SUPPLEMENTARY MATERIAL TO: Scott et al. S Afr J Sci. 2020;116(5/6), Art. #6700, 8 pages.

HOW TO CITE:
Scott M, Le Roux P, Sealy J, Pickering R. Lead and strontium isotopes as palaeodietary indicators in the Western Cape of South Africa [supplementary material]. S Afr J Sci. 2020;116(5/6), Art. #6700, 3 pages. https://doi.org/10.17159/sajs.2020/6700/suppl

Table 1: Database of samples from different geological substrates within southwestern South Africa, with elemental concentrations and isotopic ratios. The numbering for the underlying geology is as follow: 1. Coastal sands, 2. Bredasdorp limestones, 3. Karoo sediments, 4. Cape Supergroup (e.g. Table Mountain sandstones), 5. Cape Granite Suite, 6. Richtersveld, Suite, 7. Namaqua-Natal Metamorphic Province. And for the species: a. *Procavia capensis* (rock hyrax), b. *Damaliscus pygargus pygargus* (bontebok), c. *Raphicerus melanotis* (Cape grysbok) d. *Raphicerus campestris* (steenbok), e. *Pelea capreolus* (grey rhebok); f. *Antidorcas marsupialis* (springbok), g. *Hystrix africae-australis* (porcupine), h. *Chersina angulata* (angulate tortoise), i. *Rhabodomys pumilio* (four-striped grass mouse), j. *Otomys irroratus* (vlei rat). The N.P. and N.R. abbreviations were used for National Park and Nature Reserve, respectively.

Sample name	Collection year	Sample type	Species	Location	Geology	Sr (ppm)	Pb (ppm)	$^{87}Sr/^{86}Sr$	±2s internal	$^{208}Pb/^{204}Pb$	±2s internal	$^{207}Pb/^{204}Pb$	±2s internal	$^{206}Pb/^{204}Pb$	±2s internal
1MS	1982	Quill	g	Doringbos	3			0.716505	0.000033	37.2249	0.0020	15.5647	0.0007	17.3892	0.0007
2MS	1982	Bone	d	Doringbos	3	111	0.316	0.718790	0.000010	38.2406	0.0023	15.6361	0.0008	18.3912	0.0010
3MS	1982	Bone	f	Churchhaven	1	146	0.297	0.709483	0.000010	37.1605	0.0026	15.5504	0.0010	17.4064	0.0010
4MS	1986	Bone	b	Bontebok N.P.	4	299	1.023	0.712552	0.000011	37.6454	0.0020	15.5803	0.0007	17.8072	0.0007
5MS	1986	Bone	c	Bontebok N.P.	4	454	0.153	0.712491	0.000010	37.1027	0.0030	15.5480	0.0013	17.2768	0.0014
6MS	1991	Tooth	c	Doringbos	3	211	0.327	0.716740	0.000010	38.0267	0.0051	15.6203	0.0020	18.1308	0.0021
7MS	1990	Tooth	a	Gifberg	4	1830	0.139	0.712384	0.000010	37.3051	0.0040	15.5561	0.0016	17.4229	0.0017
8MS	1990	Tooth	a	Gifberg	4	1552	0.396	0.712719	0.000009	37.7052	0.0073	15.6001	0.0029	17.7332	0.0033
9MS	1990	Tooth	a	Gifberg	4	1600	0.050	0.712713	0.000011	37.8232	0.0158	15.5926	0.0054	17.8215	0.0090
10MS	2013	Tooth	a	Doringbos	3	1390	0.024	0.715720	0.000010	37.7091	0.0084	15.5884	0.0032	17.7634	0.0039
11MS	2013	Tooth	a	Doringbos	3	1445	< d.l.	0.718972	0.000011	37.8827	0.0136	15.6228	0.0049	17.8470	0.0055
12MS	2013	Tooth	a	Doringbos	3	1862	0.122	0.718927	0.000010	37.8726	0.0119	15.6085	0.0047	17.8965	0.0052
13MS	2013	Tooth	a	Doringbos	3	1051	0.193	0.718601	0.000011	38.0558	0.0064	15.6165	0.0024	18.0626	0.0028
14MS	2014	Tooth	a	Doringbos	3	1860	0.020	0.715184	0.000013	37.5814	0.0067	15.5923	0.0028	17.6841	0.0031
15MS	2014	Tooth	a	Namaqua N.P.	7	1378	0.051	0.755445	0.000011	40.2761	0.0059	15.7518	0.0025	19.7667	0.0026
16MS	2014	Tooth	a	Namaqua N.P.	7	1150	0.213	0.746843	0.000011	39.9670	0.0095	15.7453	0.0004	19.9811	0.0005
17MS	2014	Teeth	a	Richtersveld N.P.	6	891	0.028	0.726132	0.000010	38.0220	0.0082	15.6206	0.0035	18.0927	0.0039
18MS	1982	Tortoise carapace	h	Koeberg N.R.	1	774	0.758	0.709282	0.000013	36.9902	0.0022	15.5344	0.0008	17.1713	0.0007

Sample name	Collection year	Sample type	Species	Location	Geology	Sr (ppm)	Pb (ppm)	$^{87}Sr/^{86}Sr$	±2s internal	$^{208}Pb/^{204}Pb$	±2s internal	$^{207}Pb/^{204}Pb$	±2s internal	$^{206}Pb/^{204}Pb$	±2s internal
19MSa	2015	Bone	a	Dabidas	7	771	0.248	0.734004	0.000009	38.1186	0.0042	15.6451	0.0014	18.0293	0.0019
19MSb	2015	Teeth	a	Dabidas	7	752	0.115	0.739244	0.000012	38.0767	0.0079	15.6461	0.0030	18.1758	0.0032
20MS	2016	Bone	e	Bontebok N.P.	4	288	0.328	0.712673	0.000010	38.2456	0.0022	15.6219	0.0009	18.2872	0.0009
21MS	2016	Dentin	e	Bontebok N.P.	4	394	0.411	0.712978	0.000013	38.2528	0.0024	15.6236	0.0008	18.2901	0.0008
22MS	2016	Enamel	e	Bontebok N.P.	4	485	0.138	0.713088	0.000015	38.1191	0.0039	15.6158	0.0013	18.1413	0.0016
23MS	2016	Bone	b	Bontebok N.P.	4	330	0.755	0.712947	0.000011	38.0897	0.0023	15.6130	0.0008	18.1131	0.0007
24MS	2016	Dentin	b	Bontebok N.P.	4	403	2.302	0.712802	0.000011	37.8012	0.0052	15.5955	0.0009	17.8977	0.0068
25MS	2016	Enamel	b	Bontebok N.P.	4	347	1.686	0.712370	0.000012	37.8348	0.0024	15.5894	0.0008	17.8480	0.0008
1A R	2010	Teeth	i	De Hoop N.R.	2	524	0.684	0.709260	0.000011	37.6182	0.0039	15.5824	0.0016	17.6855	0.0016
2A R	2010	Teeth	i	De Hoop N.R.	2	882	0.143	0.709256	0.000011	37.6068	0.0044	15.5798	0.0019	17.6879	0.0019
3A R	2010	Teeth	i	De Hoop N.R.	2	374	0.399	0.709267	0.000010	37.8440	0.0042	15.6045	0.0016	17.9411	0.0020
4A R	2010	Teeth	i	De Hoop N.R.	2	206	0.246	0.709431	0.000019	37.8314	0.0058	15.6004	0.0024	17.9098	0.0025
5A R	2010	Teeth	i	De Hoop N.R.	2	493	0.025	0.709225	0.000017	37.6333	0.0069	15.5851	0.0029	17.7049	0.0033
7A O	2010	Teeth	j	De Hoop N.R.	2	1114	0.265	0.709942	0.000011	38.1729	0.0030	15.6243	0.0013	18.1993	0.0014
8A R	2010	Teeth	i	De Hoop N.R.	4	511	0.737	0.710280	0.000010	38.0225	0.0026	15.6104	0.0009	18.0666	0.0008
9A R	2010	Teeth	i	De Hoop N.R.	4	277	0.276	0.710063	0.000013	37.7274	0.0148	15.6010	0.0061	17.7103	0.0066
10A R	2010	Teeth	i	De Hoop N.R.	4	367	0.379	0.709925	0.000016	38.0316	0.0034	15.6266	0.0011	18.0811	0.0011
12A R	2010	Teeth	i	De Hoop N.R.	2	195	0.117	0.709388	0.000012	37.7830	0.0057	15.5933	0.0022	17.8424	0.0024
13A R	2010	Teeth	i	De Hoop N.R.	2	291	0.225	0.709270	0.000013	38.4602	0.0037	15.6465	0.0012	18.5140	0.0012
14A R	2010	Teeth	i	De Hoop N.R.	2	778	0.039	0.709160	0.000011	37.3821	0.0080	15.5645	0.0032	17.4866	0.0036
19A R	2010	Teeth	i	De Hoop N.R.	2	337	0.012	0.709141	0.000013	37.7210	0.0121	15.5886	0.0050	17.8184	0.0055
20A R	2010	Teeth	i	De Hoop N.R.	2	316	0.269	0.709681	0.000013	37.9489	0.0044	15.6118	0.0018	17.9940	0.0019
21A R	2010	Teeth	i	De Hoop N.R.	4	223	0.163	0.710083	0.000011	37.9668	0.0044	15.6244	0.0017	17.9292	0.0020
22A R	2010	Teeth	i	De Hoop N.R.	2	138	0.186	0.709196	0.000010	37.4257	0.0102	15.5678	0.0042	17.5065	0.0044
WP 1	2017	Plants		Rooiheuwel farm	5	N/A	N/A	0.712497	0.000013	37.8860	0.0029	15.6477	0.0010	17.8617	0.0009
WP 2	2017	Plants		Rooiheuwel farm	5	N/A	N/A	0.712900	0.000014	37.5709	0.0034	15.6258	0.0011	17.5965	0.0010
WP 3	2017	Plants		Rooiheuwel farm	5	N/A	N/A	0.714618	0.000007	37.7582	0.0026	15.6318	0.0009	17.7868	0.0008
WP 4	2017	Plants		Rooiheuwel farm	5	N/A	N/A	0.711469	0.000011	38.1071	0.0020	15.6573	0.0007	18.0632	0.0006
WP 5	2017	Plants		Rooiheuwel farm	5	N/A	N/A	0.711661	0.000011	37.3190	0.0027	15.6073	0.0008	17.3714	0.0008

Laboratory protocol for combined Sr-Pb elemental separation chemistry

Prepping of columns:

1. Initial cleaning of new Savillex Teflon columns:
   a. one night in '2% decon' (decontamination process),
   b. one night in 1:1 HCl,
   c. two nights in 1:1 HNO_3,
   d. one night in Milli-Q water,
   e. and lastly, one night in a drying box.
2. Cut columns into 2-cm lengths, and fit with frits (porosity±30 µm, thickness±2.5 mm).
3. Fill each column with methanol and let it flow through. Repeat three times for optimal flow.
4. Fill each column with 0.05 M HNO_3 and let it drip through.
5. Fill the bed of the column with 200 µL Sr.Spec resin (Eichrom), slurried in a few millilitres of 0.05 M HNO_3.
6. Finally, condition these columns by adding 10 mL 6 M HCl, followed by 10 mL 0.05 M HNO_3. Repeat three times.

Prepping of samples:

7. Weigh approximately 50 mg of sample into 7 mL Teflon beakers.
8. Add 4 mL of 65% HNO_3 to each sample; close the beaker and digest on a hotplate overnight at 140 °C.
9. Open beakers carefully and dry down the samples at 140 °C.
10. Once dried, cool the samples and add 2 mL 65% HNO_3. Dry down immediately.
11. Add 2 mL 1 M HNO_3 and allow to settle overnight.
12. Pipette 2 x 1 mL sample into centrifuge tubes and spin at 4000 rpm for 20 minutes.

Column chemistry:

13. Sample loading: Add 2 x 0.9 mL of sample (waste beakers underneath columns).
14. Wash/ elution of Ba: Add 2 x 0.5 mL of 1 M HNO_3, followed by 2 mL of 7 M HNO_3.
15. Collection of Sr: Place clean, labelled, 7-mL beaker beneath each column and add 2 mL of 0.05 M HNO_3.
16. Collection of Pb: Place another set of clean, labelled, 7-mL beakers beneath each column and add a total of 4 mL of 6 M HCl in the following volumes: 0.5 mL, 3 mL and 0.5 mL.
17. Dry down collected Sr and Pb samples on hotplate at 140 °C.
18. For Sr: pipette 2 mL of 0.2% HNO_3 into sample beaker and ultrasonicate for 30 minutes.
19. For Pb: first convert to nitrate by adding a few drops of concentrated HNO_3 and dry down again (repeat this step), before pipetting 1 mL of 2% HNO_3. Ultrasonicate for 30 minutes.