

**Supplementary Table 1.** Models of sequence evolution used for individual loci

(determined via likelihood ratio test) used in the locus-specific partitions for Bayesian phylogenetic analyses.

<b>Locus</b>	<b>Total base pairs</b>	<b>Constant characters</b>	<b>Parsimony uninformative</b>	<b>Parsimony informative</b>	<b>Model of sequence evolution</b>
<i>COI</i>	1082	514	180	388	GTR+I+G
<i>Pol-II</i>	842	523	139	180	TrN+I+G
<i>ArgK</i>	769	443	106	220	HKY+I+G
<i>EFl-<math>\alpha</math></i>	1745	971	283	491	TrN+I+G

**Supplementary Table 2.** Mean and standard deviation divergence times (in millions of years) calculated for individual nodes of Euglossini via Penalized Likelihood (PL) and Mean Path Length (MPL). Two sets of age constraints corresponding to the younger and older fossil age boundaries were implemented (see text for details). Numbered nodes indicate constrained nodes, and letters indicate selected nodes for which summary statistics are provided.

Node	Younger ages		Older ages	
	PL	MPL	PL	MPL
<i>Euglossa</i> (Node1)	15 ± 0	15	21 ± 1	22
<i>Eulaema</i>	13 ± 1	12	18 ± 1	16
<i>Exaerete</i>	17 ± 2	11	25 ± 3	16
<i>Eufriesea</i>	11 ± 1	9	17 ± 2	12
Euglossini	27 ± 1	29	39 ± 2	42
Node 2	70 ± 0	70	100 ± 0	100
Node 3	19 ± 2	18	27 ± 3	26
Node 4	16 ± 1	15	23 ± 3	20
Node A	11 ± 1	10	14 ± 1	15
Node B	9 ± 1	9	12 ± 1	12
Node C	23 ± 1	26	32 ± 2	36

**Supplementary Table 3.** Estimated parameters and hypothesis testing using diversification survival models of orchid bee lineages. An asterisk indicates the best-fit model for each subclade. Parameter values in parentheses correspond to the estimated errors, unless otherwise indicated.

<b>Diversification model</b>	<b>Parameters</b>	<b>Values</b>
Model A: (constant diversification)	log	-366.76
	AIC	735.52
	$\delta$	0.18 (0.01)
Model B: (Diversification changes following Weibull law)	log	-359.08*
	AIC	722.16
	$\alpha$	0.168 (0.01)
	$\beta$	1.30 (0.08)
Model C: (abrupt diversification shift)	log	-390.52
	AIC	785.04
	$\delta_1$	0.157 (0.01)
	$\delta_2$	0.079 (0.009)
Model A vs Model B	$\chi^2$ (p-value)	15.361 (1e-04)
Model A vs Model C	$\chi^2$ (p-value)	-47.51 (1)
Cramer-von Mises test:		W2 = 12.026 ( $p < 0.01$ )
Anderson-Darling test:		A2 = 4.523 ( $p < 0.01$ )
$\gamma$ statistic (empirical)		-2.75
Simulated and critical $\gamma$ (0.05 and 0.95 percentile)		3.007 and 0.048

**Supplementary Table 4.** The area between the curves corresponds to the difference between the observed and the null disparity-through-time plots from figure 9. The average null disparity curves on each case were based on simulated data using two models of character evolution (Brownian and speciation). Positive areas indicate a higher than expected overall morphological disparity, whereas negative areas indicates the observed disparity was lower than expected via simulations.

<b>Trait</b>	<b>Brownian</b>	<b>Speciation</b>
<b>Tongue</b>	-0.08257458	0.06285156
<b>Inter-tegular distance</b>	-0.2341689	-0.0901935
<b>Body mass</b>	-0.02013557	0.1123090
<b>Body length</b>	0.0143653	NA
<b>All variables</b>	-0.03600992	0.06718642

**Online Appendix 1.** Collection data, taxonomic information, and NCBI *GenBank* accession numbers of samples used in the present study. Species with incomplete sequences from more than a single specimen were merged, and are indicated with an asterisk (\*).

Taxon	ID #	Country	Locality	Province	Collection date	Voucher No.	Collector	CO1	ArgK	Poi-II	EF1-a
<i>Aglae caerulea</i>	EU53a	Colombia	Bahia Solano	Chocó	April 15 2003	TA321	T. Arias	EU421542		EU421289	EU421413
<i>Apis mellifera</i>	MP147	USA						AY114457.1	AF015267.1	NM0010116031	DQ069332.1
<i>Apis cerana</i>	MP112	Thailand				outg12	Roubik	EU163108	EU163192	EU163025	EU162861
<i>Apis dorsata</i>	MP111	Thailand				outg11	Roubik	EU163107	EU163191	EU163024	EU162860
<i>Bombus transversalis</i>	MP146	Peru				SR2066	Ramirez	EU163124	EU163211	EU163043	EU162880
<i>Centris sp.</i>	MP124	Colombia				outg24	Ramirez		EU163200	EU163032	EU162869
<i>Epicharis sp.</i>	MP125	Colombia				outg25	Ramirez	EU163115	EU163201	EU163033	EU162870
<i>Eufriesea anisochlora</i>	EU98	Panamá	Altos de Campana	Panamá	May 11 2003	m1	C. Skov	EU421583	EU421710	EU421325	EU421456
<i>Eufriesea caerulescens</i>	EU99	México	Cañon del Sumidero	Chiapas	July 17 2003	SR699	S. Ramírez	EU421584	EU421711		
<i>Eufriesea chalybaea</i>	EU50	Bolivia	Boyube	Santa Cruz	March 19 2003	MdD19f3	C. Skov	EU421538	EU421669	EU421285	EU421409
<i>Eufriesea chrysopyga</i>	EU24a	Ecuador	Bilsa Biological Station	Esmeraldas	April 8 2005	SR1478	S. Ramírez	EU421507	EU421638	EU421258	EU421378
<i>Eufriesea concava</i>	EU104	México	Chamela Biological Station	Jalisco	September 25 2003	m1	C. Skov	EU421464	EU421592	EU421216	EU421333
<i>Eufriesea corusca</i>	EU61	Panamá	Cerro Jefe	Panamá	June 6 2003	m2	C. Skov	EU421549	EU421678	EU421296	EU421421
<i>Eufriesea dressleri</i>	EU65	Panamá	Cerro Jefe	Panamá	June 11 2003	CJm4	C. Skov	EU421552	EU421682		EU421425
<i>Eufriesea excellens</i>	EU111	Perú	Tarapoto	SanMartin	November 10 2002	CR.155	C. Rasmussen		EU421598		EU421339
<i>Eufriesea lucida</i>	EU113	Ecuador	Bilsa Biological Station	Esmeraldas	April 10 2005	SR1529	S. Ramírez	EU421471	EU421600	EU421223	EU421341
<i>Eufriesea lucifera</i>	EU76	Colombia	Bahia Solano	Chocó	April 13 2003	TA207	T. Arias	EU421560	EU421688	EU421305	EU421432
<i>Eufriesea macroglossa</i>	EU81	Panamá	PN Omar Torrijos	Cocle	July 14 2003	DMC34	D. McKenna	EU421565	EU421693	EU421311	EU421438
<i>Eufriesea magretti</i>	EU73	Colombia	Anori	Antioquia	March 30 2003	TA103	T. Arias	EU421558	EU421686	EU421303	EU421430
<i>Eufriesea mariana</i>	EU38a	Bolivia	Boyube	Santa Cruz	March 20 2003	MdD20m1	C. Skov	EU421522	EU421653	EU421269	EU421393
<i>Eufriesea mariana</i>	EU38	Argentina	San Pedro de Colalao	Tucumán	January 5 2003	Csm1	C. Skov	EU421521	EU421652		
<i>Eufriesea mexicana</i>	EU95	México	Volcan Tacana	Chiapas	July 14 2003	SR674	S. Ramírez	EU421580	EU421707		EU421453
<i>Eufriesea micheneri</i>	EU103	México	Talpa	Jalisco	August 27 2003	m1	C. Skov	EU421463	EU421591	EU421215	EU421332
<i>Eufriesea mussitans</i>	EU59	Panamá	PN Omar Torrijos	Cocle	July 14 2003	DMC33	D. McKenna	EU421547	EU421676	EU421294	EU421419
<i>Eufriesea ornata</i>	EU35	Colombia	Mocoa	Putumayo	January 9 2003	SR237	S. Ramírez	EU421518	EU421649		EU421390
<i>Eufriesea pallida</i>	EU96	México	Cañon del Sumidero	Chiapas	July 17 2003	SR710	S. Ramírez	EU421581	EU421708		EU421454
<i>Eufriesea pulchra</i>	EU23c	Perú	Tarapoto	San Martin	April, 2003	SK31	C. Skov	EU421506	EU421637	EU421257	EU421377
<i>Eufriesea rufocauda</i>	EU100	Panamá	Altos de Campana	Panamá	May 25 2003	male#2	C. Skov	EU421459	EU421587	EU421212	EU421328
<i>Eufriesea rugosa</i>	EU97	México	Cañon del Sumidero	Chiapas	July 17 2003	SR725	S. Ramírez	EU421582	EU421709		EU421455
<i>Eufriesea schmidtiana</i>	EU10	Costa Rica	La Selva Biological Station	Heredia	August 11 2002	CS105	C. Skov	EU421458	EU421586		EU421327

Taxon	ID #	Country	Locality	Province	Collection date	Voucher No.	Collector	CO1	ArgK	Pol-II	EF1-a
<i>Eufriesea superba</i>	EU102	Brasil	Río Javará	Amazonas	April 1 2003	SR816	S. Ramírez	EU421462	EU421590	EU421214	EU421331
<i>Eufriesea surinamensis</i>	EU25	Colombia	La Virginia	Risaralda	January 5 2003	SR126	S. Ramírez	EU421508	EU421639	EU421259	EU421379
<i>Eufriesea tucumana</i>	EU49a	Bolivia	Boyube	Santa Cruz	March 20 2003	MdD20m 1	C. Skov	EU421535	EU421666	EU421282	EU421406
<i>Eufriesea tucumana</i>	EU49b	Bolivia	Boyube	Santa Cruz	March 19 2003	BOY19f1	C. Skov	EU421536	EU421667	EU421283	EU421407
<i>Eufriesea violacea*</i>	EU120 b	Brasil		Acre	September 22 2005	EU120	Unknown				EU421348
<i>Eufriesea violacea*</i>	EU120	Brasil	Sao Paulo	SP	October, 2003	R7	D. Roubik	EU421479	EU421608	EU421228	
<i>Eufriesea violascens</i>	EU51a	Bolivia	Boyube	Santa Cruz	March 20 2003	MdD20m 1	C. Skov	EU421539	EU421670	EU421286	EU421410
<i>Eufriesea violascens</i>	EU51b	Bolivia	Boyube	Santa Cruz	March 19 2003	MdD20m 2	C. Skov	EU421540	EU421671	EU421287	EU421411
<i>Euglossa allosticta</i>	EU34	Colombia	La Virginia	Risaralda	January 4 2003	SR52	S. Ramírez	EU421517	EU421648	EU421266	EU421389
<i>Euglossa amazonica</i>	EU107	Perú	Tarapoto	San Martin	April, 2003	sk06/m6	C. Skov	EU421466	EU421594	EU421218	EU421335
<i>Euglossa analis</i>	EU57	Perú	Tarapoto	San Martin	April, 2003	SK05	C. Skov	EU421545	EU421674	EU421292	EU421417
<i>Euglossa annectans</i>	EU135	Argentina	Reserva Urugua-í	Misiones	February 5 2003	SK116	C. Skov	EU421488	EU421619		EU421358
<i>Euglossa asarophora</i>	EU15b	Ecuador	Bilsa Biological Station	Esmeraldas	April 8 2005	SR1520	S. Ramírez	EU421496	EU421628	EU421248	EU421367
<i>Euglossa asarophora</i>	EU15	Costa Rica	La Selva Biological Station	Heredia	August 11 2002	CS84	C. Skov	EU421495	EU421627	EU421247	EU421366
<i>Euglossa atrovoneta</i>	EU78	México	Chamela Biological Station	Jalisco	July 24 2003	SR786	S. Ramírez	EU421562	EU421690	EU421307	EU421434
<i>Euglossa augaspis</i>	EU36	Colombia	Mocoa	Putumayo	January 9 2003	SR305	S. Ramírez	EU421519	EU421650	EU421267	EU421391
<i>Euglossa bidentata</i>	EU88	Brasil	Río Javará	Amazonas	April 1 2003	SR801	T. Samper	EU421572	EU421700	EU421318	EU421445
<i>Euglossa bursigera</i>	EU89	Colombia	Lloro	Chocó	Abril 25 2003	JCN.124	J. Neita	EU421573	EU421701	EU421319	EU421446
<i>Euglossa chalybeata</i>	EU30a	Colombia	Mocoa	Putumayo	January 8 2003	SR190	S. Ramírez	EU421513	EU421644		EU421385
<i>Euglossa championi</i>	EU16	Costa Rica	La Selva Biological Station	Heredia	August 10 2002	CS60	C. Skov	EU421497	EU421629	EU421249	EU421368
<i>Euglossa chlorina</i>	EU40	Colombia	La Virginia	Risaralda	January 4 2003	SR56	S. Ramírez	EU421525	EU421656	EU421272	EU421396
<i>Euglossa cognata*</i>	EU27a	Perú	Lagunas	Loreto	March 5 2005	SR1189	S. Ramírez		EU421640	EU421261	EU421381
<i>Euglossa cognata*</i>	EU27	Colombia	Mocoa	Putumayo	January 10 2003	SR395	S. Ramírez	EU421510			
<i>Euglossa cordata</i>	EU110	Panamá	Cuango	Colón	July 12 2003	DMC52	D. McKenna	EU421469	EU421597	EU421221	EU421338
<i>Euglossa crassipunctata</i>	EU144 b	Colombia	La Virginia	Risaralda	January 4 2003	SR74	S. Ramírez	EU421494	EU421626	EU421246	EU421365
<i>Euglossa crininota</i>	EU68	Guatemala	Chiquimula	Esquipulas	September 10 2003	Yurr915	C. Yurrita	EU421554	EU421684	EU421299	
<i>Euglossa cyanaspis</i>	EU62	Panamá	Cerro Jefe	Panamá	May, 2003	R3	D. Roubik	EU421550	EU421679	EU421297	EU421422
<i>Euglossa cyanura</i>	EU122	Panamá	PN Soberania	Panamá	August, 2003	R8	D. Roubik	EU421481	EU421610	EU421230	EU421350
<i>Euglossa cybelia</i>	EU31a	Colombia	Mocoa	Putumayo	January 9 2003	SR310	S. Ramírez	EU421514	EU421645	EU421264	EU421386
<i>Euglossa deceptrix</i>	EU58	Panamá	Cerro Azul	Panamá	May, 2003	R1	D. Roubik	EU421546	EU421675	EU421293	EU421418

Taxon	ID #	Country	Locality	Province	Collection date	Voucher No.	Collector	CO1	ArgK	Pol-II	EF1-a
<i>Euglossa decorata</i>	EU22b	Colombia	Mocoa	Putumayo	January 9 2003	SR283	S. Ramírez	EU421504	EU421636	EU421255	EU421375
<i>Euglossa decorata</i>	EU22c	Perú	Tarapoto	San Martin	April, 2003	SK01	C. Skov	EU421505		EU421256	EU421376
<i>Euglossa despecta</i>	EU84	Colombia	Bahia Solano	Chocó	April 14 2003	TA235	T. Arias	EU421568	EU421696	EU421314	EU421441
<i>Euglossa dissimula</i>	EU44	Colombia	Mocoa	Putumayo	January 10 2003	SR394	S. Ramírez	EU421530	EU421661	EU421277	EU421401
<i>Euglossa dodsoni</i>	EU13	Costa Rica	La Selva Biological Station	Heredia	August 9 2005	CS11	C. Skov	EU421484	EU421613	EU421234	EU421353
<i>Euglossa dressleri</i>	EU63	Colombia	Lloro	Chocó	March 18 2003	JCN231	J. Neita	EU421551	EU421680	EU421298	EU421423
<i>Euglossa erythrochlora</i>	EU60	Costa Rica	Las Cruces Biological Station	Puntarenas	April, 2003	R2	D. Roubik	EU421548	EU421677	EU421295	EU421420
<i>Euglossa flammea</i>	EU139	Ecuador	Bilsa Biological Station	Esmeraldas	April 8 2005	SR1518	S. Ramírez	EU421482		EU421231	
<i>Euglossa flammea</i>	EU125a	Colombia	Puerto Pinzón	Boyacá	January 15 2006	Res0410	S. Ramírez & A. Link	EU421489	EU421620	EU421240	EU421359
<i>Euglossa fuscifrons</i>	EU46	Colombia	Mocoa	Putumayo	January 9 2003	SR263	S. Ramírez	EU421532	EU421663	EU421279	EU421403
<i>Euglossa gorgonensis*</i>	EU67a	Colombia	Cimitarra	Santander	2006.00	Guin0039	S. Ramírez & A. Link				EU421426
<i>Euglossa gorgonensis*</i>	EU67	Costa Rica	Estación San Gerardo	Guanacaste	June 28 2003	SR531	S. Ramírez	EU421553	EU421683		
<i>Euglossa hansonii</i>	EU17	Costa Rica	La Selva Biological Station	Heredia	August 10 2002	CS160	C. Skov	EU421498	EU421630	EU421250	EU421369
<i>Euglossa hemichlora</i>	EU77	Colombia	Bahia Solano	Chocó	April 14 2003	TA258	T. Arias	EU421561	EU421689	EU421306	EU421433
<i>Euglossa heterosticta</i>	EU19	Costa Rica	La Selva Biological Station	Heredia	August 11 2002	CS80	C. Skov	EU421500	EU421632	EU421252	EU421371
<i>Euglossa ignita</i>	EU14	Costa Rica	La Selva Biological Station	Heredia	August 11 2002	CS91	C. Skov	EU421490	EU421621	EU421241	EU421360
<i>Euglossa igniventris</i>	141d	Panamá	BCI	Panamá	Feb/March 2006	EU141d	T. Eitz	EU421492	EU421623	EU421243	EU421362
<i>Euglossa igniventris</i>	EU48	Colombia	La Virginia	Risaralda	January 5 2003	SR105	S. Ramírez	EU421534	EU421665	EU421281	EU421405
<i>Euglossa imperialis</i>	EU5	Costa Rica	La Selva Biological Station	Heredia	August 10 2002	CS26	C. Skov	EU421537	EU421668	EU421284	EU421408
<i>Euglossa inflata</i>	EU114a	Suriname	Bakhnis Camp		March, 2002	LMM06	D. Roubik	EU421472	EU421601		EU421342
<i>Euglossa intersecta</i>	EU21	Colombia	Mocoa	Putumayo	January 9 2003	SR254	S. Ramírez	EU421503	EU421635		EU421374
<i>Euglossa ioprosopa</i>	EU39	Costa Rica	Tortuguero	Limón	January 21 2001	SR481	S. Ramírez	EU421523	EU421654	EU421270	EU421394
<i>Euglossa iopyrrha</i>	EU112	Perú	Rio Tambopata	MadredeDios	October 20 2001	CR282	C. Rasmussen	EU421470	EU421599	EU421222	EU421340
<i>Euglossa jamaicensis</i>	EU115	Jamaica	Elderslie	St. Elizabeth	January 6 2005	EU115	M. Lehnert	EU421473	EU421602	EU421224	EU421343
<i>Euglossa laevicincta</i>	EU41a	Perú	Tarapoto	San Martin	March 19 2005	SR1311	S. Ramírez	EU421527	EU421658	EU421274	EU421398
<i>Euglossa liopoda</i>	EU82	Colombia	Leticia	Amazonas	June 17 2003	ML354	M. Lopez-Urbe	EU421566	EU421694	EU421312	EU421439
<i>Euglossa lugubris</i>	EU37	Colombia	Mocoa	Putumayo	January 10 2003	SR383	S. Ramírez	EU421520	EU421651	EU421268	EU421392
<i>Euglossa macrorhyncha</i>	EU90a	Colombia	Anorí	Antioquia	March 30 2003	TA127	T. Arias	EU421575		EU421321	EU421448

Taxon	ID #	Country	Locality	Province	Collection date	Voucher No.	Collector	CO1	ArgK	Pol-II	EF1-a
<i>Euglossa maculilabris</i>	EU43	Colombia	La Florida	Risaralda	January 7 2001	SR488	S. Ramírez	EU421529	EU421660	EU421276	EU421400
<i>Euglossa mandibularis</i>	EU129	Brasil	Porto Alegre	RS	December 28 2003	Simone1	S. Cappellari		EU421612	EU421233	
<i>Euglossa melanotricha</i>	EU131	Bolivia	Santa Cruz	Cordillera	March 12 2003	SK113	C. Skov	EU421485	EU421615	EU421236	EU421354
<i>Euglossa mixta</i>	EU8	Costa Rica	La Selva Biological Station	Heredia	August 16 2002	CS155	C. Skov			EU421309	EU421436
<i>Euglossa milenae</i> (= <i>azureoviridis</i> )	EU80	CostaRica	La Selva	Heredia	April 5 2003	DM1	D. McKenna	EU421541	EU421672	EU421288	EU421412
<i>Euglossa milenae</i> aff.	EU45	Colombia	La Virginia	Risaralda	January 4 2003	SR22	S. Ramírez	EU421516	EU421647	EU421265	EU421388
<i>Euglossa modestior</i>	EU47	Colombia	Villavicencio	Meta	February 8 2003	ML48	M. Lopez-Uribe	EU421564	EU421692	EU421310	EU421437
<i>Euglossa natesi</i>	EU130a	Colombia	Barbacoas	Nariño	2005	EU130a	V. Solarte		EU421614	EU421235	
<i>Euglossa</i> n. sp. 1	EU74	Colombia	La Virginia	Risaralda	January 4 2003	SR27	S. Ramírez	EU421531	EU421662	EU421278	EU421402
<i>Euglossa</i> n. sp. 1	EU109	Colombia	La Virginia	Risaralda	January 13 2003	SR450	S. Ramírez	EU421533	EU421664	EU421280	EU421404
<i>Euglossa obtusa</i>	EU74	México	Los Tuxtlas	Veracruz	August 11 2003	m2	C. Skov	EU421559	EU421687	EU421304	EU421431
<i>Euglossa occidentalis</i>	EU109	Colombia	Mocoa	Putumayo	January 8 2003	SR216	S. Ramírez	EU421467	EU421595	EU421219	EU421336
<i>Euglossa oleolucens</i>	EU64	CostaRica	Las Cruces Biological Station	Puntarenas	Apr, 2003	R4	D. Roubik		EU421681		EU421424
<i>Euglossa orellana</i>	EU30	Colombia	Mocoa	Putumayo	January 8 2003	SR199	S. Ramírez		EU421643	EU421263	EU421384
<i>Euglossa paisa</i>	EU101a	Colombia	Anori	Antioquia	March 30 2003	TA105	T. Arias	EU421460	EU421588		EU421329
<i>Euglossa paisa</i>	EU101b	Colombia	Anori	Antioquia	March 30 2003	TA112	T. Arias	EU421461	EU421589	EU421213	EU421330
<i>Euglossa parvula</i>	EU119	Perú	Lagunas	Loreto	March 3 2005	SR1572	S. Ramírez	EU421477	EU421606	EU421227	EU421347
<i>Euglossa perfulgens</i>	EU116	Ecuador	Tiputini River	Orellana	March 30 2005	SR2076	S. Ramírez	EU421474	EU421603	EU421225	EU421344
<i>Euglossa piliventris</i>	EU142	Suriname	Bakuis Project	150 km SW Paramaribo	April 2006	EU142	D. Roubik		EU421624	EU421244	EU421363
<i>Euglossa polita</i>	EU132a	Suriname	Bakuis Project	150 km SW Paramaribo	April 2006	EU132a	D. Roubik		EU421616	EU421237	EU421355
<i>Euglossa prasina</i>	EU79	Colombia	Leticia	Amazonas	March 15 2003	ML92	M. Lopez-Uribe	EU421563	EU421691	EU421308	EU421435
<i>Euglossa purpurea</i>	EU11	Costa Rica	La Selva Biological Station	Heredia	August 11 2002	CS77	C. Skov	EU421468	EU421596	EU421220	EU421337
<i>Euglossa retroviridis</i>	EU87	Brasil	Rio Javari	Amazonas	August 10 2003	SR914	S. Ramírez	EU421571	EU421699	EU421317	EU421444
<i>Euglossa rufipes</i>	EU56	Perú	Tarapoto	San Martin	April, 2003	Biodiv3IV m1	C. Skov	EU421544	EU421673	EU421291	EU421416
<i>Euglossa rugilabris</i>	EU105	Colombia	Leticia	Amazonas	Oct-Dec 2003	Ronc102	A. Roncancio	EU421465	EU421593	EU421217	EU421334
<i>Euglossa samperi</i>	EU117a	Ecuador	Bilsa Biological Station	Esmeraldas	April 8 2005	SR1910	S. Ramírez	EU421475	EU421604	EU421226	EU421345
<i>Euglossa sapphirina</i>	EU18	Costa Rica	La Selva Biological Station	Heredia	August 10 2002	CS47	C. Skov	EU421499	EU421631	EU421251	EU421370
<i>Euglossa securigera</i>	EU134	Argentina	Reserva Urugua-í	Misiones	February 4 2003	SK115	C. Skov	EU421487	EU421618	EU421239	EU421357



Taxon	ID #	Country	Locality	Province	Collection date	Voucher No.	Collector	CO1	ArgK	Pol-II	EF1-a
<i>Euglossa stilbonota</i>	EU26a	Colombia	Mocoa	Putumayo	January 10 2003	SR320	S. Ramírez			EU421260	EU421380
<i>Euglossa stilbonota</i>	EU26	Colombia	Mocoa	Putumayo	January 10 2003	SR321	S. Ramírez	EU421509			
<i>Euglossa tridentata</i> *	EU9	Costa Rica	La Selva Biological Station	Heredia	August 13 2002	CS122	C. Skov	EU421574	EU421702	EU421320	EU421447
<i>Euglossa tridentata</i> *	EU42	Colombia	La Virginia	Risaralda	January 12 2003	SR417	S. Ramírez	EU421528	EU421659	EU421275	EU421399
<i>Euglossa truncata</i>	EU133	Argentina	Reserva Urugua-í	Misiones	February 1 2003	SK114	C. Skov	EU421486	EU421617	EU421238	EU421356
<i>Euglossa turbinifex</i>	EU41	Costa Rica	Heredia	Heredia	June, 2003	SR489	S. Ramírez	EU421526	EU421657	EU421273	EU421397
<i>Euglossa variabilis</i>	EU128	Panamá	Santa Rita Ridge	Colon	2003.00	R15	D. Roubik	EU421483	EU421611	EU421232	EU421351
<i>Euglossa villosa</i>	EU70	Guatemala	Chiquimula	Esquipulas	September 10 2003	Yurr912	C. Yurrita	EU421556		EU421301	EU421428
<i>Euglossa villosiventris</i>	EU140	Colombia	Bahia Solano	Chocó	April 15 2003	TA347	T. Arias	EU421570	EU421698	EU421316	EU421443
<i>Euglossa villosiventris</i>	EU86	Colombia	Puerto Pinzón	Boyacá	2006.00	Res0246	A. Link	EU421491	EU421622	EU421242	EU421361
<i>Euglossa viridifrons</i>	EU118	Perú	Iquitos	Loreto	March 11 2005	SR1638	S. Ramírez	EU421476	EU421605		EU421346
<i>Euglossa viridis</i>	EU32a	Colombia	La Virginia	Risaralda	January 13 2003	SR431	S. Ramírez	EU421515	EU421646		EU421387
<i>Euglossa viridissima</i>	EU85	México	Morelia	Michoacán	August 3 2003	male1	C. Skov	EU421569	EU421697	EU421315	EU421442
<i>Eulaema boliviensis</i>	EU143	Colombia	Puerto Pinzón	Boyacá	2006.00	Res407	S. Ramírez & A. Link	EU421493	EU421625	EU421245	EU421364
<i>Eulaema bombiformis</i>	EU4	Costa Rica	La Selva Biological Station	Heredia	August 10 2002	CS33	C. Skov	EU421524	EU421655	EU421271	EU421395
<i>Eulaema chocoana</i>	EU93	Colombia	Lloro	Chocó	March 18 2003	JCN.247	J. Neita	EU421578	EU421705	EU421323	EU421451
<i>Eulaema cingulata</i>	EU2	Costa Rica	La Selva Biological Station	Heredia	August 11 2002	CS64	C. Skov	EU421501	EU421633	EU421253	EU421372
<i>Eulaema leucopyga</i>	EU29	Colombia	Quibdó	Chocó	2001.00	JCN.b38	J. Neita	EU421511	EU421641		EU421382
<i>Eulaema meriana</i>	EU3	Costa Rica	La Selva Biological Station	Heredia	August 16 2002	CS132	C. Skov	EU421512	EU421642	EU421262	EU421383
<i>Eulaema mocsary</i>	EU20	Colombia	Puerto Carreño	Vichada	October 2 2002	SR0486	S. Ramírez	EU421502	EU421634	EU421254	EU421373
<i>Eulaema nigríta</i>	EU7	Colombia	Puerto Carreño	Vichada	October, 2002	EU7	S. Ramírez	EU421555	EU421685	EU421300	EU421427
<i>Eulaema peruviana</i>	EU54	Perú	Tarapoto	San Martin	April, 2003	SK02	C. Skov			EU421290	EU421414
<i>Eulaema polychroma</i>	EU94	Colombia	Pradera	Antioquia	March 16 2003	TA05	T. Arias	EU421579	EU421706	EU421324	EU421452
<i>Eulaema seabrai</i>	EU55	Perú	Tarapoto	San Martin	April, 2003	SK17	C. Skov	EU421543			EU421415
<i>Eulaema sororia</i>	EU92	Colombia	Bahia Solano	Chocó	April 16 2003	TA459	J. Neita	EU421577	EU421704	EU421322	EU421450
<i>Eulaema speciosa</i>	EU91	Panamá	Nusagandi	San Blas	June 4 2003	male1	C. Skov	EU421576	EU421703		EU421449
<i>Exaerete azteca</i>	EU71	México	Chamela Biological Station	Jalisco	Jeuly 26 2003	m1	C. Skov	EU421557		EU421302	EU421429
<i>Exaerete dentata</i>	EU121	Argentina	Andalgaia	Catamarca	February 15 2003	EU121	L. Packer	EU421480	EU421609	EU421229	EU421349
<i>Exaerete frontalis</i> *	EU12a	Colombia	Puerto Nariño	Amazonas	Abril 18 2003	ML209	M. Lopez-Urbe				EU421352

Taxon	ID #	Country	Locality	Province	Collection date	Voucher No.	Collector	CO1	ArgK	Pol-II	EF1-a
<i>Exaerete frontalis*</i>	EU12	Costa Rica	La Selva Biological Station	Heredia	August 16 2002	CS142	C. Skov	EU421478	EU421607		
<i>Exaerete smaragdina</i>	EU1	Costa Rica	La Selva Biological Station	Heredia	August 19 2002	CS201	C. Skov	EU421457	EU421585	EU421211	EU421326
<i>Exaerete trochanterica</i>	EU83	Colombia	Leticia	Amazonas	Oct-Dec 2003	Ronc222	A. Roncancio	EU421567	EU421695	EU421313	EU421440
<i>Friesella schrottkyi</i>	MP107	Brazil			Aug-19-00	outg8	Nieh	EU163103	EU163187	EU163020	EU162856
<i>Plebeia franklii</i>	MP101	Panama			Aug-28-99	outg2	Nieh	EU163098	EU163181	EU163014	EU162850
<i>Meliponula bocandei</i>	MP129	Kenya			May-15-00	outg29	Martins	EU163118	EU163204	EU163036	EU162873

**Online Appendix 2.** Mean values  $\pm$  S.D. of morphological measurements for a subset of orchid bee species.

<b>Taxon</b>	<b>Tongue length (mm)</b>	<b>Body length (mm)</b>	<b>Inter-tegular distance (mm)</b>	<b>Body mass (mg)</b>
<i>Euglossa allosticta</i>	15.33	12.27	3.07	43.53
<i>Euglossa analis</i>	6.30	11.53	3.07	31.95
<i>Euglossa asarophora</i>	23.10	14.53	3.67	54.65
<i>Euglossa atroveneta</i>	6.43	11.17	2.83	31.80
<i>Euglossa augaspis</i>	9.50	9.97	2.53	21.83
<i>Euglossa milenae</i>	6.60	10.25	2.92	36.71
<i>Euglossa bidentata</i>	6.78	11.32	3.00	37.86
<i>Euglossa bursigera</i>	11.98	11.40	2.73	22.82
<i>Euglossa championi</i>	8.07	12.52	3.20	45.70
<i>Euglossa chlorina</i>	7.87	10.92	3.07	39.92
<i>Euglossa cognata</i>	9.40	13.90	3.30	61.23
<i>Euglossa crassipunctata</i>	8.65	9.97	2.47	23.17
<i>Euglossa cybelia</i>	9.07	12.23	3.57	44.57
<i>Euglossa deceptrix</i>	7.33	10.68	2.88	34.29
<i>Euglossa decorata</i>	10.37	11.07	2.97	37.35
<i>Euglossa despecta</i>	8.70	11.05	3.02	32.44
<i>Euglossa dissimula</i>	7.87	10.53	2.70	34.66
<i>Euglossa dodsoni</i>	9.67	10.67	2.60	27.10
<i>Euglossa dressleri</i>	8.33	12.27	3.33	36.15
<i>Euglossa flammea</i>	18.90	14.60	3.63	49.41
<i>Euglossa fuscifrons</i>	12.50	10.83	2.87	23.55
<i>Euglossa gorgonensis</i>	11.00	9.37	2.63	17.30
<i>Euglossa hansonii</i>	8.10	10.33	3.00	40.76
<i>Euglossa hemichlora</i>	6.58	10.57	3.07	32.93
<i>Euglossa heterosticta</i>	8.05	9.60	3.08	31.08
<i>Euglossa ignita</i>	21.00	13.70	3.57	62.31
<i>Euglossa intersecta</i>	29.20	18.10	5.07	124.60
<i>Euglossa imperialis</i>	21.07	15.20	3.88	55.66
<i>Euglossa ioprosopa</i>	8.87	13.27	3.30	39.79
<i>Euglossa lugubris</i>	23.87	15.42	4.10	74.75
<i>Euglossa macrorhyncha</i>	12.60	12.48	2.80	33.32
<i>Euglossa maculilabris</i>	9.07	12.35	3.07	35.95
<i>Euglossa mixta</i>	6.50	10.83	3.02	29.19
<i>Euglossa modestior</i>	8.57	10.30	2.72	35.60
<i>Euglossa obtusa</i>	8.90	10.70	2.60	38.85
<i>Euglossa paisa</i>	11.07	11.33	3.07	30.28
<i>Euglossa prasina</i>	10.03	9.98	2.72	25.71
<i>Euglossa retroviridis</i>	7.57	11.78	3.18	42.77
<i>Euglossa rufipes</i>	22.30	17.93	4.10	72.79
<i>Euglossa rugilabris</i>	27.80	15.40	2.93	40.20
<i>Euglossa samperi</i>	15.65	12.20	2.87	29.74

<b>Taxon</b>	<b>Tongue length (mm)</b>	<b>Body length (mm)</b>	<b>Inter-tegular distance (mm)</b>	<b>Body mass (mg)</b>
<i>Euglossa sapphirina</i>	9.25	11.70	2.75	26.09
<i>Euglossa stilbonota</i>	11.30	9.73	2.42	19.54
<i>Euglossa tridentata</i>	8.33	11.05	3.17	43.76
<i>Euglossa turbinifex</i>	11.20	11.53	2.93	27.02
<i>Euglossa variabilis</i>	7.60	10.00	3.20	35.56
<i>Euglossa villosiventris</i>	6.40	11.33	3.20	35.74
<i>Euglossa viridis</i>	6.73	10.90	2.93	21.94
<i>Euglossa viridissima</i>	9.63	12.03	3.27	46.90
<i>Eufriesea caerulescens</i>	10.78	16.33	4.67	127.26
<i>Eufriesea chrysopyga</i>	6.00	15.50	4.70	103.96
<i>Eufriesea dressleri</i>	8.00	17.60	5.20	116.05
<i>Eufriesea lucifera</i>	5.90	17.40	5.17	169.02
<i>Eufriesea magretti</i>	6.00	14.00	4.20	102.34
<i>Eufriesea mexicana</i>	12.72	19.22	5.77	236.23
<i>Eufriesea ornata</i>	21.17	22.13	6.00	252.36
<i>Eufriesea pallida</i>	13.77	16.30	5.20	122.35
<i>Eufriesea pulchra</i>	7.23	16.30	5.47	162.62
<i>Eufriesea rugosa</i>	8.30	16.57	5.10	187.42
<i>Eufriesea schmidtiana</i>	19.33	20.27	5.40	170.76
<i>Eufriesea superba</i>	14.17	21.10	5.50	177.68
<i>Eufriesea surinamensis</i>	16.97	18.07	5.30	170.80
<i>Eulaema bombiformis</i>	17.07	26.53	6.90	349.92
<i>Eulaema chocona</i>	20.10	24.67	5.77	209.80
<i>Eulaema cingulata</i>	14.00	19.82	5.97	220.69
<i>Eulaema meriana</i>	17.10	24.47	6.83	353.60
<i>Eulaema mocsary</i>	12.13	18.73	5.12	182.63
<i>Eulaema nigrita</i>	13.43	18.77	5.00	186.13
<i>Eulaema peruviana</i>	17.53	22.97	5.42	187.49
<i>Eulaema polychroma</i>	11.30	19.83	5.43	160.85
<i>Eulaema sororia</i>	24.52	22.53	5.58	211.67
<i>Eulaema speciosa</i>	16.30	17.35	5.00	112.36
<i>Exaerete frontalis</i>	17.20	26.30	5.80	299.79
<i>Exaerete smaragdina</i>	15.27	17.33	4.43	142.49
<i>Exaerete trochanterica</i>	12.70	23.00	4.73	202.37