

**Nasal mites in seabirds and shorebirds: the role of host morphology and phylogeny  
on measures of parasitism**

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**SUPPLEMENTARY MATERIAL**

**Table S1.** Bill type classification, grouping morphological (categorical) traits related to the bill internal structures of seabirds and shorebirds from Brazil and USA.

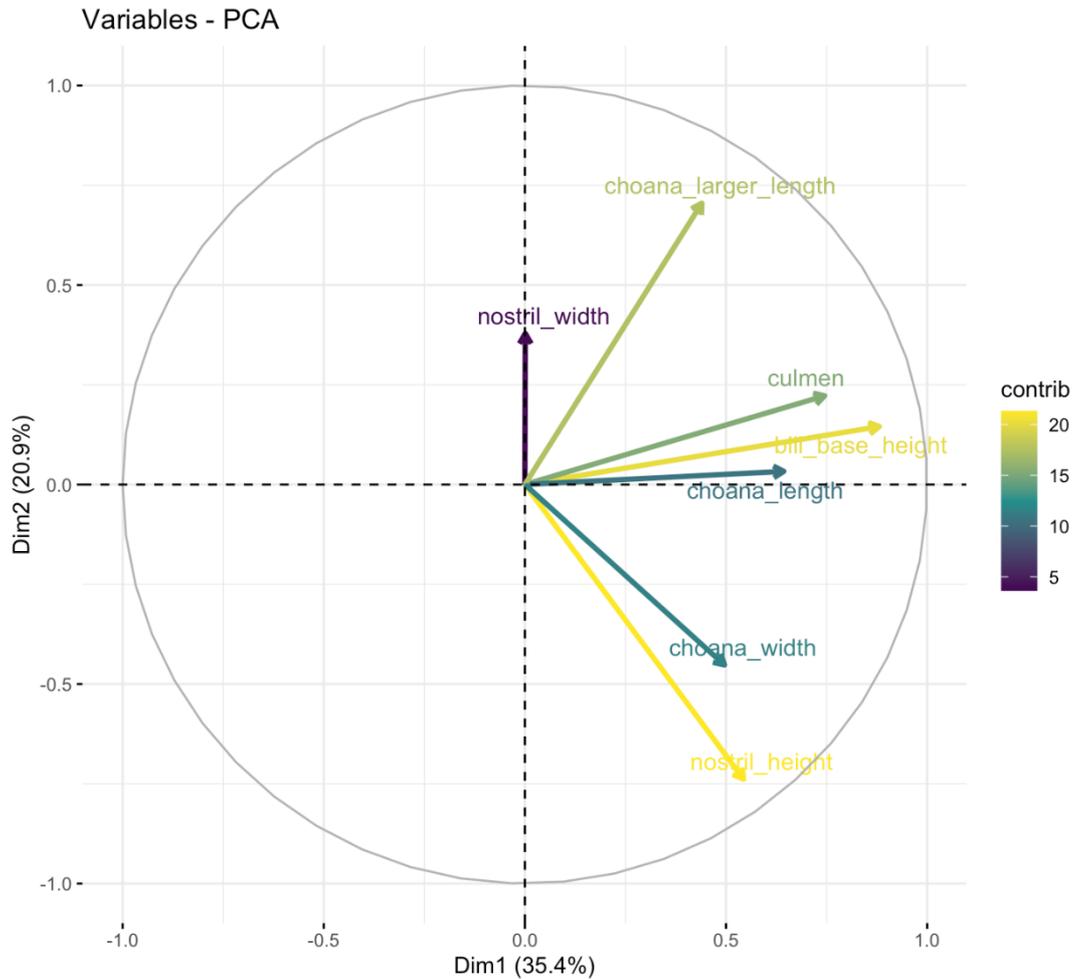
<b>New Classification</b>	<b>Nostril Type</b>	<b>Internal Characteristics</b>
bill_type1	Absent	Predominance of bone trabeculae
bill_type2	Absent	Predominance of connective tissue
bill_type3	Slit-like	Predominance of bone trabeculae
bill_type4	Slit-like	Predominance of connective tissue
bill_type5	Tubular	Predominance of bone trabeculae
bill_type6	Tubular	Predominance of connective tissue

**Table S2.** Eigenvalues of the two principal coordinates (PCoA 1 and PCoA2), obtained from Bray-Curtis dissimilarity matrices for parasitism prevalence, mean intensity, and mean abundance per host family of seabirds and shorebirds in Brazil and USA.

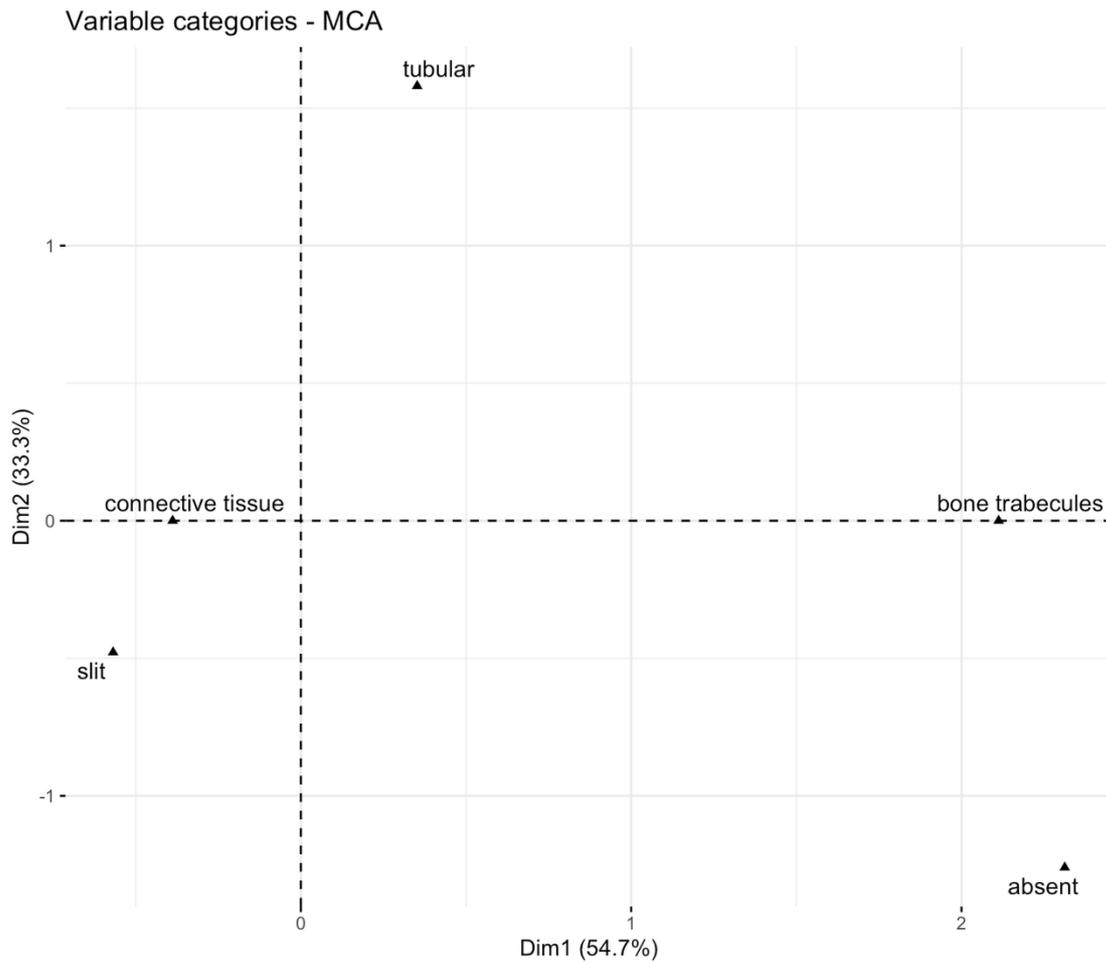
<b>Parasitological Index</b>	<b>PCoA1</b>	<b>PCoA2</b>
Prevalence	1.83	0.55
Mean Intensity	2.54	1.27
Mean Abundance	2.32	1.66

**Table S3.** Spearman correlation matrix ( $r_s$ ) of morphometric traits of seabirds and shorebirds from Brazil and USA. All correlations were significant ( $p < 0.01$ ).

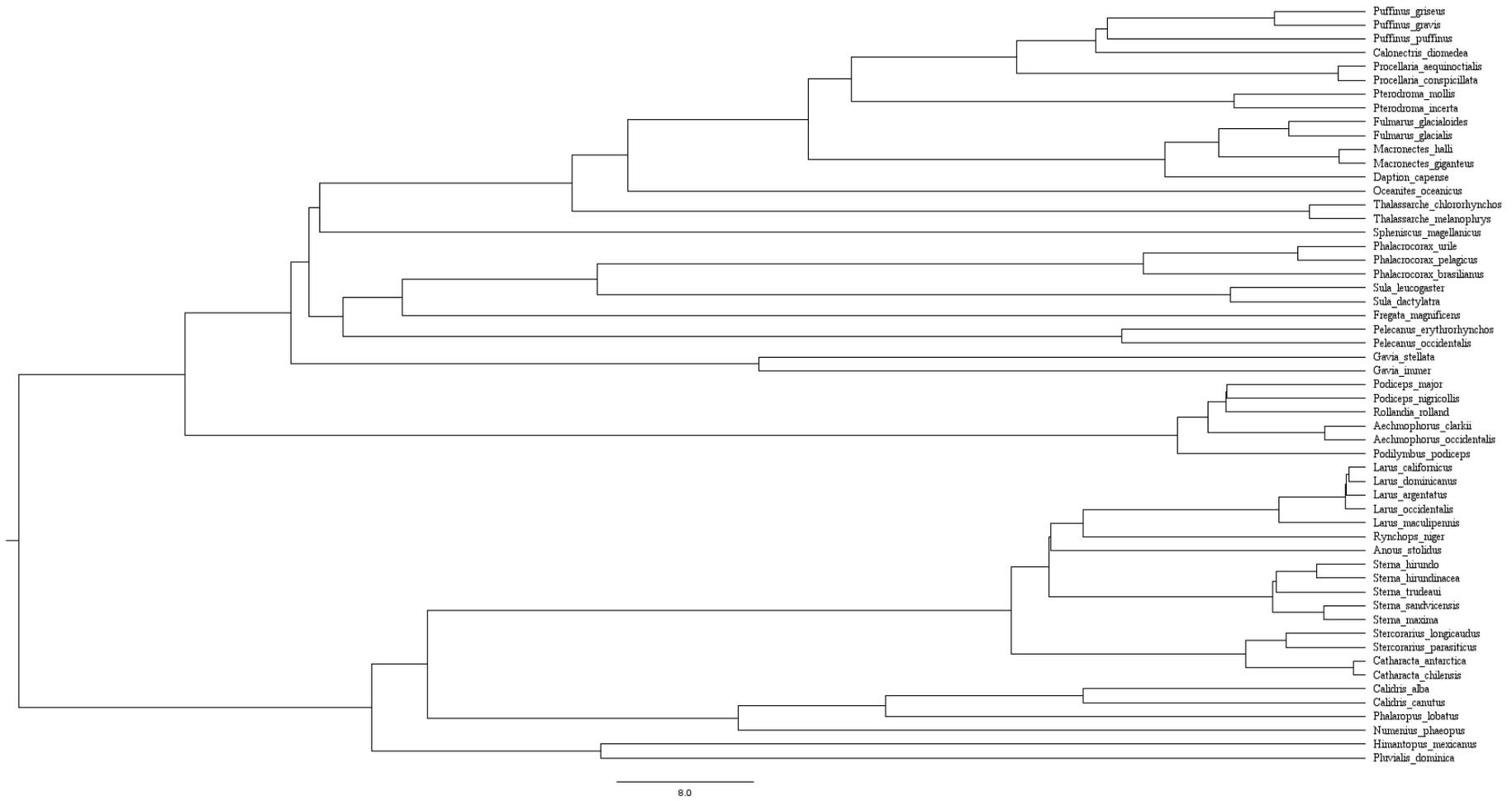
	<b>bill_ base height</b>	<b>culmen</b>	<b>nostril heigth</b>	<b>nostril width</b>	<b>choana length</b>	<b>choana_ larger length</b>	<b>choana width</b>
<b>bill_base_height</b>	1	0.791	0.280	0.125	0.4108	0.723	0.160
<b>culmen</b>	0.791	1	0.157	0.355	0.205	0.579	0.199
<b>nostril_heigth</b>	0.280	0.157	1	-0.457	0.151	-0.105	0.336
<b>nostril_width</b>	0.125	0.355	-0.457	1	0.232	0.402	0.361
<b>choana_length</b>	0.411	0.205	0.151	0.232	1	0.469	0.452
<b>choana_ larger_length</b>	0.723	0.579	-0.105	0.402	0.469	1	0.084



**Figure S1.** Principal component analysis (PCA) of morphometric traits of seabirds and shorebirds from Brazil and USA. Dimension 1 explains 35.4% of the variation, and dimension 2 explains 20.9%. Arrows indicate the direction and strength of each trait's contribution to the PCA dimensions. Colour intensity in the legend represents the magnitude of each variable's contribution.



**Figure S2.** Multiple correspondence analysis (MCA) of morphological (categorical) traits related to bill internal structures of seabirds and shorebirds from Brazil and USA. Dimension 1 explains 54.7% of the variation, and dimension 2 explains 33.3%. Although Chi-square tests showed significant correlation among traits ( $p < 0.01$ ), there is no clustering pattern on the MCA.



**Figure S3.** Best phylogenetic tree (tree 885) obtained from 1000 bird trees. Species name follows nomenclature from Jetz *et al.* (2012).

## REFERENCES

Jetz W, Thomas GH, Joy JB, *et al.* The global diversity of birds in space and time. *Nature* 2012;**491**:444–8.