

Appendix 2: Candidate set of detection submodels for N-mixture abundance models of focal bird species at Burning Star State Fish and Wildlife Area. Abundance submodels for all the following models are intercept-only for this model ranking process. Models are ranked by AICc. K = the number of variables in the model,  $\Delta AIC_c$  = the difference in AICc between a given model and the top model in the candidate set,  $w_i$  = Akaike model weight. Because the null model was the top ranked model for each species, no detection variables were included in the final N-mixture abundance models (Table 2).

Model	K	AIC <sub>c</sub>	$\Delta AIC_c$	$w_i$
Dickcissel				
NULL	2	743.6	0	0.571
date	3	745.6	2.04	0.206
observer	3	746	2.45	0.168
date + observer	4	748.2	4.68	0.055
Field Sparrow				
NULL	2	877.3	0	0.451
observer	3	878.4	1.09	0.262
date	3	879.2	1.87	0.177
date + observer	4	880.1	2.81	0.11
Common Yellowthroat				
NULL	2	713.9	0	0.421
date	3	714.3	0.39	0.347
observer	3	716.3	2.35	0.13
date + observer	4	716.7	2.84	0.102