

A

Bruchini: A and X dNdS violin plot and pos. selected genes

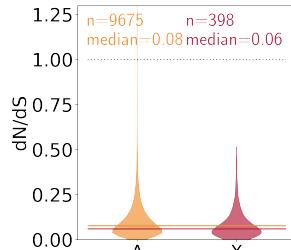
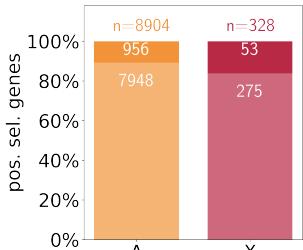
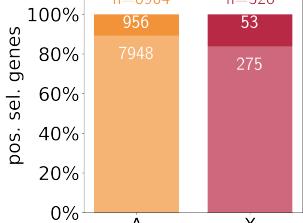
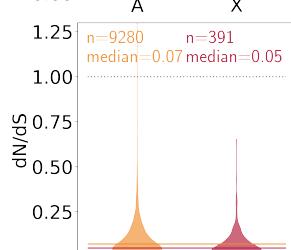
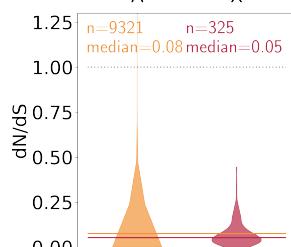
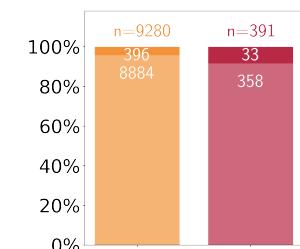
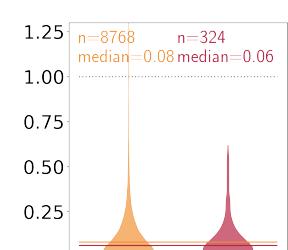
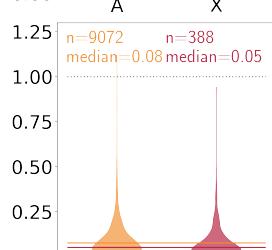
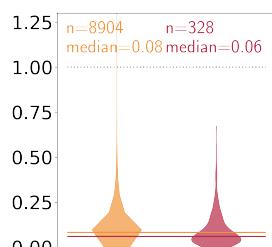
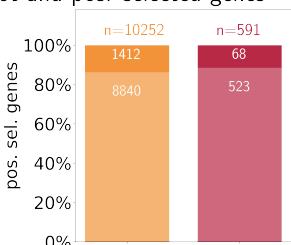
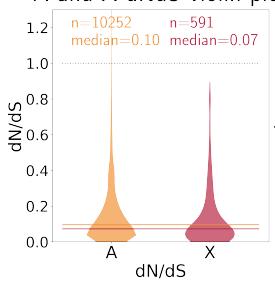
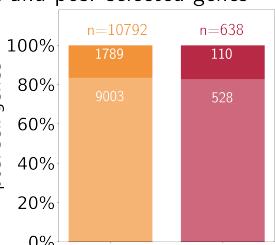
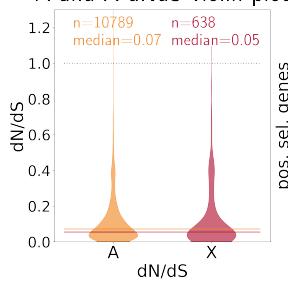
A. obtectus*B. siliquastri**C. chinensis**C. maculatus***B**C. magnifica vs. C. septempunctata:
A and X dNdS violin plot and pos. selected genes**C**T. castaneum vs. T. freemani:
A and X dNdS violin plot and pos. selected genes

Figure 1: d_N/d_S and abundance of positively selected genes. Bottom left: Pairwise comparisons between members of three species groups with violin plots of d_N/d_S values for X-linked and autosomal 1-to-1 orthologs, and scatterplots of d_S vs. d_N . Permutation tests ($n=10000$) show that d_N/d_S is significantly lower for X-linked orthologs in all comparisons within *Bruchini* (A) and *Coccinella* (B), but not *Tribolium* (C). Top right: The bar plot show the percentage of genes that contain codons under positive selection according to paml site-model analysis (likelihood ratio test comparison between paml site models M1a and M2a). *Bruchini* (A), show an enrichment of positively selected X-linked orthologs in all pairwise comparisons, while *Coccinella* (B) and *Tribolium* (C) show no significant difference.

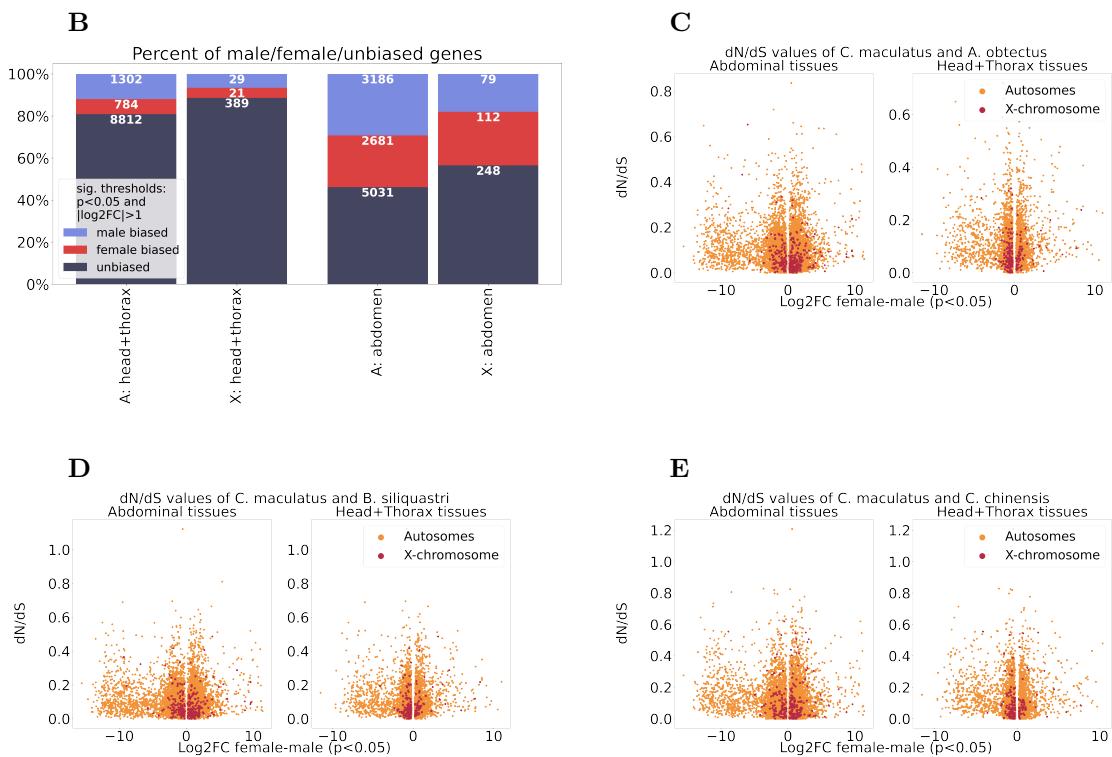
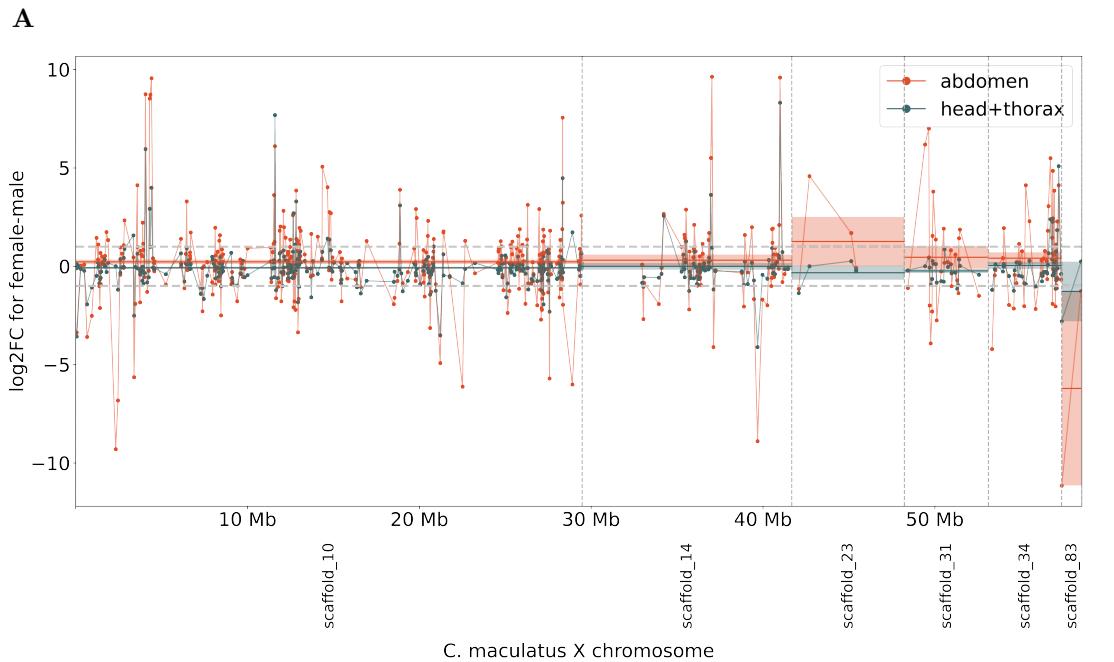


Figure 2: Differential expression analysis. We are utilizing the log₂ fold change (og2LFC) information from genes in *C. maculatus* and combining it with d_N/d_S between these genes and their 1-to-1 orthologs in other bruchids. The log₂FC contrast is always female-male, therefore positive values indicate female-bias and negative values indicate male-bias. **A:** log₂FC of all genes on X-linked contigs in somatic (head+thorax) and reproductive (abdominal) tissues. Positive log₂FC indicates female bias. Vertical lines are the median log₂FC for each tissue, and the shaded area is the standard error of that mean. **B:** number of sex biased genes in abdominal (reproductive) tissues and head and thorax (somatic) tissues. **C-E:** Scatterplot of significantly differentially expressed genes showing d_N/d_S of *A. obtectus* (**C**), *B. siliquastri* (**D**) and *C. chinensis* (**E**) respectively.