

**Table S3.** Characteristics of the three mitogenomes of *P. helioscopus*(a) *P. helioscopus varius* I

Gene/Element	From	To	Antico don	Length (bp)	Codon		Spacer (+)/Overlap	Strand
					Star	Sto		
<i>tRNA-Phe</i>	1	68	GAA	68				H
<i>tRNA-Pro</i>	72	87(incomplete)						L
<i>CRII</i>	88	421						
<i>12S rRNA</i>	422	1287		865				H
<i>tRNA-Val</i>	1285	1348	CAC	64			-3	H
<i>16S rRNA</i>	1349	2832		1484				H
<i>tRNA-Leu</i>	2836	2909	TAA	74			+3	H
<i>ND1</i>	2907	3875		969	AT	TA	-3	H
<i>tRNA-Gln</i>	3872	3943	TTG	72			-4	L
<i>tRNA-Ile</i>	3952	4019	GAT	68			+8	H
<i>tRNA-Met</i>	4020	4082	CAT	63				H
<i>ND2</i>	4084	5118		1035	AT	AG	+1	H
<i>tRNA-Trp</i>	5118	5188	TCA	71			-1	H
<i>tRNA-Ala</i>	5189	5257	TGC	69				L
<i>tRNA-Asn</i>	5258	5329	GTT	72				L
<i>tRNA-Cys</i>	5346	5406	GCA	61			+16	L
<i>tRNA-Tyr</i>	5407	5473	GTA	67				L
<i>COX1</i>	5474	7021		1548	AT	AG		H
<i>tRNA-</i>	7013	7082	TGA	70			-9	L
<i>tRNA-Asp</i>	7086	7154	GTC	69			+3	H
<i>COX2</i>	7155	7839		685	AT	T		H
<i>tRNA-Lys</i>	7840	7902	TTT	63				H
<i>ATP8</i>	7903	8061		159	GT	TA		H
<i>ATP6</i>	8055	8736		682	AT	T	-7	H
<i>COX3</i>	8737	9520		784	AT	T		H
<i>tRNA-Gly</i>	9521	9585	TCC	65				H
<i>ND3</i>	9586	9925		340	AT	T		H
<i>tRNA-Arg</i>	9926	9993	TCG	68				H
<i>ND4L</i>	9994	10,284		291	GT	TA		H
<i>ND4</i>	10,27	11,642		1365	AT	TA	-7	H
<i>tRNA-His</i>	11,64	11,706	GTG	63			+1	H
<i>tRNA-Ser(AGY)</i>	11,70	11,767	GCT	61				H
<i>tRNA-</i>	11,76	11,838	TAG	71				H
<i>ND5</i>	11,84	13,609		1770	AT	TA	+1	H
<i>ND6</i>	13,59	14,079		483	GT	AG	-13	L
<i>tRNA-Glu</i>	14,08	14,148	TTC	69				L
<i>Cytb</i>	14,15	15,293		1141	AT	T	+4	H
<i>tRNA-Thr</i>	15,29	15,357	TGT	64				H
<i>CRI</i>	15,35	16,294		937				

(b) *P. helioscopus varous* II

Gene/Element	From	To	Anticodon	Length (bp)	Codon		Spacer (+)/ Overlap (-)	Strand
					Start	Stop		
<i>tRNA-Phe</i>	1	68	GAA	68				H
<i>tRNA-Pro</i>	72	133	TGG	62			+3	L
<i>CRII</i>	134	937		804				
<i>tRNA-Phe</i>	938	1005	GAA	68				H
<i>CRIII</i>	1006	1422		417				
<i>12S rRNA</i>	1423	2289		867				H
<i>tRNA-Val</i>	2287	2350	CAC	64			-3	H
<i>16S rRNA</i>	2351	3835		1485				H
<i>tRNA-Leu (UUR)</i>	3839	3912	TAA	74			+3	H
<i>ND1</i>	3910	4878		969	AT	TAG	-3	H
<i>tRNA-Gln</i>	4875	4946	TTG	72			-4	L
<i>tRNA-Ile</i>	4955	5022	GAT	68			+8	H
<i>tRNA-Met</i>	5023	5085	CAT	63				H
<i>ND2</i>	5087	6121		1035	AT	AGA	+1	H
<i>tRNA-Trp</i>	6121	6191	TCA	71			-1	H
<i>tRNA-Ala</i>	6192	6260	TGC	69				L
<i>tRNA-Asn</i>	6261	6332	GTT	72				L
<i>tRNA-Cys</i>	6349	6409	GCA	61			+16	L
<i>tRNA-Tyr</i>	6410	6476	GTA	67				L
<i>COX1</i>	6477	8024		1548	AT	AGA		H
<i>tRNA-Ser(UCN)</i>	8016	8085	TGA	70			-9	L
<i>tRNA-Asp</i>	8089	8157	GTC	69			+3	H
<i>COX2</i>	8158	8842		685	AT	T		H
<i>tRNA-Lys</i>	8843	8905	TTT	63				H
<i>ATP8</i>	8906	9064		159	GT	TAA		H
<i>ATP6</i>	9058	9739		682	AT	T	-7	H
<i>COX3</i>	9740	10,523		784	AT	T		H
<i>tRNA-Gly</i>	10,52	10,588	TCC	65				H
<i>ND3</i>	10,58	10,928		340	ATT	T		H
<i>tRNA-Arg</i>	10,92	10,996	TCG	68				H
<i>ND4L</i>	10,99	11,287		291	GT	TAA		H
<i>ND4</i>	11,28	12,645		1365	AT	TAA	-7	H
<i>tRNA-His</i>	12,64	12,709	GTG	63			+1	H
<i>tRNA-Ser(AGY)</i>	12,71	12,770	GCT	61				H
<i>tRNA-</i>	12,77	12,841	TAG	71				H
<i>ND5</i>	12,84	14,612		1770	AT	TAG	+1	H
<i>ND6</i>	14,60	15,082		483	GT	AGG	-13	L
<i>tRNA-Glu</i>	15,08	15,151	TTC	69				L
<i>Cytb</i>	15,15	16,296		1141	AT	T	+4	H
<i>tRNA-Thr</i>	16,29	16,360	TGT	64				H
<i>CRI</i>	16,36	17,253		893				

(c) *P. helioscopus cameranoi*

Gene/Element	From	To	Anticodon	Length (bp)	Codon		Spacer (+)/Overlap (-)	Strand
					Start	Stop		
<i>tRNA-Phe</i>	1	66	GAA	66				H
<i>tRNA-Pro</i>	70	131	TGG	62			+3	L
<i>CRII</i>	132	937		806				
<i>tRNA-Phe</i>	938	1009	GAA	72				H
<i>CRIII</i>	1010	1281		272				
<i>12S rRNA</i>	1282	2149		868				H
<i>tRNA-Val</i>	2147	2210	TAC	64			-3	H
<i>16S rRNA</i>	2211	3694		1484				H
<i>tRNA-Leu</i>	3698	3771	TAA	74			+3	H
<i>ND1</i>	3769	4737		969	ATA	TAG	-3	H
<i>tRNA- Gln</i>	4734	4805	TTG	72			-4	L
<i>tRNA- Ile</i>	4814	4882	GAT	69			+8	H
<i>tRNA-Met</i>	4883	4945	CAT	63				H
<i>ND2</i>	4947	5981		1035	ATT	AGA	+1	H
<i>tRNA-Trp</i>	5981	6050	TCA	70			-1	H
<i>tRNA-Ala</i>	6051	6119	TGC	69				L
<i>tRNA-Asn</i>	6120	6191	GTT	72				L
<i>tRNA-Cys</i>	6206	6268	GCA	63			+14	L
<i>tRNA-Tyr</i>	6269	6335	GTA	67				L
<i>COX1</i>	6336	7883		1548	ATG	AGA		H
<i>tRNA-</i>	7875	7944	TGA	70			-9	L
<i>tRNA-Asp</i>	7948	8017	GTC	70			+3	H
<i>COX2</i>	8018	8702		685	ATG	T		H
<i>tRNA-Lys</i>	8703	8765	TTT	63				H
<i>ATP8</i>	8766	8924		159	GTG	TAA		H
<i>ATP6</i>	8918	9599		682	ATG	T	-7	H
<i>COX3</i>	9600	10,383		784	ATG	T		H
<i>tRNA-Gly</i>	10,384	10,448	TCC	65				H
<i>ND3</i>	10,449	10,788		340	ATT	T		H
<i>tRNA-Arg</i>	10,789	10,856	TCG	68				H
<i>ND4L</i>	10,857	11,147		291	GTG	TAA		H
<i>ND4</i>	11,141	12,505		1365	ATG	TAA	-7	H
<i>tRNA-His</i>	12,507	12,569	GTG	63			+1	H
<i>tRNA-</i>	12,570	12,629	GCT	60				H
<i>tRNA-</i>	12,630	12,700	TAG	71				H
<i>ND5</i>	12,702	14,465		1764	ATG	TAG	+1	H
<i>ND6</i>	14,453	14,935		483	GTG	AGG	-13	L
<i>tRNA-Glu</i>	14,936	15,004	TTC	69				L
<i>Cytb</i>	15,009	16,149		1141	ATG	T	+4	H
<i>tRNA-Thr</i>	16,150	16,213	TGT	64				H
<i>CRI</i>	16,214	17,102		889				