

# Supporting Information

Phillimore et al. 10.1073/pnas.0913792107

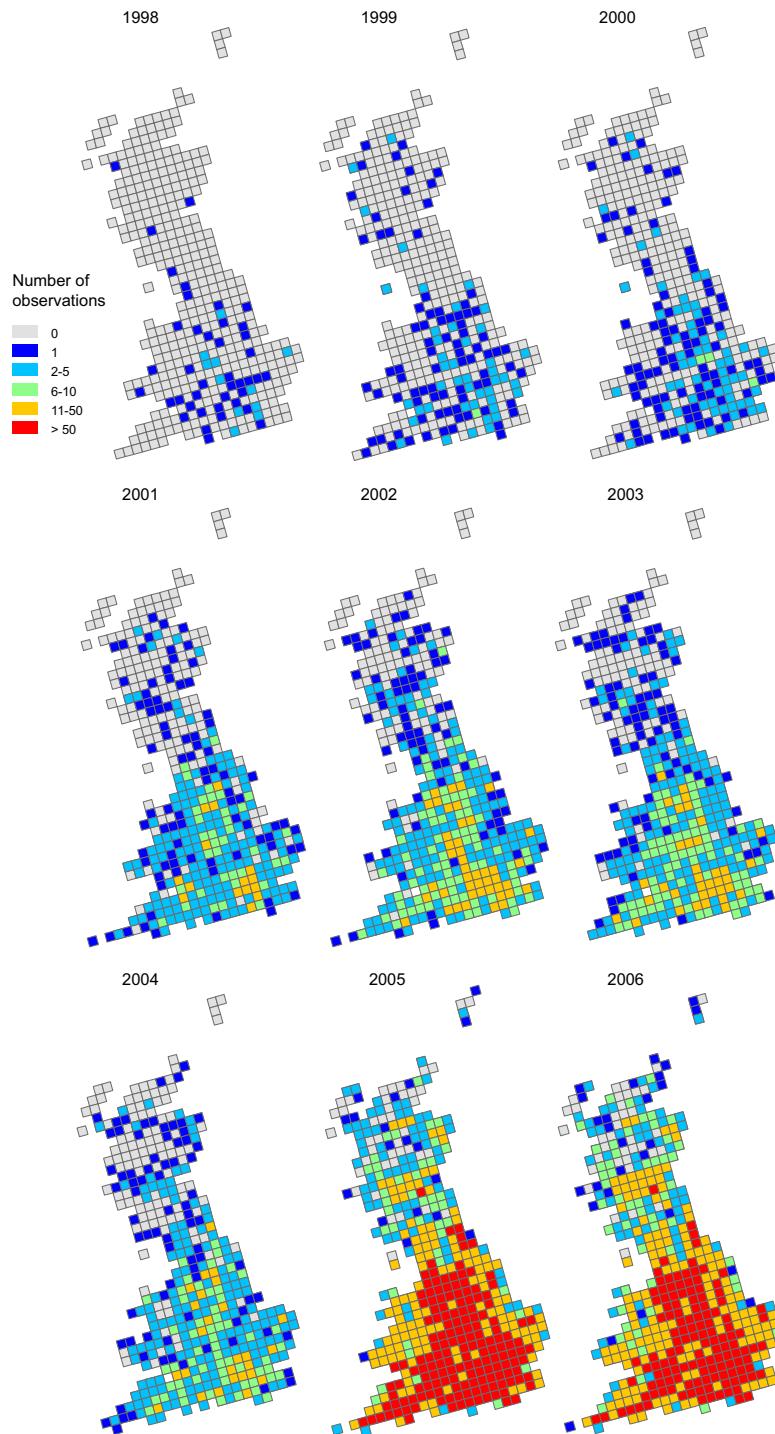


Fig. S1. Heat maps of the number of observations of frog spawning dates within 25 × 25-km grid-cells for each year in the period 1998–2006.

**Table S1.** Posterior modes for slope coefficients and model fit across 60 models with varying random effects and temperature variables

Temperature variable	Random effects	Population definition	Between-population slope	Between-subpopulation slope	Year slope	Population/year slope	Subpopulation/year slope	Pooled mean within-population slope <sup>a</sup>	Residual slope	$\Delta b$ Slope difference 1 <sup>b</sup>	$\Delta b$ Slope difference 2 <sup>c</sup>	DIC	R <sup>2</sup>
January, mean	Population + year	50 km	-11.44 (-13.19 to -9.6)	—	-3.24 (-8-1.03)	—	—	-3.24 (-8-1.03)	-1.94 (-2.16 to -1.71)	-7.93 (-12.53 to -2.9)	—	514,231	0.29
January, mean	Population + year	100 km	-13.69 (-16.27 to -10.92)	—	-3.52 (-7.81-0.93)	—	—	-3.52 (-7.81-0.93)	-3.12 (-3.29 to -2.88)	-10.18 (-14.88 to -4.57)	—	530,951	0.4
January, mean	Population + year	150 km	-13.55 (-17.08 to -9.71)	—	-3.83 (-8.25-0.27)	—	—	-3.83 (-8.25-0.27)	-2.87 (-3.07 to -2.63)	-10.6 (-15.97 to -4.82)	—	537,200	0.4
January, mean	Population + subpopulation + year	100 km + 50 km	-14.98 (-18.57 to -11.91)	-4.4 (-6.7 to -2.74)	-3.68 (-8.79-0.65)	—	—	-3.68 (-8.79-0.65)	-1.97 (-2.16 to -1.69)	-11.26 (-17.56 to -6.34)	-1.06 (-6.61-3.43)	514,228	0.39
January, mean	Population + subpopulation + year	150 km + 50 km	-16.06 (-19.77 to -11.49)	-4.11 (-6.45 to -2.64)	-3.6 (-8.46-0.82)	—	—	-3.6 (-8.46-0.82)	-1.91 (-2.19 to -1.68)	-12.85 (-18.65 to -6.53)	-0.63 (-5.96-4.31)	514,229	0.46
January, mean	Population + year + population/year	50 km	-10.92 (-12.34 to -9.06)	—	-2.98 (-7.54-1.67)	-3.73 (-4.7 to -2.58)	—	-3.26 (-5.9 to -1.45)	-1.73 (-1.93 to -1.45)	-7.38 (-10.38 to -4.57)	—	508,596	0.3
January, mean	Population + year	100 km	-12.48 (-14.72 to -9.91)	—	-3.06 (-7.3-1.49)	-3.62 (-4.67 to -2.4)	—	-3.37 (-5.4 to -0.98)	-2.97 (-3.23 to -2.78)	-8.78 (-12.04 to -5.7)	—	526,778	0.39
January, mean	Population + year	150 km	-12.74 (-15.96 to -8.97)	—	-2.8 (-7.49-1.52)	-2.84 (-4.23 to -1.6)	—	-3.06 (-5.29 to -0.7)	-2.78 (-2.98 to -2.56)	-9.33 (-13.66 to -5.43)	—	533,622	0.42
January, mean	Population + subpopulation + year + population/year + subpopulation/year	100 km + 50 km	-12.72 (-15.11 to -9.64)	-5.41 (-7.61 to -2.92)	-3.35 (-7.26-1.66)	-3.89 (-5.32 to -2.44)	-0.43(-3.52-2.64) (-4.44 to -0.92)	-2.64 (-4.44 to -0.92)	-1.69 (-1.94 to -1.43)	-9.75 (-13.21 to -6.63)	-2.43 (-5.19-0.47)	508,504	0.4
January, mean	Population + subpopulation + year + population/year + subpopulation/year	150 km + 50 km	-12.91 (-16.82 to -9.61)	-5.1 (-6.91 to -2.92)	-3.25 (-7.29-1.41)	-3.44 (-4.89 to -2.17)	-2.61 (-5.52-0.05)	-2.98 (-4.84 to -1.33)	-1.67 (-1.93 to -1.43)	-10.03 (-14.04 to -5.99)	-1.99 (-4.3-1.03)	508,475	0.43
January, maximum	Population + year	50 km	-12.95 (-15.03 to -10.5)	—	-3.61 (-7.29-0.5)	—	—	-3.61 (-7.29-0.5)	-1.27 (-1.49 to -1.08)	-8.45 (-14.17 to -4.81)	—	523,585	0.27
January, maximum	Population + year	100 km	-16.5 (-20.39 to -13.74)	—	-3.57 (-7-0.22)	—	—	-3.57 (-7-0.22)	-2.31 (-2.51 to -2.1)	-12.89 (-18.16 to -8.25)	—	538,841	0.39

**Table S1.** Cont.

Temperature variable	Random effects	Population definition	Between-population slope	Between-subpopulation slope	Year slope	Population/year slope	Subpopulation/year slope	Pooled mean within-population slope <sup>a</sup>	Residual slope	Δb Slope difference 1 <sup>b</sup>	Δb Slope difference 2 <sup>c</sup>	DIC	R <sup>2</sup>	
January, maximum	Population + year	150 km	-18.74 (-22.6 to -13.55)	—	-3.93 (-7.2 to -0.48)	—	—	-3.93 (-7.2 to -0.48)	-1.91 (-2.14 to -1.74)	-14.57 (-20.56 to -9.04)	—	543,265	0.44	
January, maximum	Population + subpopulation + year	100 km + 50 km	-18.42 (-23.05 to -14.35)	-4.58 (-6.72 to -1.67)	-3.72 (-7.22-0.35)	—	—	-3.72 (-7.22-0.35)	-1.27 (-1.5 to -1.05)	-15.26 (-21.03 to -9.22)	-0.51 (-5.05-3.94)	523,586	0.41	
January, maximum	Population + subpopulation + year	150 km + 50 km	-19.43 (-23.65 to -13.65)	-3.77 (-6.13 to -1.64)	-4.18 (-7.96 to -0.26)	—	—	-4.18 (-7.96 to -0.26)	-1.26 (-1.49 to -0.26)	-15.75 (-21.16 to -10.07)	-0.41 (-4.57-4.06)	523,586	0.39	
January, maximum	Population + year	50 km	-11.32	—	-3.5	-2.61	—	-3.07	-1.36	-8.14	—	517,473	0.27	
January, maximum	+ population/year	(-13.48 to -9.42)	(-6.81-0.5)	(-3.69 to -1.73)	(-4.88 to -1.07)	(-1.61 to -1.16)	(-11.16 to -5.62)	(-1.61 to -1.15)	(-1.61 to -1.15)	(-1.61 to -1.15)	(-1.61 to -1.15)	—	—	
January, maximum	Population + population/year	100 km	-13.63	—	-3.29	-2.8	—	-2.95	-2.47	-9.66	—	534,077	0.38	
January, maximum	+ population/year	(-16.5 to -10.74)	(-7.06-0.38)	(-3.84 to -1.62)	(-5.12 to -1.32)	(-5.12 to -1.32)	(-14.18 to -7.53)	(-5.12 to -1.32)	(-2.65 to -2.23)	(-2.65 to -2.23)	(-2.65 to -2.23)	(-2.65 to -2.23)	—	—
January, maximum	Population + year	150 km	-14.39	—	-3.25	-2.3	—	-2.9	-2.06	-10.8	—	539,065	0.41	
January, maximum	+ population/year	(-18.13 to -9.81)	(-7.64-0.61)	(-3.53 to -1.19)	(-4.75 to -0.42)	(-4.75 to -0.42)	(-16.27 to -7.1)	(-4.75 to -0.42)	(-2.26 to -1.85)	(-2.26 to -1.85)	(-2.26 to -1.85)	(-2.26 to -1.85)	—	—
January, maximum	Population + subpopulation + year	100 km + 50 km	-13.61 (-17.09 to -10.36)	-4.73 (-7.57 to -2.34)	-3.48 (-7.14-0.43)	-3.05 (0.25 to -1.97)	-2.13 (-3.21-3.06)	-2.13 (-3.21-3.06)	-1.37 (-1.6 to -0.55)	-11.11 (-1.6 to -0.55)	-2.8	517,388	0.38	
January, maximum	+ population/year	(-17.09 to -10.36)	(-7.14-0.43 to -2.34)	(-7.14-0.43 to -1.97)	(-7.14-0.43 to -1.97)	(-7.14-0.43 to -1.97)	(-6.06-0.07)	(-6.06-0.07)	(-6.06-0.07)	(-6.06-0.07)	(-6.06-0.07)	(-6.06-0.07)	—	—
January, maximum	Population + subpopulation + year	150 km + 50 km	-13.92 (-18.54 to -9.61)	-5.07 (-6.94 to -2.14)	-2.9 (-4.18 to -1.74)	-2.83 (-3.47-1.82)	-1.08 (-4.1 to -0.8)	-2.45 (-4.1 to -0.8)	-1.39 (-1.61 to -1.15)	-11.56 (-16.8 to -7.06)	-2.39 (-5.37-0.69)	517,338	0.41	
January, minimum	Population + year	50 km	-9.43 (-10.94 to -7.85)	—	-2.83 (-8.5-1.96)	—	—	-2.83 (-8.5-1.96)	-1.95 (-2.18 to -1.75)	-6.34 (-11.51 to -0.8)	—	525,834	0.28	
January, minimum	Population + year	100 km	-10.19	—	-3.26 (-9.01-1.53)	—	—	-3.26 (-9.01-1.53)	-2.98 (-3.16 to -2.77)	-7.55 (-12.75 to -1.56)	—	542,137	0.37	
January, minimum	Population + year	150 km	-10.07	—	-2.81 (-7.48-1.82)	—	—	-2.81 (-7.48-1.82)	-2.85 (-3.06 to -2.68)	-7.68 (-12.57 to -1.26)	—	551,083	0.36	
January, minimum	Population + subpopulation + year	100 km + 50 km	-11.84 (-14.4 to -8.65)	-4.47 (-5.95 to -2.37)	-2.94 (-8.74-1.7)	—	—	-2.94 (-8.74-1.7)	-1.96 (-2.17 to -1.75)	-7.95 (-14.48 to -2.48)	-0.85 (-6.47-4.55)	525,828	0.36	
January, minimum	+ subpopulation + year	150 km + 50 km	-16.31 (-5.78 to -8.66)	-4.39 (-5.78 to -2.66)	-3.62 (-8.63-2.68)	—	—	-3.62 (-8.63-2.68)	-1.98 (-2.16 to -1.76)	-9.34 (-15.98 to -2.51)	-0.76 (-7.49-4.46)	525,830	0.44	

**Table S1.** Cont.

Temperature variable	Random effects	Population definition	Between-population slope	Between-subpopulation slope	Year slope	Population/year slope	Subpopulation/year slope	Pooled mean within-population slope <sup>a</sup>	$\Delta b$ Slope difference 1 <sup>b</sup>	$\Delta b$ Slope difference 2 <sup>c</sup>	DIC	R <sup>2</sup>
January, minimum	Population + year + population/year	50 km	-9.49 (-10.77 to -7.82)	—	-3.14 (-8.05-2.3)	-2.49 (-3.33 to -1.58)	—	-2.84 (-5.52 to -0.22)	-1.7 (-1.93 to -1.45)	-6.65 (-8.99 to -3.08)	—	514,375 0.29
January, minimum	Population + year + population/year	100 km	-10.16 (-12.37 to -7.98)	—	-2.74 (-8.18-1.87)	-2.69 (-3.62 to -1.54)	—	-2.71 (-5.16 to -0.19)	-2.89 (-3.08 to -2.67)	-6.91 (-10.56 to -3.69)	—	534,242 0.36
January, minimum	Population + year + population/year	150 km	-10.31 (-13.77 to -7.19)	—	-2.65 (-7.39-1.69)	-2.34 (-3.33 to -0.93)	—	-2.6 (-4.84-0.22)	-2.79 (-2.96 to -2.57)	-7.65 (-11.58 to -3.58)	—	545,394 0.38
January, minimum	Population + year + population/year	100 km	-10.4 (-13.51 to -8.28)	-4.51 (-6.54 to -2.47)	-2.76 (-7.7-2.21)	-2.67 (-2.71-1.54)	-0.63 (-3.87 to -1.72)	-2.06 (-3.87 to -0.29)	-1.67 (-1.91 to -1.47)	-8.56 (-12.05 to -6)	-2.46 (-5.29-0.5)	514,223 0.35
January, minimum	Population + subpopulation + year + population/year + subpopulation/year	150 km	-11.64 (-15.23 to -8.58)	-4.3 (-5.74 to -2.86)	-3.57 (-8.31-1.84)	-2.69 (-3.84 to -1.37)	-1.7 (-3.11-0.14)	-2.54 (-4.09 to -0.55)	-1.67 (-1.94 to -1.43)	-9.49 (-13.11 to -5.73)	-1.84 (-4.29-0.48)	514,222 0.45
February, mean	Population + year + subpopulation + year	50 km	-10.56 (-12.65 to -7.69)	—	-3.64 (-5.88 to -0.51)	—	—	-3.64 (-5.88 to -0.51)	-1.9 (-2.1 to -1.69)	-7.11 (-10.73 to -3.67)	—	527,669 0.19
February, mean	Population + year + population/year	100 km	-14.36 (-18.92 to -10.26)	—	-3.45 (-5.53 to -0.57)	—	—	-3.45 (-5.53 to -0.57)	-2.68 (-2.82 to -2.43)	-11.01 (-16.3 to -6.19)	—	542,822 0.27
February, mean	Population + year	150 km	-13.82 (-20.01 to -8.08)	—	-3.19 (-5.53 to -0.52)	—	—	-3.19 (-5.53 to -0.52)	-2.24 (-2.44 to -2.06)	-12.1 (-16.9 to -6.19)	—	547,511 0.3
February, mean	Population + subpopulation + year + population + year	100 km	-16.24 (-22.69 to -10.52)	-4.06 (-5.89 to -1.8)	-3.18 (-5.68 to -0.21)	—	—	-3.18 (-5.68 to -0.21)	-1.85 (-2.1 to -1.66)	-13.1 (-20.39 to -6.93)	-0.44 (-4.16-2.68)	527,662 0.31
February, mean	Population + subpopulation + year + population + year	150 km	-17.69 (-25.13 to -9.55)	-3.38 (-5.78 to -0.56)	-2.9 (-5.89 to -0.56)	—	—	-2.95 (-5.89 to -0.56)	-1.88 (-2.09 to -1.68)	-14.97 (-22.97 to -6.69)	0.09 (-3.54-3.27)	527,661 0.36
February, mean	Population + year + subpopulation + year + population + year	50 km	-9.89 (-11.85 to -7.51)	—	-2.97 (-6.26 to -0.54)	-2.53 (-3.09 to -1.82)	—	-2.64 (-4.32 to -1.43)	-1.41 (-1.69 to -1.21)	-6.93 (-9.41 to -4.17)	—	514,728 0.23
February, mean	Population + year + population/year + population + year	100 km	-11.99 (-15.5 to -8.86)	—	-3.17 (-6.17 to -0.37)	-2.16 (-2.89 to -1.46)	—	-2.74 (-4.24 to -1.27)	-2.5 (-2.71 to -2.28)	-9.6 (-12.92 to -5.73)	—	532,480 0.34
February, mean	Population + year + population/year + population + year	150 km	-12.4 (-16.88 to -7.24)	—	-3.08 (-6.18 to -0.5)	-1.86 (-2.68 to -0.91)	—	-2.37 (-4.08 to -1.21)	-2.13 (-2.35 to -1.94)	-9.9 (-14.72 to -5.06)	—	538,367 0.37

**Table S1.** Cont.

Temperature variable	Random effects	Population definition	Between-population slope	Between-subpopulation slope	Year slope	Population/year slope	Subpopulation/year slope	Pooled mean within-population slope <sup>a</sup>	$\Delta b$ Slope difference 1 <sup>b</sup>	$\Delta b$ Slope difference 2 <sup>c</sup>	DIC	R <sup>2</sup>
February, mean	Population + subpopulation + year	100 km + 50 km	-12.41 (-15.68 to -8.23)	-4.77 (-6.83 to -1.92)	-3.13 (-6.43 to -0.18)	-2.49 (-3.17 to -1.73)	-0.73 (-4.01-1.53)	-2.27 (-3.68 to -0.95)	-1.44 (-1.68 to -1.2)	-10.56 (-13.93 to -6.11)	-1.86 (-13.93 to -6.11)	514,630 0.35
February, mean	Population + subpopulation + year + population/year	150 km + 50 km	-12.41 (-15.68 to -8.23)	-4.77 (-6.83 to -1.92)	-3.13 (-6.43 to -0.18)	-2.49 (-3.17 to -1.73)	-0.73 (-4.01-1.53)	-2.27 (-3.68 to -0.95)	-1.44 (-1.68 to -1.2)	-10.56 (-13.93 to -6.11)	-1.86 (-13.93 to -6.11)	514,630 0.35
February, maximum	Population + subpopulation + year + population/year + subpopulation/year	50 km	-11.98 (-15.03 to -8.84)	-2.73 (-5.22 to -0.81)	—	—	-2.73 (-5.22 to -0.81)	-1.49 (-1.69 to -1.34)	-9.44 (-13.17 to -5.69)	—	—	541,318 0.2
February, maximum	Population + year	100 km	-19.5 (-25.82 to -15.18)	-2.75 (-4.96 to -0.41)	—	—	-2.75 (-4.96 to -0.41)	-2.19 (-2.37 to -2.01)	-17.33 (-23.43 to -11.61)	—	—	554,624 0.33
February, maximum	Population + year	150 km	-21.72 (-29.67 to -13.36)	-2.86 (-4.81 to -0.35)	—	—	-2.86 (-4.81 to -0.35)	-1.81 (-2.86 to -1.64)	-18.67 (-27.74 to -10.83)	—	—	557,555 0.31
February, maximum	Population + subpopulation + year	100 km + 50 km	-21.7 (-30.98 to -14.7)	-3.19 (-5.78 to -0.75)	-2.79 (-4.9 to -0.58)	—	-2.79 (-4.9 to -0.58)	-1.51 (-1.69 to -1.32)	-18.95 (-29.58 to -12.39)	-0.61 (-3.6 to -2.72)	—	541,312 0.36
February, maximum	Population + subpopulation + year + population/year	150 km + 50 km	-22.4 (-31.65 to -14.77)	-2.29 (-5.14 to -0.39)	-2.58 (-5.14 to -0.59)	—	-2.58 (-5.14 to -0.59)	-1.48 (-1.7 to -1.32)	-19.6 (-29.58 to -12.38)	-0.24 (-3.6 to -2.72)	—	541,310 0.39
February, maximum	Population + year	50 km	-10.15 (-12.47 to -7.36)	-2.86 (-5.1 to -0.01)	-2.7 (-3.25 to -2.1)	—	-2.76 (-3.25 to -2.1)	-1.05 (-1.24 to -0.82)	-7.06 (-30.1 to -12.38)	-3.35 (-3.15 to -3.35)	—	529,727 0.2
February, maximum	Population + year + population/year	100 km	-13.33 (-17.77 to -9.39)	—	-2.84 (-5.53 to -0.18)	-2.17 (-2.91 to -1.61)	—	-2.51 (-3.89 to -1.34)	-1.92 (-1.24 to -0.82)	-11 (-4.44 to -4.44)	—	545,052 0.28
February, maximum	Population + year + population/year + population/year	150 km	-13.11 (-18.66 to -6.82)	—	-2.59 (-5.39 to -0.01)	-2.13 (-2.91 to -1.61)	—	-2.44 (-3.89 to -1.34)	-1.61 (-1.24 to -0.82)	-10.6 (-1.24 to -0.82)	—	548,751 0.27
February, maximum	Population + subpopulation + year + population/year	100 km + 50 km	-13.03 (-17.72 to -8.36)	-3.99 (-6.67 to -1.19)	-2.84 (-5.19 to -0.19)	-2.42 (-3.15 to -1.19)	-1.12 (-4.26-1.53 to -1.89)	-2.43 (-3.44 to -0.81)	-1.03 (-1.23 to -0.81)	-10.23 (-15.85 to -6.27)	-1.79 (-15.85 to -6.27)	529,630 0.27

**Table S1.** Cont.

Temperature variable	Random effects	Population definition	Between-population slope	Between-subpopulation slope	Year slope	Population/year slope	Subpopulation/year slope	Pooled mean within-population slope <sup>a</sup>	$\Delta b$ Slope difference 1 <sup>b</sup>	$\Delta b$ Slope difference 2 <sup>c</sup>	DIC	R <sup>2</sup>	
February, maximum	Population + subpopulation + year + population/year + subpopulation/year	150 km + 50 km	-12.86 (-19.15 to -7.26)	-3.26 (-6.13 to -0.82)	-2.69 (-5.55-0.02)	-2.29 (-3.07 to -1.57)	-3.05 (-5.72 to -1.63)	-2.82 (-3.98 to -1.58)	-1.02 (-1.22 to -0.81)	-9.58 (-16.28 to -3.93)	-0.65 (-3.25-2.69)	529,587	0.31
February, minimum	Population + year	50 km	-7.71 (-9.97 to -5.46)	—	-3.07 (-6.17-0.18)	—	—	-3.07 (-6.17-0.18)	-1.75 (-1.95 to -1.18)	-4.56 (-9.09 to -1.18)	—	529,298	0.16
February, minimum	Population + year	100 km	-10.29 (-13.79 to -6.46)	—	-3.06 (-5.9-0.02)	—	—	-3.06 (-5.9-0.02)	-2.47 (-2.67 to -2.29)	-6.92 (-11.69 to -1.66)	—	545,336	0.24
February, minimum	Population + year	150 km	-9.56 (-14.58 to -4.56)	—	-3.26 (-6.19-0.1)	—	—	-3.26 (-6.19-0.1)	-2.12 (-2.31 to -1.95)	-6.3 (-12.42 to -0.65)	—	553,171	0.25
February, minimum	Population + subpopulation + year	100 km + 50 km	-11.67 (-17.1 to -6.76)	-3.69 (-5.35 to -1.64)	-3.13 (-5.77 to -0.06)	—	—	-3.13 (-5.77 to -0.06)	-1.74 (-1.96 to -1.55)	-9.13 (-15.1 to -3.24)	-0.32 (-3.81-3.24)	529,290	0.25
February, minimum	Population + subpopulation + year	150 km + 50 km	-12.29 (-19.04 to -6.58)	-3.06 (-4.9 to -1.47)	-3.04 (-6.08-0.13 to -1.47)	—	—	-3.04 (-6.08-0.13 to -1.47)	-1.73 (-1.97 to -1.56)	-10.28 (-16.9 to -2.52)	-0.65 (-3.47-3.4)	529,290	0.29
February, minimum	Population + year	50 km	-8.78 (-10.08 to -6.6)	—	-3.09 (-6.75 to -0.07)	-1.51 (-2.13 to -0.86)	—	-2.28 (-2.13 to -0.78)	-1.53 (-4.17 to -1.34)	-5.87 (-8.29 to -3.68)	—	513,900	0.23
February, minimum	Population + population/year	100 km	-10.24 (-13.05 to -7.2)	—	-3.28 (-6.16 to -0.2)	-1.3 (-2.08 to -0.7)	—	-2.28 (-2.08 to -0.76)	-1.82 (-3.82 to -2.3)	-8.31 (-10.94 to -4.48)	—	533,617	0.34
February, minimum	Population + year	150 km	-10.19 (-14.8 to -7.33)	—	-3.39 (-6.06 to -0.26)	-1.07 (-1.83 to -0.12)	—	-2.2 (-3.45 to -0.48)	-2.16 (-3.82 to -1.95)	-9.07 (-12.75 to -4.81)	—	543,622	0.38
February, minimum	Population + subpopulation + year	100 km + 50 km	-10.71 (-13.66 to -7.31)	-3.96 (-6.32 to -2.42)	-3.01 (-6.6 to -0.15)	-1.4 (-2.27 to -0.82)	-0.66 (-2.88-1.42 to -0.54)	-1.83 (-3.14 to -0.54)	-1.56 (-1.79 to -1.32)	-8.71 (-12.19 to -5.29)	-2.39 (-4.75 to -0.03)	513,760	0.33
February, minimum	Population + subpopulation + year	150 km + 50 km	-10.64 (-16.34 to -7.72)	-4.01 (-5.62 to -2.16)	-3.44 (-6.06 to -0.1)	-1.25 (-2.08 to -0.32)	-1.64 (-3.38 to -0.3)	-2.15 (-3.12 to -0.3)	-1.58 (-1.79 to -1.34)	-8.83 (-14.1 to -5.18)	-1.92 (-3.94-0.01)	513,742	0.37

Models were run for 13,000 iterations with a burn-in of 3,000 iterations and sampling every 10 iterations, except for the January mean temperature model with the lowest DIC. This model differed in that 103,000 iterations were used. Highest posterior densities (95%) are reported in parentheses. Dashes indicate that the relevant random effect was not included in the model; therefore, variance components required for calculating a slope were not estimated.

<sup>a</sup>Pooled mean of the year, population/year, and subpopulation/year slopes.

<sup>b</sup>Slope difference 1: between-population slope minus pooled mean within-population slope.

<sup>c</sup>Slope difference 2: between-subpopulation slope minus pooled mean within-population slope.