Abstract: The organization of chromosomes within a genome plays a critical role in gene regulation, DNA replication, and DNA repair. It has been well established that there are two main compartments within chromosomes, A and B, based on their differential spatial organization and gene expression patterns. But, a recent study from our lab reports the identification of a novel compartment in the *Bombyx mori* genome, named X, and which is distinct from the A and B compartments. In my project, I investigated the presence of this compartment in other Lepidopteran species along with the synteny of chromosomes across species to determine whether the genetic composition and environment of X compartments are conserved. Our findings suggest that the X compartment are conserved across Lepidopteran species and thus may play a critical role in chromosome organization and gene regulation. This study sheds light on the variety of paths for chromosome organization in evolution.