**Methodology**

**Data analysis**

To compare the abundance of *An. gambiae* s.s. and *An. leesoni*, we employed a negative binomial regression (NBR) model in R (package: “MASS”; function: ‘glm.nb()). Overdispersion was evaluated by comparing the mean to the variance, and since it was confirmed for both species counts, the NBR model was deemed appropriate. Before fitting the model, we addressed zero inflation in the data by adding one (+1) to all sample counts. This adjustment ensured a more model. Furthermore, individual NBR models were used to assess differences in the abundance of each mosquito species across the various eco-vegetation zones. Tukeys’ Post-hoc test was carried out using the ‘glht()’ in “multcomp” R package, for multiple comparisons of mosquito abundance across eco-vegetation zones.

**Result**

The negative binomial regression model revealed that *An. leesoni* had a lower, though not statistically significant, abundance compared to *An. gambiae* s.s. (Estimate = -0.164; z = -0.65; p = 0.511). For each ecovegetation zone, there was no significant difference between the abundance of *An. leesoni* compared to that of *An. gambiae* s.s. in freshwater swamp (Estimate = -0.105; z = -0.105; p = 0.782), lowland forest (Estimate = -0.944; z = -1.753; p = 0.079), and Derived Savannah (Estimate = 0.1335; z = 0.343; p = 0.731).

Also, there was no significant difference between the abundance of both mosquito species at each eco-vegetation zone, as shown in Table \_

Table \_: negative binomial regression model fitted separately for adult *An. gambiae* s.s. and *An. Leesoni*, to show differences in abundance at each eco-vegetation zones.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Mosquito sp.** | **Eco-vegetation zones** | **Estimate** | **Std. Error** | **z value** | **Adj. P- value** |
| ***An. leesoni*** | **Freshwater Swamp - Derived Savanna** | 0.1823 | 0.3829 | 0.476 | 0.881 |
|  | **Lowland Forest - Derived Savanna** | -0.9445 | 0.5334 | -1.771 | 0.1763 |
|  | **Lowland Forest - Freshwater Swamp** | -1.1268 | 0.5119 | -2.201 | 0.0692 |
|  |  |  |  |  |  |
| ***An. gambie* s.s** | **Freshwater Swamp - Derived Savanna** | 0.4212 | 0.392 | 1.075 | 0.529 |
|  | **Lowland Forest - Derived Savanna** | 0.1335 | 0.4563 | 0.293 | 0.954 |
|  | **Lowland Forest - Freshwater Swamp** | -0.2877 | 0.4202 | -0.685 | 0.772 |