

SUPPORTING INFORMATION

‘Biogeography and diversification of the Pacific ant genus *Lordomyrma* Emery’
by Andrea Lucky and Eli M. Sarnat

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Appendix S1 Collection data sorted by taxon ID. Nomenclature follows Bolton *et al.*

(2006), plus additional changes documented in Sarnat (2006), Shattuck & Barnett (2007),

Lucky & Sarnat (2008) and Branstetter (2009). AU = Australia, CF. = Central African

Republic, CN = China, CR = Costa Rica, JP = Japan, MG = Madagascar, MY =

Malaysia, NC = New Caledonia, PG = Papua New Guinea, PH = Philippines, SB =

Solomon Islands, US = United States.

Taxon ID	Collection ID	Collector	Locality
<i>Ancyridris</i> cf. <i>polyrhachioides</i>	MJ2015	M. Janda	PG: Morobe Prov., Finisterre Mts.
<i>Calyptomymex</i> <i>kaurus</i>	BLF4130(9)	B.L. Fisher	CF.: Prefecture Sangha-Mbaéré: Parc National Dzanga-Ndoki
<i>Cyphoidris exalta</i>	BLF 4000(49)	B.L. Fisher	CF.: Prefecture Sangha-Mbaéré: Parc National Dzanga-Ndoki
Genus undet. PH03	2.v.2004	G.D. Alpert	PH: Mt. Isarog
<i>Lordomyrma</i> AU01	AL305	A. Lucky	AU: QLD Smithfield
<i>L.</i> AU02	PSW15656.08	P.S. Ward	AU: QLD Cairns
<i>L. azumai</i>	EG09VIII07-11	K. Eguchi	JP: Mt. Oonogara-dake
<i>L.</i> cf. <i>bhutanensis</i> 01	CGY37	C. Griswold et al.	CN: Yunnan, Gaoligongshan, Shibali
<i>L.</i> cf. <i>bhutanensis</i> 02	CGY37	C. Griswold et al.	CN: Yunnan, Gaoligongshan, Shibali
<i>L. curvata</i>	EPE69.10	E.P. Economo	FJ: Vanua Levu, Drawa
<i>L. desupra</i>	PSW 15766	P.S. Ward	FJ: Viti Levu, 1.75km SE Waimoque Settlement
<i>L. epinotalis</i>	EMS2610	E.M. Sarnat	SB: Makira I.
<i>L.</i> NC01	JLB-TR31	J. LeBreton	NC: Tiebaghi
<i>L.</i> cf. <i>caledonica</i>	EMS646	E.M. Sarnat	NC: Planie des Lacs
<i>L.</i> cf. <i>crawleyi</i>	EMS823	E.M. Sarnat	PG: Gulf Prov., 2km NW Wabo
<i>L.</i> PG01	EMS886	E.M. Sarnat	PG: Gulf Prov., 1 km SW Wabo
<i>L.</i> PH01	20.iii.2003	G.D. Alpert	PH: Panicuason
<i>L.</i> PH02	9.viii.2003	G.D. Alpert	PH: Naga City
<i>L. polita</i> A	EMS1909	E.M. Sarnat	FJ: Koro I., Mt. Nabukula
<i>L. polita</i> B	EMS2389	E.M. Sarnat	FJ: Vanua Levu, Mt. Vatudiri
<i>L. reticulata</i>	NBTC88S4-1D	N.B. Tawatao	MY: Sabah, Borneo, Danum Valley
<i>L. rugosa</i>	EMS2147	E.M. Sarnat	FJ: Viti Levu, Tomanivi
<i>L. sarasini</i>	JLB-TR30	J. LeBreton	NC: Tiebaghi
<i>L. stoneri</i>	FJVL301_K10_01	J.K. Wetterer	FJ: Viti Levu, Nakobalevu
<i>L. striatella</i>	EPE93.8	E.P. Economo	FJ: Beqa I.

<i>L. sukuna</i> A	FJVL316_K03_01	J.K. Wetterer	FJ: Ovalau I., Draiba Vlg.
<i>L. sukuna</i> B	FJVL334_K02_01	J.K. Wetterer	FJ: Taveuni I., Qacavulo Pt.
<i>L. sukuna</i> C	EMS2143	E.M. Sarnat	FJ: Viti Levu, Naqaranibuluti
<i>L. tortuosa</i> A	EMS2100	E.M. Sarnat	FJ: Koro I., Mt. Kuitarua
<i>L. tortuosa</i> B	EMS2393	E.M. Sarnat	FJ: Vanua Levu, Mt. Vatudiri
<i>L. vanua</i>	EPE62.08	E.P. Economo	FJ: Vanua Levu, Delaikoro
<i>L. vuda</i>	EMS2335	E.M. Sarnat	FJ: Viti Levu, Koroyanitu
<i>Mayriella ebbei</i>	PSW 13799	P.S. Ward	AU: ACT Booroomba Rocks
<i>Meranoplus</i> cf. <i>radamae</i>	BLF 7226	B.L. Fisher	MG: Fianarantsoa: Forêt d'Atsirakambiaty
<i>Myrmecina</i> <i>graminicola</i>	PSW 14658	P.S. Ward	JP: Hokkaido, Nopporo Forest
<i>Myrmica tahoensis</i>	PSW 14767	P.S. Ward	US: CA Alpine Co. Sonora Pass
<i>Rogeria stigmatica</i>	EMS1988	E.M. Sarnat	FJ: Cakaudrove, Vanua Levu, Mt. Navatadoi
<i>Stenamamma expolitum</i>	BLF10429	B.L. Fisher	CR: Heredia, La Selva Biol. Sta.
<i>Temnothorax</i> <i>rugatulus</i>	PSW 14868	P.S. Ward	US: UT, American Fork Canyon
<i>Vollenhovia emeryi</i>	ANTC 4012	D.S. Kjar	US: District of Columbia, Georgetown University

Appendix S2 Models of sequence evolution for selected data partitions.

Dataset	Data Partition	# Bases	Model
Ingroup	28S + ArgK + LW Rh + CAD	2489	SYM+I+G
—	28S	497	HKY+I
—	ArgK (exons only)	696	SYM+I
—	LW Rh	539	HKY+I+G
—	CD	757	HKY+I
—	LW Rh intron	81	K80
—	LW Rh exons	458	HKY+I+G
—	CD intron	207	HKY
—	CD exons	550	HKY+G
Outgroup	28S + ArgK + LW Rh	1732	GTR+I+G
—	28S	497	HKY+I+G
—	ArgK (exons only)	696	SYM+I+G
—	LW Rh	539	HKY+I+G
—	LW Rh intron	81	K80+G
—	LW Rh exons	458	HKY+I+G

Appendix S3 Primers used for sequencing ArgK (AK), 28S rDNA (28S), LW Rh (LR) and CAD (CD). Coordinates for 28S are based on *Drosophila melanogaster*, GenBank sequence M21017. All others are based on *Apis mellifera*, from GenBank sequences XM_393888 (CD), U26026 (LR) and AF023619 (AK). Coordinates in AK begin at the start of the coding sequence. Sources: A = Belshaw & Quicke, 1997; B = P. S. Ward, UC Davis, pers. comm.; C = Ward *et al.*, in press, D = this study, E = Ward & Downie, 2005.

Primer	Primer sequence	Coordinates	Source
28S3665F	AGA GAG AGT TCA AGA GTA CGT G (22-mer)	3665–3686	A
28S4068R	TTG GTC CGT GTT TCA AGA CGG G (22-mer)	4068–4047	A
AK1F5	ATG GTT GAY GCY GCH GTT YTN GAY AA (26-mer)	1–26	B
AK244F	GAY CCC ATY ATY GAC GAY TAY CA (23-mer)	244–266	C
AK308R	AA RTC YTT KGG CGG RTG YTT RTC (23-mer)	308–286	B
AK346EF	AG GGT GAR TAC ATC GTR TCH ACT CG (25-mer)	~346–368	C
AK392R	TC CAA RGA GCG RCC GCA TC (19-mer)	392–374	C
AK4F2	GTT GAY GCY GCY GTT YTG GAY AA (23-mer)	4–26	C
AK720ER	AC CTG YCC RAG RTC ACC RCC CAT (23-mer)	~720–700	C
CD1258F	CAG GCS GGA GAR TTY GAY TAY TCR GG (26-mer)	1258–1283	B
CD1276F	TAY TCR GGY TCG CAR GCS ATH AAR GC (26-mer)	1276–1301	B
CD1316R	GA YTC YTC YTT YAR YGC YTT DAT SGC (26-mer)	1316–1291	B
CD1491R	GCC GCA RTT NAG RGC RGT YTG YCC (24-mer)	1491–1468	C
CD852EF	ACAG T TAY GGN AAT CGY GGH CAY AA (26-mer)	~852–872	B
CD892F	GGY ACC GGR CGT TGY TAY ATG AC (23-mer)	892–914	C
CD915F	C TCG CAG AAT CAY GGA TTT TGY GT (24bp)	915–938	D
LR143F	GAC AAA GTK CCA CCR GAR ATG CT (23-mer)	143–165	E
LR639ER	YTTAC CG RTT CCA TCC RAA CA (21-mer)	~639–624	E

Appendix S4 GenBank accession numbers for DNA sequences. Sequences followed by symbols were published previously: (*) = Brady *et al.*, 2006, (†) = Branstetter (2009) and (♣) = Ward & Downie, 2005.

Taxon ID	ID #: 28S	ID #: AK	ID #: LR	ID #: CD
<i>Ancyridris cf. polyrhachioides</i>	GU085729	GU085756	GU075819	GU085796
<i>Calyptomymex kaurus</i>	GU085728	GU085757	GU075846	N/A
<i>Cyphoidris exalta</i>	GQ410999 [†]	GU085758	GQ411015 [†]	GU085797
Genus undet. PH03	GU085754	GU085759	GU075844	GU085798
<i>Lordomyrma</i> AU01	GU085747	GU085760	GU075837	GU085799
<i>L.</i> AU02	GU085730	GU085761	GU075820	GU085800
<i>L. azumai</i>	GU085753	GU085762	GU075843	GU085801
<i>L. cf. bhutanensis</i> 01	GQ411005 [†]	GU085763	GQ411009 [†]	GU085802
<i>L. cf. bhutanensis</i> 02	GQ411002 [†]	GU085764	GQ411008 [†]	GU085803
<i>L. curvata</i>	GU085742	GU085765	GU075832	GU085804
<i>L. desupra</i>	GQ411000 [†]	GU085766	GQ411016 [†]	GU085805
<i>L. epinotalis</i>	GQ411001 [†]	GU085767	GQ411014 [†]	GU085806
<i>L.</i> NC01	GU085748	GU085768	GU075838	GU085807
<i>L. cf. caledonica</i>	GU085749	GU085769	GU075839	GU085808
<i>L. cf. crawleyi</i>	GU085744	GU085770	GU075834	GU085809
<i>L.</i> PG01	GU085745	GU085771	GU075835	GU085810
<i>L.</i> PH01	GU085750	GU085772	GU075840	GU085811
<i>L.</i> PH02	GU085751	GU085773	GU075841	GU085812
<i>L. polita</i> A	GU085741	GU085774	GU075831	GU085813
<i>L. polita</i> B	GU085740	GU085775	GU075830	GU085814
<i>L. reticulata</i>	GU085752	GU085776	GU075842	GU085815
<i>L. rugosa</i>	GU085743	GU085777	GU075833	GU085816
<i>L. sarasini</i>	GU085746	GU085778	GU075836	GU085817
<i>L. stoneri</i>	GU085739	GU085779	GU075829	GU085818
<i>L. striatella</i>	GU085738	GU085780	GU075828	GU085819
<i>L. sukuna</i> A	GU085737	GU085781	GU075827	GU085820
<i>L. sukuna</i> B	GU085736	GU085782	GU075826	GU085821
<i>L. sukuna</i> C	GU085735	GU085783	GU075825	GU085822
<i>L. tortuosa</i> A	GU085734	GU085784	GU075824	GU085823
<i>L. tortuosa</i> B	GU085733	GU085785	GU075823	GU085824
<i>L. vanua</i>	GU085732	GU085786	GU075822	GU085825
<i>L. vuda</i>	GU085731	GU085787	GU075821	GU085826
<i>Mayriella ebbei</i>	EF013007 *	GU085788	EF013587 *	N/A
<i>Meranoplus cf. radamae</i>	EF013008 *	GU085789	EF013588 *	N/A
<i>Myrmecina graminicola</i>	EF013015 *	GU085790	EF013595 *	N/A
<i>Myrmica tahoensis</i>	AY703562 ♣	GU085791	AY703763 ♣	GU085827
<i>Rogeria stigmatica</i>	GU085755	GU085792	GU075845	GU085828
<i>Stenamamma expositum</i>	GQ411003 [†]	GU085793	GQ411011 [†]	N/A
<i>Temnothorax rugatulus</i>	EF013070 *	GU085794	EF013650 *	N/A
<i>Vollenhovia emeryi</i>	EF013077 *	GU085795	EF013657 *	N/A

References

- Belshaw, R. & Quicke, D.L.J. (1997) A molecular phylogeny of the aphidiinae (Hymenoptera: Braconidae). *Molecular Phylogenetics and Evolution*, **7**, 281-293.
- Bolton, B., Alpert, G., Ward, P.S. & Naskrecki, P. (2006) *Bolton's catalogue of ants of the world: 1758-2005. CD-ROM*. Harvard University Press, Cambridge, MA.
- Brady, S.G., Schultz, T.R., Fisher, B.L. & Ward, P.S. (2006) Evaluating alternative hypotheses for the early evolution and diversification of ants. *Proceedings of the National Academy of Sciences USA*, **103**, 18172-18177.
- Branstetter, M.G. (2009) The ant genus *Stenammas* Westwood (Hymenoptera: Formicidae) redefined, with a description of a new genus *Propodilobus*. *Zootaxa*, **2221**, 41-57.
- Lucky, A. & Sarnat, E.M. (2008) New species of *Lordomyrma* (Hymenoptera: Formicidae) from Southeast Asia and Fiji. *Zootaxa*, **1681**, 37-46.
- Sarnat, E.M. (2006) *Lordomyrma* (Hymenoptera: Formicidae) of the Fiji Islands. *Bishop Museum Occasional Papers*, **90**, 9-42.
- Shattuck, S.O. & Barnett, N. (2007) Revision of the ant genus *Mayriella* (Hymenoptera: Formicidae). *Memoirs of the American Entomological Institute*, **80**, 437-458.
- Ward, P.S., Brady, S.G., Fisher, B.L. & Schultz, T.R. (in press) Phylogeny and biogeography of dolichoderine ants: effects of data partitioning and relict taxa on historical inference. *Systematic Biology*.
- Ward, P.S. & Downie, D.A. (2005) The ant subfamily Pseudomyrmecinae (Hymenoptera: Formicidae): phylogeny and evolution of big-eyed arboreal ants. *Systematic Entomology*, **30**, 310-335.