**SUPPLEMENTAL INFORMATION**

# AMPHIBIAN USE OF RECENTLY CREATED WETLANDS IN THE PALOUSE REGION OF NORTHERN IDAHO

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Table S1. Wetland-specific summary of location, age, and ecological features mentioned in our study. Wetland ID reflects the specific code used to refer to each wetland during our surveys, with the first segment referring to the project, and the second to the individual wetland number. Location of each wetland is reported with Universal Transverse Mercator (UTM) coordinates. Mean values of percent emergent vegetation (EVEG) and submerged vegetation (SVEG) are reported for each wetland, as well as the first principal component (PC1) of a principal components analysis run on the proportion of urban, agriculture, and grassland land covers within multiple concentric circular buffers (radii = 30, 100, 500, 1000, and 2000 m) centered on each wetland.

| Wetland ID | Age (years) | UTM east | UTM north | EVEG | SVEG | PC1 |
|---|---|---|---|---|---|---|
| Brink_2 | 10 | 501681 | 5175040 | 0.10 | 1.00 | 3.58 |
| EMV_1 | 3 | 501605 | 5174508 | 0.25 | 0.65 | 2.01 |
| EMV_2 | 3 | 501681 | 5174483 | 0.45 | 0.80 | 1.40 |
| Forbes_1 | 2 | 500972 | 5181427 | 0.00 | 0.25 | -3.19 |
| Forbes_2 | 2 | 500946 | 5181436 | 0.00 | 0.10 | -3.21 |
| Forbes_3 | 2 | 500920 | 5181440 | 0.10 | 0.20 | -3.23 |
| Forbes_4 | 11 | 500915 | 5181458 | 0.00 | 0.75 | -3.23 |
| IDFG_1 | 6 | 501329 | 5181932 | 0.50 | 0.90 | -2.84 |
| IDFG_2 | 2 | 501172 | 5181997 | 0.00 | 0.25 | -3.28 |
| IDFG_3 | 2 | 501088 | 5182122 | 0.00 | 0.02 | -3.12 |
| IDFG_4 | 2 | 501042 | 5182196 | 0.00 | 0.20 | -3.09 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Lefors_1 | 3 | 501360 | 5176754 | 0.30 | 0.60 | 3.28 |
| Lefors_2 | 3 | 501342 | 5176644 | 0.00 | 0.95 | 3.92 |
| LR_1 | 2 | 501381 | 5176493 | 0.10 | 0.90 | 3.87 |
| LR_2 | 2 | 501382 | 5176488 | 0.05 | 0.95 | 3.88 |
| LR_3 | 2 | 501369 | 5176473 | 0.10 | 0.90 | 3.92 |
| Morton_1 | 6 | 501347 | 5181411 | 0.55 | 0.75 | -3.02 |
| Morton_2 | 6 | 501339 | 5181335 | 0.05 | 0.90 | -3.00 |
| MWWT_10 | 8 | 497066 | 5175283 | 0.90 | 0.95 | -1.73 |
| MWWT_11 | 8 | 497193 | 5175285 | 0.80 | 1.00 | -1.50 |
| MWWT_7 | 8 | 497233 | 5175316 | 0.80 | 0.60 | -1.39 |
| MWWT_8 | 8 | 497240 | 5175339 | 0.80 | 1.00 | -1.34 |
| MWWT_9 | 8 | 497278 | 5175342 | 1.00 | 1.00 | -1.19 |
| Orchard_1 | 4 | 501222 | 5177232 | 0.85 | 0.95 | 0.83 |
| SFP_1 | 2 | 498495 | 5173320 | 0.55 | 0.90 | -1.62 |
| SFP_2 | 2 | 498456 | 5173328 | 0.05 | 0.55 | -1.41 |
| SFP_4 | 2 | 498367 | 5173338 | 0.00 | 0.90 | -1.62 |
| Streets_1 | 3 | 501326 | 5176597 | 0.05 | 0.55 | 4.15 |
| Streets_2 | 3 | 501344 | 5176529 | 0.30 | 1.00 | 4.05 |
| Sweet_1 | 7 | 499789 | 5174733 | 0.10 | 0.90 | 4.17 |
| Sweet_2 | 7 | 499831 | 5174698 | 0.00 | 1.00 | 3.72 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sweet_3 | 7 | 499701 | 5174793 | 0.05 | 0.95 | 3.25 |
| Willard_1 | 4 | 503188 | 5177956 | 0.20 | 0.75 | -3.04 |

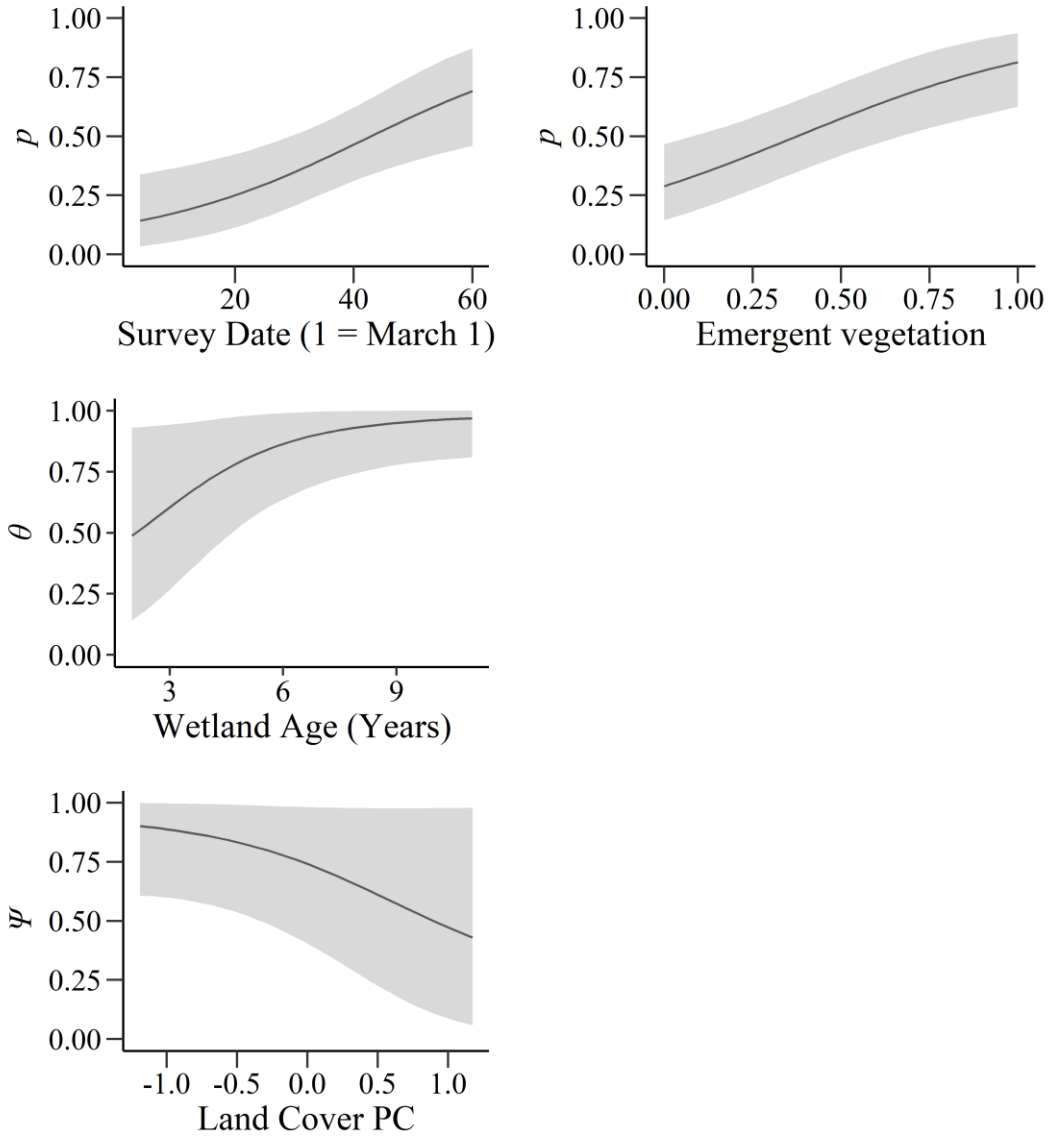


Figure S1. Predicted relationships (mean posterior [solid black line] and 95% credible intervals [gray area]) between detection probability (*p*), wetland- (θ) and project-level (ψ) occupancy from a multi-level occupancy model of Columbia Spotted Frog (*Rana luteiventris*) presence in Latah County, Idaho. Covariates have posterior probabilities greater than 0.90 and include survey date

(1 = 1 March, 32 = 1 April), wetland age (years), percent wetland margin with emergent vegetation, and percent urbanization.

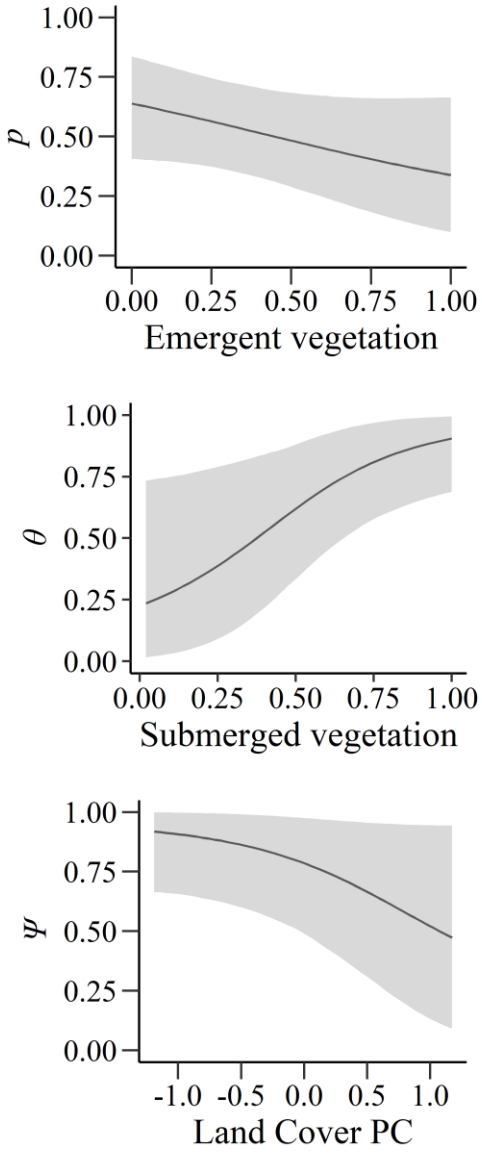


Figure S2. Predicted relationships (mean posterior [solid black line] and 95% credible intervals [gray area]) between detection probability (*p*) and wetland-level (θ) occupancy from a multi-level occupancy model of Sierran Treefrog (*Pseudacris sierra*) presence in Latah County, Idaho. Covariate is the percent wetland margin with emergent vegetation and has a posterior probability greater than 0.90.

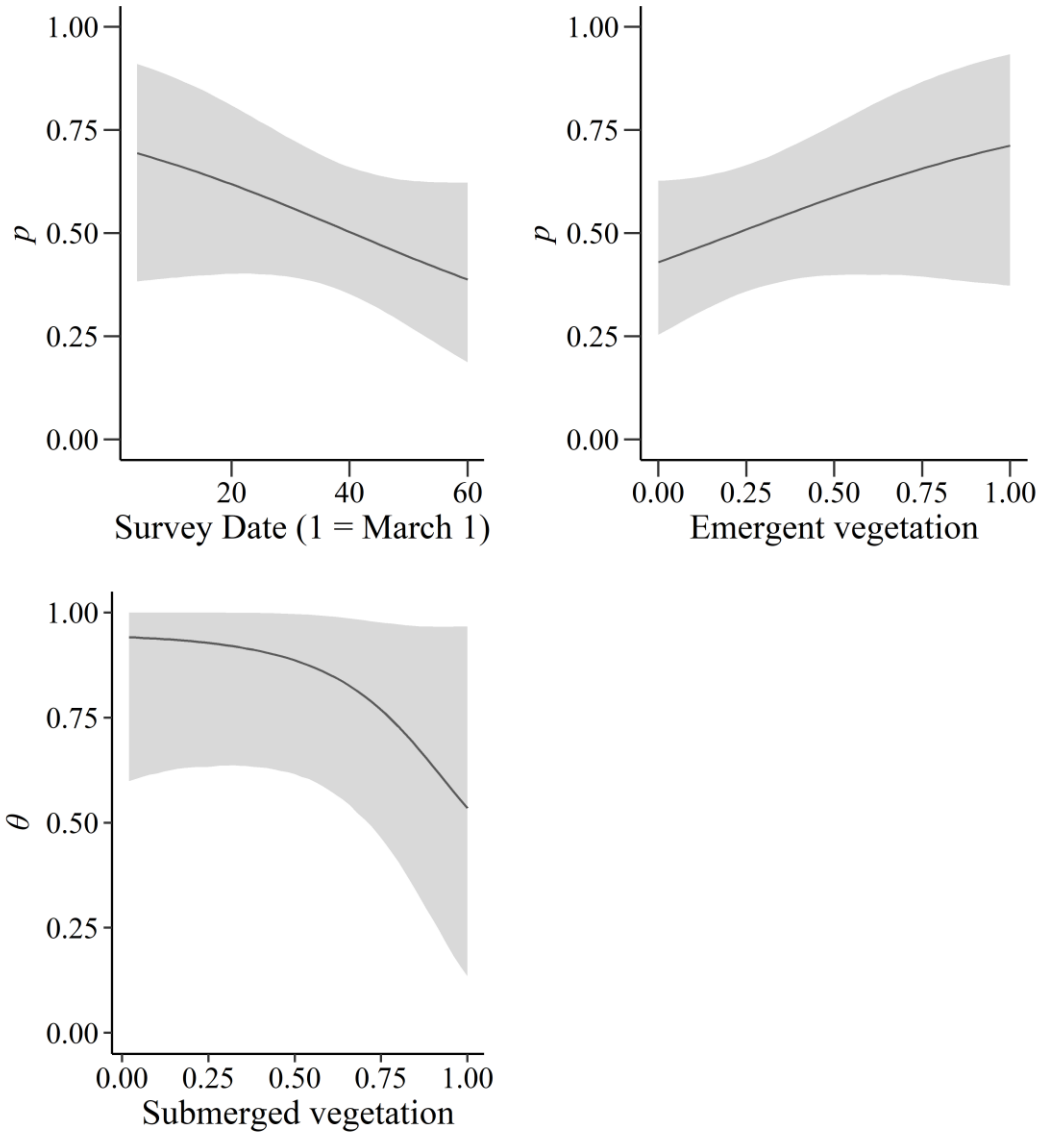


Figure S3. Predicted relationships (mean posterior [solid black line] and 95% credible intervals [gray area]) between detection probability (*p*), wetland-level (θ) occupancy from a multi-level occupancy model of Long-Toed Salamander (*Ambystoma macrodactylum*) presence in Latah County, Idaho. Covariates have posterior probabilities greater than 0.90 and include survey date (1 = 1 March, 32 = 1 April), wetland age (years), and percent wetland margin with emergent vegetation.

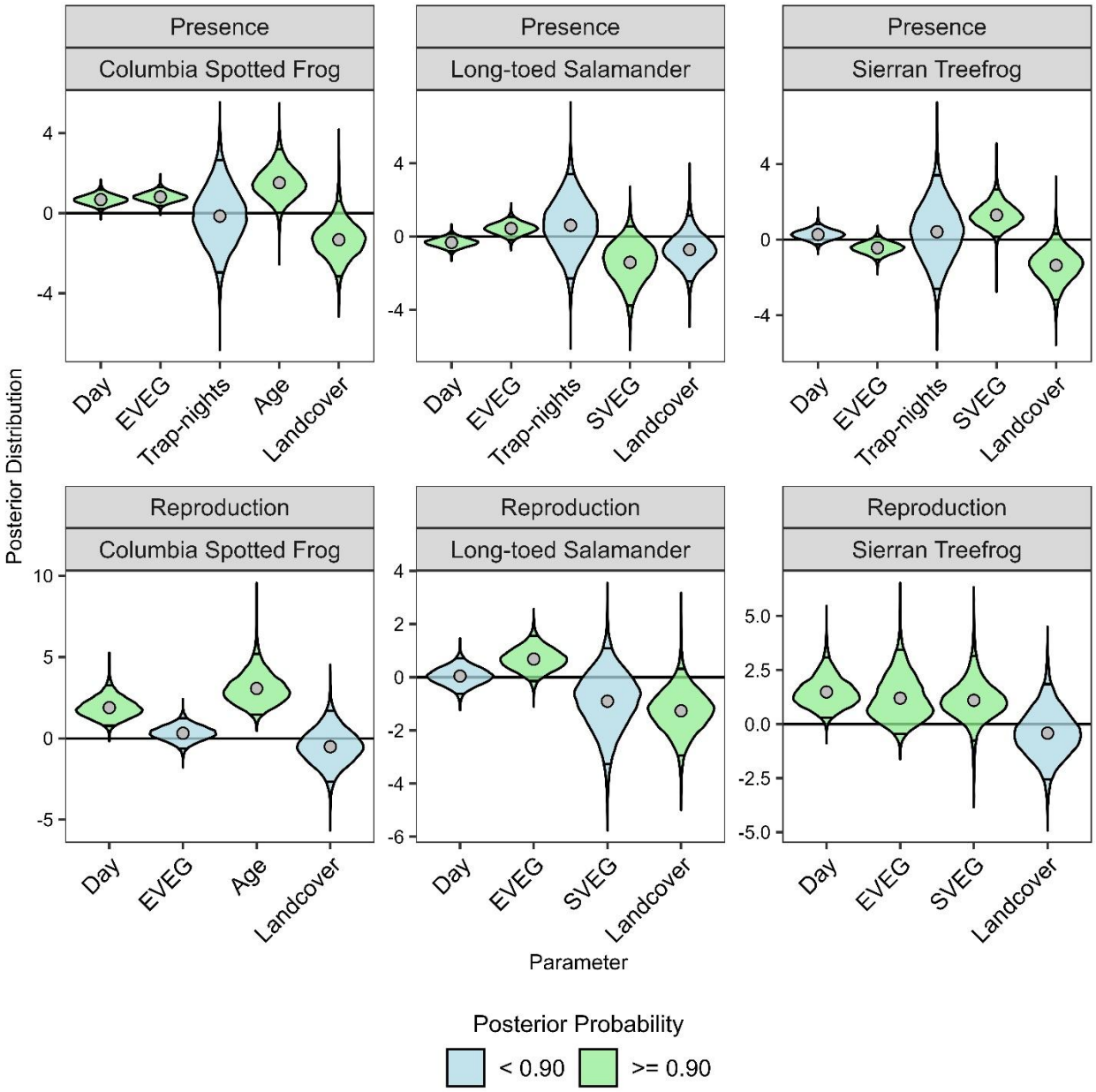


Figure S4. Violin plot that shows distribution of the posteriors for each covariate as it relates to each species' presence and reproduction occupancy. Violins for covariates with posterior probabilities >= 0.90 are green.

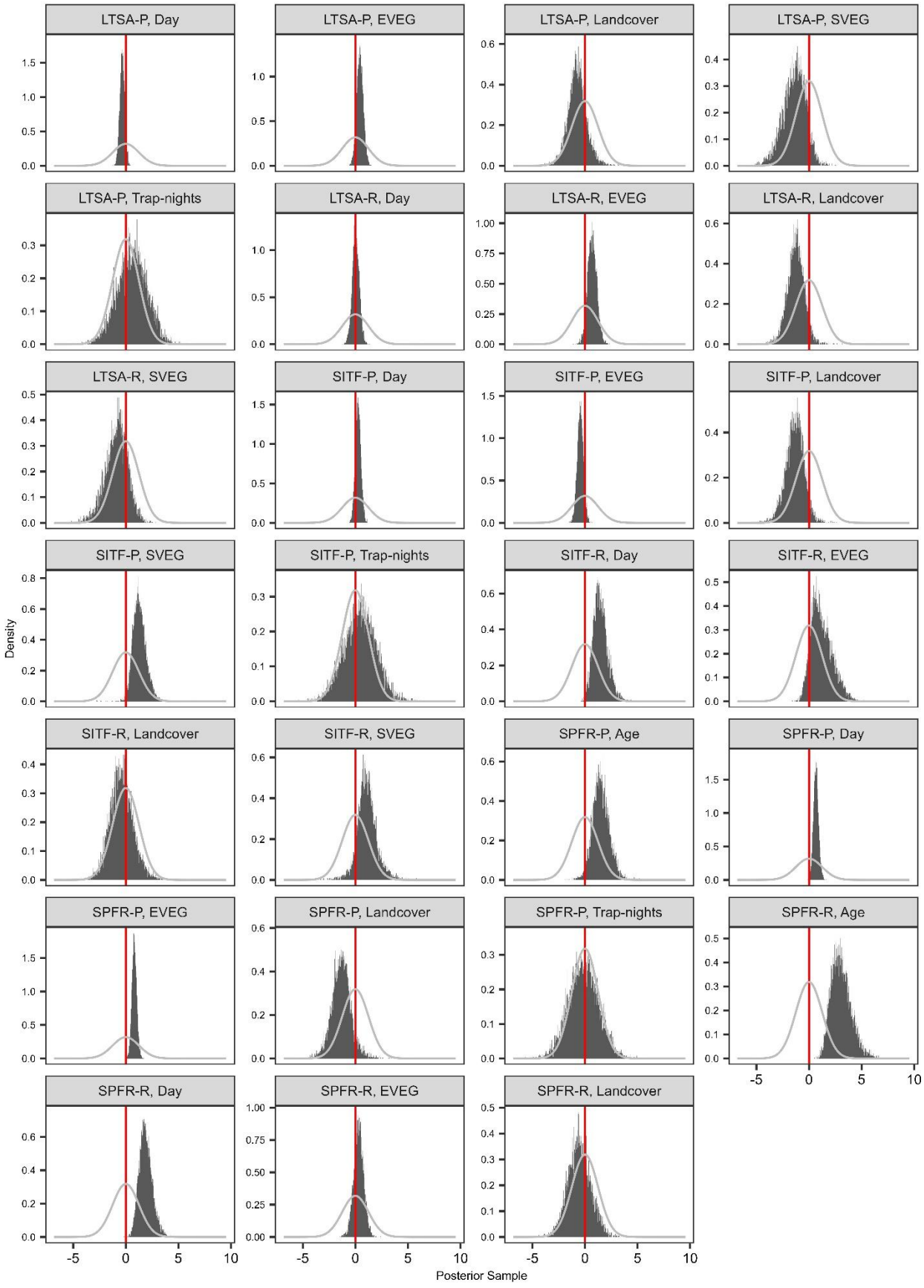
LTSA-P, Day
LTSA-P, EVEG
LTSA-P, Landcover
LTSA-P, SVEG
LTSA-P, Trap-nights
LTSA-R, Day
LTSA-R, EVEG
LTSA-R, Landcover
LTSA-R, SVEG
SITF-P, Day
SITF-P, EVEG
SITF-P, Landcover
SITF-P, SVEG
SITF-P, Trap-nights
SITF-R, Day
SITF-R, EVEG
SITF-R, Landcover
SITF-R, SVEG
SPFR-P, Age
SPFR-P, Day
SPFR-P, EVEG
SPFR-P, Landcover
SPFR-P, Trap-nights
SPFR-R, Age
SPFR-R, Day
SPFR-R, EVEG
SPFR-R, Landcover
Density
Posterior Sample

Figure S5. Plots showing the probability density curves for the prior (light grey) plotted against a histogram of the posterior distribution (dark gray). Individual plot titles denote Columbia Spotted Frog (SPFR), Sierran Treefrog (SITF), and Long-Toed Salamander (LTSA), presence or reproduction, and covariate respectively. The red vertical lines indicate the center of the prior distribution.