

## Supplemental Tables

Table S1: Classification of each neighborhoods socioeconomic status with a few details describing each neighborhoods infrastructure.

| Suburb                   | Socio-economic status | Others   | Street type            |
|--------------------------|-----------------------|--|------------------------|
| 15 de Enero              | Low                   | Access to reduced resources, surrounded by undeveloped land with large patios.   | Mostly unpaved streets |
| Aquiles Serdán           | Low                   | One of the poorest areas of Reynosa.-Houses with little patios, most houses are close together and mostly made of wood.                                      | Mostly unpaved streets |
| La Cima                  | Low – medium          | Homes are made with non-substantial building materials to maximize budget and decrease building time, with small patios.                                     | Paved streets          |
| Margarita Maza de Juarez | Low – medium          | Lower-middle class population; houses built with construction material, with a regular or medium-sized patio.  | Paved streets          |
| Pedro J. Mendez          | Low                   | Access to reduced resources, surrounded by undeveloped land with large patios. This neighborhood is close to a body of water.                                | Mostly unpaved streets |
| Villa Florida            | Low – medium          | Homes are made with non-substantial building materials to maximize budget and decrease building time. The homes are mostly two-story and have a small patio. | Paved streets          |

Table S2: Predicting tick burdens on dogs. A generalized linear mixed model result of which host demographics predict host tick burden. Neighborhood as a random effect and host demographics as fixed effects. Host age is continuous, while host sex is a categorical variable, therefore, the beta coefficient for males is in comparison to females.

|                     | Estimate | Std. Error | z value | P-value      |
|---------------------|----------|------------|---------|--------------|
| Intercept           | 2.23     | 0.42       | 5.3     | 1.05E-07 *** |
| Host age<br>(years) | -0.04    | 0.08       | -0.47   | 0.637        |
| Male hosts          | 0.63     | 0.45       | 1.4     | 0.163        |

Table S3: Predicting a Rickettsiae positive tick. A generalized linear mixed model\* result with neighborhood as a random effect and the following: Tick life stage, tick engorgement, host tick burden, host sex, and host age, as fixed effects on the outcome of predicting a tick harboring Rickettsiae. As tick life stage is a categorical variable, larval and nymphal life stage beta coefficients are compared to the adult life stage in this regression. Similarly, as host sex is a categorical variable, the beta coefficient for males is in comparison to females. Whereas tick engorgement, host tick burden, and host age are continuous variables.

| Fixed effects       | Estimate | Standard Error | z value | P- value |
|---------------------|----------|----------------|---------|----------|
| Intercept           | -1.79    | 0.88           | -2.04   | 0.04 *   |
| Larvae              | -1.21    | 1.23           | -0.99   | 0.32     |
| Nymph               | 0.21     | 0.75           | 0.28    | 0.78     |
| Tick engorgement    | 0.19     | 0.22           | 0.86    | 0.316    |
| Tick burden of host | 0.00     | 0.00           | 0.73    | 0.47     |
| Male hosts          | -2.06    | 0.87           | -2.37   | 0.02*    |
| Host age            | -0.62    | 0.29           | -2.1    | 0.03*    |

Table S4: Predicting if a specific neighborhood is more likely to have a *Rickettsiae* positive tick. A generalized linear model result with neighborhood as a fixed effect and the *Rickettsiae* infection status of an individual tick. Neighborhood 15 de Enero is the baseline beta coefficient or reference variable, therefore all beta coefficients below are in comparison to 15 de Enero.

| Fixed effects                 | Estimate | Standard Error | z value | P- value      |
|-------------------------------|----------|----------------|---------|---------------|
| Intercept                     | -2.3     | 0.43           | -5.3    | 1.22 e -7 *** |
| Aquiles Serdán                | -0.6     | 1.1            | -0.5    | 0.61          |
| La Cima                       | -18.3    | 1890           | -0.01   | 0.99          |
| Col. Margarita Maza de Juárez | 0.7      | 1.2            | 0.6     | 0.6           |
| Pedro J. Méndez               | -0.64    | 0.7            | -0.9    | 0.38          |
| Villa Florida                 | 1.8      | 1.1            | -1.6    | 0.10          |