**Table S3. Barred Owl Occupancy Model Using Forward Model Selection.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Occupancy Covariates | Detection Covariates | AIC |
| Null model: |  |  |
|  | ~1 | ~1 | 69.03 |
| First variable addition: |  |  |
|  | ~MEAN\_CJ | ~1 | 66.25 |
|  | ~MEAN\_Z | ~1 | 67.54 |
|  | ~STD\_CJ | ~1 | 66.41 |
|  | ~STD\_Z | ~1 | 68.80 |
|  | ~1 | ~surveytype | 68.07 |
|  | ~1 | ~team | 72.87 |
|  | ~1 | ~ session# | 70.98 |
|  | **~1** | **~MEAN\_CJ** | **63.63** |
|  | ~1 | ~MEAN\_Z | 69.50 |
|  | ~1 | ~STD\_CJ | 64.18 |
|  | ~1 | ~STD\_Z | 68.94 |
| Second variable addition: |  |  |
|  | ~MEAN\_CJ | ~MEAN\_CJ  | 65.56 |
|  | **~MEAN\_Z** | **~MEAN\_CJ**  | **61.22** |
|  | ~STD\_Z | ~MEAN\_CJ | 62.11 |
|  | ~1 | ~MEAN\_CJ + surveytype | 62.12 |
|  | ~1 | ~MEAN\_CJ + team | 67.31 |
|  | ~1 | ~MEAN\_CJ + session# | 65.47 |
|  | ~1 | ~MEAN\_CJ + MEAN\_Z | 61.26 |
|  | ~1 | ~MEAN\_CJ + STD\_Z | 63.67 |
| Third variable addition: |  |  |
|  | **~MEAN\_Z** | **~MEAN\_CJ + surveytype** | **59.70** |
|  | ~MEAN\_Z | ~MEAN\_CJ + team | 64.97 |
|  | ~MEAN\_Z | ~MEAN\_CJ + session# | 63.09 |
|  | ~MEAN\_Z | ~MEAN\_CJ + MEAN\_Z | 62.06 |
| Fourth variable addition: |  |  |
|  | ~MEAN\_Z | ~MEAN\_CJ + session#\* surveyno | 61.93 |

See Table S2 for model construction and definitions of table symbols.

Best model’s parameters, standard errors, and significances:

Occupancy (logit-scale):

 Estimate SE z P(>|z|)

(Intercept) -28.6 22.2 -1.29 0.197

MEAN\_Z 38.3 29.1 1.32 0.188

Detection (logit-scale):

 Estimate SE z P(>|z|)

(Intercept) -25.20 9.211 -2.74 0.00623

MEAN\_CJ 15.23 5.728 2.66 0.00784

surveytypeV -1.43 0.781 -1.83 0.06728