Brazil An. darlingi life history questions and scope

1. Did temperature treatment and population affect the proportion that survived to adulthood by population (n=3,430)?
   1. Test: Cochran-Mantel-Haenszel chi-squared test for count data   
      Data: Count data of alive and dead at adult eclosion
      1. Compared proportion by biome and temperature (M2=8.9013, 4 d.f., p=0.06361) and latitude and temperature (M2=12.261, 12 d.f., p=0.4249)
2. For life history outcomes of specimens that survived to adult eclosion (n=2652):
   1. Does Biome or Latitude have a stronger relationship to the life history outcomes (larvae development/adult longevity/ winglength) across the temperature treatments?
      1. Test: Linear regression with family averages
      2. Figure- Supplement showing comparisons of each
   2. What effect did temperature and State have on larvae development/adult longevity/ winglength? (Family averages)
      1. Test: Generalized linear regression
         1. Comparing differences between groups- Tukey HSD
      2. Figures: Line graph (averages and SE) and bar graph (Tukey HSD comparisons)
   3. What genetic variation exists within the populations? (Individual level)
      1. Test: Individual ANOVAs within State and each temperature
         1. Data subsetting  
            (ie apr\_20= Lat=-3.028, Temp=20).   
            An\_apr\_20<- anova(sLL~ID, data=apr\_20)
      2. H0: There was less genetic variation between Rondonia and Amazonas compared to Rondonia and Tocantins because of more similar climates/biomes.
3. Is larvae development correlated to adult longevity or adult wing length?
   * 1. H0: Longer larvae development allows for increased nutrient acquisition and results in longer adult longevity and larger wing size.
        1. Test: Kendall’s rank correlation tau or linear regression?
4. Survival analysis
   1. a). How did temperature and latitude affect overall survival time of adults (n=2652)?
      1. Test: Cox proportional hazards (Individual or family averages?)  
          Graph: Kaplan Meier