We ran a liner-mixed effect model wherein:

Disturbance index ~ Treatment + Day + (1 | Roost)

“Disturbance index is explained by treatment and day, with random intercepts for Roost, to control for baseline differences in the responsiveness of different roosts”. We did not include an interaction term for Treatment and day because that model was not significantly better.

Treatment was not a significant term in the model as compared to a null model with Roost alone (Anova; p= 0.8307) but there was a significant effect of Day: (p = 0.01112 \*). The responses generally decreased over the three days.

Fixed effects:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Estimate | Std. Error | t value |
| (Intercept) | 6.61836 | 1.20549 | 5.490 |
| TreatmentHumans Talking | 0.07033 | 0.87147 | 0.081 |
| TreatmentTraffic Noise | 0.44768 | 0.86124 | 0.520 |
| Day | -1.02331 | 0.39964 | -2.561 |

Estimated marginal means:

These are the estimates for the mean disturbance index value for each treatment, when controlling for all other factors

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Treatment | emmean | Standard error | asymp.LCL | asymp.UCL |
| Silence | 4.59 | 0.915 | 2.8 | 6.38 |
| Humans Talking | 4.66 | 0.825 | 3.04 | 6.28 |
| Traffic Noise | 5.04 | 0.814 | 3.44 | 6.63 |