

**Table S1.** The ten best population models from model selection. Shown are the model formula,  $\Delta AICc$  and the estimate for the population size (Super N).

Model terms	$\Delta AICc$	Super N estimate (lower CI - upper CI)
p~t; phi~1; b~1; superN~1	0.00	137 (104 - 181)
p~Session; phi~1; b~Session; superN~1	11.45	111 (87 - 143)
p~1; phi~Session; b~Session; superN~1	24.17	113 (88 - 144)
p~Session; phi~ Session; b~Session; superN~1	26.96	108 (81 - 145)
p~Session; phi~1; b~1; superN~1	28.82	176 (135 - 229)
p~1; phi~Session; b~1; superN~1	37.71	119 (93 - 153)
p~Session; phi~Session; b~1; superN~1	38.45	198 (154 - 253)
p~t; phi~1; b~Session; superN~1	38.93	112 (83 - 149)
p~Session; phi~Session + t; b~Session; superN~1	100.12	109 (81 - 145)
p~Session; phi~ Session + t; b~1; superN~1	108.09	197 (154 - 253)

Names follow the convention from the openCR package: p = capture probability, phi = apparent survival, b = entry probability, SuperN = superpopulation size, t = non-continuous time effect; Session = continuous time effect.