

Additional file 1. Principal component analyses on raw data and phylogenetically independent contrasts of love-dart and reproductive morphology data.

	Raw		BI		BI with phylogenetic uncertainty		ML with or without phylogenetic uncertainty	
Love-dart variables	Dart PC1	Dart PC2	Dart PC1	Dart PC2	Dart PC1	Dart PC2	Dart PC1	Dart PC2
Number	0.298	0.882	0.359	0.884	0.351	0.876	0.333	0.912
Number of blades	0.586	-0.270	0.544	-0.345	0.550	-0.342	0.536	-0.357
Length of blade	0.545	-0.350	0.549	-0.306	0.551	-0.321	0.562	-0.203
Curve	0.521	0.165	0.523	0.074	0.520	0.110	0.535	0.003
Eigenvalue	2.320	0.933	2.416	0.828	2.379	0.851	2.404	0.853
%Variance	58.0	23.3	60.4	20.7	59.5	21.3	60.1	21.3
Gland variables	Gland PC1	Gland PC2	Gland PC1	Gland PC2	Gland PC1	Gland PC2	Gland PC1	Gland PC2
Number	0.626	-0.350	0.538	-0.534	0.548	-0.523	0.510	-0.574
Size	0.373	0.537	0.447	0.429	0.437	0.426	0.453	0.430
Shape	0.119	0.760	0.277	0.712	0.257	0.727	0.299	0.679
Placement	0.675	-0.106	0.659	-0.155	0.665	-0.130	0.667	-0.158
Eigenvalue	1.963	1.248	1.818	1.198	1.798	1.172	1.740	1.239
%Variance	49.1	31.2	45.4	29.9	45.0	29.3	43.5	31.0
Stylophore variables	Stylo. PC1	Stylo. PC2	Stylo. PC1	Stylo. PC2	Stylo. PC1	Stylo. PC2	Stylo. PC1	Stylo. PC2
Functional stylophore(s):								
Number	0.425	0.356	0.389	0.461	0.384	0.468	0.349	0.487
Size	0.005	0.668	-0.058	0.575	-0.065	0.568	-0.135	0.578
Placement	0.290	0.542	0.180	0.590	0.166	0.594	0.048	0.622
Vestigial stylophore(s):								
Number	0.525	-0.193	0.562	-0.102	0.565	-0.091	0.562	-0.006
Size	0.449	-0.219	0.437	-0.287	0.440	-0.289	0.479	-0.201
Placement	0.507	-0.221	0.553	-0.126	0.555	-0.115	0.559	-0.040
Eigenvalue	3.166	1.746	2.898	1.746	2.888	1.739	2.967	1.809
%Variance	52.8	29.1	48.3	29.1	48.1	29.0	49.4	30.1

Diverticulum variables	SRO PC1	SRO PC2	SRO PC1	SRO PC2	SRO PC1	SRO PC2	SRO PC1	SRO PC2
Length (relative to bursa tract)	0.602	-0.311	0.635	-0.288	0.636	-0.297	0.667	-0.238
Placement	0.591	-0.445	0.627	-0.350	0.631	-0.331	0.668	-0.230
Length (relative to organs)	0.536	0.840	0.451	0.892	0.444	0.896	0.331	0.944
Eigenvalue	2.174	0.528	1.681	0.827	1.664	0.837	1.490	0.940
%Variance	72.5	17.6	56.0	27.6	55.5	27.9	49.7	31.3

The independent contrasts are based on the raw data and the three alternative trees (see Methods), namely BI or ML with and without consideration of five cases of phylogenetic uncertainty. The ML tree topologies with and without phylogenetic uncertainty were identical. The table shows the eigenvectors for each variable in the different principal components (PC). These vectors are a measure for the weight of the variable in the PC. The eigenvalue and % variance are given for each PC. These values express how much of the total variance in the data is explained by that PC.