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Correlations between adult mimicry and larval host plants in ithomiine butterflies

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The apparent paradox of multiple coexisting wing pattern mimicry 'rings' in tropical butterflies has been explained as a result of microhabitat partitioning in adults. However, very few studies have tested this hypothesis. In neotropical forests, ithomiine butterflies dominate and display the richest diversity of mimicry rings. We show that co-mimetic species occupy the same larval host-plant species significantly more often than expected in two out of five communities that we surveyed; in one of these, the effect remains significant after phylogenetic correction. This relationship is most probably a result of a third correlated variable, such as microhabitat. Host-plant microhabitat may constrain adult movement, or host-plant choice may depend on butterfly microhabitat preferences and mimicry associations. This link between mimicry and host plant could help explain some host-plant and mimicry shifts, which have been important in the radiation of this speciose tropical group.

Keywords: host plant; mimicry ring; adaptive radiation; microhabitat partitioning; Solanaceae

1. INTRODUCTION

A logical extension of Müllerian mimicry theory (Müller 1879) is that all aposematic species in a community should converge on a single warning signal. The reality is quite different: in neotropical ithomiine butterflies (Lepidoptera: Nymphalidae: Ithomiinae), eight or more distinct mimetic patterns, or 'mimicry rings,' occur in the same community (Papageorgis 1975; Beccaloni 1997*a*; Joron & Mallet 1998). Plausible explanations for some of this mimetic diversity include developmental constraints on wing pattern, weak selective pressure for convergence of abundant rings, rapid evolution of novel patterns (Joron & Mallet 1998) and, perhaps, 'escape' by better-protected species from Batesian or more poorly protected Müllerian mimics (Pough *et al.* 1973; but see Turner 1987). However, mimetic polymorphisms—even within single species—suggest that additional ecological factors may be important, and another hypothesis, that mimicry rings occupy distinct microhabitats, has also been invoked (Papageorgis 1975; Mallet & Gilbert 1995; Beccaloni 1997*a*,*b*; DeVries *et al.* 1999).

At least some ithomiine mimicry rings are stratified by flight height (Papageorgis 1975; Medina *et al.* 1996; Beccaloni 1997*b*), which correlates with the height of host plants (Beccaloni 1997*b*). DeVries *et al.* (1999) found that co-mimics tended to occur in the same areas of forest, and anecdotal observations suggest that co-mimics and host plants may occur in similar microhabitats (Haber 1978; K. R. Willmott, personal observation). Given that predators such as birds also partition forest microhabitats (e.g. Walther 2002), this could contribute to the stable coexistence of multiple mimicry rings (Beccaloni 1997*b*).

So far, no study has investigated links between larval host plant microhabitat and adult mimicry, but, if the two are correlated, co-mimics might also occur on the same species of host plant. Although it is difficult to obtain quantitative data on butterfly and larval host plant microhabitat associations, it is easy to obtain data enumerating larval host plants. Here, we use new and previously published data to test for a correlation between mimicry and larval host-plant species.

2. METHODS

(a) *Host-plant records*

Host-plant data for ithomiines were compiled from two lowland and three lowland-montane neotropical communities that are reasonably well studied. Host-plant records from elsewhere were excluded because butterfly and plant communities vary between sites. The communities analysed are: Campinas, southeastern Brazil (Brown 1987); east Ecuadorian lowlands (Drummond & Brown 1987); northern and southern Ecuador montane (this study); and Monteverde, Costa Rica (Haber 1978, 2003). These five communities yield a total of 110 ithomiine species (128 taxa) from all tribes and *ca*. 120 host-plant species (table 1; electronic Appendix A). Host plants were identified by S. Knapp (Natural History Museum, London) and ithomiine taxa were identified by K.R.W. for the montane Ecuador datasets. Data for the remaining communities were taken unaltered from the cited publications.

(b) *Mimetic classification*

Taxa were assigned to mimicry complex based on several criteria, including: parallel minor geographical pattern variation between taxa (e.g. the white forewing band of certain 'clearwing' species shows parallel variation in width and opacity); close geographical and elevational range congruence; and possession of distinctive (unique or differentiating) pattern characters for that mimicry complex (Beccaloni 1997*a*; K. R. Willmott, unpublished data; electronic Appendix B). These criteria often resulted in a finer-grained classification than that found by previous authors (see electronic Appendix B). It should be noted that some patterns with different names in different communities represent geographical variants, and that the sexes within species may differ in mimicry ring.

(c) *Phylogenetic correction*

Both wing pattern and larval host plant may be influenced by phylogeny and cannot necessarily be regarded as independent data for each species. Phylogenetic tests of pattern and host-plant correlation are currently not possible, however, because of the lack of knowledge of species-level phylogeny in ithomiines. Nevertheless, both mimicry pattern and larval host plant evolve rapidly, usually varying even within species, so the assumption that both traits are independent of phylogeny for pairs of species in different species groups within genera, as well as between genera, is reasonable. For pairs of species within species groups, where traits might be shared through ancestry and cause incorrect rejection of the null hypothesis (type I error), the raw data were reanalysed, with records of shared host plants of co-mimetic ithomiines excluded. By 'within-species goups' we mean species where morphological (particularly genitalic) traits have not yet ruled out the possibility that they might be sister taxa or members of monophyletic clades in which mimicry and host-plant traits are invariant (K. R. Willmott, unpublished data). This definition is conservative because it also excludes congeneric species that are almost certainly distantly related but which lack structural differences, like some *Ithomia* (C. Jiggins, personal communication, unpublished molecular phylogenetic analysis). In five out of the seven excluded pairs, geographical variation within at least one of the species shows that the local similarity in pattern is almost certainly a result of mimicry rather than common ancestry.

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Table 1. Results from randomization analyses. Significant *p*-values are in bold, indicating communities where matches between host plant and mimicry occurred more often than expected by chance alone.
(Abbreviations: ith., ithomiine; no. ith. spp., number of ithomiine species with host plant records; est. no. ith. spp., estimated total number of ithomiine species in community; no. M, F mim., number of mimicry rings for males, females; no. hosts, number of host plants used by all species; empir. M, F *m*, empirical value of *m*, the number of matches of mimicry pattern and host plant, for males and females; no. recs, number of recorded interactions of mimicry and host plant; *p* male, female, proportion of the 100 000 simulated datasets in which *m* equalled or exceeded the empirical value; min., max., mean sim. M, F *m*, minimum, maximum and mean values for *m* in the 100 000 simulations, for males and females.)

analysis	no. ith. spp.	est. no. ith. spp.	no. M mim.	no. F mim.	no. hosts	empir. M *m*	empir. F *m*	no. recs	*p* male	*p* female	min. sim. M *m*	max. sim. M *m*	mean sim. M *m*	min. sim. F *m*	max. sim. F *m*	mean sim. F *m*
Ecuador north montane																
raw data	24	90	10	8	20	8	10	37	**0.006**	**0.003**	0	12	2.50	0	13	3.25
corrected	24	90	10	8	20	8	9	36	**0.005**	**0.006**	0	13	2.39	0	15	3.11
Ecuador south montane	24	90	14	12	18	1	1	29	0.751	0.839	0	9	1.24	0	11	1.59
Ecuador lowland																
raw data	25	65	8	9	33	2	2	40	0.311	0.257	0	7	1.15	0	7	1.00
corrected	25	90	8	9	33	1	1	39	0.593	0.532	0	6	0.98	0	6	0.84
southest Brazil																
raw data	16	25	7	7	41	7	7	73	0.367	0.368	0	33	5.71	0	37	5.72
corrected	16	25	7	7	41	6	6	72	0.452	0.453	0	35	5.48	0	33	5.48
Costa Rica																
raw data	46	55	9	9	55	22	21	102	**0.008**	**0.042**	0	33	10.65	1	42	12.57
corrected	46	55	9	9	55	11	10	93	0.131	0.326	0	24	7.09	0	29	8.38

(**d**) ***Statistical analysis***

We used as a test statistic the number of matches between pairs of co-mimics and host plants (*m*). One ithomiine species feeding on one host-plant species constitutes a single record, regardless of the number of feeding observations. Under the null hypothesis, mimicry and host-plant traits are randomly distributed among species. Therefore, to obtain an appropriate null frequency distribution for *m*, both mimicry complex and host plant were randomized 100 000 times with respect to ithomiine species, keeping the numbers of records for each plant and ithomiine species constant (we used a specially written program Randmim, available at http://abacus.gene.ucl.ac.uk/jim/bin/software.html). The frequency with which the empirical value of *m* was equalled or exceeded in the simulated (random) datasets was interpreted as a measure of significance (*p*-values in table 1).

3. RESULTS AND DISCUSSION

Among 281 host-plant–mimicry interactions, there were 190 possible pairwise combinations of ithomiine species feeding on the same host plant, of which 40 male and 41 female pairs matched in mimicry pattern (see electronic Appendix C). The proportion of such possible pairwise combinations with mimicry matches in the five communities varied from 37% in montane northern Ecuador to 8% in montane southern Ecuador. Three out of the five communities studied had more empirical matches than the mean of the 100 000 random datasets (table 1). Out of the observed matching pairs of species (30; electronic Appendix D), almost half were in different genera (20% within the same tribe and 27% from different tribes), with 13% of the remainder being unrelated species within a genus (figure 1; electronic Appendix D). Thus, shared descent alone could account for at most 40% of matches, and many of these may prove to be independent of phylogeny when species relationships are resolved. In the randomization analysis with the raw data, two out of the five communities—montane northern Ecuador and Costa Rica—showed a significant association between mimicry ring and host plant, rejecting the null hypothesis that these traits are randomly distributed among species (table 1: $p < 0.01$ for males, $p < 0.05$ for females). The null hypothesis was not rejected in the remaining communities. With phylogenetic correction (deletion of matches within species groups), the null hypothesis was still rejected for montane northern Ecuador (table 1: $p < 0.01$), but not for other communities.

A link between host-plant species and mimicry complex is most plausibly caused by a correlated third variable, microhabitat. In Ecuador, for example, *Solanum* species eaten by co-mimics *Dircenna adina* and *Hyalyris ocna* occur in secondary growth at forest edges, while *Cestrum* ‘sp1’ favours the shady open understorey of undisturbed forest, where its herbivore co-mimics, *Godyris panthyale* and *Greta enigma*, usually fly. Searching in particular microhabitats may help female ithomiines to locate host plants and male ithomiines to find mates (Courtney 1984; Beccaloni 1997*b*). The slow flight of ovipositing females and the stationary display behaviour of courting males (Haber 1978) may further increase the chances of predation in these microhabitats. Alternatively, existing microhabitat preferences in adult butterflies, perhaps constrained by mimicry, may result in oviposition on particular host-plant species.

By contrast, the lack of correlation between mimicry and host-plant species in other communities does not prove that mimicry and microhabitat are uncorrelated there. In other words, there is no *a priori* reason to suppose

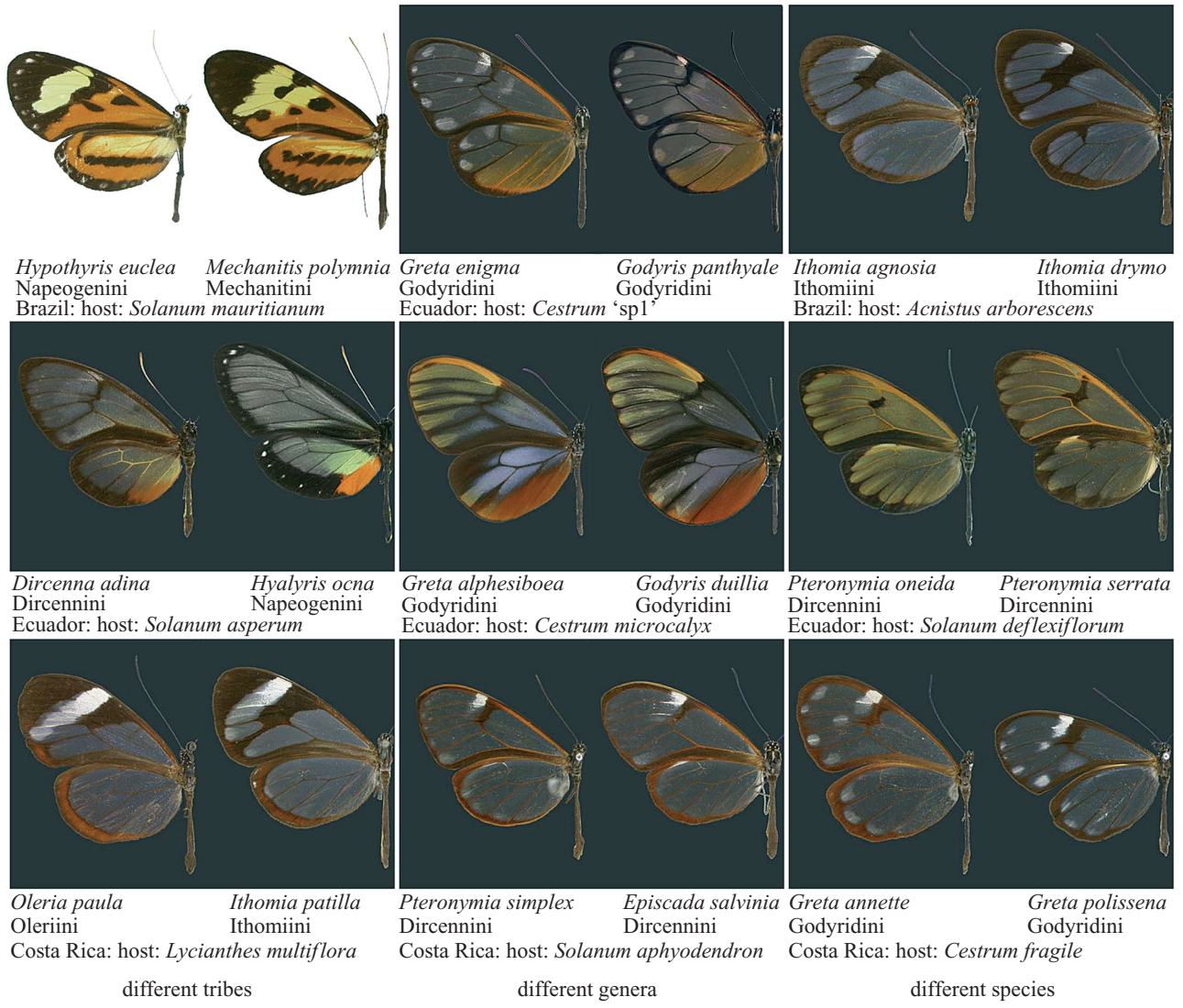

Figure 1. Examples of ithomiine co-mimics, from different tribes, genera and species, with the same species of larval host plant.

that species that occur in the same microhabitat must feed on the same host plant: empirically, many co-mimics do feed on different host plants and, in other butterfly groups, like *Heliconius* (Nymphalidae), overlap in host plants among micro-sympatric species is probably actively reduced by competition (Benson, 1978; Gilbert 1991; see below).

Our results also suggest a novel ecological mechanism that might further contribute to the evolution of mimicry. If host plants are patchily distributed within forest then the abundance of adults will also vary in space, with local aggregations where host-plant density is high. If predator home ranges are also restricted, such that the principal predators in areas of high host-plant density are quickly educated to avoid a particular pattern, all species feeding on the same host plant will benefit through mimicry, even in the absence of strong host-plant or butterfly microhabitat associations.

Mimicry diversity is no doubt also maintained by mechanisms unrelated to host-plant use, and this factor, in combination with random sampling effects, must explain at least some of the variation between communities studied here. Northern and southern montane Ecuador faunas are similar but differ markedly in their overlap of co-mimics and host plants; only few pairs of co-mimics have been recorded in the latter, so that overlap is unlikely for the data so far gathered. By contrast, many ithomiines in the Brazilian community have multiple host-plant records. Some of these are probably rare hosts where links to adult mimicry may be slight, and, in addition, higher numbers of hosts per species increase the chance of matches in the randomized datasets, making rejection of the null hypothesis less likely.

Direct or apparent competition between ithomiines might also cause host-plant partitioning and thus reduce the overlap of mimicry and host-plant use in some ithomiine communities, as in *Heliconius* (Benson 1978; Gilbert 1991). In *Heliconius*, mimicry is instead correlated with microhabitat and height of adult roosts (Gilbert 1991; Mallet & Gilbert 1995), although examples of larval mimicry are known between species that do share host plants (Mallet & Longino 1982). Larvae of co-mimics in the Ithomiinae are often found feeding in numbers on the same plant individual, which suggests that competition may be less important in this group than in *Heliconius* (see also Haber 1978).

Even in the absence of direct host-plant-related competition, host-plant shifts may occur for a variety of reasons, including adaptation to features of the host plant, such as secondary defences or associated predators or parasitoids. If a host-plant shift places adult butterflies in a new mimetic environment, strong predator selection may drive wing pattern change. Alternatively, mimicry evolution may be driven by local variation in abundance of other co-mimics (Bates 1862), favouring subsequent shifts to new larval host plants. Correlated shifts in mimicry and flight microhabitat are likely to cause pre-mating isolation, because wing patterns function as courtship cues (Naisbit *et al.* 2001; Jiggins *et al.* 2001) and because males often locate females by waiting in particular microhabitats (e.g. Shields 1967; K. R. Willmott, personal observation). Mimicry shifts also cause disruptive selection because the unfamiliar wing patterns of hybrids are not recognized and therefore not avoided by predators (Mallet & Barton 1989). Marked geographical changes in ithomiine mimetic wing patterns occurring across the Amazon basin as if at 'an enchanter's wand' inspired Bates (1862) to formulate his theory of mimicry. Bates also saw changes in mimetic wing patterns as a prime example of how natural selection could drive speciation. Our study shows how a better knowledge of the ecology of mimicry and host-plant choice can provide insights into how adaptation may influence the diversification of these butterflies.

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Electronic appendices are refereed with the text. However, no attempt has been made to impose a uniform editorial style on the electronic appendices.

Electronic Appendix A Hostplant records and mimicry classification for five ithomiine communities.

Tribe	Genus	Species	Subspecies	Male mimicry ring	Female mimicry ring	Plant genus	Plant species	Delete
ECUADOR NORTH MONTANE (Willmott, this study)								
Dircennini	Dircenna	adina	lorica	OCNA	OCNA	Solanum	asperum	no
Dircennini	Dircenna	adina	lorica	OCNA	OCNA	Solanum	ovalifolium	no
Dircennini	Dircenna	adina	lorica	OCNA	OCNA	Solanum	sect. Torva1	no
Dircennini	Dircenna	adina	lorica	OCNA	OCNA	Solanum	sect. Torva3	no
Dircennini	Dircenna	paradoxa	praestigiosa	PANTHYALE	PANTHYALE	Dunalia	solanacea	no
Dircennini	Dircenna	paradoxa	praestigiosa	PANTHYALE	PANTHYALE	Solanum	sect. Torva1	no
Dircennini	Dircenna	paradoxa	praestigiosa	PANTHYALE	PANTHYALE	Solanum	sect. Torva2	no
Dircennini	Dircenna	paradoxa	praestigiosa	PANTHYALE	PANTHYALE	Solanum	sect. Torva3	no
Dircennini	Episcada	mira		LIBETHRIS	AGNOSIA	Solanum	aphyodendron	no
Dircennini	Hyalenna	sulmona	lobusa	PANTHYALE	PANTHYALE	Solanum	lepidotum	no
Dircennini	Pteronymia	alida	ssp	HEWITSONI	HEWITSONI	Solanum	nutans	no
Dircennini	Pteronymia	alissa	andreas	AGNOSIA	AGNOSIA	Solanum	abitaguense	no
Dircennini	Pteronymia	alissa	andreas	AGNOSIA	AGNOSIA	Solanum	aphyodendron	no
Dircennini	Pteronymia	artena	afrania	AGNOSIA	AGNOSIA	Lycianthes	multiflora	no
Dircennini	Pteronymia	sp		TICIDA-M	HEWITSONI	Solanum	nudum	no
Dircennini	Pteronymia	dispaena	inania	HEWITSONI	HEWITSONI	Solanum	cajanumense	no
Dircennini	Pteronymia	dispaena	inania	HEWITSONI	HEWITSONI	Solanum	calidum	no
Dircennini	Pteronymia	oneida	oneida	HEWITSONI	HEWITSONI	Solanum	deflexiflorum	no
Dircennini	Pteronymia	serrata	ssp	HEWITSONI	HEWITSONI	Solanum	deflexiflorum	no
Dircennini	Pteronymia	serrata	ssp	HEWITSONI	HEWITSONI	Solanum	nudum	yes
Dircennini	Pteronymia	serrata	ssp	HEWITSONI	HEWITSONI	Solanum	nutans	no
Godyridini	Godyris	duillia		DUILLIA	DUILLIA	Cestrum	microcalyx	no
Godyridini	Godyris	panthyale	panthyale	PANTHYALE	PANTHYALE	Cestrum	sp1	no
Godyridini	Greta	alphesiboea		DUILLIA	DUILLIA	Cestrum	microcalyx	no
Godyridini	Greta	andromica	andania	AGNOSIA	AGNOSIA	Cestrum	microcalyx	no
Godyridini	Greta	enigma	ssp	PANTHYALE	PANTHYALE	Cestrum	megalophyllum	no
Godyridini	Greta	enigma	ssp	PANTHYALE	PANTHYALE	Cestrum	sp1	no
Godyridini	Greta	hermana	joiceyi	JOICEYI	JOICEYI	Cestrum	megalophyllum	no
Godyridini	Greta	hermana	joiceyi	JOICEYI	JOICEYI	Cestrum	sp2	no
Godyridini	Greta	lydia		HEWITSONI	HEWITSONI	Cestrum	megalophyllum	no
Godyridini	Greta	ortygia	ortygia	PANTHYALE	PANTHYALE	Cestrum	megalophyllum	no
Napeogenini	Hyalyris	ocna	ssp	OCNA	OCNA	Solanum	asperum	no
Napeogenini	Hyalyris	ocna	ssp	OCNA	OCNA	Solanum	sect. Torva3	no
Napeogenini	Napeogenes	apulia	ssp	OCNA	OCNA	Lycianthes	multiflora	no
Oleriini	Oleria	fasciata	fasciata	SUSIANA	SUSIANA	Solanum	anceps	no
Oleriini	Oleria	makrena	makrenita	AGNOSIA	AGNOSIA	Lycianthes	multiflora	no
Oleriini	Oleria	santineza	ssp	BANJANA-M	BANJANA-M	Solanum	abitaguense	no
ECUADOR SOUTH MONTANE (Willmott, this study)								
Dircennini	Dircenna	adina	lorica	MESTRA	MESTRA	Solanum	sect. Torva2	no
Dircennini	Dircenna	paradoxa	praestigiosa	PANTHYALE	PANTHYALE	Solanum	hispidum	no
Dircennini	Episcada	apuleia	apuleia	APULEIA	APULEIA	Solanum	aphyodendron	no
Dircennini	Episcada	apuleia	apuleia	APULEIA	APULEIA	Solanum	aphyodendron	no
Dircennini	Episcada	apuleia	apuleia	APULEIA	APULEIA	Solanum	sp2	no
Dircennini	Episcada	mira		LIBETHRIS	AGNOSIA	Solanum	aphyodendron	no
Dircennini	Pteronymia	alida	ssp	APULEIA	APULEIA	Solanum	nutans	no
Dircennini	Pteronymia	alissa	andreas	AGNOSIA	AGNOSIA	Brugmansia	candida	no
Dircennini	Pteronymia	alissa	andreas	AGNOSIA	AGNOSIA	Solanum	abitaguense	no

Electronic Appendix A Cont. Hostplant records and mimicry classification for five ithomiine communities.

Tribe	Genus	Species	Subspecies	Male mimicry ring	Female mimicry ring	Plant genus	Plant species	Delete
ECUADOR SOUTH MONTANE (Willmott, this study)								
Dircennini	Pteronymia	ozia	ozia	OZIA	MESTRA	Solanum	aphyodendron	no
Dircennini	Pteronymia	teresita	thabena	OZIA	DUILLIA	Solanum	cajanumense	no
Dircennini	Pteronymia	ticida	ticida	TICIDA-M	HEWITSONI	Solanum	abitaguense	no
Dircennini	Pteronymia	ticida	ticida	TICIDA-M	HEWITSONI	Solanum	sp5	no
Dircennini	Pteronymia	zerlina	ssp	APULEIA	APULEIA	Solanum	sp5	no
Dircennini	Velamysta	phengites	phengites	PANTHYALE	PANTHYALE	Cuatresia	riparia	no
Godyridini	Godyris	duillia		DUILLIA	DUILLIA	Cestrum	microcalyx	no
Godyridini	Godyris	panthyale	panthyale	PANTHYALE	PANTHYALE	Cestrum	sp1	no
Godyridini	Greta	andromica	andania	AGNOSIA	AGNOSIA	Solanum	anceps	no
Godyridini	Greta	sp		AGNOSIA	AGNOSIA	Cestrum	microcalyx	no
Godyridini	Greta	depauperata	umbrosa	LAUTA	LAUTA	Solanum	sp1	yes
Godyridini	Greta	enigma	ssp	PANTHYALE	PANTHYALE	Cestrum	sp1	no
Godyridini	Greta	theudelinda	zalmunna	ZALMUNNA	ZALMUNNA	Solanum	sp3	no
Ithomiini	Ithomia	avella	epona	TICIDA-M	HEWITSONI	Cuatresia	riparia	no
Ithomiini	Ithomia	lagusa	linda	ANTEA	ANTEA	Cuatresia	riparia	no
Ithomiini	Ithomia	salapia	derasa	DERASA	DERASA	Witheringia	solanacea	no
Ithomiini	Ithomia	terra	terra	BANJANA-M	BANJANA-M	Cuatresia	riparia	no
Melinieini	Melinaea	menophilus	zaneka	AMICA	AMICA	Markea	sp	no
Oleriini	Megoleria	orestilla	orestilla	BANJANA-M	BANJANA-M	Gesneriaceae	unidentified	no
Tithoreini	Patricia	dercyllidas	dercyllidas	DERCYLLIDAS	DERCYLLIDAS	Capsicum	lycianthoides	no
ECUADOR LOWLAND (Drummond, 1976)								
Dircennini	Ceratinia	tutia	poecila	HERMIAS	MAMERCUS	Solanum	antillarum	No
Dircennini	Episcada	sulphurea	ssp	SALAPIA	SALAPIA	Solanum	sp. (7336)	No
Dircennini	Pteronymia	vestilla	sparsa	SALAPIA	SALAPIA	Solanum	nr. nudum	No
Godyridini	Godyris	zavaleta	matronalis	SALAPIA	SALAPIA	Cestrum	laevigatum	No
Godyridini	Godyris	zavaleta	matronalis	SALAPIA	SALAPIA	Cestrum	sp. (7334)	No
Godyridini	Heterosais	giulia	nephele	AGNOSIA	AGNOSIA	Cestrum	sp. (7324)	No
Godyridini	Brevioleria	arzalia	ssp	AURELIANA	AURELIANA	Cestrum	sp. (7353)	No
Godyridini	Pseudoscada	timna	ssp	AGNOSIA	AGNOSIA	Cestrum	sp. (7324)	No
Ithomiini	Ithomia	agnosia	agnosia	AGNOSIA	AGNOSIA	Physalis	pubescens	No
Ithomiini	Ithomia	amarilla		SALAPIA	SALAPIA	Cuatresia	sp. (7327)	No
Ithomiini	Ithomia	salapia	derasa	DERASA	DERASA	Physalis	angulata	No
Mechanitini	Forbestra	olivencia	juntana	HERMIAS	HERMIAS	Solanum	anceps	No
Mechanitini	Mechanitis	lysimnia	roqueensis	HERMIAS	HERMIAS	Solanum	macronotum	No
Mechanitini	Mechanitis	lysimnia	roqueensis	HERMIAS	HERMIAS	Solanum	pectinatum	No
Mechanitini	Mechanitis	lysimnia	roqueensis	HERMIAS	HERMIAS	Solanum	sp. (7334)	No
Mechanitini	Mechanitis	mazaeus	mazaeus	HERMIAS	HERMIAS	Solanum	nr. lancaeifolium	No
Mechanitini	Mechanitis	mazaeus	mazaeus	HERMIAS	HERMIAS	Solanum	sp. (7326)	No
Mechanitini	Mechanitis	mazaeus	mazaeus	HERMIAS	HERMIAS	Solanum	sp. (7333)	No
Mechanitini	Mechanitis	messenoides	deceptus	MOTHONE	MOTHONE	Solanum	pectinatum	No
Mechanitini	Mechanitis	messenoides	deceptus	MOTHONE	MOTHONE	Solanum	quitoense	No
Mechanitini	Mechanitis	messenoides	deceptus	MOTHONE	MOTHONE	Solanum	sessiliflorum	No
Mechanitini	Mechanitis	polymnia	ssp	HERMIAS	HERMIAS	Cyphomandra	hartwegii	No
Mechanitini	Mechanitis	polymnia	ssp	HERMIAS	HERMIAS	Lycopersicon	esculentum	No
Mechanitini	Mechanitis	polymnia	ssp	HERMIAS	HERMIAS	Solanum	quitoense	No
Mechanitini	Mechanitis	polymnia	ssp	HERMIAS	HERMIAS	Solanum	sessiliflorum	No

Electronic Appendix A Cont. Hostplant records and mimicry classification for five ithomiine communities.

Tribe	Genus	Species	Subspecies	Male mimicry ring	Female mimicry ring	Plant genus	Plant species	Delete
ECUADOR LOWLAND (Drummond, 1976)								
Mechanitini	Mechanitis	polymnia	ssp	HERMIAS	HERMIAS	Solanum	sp. (7334)	Yes
Mechanitini	Methona	confusa	psamathe	CONFUSA	CONFUSA	Brunfelsia	pauciflora	No
Mechanitini	Methona	confusa	psamathe	CONFUSA	CONFUSA	Brunfelsia	sp. (7330)	No
Mechanitini	Scada	zibia	quotidiana	DERASA	DERASA	Solanum	sp. (7331)	No
Mechanitini	Scada	zibia	batesi	SALAPIA	SALAPIA	Solanum	sp. (7331)	No
Mechanitini	Thyridia	psidii	ino	CONFUSA	CONFUSA	Cyphomandra	hartwegii	No
Napeogenini	Hypothyris	euclea	intermedia	HERMIAS	HERMIAS	Solanum	bicolor	No
Napeogenini	Hypothyris	fluonia	berna	HERMIAS	HERMIAS	Solanum	sp. (7311)	No
Napeogenini	Hypothyris	semifulva	satura	HERMIAS	HERMIAS	Solanum	schlechtendalianum	No
Napeogenini	Napeogenes	inachia	pozziana	SALAPIA	SALAPIA	Lycianthes	howardiana	No
Napeogenini	Napeogenes	sylphis	corena	AURELIANA	AURELIANA	Lycianthes	sp. (7325)	No
Oleriini	Oleria	onega	ssp	LERIDA	LERIDA	Lycianthes	maxonii	No
Oleriini	Oleria	onega	ssp	LERIDA	LERIDA	Solanum	evolvulifolium	No
Oleriini	Oleria	onega	ssp	LERIDA	LERIDA	Solanum	sp. (7310)	No
Oleriini	Oleria	onega	ssp	LERIDA	LERIDA	Solanum	sp. (7319)	No
COSTA RICA (Haber, 1978, 2003)								
Dircennini	Callithomia	hezia	hezia	HEZIA	HEZIA	Lycianthes	sanctaeclarae	no
Dircennini	Ceratinia	tutia	dorilla	SCYLAX	SCYLAX	Solanum	aphyodendron	no
Dircennini	Dircenna	dero	ssp	DILUCIDA	SCYLAX	Solanum	chrysotrichum	no
Dircennini	Dircenna	dero	ssp	DILUCIDA	SCYLAX	Solanum	rudepannum	no
Dircennini	Dircenna	jemina	chiriquensis	DILUCIDA	DILUCIDA	Solanum	siparunoides	no
Dircennini	Dircenna	klugii	klugii	DILUCIDA	DILUCIDA	Solanum	chrysotrichum	yes-m
Dircennini	Dircenna	klugii	klugii	DILUCIDA	DILUCIDA	Solanum	rudepannum	yes-m
Dircennini	Dircenna	klugii	klugii	DILUCIDA	DILUCIDA	Solanum	umbellatum	no
Dircennini	Dircenna	olyras	relata	INSIGNIS	SCYLAX	Solanum	chrysotrichum	yes-f
Dircennini	Dircenna	olyras	relata	INSIGNIS	SCYLAX	Solanum	rudepannum	yes-f
Dircennini	Dircenna	olyras	relata	INSIGNIS	SCYLAX	Solanum	umbellatum	no
Dircennini	Episcada	salvinia	opleri	SIMPLEX	SIMPLEX	Solanum	aphyodendron	no
Dircennini	Pteronymia	aletta	agalla	SCYLAX	SCYLAX	Solanum	rovirosanum	no
Dircennini	Pteronymia	artena	ssp	SIMPLEX	SIMPLEX	Lycianthes	escuitlensis	no
Dircennini	Pteronymia	artena	ssp	SIMPLEX	SIMPLEX	Lycianthes	multiflora	no
Dircennini	Pteronymia	artena	ssp	SIMPLEX	SIMPLEX	Lycianthes	synanthera	no
Dircennini	Pteronymia	fulvimargo		DILUCIDA	DILUCIDA	Lycianthes	synanthera	no
Dircennini	Pteronymia	latilla	fulvescens	DILUCIDA	DILUCIDA	Solanum	brenesii	no
Dircennini	Pteronymia	latilla	fulvescens	DILUCIDA	DILUCIDA	Solanum	tuerckheimii	no
Dircennini	Pteronymia	lonera		DECUMANA	DECUMANA	Solanum	circinatum	no
Dircennini	Pteronymia	parva		PATILLA	PATILLA	Solanum	arboreum	no
Dircennini	Pteronymia	picta	notilla	DILUCIDA	SCYLAX	Solanum	tuerckheimii	no
Dircennini	Pteronymia	simplex	simplex	SIMPLEX	SIMPLEX	Solanum	aphyodendron	no
Dircennini	Pteronymia	simplex	simplex	SIMPLEX	SIMPLEX	Solanum	brenesii	no
Dircennini	Pteronymia	simplex	simplex	SIMPLEX	SIMPLEX	Solanum	pastillum	no
Dircennini	Pteronymia	simplex	simplex	SIMPLEX	SIMPLEX	Solanum	pertenue	no
Dircennini	Pteronymia	simplex	simplex	SIMPLEX	SIMPLEX	Solanum	ramonense	no
Dircennini	Pteronymia	simplex	simplex	SIMPLEX	SIMPLEX	Solanum	rovirosanum	no
Dircennini	Pteronymia	simplex	simplex	SIMPLEX	SIMPLEX	Solanum	tuerckheimii	no
Godyridini	Godyris	nero		SIMPLEX	SIMPLEX	Cestrum	racemosum	no
Godyridini	Godyris	zavaleta	caesiopicta	INSIGNIS	SCYLAX	Cestrum	nocturnum	no

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Tribe	Genus	Species	Subspecies	Male mimicry ring	Female mimicry ring	Plant genus	Plant species	Delete
COSTA RICA (Haber, 1978, 2003)								
Godyridini	Greta	morgane	oto	PATILLA	PATILLA	Cestrum	lanatum	no
Godyridini	Greta	morgane	oto	PATILLA	PATILLA	Cestrum	racemosum	no
Godyridini	Greta	morgane	oto	PATILLA	PATILLA	Cestrum	sp. "San Luis"	no
Godyridini	Greta	annette	championi	SIMPLEX	SIMPLEX	Cestrum	fragile	no
Godyridini	Greta	annette	championi	SIMPLEX	SIMPLEX	Cestrum	irazuense	no
Godyridini	Greta	annette	championi	SIMPLEX	SIMPLEX	Cestrum	lanatum	no
Godyridini	Greta	annette	championi	SIMPLEX	SIMPLEX	Cestrum	megalophyllum	no
Godyridini	Greta	annette	championi	SIMPLEX	SIMPLEX	Cestrum	rugulosum	no
Godyridini	Greta	annette	championi	SIMPLEX	SIMPLEX	Cestrum	sp. "Button Berry"	no
Godyridini	Greta	polissena	umbrana	SIMPLEX	SIMPLEX	Cestrum	fragile	no
Godyridini	Greta	polissena	umbrana	SIMPLEX	SIMPLEX	Cestrum	irazuense	no
Godyridini	Greta	polissena	umbrana	SIMPLEX	SIMPLEX	Cestrum	megalophyllum	no
Godyridini	Greta	polissena	umbrana	SIMPLEX	SIMPLEX	Cestrum	panamense	no
Godyridini	Greta	polissena	umbrana	SIMPLEX	SIMPLEX	Cestrum	rugulosum	no
Godyridini	Greta	polissena	umbrana	SIMPLEX	SIMPLEX	Cestrum	sp. "Button Berry"	no
Godyridini	Hypoleria	lavinia	cassotis	PATILLA	PATILLA	Cestrum	megalophyllum	no
Ithomiini	Ithomia	celemia	plaginota	SCYLAX	SCYLAX	Cuatresia	riparia	no
Ithomiini	Ithomia	diasia	hippocrenis	PATILLA	PATILLA	Witheringia	asterotricha	no
Ithomiini	Ithomia	diasia	hippocrenis	PATILLA	PATILLA	Witheringia	meiantha	no
Ithomiini	Ithomia	heraldica		SCYLAX	SCYLAX	Acnistus	arborescens	no
Ithomiini	Ithomia	heraldica		SCYLAX	SCYLAX	Cuatresia	riparia	yes
Ithomiini	Ithomia	heraldica		SCYLAX	SCYLAX	Lycianthes	amatitlanensis?	no
Ithomiini	Ithomia	heraldica		SCYLAX	SCYLAX	Witheringia	morii	no
Ithomiini	Ithomia	patilla		PATILLA	PATILLA	Brachistus	stramoniifolius	no
Ithomiini	Ithomia	patilla		PATILLA	PATILLA	Lycianthes	multiflora	no
Ithomiini	Ithomia	patilla		PATILLA	PATILLA	Witheringia	meiantha	yes
Ithomiini	Ithomia	patilla		PATILLA	PATILLA	Witheringia	solanacea	no
Ithomiini	Ithomia	patilla		PATILLA	PATILLA	Witheringia	sp.	no
Ithomiini	Ithomia	xenos	xenos	DILUCIDA	DILUCIDA	Acnistus	arborescens	no
Ithomiini	Ithomia	xenos	xenos	DILUCIDA	DILUCIDA	Cuatresia	riparia	no
Ithomiini	Ithomia	xenos	xenos	DILUCIDA	DILUCIDA	Witheringia	cuneata	no
Mechanitini	Mechanitis	lysimnia	utemaia	IMITATA	IMITATA	Solanum	rugosum	no
Mechanitini	Mechanitis	lysimnia	utemaia	IMITATA	IMITATA	Solanum	siparunoides	no
Mechanitini	Mechanitis	menapis	saturata	IMITATA	IMITATA	Solanum	acerifolium	no
Mechanitini	Mechanitis	menapis	saturata	IMITATA	IMITATA	Solanum	chrysotrichum	no
Mechanitini	Mechanitis	menapis	saturata	IMITATA	IMITATA	Solanum	quitoense	no
Mechanitini	Mechanitis	menapis	saturata	IMITATA	IMITATA	Solanum	siparunoides	yes
Mechanitini	Mechanitis	polymnia	isthmia	IMITATA	IMITATA	Jaltomata	repandidentata	no
Mechanitini	Mechanitis	polymnia	isthmia	IMITATA	IMITATA	Solanum	chrysotrichum	yes
Mechanitini	Mechanitis	polymnia	isthmia	IMITATA	IMITATA	Solanum	hartwegii	no
Mechanitini	Mechanitis	polymnia	isthmia	IMITATA	IMITATA	Solanum	jamaicense	no
Mechanitini	Mechanitis	polymnia	isthmia	IMITATA	IMITATA	Solanum	lanceifolium	no
Mechanitini	Mechanitis	polymnia	isthmia	IMITATA	IMITATA	Solanum	rudepannum	no
Mechanitini	Mechanitis	polymnia	isthmia	IMITATA	IMITATA	Solanum	rugosum	yes
Mechanitini	Mechanitis	polymnia	isthmia	IMITATA	IMITATA	Solanum	siparunoides	yes
Mechanitini	Scada	zibia	xanthina	AGNA	AGNA	Solanum	arboreum	no
Mechanitini	Scada	zibia	xanthina	AGNA	AGNA	Solanum	siparunoides	no
Mechanitini	Thyridia	psidii	melantho	SCYLAX	SCYLAX	Solanum	circinatum	no

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Tribe	Genus	Species	Subspecies	Male mimicry ring	Female mimicry ring	Plant genus	Plant species	Delete
COSTA RICA (Haber, 1978, 2003)								
Melinieini	Melinaea	lilis	imitata	IMITATA	IMITATA	Juanulloa	mexicana	no
Melinieini	Melinaea	lilis	imitata	IMITATA	IMITATA	Merinthopodium	neuranthum	no
Napeogenini	Hyalyris	excelsa	decumana	DECUMANA	DECUMANA	Solanum	accrescens	no
Napeogenini	Hyalyris	excelsa	decumana	DECUMANA	DECUMANA	Solanum	lanceifolium	no
Napeogenini	Hyalyris	excelsa	decumana	DECUMANA	DECUMANA	Solanum	siparunoides	no
Napeogenini	Hypothyris	euclea	valora	IMITATA	IMITATA	Solanum	rugosum	no
Napeogenini	Hypothyris	lycaste	callispila	SCYLAX	SCYLAX	Solanum	accrescens	no
Napeogenini	Napeogenes	tolosa	amara	SCYLAX	SCYLAX	Lycianthes	multiflora	no
Oleriini	Hyposcada	virginiana	evanides	SCYLAX	SCYLAX	Columnea	consanguinea	no
Oleriini	Hyposcada	virginiana	evanides	SCYLAX	SCYLAX	Columnea	glabra	no
Oleriini	Hyposcada	virginiana	evanides	SCYLAX	SCYLAX	Drymonia	conchocalyx	no
Oleriini	Oleria	paula	paula	PATILLA	PATILLA	Lycianthes	multiflora	no
Oleriini	Oleria	rubescens		PATILLA	PATILLA	Solanum	siparunoides	no
Oleriini	Oleria	vicina		SIMPLEX	SIMPLEX	Lycianthes	multiflora	no
Oleriini	Oleria	vicina		SIMPLEX	SIMPLEX	Lycianthes	synanthera	no
Oleriini	Oleria	vicina		SIMPLEX	SIMPLEX	Solanum	trizygum	no
Tithoreini	Eutresis	dilucida		DILUCIDA	DILUCIDA	Schultesianthus	megalandrus	no
Tithoreini	Eutresis	hypereia	theope	DILUCIDA	DILUCIDA	Schultesianthus	megalandrus	yes
Tithoreini	Eutresis	hypereia	theope	DILUCIDA	DILUCIDA	Solandra	grandiflora	no
Tithoreini	Olyras	crathis	staudingeri	DECUMANA	DECUMANA	Solandra	grandiflora	no
Tithoreini	Olyras	insignis	insignis	INSIGNIS	INSIGNIS	Schultesianthus	megalandrus	no
Tithoreini	Tithorea	harmonia	helicaon	SCYLAX	SCYLAX	Prestonia	portobellensis	no
Tithoreini	Tithorea	tarricina	pinthias	HEZIA	HEZIA	Prestonia	longifolia	no
SOUTH-EAST BRAZIL (Brown, 1987)								
Dircennini	Dircenna	dero	rhoeo	THEMISTO	THEMISTO	Solanum	mauritianum	no
Dircennini	Dircenna	dero	rhoeo	THEMISTO	THEMISTO	Solanum	megalochiton	no
Dircennini	Dircenna	dero	rhoeo	THEMISTO	THEMISTO	Solanum	paniculatum	no
Dircennini	Dircenna	dero	rhoeo	THEMISTO	THEMISTO	Solanum	robustum	no
Dircennini	Dircenna	dero	rhoeo	THEMISTO	THEMISTO	Solanum	variabile	no
Dircennini	Episcada	hymenaea	hymenaea	HYMENAEA	HYMENAEA	Cestrum	laevigatum	no
Dircennini	Episcada	hymenaea	hymenaea	HYMENAEA	HYMENAEA	Cestrum	schlechtendalianum	no
Dircennini	Episcada	hymenaea	hymenaea	HYMENAEA	HYMENAEA	Cestrum	sendtnerianum	no
Dircennini	Episcada	hymenaea	hymenaea	HYMENAEA	HYMENAEA	Solanum	caavurana	no
Dircennini	Episcada	hymenaea	hymenaea	HYMENAEA	HYMENAEA	Solanum	pseudocapsicum	no
Dircennini	Pteronymia	sylvo		AQUATA	AQUATA	Solanum	swartzianum	no
Godyridini	Mcclungia	cymo	salonina	PHILOCLEA	PHILOCLEA	Cestrum	laevigatum	no
Godyridini	Mcclungia	cymo	salonina	PHILOCLEA	PHILOCLEA	Cestrum	schlechtendalianum	no
Godyridini	Mcclungia	cymo	salonina	PHILOCLEA	PHILOCLEA	Cestrum	sendtnerianum	no
Godyridini	Pseudoscada	erruca		AQUATA	AQUATA	Cestrum	laevigatum	no
Godyridini	Pseudoscada	erruca		AQUATA	AQUATA	Cestrum	schlechtendalianum	no
Ithomiini	Ithomia	agnosia	zikani	AQUATA	AQUATA	Acnistus	arborescens	yes
Ithomiini	Ithomia	agnosia	zikani	AQUATA	AQUATA	Vassobia	breviflora	no
Ithomiini	Ithomia	drymo		AQUATA	AQUATA	Acnistus	arborescens	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Cyphomandra	divaricata	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Cyphomandra	fragrans	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Cyphomandra	sciadostylis	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Lycopersicon	esculentum	no

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Tribe	Genus	Species	Subspecies	Male mimicry ring	Female mimicry ring	Plant genus	Plant species	Delete
SOUTH-EAST BRAZIL (Brown, 1987)								
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Nicandra	physaloides	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	aculeatissimum	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	arcuatum	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	atropurpureum	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	brusquense	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	capsicoides	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	jatrophifolium	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	paniculatum	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	robustum	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	variabile	no
Mechanitini	Mechanitis	lysimnia	lysimnia	LYSIMNIA	LYSIMNIA	Solanum	viarum	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Cyphomandra	fragrans	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Lycopersicon	esculentum	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	asperolanatum	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	concinnum	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	granulosoleprosum	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	mauritianum	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	megalochiton	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	melongena	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	paniculatum	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	robustum	no
Mechanitini	Mechanitis	polymnia	casabranca	ETHRA	ETHRA	Solanum	variabile	no
Mechanitini	Methona	themisto	ssp	THEMISTO	THEMISTO	Brunfelsia	australis	no
Mechanitini	Methona	themisto	ssp	THEMISTO	THEMISTO	Brunfelsia	pauciflora	no
Mechanitini	Methona	themisto	ssp	THEMISTO	THEMISTO	Brunfelsia	uniflora	no
Mechanitini	Thyridia	psidii	cetoides	THEMISTO	THEMISTO	Cyphomandra	crassicaulis	no
Mechanitini	Thyridia	psidii	cetoides	THEMISTO	THEMISTO	Cyphomandra	divaricata	no
Mechanitini	Thyridia	psidii	cetoides	THEMISTO	THEMISTO	Cyphomandra	fragrans	no
Mechanitini	Thyridia	psidii	cetoides	THEMISTO	THEMISTO	Cyphomandra	sciadostylis	no
Napeogenini	Epityches	eupompe		PHILOCLEA	PHILOCLEA	Acnistus	arborescens	no
Napeogenini	Epityches	eupompe		PHILOCLEA	PHILOCLEA	Capsicum	flexuosum	no
Napeogenini	Hypothyris	euclea	laphria	ETHRA	ETHRA	Solanum	granulosoleprosum	no
Napeogenini	Hypothyris	euclea	laphria	ETHRA	ETHRA	Solanum	mauritianum	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	brusquense	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	concinnum	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	insidiosum	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	mauritianum	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	megalochiton	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	murinum	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	paniculatum	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	robustum	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	swartzianum	no
Napeogenini	Hypothyris	ninonia	daeta	LYSIMNIA	LYSIMNIA	Solanum	variabile	no
New Tribe	Aeria	olena	olena	AGNA	AGNA	Prestonia	coalita	no
New Tribe	Aeria	olena	olena	AGNA	AGNA	Prestonia	dusenii	no
Tithoreini	Tithorea	harmonia	pseudethra	ETHRA	ETHRA	Peltastes	peltatus	no
Tithoreini	Tithorea	harmonia	pseudethra	ETHRA	ETHRA	Prestonia	acutifolia	no
Tithoreini	Tithorea	harmonia	pseudethra	ETHRA	ETHRA	Prestonia	coalita	no

Electronic Appendix A Cont. Hostplant records and mimicry classification for five ithomiine communities.

Tribe	Genus	Species	Subspecies	Male mimicry ring	Female mimicry ring	Plant genus	Plant species	Delete
SOUTH-EAST BRAZIL (Brown, 1987)								
Tithoreini	Tithorea	harmonia	pseudethra	ETHRA	ETHRA	Prestonia	dusenii	no
Tithoreini	Tithorea	harmonia	pseudethra	ETHRA	ETHRA	Temnadenia	violacea	no

'Delete' column refers to whether or not records were deleted to correct for close phylogenetic relationships.

Electronic Appendix B Mimicry classification. Patterns occurring in more than one community are listed only once.

Mimicry complex classification				Mimicry characters (see below)																
This paper	**Beccaloni (1997a)**	**Drummond (1976)**	**Haber (1978)**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**Comments**
ECUADOR NORTH MONTANE																				
SUSIANA	-	-	-	26	19	2	0	7	5	0	19	0	0	5	0	6	0	0	0	
BANJANA-M	-	-	-	26	7	2	0	4	5	0	18	0	0	9	0	6	0	0	0	
OCNA	-	-	-	24	0	0	0	9	7	0	17	0	0	6	1	1	5	0	0	
TICIDA-M	-	-	-	14	20	0	0	10	8	3	23	0	0	12	0	1	5	0	0	
PANTHYALE	-	-	-	13	17	0	4	10	9	1	23	0	0	13	0	3	0	0	0	
OZIA	-	-	-	14	20	0	0	10	7	0	21	0	0	10	1	1	2	0	0	
HEWITSONI	-	-	-	30	8	0	4	8	10	5	22	0	0	11	0	4	0	0	0	
JOICEYI	-	-	-	20	12	0	3	0	6	5	10	2	0	4	0	0	6	0	0	VFW discocellular spot black
DUILLIA	-	-	-	17	20	0	1	10	11	0	14	0	0	16	0	2	0	0	0	
LIBETHRIS	-	-	-	10	16	0	4	8	7	0	3	0	0	10	0	3	4	0	0	
ECUADOR SOUTH MONTANE																				
ANTEA	-	-	-	23	0	0	0	8	1	0	15	0	0	2	0	1	5	0	0	
MESTRA	-	-	-	23	0	0	0	8	7	0	16	0	0	6	0	1	3	0	0	
APULEIA	-	-	-	18	7	0	3	10	8	0	6	0	0	12	0	6	0	0	0	
ZALMUNNA	-	-	-	16	18	0	0	8	9	0	4	3	0	3	0	6	6	0	0	Geographic variant of JOICEYI
LAUTA	-	-	-	16	17	0	4	10	10	0	7	0	0	13	0	3	0	0	0	
DERCYLLIDAS	-	-	-	22	1	0	5	6	3	2	13	0	1	8	0	3	1	0	0	
AMICA	-	-	-	2	9	5	6	11	4	4	0	0	0	0	1	5	0	0	0	
ECUADOR LOWLAND																				
AGNOSIA	Clearwing	White transparent	-	12	14	0	0	4	7	0	24	0	0	10	0	6	0	0	0	
LERIDA	Small Dark Transparent	White transparent	-	25	2	1	0	4	0	0	18	0	0	8	0	6	0	0	0	
AURELIANA	Orange-tip	Orange-tip transparent	-	8	13	0	2	10	8	0	24	0	0	8	0	6	0	0	0	
CONFUSA	Large Yellow Transparent	Yellow clearwing transparent; Large transparent clearwing	-	27	4	1	0	8	7	0	20	1	0	10	1	1	0	1	1	
SALAPIA	Small Yellow Transparent	Yellow clearwing transparent	-	19	1	0	0	4	7	0	8	0	0	8	1	6	0	0	0	
DERASA	Small Yellow Transparent	Yellow opaque transparent	-	19	1	0	0	4	2	6	8	1	0	2	0	6	0	0	0	
HERMIAS	Tiger	Yellow, orange and black Tiger; Yellow spot canopy Tiger	-	5	10	5	6	3	4	4	0	0	3	10	1	6	0	0	0	
MAMERCUS	Yellow-bar Tiger	Yellow-bar canopy Tiger	-	2	9	5	6	11	4	4	0	0	2	15	1	5	0	0	0	
MOTHONE	Orange and black Tiger	Orange and black Tiger	-	0	9	5	5	11	4	4	0	0	2	15	1	5	0	0	0	
COSTA RICA																				
SIMPLEX	-	-	Clearwing	11	15	0	0	10	8	0	24	0	0	1	0	6	0	0	0	Members are montane and increase opacity of white forewing spots from SE to NW Central America, unlike PATILLA
PATILLA	-	-	Clearwing	12	14	0	0	5	7	0	24	0	0	1	0	6	0	0	0	
AGNA	-	-	Black and yellow	19	1	0	0	4	4	0	8	0	0	8	1	6	0	0	0	Geographic variant of SALAPIA
INSIGNIS	-	-	Black and yellow	28	3	2	0	8	7	0	9	0	0	8	1	1	0	0	0	Reduction in intensity of yellow from C. America to W. Ecuador not matched by AGNA or DILUCIDA members
DILUCIDA	-	-	Golden-translucent	29	3	2	0	8	7	0	12	0	0	10	1	1	0	0	0	

Electronic Appendix B Cont. Mimicry classification. Patterns occurring in more than one community are listed only once.

Mimicry complex classification				Mimicry characters (see below)																
This paper	**Beccaloni (1997a)**	**Drummond (1976)**	**Haber (1978)**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**Comments**
COSTA RICA																				
DECUMANA	-	-	Black and rust	6	5	7	0	3	4	0	2	0	0	7	1	1	0	0	0	
HEZIA	-	-	Black and rust	7	19	7	0	3	4	0	0	0	0	14	0	1	0	0	0	HEZIA members show parallel variation in Colombia not followed by DECUMANA members
SCYLAX	-	-	Tiger	3	6	6	6	3	4	0	0	0	1	10	1	1	0	0	0	
IMITATA	-	-	Tiger	3	6	6	6	3	4	4	0	0	0	10	1	1	0	0	0	Most members also have end FW discal cell yellow (orange in IMITATA)
SOUTH-EAST BRAZIL																				
AQUATA	-	-	-	21	15	3	0	8	7	0	11	0	0	10	0	3	0	0	0	
HYMENAEA	-	-	-	9	17	0	4	10	8	5	3	0	0	10	0	3	4	0	0	
PHILOCLEA	-	-	-	15	15	0	0	8	7	0	5	0	0	8	0	6	4	0	0	
THEMISTO	-	-	-	27	4	1	0	8	7	0	20	1	0	10	1	1	0	1	1	Geographic variant of CONFUSA
ETHRA	-	-	-	4	1	2	6	2	4	0	1	0	1	8	0	1	0	0	0	
LYSIMNIA	-	-	-	1	11	4	6	1	4	5	1	0	1	8	1	1	0	0	0	Differs from ETHRA principally in white DFW subapical spot; *Mechanitis lysimnia* has both ETHRA and LYSIMNIA patterns, which are otherwise broadly sympatric.

Mimicry characters

1. DFW ground colour (wing excluding black marginal and discal markings)

0: opaque; orange. **1**: opaque; orange, yellow discal band, white subapical spot. **2**: opaque; orange, yellow postdiscal band. **3**: opaque; orange, yellow postdiscal band and subapical spots. **4**: opaque; orange, yellow postdiscal band, yellow subapical spot. **5**: opaque; orange, scattered yellow postdiscal and subapical markings. **6**: opaque; yellow, large subapical, submarginal, postdiscal and discal spots. **7**: opaque; yellow, small, subapical, submarginal, postdiscal and discal spots. **8**: translucent/opaque; colourless, very broad orange postdiscal band. **9**: translucent; colourless. **10**: translucent; colourless, opaque yellow postdiscal band and tornal spot. **11**: translucent; colourless, white postdiscal and subapical spots. **12**: translucent; colourless, white postdiscal band. **13**: translucent; colourless, white postdiscal, tornal and apical spots. **14**: translucent; colourless, yellow base discal cell. **15**: translucent; colourless, yellow discal and postdiscal band. **16**: translucent; colourless, yellow postdiscal, tornal and submarginal spots. **17**: translucent; colourless, yellow/orange in distal half. **18**: translucent; colourless, yellowish postdiscal band. **19**: translucent; dense yellow. **20**: translucent; dense yellow/orange. **21**: translucent; faint white to colourless. **22**: translucent; pale green/brown. **23**: translucent; smoky grey. **24**: translucent; smoky grey, yellow base discal cell. **25**: translucent; white discal, postdiscal and submarginal spots. **26**: translucent; whitish, broken postdiscal band, subapical and subapical spots. **27**: translucent; yellow. **28**: translucent; yellow, large, partially fused, submarginal, postdiscal and discal spots. **29**: translucent; yellow, large, partially fused, submarginal, postdiscal and discal spots, orange along cubital vein. 3**0**: translucent; yellow/orange.

2. DFW discal band

0: absent. **1**: black; broad band. **2**: black; broad band, extending to anal margin base Cu2-Cu1 and distal margin along M3. **3**: black; broad bar extending as dark scaling along veins. **4**: black; broad, even band. **5**: black; broad, into base cell Cu2-Cu1, extending along veins M3 and M2. **6**: black; broad, uneven band. **7**: black; discocellular bar. **8**: black; discocellular spot. **9**: black; discocellular spots. **10**: black; disjointed band. **11**: black; fused with apex. **12**: black; large, uneven discocellular spot. **13**: black; narrow bar. **14**: black; tapering band. **15**: black; thick discocellular bar. **16**: black; thin bar. **17**: black; thin discocellular bar. **18**: black; uneven discocellular spot. **19**: black; very broad band, into base cell Cu2-Cu1, extending along veins M3 and M2. **20**: black; very thin discocellular line.

3. DFW cell bar

0: absent. **1**: black; bar. **2**: black; broad bar. **3**: black; line. **4**: black; oval spot. **5**: black; spot. **6**: black; thick bar. **7**: black; very broad filling basal third wing.

4. DFW costa

0: black. **1**: black then yellow/orange distal of discocellulars. **2**: black/orange. **3**: orange. **4**: orange to basal of discocellulars, then black. **5**: orange/black. **6**: orange/yellow/black.

5. DFW apex

0: black, white subapical spot; quadrate marking. **1**: black, white subapical spot; very broad (apical third). **2**: black, yellow subapical spot; very broad (apical third). **3**: black, yellow subapical spots; very broad (apical third). **4**: black; broad. **5**: black; broad, extending to white postdiscal band. **6**: black; broad, subapical green/brown spots. **7**: black; broad, with white subapical and apical spots. **8**: black; medium. **9**: black, white subapical spots; medium. **10**: black; narrow. **11**: black; very broad (apical third).

Electronic Appendix B Cont. Mimicry classification.

Mimicry characters

6. DFW distal margin
0: black with orange submarginal line; fused. **1**: black with white spots; medium, even. **2**: black with white submarginal spots; medium, even. **3**: black, medium, crenellated. **4**: black; broad, fused. **5**: black; crenellated. **6**: black; highly serrate. **7**: black; medium, even. **8**: black; narrow, even. **9**: black; narrow, serrate. **10**: black; narrow, slightly serrate. **11**: black; very narrow, slightly serrate.

7. DFW anal margin
0: black. **1**: black, orange at base. **2**: black, orange cubital vein. **3**: black, yellow at very base. **4**: orange. **5**: orange and black. yellow and black.

8. DHW ground colour
0: opaque; orange. **1**: opaque; yellow discal area, orange postdiscal area. **2**: semi-opaque; orange. **3**: translucent; colourless. **4**: translucent; colourless, large yellow subapical and submarginal spots. **5**: translucent; colourless, yellow in discal cell and basal two thirds. **6**: translucent; colourless, yellowish discal band. **7**: translucent; colourless, yellowish submarginal spots. **8**: translucent; dense yellow. **9**: translucent; dense yellow, orange at distal edge in posterior half. **10**: translucent; dense yellow/orange. **11**: translucent; faint white to colourless. **12**: translucent; orange, becoming yellow in middle. **13**: translucent; pale green/brown. **14**: translucent; pale whitish to colourless, yellowish submarginal spots, broad red-brown anal margin. **15**: translucent; smoky grey. **16**: translucent; smoky grey, yellow in basal half. **17**: translucent; smoky grey, yellow in basal half, orange along anal margin. **18**: translucent; whitish. **19**: translucent; whitish, discal cell black. **20**: translucent; yellow. **21**: translucent; yellow in discal cell and basal two thirds. **22**: translucent; yellow/orange. **23**: translucent; yellow/orange in discal cell and cells posterior of vein Cu1, white submarginal spots in apex. **24**: transparent; colourless.

9. DHW discocellular marking
0: absent. **1**: black; band. **2**: black; large discocellular spot. **3**: black; narrow discocellular spot.

10. DHW discal band
0: absent. **1**: black; broad band. **2**: black; fused with margin. **3**: black; line of spots.

11. DHW distal margin
0: absent. **1**: black with narrow dark orange line; medium, even. **2**: black with white submarginal spots; broad, even. **3**: black with white submarginal spots; medium, dentate. **4**: black with white submarginal spots; very broad, dentate. **5**: black with white submarginal spots; very broad, extending along veins, even. **6**: black with/without white submarginal spots; broad, even. **7**: black, yellow submarginal spots; broad, slightly broader at apex, even. **8**: black; broad, even. **9**: black; broad, slightly dentate. **10**: black; medium, even. **11**: black; medium, serrate. **12**: black; narrow, even. **13**: black; narrow, serrate. **14**: black; very broad at apex, tapering towards tornus, even. **15**: black; very broad, fused with discal band. **16**: dark brown; very narrow in cells Cu2-M3, very broad in (almost filling) cell M3-M2.

12. Antennal clubs
0: black. **1**: yellow.

13. VHW distal margin
0: black, large white submarginal spots. **1**: black, white submarginal spots. **2**: dark brown; very narrow in cells Cu2-M3, very broad in (almost filling) cell M3-M2. **3**: orange. **4**: orange and black, small white submarginal spots. **5**: orange/black. **6**: orange/black, white submarginal spots.

14. VHW base costa
0: same as margins or variable. **1**: green, broad band. **2**: orange triangle. **3**: white spot. **4**: yellow stripe. **5**: yellow triangle. **6**: yellow/orange triangle.

15. Ventral thorax
0: black with yellow/white stripes. **1**: black with white spots.

16. Ventral abdomen
0: yellow/white. **1**: black with white dashes.

Electronic Appendix C Matching interactions between pairs of ithomiine taxa, mimicry complex and larval hostplant.

PLANT GENUS	PLANT SPECIES	MIMICRY	ITHOMIINE TAXON 1	ITHOMIINE TAXON 2	TRIBE	GENUS	SPECIES GROUP	CLOSELY RELATED SPP
ECUADOR NORTH MONTANE, MALE								
Cestrum	megalophyllum	PANTHYALE	Greta enigma ssp	Greta ortygia ortygia			X	
Cestrum	microcalyx	DUILLIA	Greta alphesiboea	Godyris duillia		X		
Cestrum	sp1	PANTHYALE	Greta enigma ssp	Godyris panthyale panthyale		X		
Lycianthes	multiflora	AGNOSIA	Oleria makrena makrenita	Pteronymia artena afrania	X			
Solanum	asperum	EQUATORIA	Hyalyris ocna ssp	Dircenna adina lorica	X			
Solanum	deflexiflorum	HEWITSONI	Pteronymia oneida oneida	Pteronymia serrata ssp			X	
Solanum	nutans	HEWITSONI	Pteronymia alida ssp	Pteronymia serrata ssp				X
Solanum	sect. Torva3	EQUATORIA	Hyalyris ocna ssp	Dircenna adina lorica	X			
ECUADOR NORTH MONTANE, FEMALE								
Cestrum	megalophyllum	PANTHYALE	Greta enigma ssp	Greta ortygia ortygia			X	
Cestrum	microcalyx	DUILLIA	Greta alphesiboea	Godyris duillia		X		
Cestrum	sp1	PANTHYALE	Greta enigma ssp	Godyris panthyale panthyale		X		
Lycianthes	multiflora	AGNOSIA	Oleria makrena makrenita	Pteronymia artena afrania	X			
Solanum	asperum	EQUATORIA	Hyalyris ocna ssp	Dircenna adina lorica	X			
Solanum	deflexiflorum	HEWITSONI	Pteronymia oneida oneida	Pteronymia serrata ssp			X	
Solanum	nudum	HEWITSONI	Pteronymia sp	Pteronymia serrata ssp				X
Solanum	nutans	HEWITSONI	Pteronymia alida ssp	Pteronymia serrata ssp			X	
Solanum	sect. Torva3	EQUATORIA	Hyalyris ocna ssp	Dircenna adina lorica	X			
Solanum	aphyodendron	AGNOSIA	Episcada mira	Pteronymia alissa andreas		X		
ECUADOR SOUTH MONTANE, BOTH SEXES								
Cestrum	sp1	PANTHYALE	Greta enigma ssp	Godyris panthyale panthyale		X		
ECUADOR LOWLAND, BOTH SEXES								
Cestrum	sp. (7324)	AGNOSIA	Heterosais giulia nephele	Pseudoscada timna ssp		X		
Solanum	sp. (7334)	HERMIAS	Mechanitis lysimnia roqueensis	Mechanitis polymnia ssp				X
COSTA RICA, MALE								
Cestrum	fragile	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cestrum	irazuense	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cestrum	megalophyllum	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cestrum	rugulosum	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cestrum	sp. "Button Berry"	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cuatresia	riparia	SCYLAX	Ithomia celemia plaginota	Ithomia heraldica				X
Lycianthes	multiflora	SIMPLEX	Pteronymia artena ssp	Oleria vicina	X			
Lycianthes	multiflora	PATILLA	Oleria paula paula	Ithomia patilla	X			
Lycianthes	synanthera	SIMPLEX	Pteronymia artena ssp	Oleria vicina	X			
Schultesianthus	megalandrus	DILUCIDA	Eutresis hypereia	Eutresis dilucida				X
Solanum	aphyodendron	SIMPLEX	Pteronymia simplex simplex	Episcada salvinia opleri		X		
Solanum	chrysotrichum	DILUCIDA	Dircenna dero ssp	Dircenna klugii klugii				X
Solanum	chrysotrichum	IMITATA	Mechanitis menapis saturata	Mechanitis polymnia isthmia				X
Solanum	rudepannum	DILUCIDA	Dircenna dero ssp	Dircenna klugii klugii				X
Solanum	rugosum	IMITATA	Mechanitis lysimnia utemaia	Mechanitis polymnia isthmia				X
Solanum	rugosum	IMITATA	Hypothyris euclea valora	Mechanitis polymnia isthmia	X			
Solanum	rugosum	IMITATA	Hypothyris euclea valora	Mechanitis lysimnia utemaia	X			

Electronic Appendix C Cont. Matching interactions between pairs of ithomiine taxa, mimicry complex and larval hostplant.

PLANT GENUS	PLANT SPECIES	MIMICRY	ITHOMIINE TAXON 1	ITHOMIINE TAXON 2	TRIBE	GENUS	SPECIES GROUP	CLOSELY RELATED SPP
COSTA RICA, MALE								
Solanum	siparunoides	IMITATA	Mechanitis lysimnia utemaia	Mechanitis menapis saturata				X
Solanum	siparunoides	IMITATA	Mechanitis menapis saturata	Mechanitis polymnia isthmia				X
Solanum	siparunoides	IMITATA	Mechanitis lysimnia utemaia	Mechanitis polymnia isthmia				X
Solanum	tuerckheimii	DILUCIDA	Pteronymia picta notilla	Pteronymia latilla fulvescens			X	
Witheringia	meiantha	PATILLA	Ithomia patilla	Ithomia diasia hippocrenis				X
COSTA RICA, FEMALE								
Cestrum	fragile	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cestrum	irazuense	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cestrum	megalophyllum	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cestrum	rugulosum	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cestrum	sp. "Button Berry"	SIMPLEX	Greta annette championi	Greta polissena umbrana			X	
Cuatresia	riparia	SCYLAX	Ithomia celemia plaginota	Ithomia heraldica				X
Lycianthes	multiflora	PATILLA	Pteronymia artena ssp	Oleria vicina	X			
Lycianthes	multiflora	SIMPLEX	Oleria paula paula	Ithomia patilla	X			
Lycianthes	synanthera	SIMPLEX	Pteronymia artena ssp	Oleria vicina	X			
Schultesianthus	megalandrus	DILUCIDA	Eutresis hypereia	Eutresis dilucida				X
Solanum	aphyodendron	SIMPLEX	Pteronymia simplex simplex	Episcada salvinia opleri		X		
Solanum	chrysotrichum	IMITATA	Mechanitis menapis saturata	Mechanitis polymnia isthmia				X
Solanum	chrysotrichum	SCYLAX	Dircenna dero ssp	Dircenna olyras relata				X
Solanum	rudepannum	SCYLAX	Dircenna dero ssp	Dircenna olyras relata				X
Solanum	rugosum	IMITATA	Mechanitis lysimnia utemaia	Mechanitis polymnia isthmia				X
Solanum	rugosum	IMITATA	Hypothyris euclea valora	Mechanitis polymnia isthmia	X			
Solanum	rugosum	IMITATA	Hypothyris euclea valora	Mechanitis lysimnia utemaia	X			
Solanum	siparunoides	IMITATA	Mechanitis lysimnia utemaia	Mechanitis menapis saturata				X
Solanum	siparunoides	IMITATA	Mechanitis menapis saturata	Mechanitis polymnia isthmia				X
Solanum	siparunoides	IMITATA	Mechanitis lysimnia utemaia	Mechanitis polymnia isthmia				X
Witheringia	meiantha	PATILLA	Ithomia patilla	Ithomia diasia hippocrenis				X
SOUTH-EAST BRAZIL, BOTH SEXES								
Acnistus	arborescens	AQUATA	Ithomia agnosia zikani	Ithomia drymo				X
Solanum	brusquense	LYSIMNIA	Mechanitis lysimnia lysimnia	Hypothyris ninonia daeta	X			
Solanum	granulosoleprosum	ETHRA	Mechanitis polymnia casabranca	Hypothyris euclea laphria	X			
Solanum	mauritianum	ETHRA	Mechanitis polymnia casabranca	Hypothyris euclea laphria	X			
Solanum	paniculatum	LYSIMNIA	Mechanitis lysimnia lysimnia	Hypothyris ninonia daeta	X			
Solanum	robustum	LYSIMNIA	Mechanitis lysimnia lysimnia	Hypothyris ninonia daeta	X			
Solanum	variabile	LYSIMNIA	Mechanitis lysimnia lysimnia	Hypothyris ninonia daeta	X			

Electronic Appendix D Pairs of co-mimetic ithomiine taxa recorded on the same hostplants.

ITHOMIINE TAXON 1	ITHOMIINE TAXON 2	TRIBE	GENUS	SPECIES GROUP	CLOSELY RELATED
Dircenna dero ssp	Dircenna klugii klugii				X
Dircenna dero ssp	Dircenna olyras relata				X
Episcada mira	Pteronymia alissa andreas		X		
Eutresis hypereia	Eutresis dilucida				X
Heterosais giulia nephele	Pseudoscada timna ssp		X		
Hyalyris ocna ssp	Dircenna adina lorica	X			
Hypothyris euclea valora	Mechanitis lysimnia utemaia	X			
Hypothyris euclea valora	Mechanitis polymnia isthmia	X			
Ithomia agnosia zikani	Ithomia drymo				X
Ithomia celemia plaginota	Ithomia heraldica				X
Ithomia patilla	Ithomia diasia hippocrenis				X
Mechanitis lysimnia lysimnia	Hypothyris ninonia daeta	X			
Mechanitis lysimnia roqueensis	Mechanitis polymnia ssp				X
Mechanitis lysimnia utemaia	Mechanitis menapis saturata				X
Mechanitis lysimnia utemaia	Mechanitis polymnia isthmia				X
Mechanitis menapis saturata	Mechanitis polymnia isthmia				X
Mechanitis polymnia casabranca	Hypothyris euclea laphria	X			
Oleria makrena makrenita	Pteronymia artena afrania	X			
Oleria paula paula	Ithomia patilla	X			
Greta alphesiboea	Godyris duillia		X		
Greta annette championi	Greta polissena umbrana			X	
Greta enigma ssp	Godyris panthyale panthyale		X		
Greta enigma ssp	Godyris panthyale panthyale		X		
Greta enigma ssp	Greta ortygia ortygia			X	
Pteronymia alida ssp	Pteronymia serrata ssp				X
Pteronymia artena ssp	Oleria vicina	X			
Pteronymia oneida oneida	Pteronymia serrata ssp			X	
Pteronymia picta notilla	Pteronymia latilla fulvescens			X	
Pteronymia simplex simplex	Episcada salvinia opleri		X		
Pteronymia sp	Pteronymia serrata ssp				X