

Supporting information

Table S1. Primers used for PCR amplification

Locus	Primer name and sequence	references
Cytochrome oxidase I	C1-J-2183 (5' CAACATTTATTTTGATTTTTTGG3')	Simon <i>et al.</i> (1994)
	TL2-N-3014 (50 TCCAATGCACTAATCTGCCATATTA 30)	Simon <i>et al.</i> (1994)
16S rRNA	16Sb2 (50 TTTAATCCAACATCGAGG 30)	Vogler, <i>et al.</i> (1993)
	LR-N-13398 (50 CGCCTGTTTAACAAAAACAT 30)	Simon <i>et al.</i> (1994)
28S rRNA domain 2	D2-3551 (50 CGTGTTGCTTGATAGTGCAGC 30)	Gillespie <i>et al.</i> (2005)
	D2-4057 (50 TCAAGACGGGTCCTGAAAGT 30)	Gillespie <i>et al.</i> (2005)
CAD	54F (50 GTNGTNTTYCARACNGGNATGGT 30)	Moulton & Wiegmann (2004)
	680R (50 AANGCRTCNCGNACMACYTCRTAYTC 30)	Moulton & Wiegmann (2004)
	338F (50 ATGAARTAYGGYAATCGTGGHCAYAA 30)	Winterton <i>et al.</i> (2010)
	654R (50 TCYTTCCANCCYTTYARSGATTTRTC 30)	Winterton <i>et al.</i> (2010)

Table S2. New sequences submitted to GenBank.

16s

Sequence_ID	Collected_by	Specimen_voucher	Country	Voucher	GenBank_ID
Seq1	Daniel GM, Davis ALV,	Deschodt C	Mozambique	NBG2	MH129962
Seq2	Daniel GM, Davis ALV,	Deschodt C	South Africa	NKD	MH129963
Seq3	Daniel GM, Davis ALV,	Deschodt C	South Africa	NQU2	MH129964
Seq4	Daniel GM, Davis ALV,	Deschodt C	South Africa	NQT	MH129965
Seq5	Daniel GM, Davis ALV,	Deschodt C	South Africa	NQW	MH129966
Seq6	Daniel GM, Davis ALV,	Deschodt C	South Africa	NKK	MH129967
Seq7	Daniel GM, Davis ALV,	Deschodt C	South Africa	NFI2	MH129968
Seq8	Daniel GM, Davis ALV,	Deschodt C	South Africa	NFI1	MH129969
Seq9	Daniel GM, Davis ALV,	Deschodt C	South Africa	NSKB	MH129970
Seq10	Daniel GM, Davis ALV,	Deschodt C	South Africa	NSt1	MH129971
Seq11	Daniel GM, Davis ALV,	Deschodt C	South Africa	NSt12	MH129972
Seq12	Daniel GM, Davis ALV,	Deschodt C	South Africa	NRI	MH129973
Seq13	Daniel GM, Davis ALV,	Deschodt C	South Africa	NMC1	MH129974
Seq14	Daniel GM, Davis ALV,	Deschodt C	South Africa	NMC2	MH129975
Seq15	Daniel GM, Davis ALV,	Deschodt C	South Africa	NSP01	MH129976
Seq16	Daniel GM, Davis ALV,	Deschodt C	South Africa	SSI1	MH129977
Seq17	Daniel GM, Davis ALV,	Deschodt C	South Africa	SSI3	MH129978
Seq18	Daniel GM, Davis ALV,	Deschodt C	South Africa	SSI2	MH129979
Seq19	Daniel GM, Davis ALV,	Deschodt C	South Africa	SCMS2	MH129980
Seq20	Daniel GM, Davis ALV,	Deschodt C	South Africa	NMM4	MH129981
Seq21	Daniel GM, Davis ALV,	Deschodt C	South Africa	NMM5	MH129982
Seq22	Daniel GM, Davis ALV,	Deschodt C	South Africa	NMM3	MH129983
Seq23	Daniel GM, Davis ALV,	Deschodt C	South Africa	SYK1	MH129984
Seq24	Daniel GM, Davis ALV,	Deschodt C	South Africa	SYk3	MH129985
Seq25	Daniel GM, Davis ALV,	Deschodt C	South Africa	SYK2	MH129986
Seq26	Daniel GM, Davis ALV,	Deschodt C	South Africa	SMI	MH129987
Seq27	Daniel GM, Davis ALV,	Deschodt C	South Africa	SIH3	MH129988
Seq28	Daniel GM, Davis ALV,	Deschodt C	South Africa	SIHS	MH129989
Seq29	Daniel GM, Davis ALV,	Deschodt C	South Africa	SUM2	MH129990
Seq30	Daniel GM, Davis ALV,	Deschodt C	South Africa	SUM4	MH129991

COI

Sequence_ID	Collected_by	Country	Specimen_voucher	Genbank_ID
Seq1	Daniel GM, Davis ALV,		Mozambique	SAG MH129892
Seq2	Daniel GM, Davis ALV,	South Africa		SNKB1 MH129893
Seq3	Daniel GM, Davis ALV,	South Africa		SSOI MH129894

Seq4	Daniel GM, Davis ALV, Deschodt C	South Africa	SSOKB	MH129895
Seq5	Daniel GM, Davis ALV, Deschodt C	South Africa	SYK1	MH129896
Seq6	Daniel GM, Davis ALV, Deschodt C	South Africa	SYK2	MH129897
Seq7	Daniel GM, Davis ALV, Deschodt C	South Africa	SGM1	MH129898
Seq8	Daniel GM, Davis ALV, Deschodt C	South Africa	SGM2	MH129899
Seq9	Daniel GM, Davis ALV, Deschodt C	South Africa	SCT1	MH129900
Seq10	Daniel GM, Davis ALV, Deschodt C	South Africa	SCT3	MH129901
Seq11	Daniel GM, Davis ALV, Deschodt C	Mozambique	NBG1	MH129902
Seq12	Daniel GM, Davis ALV, Deschodt C	Mozambique	NBG2	MH129903
Seq13	Daniel GM, Davis ALV, Deschodt C	South Africa	NBMS1	MH129904
Seq14	Daniel GM, Davis ALV, Deschodt C	South Africa	NBMS	MH129905
Seq15	Daniel GM, Davis ALV, Deschodt C	Mozambique	NCG	MH129906
Seq16	Daniel GM, Davis ALV, Deschodt C	South Africa	NCM	MH129907
Seq17	Daniel GM, Davis ALV, Deschodt C	South Africa	NQU2	MH129908
Seq18	Daniel GM, Davis ALV, Deschodt C	South Africa	NQT1	MH129909
Seq19	Daniel GM, Davis ALV, Deschodt C	South Africa	NQT2	MH129910
Seq20	Daniel GM, Davis ALV, Deschodt C	South Africa	NQW	MH129911
Seq21	Daniel GM, Davis ALV, Deschodt C	South Africa	SSI2	MH129912
Seq22	Daniel GM, Davis ALV, Deschodt C	South Africa	SSI3	MH129913
Seq23	Daniel GM, Davis ALV, Deschodt C	South Africa	SUM2	MH129914
Seq24	Daniel GM, Davis ALV, Deschodt C	South Africa	SUM4	MH129915
Seq25	Daniel GM, Davis ALV, Deschodt C	South Africa	SCMS1	MH129916
Seq26	Daniel GM, Davis ALV, Deschodt C	South Africa	SCMS2	MH129917
Seq27	Daniel GM, Davis ALV, Deschodt C	South Africa	SMI	MH129918
Seq28	Daniel GM, Davis ALV, Deschodt C	South Africa	SMI1	MH129919
Seq29	Daniel GM, Davis ALV, Deschodt C	South Africa	SIHS	MH129920
Seq30	Daniel GM, Davis ALV, Deschodt C	South Africa	SPGM1	MH129921
Seq31	Daniel GM, Davis ALV, Deschodt C	South Africa	SPGM2	MH129922
Seq32	Daniel GM, Davis ALV, Deschodt C	South Africa	NCFM	MH129923
Seq33	Daniel GM, Davis ALV, Deschodt C	South Africa	NKK	MH129924
Seq34	Daniel GM, Davis ALV, Deschodt C	South Africa	NFI2	MH129925
Seq35	Daniel GM, Davis ALV, Deschodt C	South Africa	NFI1	MH129926
Seq36	Daniel GM, Davis ALV, Deschodt C	South Africa	NSKB	MH129927
Seq37	Daniel GM, Davis ALV, Deschodt C	South Africa	NSKB2	MH129928
Seq38	Daniel GM, Davis ALV, Deschodt C	South Africa	NIH2	MH129929
Seq39	Daniel GM, Davis ALV, Deschodt C	South Africa	NMC1	MH129930
Seq40	Daniel GM, Davis ALV, Deschodt C	South Africa	NMC2	MH129931
Seq41	Daniel GM, Davis ALV, Deschodt C	South Africa	NSP01	MH129932
Seq42	Daniel GM, Davis ALV, Deschodt C	South Africa	NRI	MH129933

Seq43	Daniel GM, Davis ALV, Deschodt C	South Africa	SFI02	MH129934
Seq44	Daniel GM, Davis ALV, Deschodt C	South Africa	SMMS2	MH129935
Seq45	Daniel GM, Davis ALV, Deschodt C	South Africa	NMMS01	MH129936
Seq46	Daniel GM, Davis ALV, Deschodt C	South Africa	NMMS02	MH129937
Seq47	Daniel GM, Davis ALV, Deschodt C	South Africa	NMM3	MH129938
Seq48	Daniel GM, Davis ALV, Deschodt C	South Africa	NMM4	MH129939

CAD

Sequence_ID	Collected_by	Country	Specimen_voucher		
Seq1	Daniel GM, Davis ALV, Deschodt C	South Africa	SCMS2	MH129876	
Seq2	Daniel GM, Davis ALV, Deschodt C	South Africa	SMI	MH129877	
Seq3	Daniel GM, Davis ALV, Deschodt C	South Africa	SPGM2	MH129878	
Seq4	Daniel GM, Davis ALV, Deschodt C	South Africa	SGM1	MH129879	
Seq5	Daniel GM, Davis ALV, Deschodt C	South Africa	SNKB1	MH129880	
Seq6	Daniel GM, Davis ALV, Deschodt C	South Africa	SSOKB	MH129881	
Seq7	Daniel GM, Davis ALV, Deschodt C	South Africa	SFI02	MH129882	
Seq8	Daniel GM, Davis ALV, Deschodt C	South Africa	SMMS2	MH129883	
Seq9	Daniel GM, Davis ALV, Deschodt C	South Africa	SYK1	MH129884	
Seq10	Daniel GM, Davis ALV, Deschodt C	South Africa	SSI3	MH129885	
Seq11	Daniel GM, Davis ALV, Deschodt C	South Africa	NKD	MH129886	
Seq12	Daniel GM, Davis ALV, Deschodt C	South Africa	NCG	MH129887	
Seq13	Daniel GM, Davis ALV, Deschodt C	South Africa	NIH2	MH129888	
Seq14	Daniel GM, Davis ALV, Deschodt C	South Africa	NSKB2	MH129889	
Seq15	Daniel GM, Davis ALV, Deschodt C	South Africa	NCM1	MH129890	
Seq16	Daniel GM, Davis ALV, Deschodt C	South Africa	SUM4	MH129891	

28S

Sequence_ID	Collected_by	Specimen_voucher	Country	Voucher	GenBank_ID
Seq1	Daniel GM, Davis ALV, Deschodt C		South Africa	SCMS2	MH129940
Seq2	Daniel GM, Davis ALV, Deschodt C		South Africa	SIHS	MH129941
Seq3	Daniel GM, Davis ALV, Deschodt C		South Africa	SMI	MH129942
Seq4	Daniel GM, Davis ALV, Deschodt C		South Africa	SNKB1	MH129943
Seq5	Daniel GM, Davis ALV, Deschodt C		South Africa	SCT3	MH129944
Seq6	Daniel GM, Davis ALV, Deschodt C		South Africa	SYK1	MH129945
Seq7	Daniel GM, Davis ALV, Deschodt C		South Africa	SUM4	MH129946
Seq8	Daniel GM, Davis ALV, Deschodt C		Mozambique	NCG	MH129947
Seq9	Daniel GM, Davis ALV, Deschodt C		Mozambique	NBG1	MH129948
Seq10	Daniel GM, Davis ALV, Deschodt C		South Africa	NMM3	MH129949
Seq11	Daniel GM, Davis ALV, Deschodt C		South Africa	NRI	MH129950

Seq12	Daniel GM, Davis ALV, Deschodt C	South Africa	NSP01	MH129951
Seq13	Daniel GM, Davis ALV, Deschodt C	South Africa	NIH2	MH129952
Seq14	Daniel GM, Davis ALV, Deschodt C	South Africa	NFI1	MH129953
Seq15	Daniel GM, Davis ALV, Deschodt C	South Africa	NStL2	MH129954
Seq16	Daniel GM, Davis ALV, Deschodt C	South Africa	NSB2	MH129955
Seq17	Daniel GM, Davis ALV, Deschodt C	South Africa	NKD	MH129956
Seq18	Daniel GM, Davis ALV, Deschodt C	South Africa	SFI02	MH129957
Seq19	Daniel GM, Davis ALV, Deschodt C	South Africa	SMMS2	MH129958
Seq20	Daniel GM, Davis ALV, Deschodt C	South Africa	NMMS01	MH129959
Seq21	Daniel GM, Davis ALV, Deschodt C	South Africa	NMMS02	MH129960
Seq22	Daniel GM, Davis ALV, Deschodt C	South Africa	SSI3	MH129961

Table S3. Distribution of sisyphine species in southern African climatic regions

species	Highveld Grassland	Kalahari	Northeast Savannah	South-west Arid	Winter/Biomodal Rainfall
(S.) <i>N. barbarossa</i>	1	0	1	0	0
(S.) <i>N. calcaratus</i>	0	1	1	0	0
(S.) <i>N. fortuitus</i>	0	0	1	0	0
(S.) <i>N. infuscatus</i>	0	0	1	0	0
(S.) <i>N. kuehni</i>	1	0	1	0	0
(S.) <i>N. macrorubrus</i>	1	1	0	1	0
(S.) <i>N. mirabilis</i>	0	0	1	0	1
(S.) <i>N. quadricolis</i>	0	0	0	0	1
(S.) <i>N. rubrus</i>	0	1	1	0	0
(S.) <i>N. setiger</i>	1	0	1	0	0
<i>S. (P.) fasciculatus</i>	0	0	1	0	0
<i>S. (P.) caffer</i>	1	0	1	0	0
<i>S. (P.) costatus</i>	1	0	1	0	0
<i>S. (P.) goryi</i>	1	0	1	0	0
<i>S. (P.) impressipennis</i>	0	0	1	0	0
<i>S. (P.) manni</i>	0	0	1	0	0
<i>S. (P.) nanniscus</i>	0	0	1	0	0
<i>S. (P.) neobornemisszanus</i>	0	0	1	0	0
<i>S. (S.) oralensis</i>	0	0	1	0	0
<i>S. (P.) perissinottoi</i>	0	0	0	0	1
<i>S. (P.) sordidus</i>	0	0	1	0	0
<i>S. (S.) umbraphilus</i>	0	0	1	0	0
<i>S. (P.) muricatus</i>	1	0	1	0	0
<i>S. (S.) splendidus</i>	0	0	0	1	0
<i>S. (P.) alveatus</i>	0	0	1	0	0
Total	8	3	21	2	3

Table S4. Distribution of *Epirinus* species in southern African climatic regions

species	Highveld Grassland	Kalahari	Northeast Savannah	South-west Arid	Winter/Biomodal Rainfall
<i>E. aeneus</i>	0	1	0	1	1
<i>E. aquilus</i>	0	0	0	0	1
<i>E. comosus</i>	0	0	0	0	1
<i>E. convexus</i>	0	0	0	0	1
<i>E. flagellatus</i>	1	0	0	0	1
<i>E. hlhluwensis</i>	0	0	1	0	0
<i>E. minimus</i>	0	0	0	0	1
<i>E. ngomae</i>	0	0	1	0	0
<i>E. obtusus</i>	1	0	0	0	1
<i>E. pygidialis</i>	1	0	1	0	1
<i>E. relictus</i>	1	0	0	0	1
<i>E. scrobiculatus</i>	0	0	0	0	1
<i>E. sebastiani</i>	0	0	0	0	1
<i>E. silvestris</i>	0	0	0	0	1
<i>E. sulcipennis</i>	1	0	0	0	1
<i>E. validus</i>	1	0	1	0	1
Total	6	1	4	1	14

Table S5: Global information from the S-DIVA analysis.

Dispersal Table:				Global Cost
	from	to	within	
A	0.50	13.00	1	Global Dispersal: 25
B	0.00	4.00	1	Global Vicariance: 8
C	14.00	1.00	25	Global Extinction: 0
D	1.50	2.00	0	
E	7.00	3.00	10	
F	0.00	0.00	1	

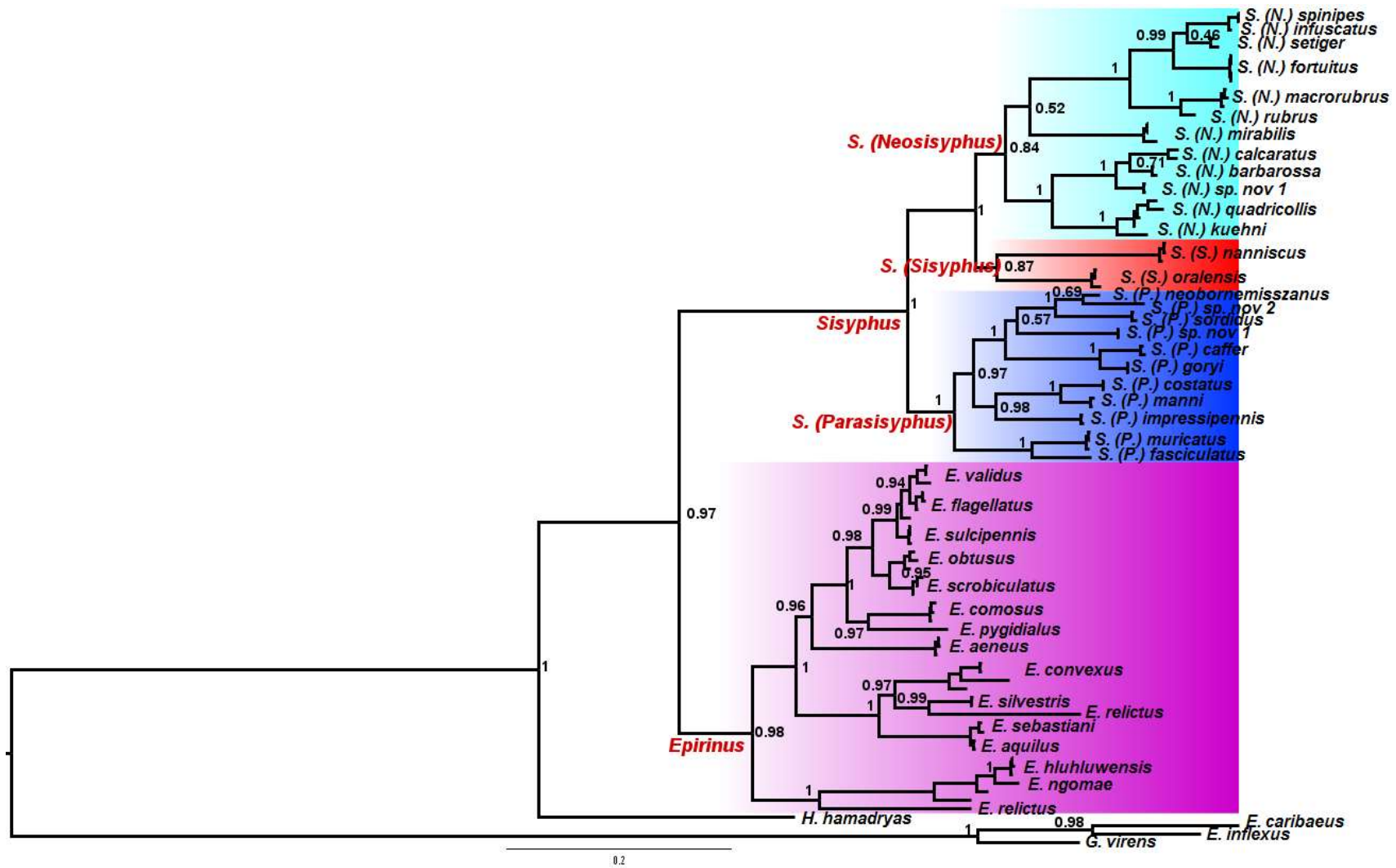


Figure S1. Bayesian phylogram of combined dataset analysis (COI, 16S, CAD and 28S domain 2). Posterior probabilities are given for each node.

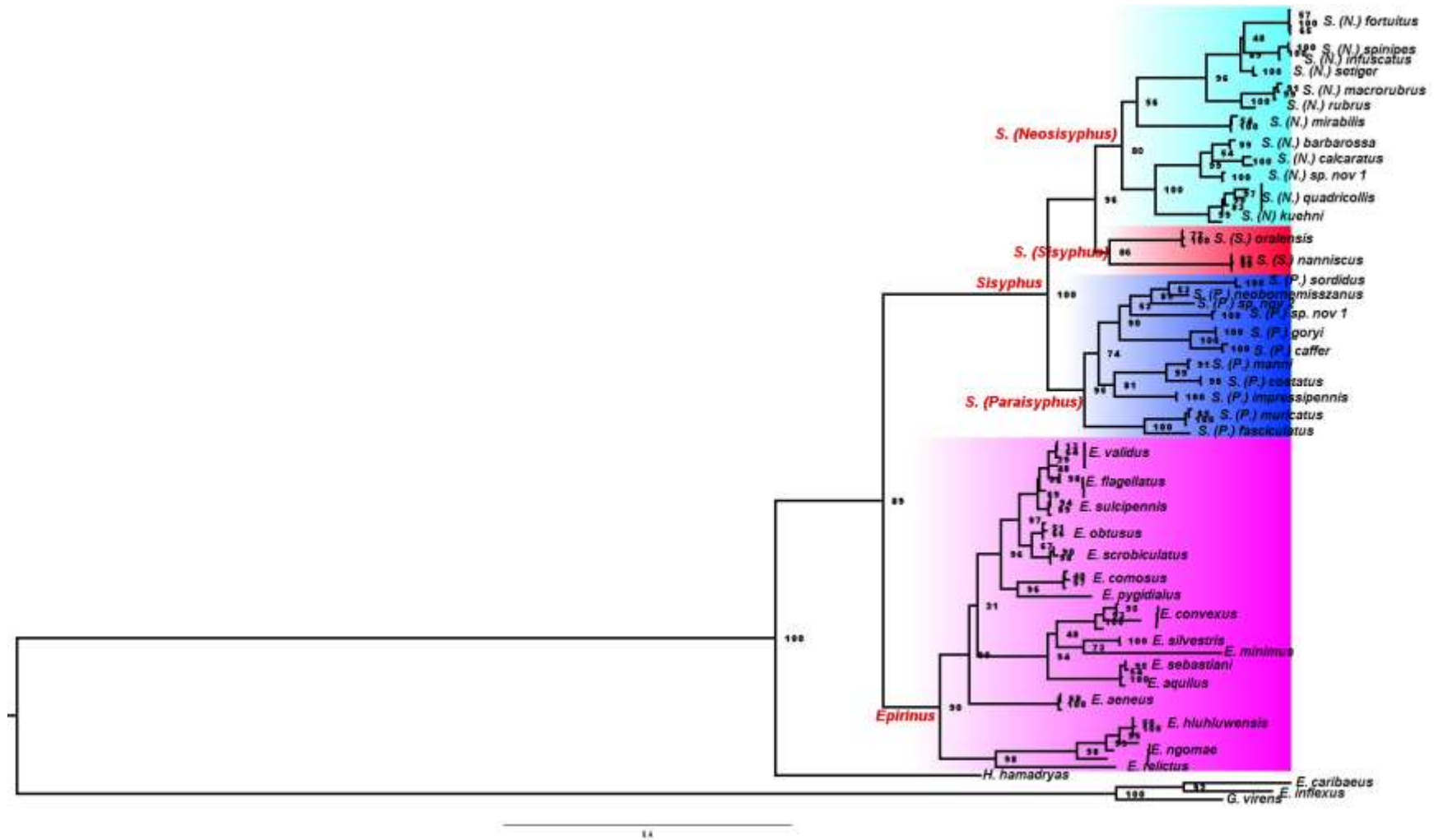


Figure S2. Maximum likelihood phylogram of combined dataset analysis (COI, 16S, CAD and 28S domain 2). Bootstrap support is given for each node.