

Posterior mean (SD), 95% CI and prior used of the parameter explaining bonobo nest density  $\mu$  and the probability of founding nests on a transect  $\phi$  as estimated by model 2 “M2”. Parameter are indexed by period (P1: period 1 [2002-2008]; P2: period 2 [20012-2018]), by sub-sector (1: Etate; 2: Iyaelima; 3: Lokofa; 4: Lomela; 5: Corridor; 6: Mondjoku; 7: Monkoto; 8: South-West; 9: Watshikengo) and by distance to a ranger patrol post (yes: patrol post within 15 km; no: patrol post further than 15 km).

Parameter description	Parameter name and indexing	Prior	Mean (sd)	95% CI
Probability of founding bonobos/bonobo signs on transect (by survey and periods)	$\phi_{1, P1}$	<i>Beta(2,2)</i>	0.54 (0.05)	(0.43 – 0.64)
	$\phi_{2, P1}$		0.53 (0.06)	(0.42 – 0.64)
	$\phi_{3, P1}$		0.24 (0.06)	(0.13 – 0.37)
	$\phi_{4, P1}$		0.47 (0.06)	(0.36 – 0.58)
	$\phi_{1, P2}$		0.25 (0.01)	(0.23 – 0.28)
	$\phi_{2, P2}$		0.17 (0.01)	(0.14 – 0.19)
	$\phi_{3, P2}$		0.42 (0.03)	(0.35 – 0.49)
	$\phi_{4, P2}$		0.56 (0.10)	(0.35 – 0.75)
	$\phi_{5, P2}$		0.83 (0.10)	(0.60 – 0.97)
	$\phi_{6, P2}$		0.65 (0.04)	(0.56 – 0.72)
	$\phi_{7, P2}$		0.64 (0.05)	(0.54 – 0.73)
Varying intercept (by sector and period) of nest density	$\alpha_{31, P1}$	<i>Normal(0,5)</i>	1.39 (2.08)	(-2.64 – 5.62)
	$\alpha_{31, P2}$		1.04 (1.50)	(-1.79 – 4.00)
	$\alpha_{32, P1}$		1.56 (2.08)	(-2.42 – 5.80)
	$\alpha_{32, P2}$		0.78 (1.49)	(-2.02 – 3.79)
	$\alpha_{33, P1}$		1.52 (2.11)	(-2.44 – 5.80)
	$\alpha_{33, P2}$		0.38 (1.50)	(-2.45 – 3.43)
	$\alpha_{34, P1}$		1.54 (2.09)	(-2.37 – 5.81)
	$\alpha_{34, P2}$		0.52 (1.49)	(-2.28 – 3.48)
	$\alpha_{35, P2}$		0.49 (1.49)	(-2.38 – 3.41)
	$\alpha_{36, P2}$		0.99 (1.50)	(-1.85 – 3.93)
	$\alpha_{37, P2}$		0.54 (1.51)	(-2.32 – 3.51)
$\alpha_{38, P2}$	0.05 (0.10)	(-0.14 – 0.24)		
$\alpha_{39, P2}$	0.59 (1.49)	(-2.32 – 3.59)		
Varying slope (by period) of forest cover <i>F</i>	$\gamma_{1P1}$		1.06 (1.49)	(-1.76 – 3.98)
	$\gamma_{1P2}$		-0.07 (0.05)	(-0.16 – 0.02)
Varying slope (by period) of distance to cities <i>C</i>	$\gamma_{2P1}$		-0.02 (0.16)	(-0.34 – 0.29)
	$\gamma_{2P2}$		-0.12 (0.06)	(-0.23 – 0.00)
Varying slope (by period) of distance to villages <i>V</i>	$\gamma_{3P1}$	<i>Normal(0,0.5)</i>	0.02 (0.10)	(-0.17 – 0.24)
	$\gamma_{3P2}$		0.08 (0.06)	(-0.03 – 0.20)
Varying slope (by period) of distance to rivers <i>R</i>	$\gamma_{4P1}$		0.01 (0.07)	(-0.14 – 0.15)
	$\gamma_{4P2}$		0.04 (0.03)	(-0.02 – 0.11)
	$\gamma_{5no, P1}$		3.27 (2.08)	(-0.96 – 7.26)
Varying intercept (by period) of proximity to a patrol post <i>K</i>	$\gamma_{5no, P2}$		4.52 (1.50)	(1.57 – 7.36)
	$\gamma_{5yes, P1}$		3.41 (2.08)	(-0.79 – 7.35)
	$\gamma_{5yes, P2}$		4.45 (1.50)	(1.50 – 7.27)
Scale parameter	$\theta_{P1}$	<i>Gamma(0.1,0.1)</i>	0.01 (0.00)	(0.01 – 0.02)
	$\theta_{P2}$		0.00 (0.00)	(0.00 – 0.01)