The potential distribution of the Vulnerable African lion *Panthera leo* in the face of changing global climate

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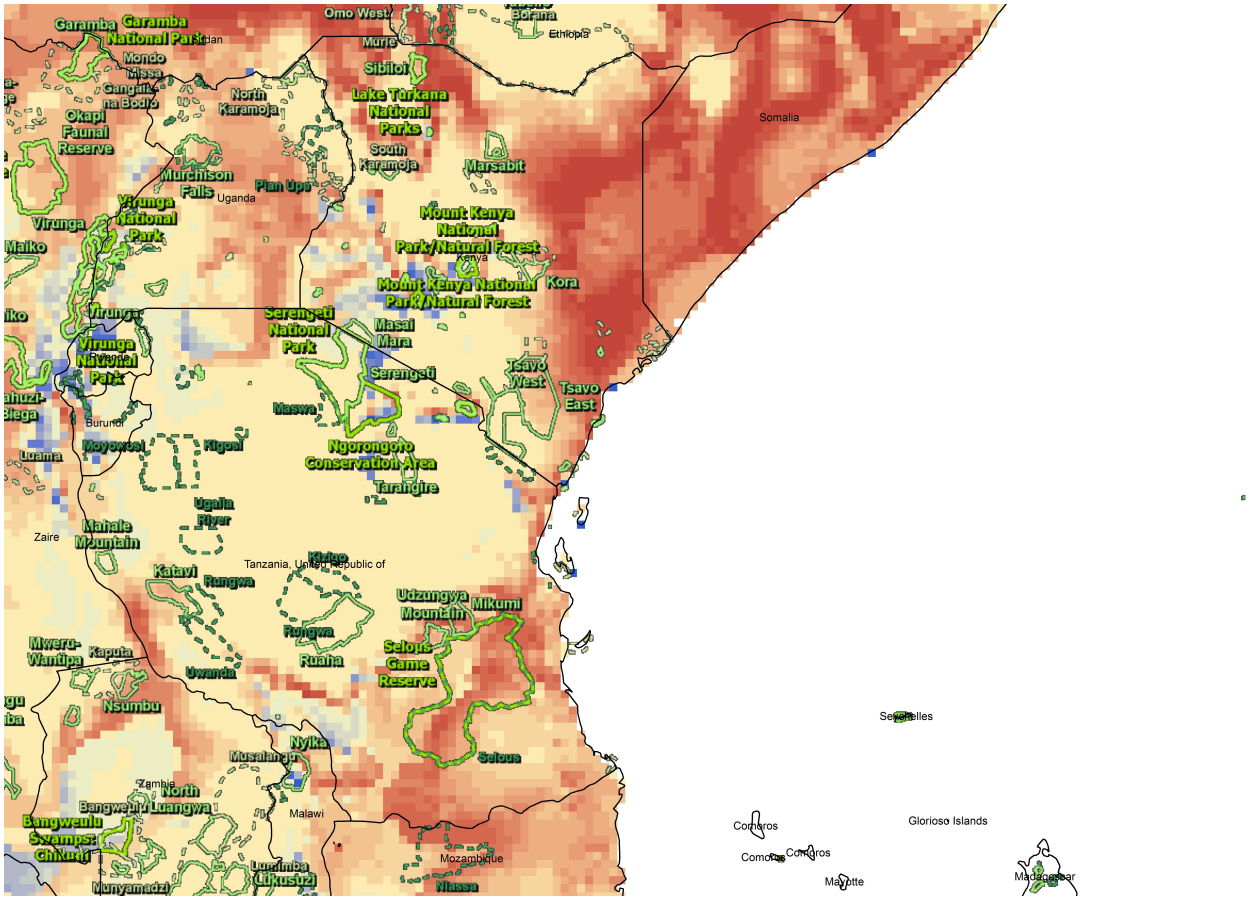
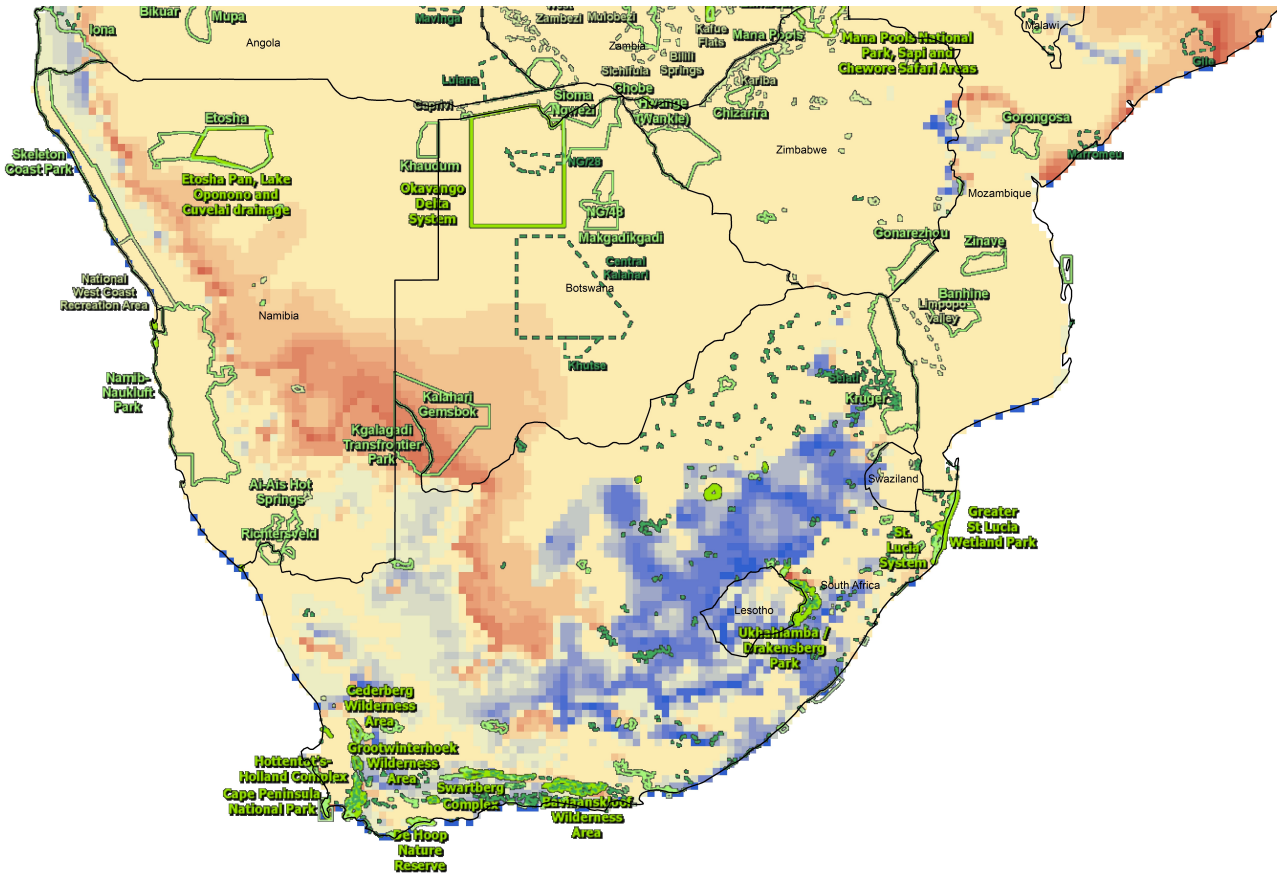
SUPPLEMENTARY MATERIAL 1 Summary of historical occurrences used to test the hemisphere-wide predictive abilities of ecological niche models developed in this study, with approximate age (years before present), references, any comments, geographical coordinates, and approximate uncertainty (in km).

Location	Age (yr BP)	Source	Comments	Latitude	Longitude	Uncertainty (km)
Moroccan Mediterranean Coast	150	Sunquist & Sunquist (2002)		34.69	-4.156	340
Southern Iberian Peninsula	3000–2000	Sommer & Benecke (2006)		39.093	-3.777	680
Algeria	170–180	Guggisberg (1975)		26.186	2.826	2000
North Africa (Barbary)	171	Barnett et al. (2006a)		32.577	3.082	2300
North Africa (Barbary)	179	Barnett et al. (2006a)		32.577	3.082	2300
North Africa	625–730	Barnett et al. (2008)		32.577	3.082	2300
Tunisia	130	Guggisberg (1975)		33.886	9.208	730
Tunisia	187	Barnett et al. (2006a)		33.886	9.208	730
Greece	3000–2000	Sommer & Benecke (2006)		39.975	21.772	660
Greece	3500	Yamaguchi et al. (2004)	Based on art & artifacts	39.975	21.772	660
Balkans	2500–2400	Guggisberg (1975)		44.546	21.937	1250
Balkan Peninsula	7000–3000	Thomas (2004)		44.546	21.937	1250
Macedonia	2480	Guggisberg (1975)		40.667	22.493	330
Macedonia	2355	Kinnear (1920)		40.667	22.493	330
Southeastern Europe (Greece/ Bulgaria)	5000 – 3000	Sommer & Benecke (2006)		41.635	23.115	930
Hungary/ Ukraine	5500	Yamaguchi et al. (2004)		48.715	24.668	1760
Central/ Eastern Europe	7500 – 5000	Sommer & Benecke (2006)		49.051	26.924	1700
Egypt	6000–5500	Yamaguchi et al. (2004)	Based on art & artifacts	26.857	29.83	1560
Ukraine	3000–2000	Sommer & Benecke (2006)		49.450	30.891	1300
Southern Ukraine	3000	Krakhmalnaya (1999)		48.115	33.281	840
Samaria (b/w Galilee & Judea)	910	Kinnear (1920)		32.5389	35.4489	50
Syria/Arabia border	2246–2283	Jennison (1937)		33.216	38.72	800
Upper Euphrates	140	Guggisberg (1975)		35.161	40.712	300
Biledjik, Upper	135	Kinnear (1920)		35.728	43.405	650

Mesopotamia						
Northern Caucasus	4000	Yamaguchi et al. (2004)	Based on art & artifacts	43.08	43.7	500
Mesopotamia	100	Guggisberg (1975)		33.276	44.011	1200
Roman Mesopotamia	1660	Jennison (1937)		33.276	44.011	1200
Mesopotamia	130	Kinnear (1920)		33.276	44.011	1200
Euphrates River, Mesopotamia	180	Kinnear (1920)		32.657	44.242	1200
Southern Mesopotamia	4700	Yamaguchi et al. (2004)	Based on art & artifacts	31.477	46.644	400
Lower Mesopotamia	122	Kinnear (1920)		31.477	46.644	400
Khuzestan, Mesopotamia	134	Kinnear (1920)		30.538	48.529	150
Karun Jungle, Iran	135	Kinnear (1920)		31.416	48.881	230
Ram Hormuz Plain, Iran	169	Kinnear (1920)		31.237	49.593	30
Kazerun, Iran	110	Kinnear (1920)		29.619	51.658	30
South of Shiraz, Iran	87	Guggisberg (1975)		28.506	52.899	260
Gir of Kathiawar, India	0	Guggisberg (1975)		22.051	71.141	280
Gujarat, India	122	Kinnear (1920)		22.808	71.721	670
Ahmedabad, India	174	Kinnear (1920)		23.039	72.566	25
Palghar, India	147	Kinnear (1920)		19.702	72.774	5
Vadodora, India	178	Kinnear (1920)		22.306	73.188	20
Abu, India	138	Kinnear (1920)		25.687	74.376	60
Kota, Guna, Gwailor, India	60	Guggisberg (1975)		25.631	78.056	480
Gwailor, India	145	Kinnear (1920)		25.631	78.056	480
Kota, Rajputana, India	144	Kinnear (1920)		25.631	78.056	480
Guna, India	143	Kinnear (1920)		25.631	78.056	480
Central India	160	Guggisberg (1975)		21.267	78.239	1700
India	172	Barnett et al. (2006a)		21.267	78.239	2600
Sheorajpur, India	146	Kinnear (1920)		26.683	80.153	10



SUPPLEMENTARY FIG. S1 Kenya–Tanzania in East Africa, showing changes in projected future suitability from present suitability patterns (i.e. average of all models for the A2 emissions scenario based on all occurrences), overlaid on the distribution of protected natural areas across the region. Change in suitability is shown as a ramp from blue (improving conditions) to red (worsening conditions); protected natural areas area shown as green and yellow outlines.



SUPPLEMENTARY FIG. S2 Southern Africa, showing changes in projected future suitability from present suitability patterns (i.e. average of all models for the A2 emissions scenario based on all occurrences), overlaid on the distribution of protected natural areas across the region. Change in suitability is shown as a ramp from blue (improving conditions) to red (worsening conditions); protected natural areas area shown as green and yellow outlines.