

Supplementary material

Another one bites the dust: taxonomic sampling of a key genus in phylogenomic datasets reveals more non-monophyletic groups in traditional scorpion classification

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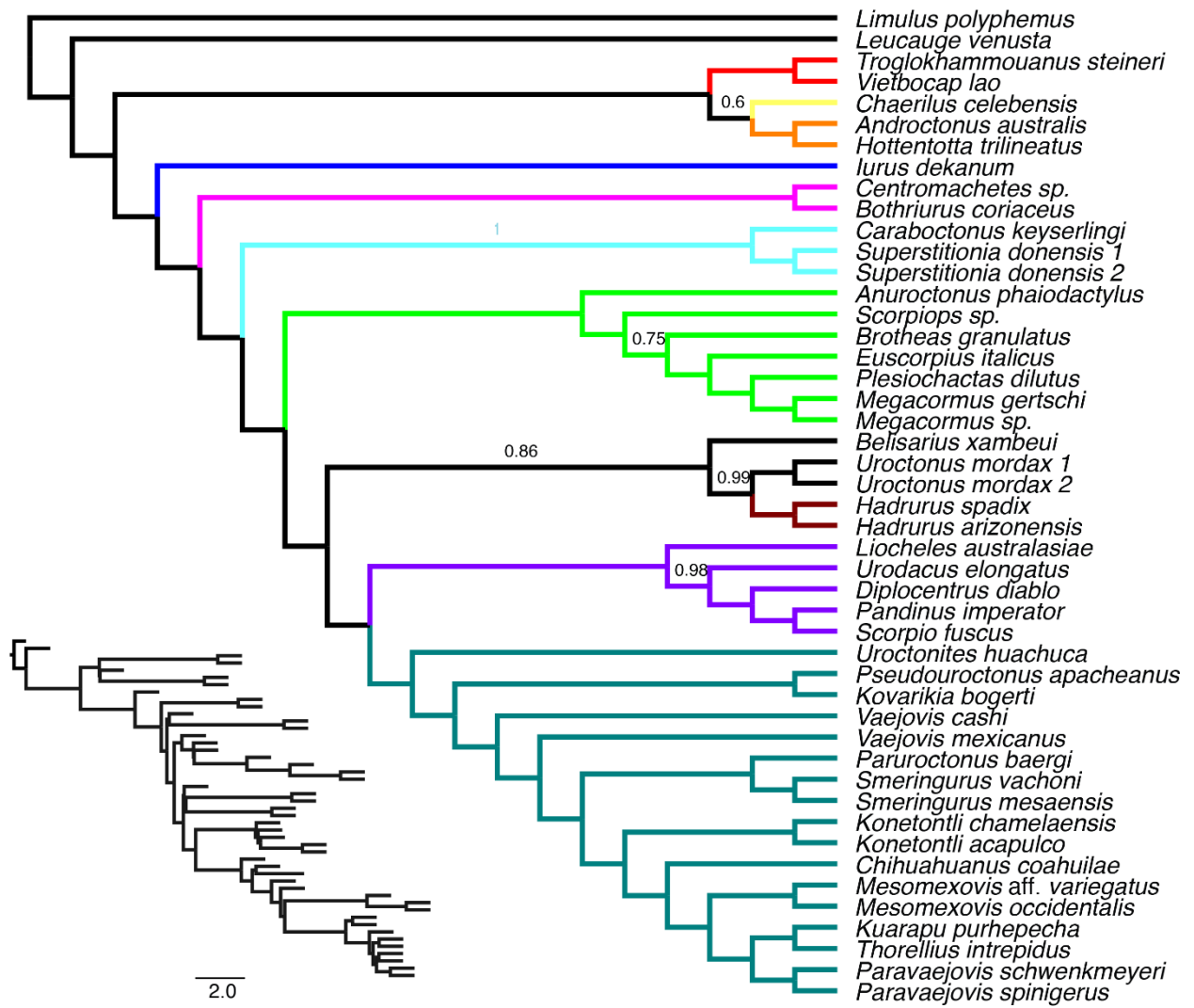


Figure S1. ASTRAL-II tree recovered from the 1871 orthobranched with at least 24 species per orthogroup. Branch support from local posterior probabilities <100 shown only.

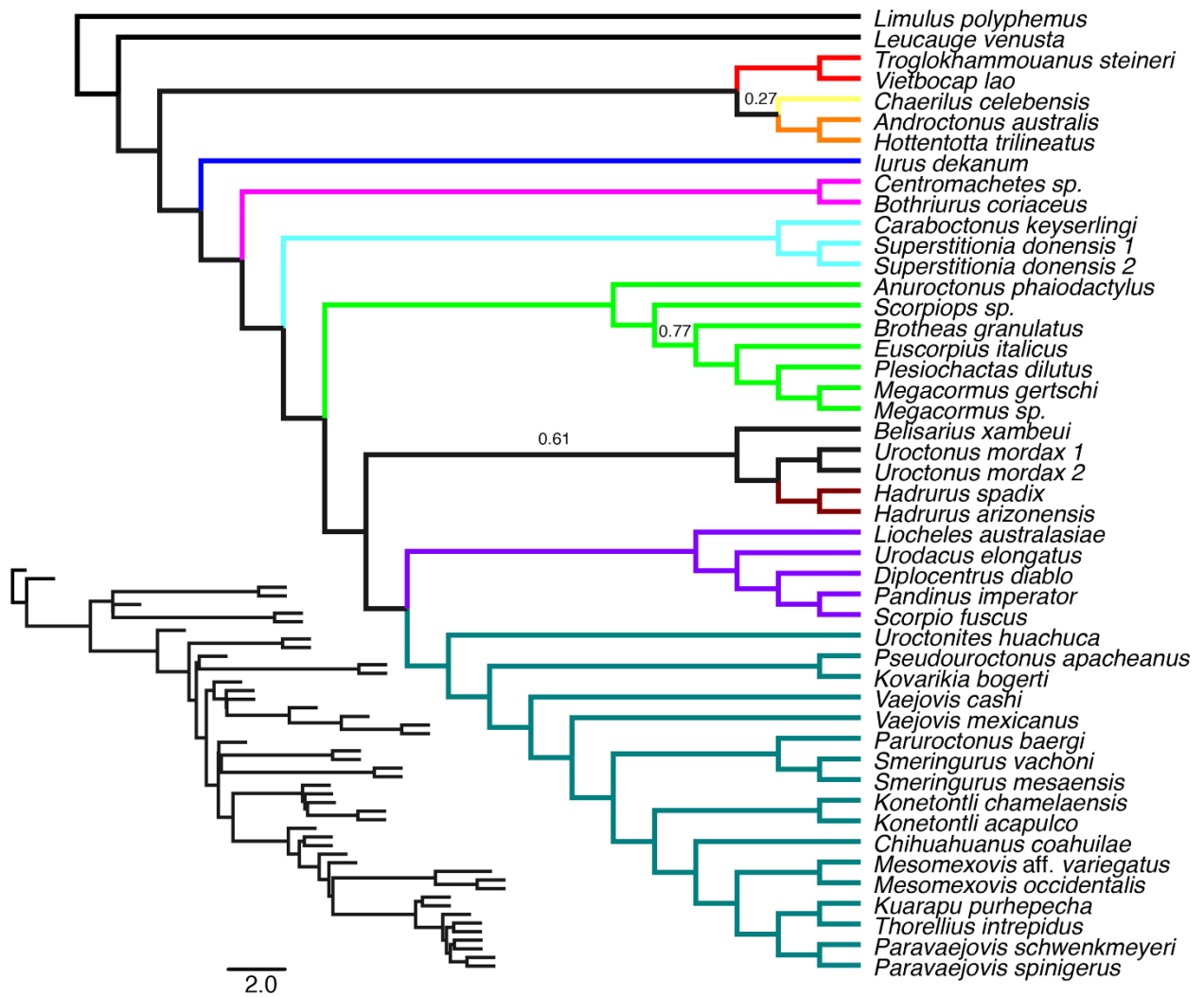


Figure S2. ASTRAL-II tree recovered from the 1012 orthobranched with at least 35 species per orthogroup. Branch support from local posterior probabilities < 100 shown only.



Figure S3 ASTRAL-II tree recovered from the 849 orthobranchedes with at least 37 species per orthogroup. Branch support from local posterior probabilities < 100 shown only.

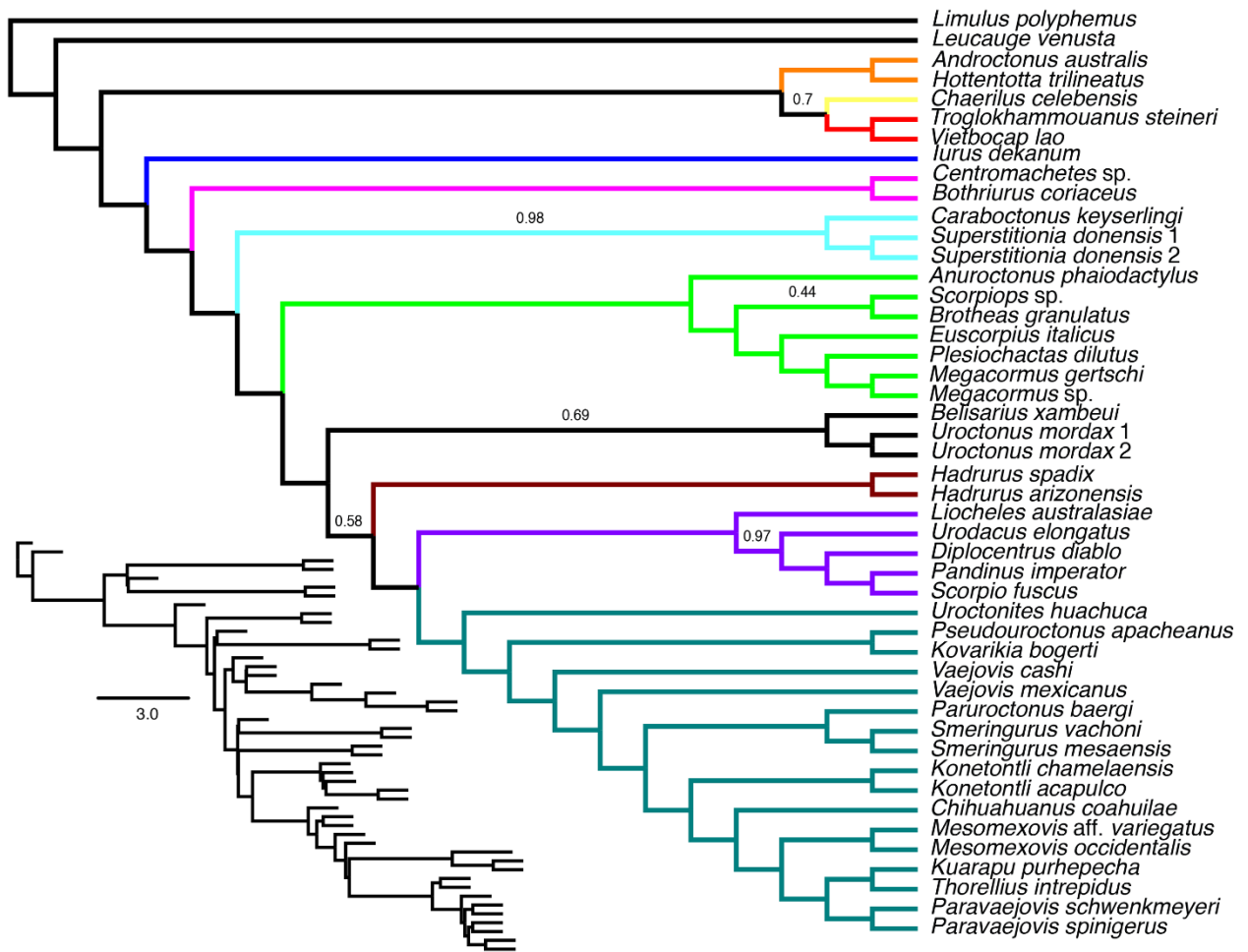


Figure S4. ASTRAL-II tree recovered from the 607 orthobranched with at least 40 species per orthogroup. Branch support from local posterior probabilities < 100 shown only.

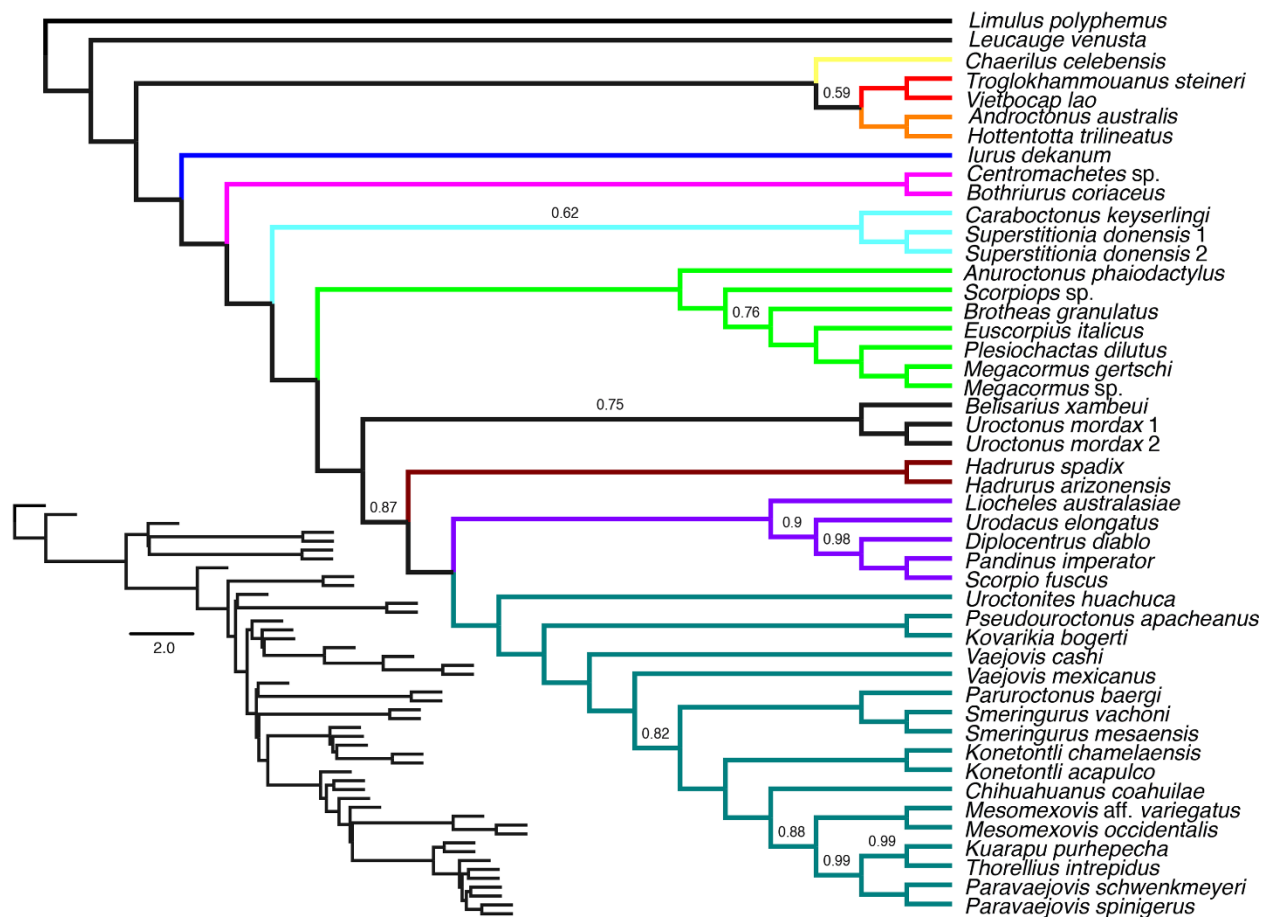


Figure S5. ASTRAL-II tree recovered from the 214 orthobranches with at least 45 species per orthogroup. Branch support from local posterior probabilities <100 shown only.

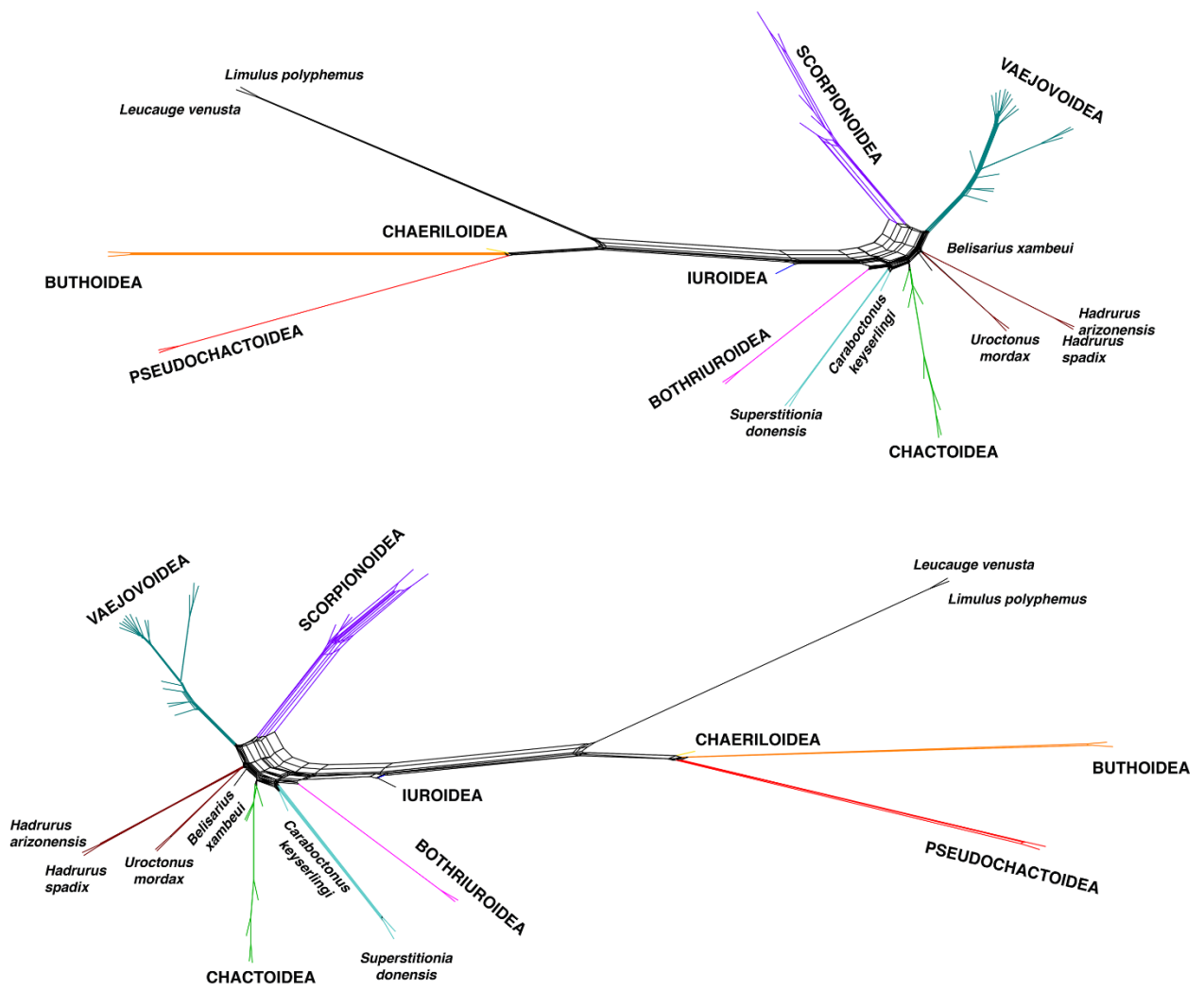


Figure S6. Supernet representation of quartets derived from the ML analyses of gene trees for the m24 (top) and m45 (bottom) datasets. Phylogenetic conflict is observed on the reticulations.

Table S1.

	Species	Number of reads	Contigs	SRA BioProject	SRA BioSample	SRA Accession	Method
BOTHRIUROIDEA							
Bothriuridae	<i>Bothriurus coriaceus</i>	23289767	196303	PRJNA429236	SAMN08331723	SRR6467511	HiSeq 2 x 150
	<i>Centromachetes</i> sp.	5573242	87052	PRJNA429234	SAMN08331856	SRR6467879	HiSeq 2 x 150
BUTHOIDEA							
Buthidae	<i>Hottentotta trilineatus</i>	9498355	118058	PRJNA270678	SAMN03268330	SRR1721800	HiSeq 2 x 150
	<i>Androctonus australis</i>	15028017	158114	PRJNA270676	SAMN03268328	SRR1724216	HiSeq 2 x 150
CHACTOIDEA							
Chactidae	<i>Anuroctonus phaiodactylus</i>	21530977	158446	PRJNA270683	SAMN03268340	SRR1721879	HiSeq 2 x 150
	<i>Brotheas granulatus</i>	20318273	134137	PRJNA270684	SAMN03268341	SRR1721887	HiSeq 2 x 150
Euscorpidae	<i>Euscorpius italicus</i>	12667128	108927	PRJNA270686	SAMN03268342	SRR1721892	HiSeq 2 x 150
	<i>Megacormus</i> sp.	37103196	62656	PRJNA270687	SAMN03268343	SRR1767669	HiSeq 2 x 150
	<i>Megacormus gertschi</i>	39638145	110528	PRJNA320105	SAMN04916686	SRR3657526	Illumina IIX 1 x 72
	<i>Plesiochactas dilutus</i>	42736309	94208	PRJNA474017	SAMN09289874	SRR7250103	HiSeq 2 x 225
Scorpiopidae	<i>Scorpiops</i> sp.	19929085	272742	PRJNA270692	SAMN03268347	SRR1767662	HiSeq 2 x 150
CHAERILOIDEA							
Chaeriliidae	<i>Chaerilus celebensis</i>	20801179	215165	PRJNA270679	SAMN03268336	SRR1721804	HiSeq 2 x 150
HADRUROIDEA							
Hadruridae	<i>Hadrurus arizonensis</i>	21465320	159818	PRJNA270669	SAMN03268090	SRR1721733	HiSeq 2 x 150
	<i>Hadrurus spadix</i>	24243211	5568	PRJNA340270	SAMN05711364	SRR4069278	HiSeq 2 x 150
	<i>Uroctonus mordax</i> (1)	47213766	162715	PRJNA474018	SAMN09289875	SRR7415024	HiSeq 2 x 225
	<i>Uroctonus mordax</i> (2)	67589326	111486	PRJNA517227	SAMN10822629	SRR8518581	HiSeq 2 x 150
IUROIDEA							
Iuridae	<i>Iurus dekanum</i>	11774511	76669	PRJNA270671	SAMN03268091	SRR1721734	HiSeq 2 x 150
Incertae Sedis							
Troglotayosicidae	<i>Belisarius xambeui</i>	10567924	101260	PRJNA270693	SAMN03268349	SRR1721953	HiSeq 2 x 150
PSEUDOCHACTOIDEA							
A							
Pseudochactidae	<i>Troglokhammouanus steineri</i>	20456204	122671	PRJNA270673	SAMN03268326	SRR1721739	HiSeq 2 x 150
	<i>Vietbocap lao</i>	19987805	146981	PRJNA270675	SAMN03268327	SRR1721740	HiSeq 2 x 150
SCORPIONOIDEA							
Scorpionidae	<i>Pandinus imperator</i>	17620229	139997	PRJNA270658	SAMN03267995	SRR1721600	HiSeq 2 x 150

	<i>Scorpio fuscus</i>	28955555	64185	PRJNA474016	SAMN09289873	SRR7249741	HiSeq 2 x 225
Hormuridae	<i>Liocheles australasiae</i>	15082229	173567	PRJNA270659	SAMN03268000	SRR1721664	HiSeq 2 x 150
Diplocentridae	<i>Diplocentrus diablo</i>	25583200	201918	PRJNA270668	SAMN03268089	SRR1721672	HiSeq 2 x 150
Urodacidae	<i>Urodacus elongatus</i>	21820617	245104	PRJNA491927	SAMN10092874	SRR7885472	HiSeq 2 x 150
SUPERSTITIONOIDEA							
Superstitioniidae	<i>Superstitionia donensis</i>	23245173	166551	PRJNA270688	SAMN03268346	SRR1721951	HiSeq 2 x 150
	<i>Superstitionia donensis</i>	16145663	219073	PRJNA345499	SAMN05868008	SRR4381683	Illumina IIX 1 x 72
Caraboctonidae	<i>Caraboctonus keyserlingii</i>	19000132	19254	PRJNA542883	SAMN11640985	SRR9053016	HiSeq 1 x 100
VAEJOVOIDEA							
Vaejovidae	<i>Chihuahuanus coahuilae</i>	28119786	63104	PRJNA474038	SAMN09290524	SRR7439185	HiSeq 1 x 100
	<i>Konetontli acapulco</i>	33525521	96426	PRJNA474031	SAMN09290500	SRR7422029	HiSeq 1 x 100
	<i>Konetontli chamelaensis</i>	33479827	86329	PRJNA474032	SAMN09290501	SRR7427084	HiSeq 1 x 100
	<i>Kovarikia bogerti</i>	7118746	10858	PRJNA517227	SAMN1082262	SRR851858	HiSeq 2 x 150
		0	8		8	4	
	<i>Kuarapu purhepecha</i>	29931709	61069	PRJNA474035	SAMN09290513	SRR7439043	HiSeq 1 x 100
	<i>Mesomexovis occidentalis</i>	23508274	50997	PRJNA474039	SAMN09290525	SRR7439610	HiSeq 1 x 100
	<i>Mesomexovis aff. variegatus</i>	34525919	77864	PRJNA474040	SAMN09290526	SRR7439652	HiSeq 1 x 100
	<i>Paravaejovis schwenkmeyeri</i>	8858816	77108	-	-	PRJEB25890	Illumina IIX 1 x 72
	<i>Paravaejovis spinigerus</i>	8892658	97571	PRJNA270694	SAMN03268351	SRR1721954	HiSeq 2 x 150
	<i>Paruroctonus baergi</i>	30113444	141875	PRJNA474019	SAMN09289876	SRR7443668	HiSeq 1 x 100
	<i>Pseudouroctonus apacheanus</i>	50784482	111600	PRJNA517227	SAMN10822631	SRR8518585	HiSeq 2 x 150
	<i>Serradigitus gertschi</i>	17363454	84835	-	-	PRJEB27910	Illumina IIX 1 x 72
	<i>Smeringurus mesaensis</i>	28918915	121718	PRJNA474020	SAMN09289877	SRR7473845	HiSeq 1 x 100
	<i>Smeringurus vachoni</i>	32783756	147814	PRJNA474021	SAMN09289878	SRR7474136	HiSeq 1 x 100
	<i>Thorellius intrepidus</i>	28233147	69834	PRJNA474033	SAMN09290512	SRR7427141	HiSeq 1 x 100
	<i>Uroctonites huachuca</i>	67589326	107340	PRJNA517227	SAMN10822630	SRR8518582	HiSeq 2 x 150
	<i>Vaejovis cashi</i>	56572744	143049	PRJNA517227	SAMN10822627	SRR8518583	HiSeq 2 x 150
	<i>Vaejovis mexicanus</i>	30537281	73844	PRJNA474030	SAMN09290473	SRR7421527	HiSeq 1 x 100
OUTGROUPS	<i>Leucauge venusta</i>	49301974	189630	PRJNA236497	SAMN02597595	SRR1145740	HiSeq 2 x 150
	<i>Limulus polyphemus</i>	65099444	110362	PRJNA236515	SAMN02597592	SRR1145732	HiSeq 2 x 150

Table S2.

	Species	Accession number
BUTHOIDEA		
Buthidae	<i>Androctonus australis</i>	KJ538473.1
CHACTOIDEA		
Chactidae	<i>Anuroctonus phaiodactylus</i>	AY368240.2
Euscorpidae	<i>Megacormus gertschi</i>	MF134688.1
HADRUROIDEA		
Hadruridae	<i>Hadrurus arizonensis</i>	JQ514240.1
	<i>Hoffmanihadrurus aztecus</i>	MF134686.1
	<i>Uroctonus mordax (mitochondrion)</i>	EU523756.1
SCORPIONOIDEA		
Scorpionidae	<i>Pandinus imperator</i>	JQ514234.1
Hormuridae	<i>Liocheles australasiae</i>	JQ514233.1
Diplocentridae	<i>Diplocentrus diablo</i>	KM514538.1
SUPERSTITIONOIDEA		
Caraboctonidae	<i>Caraboctonus keyserlingii</i>	JQ514231.1
	<i>Hadruroides charcasus</i>	AY450931.2
VAEJOVIDEA		
Vaejovidae	<i>Chihuahuanus coahuilae</i>	KM274307.1
	<i>Konetontli acapulco</i>	KM274344.1
	<i>Konetontli chamelaensis</i>	KM274345.1
	<i>Kuarapu purhepecha</i>	KM274349.1
	<i>Mesomexovis occidentalis</i>	KM274362.1
	<i>Mesomexovis aff. variegatus</i>	KM274373.1
	<i>Paravaejovis spinigerus</i>	KM274407.1
	<i>Paravaejovis schwenkmeyeri</i>	KM274402.1
	<i>Smeringurus mesaensis</i>	AY368250.3
	<i>Vaejovis mexicanus</i>	KM274292.1