

**Additional File 9** Model rankings exploring factors affecting detection probability (p) and prevalence ( $\psi$ ) of *Haemoproteus* parasites in Warbling Vireos.

<b>Model</b>	<b>K</b>	<b><math>\Delta</math>AICc</b>	<b><math>w_i</math></b>	<b>Deviance</b>
$\sigma(\cdot) + p(\cdot) + \psi(\cdot)$	2	0.96	0.15	78.29
$\sigma(\cdot) + p(\text{PCR run}) + \psi(\text{BCI})$	5	1.33	0.13	69.54
$\sigma(\cdot) + p(\cdot) + \psi(\text{BCI})$	3	1.54	0.12	76.16
$\sigma(\cdot) + p(\text{PCR run}) + \psi(\text{sex})$	5	1.63	0.11	69.85
$\sigma(\cdot) + p(\cdot) + \psi(\text{sex})$	3	1.90	0.10	76.52
$\sigma(\cdot) + p(\cdot) + \psi(\text{sex+BCI})$	4	2.79	0.06	74.40
$\sigma(\cdot) + p(\text{PCR run}) + \psi(\text{sex+BCI})$	6	3.29	0.05	67.65
$\sigma(\cdot) + p(\cdot) + \psi(\text{age})$	4	6.48	0.01	78.09
$\sigma(\cdot) + p(\cdot) + \psi(\text{age+BCI})$	6	6.65	0.01	71.01
$\sigma(\cdot) + p(\cdot) + \psi(\text{age})$	6	7.04	0.01	71.40
$\sigma(\cdot) + p(\cdot) + \psi(\text{sex+age})$	5	8.25	0.00	76.46
$\sigma(\cdot) + p(\text{PCR run}) + \psi(\text{age+BCI})$	7	8.27	0.00	68.23
$\sigma(\cdot) + p(\cdot) + \psi(\text{sex+age+BCI})$	6	8.85	0.00	73.21
$\sigma(\cdot) + p(\text{PCR run}) + \psi(\text{sex+age})$	7	9.82	0.00	69.78
$\sigma(\cdot) + p(\text{PCR run}) + \psi(\text{sex+age+BCI})$	8	11.69	0.00	66.57

Model set and rankings exploring the importance of factors affecting the detection probability (p) and prevalence ( $\psi$ ) of *Haemoproteus* blood parasites in Warbling Vireos captured and sampled at a high-elevation valley in northern Colorado during 2017-2018. ‘PCR run’ indicates the 3 PCR replicates carried out for each sample. The number of parameters (K), model weights ( $w_i$ ), and deviance are shown for each model and the models are ranked by their AICc differences relative to the best model in the set ( $\Delta$ AICc). Sigma ( $\sigma$ ) was a random effect included in every model to account for unmodeled heterogeneity.

