Appendix A. Parameter estimates of Poisson-binomial mixture models for microhabitat-, field-, and landscape-scale variable on bird abundance on small, diversified farms in the Pioneer Valley, Massachusetts, 2017-2018. Parameter estimates with asterisks have 95% confidence intervals that exclude 0. Parameter estimates for detection covariates not included.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Microhabitat** | | **Field** | **Landscape** | |  |  |  |  |
| **Species** | **PC1** | **PC2** | **AREA** | **AGR** | **DEV** | **K** | **AICc** | **ΔAICc** | **Wi** |
| American goldfinch |  | -0.15 |  | -0.40\* |  | 6.00 | 587.73 | 0.00 | 0.34 |
| AMGO |  | -0.16 | -0.10 | -0.37\* |  | 7.00 | 588.76 | 1.03 | 0.20 |
|  |  | -0.15 |  | -0.41\* | 0.09 | 7.00 | 589.14 | 1.41 | 0.17 |
|  |  |  |  | -0.37\* |  | 5.00 | 589.41 | 1.68 | 0.15 |
|  | 0.03 | -0.16 |  | -0.38\* |  | 7.00 | 589.47 | 1.71 | 0.14 |
| American robin |  | 0.19\* | -0.21\* | 0.19\* | 0.49\* | 7.00 | 928.60 | 0.00 | 0.72 |
| AMRO | -0.02 | 0.19\* | -0.22\* | 0.19\* | 0.48\* | 8.00 | 930.49 | 1.89 | 0.28 |
| Cedar waxwing |  | 0.41\* | 0.28 | 0.25 |  | 6.00 | 380.11 | 0.00 | 0.21 |
| CEDW |  | 0.44\* | 0.32 |  |  | 5.00 | 380.85 | 0.74 | 0.15 |
|  |  | 0.45\* | 0.32\* | 0.23 |  | 6.00 | 381.03 | 0.92 | 0.13 |
|  |  | 0.42\* | 0.28 | 0.21 | 0.18 | 7.00 | 381.23 | 1.12 | 0.12 |
|  | -0.11 | 0.46\* | 0.26 |  |  | 6.00 | 381.48 | 1.37 | 0.11 |
|  |  | 0.45\* |  | 0.26 |  | 5.00 | 381.60 | 1.48 | 0.10 |
|  | -0.06 | 0.42\* | 0.25 | 0.21 |  | 7.00 | 381.73 | 1.62 | 0.10 |
|  | -0.16 | 0.50\* |  |  |  | 5.00 | 382.04 | 1.93 | 0.08 |
| Common yellowthroat | 0.30\* | -0.23\* | -0.40\* |  | -0.27\* | 8.00 | 329.00 | 0.00 | 0.46 |
| COYE | 0.32\* | -0.18 | -0.36\* |  |  | 7.00 | 329.41 | 0.40 | 0.37 |
|  | 0.30\* | -0.23\* | -0.40\* | -0.02 | -0.26 | 8.00 | 330.98 | 1.98 | 0.17 |
| European starling | -0.22\* | 0.67\* |  |  | 0.28 | 5.00 | 344.57 | 0.00 | 0.38 |
| EUST | -0.28\* | 0.64\* |  |  |  | 4.00 | 345.19 | 0.62 | 0.28 |
|  | -0.19 | 0.66\* | 0.11 |  | 0.33 | 6.00 | 346.10 | 1.53 | 0.18 |
|  | -0.20 | 0.66\* |  | 0.06 | 0.29 | 6.00 | 346.40 | 1.83 | 0.15 |
| Gray catbird | 0.19\* |  | -0.16 | -0.19\* |  | 7.00 | 666.91 | 0.00 | 0.42 |
| GRCA | 0.21\* |  |  | -0.21\* |  | 6.00 | 668.21 | 1.30 | 0.22 |
|  | 0.18\* |  | -0.17\* | -0.18 | -0.08 | 8.00 | 668.31 | 1.40 | 0.21 |
|  | 0.19\* | 0.01 | -0.16 | -0.19\* |  | 8.00 | 668.86 | 1.95 | 0.16 |
| House sparrow |  |  | 0.33\* | 0.27\* | -0.59\* | 7.00 | 485.97 | 0.00 | 0.52 |
| HOSP | -0.08 |  | 0.30\* | 0.24\* | -0.60\* | 8.00 | 487.26 | 1.29 | 0.27 |
|  |  | -0.04 | 0.33\* | 0.28\* | -0.60\* | 8.00 | 487.83 | 1.86 | 0.21 |
| Indigo bunting | 0.32\* | -0.24 |  | 0.51\* | -0.71\* | 6.00 | 225.40 | 0.00 | 0.32 |
| INBU | 0.38\* | -0.26 | 0.28 | 0.57\* | -0.76\* | 7.00 | 225.64 | 0.24 | 0.28 |
|  | 0.31\* |  |  | 0.46\* | -0.61\* | 5.00 | 225.98 | 0.58 | 0.24 |
|  | 0.35\* |  | 0.22 | 0.49\* | -0.62\* | 6.00 | 226.75 | 1.35 | 0.16 |
| Red-winged blackbird |  | -0.25\* |  |  | 0.42\* | 5.00 | 617.11 | 0.00 | 0.43 |
| RWBL |  | -0.25\* |  | 0.09 | 0.42\* | 6.00 | 618.35 | 1.24 | 0.23 |
|  |  | -0.25\* | 0.03 |  | 0.42\* | 6.00 | 619.03 | 1.92 | 0.17 |
|  | 0.02 | -0.25\* |  |  | 0.43\* | 6.00 | 619.05 | 1.94 | 0.16 |
| Song sparrow | 0.08\* | -0.09 |  |  |  | 5.00 | 1140.12 | 0.00 | 0.26 |
| SOSP | 0.09\* | -0.07 | 0.07 |  |  | 6.00 | 1140.58 | 0.46 | 0.21 |
|  | 0.08\* |  |  |  |  | 4.00 | 1141.11 | 0.99 | 0.16 |
|  | 0.09\* | -0.07 |  | 0.04 |  | 6.00 | 1141.51 | 1.39 | 0.13 |
|  | 0.09\* |  |  | 0.07 |  | 5.00 | 1141.52 | 1.40 | 0.13 |
|  | 0.08\* | -0.07 |  |  | -0.01 | 6.00 | 1142.09 | 1.97 | 0.10 |
| Willow flycatcher |  | -0.69\* | -0.66\* | 0.65\* |  | 6.00 | 155.78 | 0.00 | 0.51 |
| WIFL | 0.15 | -0.61\* | -0.58\* | 0.66\* |  | 7.00 | 156.96 | 1.18 | 0.28 |
|  |  | -0.70\* | -0.66\* | 0.65\* | -0.05 | 7.00 | 157.76 | 1.98 | 0.19 |
| Yellow warbler |  | -0.59\* |  |  | -0.85\* | 5.00 | 206.75 | 0.00 | 0.43 |
| YEWA |  | -0.60\* | -0.19 |  | -0.86\* | 6.00 | 208.10 | 1.36 | 0.22 |
|  | 0.06 | -0.58\* |  |  | -0.84\* | 6.00 | 208.52 | 1.77 | 0.18 |
|  |  | -0.58\* |  | -0.10 | -0.80\* | 6.00 | 208.58 | 1.84 | 0.17 |