJ802524 | NA |
| *Mastotermes darwiniensis* | IS034 | FJ805971 | FJ806147 | FJ806331 | NA | NA | FJ806882 | NA | NA | FJ802416 | FJ802921 |
| *Miomantis aurea* | MN228 | EF383277 | EF383435 | EF383596 | EF383762 | EF383916 | EF384047 | NA | EF384173 | FJ802627 | FJ803083 |
| *Miomantis paykullii* | MN245 | FJ806065 | FJ806241 | FJ806430 | FJ806630 | FJ802844 | FJ806955 | KR360650 | FJ806792 | FJ802644 | FJ803100 |
| *Miomantis sp.* | MN181 | FJ806045 | FJ806221 | FJ806409 | FJ806611 | FJ802823 | FJ806936 | NA | FJ806772 | FJ802587 | NA |
| *Musonia sp.* | MN721 | KU320253 | NA | KU320437 | KU320539 | KU507686 | NA | KU507785 | KU507884 | KU507987 | KU508070 |
| *Negromantis sp.* | MN408 | NA | MT365003 | NA | MT364933 | NA | NA | NA | NA | MT370485 | MT370484 |
| *Nilomantis edmundsi* | MN244 | EF383290 | EF383448 | EF383609 | EF383775 | EF383929 | EF384059 | NA | EF384186 | FJ802643 | FJ803099 |
| *Orthodera novaezealandiae* | MN007 | EF383153 | EF383313 | EF383473 | EF383635 | EF383798 | EF383949 | NA | EF384078 | FJ802422 | FJ802927 |
| *Orthodera sp.* | MN033 | FJ805987 | FJ806163 | FJ806350 | FJ806549 | FJ802766 | AY491299 | NA | AY491357 | FJ802448 | FJ802953 |
| *Oxyopsis sp.* | MN294 | FJ806094 | FJ806267 | FJ806461 | FJ806660/1 | FJ802868 | FJ806983 | NA | FJ806822 | FJ802689 | FJ803138 |
| *Oxyothespis sp.* | MN283 | FJ806083 | FJ806258 | FJ806449 | FJ806647 | NA | FJ806972 | NA | FJ806811 | FJ802678 | FJ803127 |
| *Oxypiloidea subcornuta* | MN281 | EF383306 | EF383465 | EF383625 | EF383792 | EF383946 | EF384077 | NA | FJ806809 | FJ802676 | FJ803125 |
| *Oxypiloidea tridens* | MN289 | FJ806089 | FJ806262 | FJ806455 | FJ806655 | NA | FJ806978 | KR360625 | FJ806817 | FJ802684 | FJ803133 |
| *Oxypilus (Oxypilus) hamatus* | MN246 | FJ806066 | FJ806242 | FJ806431 | FJ806631 | FJ802845 | FJ806956 | KR360651 | FJ806793 | FJ802645 | FJ803101 |
| *Panurgica compressicollis* | MN232 | FJ806062 | FJ806238 | FJ806427 | FJ806627 | FJ802841 | FJ806952 | NA | FJ806789 | FJ802631 | FJ803087 |
| *Paragalepsus toganus* | MN243 | EF383289 | EF383447 | EF383608 | EF383774 | EF383928 | EF384058 | NA | EF384185 | FJ802642 | FJ803098 |
| *Paraoxypilus tasmaniensis* | MN022 | EF383164 | EF383324 | EF383484 | EF383646 | EF383808 | AY491288 | NA | AY491346 | FJ802437 | FJ802942 |
| *Paraoxypilus verreauxii* | MN008 | EF383154 | EF383314 | EF383474 | EF383636 | FJ802755 | EF383950 | NA | AY491332 | FJ802423 | FJ802928 |
| *Parastagmatoptera sp.* | MN125 | FJ806022 | FJ806197 | FJ806384 | FJ806583 | FJ802801 | FJ806911 | NA | FJ806747 | FJ802538 | FJ803022 |
| *Parastagmatoptera sp.* | MN151 | EF383235 | EF383395 | EF383555 | EF383719 | EF383877 | EF384005 | NA | EF384134 | FJ802561 | FJ803043 |
| *Phyllocrania paradoxa* | MN011 | EF383157 | EF383317 | EF383477 | EF383639 | EF383801 | AY491277 | KR360664 | AY491335 | FJ802426 | FJ802931 |
| *Plistospilota guineensis* | MN236 | EF383283 | EF383441 | EF383602 | EF383768 | EF383922 | EF384052 | NA | EF384179 | FJ802635 | FJ803091 |
| *Polyspilota aeruginosa* | MN248 | FJ806068 | FJ806244 | FJ806433 | FJ806633 | FJ802847 | FJ806958 | NA | FJ806795 | FJ802647 | FJ803102 |
| *Popa spurca* | MN133 | EF383227 | EF383387 | EF383547 | EF383710 | EF383870 | EF383997 | NA | EF384126 | FJ802546 | FJ803030 |
| *Popa spurca* | MN263 | NA | KR478676 | KR478684 | NA | NA | KR478677 | NA | KR478678 | KR478679 | NA |
| *Prohierodula ornatipennis* | MN249 | EF383291 | EF383449 | EF383610 | EF383776 | EF383930 | EF384060 | NA | EF384187 | FJ802648 | FJ803103 |
| *Pseudocreobotra occellata* | MN231 | EF383280 | EF383438 | EF383599 | EF383765 | EF383919 | EF384049 | NA | EF384176 | FJ802630 | FJ803086 |
| *Pseudocreobotra wahlbergii* |  | DQ874091 | NA | DQ874179 | DQ874249 | NA | DQ874319 | NA | DQ874009 | NA | NA |
| *Pseudomantis albofimbriata* | MN314 | NA | FJ806285 | FJ806481 | FJ806683 | FJ802884 | FJ807002 | NA | FJ806841 | FJ802708 | NA |
| *Pseudomiopteryx guyanensis* | MN114 | EF383219 | EF383379 | EF383539 | EF383702 | EF383862 | EF383989 | NA | EF384118 | FJ802528 | FJ803016 |
| *Pseudomiopteryx infuscata* | MN557 | KU320280 | KU320361 | KU320463 | KU320566 | KU507710 | NA | NA | KU507910 | KU508012 | KU508087 |
| *Pyrgomantis jonesi* | MN224 | EF383273 | EF383431 | EF383592 | EF383758 | EF383912 | EF384043 | NA | EF384169 | FJ802623 | NA |
| *Pyrgomantis nasuta* | MN184 | FJ806047 | FJ806223 | FJ806411 | FJ806613 | FJ802825 | FJ806938 | NA | FJ806774 | FJ802590 | NA |
| *Sibylla (Sibyllopsis) operosa* | MN226 | EF383275 | EF383433 | EF383594 | EF383760 | EF383914 | EF384045 | NA | EF384171 | FJ802625 | FJ803081 |
| *Sphodromantis lineola* | MN015 | EF383160 | EF383320 | EF383480 | EF383642 | EF383804 | AY491281 | NA | AY491339 | FJ802430 | FJ802935 |
| *Sphodropoda moesta* | MN275 | EF383303 | EF383462 | EF383622 | EF383789 | EF383943 | EF384074 | NA | EF384198 | FJ802670 | FJ803119 |
| *Stagmatoptera supplicaria* | MN424 | KT732033 | KT732050 | NA | NA | KT732068 | NA | NA | KT732087 | NA | KT732106 |
| *Stagmomantis carolina* | MN023 | EF383165 | EF383325 | EF383485 | EF383647 | EF383809 | AY491289 | NA | AY491347 | FJ802438 | FJ802943 |
| *Stagmomantis limbata* | MN031 | EF383168 | EF383328 | EF383488 | EF383650 | EF383812 | AY491297 | NA | AY491355 | FJ802446 | FJ802951 |
| *Statilia apicalis* | MN048 | FJ805995 | FJ806171 | FJ806357 | FJ806556 | FJ802774 | AY491313 | NA | AY491371 | FJ802463 | FJ802966 |
| *Tarachodes afzelii* | MN158 | FJ806039 | FJ806214 | FJ806403 | FJ806604 | FJ802817 | FJ806929 | NA | FJ806765 | FJ802569 | FJ803047 |
| *Tenodera superstitiosa* | MN523 | GU064678 | NA | NA | NA | NA | GU064753 | NA | GU064793 | NA | GU064834 |
| *Theopompella chopardi* | MN230 | EF383279 | EF383437 | EF383598 | EF383764 | EF383918 | NA | NA | EF384175 | FJ802629 | FJ803085 |
| *Theopropus elegans* | MN094 | FJ806010 | FJ806185 | FJ806372 | FJ806571 | FJ802789 | FJ806899 | KR360637 | FJ806735 | FJ802509 | FJ803003 |
| *Thesprotia graminis* | MN058 | EF383182 | EF383342 | EF383502 | EF383662 | EF383826 | EF383952 | NA | EF384081 | FJ802473 | FJ802975 |
| *Vates pectinacornis* | MN014 | EF383159 | EF383319 | EF383479 | EF383641 | EF383803 | AY491280 | NA | AY491338 | FJ802429 | FJ802934 |

SUPPLEMENTARY TABLE 2. Test to estimate the degree of phylogenetic signal in all categorical displays using the function *fitDiscrete* in *geiger* (Harmon et al., 2008), and significance of the comparison between the observed number of evolutionary transitions for each display trait against a randomisation process of that character across the phylogeny (Bush, 2016). Significance is depicted in bold.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **MODEL** | **LAMBDA** | **LEVELS** | **EVOL. TRANS. OBSERVED** | **EVOL. TRANS. RAND. MEDIAN** | **P-VALUE** |
| **Presence of display** | 1.000 | **2** | **13** | **20** | **0.001** |
| Primary defence - masquerade | 1.000 | 2 | 14 | 16 | 0.133 |
| Primary defence - crypsis | 1.000 | 2 | 14 | 16 | 0.128 |
| **Display complexity** | 0.571 | **5** | **22** | **27** | **0.008** |
| Wings display | 0.000 | 2 | 3 | 3 | 0.999 |
| Arms display | 0.000 | 2 | 2 | 2 | 0.999 |
| Wings colours | 0.877 | 2 | 8 | 10 | 0.102 |
| Arms colours | 0.805 | 2 | 11 | 11 | 0.75 |
| Abdomen colours | 1.000 | 2 | 1 | 1 | 0.999 |
| Sound | 0.000 | 2 | 6 | 7 | 0.443 |
| Mouth display | 0.876 | 2 | 4 | 5 | 0.183 |

SUPPLEMENTARY TABLE 3. Test to estimate the degree of phylogenetic signal with Blomberg's K-statistic method, using *phylosig* in *phytools* (Revell, 2012).

|  |  |  |
| --- | --- | --- |
| **MODEL** | **K** | **P** |
| **Body length - females** | **1.323543** | **0.001** |
| **Body length – males** | **1.286829** | **0.002** |
| **Pronotum length - females** | **1.331385** | **0.003** |
| **Pronotum length - males** | **1.192375** | **0.004** |
| **Forewing length - females** | **1.144354** | **0.001** |
| **Forewing length - males** | **1.717049** | **0.001** |
| **Flight capacity - females** | **0.6954599** | **0.003** |
| **Flight capacity - males** | **0.634797** | **0.011** |
| Flight dimorphism | 0.4886951 | 0.125 |
| Size dimorphism | 0.2772744 | 0.733 |

SUPPLEMENTARY TABLE 4. Test fitting Pagel's (1994 model for the correlated evolution of two binary characters using fitPagel in phytools (Revell, 2012. Significance is depicted in bold.

|  |  |  |
| --- | --- | --- |
| **MODEL** | **LIKELIHOOD-RATIO** | **P-VALUE** |
| Abdomen colours, Arms eyespots | 0.219511 | 0.9944 |
| Abdomen colours, Mouth display | 0.2180776 | 0.9944702 |
| Abdomen colours, Sound | 0.391775 | 0.9831448 |
| Abdomen colours, Wings eyespots | 0.3176322 | 0.9886477 |
| Arms colours, Abdomen colours | 2.376358 | 0.666904 |
| Arms colours, Arms eyespots | 3.974612 | 0.4094526 |
| Arms colours, Mouth display | 5.005355 | 0.2867485 |
| Arms colours, Sound | 4.360147 | 0.359454 |
| Arms colours, Wings eyespots | 6.434942 | 0.168936 |
| Arms display, Abdomen colours | 2.706509 | 0.608076 |
| **Arms display, Arms colours** | **34.24554** | **<0.001** |
| Arms display, Arms eyespots | 8.477025 | 0.07558671 |
| Arms display, Mouth display | 5.847581 | 0.2108238 |
| Arms display, Sound | 7.181145 | 0.1266196 |
| Arms display, Wings eyespots | 8.218222 | 0.08390371 |
| Arms eyespots, Mouth display | 5.717296 | 0.221279 |
| Arms eyespots, Sound | 3.221901 | 0.5214008 |
| Primary defence - masquerade, Abdomen colours | 4.11914 | 0.3901221 |
| Primary defence - masquerade, Arms colours | 0.6852133 | 0.9531398 |
| Primary defence - masquerade, Arms display | 3.986522 | 0.407833 |
| Primary defence - masquerade, Arms eyespots | 1.5455 | 0.8185522 |
| Primary defence - masquerade, Mouth display | 3.595924 | 0.4634435 |
| Primary defence - masquerade, Presence of display | 2.964507 | 0.5637825 |
| Primary defence - masquerade, Sound | 1.463986 | 0.8330011 |
| Primary defence - masquerade, Wings colours | 1.937124 | 0.7473223 |
| Primary defence - masquerade, Wings display | 1.653829 | 0.7990866 |
| Primary defence - masquerade, Wings eyespots | 7.499581 | 0.1117278 |
| Sound, Mouth display | 1.175202 | 0.8821643 |
| Wings colours, Abdomen colours | 0.6882123 | 0.9527746 |
| **Wings colours, Arms colours** | **12.63299** | **0.0132155** |
| Wings colours, Arms eyespots | 0.6135663 | 0.9615443 |
| Wings colours, Mouth display | 8.79911 | 0.06632168 |
| Wings colours, Sound | 2.149751 | 0.7082386 |
| **Wings colours, Wings eyespots** | **15.39729** | **0.00394433** |
| Wings display, Abdomen colours | 3.108292 | 0.5398694 |
| **Wings display, Arms colours** | **20.2977** | **<0.001** |
| **Wings display, Arms display** | **45.55792** | **<0.001** |
| Wings display, Arms eyespots | 3.90966 | 0.41837 |
| Wings display, Mouth display | 5.575033 | 0.2332123 |
| Wings display, Sound | 6.466672 | 0.1669025 |
| **Wings display, Wings colours** | **33.8584** | **<0.001** |
| **Wings display, Wings eyespots** | **10.82166** | **0.02864308** |
| Wings eyespots, Arms eyespots | -1.494116 | 1 |
| Wings eyespots, Mouth display | 4.446358 | 0.3489555 |
| Wings eyespots, Sound | 1.540647 | 0.8194178 |

SUPPLEMENTARY TABLE 5. Phylogenetic ANOVAs using the *phylANOVA* function in *phytools* (Revell, 2012. Significance is depicted in bold.

| **MODEL** | **DF BETWEEN** | **DF TOTAL** | **DF WITHIN** | **F** | **P** |
| --- | --- | --- | --- | --- | --- |
| Abdomen colours ~ Body length - females | 1 | 56 | 55 | 0.336484 | 0.67 |
| Abdomen colours ~ Body length - males | 1 | 57 | 56 | 0.22911 | 0.748 |
| Abdomen colours ~ Size dimorphism | 1 | 57 | 56 | 0.18552 | 0.743 |
| Abdomen colours ~ Evolutionary distinctiveness | 1 | 57 | 56 | 0.865114 | 0.531 |
| Abdomen colours ~ Forewing length - females | 1 | 49 | 48 | 0.007627 | 0.942 |
| Abdomen colours ~ Forewing length - males | 1 | 55 | 54 | 0.008578 | 0.938 |
| Abdomen colours ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.013644 | 0.939 |
| Abdomen colours ~ Flight capacity - females | 1 | 49 | 48 | 0.578848 | 0.597 |
| Abdomen colours ~ Flight capacity - males | 1 | 55 | 54 | 1.522488 | 0.363 |
| Abdomen colours ~ Flight dimorphism | 1 | 49 | 48 | 0.000568 | 0.983 |
| Abdomen colours ~ Pronotum length - females | 1 | 56 | 55 | 0.336484 | 0.66 |
| Abdomen colours ~ Pronotum length - males | 1 | 57 | 56 | 0.22911 | 0.741 |
| Abdomen colours ~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 0.354619 | 0.647 |
| Arms colours ~ Body length - females | 1 | 56 | 55 | 3.71641 | 0.097 |
| Arms colours ~ Body length - males | 1 | 57 | 56 | 4.053552 | 0.083 |
| Arms colours ~ Size dimorphism | 1 | 57 | 56 | 0.368626 | 0.634 |
| **Arms colours ~ Evolutionary distinctiveness** | **1** | **57** | **56** | **6.441514** | **0.038** |
| **Arms colours ~ Forewing length - females** | **1** | **49** | **48** | **5.27839** | **0.04** |
| **Arms colours ~ Forewing length - males** | **1** | **55** | **54** | **13.523504** | **0.001** |
| Arms colours ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.528789 | 0.493 |
| Arms colours ~ Flight capacity - females | 1 | 49 | 48 | 0.051276 | 0.837 |
| Arms colours ~ Flight capacity - males | 1 | 55 | 54 | 0.888298 | 0.422 |
| Arms colours ~ Flight dimorphism | 1 | 49 | 48 | 0.179357 | 0.723 |
| Arms colours ~ Pronotum length - females | 1 | 56 | 55 | 3.71641 | 0.099 |
| Arms colours ~ Pronotum length - males | 1 | 57 | 56 | 4.053552 | 0.085 |
| Arms colours ~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 1.158244 | 0.362 |
| Arms display ~ Body length - females | 1 | 56 | 55 | 4.006625 | 0.166 |
| Arms display ~ Body length - males | 1 | 57 | 56 | 3.517698 | 0.185 |
| Arms display ~ Size dimorphism | 1 | 58 | 57 | 0.13634 | 0.812 |
| **Arms display ~ Evolutionary distinctiveness** | **1** | **57** | **56** | **13.373958** | **0.003** |
| Arms display ~ Forewing length - females | 1 | 49 | 48 | 4.243574 | 0.099 |
| **Arms display ~ Forewing length - males** | **1** | **55** | **54** | **12.020856** | **0.011** |
| Arms display ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.356104 | 0.638 |
| Arms display ~ Flight capacity - females | 1 | 49 | 48 | 0.077668 | 0.828 |
| Arms display ~ Flight capacity - males | 1 | 55 | 54 | 1.166621 | 0.429 |
| Arms display ~ Flight dimorphism | 1 | 49 | 48 | 0.09721 | 0.799 |
| Arms display ~ Pronotum length - females | 1 | 56 | 55 | 4.006625 | 0.168 |
| Arms display ~ Pronotum length - males | 1 | 57 | 56 | 3.517698 | 0.203 |
| Arms display ~ Pronotum length - sexual dimorphism | 1 | 56 | 56 | 1.014632 | 0.474 |
| Arms eyespots ~ Body length - females | 1 | 56 | 55 | 2.536085 | 0.133 |
| Arms eyespots ~ Body length - males | 1 | 57 | 56 | 1.712231 | 0.213 |
| Arms eyespots ~ Size dimorphism | 1 | 57 | 56 | 2.878785 | 0.099 |
| Arms eyespots ~ Evolutionary distinctiveness | 1 | 57 | 56 | 1.741387 | 0.218 |
| **Arms eyespots ~ Forewing length - females** | **1** | 49 | 48 | **7.972559** | **0.003** |
| **Arms eyespots ~ Forewing length - males** | **1** | **55** | **54** | **5.63176** | **0.018** |
| Arms eyespots ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 1.178379 | 0.239 |
| Arms eyespots ~ Flight capacity - females | 1 | 49 | 48 | 0.918105 | 0.321 |
| Arms eyespots ~ Flight capacity - males | 1 | 55 | 54 | 0.015633 | 0.889 |
| Arms eyespots ~ Flight dimorphism | 1 | 49 | 48 | 1.235401 | 0.257 |
| Arms eyespots ~ Pronotum length - females | 1 | 56 | 55 | 1.359881 | 0.269 |
| Arms eyespots ~ Pronotum length - males | 1 | 57 | 56 | 1.384227 | 0.278 |
| Arms eyespots ~ Pronotum length - sexual dimorphism | 1 | 56 | 56 | 0.943842 | 0.382 |
| Display complexity ~ Body length - females | 4 | 57 | 53 | 1.349281 | 0.318 |
| Display complexity ~ Body length - males | 4 | 57 | 53 | 1.338269 | 0.329 |
| Display complexity ~ Size dimorphism | 4 | 57 | 53 | 0.720954 | 0.612 |
| **Display complexity** **~ Evolutionary distinctiveness** | **4** | **57** | **53** | **4.22372** | **0.012** |
| Display complexity ~ Forewing length - females | 4 | 49 | 45 | 1.756525 | 0.188 |
| **Display complexity** **~ Forewing length - males** | **4** | **55** | **51** | **3.868289** | **0.016** |
| Display complexity ~ Forewing length - sexual dimorphism | 4 | 49 | 45 | 0.772317 | 0.589 |
| Display complexity ~ Flight capacity - females | 4 | 49 | 45 | 0.778243 | 0.583 |
| Display complexity ~ Flight capacity - males | 4 | 55 | 51 | 0.559125 | 0.727 |
| Display complexity ~ Flight dimorphism | 4 | 49 | 45 | 0.618195 | 0.691 |
| Display complexity ~ Pronotum length - females | 4 | 56 | 52 | 1.057713 | 0.457 |
| Display complexity ~ Pronotum length - males | 4 | 57 | 53 | 0.945341 | 0.493 |
| Display complexity ~ Pronotum length - sexual dimorphism | 4 | 56 | 52 | 0.367598 | 0.849 |
| Location ~ Body length - females | 1 | 56 | 55 | 0.0054 | 0.973 |
| Location ~ Body length - males | 1 | 57 | 56 | 0.0924 | 0.862 |
| Location ~ Size dimorphism | 1 | 57 | 56 | 1.3107 | 0.488 |
| Location ~ Evolutionary distinctiveness | 1 | 57 | 56 | 4.0550 | 0.26 |
| Location ~ Forewing length - females | 1 | 49 | 48 | 0.8622 | 0.575 |
| Location ~ Forewing length - males | 1 | 55 | 54 | 1.6535 | 0.508 |
| Location ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.0404 | 0.912 |
| Location ~ Flight capacity - females | 1 | 49 | 48 | 0.1598 | 0.804 |
| Location ~ Flight capacity - males | 1 | 55 | 54 | 1.0413 | 0.594 |
| Location ~ Flight dimorphism | 1 | 49 | 48 | 0.0385 | 0.917 |
| Location ~ Pronotum length - females | 1 | 56 | 55 | 0.0328 | 0.9 |
| Location ~ Pronotum length - males | 1 | 57 | 56 | 0.0005 | 0.984 |
| Location ~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 1.2063 | 0.541 |
| Mouth display ~ Body length - females | 1 | 56 | 55 | 4.882334 | 0.106 |
| Mouth display ~ Body length - males | 1 | 57 | 56 | 3.735863 | 0.147 |
| Mouth display ~ Size dimorphism | 1 | 57 | 56 | 3.657218 | 0.162 |
| Mouth display ~ Evolutionary distinctiveness | 1 | 57 | 56 | 7.137969 | 0.056 |
| Mouth display ~ Forewing length - females | 1 | 49 | 48 | 1.985533 | 0.325 |
| Mouth display ~ Forewing length - males | 1 | 55 | 54 | 5.088414 | 0.104 |
| Mouth display ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.176115 | 0.786 |
| Mouth display ~ Flight capacity - females | 1 | 49 | 48 | 0.216981 | 0.739 |
| Mouth display ~ Flight capacity - males | 1 | 55 | 54 | 0.143166 | 0.789 |
| Mouth display ~ Flight dimorphism | 1 | 49 | 48 | 0.093828 | 0.845 |
| Mouth display ~ Pronotum length - females | 1 | 56 | 55 | 6.019963 | 0.067 |
| Mouth display ~ Pronotum length - males | 1 | 57 | 56 | 4.017412 | 0.124 |
| **Mouth display ~ Pronotum length - sexual dimorphism** | **1** | **56** | **55** | **9.454228** | **0.022** |
| Presence of display ~ Body length - females | 1 | 56 | 55 | 5.4874 | 0.112 |
| Presence of display ~ Body length - females | 1 | 56 | 55 | 5.4874 | 0.112 |
| Presence of display ~ Body length - males | 1 | 57 | 56 | 5.0995 | 0.125 |
| Presence of display ~ Body length - males | 1 | 57 | 56 | 5.0995 | 0.125 |
| Presence of display ~ Size dimorphism | 1 | 57 | 56 | 0.2017 | 0.767 |
| Presence of display ~ Size dimorphism | 1 | 57 | 56 | 0.2017 | 0.767 |
| **Presence of display ~ Evolutionary distinctiveness** | **1** | **57** | **56** | **12.80386** | **0.007** |
| **Presence of display ~ Evolutionary distinctiveness** | **1** | **57** | **56** | **14.5270** | **0.003** |
| Presence of display ~ Forewing length - females | 1 | 49 | 48 | 4.1911 | 0.135 |
| Presence of display ~ Forewing length - females | 1 | 49 | 48 | 4.1911 | 0.135 |
| Presence of display ~ Forewing length - males | 1 | 55 | 54 | 13.0953 | 0.004 |
| **Presence of display ~ Forewing length - males** | **1** | **55** | **54** | **13.0953** | **0.004** |
| Presence of display ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.5044 | 0.588 |
| Presence of display ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.5044 | 0.588 |
| Presence of display ~ Flight capacity - females | 1 | 49 | 48 | 0.4881 | 0.598 |
| Presence of display ~ Flight capacity - females | 1 | 49 | 48 | 0.4881 | 0.598 |
| Presence of display ~ Flight capacity - males | 1 | 55 | 54 | 0.2862 | 0.712 |
| Presence of display ~ Flight capacity - males | 1 | 55 | 54 | 0.2862 | 0.712 |
| Presence of display ~ Flight dimorphism | 1 | 49 | 48 | 0.1194 | 0.823 |
| Presence of display ~ Flight dimorphism | 1 | 49 | 48 | 0.1194 | 0.823 |
| Presence of display ~ Forewing:Pronotum - females | 1 | 48 | 47 | 2.2637 | 0.287 |
| Presence of display ~ Forewing:Pronotum - males | 1 | 55 | 54 | 0.7994 | 0.548 |
| Presence of display ~ Forewing:Pronotum length - sexual dimorphism | 1 | 54 | 53 | 0.6484 | 0.575 |
| Presence of display ~ Pronotum length - females | 1 | 56 | 55 | 4.3169 | 0.138 |
| Presence of display ~ Pronotum length - females | 1 | 56 | 55 | 4.3169 | 0.138 |
| Presence of display ~ Pronotum length - males | 1 | 57 | 56 | 3.7589 | 0.199 |
| Presence of display ~ Pronotum length - males | 1 | 57 | 56 | 3.7589 | 0.199 |
| Presence of display ~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 1.3018 | 0.456 |
| Presence of display ~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 1.3018 | 0.456 |
| Primary defence - crypsis ~ Body length - females | 1 | 56 | 55 | 0.0001 | 0.995 |
| Primary defence - crypsis ~ Body length - males | 1 | 57 | 56 | 0.2771 | 0.691 |
| Primary defence - crypsis ~ Size dimorphism | 1 | 57 | 56 | 0.0674 | 0.826 |
| Primary defence - crypsis ~ Evolutionary distinctiveness | 1 | 57 | 56 | 1.4961 | 0.351 |
| Primary defence - crypsis ~ Forewing length - females | 1 | 49 | 48 | 0.3714 | 0.616 |
| Primary defence - crypsis ~ Forewing length - males | 1 | 55 | 54 | 0.5787 | 0.522 |
| Primary defence - crypsis ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.2273 | 0.695 |
| Primary defence - crypsis ~ Flight capacity - females | 1 | 49 | 48 | 0.8779 | 0.439 |
| Primary defence - crypsis ~ Flight capacity - males | 1 | 55 | 54 | 0.6526 | 0.537 |
| Primary defence - crypsis ~ Flight dimorphism | 1 | 49 | 48 | 3.5615 | 0.116 |
| Primary defence - crypsis ~ Pronotum length - females | 1 | 56 | 55 | 0.1039 | 0.817 |
| Primary defence - crypsis ~ Pronotum length - males | 1 | 57 | 56 | 0.9327 | 0.465 |
| Primary defence - crypsis ~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 0.3674 | 0.643 |
| Primary defence - crypsis~ Body length - females | 1 | 56 | 55 | 0.0001 | 0.995 |
| Primary defence - crypsis~ Body length - males | 1 | 57 | 56 | 0.2771 | 0.691 |
| Primary defence - crypsis~ Size dimorphism | 1 | 57 | 56 | 0.0674 | 0.826 |
| Primary defence - crypsis~ Evolutionary distinctiveness | 1 | 57 | 56 | 1.4961 | 0.351 |
| Primary defence - crypsis~ Forewing length - females | 1 | 49 | 48 | 0.3714 | 0.616 |
| Primary defence - crypsis~ Forewing length - males | 1 | 55 | 54 | 0.5787 | 0.522 |
| Primary defence - crypsis~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.2273 | 0.695 |
| Primary defence - crypsis~ Flight capacity - females | 1 | 49 | 48 | 0.8779 | 0.439 |
| Primary defence - crypsis~ Flight capacity - males | 1 | 55 | 54 | 0.6526 | 0.537 |
| Primary defence - crypsis~ Flight dimorphism | 1 | 49 | 48 | 3.5615 | 0.116 |
| Primary defence - crypsis~ Pronotum length - females | 1 | 56 | 55 | 0.1039 | 0.817 |
| Primary defence - crypsis~ Pronotum length - males | 1 | 57 | 56 | 0.9327 | 0.465 |
| Primary defence - crypsis~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 0.3674 | 0.643 |
| Primary defence - masquerade ~ Body length - females | 1 | 56 | 55 | 0.0001 | 0.989 |
| Primary defence - masquerade ~ Body length - males | 1 | 57 | 56 | 0.2771 | 0.681 |
| Primary defence - masquerade ~ Size dimorphism | 1 | 57 | 56 | 0.0674 | 0.859 |
| Primary defence - masquerade ~ Evolutionary distinctiveness | 1 | 57 | 56 | 1.4961 | 0.375 |
| Primary defence - masquerade ~ Forewing length - females | 1 | 49 | 48 | 0.3714 | 0.613 |
| Primary defence - masquerade ~ Forewing length - males | 1 | 55 | 54 | 0.5787 | 0.523 |
| Primary defence - masquerade ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.2273 | 0.692 |
| Primary defence - masquerade ~ Flight capacity - females | 1 | 49 | 48 | 0.8779 | 0.461 |
| Primary defence - masquerade ~ Flight capacity - males | 1 | 55 | 54 | 0.6526 | 0.5 |
| Primary defence - masquerade ~ Flight dimorphism | 1 | 49 | 48 | 3.5615 | 0.113 |
| Primary defence - masquerade ~ Pronotum length - females | 1 | 56 | 55 | 0.1039 | 0.805 |
| Primary defence - masquerade ~ Pronotum length - males | 1 | 57 | 56 | 0.9327 | 0.471 |
| Primary defence - masquerade ~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 0.3674 | 0.681 |
| Region ~ Body length - females | 5 | 56 | 51 | 0.1885 | 0.986 |
| Region ~ Body length - males | 5 | 57 | 52 | 0.5277 | 0.843 |
| Region ~ Size dimorphism | 5 | 57 | 52 | 0.9591 | 0.617 |
| Region ~ Evolutionary distinctiveness | 5 | 57 | 52 | 1.0987 | 0.569 |
| Region ~ Forewing length - females | 5 | 49 | 44 | 0.3066 | 0.94 |
| Region ~ Forewing length - males | 5 | 55 | 50 | 0.7434 | 0.72 |
| Region ~ Forewing length - sexual dimorphism | 5 | 49 | 44 | 1.0288 | 0.512 |
| Region ~ Flight capacity - females | 5 | 49 | 44 | 0.6983 | 0.731 |
| Region ~ Flight capacity - males | 5 | 55 | 50 | 0.3451 | 0.928 |
| Region ~ Flight dimorphism | 5 | 49 | 44 | 0.9654 | 0.551 |
| Region ~ Pronotum length - females | 5 | 56 | 51 | 0.2526 | 0.966 |
| Region ~ Pronotum length - males | 5 | 57 | 52 | 0.4788 | 0.884 |
| Region ~ Pronotum length - sexual dimorphism | 5 | 57 | 52 | 0.5329 | 0.819 |
| Sound ~ Body length - females | 1 | 56 | 55 | 1.173484 | 0.309 |
| Sound ~ Body length - males | 1 | 57 | 56 | 1.506365 | 0.279 |
| Sound ~ Size dimorphism | 1 | 56 | 55 | 0.16317 | 0.698 |
| Sound ~ Evolutionary distinctiveness | 1 | 57 | 56 | 1.378077 | 0.259 |
| **Sound ~ Forewing length - females** | **1** | **49** | **48** | **7.049845** | **0.012** |
| Sound ~ Forewing length - males | 1 | 55 | 54 | 3.116896 | 0.095 |
| **Sound ~ Forewing length - sexual dimorphism** | **1** | **49** | **48** | **2.671499** | **0.129** |
| Sound ~ Flight capacity - females | 1 | 49 | 48 | 1.846651 | 0.2 |
| Sound ~ Flight capacity - males | 1 | 55 | 54 | 0.054524 | 0.841 |
| Sound ~ Flight dimorphism | 1 | 49 | 48 | 3.213293 | 0.096 |
| Sound ~ Pronotum length - females | 1 | 56 | 55 | 0.961604 | 0.369 |
| Sound ~ Pronotum length - males | 1 | 57 | 56 | 1.856819 | 0.2 |
| Sound ~ Pronotum length - sexual dimorphism | 1 | 56 | 55 | 0.003909 | 0.953 |
| Wings colours ~ Body length - females | 1 | 56 | 55 | 0.781883 | 0.484 |
| Wings colours ~ Body length - males | 1 | 57 | 56 | 0.668045 | 0.487 |
| Wings colours ~ Size dimorphism | 1 | 56 | 55 | 0.384239 | 0.585 |
| **Wings colours ~ Evolutionary distinctiveness** | **1** | **57** | **56** | **8.740674** | **0.015** |
| Wings colours ~ Forewing length - females | 1 | 49 | 48 | 0.793909 | 0.468 |
| Wings colours ~ Forewing length - males | 1 | 55 | 54 | 2.900037 | 0.164 |
| Wings colours ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.213476 | 0.701 |
| Wings colours ~ Flight capacity - females | 1 | 49 | 48 | 0.406892 | 0.557 |
| Wings colours ~ Flight capacity - males | 1 | 55 | 54 | 0.09114 | 0.939 |
| Wings colours ~ Flight dimorphism | 1 | 49 | 48 | 0.158575 | 0.738 |
| Wings colours ~ Pronotum length - females | 1 | 56 | 55 | 0.141571 | 0.761 |
| Wings colours ~ Pronotum length - males | 1 | 57 | 56 | 0.040708 | 0.879 |
| Wings colours ~ Pronotum length - sexual dimorphism | 1 | 57 | 56 | 0.035884 | 0.88 |
| Wings display ~ Body length - females | 1 | 56 | 55 | 2.679365 | 0.261 |
| Wings display ~ Body length - males | 1 | 57 | 56 | 2.570191 | 0.254 |
| Wings display ~ Size dimorphism | 1 | 57 | 56 | 4.3e-05 | 0.999 |
| **Wings display ~ Evolutionary distinctiveness** | **1** | **57** | **56** | **13.474262** | **0.005** |
| Wings display ~ Forewing length - females | 1 | 49 | 48 | 1.693957 | 0.312 |
| **Wings display ~ Forewing length - males** | **1** | **55** | **54** | **7.751274** | **0.043** |
| Wings display ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.727711 | 0.506 |
| Wings display ~ Flight capacity - females | 1 | 49 | 48 | 0.691437 | 0.538 |
| Wings display ~ Flight capacity - males | 1 | 55 | 54 | 0.191112 | 0.731 |
| Wings display ~ Flight dimorphism | 1 | 49 | 48 | 0.180851 | 0.758 |
| Wings display ~ Pronotum length - females | 1 | 56 | 55 | 2.093026 | 0.309 |
| Wings display ~ Pronotum length - males | 1 | 57 | 56 | 1.787609 | 0.342 |
| Wings display ~ Pronotum length - sexual dimorphism | 1 | 56 | 55 | 0.407927 | 0.669 |
| Wings eyespots ~ Body length - females | 1 | 56 | 55 | 0.795968 | 0.397 |
| Wings eyespots ~ Body length - males | 1 | 57 | 56 | 0.798764 | 0.406 |
| Wings eyespots ~ Size dimorphism | 1 | 57 | 56 | 0.027269 | 0.882 |
| Wings eyespots ~ Evolutionary distinctiveness | 1 | 57 | 56 | 2.343108 | 0.156 |
| Wings eyespots ~ Forewing length - females | 1 | 49 | 48 | 0.018793 | 0.889 |
| Wings eyespots ~ Forewing length - males | 1 | 55 | 54 | 0.20002 | 0.703 |
| Wings eyespots ~ Forewing length - sexual dimorphism | 1 | 49 | 48 | 0.339591 | 0.599 |
| Wings eyespots ~ Flight capacity - females | 1 | 49 | 48 | 0.87427 | 0.375 |
| Wings eyespots ~ Flight capacity - males | 1 | 55 | 54 | 0.762178 | 0.429 |
| Wings eyespots ~ Flight dimorphism | 1 | 49 | 48 | 0.692202 | 0.43 |
| Wings eyespots ~ Pronotum length - females | 1 | 56 | 55 | 1.298265 | 0.29 |
| Wings eyespots ~ Pronotum length - males | 1 | 57 | 56 | 1.14843 | 0.331 |
| Wings eyespots ~ Pronotum length - sexual dimorphism | 1 | 56 | 55 | 0.61284 | 0.475 |

SUPPLEMENTARY TABLE 6. Phylogenetic regression using *gls* function in *nlme* (Pinheiro, 2009, with two different models of phenotypic evolution to estimate which correlation structure fitted the data best: Brownian Motion (BM and Ornstein-Uhlenbeck (OU. Selected models are depicted in bold. All body size measures were log transformed.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **MODELS FOLLOWING A BM STRUCTURE** | **D.F. RESIDUALS** | **LOGLIK** | **AIC** | **∆AIC** | **MCF R2ADJ** | **T-VALUE** | **P** |
| **Body length - females ~ Evolutionary distinctiveness** | **48** | **-26.6931** | **59.3862** | **0** | **-0.0596068** | **-0.385131** | **0.7018** |
| **Body length - males** ~ Evolutionary distinctiveness | 48 | -41.87948 | 89.75895 | 7.38784 | -0.03168388 | -0.0189385 | 0.985 |
| **Pronotum length - females ~ Evolutionary distinctiveness** | **48** | **-41.62989** | **89.25979** | **0** | **-0.1475585** | **-0.2884034** | **0.7743** |
| **Pronotum length - males ~ Evolutionary distinctiveness** | **48** | **-46.45162** | **98.90324** | **0** | **-0.02639509** | **0.0544701** | **0.9568** |
| **Forewing length - females ~ Evolutionary distinctiveness** | **48** | **-38.44224** | **82.88447** | **0** | **-0.2391491** | **-0.68759** | **0.495** |
| Forewing length - males ~ Evolutionary distinctiveness | 48 | -33.41378 | 72.82755 | 10.35194 | -0.04221263 | -0.4420985 | 0.6604 |
| **Body:Pronotum - females ~ Evolutionary distinctiveness** | **48** | **-5.844534** | **17.68907** | **0** | **-0.4328559** | **0.0132023** | **0.9895** |
| **Body:Pronotum - males ~ Evolutionary distinctiveness** | **48** | **-7.199955** | **20.39991** | **0** | **-0.3281698** | **-0.162401** | **0.8717** |
| **Flight capacity - females ~ Evolutionary distinctiveness** | **48** | **-36.80719** | **79.61439** | **0** | **-0.03678547** | **-0.3994557** | **0.6913** |
| Flight capacity - males ~ Evolutionary distinctiveness | 48 | -36.80719 | 79.61439 | 63.26309 | 0.0004721 | -0.3994557 | 0.6913 |
| Flight dimorphism ~ Evolutionary distinctiveness | 48 | -8.874111 | 23.74822 | 2.76994 | -0.2546819 | 0.0265771 | 0.9789 |
| Size dimorphism ~ Evolutionary distinctiveness | 48 | -185.5891 | 377.1781 | 49.1378 | 0.009242475 | -0.3535849 | 0.7252 |
| Pronotum length - sexual dimorphism ~ Evolutionary distinctiveness | 48 | -140.3115 | 286.623 | 19.8974 | 0.005586953 | -0.3439727 | 0.7324 |
| **Forewing length - sexual dimorphism ~ Evolutionary distinctiveness** | **48** | **-187.3012** | **380.6024** | **0** | **0.009794502** | **-0.5429135** | **0.5897** |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **MODELS FOLLOWING AN OU STRUCTURE** | **D.F. RESIDUALS** | **LOGLIK** | **AIC** | **∆AIC** | **MCF R2ADJ** | **T-VALUE** | **P** |
| **Body length - females** ~ Evolutionary distinctiveness | 48 | -34.52013 | 75.04026 | 15.65406 | 0.0620408 | -3.083913 | 0.0034 |
| **Body length - males ~ Evolutionary distinctiveness** | **48** | **-37.18555** | **82.37111** | **0** | **0.02998248** | **-2.589664** | **0.0127** |
| Pronotum length - females ~ Evolutionary distinctiveness | 48 | -54.52306 | 115.0461 | 25.78631 | 0.04555403 | -3.039486 | 0.0038 |
| Pronotum length - males ~ Evolutionary distinctiveness | 48 | -55.39877 | 116.7975 | 17.89426 | 0.03052537 | -2.681597 | 0.01 |
| Forewing length - females ~ Evolutionary distinctiveness | 48 | -43.80586 | 93.61172 | 10.72725 | -0.1528744 | -3.649649 | >0.001 |
| **Forewing length - males ~ Evolutionary distinctiveness** | **48** | **-28.2378** | **62.47561** | **0** | **0.1176705** | **-3.687025** | **>0.001** |
| **Body:Pronotum - females** ~ Evolutionary distinctiveness | 48 | -14.34808 | 34.69615 | 17.00708 | 0.007371417 | 2.324549 | 0.0244 |
| **Body:Pronotum - males** ~ Evolutionary distinctiveness | 48 | -12.91552 | 31.83105 | 11.43114 | -0.01216333 | 2.204186 | 0.0323 |
| Flight capacity - females ~ Evolutionary distinctiveness | 48 | -45.87629 | 97.75259 | 18.1382 | -0.02794577 | -1.0613857 | 0.2938 |
| **Flight capacity - males ~ Evolutionary distinctiveness** | **48** | **-5.175652** | **16.3513** | **0** | **-0.5795441** | **-0.9162396** | **0.3641** |
| **Flight dimorphism ~ Evolutionary distinctiveness** | **48** | **-7.489139** | **20.97828** | **0** | **-0.38663** | **-0.736713** | **0.4649** |
| **Size dimorphism ~ Evolutionary distinctiveness** | **48** | **-161.0202** | **328.0403** | **0** | **0.0127881** | **-1.766232** | **0.0837** |
| **Pronotum length - sexual dimorphism ~ Evolutionary distinctiveness** | **48** | **-130.3628** | **266.7256** | **0** | **0.01008726** | **-1.693143** | **0.0969** |
| Forewing length - sexual dimorphism ~ Evolutionary distinctiveness | 48 | -188.0486 | 382.0971 | 1.4947 | 0.00878042 | -1.0491217 | 0.2994 |

SUPPLEMENTARY TABLE 7. Summary of model results fitting body length and display presence.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ESTIMATE | STANDARD ERROR | Z VALUE | P VALUE |
| Intercept | -1.1332 | 0.63039 | -1.798 | 0.0722 |
| **Male Average Body Length** | **0.02933** | **0.01431** | **2.049** | **0.0404** |
| Intercept | -1.13844 | 0.63056 | -1.805 | 0.071 |
| **Female Average Body Length** | **0.02407** | **0.01196** | **2.013** | **0.0441** |