Amphibia-Reptilia

Space fit for a king: the spatial requirements of king cobras (*Ophiophagus hannah*) in Sakaerat Biosphere Reserve, Northeastern Thailand

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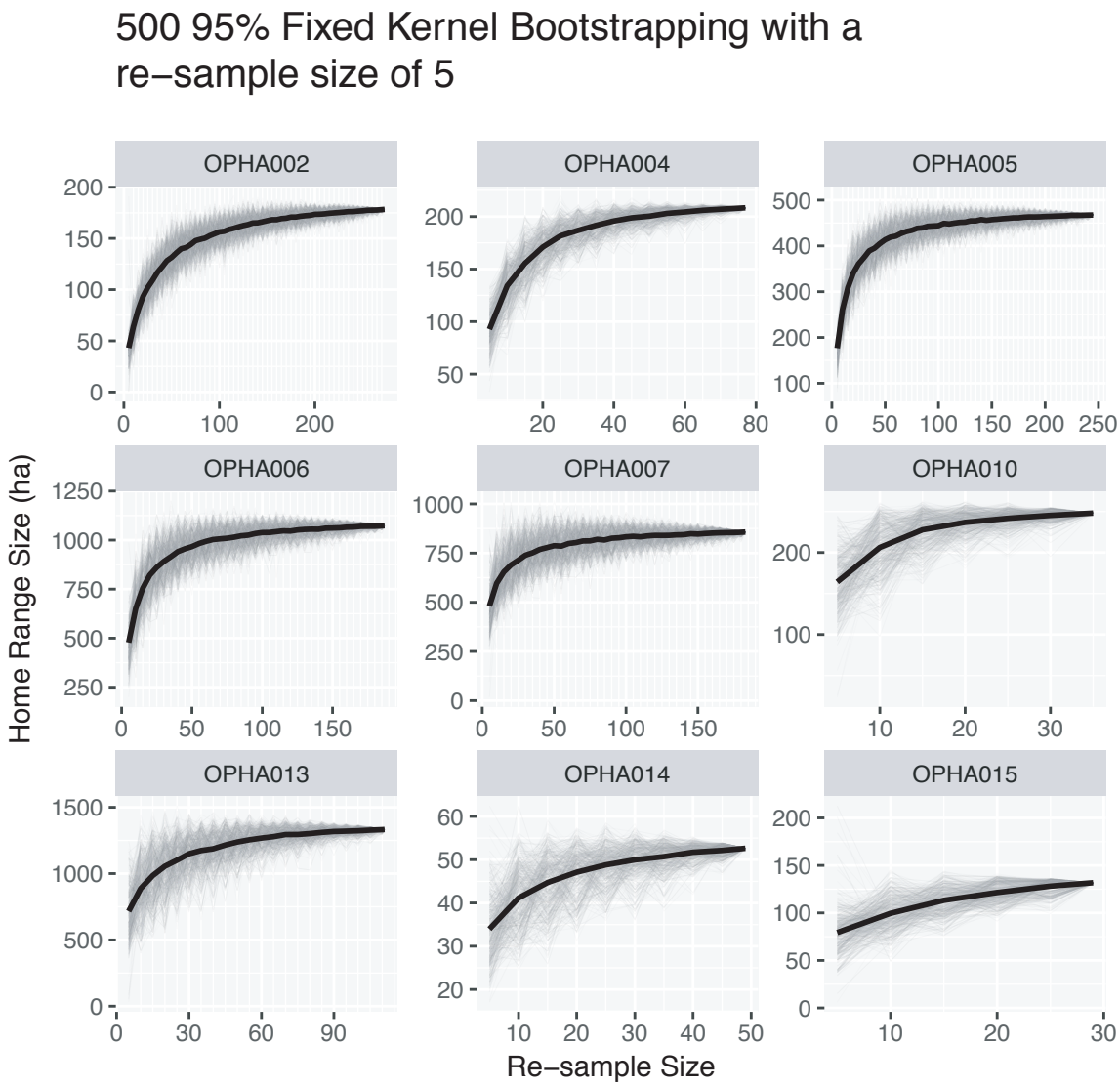
Supplementary material

Supplementary table S1. Comparison of the various home range estimation methods. Displayed in hectares. MCP results are based 95% of the locations.

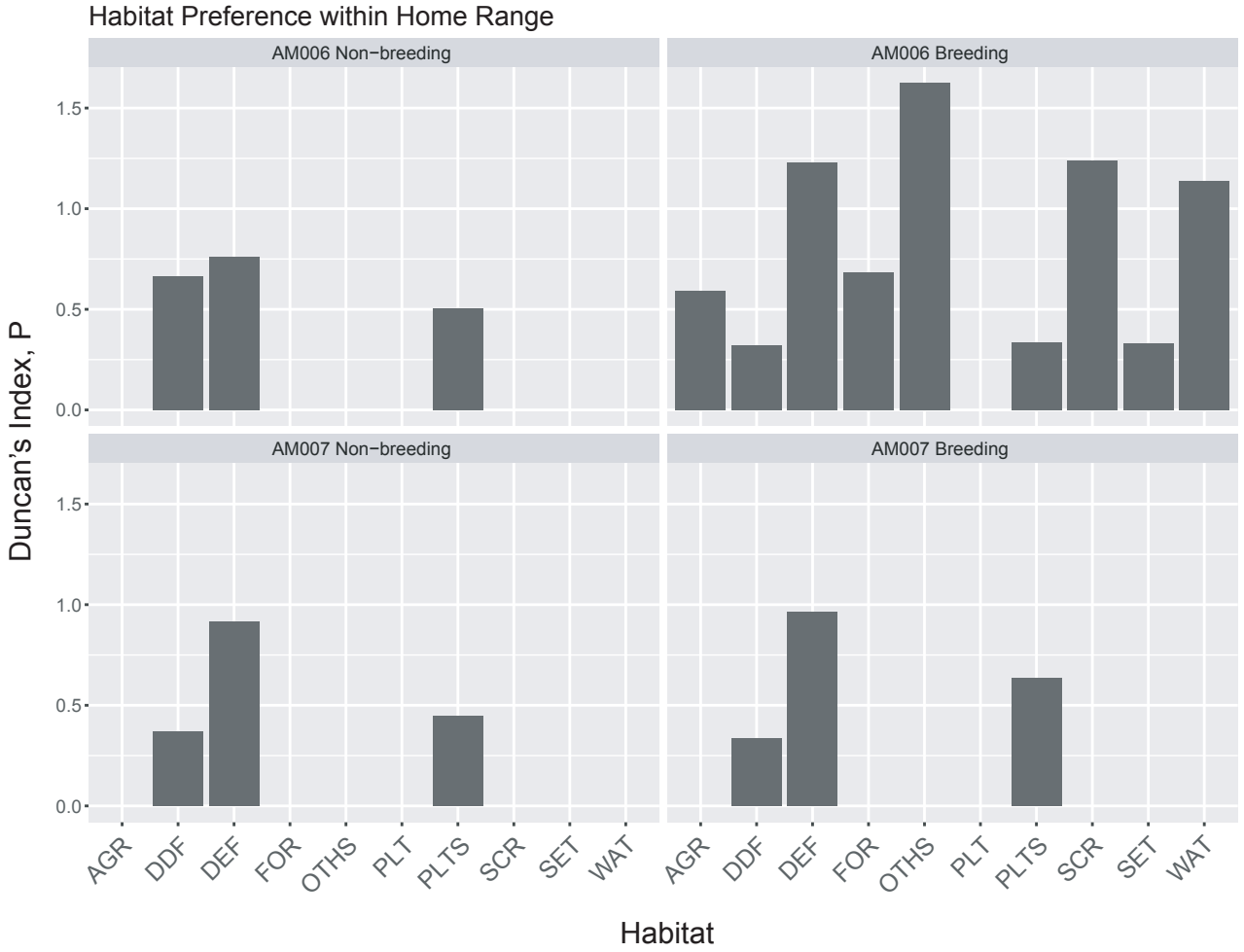
		Custom H value			AKDE						Href		LSCV	
Snake ID	**MCP**	**95% K**	**50% K**	**H value**	**K95 low**	**K95 ML**	**K95 high**	**K50 low**	**K50 Ml**	**K50 high**	**K95**	**K50**	**K95**	**K50**
JM002	189.25	178.38	24.95	80.00	234.82	276.87	322.33	43.68	51.50	59.95	317.61	63.45	40.85	4.92
AF004	143.47	208.35	51.18	120.00	203.65	258.48	319.74	58.13	73.78	91.26	396.56	106.50	85.32	19.51
AM005	374.74	467.72	133.07	161.00	409.06	465.66	525.87	116.49	132.61	149.76	582.61	168.35	105.97	21.79
AM006 Breeding	678.96	844.52	221.49	213.00	867.38	1168.63	1514.09	235.23	316.93	410.62	1445.69	396.97	357.93	79.93
AM006 Non-breeding	397.83	392.17	105.45	115.00	517.88	618.53	727.98	151.03	180.38	212.30	861.12	244.28	128.22	29.58
AM006 Total	710.03	1073.55	263.85	280.00	854.40	991.82	1139.33	209.06	242.68	278.78	1276.78	314.76	216.48	50.61
AM007 Breeding	568.31	825.80	237.31	237.00	680.49	911.16	1174.96	183.86	246.19	317.47	1210.80	327.68	519.62	137.16
AM007 Non-breeding	280.89	569.95	137.02	268.00	350.47	420.09	495.92	87.18	104.50	123.36	523.60	127.03	120.60	27.88
AM007 Total	477.69	857.00	186.34	324.00	531.62	618.44	711.73	118.45	137.80	158.58	760.88	166.34	188.50	44.92
AF010	51.24	249.91	64.10	176.00	56.44	81.50	111.09	12.61	18.21	24.83	530.69	124.75	29.69	6.03
JM013 Post-dispersal	157.73	200.98	41.98	103.00	124.77	282.17	502.70	30.23	68.37	121.80	442.45	110.56	120.42	25.59
JM013	802.18	1332.94	216.25	387.00	904.43	1212.10	1564.12	123.63	165.69	213.80	1969.87	329.58	178.63	34.82
JM014	19.48	52.65	11.81	86.00	29.52	40.04	52.13	6.83	9.26	12.06	54.10	12.10	10.15	2.36
AM015	45.40	131.88	25.50	120.00	0.00	143.05	1586.57	0.00	29.97	332.42	256.44	54.85	31.62	6.69



Supplementary figure S1. Plotted results of the bootstrapping analysis for all tracked king cobras.

Supplementary table S2. Numeric results from the bootstrapping analysis.

Snake ID	Average of >50% Runs	Full Home Range	>50% Results/Full Home Range
JM002	173.22	178.39	0.97
AF004	203.52	208.34	0.98
AM005	462.08	467.54	0.99
AM006	1056.87	1073.17	0.98
AM007	844.40	857.02	0.99
AF010	243.98	248.07	0.98
JM013	1308.25	1332.33	0.98
JM014	51.00	52.64	0.97
AM015	123.68	131.78	0.94



Supplementary figure S2. Habitat Use Change of AM006 and AM007. The differences in habitat preferences derived by Duncan's Index separated by breeding (February, March and April) and non-breeding season. Habitat codes: AGR – agriculture, DDF – dry dipterocarp forest, DEF – dry evergreen forest, FOR – forest fragments outside of core SERS area, OTHS – other trace habitat types within core SERS area, PLTS – plantation forest within buffer SERS area, PLT – plantations outside of buffer SERS area, SCR – scrub, SET – settlement, WAT – waterbody.

Supplementary table S3. A selection of previously undertaken snake home range studies that illustrates the large size of king cobra ranges.

Family	Genus	Species	Sex	# Tracking Days	SVL (mm)	Mass (g)	MCP 100% (ha)	MCP 95% (ha)	Study
Boidae	*Eunectes*	*beniensis*	F	**140**	**1533**	**3000**	/	**39.4**(wet season)	la Quintana *et al*., 2017
Boidae	*Eunectes*	*beniensis*	M	**140**	**1428**	**3000**	/	**6.7**(wet season)	la Quintana *et al*., 2017
Colubridae	*Drymarchon*	*couperi*	M	**89 - 711**	**1580**	**2200**	**140** - 1528		Hyslop *et al.,* 2014
Colubridae	*Drymarchon*	*couperi*	F	**89 - 711**	**1380**	**1500**	**33** - 354		Hyslop *et al.,* 2014
Colubridae	*Heterodon*	*platirhinos*	M	**401**	**484**	/	**2.8**	/	Buchanan *et al*., 2017
Colubridae	*Heterodon*	*platirhinos*	F	**552**	**685**	/	**209.3**	/	Buchanan *et al*., 2017
Colubridae	*Elaphe*	*obsoleta*	M	**236**	**1209**(mean)	/	**13.4**	/	Mullin *et al*., 2000
Colubridae	*Elaphe*	*obsoleta*	M	**236**	**1209**(mean)	/	**0.4**	/	Mullin et al., 2000
Colubridae	*Lampropeltis*	*getula*	M	**137**	**1010**	**398**	**30.3**	/	Plummer, 2010
Colubridae	*Lampropeltis*	*getula*	M	**110**	**820**	**204**	**1.9**	/	Plummer, 2010
Colubridae	*Coluber*	*flagellum*	F	**291 - 325**	**1347 - 1604**	/	**65.2**(mean)	**51.7**(mean)	Howze and Smith, 2015
Colubridae	*Coluber*	*flagellum*	M	**291 - 325**	**1347 - 1604**	/	**117.9**(mean)	**98.2**(mean)	Howze and Smith, 2015
Colubridae	*Coluber*	*constrictor*	M	**93**	**650**	**105**	**33.5**	/	Klug *et al*., 2011
Colubridae	*Coluber*	*constrictor*	M	**57**	**670**	**154**	**1.2**	/	Klug *et al*., 2011
Colubridae	*Pantherophis*	*emoryi*	M	**92**	**990**	**320**	**29.9**	/	Klug *et al*., 2011
Colubridae	*Pantherophis*	*emoryi*	M	**93**	**990**	**326**	**1.7**	/	Klug *et al*., 2011
Elapidae	*Hoplocephalus*	*bungaroides*	F	**111**	**565**	**51.5**	**9.89**	/	Croak *et al*., 2013
Elapidae	*Hoplocephalus*	*bungaroides*	F	**62**	**554**	**50**	**0.01**	/	Croak et al., 2013
Elapidae	*Hoplocephalus*	*stephensii*	M	**395**(mean)	/	/	**20.19**	**18.46**	Fitzgerald *et al*., 2002
Elapidae	*Hoplocephalus*	*stephensii*	F	**290**(mean)	/	/	**5.44**	**4.63**	Fitzgerald *et al*., 2002
Elapidae	*Pseudonaja*	*textilis*	M	**365**	**1250**(mean)	**692**(mean)	**43.8**	/	Whitaker and Shine, 2003
Elapidae	*Pseudonaja*	*textilis*	F	**365**	**1170**(mean)	**512**(mean)	**0.142**	/	Whitaker and Shine, 2003
Pythonidae	*Python*	*molorus*	F	**548**	**3660**(Total Length)	/	**8740**	/	Hart *et al*., 2015
Pythonidae	*Python*	*molorus*	F	**245**	**2810**(Total Length)	/	**170**	/	Hart *et al*., 2015
Pythonidae	*Morelia*	*spilota*	M	**352**(mean)	**173.4**(mean)	**2100**(mean)	**9.6**	/	Corey and Doody, 2010
Pythonidae	*Morelia*	*spilota*	F	**278**(mean)	**166.9**(mean)	**1500**(mean)	**1**	/	Corey and Doody, 2010
Viperidae	*Gloydius*	*shedaoensis*	F	**410**	**582**	**123**	**0.7797**	/	Shine *et al*., 2003
Viperidae	*Gloydius*	*shedaoensis*	F	**410**	**631**	**235**	**0.0741**	/	Shine *et al*., 2003
Viperidae	*Bothrops*	*asper*	F	**590**	**1393**	/	**13.81**	/	Wasko and Sasa, 2009
Viperidae	*Bothrops*	*asper*	F	**448**	**1132**	/	**2.72**	/	Wasko and Sasa, 2009
Viperidae	*Sistrurus*	*catenatus*	F	**71**	**600**	/	**4.52**	/	Moore and Gillingham, 2006
Viperidae	*Sistrurus*	*catenatus*	F	**105**	**610**	/	**0.25**	/	Moore and Gillingham, 2006
Viperidae	*Agkistrodon*	*piscivorus*	M	**81**	**530**	/	/	**2.034**	Roth, 2005
Viperidae	*Agkistrodon*	*piscivorus*	F	**72**	**580**	/	/	**0.033**	Roth, 2005

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